2013/2014

Turning, drilling, threading, milling, adaptors

_A COMPENDIUM OF EXPERTISE IN MACHINING

Supplementary Catalogue

Supplement to the General Catalogue 2012

Concentrated expertise for machining.

Walter Supplementary catalogue + Walter General catalogue = complete tool range

These two catalogues contain the complete tool range of our three competence brands **Walter, Walter Titex** and **Walter Prototyp.** They contain all the precision tools you need in your production facilities for turning, boring, milling and threading.

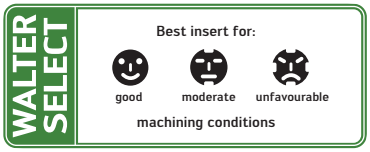
We will be pleased to send you the General catalogue on request. Visit www.walter-tools.com or speak to one of our Walter field service employees.

Find what you're looking for without having to search – The Walter General catalogue is clearly arranged, easily read and readily understood.

With our tried and tested "Walter Select" search system, you can easily and quickly find the right tool for turning, drilling, threading and milling:

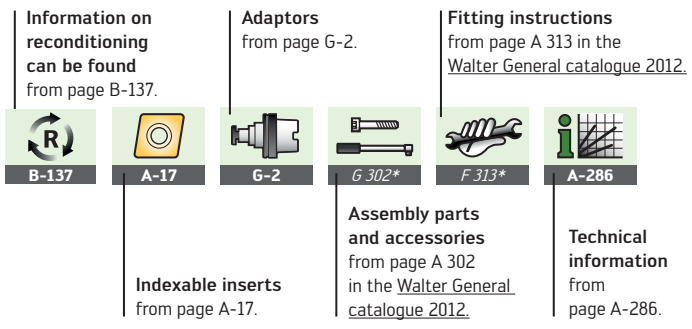
- → You first select the appropriate subject area in the **Table of contents** of a section.
- → You then find the appropriate tool in the **Programme overview** of a section.
- → The **Walter Select** selection aid leads to the right tool without fail.

... and if you already know what you need, you just look it up in the **alphanumeric search index**.



	P	M	K	N	S	H	O
uncoated	●●	●●	●●	●	●		
TiN	●●	●●	●●	●			

You will find additional information for tools arranged in bars with cross references, for instance:



* **Please note:**
the cross references in italics and with asterisks refer only to the Walter General catalogue 2012 – not to the Supplementary catalogue 2013 presented here.

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Turning


WALTER
WALTER
WALTER

Product range overview of indexable inserts for turning, grooving and threading

ISO turning – Carbide

Insert shape		Description	Page
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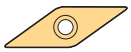
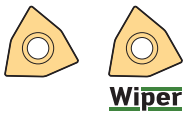
	D	Negative basic shape Positive basic shape	A-21 A-45
	R	Positive basic shape	A-47
	S	Negative basic shape Positive basic shape	A-26 A-49
	T	Negative basic shape Positive basic shape	A-32 A-50
	V	Negative basic shape Positive basic shape	A-36 A-52
	W	Negative basic shape Positive basic shape	A-37 A-54

ISO turning – CBN and ceramic

Insert shape		Description	Page
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	D	Negative basic shape Positive basic shape	A-57 A-59
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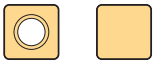
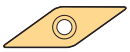
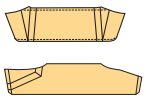
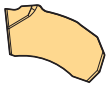
	S	Negative basic shape	A-58
	T	Negative basic shape Positive basic shape	A-58 A-60
	V	Positive basic shape	A-61

Grooving

Insert shape		Description	Page
	GX	Walter Cut GX grooving inserts	A-69
	SX	Walter Cut SX grooving inserts	A-80
	LX	Walter Cut LX grooving inserts	A-79
	FX	Walter Cut FX grooving inserts	A-81

Threading

Insert shape		Description	Page
	NTS	Walter NTS thread cutting inserts, full profile Walter NTS thread cutting inserts, partial profile	*A 67** *A 75**

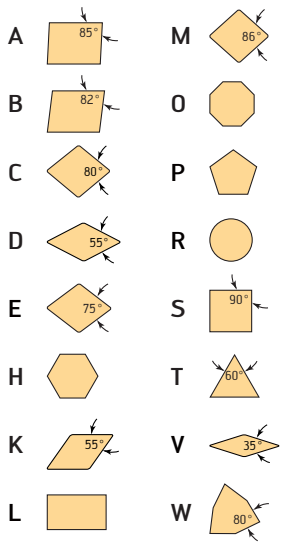
** The pages indicated in italics refer to the Walter General catalogue 2012.*

ISO 1832 designation key for indexable inserts for turning

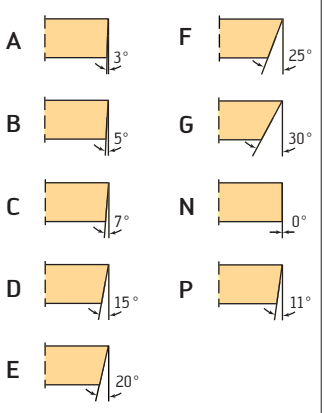
Example 1

C	N	M	G	12	04	08	–	M	K	5
1	2	3	4	5	6	7		12	13	14

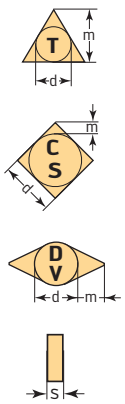
1 Insert shape



2 Clearance angle



3 Tolerances



Permissible deviation in mm for

	d	m	s
A	± 0,025	± 0,005	± 0,025
C	± 0,025	± 0,013	± 0,025
E	± 0,025	± 0,025	± 0,025
F	± 0,013	± 0,005	± 0,025
G	± 0,025	± 0,025	± 0,130
H	± 0,013	± 0,013	± 0,025
J[1]	± 0,05–0,15[2]	± 0,005	± 0,025
K[1]	± 0,05–0,15[2]	± 0,013	± 0,025
L[1]	± 0,05–0,15[2]	± 0,025	± 0,025
M	± 0,05–0,15[2]	± 0,08–0,20[2]	± 0,130
N	± 0,05–0,15[2]	± 0,08–0,20[2]	± 0,025
U	± 0,08–0,25[2]	± 0,13–0,38[2]	± 0,130

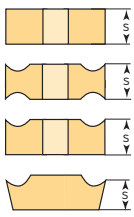
[1] Inserts with ground secondary cutting edges
[2] depending on insert size (see ISO standard 1832)

5 Cutting edge length l [mm]

Inner circle diameter d		C		D		R	S		T		V		W	
mm	inches	Size	l	Size	l	Size	Size	l	Size	l	Size	l	Size	l
3,97	5/32								**06**	6,9				
5	0,197					**05**							**03**	3,8
5,56	7/32								**09**	9				
6	0,236					**06**								
6,35	2/8	**06**	6,45	**07**	7,75	**06**[1]			**11**	11	**11**	11	**04**	4,3
8	0,315					**08**							**05**	5,29
9,525	3/8	**09**	9,67	**11**	11,63	**9**	**09**	9,525	**16**	16,5	**16**	16,5	**06**	6,5
10	0,394					**10**								
12	0,472					**12**								
12,7	4/8	**12**	12,9	**15**	15,5	**12**[1]	**12**	12,7	**22**	22			**08**	8,7
15,875	5/8	**16**	16,1				**15**	15,875	**27**	27			**10**	10,86
16	0,63					**16**								
17,46	11/16												**12**	11,64
19,05	6/8	**19**	19,3			**19**	**19**	19,05						
20	0,787					**20**								
25	0,984					**25**								
25,4	8/8	**25**	25,8			**25**[1]	**25**	25,4						
32	1,26					**32**								

[1] Version in inches

6 Insert thickness s [mm]



01	s = 1,59
T1	s = 1,98
02	s = 2,38
T2	s = 2,78
03	s = 3,18
T3	s = 3,97
04	s = 4,76
05	s = 5,56
06	s = 6,35
07	s = 7,94
09	s = 9,52

Example 2

T	N	M	A	16	04	08	T	020	20
1	2	3	4	5	6	7	8	10	11

4 – Machining and fastening features

A	H β = 70–90°	R	X Drawing or precise description of indexable insert required.
B β = 70–90°	J β = 70–90°	T β = 40–60°	
C β = 70–90°	M	U β = 40–60°	
F	N	W β = 40–60°	
G	Q β = 40–60°		

7 – Corner radius (r) [mm]

01	r = 0,1
02	r = 0,2
04	r = 0,4
08	r = 0,8
12	r = 1,2
16	r = 1,6
24	r = 2,4
R	

00 for diameters converted from imperial units to mm

M0 for diameters in metric units

8 – Edge formation

E

F

T

S

9 – Cutting direction

R

L

N

10 – Chamfer width

010 = 0,10 mm

020 = 0,20 mm

025 = 0,25 mm

070 = 0,70 mm

150 = 1,50 mm

200 = 2,00 mm

11 – Chamfer angle

15 = 15°

20 = 20°

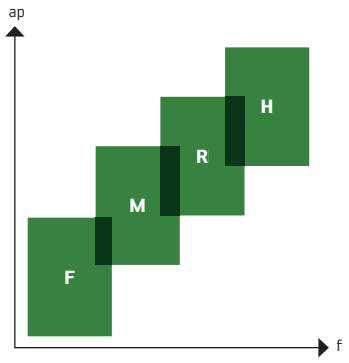
Geometry designation keys for indexable inserts for turning

Geometry index

C	N	M	G	12	04	08	–	M	K	5
1	2	3	4	5	6	7		12	13	14

New geometry index (valid from 09/2011)

12 – Chip breaking area

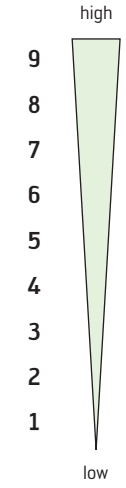


- F Finishing
- M Medium machining
- R Roughing
- H Heavy cutting

13 – Material

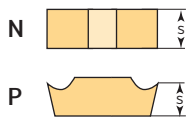
- P Steel
- M Stainless steel
- K Cast iron
- N NF metals
- S Difficult-to-cut materials
- H Hard materials
- U Universal
- W Wiper

14 – Feed/cut depth within chip-breaking area

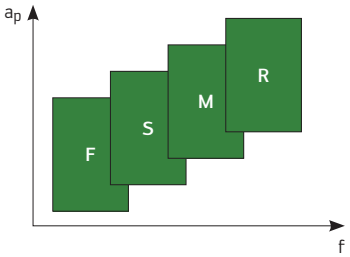


Old geometry index

12 – Basic shape



13 – Chip breaking area



- F Finishing
- S Semi-finishing
- M Medium machining
- R Roughing

14 – Cutting edge type

- 1 fine
- 4 medium
- 9 robust
- S ISO S materials high temperature alloys
- T ISO S titanium materials

Designation key for cutting tool materials made from carbide – Turning

Example

W	M	P	20	S
Walter	1	2	3	4

1

1. Primary application or coating type

P	Steel
M	Stainless steel
K	Cast iron
N	NF metals
S	Difficult-to-cut materials
H	Hard materials
A	CVD aluminium coating
X	PVD coating

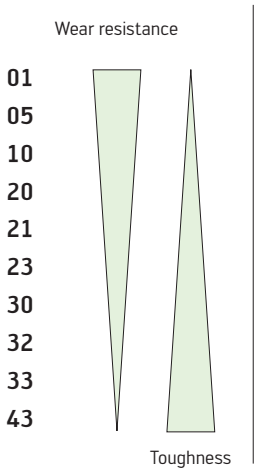
2

2. Primary application

P	Steel
M	Stainless steel
K	Cast iron
N	NF metals
S	Difficult-to-cut materials
H	Hard materials

3

ISO application range



Cutting tool materials for:

0	ISO turning
1	ISO turning
5	ISO turning
2	Threading
3	Grooving

4

Generation

S	**Tiger·tec® Silver**

Walter Select for turning inserts

Step by step to the right indexable insert

STEP 1

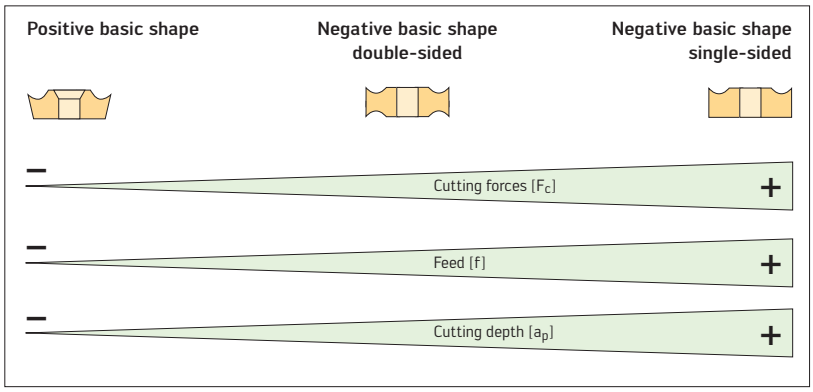
Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	**P1–P15**	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	**M1–M3**	**Stainless steel**	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	**K1–K7**	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	**N1–N10**	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	**S1–S10**	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	**H1–H4**	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	**O1–O6**	**Other**	Plastics, fibre glass and carbon fibre reinforced plastics, graphite

STEP 2

Determine the **basic shape** of the indexable insert:



STEP 3

Select the **machining conditions:**

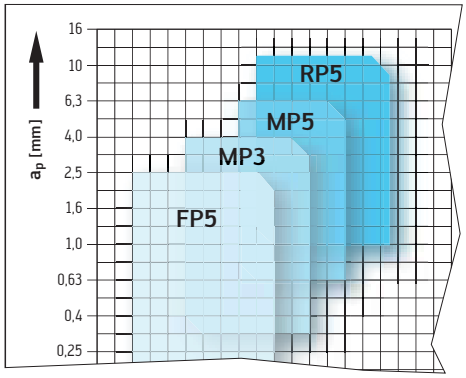
Type of workpiece	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut Premachined surface	☺	☺	😐
Casting or forged skin Variable cutting depths	☺	😐	☹
Interrupted cuts	😐	☹	☹

STEP 4

Determine the **insert geometry** via the cutting depth (a_p) and the feed (f).

Geometries for

P	Steel	see page A-10
M	Stainless steel	see page A-11
K	Cast iron	see page A-12
N	NF metals	see page A-14
S	High temperature alloys	see page A-13
H	Hard materials	see page A-14

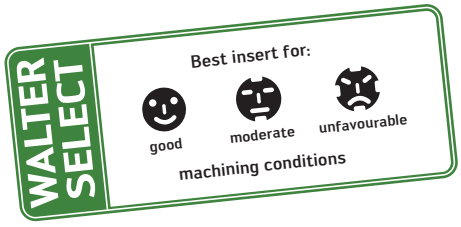


STEP 5

Overview of catalogue page on which you will find the selected **geometry** in the relevant **basic shape**.

Geometry		C Page	D Page	R Page	S Page	T Page	V Page	W Page
	NF*	A-15	A-21					A-37
	NF4	A-15	A-21			A-32		A-37
	FP5	A-15	A-21		A-26	A-32	A-36	A-37
	NM*	A-15	A-22					A-37
	MP3	A-16	A-22		A-26	A-32	A-36	A-38
	NM4	A-16	A-23		A-26	A-32	A-36	A-3
	MP5	A-16	A-23		A-26	A-32		A-3
	NM6	A-17			A-27	A-33		A-39
	NM9	A-17	A-24		A-28	A-34		A-40

On the specified catalogue page you will find the cutting tool material recommendation, the feed value (f) and the cutting depth (a_p).



Negative basic shape
CNGG/CNMG/CNMA/CNMM

Tiger·tec® Silver

Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P WPP01	P WPP05	P WPP10	P WPP20	P WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	S HW W510
Wiper	CNMG120404-NF	0,4	0,10 - 0,40	0,4 - 2,0					●		●●	●●				●●							●●			
Wiper	CNMG120408-NF	0,8	0,15 - 0,55	0,5 - 3,0					●		●●	●●				●●							●●			
	CNMG120404-NF	0,4	0,08 - 0,17	0,4 - 1,0												●●							●●			

STEP 6

Choose the **cutting data** for your selected indexable insert from the technical information, see page A-120 onwards .

Cutting data for turning inserts – Negative basic shape
Carbide grades

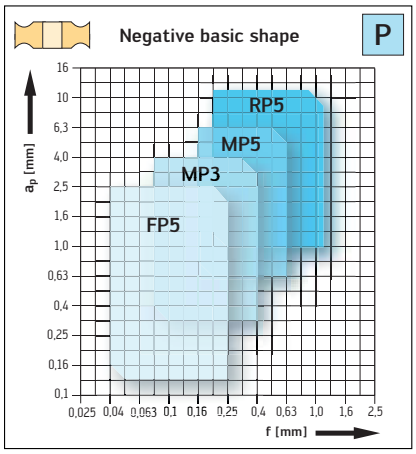
= Cutting data for wet machining
= Dry machining is possible

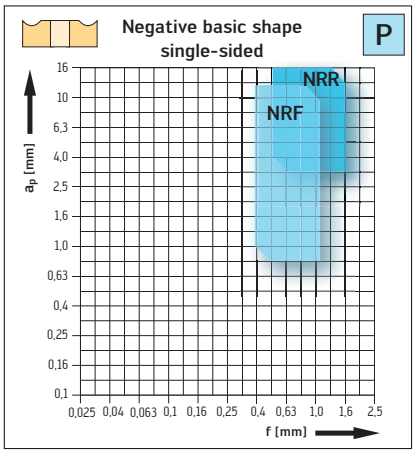
Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group ¹			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WPP10S f [mm/U] 0,10	0,40	0,60	HC WPP20S f [mm/U] 0,10	0,40	0,60
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●	●	620	470	360	520	380	310
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●●	●	530	380	300	440	310	240
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●●	●	400	320	260	330	260	210
		C > 0.55%	annealed	190	639	P4	●●	●	500	360	280	420	290	220
		C > 0.55%	tempered	300	1013	P5	●●	●	320	240	220	260	190	170
		Free cutting steel (short-chipping)	annealed	220	745	P6	●●	●	500	360	280	420	290	220
	Low-alloyed steel	annealed		175	591	P7	●●	●	460	340	290	380	280	230
		tempered		300	1013	P8	●●	●	290	230	200	240	170	15
		tempered		380	1282	P9	●●	●	250	180	140	210	150	1
		tempered		430	1477	P10	●●	●	60	50				
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●	●	480	340	220	400	280	
		hardened and tempered		300	1013	P12	●●	●	240	140	120	190	120	
		hardened and tempered		400	1361	P13	●●	●	70	60				
	Stainless steel													

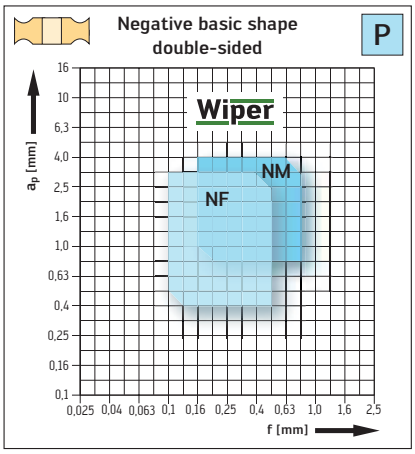
Walter Select – Steel machining ISO P

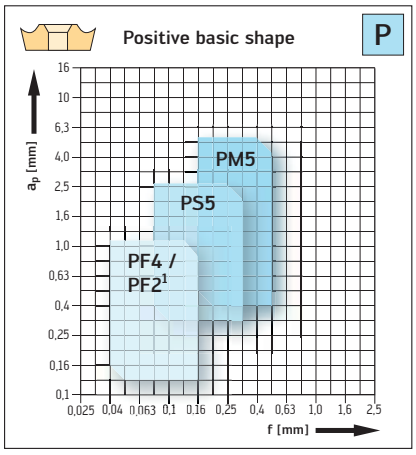
STEP 4

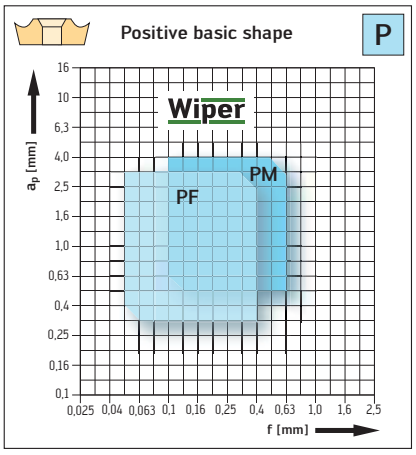
Determine the **indexable insert geometry** via the cutting depth (a_p) and the feed (f).











Wiper

You can find more technical information in the Walter General catalogue 2012 from page A 298 onwards.

You can find further fields of application for the geometries NM4, NM6, NM9 etc. in the Walter General catalogue from page A 17 onwards.

[1] Circumference fully ground

STEP 5

Overview of catalogue page on which you will find the selected **geometry** in the relevant **basic shape.**

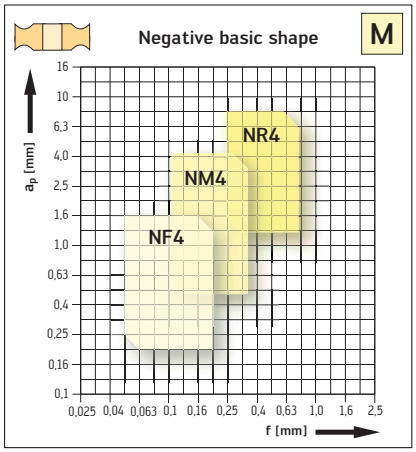
Geometry		Basic shape C Page	D Page	R Page	S Page	T Page	V Page	W Page
	NF*	A-15	A-21					A-37
	NF4	A-15	A-21			A-32		A-37
	FP5	A-15	A-21		A-26	A-32	A-36	A-37
	NM*	A-15	A-22					A-37
	MP3	A-16	A-22		A-26	A-32	A-36	A-38
	NM4	A-16	A-23		A-26	A-32	A-36	A-38
	MP5	A-16	A-23		A-26	A-32		A-38
	NM6	A-17			A-27	A-33		A-39
	NM9	A-17	A-24		A-28	A-34		A-40
	NR4	A-18			A-28	A-34		A-40
	RP5	A-18	A-25		A-29	A-34		A-40
	NRF	A-20	A-25		A-30	A-35		A-41
	NRR	A-20			A-31	A-35		
	PF*	A-42	A-45					A-54
	PF4	A-42	A-45	A-47	A-49	A-50	A-52	A-54
	PF5	A-42		A-47			A-52	
	PS5	A-43	A-45		A-49	A-50	A-52	A-54
	PM*	A-43	A-45					A-55
	MOT			A-47				
	PM5	A-43	A-46	A-48	A-49	A-51	A-53	A-55
	HU6			A-48				
	PR5			A-48				

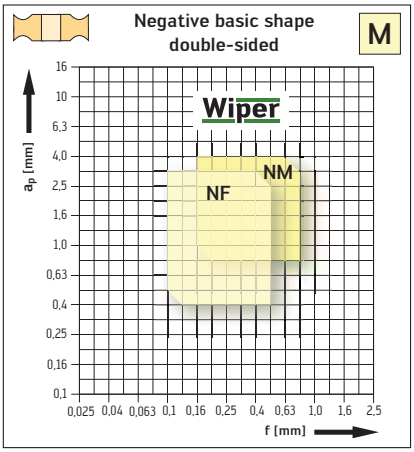
* Wiper

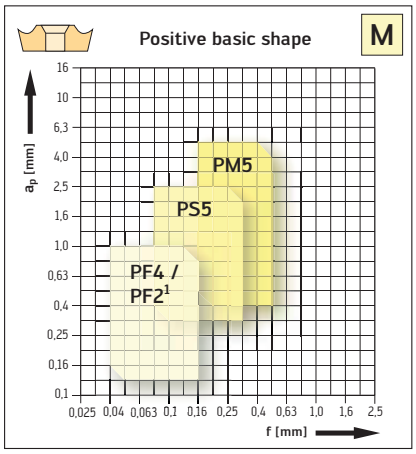
Walter Select – Stainless steel ISO M

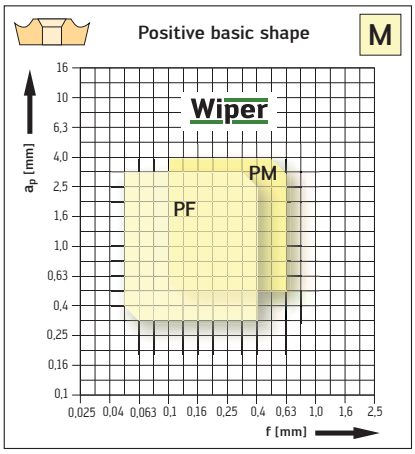
STEP 4

Determine the **indexable insert geometry** via the cutting depth (a_p) and the feed (f).









[1] circumference fully ground

Wiper

You can find more technical information in the Walter General catalogue 2012 from page A 298 onwards.

STEP 5

Overview of catalogue page on which you will find the selected **geometry** in the relevant **basic shape.**

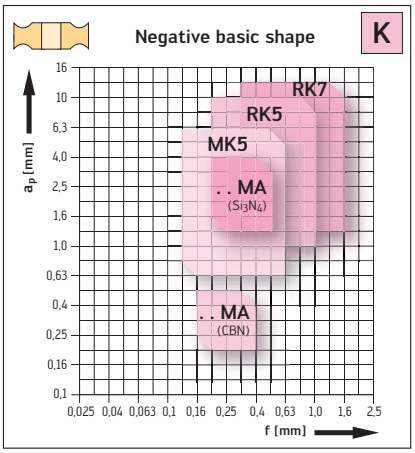
Geometry		Basic shape C Page	D Page	R Page	S Page	T Page	V Page	W Page
	NF*	A-15	A-21					A-37
	NF4	A-15	A-21		A-26	A-32		A-37
	NM*	A-15						A-37
	NM4	A-16	A-23		A-26	A-32	A-36	A-38
	NR4	A-18	A-24		A-28	A-34		A-40
	PF*	A-42	A-45					A-54
	PF2	A-42	A-45		A-49	A-50	A-52	A-54
	PF4	A-42	A-45	A-47	A-49	A-50	A-52	A-54
	PS5	A-43	A-45		A-49	A-50	A-52	
	PM*		A-45					
	PM5	A-43	A-46	A-48	A-49	A-51	A-53	A-55

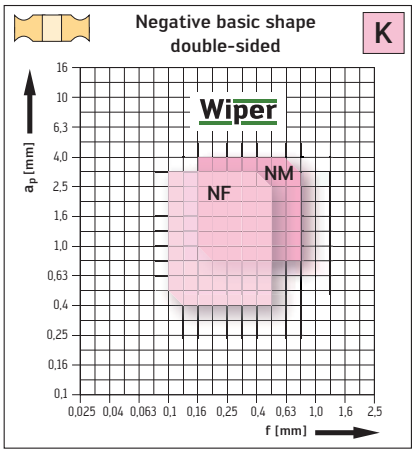
* **Wiper**

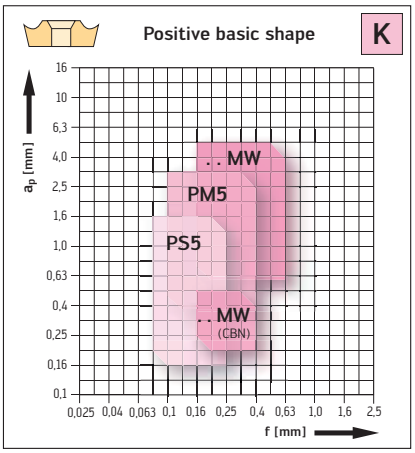
Walter Select – Cast iron machining ISO K

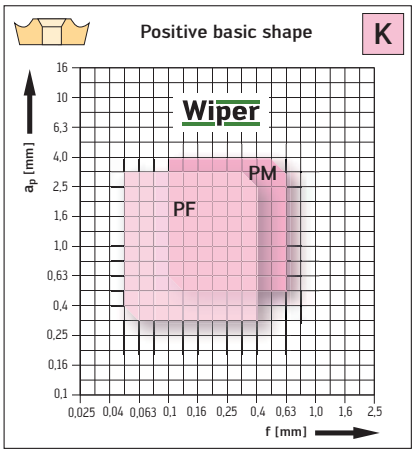
STEP 4

Determine the **indexable insert geometry** via the cutting depth (a_p) and the feed (f).









You can find further fields of application for the geometries NM5, NMA, T02020 etc. in the Walter General catalogue from page A 17 onwards.

Wiper

You can find more technical information in the Walter General catalogue 2012 from page A 298 onwards.

STEP 5

Overview of catalogue page on which you will find the selected **geometry** in the relevant **basic shape**.

Geometry		Basic shape C Page	D Page	R Page	S Page	T Page	V Page	W Page
	NF*	A-15	A-21					A-37
	NM*	A-15	A-22					A-37
	MK5	A-16	A-23			A-33	A-36	A-39
	NM5	A-17	A-24		A-27	A-33	A-36	A-39
	RK5	A-19	A-25		A-29	A-34	A-36	A-41
	RK7	A-19	A-25		A-29	A-34		A-41
	. . MA	A-19	A-25		A-30	A-35	A-36	A-41
	T02020	A-20			A-30	A-35		A-41
	. . MA (Si_3N_4 + CBN)	A-56	A-57		A-58			
	PF*	A-42	A-45					A-54
	PS5	A-43	A-45		A-49	A-50	A-52	A-54
	PM*	A-43	A-45					A-55
	PM5	A-43	A-46	A-48	A-49	A-51	A-53	A-55
	HU6			A-48				
	. . MW (CBN)	A-59	A-59			A-60	A-61	
	. . MW	A-44	A-46		A-49	A-51	A-53	

Use NF*/PF*WPP01 grades

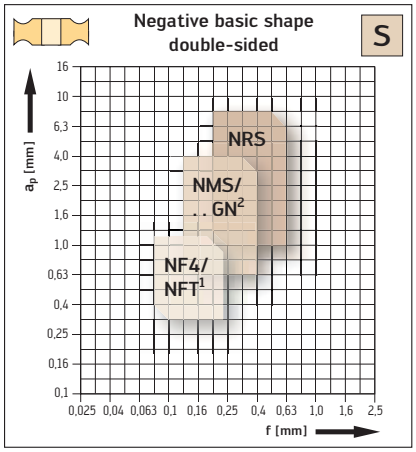
* **Wiper**

Walter Select – High-temperature and titanium alloys ISO S

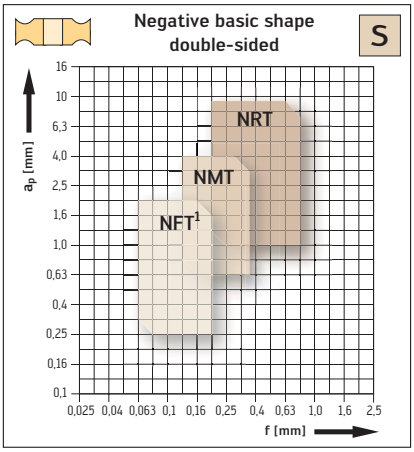
STEP 4

Determine the **indexable insert geometry** via the cutting depth (a_p) and the feed (f).

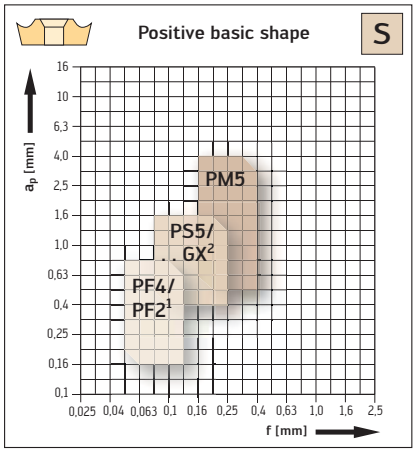
Ni, Co, Fe-based alloys



Titanium-based alloys



Ni, Co, Fe and titanium-based alloys



1 circumference fully ground
2 ceramic, WIS10/WWS20

STEP 5

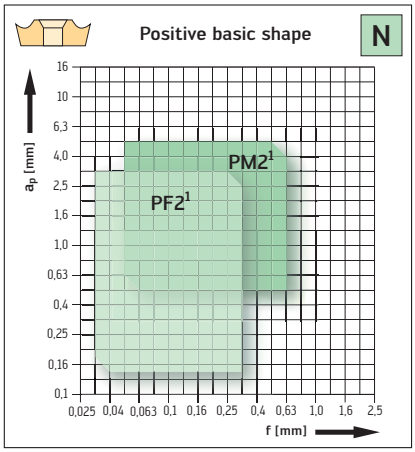
Overview of catalogue page on which you will find the selected **geometry** in the relevant **basic shape.**

Geometry		Basic shape						
		C	D	R	S	T	V	W
		Page	Page	Page	Page	Page	Page	Page
	NFT	A-15	A-21				A-36	
	NF4	A-15	A-21		A-26	A-32		A-37
	NMT	A-15	A-22			A-32		A-37
	NMS	A-17	A-22			A-32	A-36	A-37
	NRT	A-18			A-28			
	NRS	A-18	A-24		A-28			A-40
	. . GN2	A-56	A-57	A-57	A-58			
	PF2	A-42	A-45		A-49	A-50	A-52	
	PF4	A-42	A-45	A-47	A-49	A-50	A-52	A-54
	PS5	A-43	A-45		A-49	A-50	A-52	
	PM5	A-43	A-46	A-48	A-49	A-51	A-53	A-55
	. . GX2			A-60				

Walter Select – ISO N NF metals

STEP 4

Determine the **indexable insert geometry** via the cutting depth (a_p) and the feed (f).



[1] circumference fully ground

STEP 5

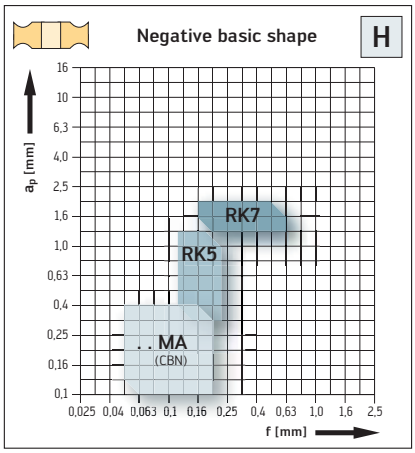
Overview of catalogue page on which you will find the selected **geometry** in the relevant **basic shape**.

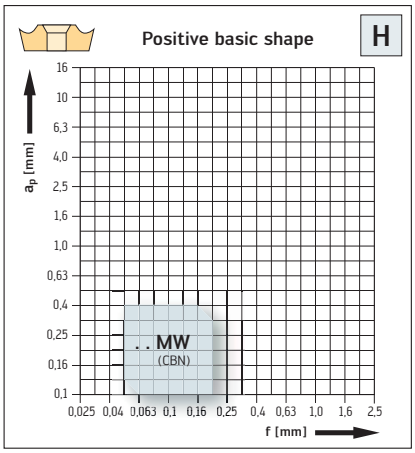
Geometry		Basic shape C Page	D Page	R Page	S Page	T Page	V Page	W Page
	PF2	A-42	A-45	A-47	A-49	A-50	A-52	A-54
	PM2	A-43	A-46	A-47	A-49	A-51	A-52	A-55

Walter Select – Hard machining ISO H

STEP 4

Determine the **indexable insert geometry** via the cutting depth (a_p) and the feed (f).





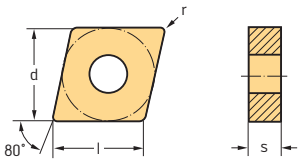
STEP 5

Overview of catalogue page on which you will find the selected **geometry** in the relevant **basic shape**.

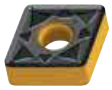
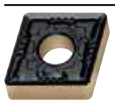
Geometry		Basic shape C Page	D Page	R Page	S Page	T Page	V Page	W Page
	RK5*	A-19	A-25		A-29	A-34	A-36	A-41
	RK7*	A-19	A-25		A-29	A-34		A-41
	. . MA*	A-19	A-25		A-30	A-35	A-36	A-41
	T02020*	A-20			A-30	A-35		A-41
	. . MA (CBN)	A-56	A-57		A-58	A-58		
	. . MW (CBN)	A-59	A-59			A-60	A-61	

* Use grade WKK10S / WAK10

Negative basic shape
CNGG/CNMG/CNMA/CNMM
Tiger·tec® Silver

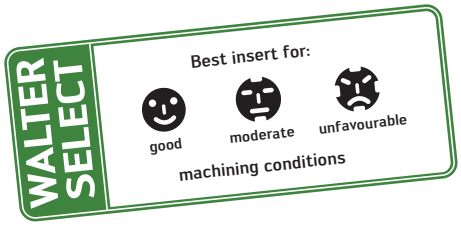


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
 Wiper	CNMG120404-NF	0,4	0,10 - 0,40	0,4 - 2,0					☺		☺	☺				☺							☺		
	CNMG120408-NF	0,8	0,15 - 0,55	0,5 - 3,0					☺		☺	☺				☺							☺		
	CNMG120404-NFT	0,4	0,08 - 0,17	0,4 - 1,0												☺							☹		☺
	CNMG120408-NFT	0,8	0,10 - 0,20	0,5 - 2,0												☺							☹		☺
	CNGG120404-NFT	0,4	0,06 - 0,15	0,3 - 1,5																					☺
	CNGG120408-NFT	0,8	0,08 - 0,18	0,4 - 2,0																					☺
	CNMG120404-NF4	0,4	0,05 - 0,12	0,2 - 1,0				☹						☹	☺	☺							☺	☺		
	CNMG120408-NF4	0,8	0,07 - 0,16	0,4 - 1,5				☹						☹	☺	☺							☺	☺		
	CNMG120412-NF4	1,2	0,10 - 0,20	0,5 - 1,6											☺	☺							☺	☺		
	CNMG090304-FP5	0,4	0,04 - 0,20	0,1 - 1,5	☺	☹																				
	CNMG090308-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☺	☹																				
	CNMG120404-FP5	0,4	0,04 - 0,20	0,1 - 1,5	☺	☹																				
	CNMG120408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☺	☹																				
	CNMG120412-FP5	1,2	0,10 - 0,25	0,5 - 2,5	☺	☹																				
 Wiper	CNMG120408-NM	0,8	0,20 - 0,55	0,8 - 3,0						☺	☺	☺				☺				☺	☹		☺			
	CNMG120412-NM	1,2	0,25 - 0,70	1,5 - 4,0						☺	☺	☺				☺				☺	☹		☺			
	CNMG120408-NMT	0,8	0,12 - 0,30	0,8 - 4,0												☺							☺		☺
	CNMG120412-NMT	1,2	0,15 - 0,32	1,0 - 4,0												☺							☺		☺
	CNMG120404-NMS	0,4	0,10 - 0,24	0,6 - 2,5											☺	☺	☹						☺	☺	☹	
	CNMG120408-NMS	0,8	0,13 - 0,32	0,8 - 3,5											☺	☺	☹						☺	☺	☹	
	CNMG120412-NMS	1,2	0,16 - 0,36	1,0 - 3,5											☺	☺	☹						☺	☺	☹	

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

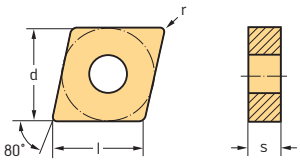


☺ ☹ ☹ New addition to range

A-120

Negative basic shape
CNGG/CNMG/CNMA/CNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	CNMG090304-MP3	0,4	0,06 - 0,20	0,3 - 2,2	●	●																				
	CNMG090308-MP3	0,8	0,10 - 0,28	0,6 - 3,0	●	●																				
	CNMG120404-MP3	0,4	0,08 - 0,22	0,3 - 2,5	●	●	●																			
	CNMG120408-MP3	0,8	0,12 - 0,32	0,6 - 3,2	●	●	●																			
	CNMG120412-MP3	1,2	0,16 - 0,40	0,8 - 3,5	●	●	●																			
	CNMG120404-NM4	0,4	0,10 - 0,18	0,5 - 2,0				●		●	●	●	●	●	●	●	●						●	●	●	
	CNMG120408-NM4	0,8	0,15 - 0,25	0,8 - 3,0				●		●	●	●	●	●	●	●	●						●	●	●	
	CNMG120412-NM4	1,2	0,18 - 0,30	0,8 - 3,5				●		●	●	●	●	●	●	●	●						●	●	●	
	CNMG120416-NM4	1,6	0,25 - 0,40	1,2 - 5,0							●	●	●			●	●							●	●	
	CNMG160608-NM4	0,8	0,25 - 0,50	0,8 - 7,0				●		●	●	●	●	●	●	●	●						●	●	●	
	CNMG160612-NM4	1,2	0,18 - 0,35	0,8 - 4,5				●		●	●	●	●	●	●	●	●						●	●	●	
	CNMG160616-NM4	1,6	0,35 - 0,55	1,2 - 7,0							●	●	●			●	●							●	●	
	CNMG120404-MP5	0,4	0,16 - 0,25	0,5 - 4,0	●	●	●																			
	CNMG120408-MP5	0,8	0,18 - 0,40	0,6 - 5,0	●	●	●																			
	CNMG120412-MP5	1,2	0,20 - 0,45	1,0 - 5,0	●	●	●																			
	CNMG120416-MP5	1,6	0,25 - 0,50	1,2 - 5,0	●	●	●																			
	CNMG160608-MP5	0,8	0,25 - 0,50	0,8 - 7,0	●	●	●																			
	CNMG160612-MP5	1,2	0,30 - 0,50	1,0 - 7,0	●	●	●																			
	CNMG090308-MK5	0,8	0,10 - 0,20	0,2 - 3,0														●	●							
	CNMG120404-MK5	0,4	0,16 - 0,25	0,6 - 5,0														●	●							
	CNMG120408-MK5	0,8	0,25 - 0,50	0,8 - 5,0														●	●							
	CNMG120412-MK5	1,2	0,30 - 0,50	1,2 - 5,0														●	●							
	CNMG120416-MK5	1,6	0,35 - 0,50	1,5 - 5,0														●	●							
	CNMG160608-MK5	0,8	0,25 - 0,50	0,8 - 7,0														●	●							
	CNMG160612-MK5	1,2	0,30 - 0,60	1,2 - 7,0														●	●							
	CNMG160616-MK5	1,6	0,35 - 0,60	1,5 - 7,0														●	●							
	CNMG190612-MK5	1,2	0,30 - 0,65	1,2 - 8,0														●	●							
	CNMG190616-MK5	1,6	0,35 - 0,80	1,5 - 8,0														●	●							

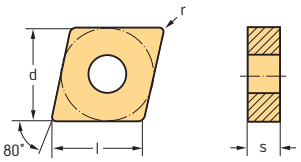
For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

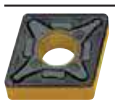
A-120

● ● ● New addition to range

Negative basic shape
CNGG/CNMG/CNMA/CNMM
Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	CNMG120404-NM5	0,4	0,16 - 0,25	0,6 - 5,0																☻	☻	☻				
	CNMG120408-NM5	0,8	0,25 - 0,50	0,8 - 5,0																☻	☻	☻				
	CNMG120412-NM5	1,2	0,30 - 0,50	1,2 - 5,0																☻	☻	☻				
	CNMG120416-NM5	1,6	0,35 - 0,50	1,5 - 5,0																☻	☻	☻				
	CNMG160608-NM5	0,8	0,25 - 0,50	0,8 - 7,0																☻	☻	☻				
	CNMG160612-NM5	1,2	0,30 - 0,60	1,2 - 7,0																☻	☻	☻				
	CNMG160616-NM5	1,6	0,35 - 0,60	1,5 - 7,0																☻	☻	☻				
	CNMG190612-NM5	1,2	0,30 - 0,65	1,2 - 8,0																☻	☻	☻				
	CNMG190616-NM5	1,6	0,35 - 0,80	1,5 - 8,0																☻	☻	☻				
	CNMG190624-NM5	2,4	0,40 - 0,90	2,5 - 8,0																☻	☻	☻				
	CNMG120408-NM6	0,8	0,25 - 0,50	0,8 - 5,0							☻	☻	☻									☻				
	CNMG120412-NM6	1,2	0,30 - 0,50	1,2 - 5,0							☻	☻	☻									☻				
	CNMG120416-NM6	1,6	0,35 - 0,50	1,5 - 5,0							☻	☻	☻									☻				
	CNMG160608-NM6	0,8	0,30 - 0,50	0,8 - 6,0							☻	☻	☻													
	CNMG160612-NM6	1,2	0,35 - 0,60	1,2 - 6,0							☻	☻	☻									☻				
	CNMG160616-NM6	1,6	0,40 - 0,60	1,5 - 6,0							☻	☻	☻									☻				
	CNMG190612-NM6	1,2	0,35 - 0,60	1,2 - 7,0							☻	☻	☻									☻				
	CNMG190616-NM6	1,6	0,40 - 0,60	1,5 - 7,0							☻	☻	☻									☻				
	CNMG190624-NM6	2,4	0,40 - 0,60	2,5 - 7,0								☻	☻													
	CNMG250924-NM6	2,4	0,45 - 1,00	3,0 - 9,0								☻										☻				
	CNMG120408-NM9	0,8	0,20 - 0,40	1,0 - 6,0						☻	☻	☻	☻													
	CNMG120412-NM9	1,2	0,25 - 0,55	1,0 - 6,0						☻	☻	☻	☻													
	CNMG120416-NM9	1,6	0,35 - 0,65	1,0 - 6,0						☻	☻	☻	☻													
	CNMG160608-NM9	0,8	0,20 - 0,45	2,0 - 8,0							☻	☻	☻													
	CNMG160612-NM9	1,2	0,25 - 0,60	2,0 - 8,0						☻	☻	☻	☻													
	CNMG160616-NM9	1,6	0,35 - 0,70	2,0 - 8,0						☻	☻	☻	☻													
	CNMG190608-NM9	0,8	0,20 - 0,50	2,0 - 10,0							☻	☻	☻													
	CNMG190612-NM9	1,2	0,30 - 0,65	2,0 - 10,0						☻	☻	☻	☻													
	CNMG190616-NM9	1,6	0,35 - 0,80	2,0 - 10,0						☻	☻	☻	☻													

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

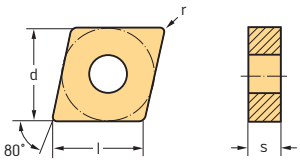
HC = Coated carbide
HW = Uncoated carbide

A-120

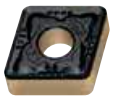
☻☻☻ New addition to range

Negative basic shape
CNGG/CNMG/CNMA/CNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	CNMG120408-NRT	0,8	0,18 - 0,35	1,0 - 6,0												●							●		●
	CNMG120412-NRT	1,2	0,20 - 0,40	1,2 - 6,0												●							●		●
	CNMG160612-NRT	1,2	0,28 - 0,55	1,5 - 7,5												●							●		●
	CNMG190616-NRT	1,6	0,35 - 0,70	2,0 - 9,0												●							●		●
	CNMG120408-NRS	0,8	0,16 - 0,35	1,0 - 4,0											●	●						●	●		
	CNMG120412-NRS	1,2	0,18 - 0,40	1,2 - 4,0											●	●						●	●		
	CNMG160612-NRS	1,2	0,21 - 0,45	1,2 - 6,5											●	●						●	●		
	CNMG160616-NRS	1,6	0,23 - 0,50	1,5 - 6,5											●	●						●	●		
	CNMG190608-NRS	0,8	0,20 - 0,45	1,0 - 8,0											●	●						●	●		
	CNMG190612-NRS	1,2	0,23 - 0,50	1,2 - 8,5											●	●						●	●		
	CNMG120408-NR4	0,8	0,22 - 0,40	1,2 - 5,0				●						●	●	●	✕					●	●	✕	
	CNMG120412-NR4	1,2	0,25 - 0,50	1,5 - 5,0				●						●	●	●	✕					●	●	✕	
	CNMG120416-NR4	1,6	0,30 - 0,55	2,0 - 5,0												●	✕						●	✕	
	CNMG160608-NR4	0,8	0,22 - 0,45	1,2 - 7,0											●	●	✕					●	●	✕	
	CNMG160612-NR4	1,2	0,25 - 0,60	1,5 - 7,0				●						●	●	●	✕					●	●	✕	
	CNMG160616-NR4	1,6	0,30 - 0,65	2,0 - 7,0												●	✕						●	✕	
	CNMG190612-NR4	1,2	0,25 - 0,60	1,5 - 8,0				●						●	●	●	✕					●	●	✕	
	CNMG190616-NR4	1,6	0,30 - 0,80	2,0 - 8,0											●	●	✕					●	●	✕	
	CNMG120408-RP5	0,8	0,20 - 0,40	0,8 - 6,0	●	●	✕												●						
	CNMG120412-RP5	1,2	0,06 - 0,25	1,0 - 6,0	●	●	✕												●						
	CNMG120416-RP5	1,6	0,07 - 0,35	1,6 - 6,0	●	●	✕																		
	CNMG160608-RP5	0,8	0,20 - 0,45	1,0 - 8,0	●	●	✕																		
	CNMG160612-RP5	1,2	0,25 - 0,60	1,2 - 8,0	●	●	✕												●						
	CNMG160616-RP5	1,6	0,35 - 0,70	1,6 - 8,0	●	●	✕												●						
	CNMG160624-RP5	2,4	0,40 - 0,90	2,0 - 8,0	●	●																			
	CNMG190608-RP5	0,8	0,20 - 0,50	1,0 - 10,0	●	●	✕																		
	CNMG190612-RP5	1,2	0,25 - 0,65	1,2 - 10,0	●	●	✕																		
	CNMG190616-RP5	1,6	0,35 - 0,80	1,6 - 10,0	●	●	✕																		
	CNMG190624-RP5	2,4	0,45 - 1,00	2,0 - 10,0	●	●	✕																		

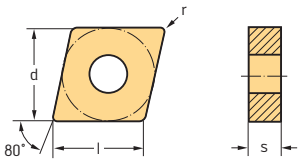
For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

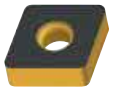
A-120

● ● ✕ New addition to range

Negative basic shape
CNGG/CNMG/CNMA/CNMM
Tiger·tec® Silver

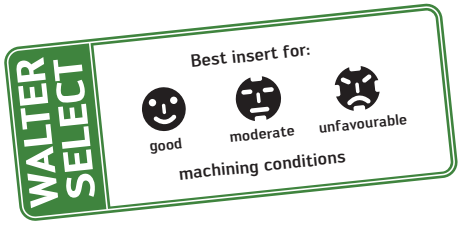


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	CNMA120404-RK5	0,4	0,16 - 0,25	0,6 - 5,0														☺	😐							
	CNMA120408-RK5	0,8	0,25 - 0,50	0,8 - 5,0														☺	😐							
	CNMA120412-RK5	1,2	0,30 - 0,50	1,2 - 5,0														☺	😐							
	CNMA120416-RK5	1,6	0,35 - 0,70	1,5 - 5,0														☺	😐							
	CNMA160612-RK5	1,2	0,35 - 0,70	1,2 - 7,0														☺	😐							
	CNMA160616-RK5	1,6	0,35 - 0,80	1,5 - 7,0														☺	😐							
	CNMA190612-RK5	1,2	0,30 - 0,65	1,2 - 8,0														☺	😐							
	CNMA190616-RK5	1,6	0,35 - 0,80	1,5 - 8,0														☺	😐							
	CNMA190624-RK5	2,4	0,40 - 0,90	2,5 - 8,0															😐							
	CNMA120408-RK7	0,8	0,25 - 0,50	0,8 - 5,0														☺	😐							
	CNMA120412-RK7	1,2	0,30 - 0,50	1,2 - 5,0														☺	😐							
	CNMA120416-RK7	1,6	0,35 - 0,70	1,5 - 5,0														☺	😐							
	CNMA160612-RK7	1,2	0,35 - 0,70	1,2 - 7,0														☺	😐							
	CNMA160616-RK7	1,6	0,35 - 0,80	1,5 - 7,0														☺	😐							
	CNMA190612-RK7	1,2	0,30 - 0,65	1,2 - 8,0														☺	😐							
	CNMA190616-RK7	1,6	0,35 - 0,80	1,5 - 8,0														☺	😐							
	CNMA120404	0,4	0,16 - 0,25	0,6 - 5,0																☺	😐					
	CNMA120408	0,8	0,25 - 0,50	0,8 - 5,0																☺	😐					
	CNMA120412	1,2	0,30 - 0,60	1,2 - 5,0																☺	😐					
	CNMA120416	1,6	0,35 - 0,70	1,5 - 5,0																☺	😐					
	CNMA160612	1,2	0,30 - 0,65	1,2 - 7,0																☺	😐					
	CNMA160616	1,6	0,35 - 0,80	1,5 - 7,0																☺	😐					
	CNMA190612	1,2	0,30 - 0,65	1,2 - 8,0																☺	😐					
	CNMA190616	1,6	0,35 - 0,80	1,5 - 8,0																☺	😐					
	CNMA190624	2,4	0,40 - 0,90	2,5 - 8,0																☺	😐					

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

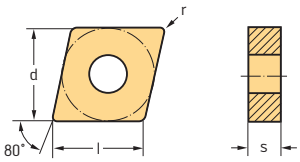


☺ 😐 ☹ New addition to range

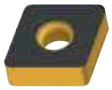
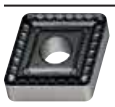
A-120

Negative basic shape
CNGG/CNMG/CNMA/CNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	CNMA120408T02020	0,8	0,25 - 0,50	0,8 - 5,0															●	●						
	CNMA120412T02020	1,2	0,30 - 0,60	1,2 - 5,0															●	●						
	CNMA120416T02020	1,6	0,35 - 0,70	1,5 - 5,0															●	●						
	CNMA160612T02020	1,2	0,30 - 0,65	1,2 - 7,0															●	●						
	CNMA160616T02020	1,6	0,35 - 0,80	1,5 - 7,0															●	●						
	CNMA190612T02020	1,2	0,30 - 0,65	1,2 - 8,0															●	●						
	CNMA190616T02020	1,6	0,35 - 0,80	1,5 - 8,0															●	●						
	CNMM120408-NRF	0,8	0,30 - 0,50	0,8 - 7,0	●	●	●			●																
	CNMM120412-NRF	1,2	0,35 - 0,70	1,2 - 7,0	●	●	●			●																
	CNMM120416-NRF	1,6	0,40 - 0,80	1,6 - 7,0	●	●	●			●																
	CNMM160612-NRF	1,2	0,35 - 0,70	1,2 - 9,0	●	●	●			●																
	CNMM160616-NRF	1,6	0,40 - 0,90	1,6 - 9,0	●	●	●			●																
	CNMM160624-NRF	2,4	0,45 - 1,00	2,4 - 9,0	●	●	●			●																
	CNMM190612-NRF	1,2	0,35 - 0,70	1,2 - 10,0	●	●	●			●																
	CNMM190616-NRF	1,6	0,40 - 0,90	1,6 - 10,0	●	●	●			●																
	CNMM190624-NRF	2,4	0,45 - 1,10	2,4 - 10,0	●	●	●			●																
	CNMM250924-NRF	2,4	0,45 - 1,20	2,4 - 12,0		●	●																			
	CNMM190612-NR6	1,2	0,40 - 0,70	2,0 - 10,0								●														
	CNMM190616-NR6	1,6	0,45 - 0,90	2,0 - 10,0							●	●	●													
	CNMM190624-NR6	2,4	0,55 - 1,20	2,5 - 10,0								●														
	CNMM120412-NRR	1,2	0,40 - 0,80	1,5 - 8,0	●	●	●																			
	CNMM160612-NRR	1,2	0,50 - 0,90	2,0 - 10,0	●	●	●															●				
	CNMM160616-NRR	1,6	0,50 - 1,10	2,0 - 10,0	●	●	●															●				
	CNMM160624-NRR	2,4	0,50 - 1,30	2,0 - 10,0	●	●	●																			
	CNMM190612-NRR	1,2	0,50 - 0,90	2,0 - 13,0	●	●	●															●				
	CNMM190616-NRR	1,6	0,50 - 1,10	2,0 - 13,0	●	●	●															●				
	CNMM190624-NRR	2,4	0,60 - 1,60	3,0 - 13,0	●	●	●															●				
	CNMM250924-NRR	2,4	0,60 - 1,60	3,0 - 17,0	●	●	●															●				

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
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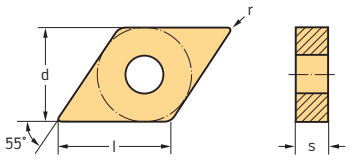
HC = Coated carbide
HW = Uncoated carbide

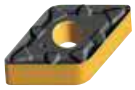
A-120

● ● ● New addition to range

Negative basic shape
DNGG/DNMG/DNMA/DNMM
Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
 Wiper	DNMG110408-NF	0,8	0,15 - 0,50	0,5 - 2,0					☺		☺	😐				😐						😐		
	DNMG150408-NF	0,8	0,15 - 0,50	0,5 - 3,0					☺		☺	😐				😐						😐		
	DNMG150608-NF	0,8	0,15 - 0,50	0,5 - 3,0					☺		☺	😐				😐						😐		
	DNMG150404-NFT	0,4	0,06 - 0,16	0,4 - 1,5												😐						😵		😐
	DNMG150408-NFT	0,8	0,08 - 0,19	0,5 - 2,0												😐						😵		😐
	DNMG150604-NFT	0,4	0,06 - 0,16	0,4 - 1,5												😐						😵		😐
	DNMG150608-NFT	0,8	0,08 - 0,19	0,5 - 2,0												😐						😵		😐
	DNGG150404-NFT	0,4	0,05 - 0,14	0,2 - 1,5																				😐
	DNGG150408-NFT	0,8	0,07 - 0,17	0,3 - 2,0																				😐
	DNGG150604-NFT	0,4	0,05 - 0,14	0,2 - 1,5																				😐
	DNGG150608-NFT	0,8	0,07 - 0,17	0,3 - 2,0																				😐
	DNMG110404-NF4	0,4	0,05 - 0,12	0,2 - 1,0				😐						😐	☺	😐						☺	😐		
	DNMG110408-NF4	0,8	0,07 - 0,16	0,4 - 1,5				😐						😐	☺	😐						☺	😐		
	DNMG150404-NF4	0,4	0,05 - 0,12	0,2 - 1,0				😐						😐	☺	😐						☺	😐		
	DNMG150408-NF4	0,8	0,07 - 0,16	0,4 - 1,5				😐						😐	☺	😐						☺	😐		
	DNMG150412-NF4	1,2	0,10 - 0,20	0,5 - 1,6											☺	😐						☺	😐		
	DNMG150604-NF4	0,4	0,05 - 0,12	0,2 - 1,0				😐						😐	☺	😐						☺	😐		
	DNMG150608-NF4	0,8	0,07 - 0,16	0,4 - 1,5				😐						😐	☺	😐						☺	😐		
	DNMG150612-NF4	1,2	0,10 - 0,20	0,5 - 1,6											☺	😐						☺	😐		
	DNMG110402-FP5	0,2	0,04 - 0,12	0,1 - 0,5	☺	😐																			
	DNMG110404-FP5	0,4	0,04 - 0,20	0,1 - 1,5	☺	😐																			
	DNMG110408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☺	😐																			
	DNMG110412-FP5	1,2	0,10 - 0,25	0,5 - 2,5	☺	😐																			
	DNMG150404-FP5	0,4	0,05 - 0,20	0,1 - 1,5	☺	😐																			
	DNMG150408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☺	😐																			
	DNMG150412-FP5	1,2	0,10 - 0,25	0,5 - 2,5	☺	😐																			
	DNMG150604-FP5	0,4	0,05 - 0,20	0,1 - 1,5	☺	😐																			
	DNMG150608-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☺	😐																			
	DNMG150612-FP5	1,2	0,10 - 0,25	0,5 - 2,5	☺	😐																			

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

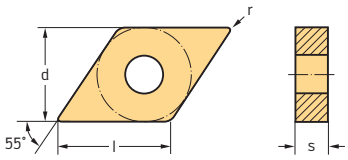
HC = Coated carbide
HW = Uncoated carbide

A-120

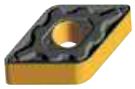
☺😐😵 New addition to range

Negative basic shape
DNGG/DNMG/DNMA/DNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
 Wiper	DNMG110408-NM	0,8	0,15 - 0,50	0,8 - 3,0						☺	☺	😐								☺	😐				
	DNMG110412-NM	1,2	0,20 - 0,60	1,5 - 4,0						☺	☺	😐								☺	😐				
	DNMG150408-NM	0,8	0,15 - 0,50	0,8 - 3,0						☺	☺	😐								☺	😐				
	DNMG150412-NM	1,2	0,20 - 0,60	1,5 - 4,0						☺	☺	😐								☺	😐				
	DNMG150608-NM	0,8	0,15 - 0,50	0,8 - 3,0						☺	☺	😐								☺	😐				
	DNMG150612-NM	1,2	0,20 - 0,60	1,5 - 4,0						☺	☺	😐								☺	😐				
	DNMG110404-NMT	0,4	0,08 - 0,22	0,4 - 2,5												😐						😐		😐
	DNMG110408-NMT	0,8	0,12 - 0,28	0,6 - 3,2											☺	😐					☺	😐		😐
	DNMG150408-NMT	0,8	0,12 - 0,28	0,6 - 4,0												😐						😐		😐
	DNMG150412-NMT	1,2	0,15 - 0,30	0,8 - 4,0												😐						😐		😐
	DNMG150608-NMT	0,8	0,12 - 0,28	0,6 - 4,0											☺	😐					☺	😐		😐
	DNMG150612-NMT	1,2	0,15 - 0,30	0,8 - 4,0												😐						😐		😐
	DNMG150404-NMS	0,4	0,09 - 0,22	0,6 - 2,5											☺	😐					☺	😐		
	DNMG150408-NMS	0,8	0,11 - 0,30	0,8 - 3,5											☺	😐	☹				☺	😐	☹	
	DNMG150604-NMS	0,4	0,09 - 0,22	0,6 - 2,5											☺	😐					☺	😐		
	DNMG150608-NMS	0,8	0,11 - 0,30	0,8 - 3,5											☺	😐	☹				☺	😐	☹	
	DNMG110404-MP3	0,4	0,08 - 0,22	0,3 - 2,2	☺	😐	☹																	
	DNMG110408-MP3	0,8	0,12 - 0,32	0,6 - 3,0	☺	😐	☹																	
	DNMG110412-MP3	1,2	0,16 - 0,40	0,8 - 3,2	☺	😐	☹																	
	DNMG150404-MP3	0,4	0,08 - 0,22	0,3 - 2,5	☺	😐	☹																	
	DNMG150408-MP3	0,8	0,12 - 0,32	0,6 - 3,2	☺	😐	☹																	
	DNMG150412-MP3	1,2	0,16 - 0,40	0,8 - 3,5	☺	😐	☹																	
	DNMG150604-MP3	0,4	0,08 - 0,22	0,3 - 2,5	☺	😐	☹																	
	DNMG150608-MP3	0,8	0,12 - 0,32	0,6 - 3,2	☺	😐	☹																	
	DNMG150612-MP3	1,2	0,16 - 0,40	0,8 - 3,5	☺	😐	☹																	

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

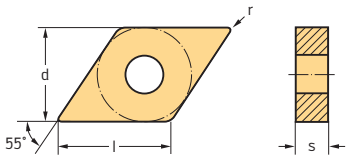
WALTER SELECT
Best insert for:
☺ good
😐 moderate
☹ unfavourable
machining conditions

☺ 😐 ☹ New addition to range

A-120

Negative basic shape
DNGG/DNMG/DNMA/DNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	DNMG110404-NM4	0,4	0,10 - 0,18	0,5 - 2,0				●		●	●	●	●	●	●	●	●					●	●	●	
	DNMG110408-NM4	0,8	0,15 - 0,25	0,8 - 3,0				●		●	●	●	●	●	●	●	●					●	●	●	
	DNMG110412-NM4	1,2	0,20 - 0,35	1,0 - 4,0							●	●	●			●	●						●	●	
	DNMG150404-NM4	0,4	0,10 - 0,18	0,5 - 2,5				●			●	●	●	●	●	●	●					●	●	●	
	DNMG150408-NM4	0,8	0,15 - 0,25	0,8 - 3,5				●		●	●	●	●	●	●	●	●					●	●	●	
	DNMG150412-NM4	1,2	0,20 - 0,40	1,0 - 5,0						●	●	●			●	●	●					●	●	●	
	DNMG150604-NM4	0,4	0,10 - 0,18	0,5 - 2,5				●			●	●	●	●	●	●	●					●	●	●	
	DNMG150608-NM4	0,8	0,15 - 0,25	0,8 - 3,5				●		●	●	●	●	●	●	●	●					●	●	●	
	DNMG150612-NM4	1,2	0,18 - 0,30	0,8 - 4,0				●		●	●	●	●	●	●	●	●					●	●	●	
	DNMG150616-NM4	1,6	0,25 - 0,40	1,2 - 5,0							●	●													
	DNMG110404-MP5	0,4	0,16 - 0,25	0,5 - 4,0	●	●	●																		
	DNMG110408-MP5	0,8	0,18 - 0,35	0,6 - 4,0	●	●	●																		
	DNMG110412-MP5	1,2	0,20 - 0,40	1,0 - 4,0	●	●	●																		
	DNMG150404-MP5	0,4	0,16 - 0,25	0,5 - 4,0	●	●	●																		
	DNMG150408-MP5	0,8	0,18 - 0,35	0,6 - 5,0	●	●	●																		
	DNMG150412-MP5	1,2	0,20 - 0,40	1,0 - 5,0	●	●	●																		
	DNMG150416-MP5	1,6	0,25 - 0,45	1,2 - 5,0	●	●	●																		
	DNMG150604-MP5	0,4	0,16 - 0,25	0,5 - 4,0	●	●	●																		
	DNMG150608-MP5	0,8	0,18 - 0,35	0,6 - 5,0	●	●	●																		
	DNMG150612-MP5	1,2	0,20 - 0,40	1,0 - 5,0	●	●	●																		
	DNMG150616-MP5	1,6	0,25 - 0,45	1,2 - 5,0	●	●	●																		
	DNMG110404-MK5	0,4	0,15 - 0,25	0,6 - 4,0														●	●						
	DNMG110408-MK5	0,8	0,15 - 0,40	0,6 - 4,0														●	●						
	DNMG110412-MK5	1,2	0,20 - 0,50	1,0 - 4,0														●	●						
	DNMG150408-MK5	0,8	0,20 - 0,45	0,8 - 5,0														●	●						
	DNMG150412-MK5	1,2	0,25 - 0,45	1,2 - 5,0														●	●						
	DNMG150608-MK5	0,8	0,25 - 0,45	0,8 - 5,0														●	●						
	DNMG150612-MK5	1,2	0,30 - 0,45	1,2 - 5,0														●	●						
	DNMG150616-MK5	1,6	0,35 - 0,45	1,6 - 5,0														●	●						

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

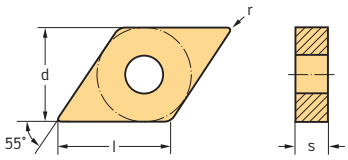
HC = Coated carbide
HW = Uncoated carbide

A-120

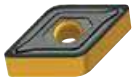
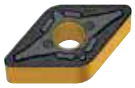
● ● ● New addition to range

Negative basic shape
DNGG/DNMG/DNMA/DNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	DNMG110404-NM5	0,4	0,15 - 0,25	0,6 - 4,0																☻	☻				
	DNMG110408-NM5	0,8	0,15 - 0,40	0,6 - 4,0																☻	☻				
	DNMG110412-NM5	1,2	0,20 - 0,50	1,0 - 4,0																☻	☻				
	DNMG150408-NM5	0,8	0,25 - 0,45	0,8 - 5,0																☻	☻				
	DNMG150412-NM5	1,2	0,30 - 0,45	1,2 - 5,0																☻	☻				
	DNMG150608-NM5	0,8	0,25 - 0,45	0,8 - 5,0																☻	☻				
	DNMG150612-NM5	1,2	0,30 - 0,45	1,2 - 5,0																☻	☻				
	DNMG150616-NM5	1,6	0,35 - 0,45	1,6 - 5,0																☻	☻				
	DNMG110408-NM9	0,8	0,15 - 0,35	1,0 - 4,0						☻	☻	☻	☹												
	DNMG110412-NM9	1,2	0,20 - 0,40	1,0 - 4,0						☻	☻	☻	☹												
	DNMG150408-NM9	0,8	0,15 - 0,35	1,0 - 5,0						☻	☻	☻	☹												
	DNMG150412-NM9	1,2	0,20 - 0,40	1,0 - 5,0						☻	☻	☻	☹												
	DNMG150608-NM9	0,8	0,15 - 0,35	1,0 - 5,0						☻	☻	☻													
	DNMG150612-NM9	1,2	0,20 - 0,40	1,0 - 5,0						☻	☻	☻	☹												
	DNMG150616-NM9	1,6	0,25 - 0,50	1,0 - 6,0						☻	☻	☻	☹												
	DNMG150408-NRS	0,8	0,13 - 0,32	1,0 - 4,0											☻	☻						☻	☻		
	DNMG150412-NRS	1,2	0,15 - 0,35	1,2 - 4,0											☻	☻						☻	☻		
	DNMG150608-NRS	0,8	0,13 - 0,32	1,0 - 4,0											☻	☻						☻	☻		
	DNMG150612-NRS	1,2	0,15 - 0,35	1,2 - 4,0											☻	☻						☻	☻		
	DNMG110408-NR4	0,8	0,22 - 0,40	1,2 - 3,0												☹	☹						☹	☹	
	DNMG110412-NR4	1,2	0,25 - 0,50	1,5 - 3,5												☹	☹						☹	☹	
	DNMG150408-NR4	0,8	0,22 - 0,40	1,2 - 4,0												☹	☹						☹	☹	
	DNMG150412-NR4	1,2	0,25 - 0,50	1,5 - 4,0												☹	☹						☹	☹	
	DNMG150608-NR4	0,8	0,22 - 0,40	1,2 - 4,0											☻	☹	☹					☻	☹	☹	
	DNMG150612-NR4	1,2	0,25 - 0,50	1,5 - 4,0											☻	☹	☹					☻	☹	☹	

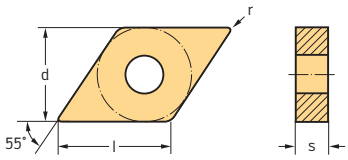
For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

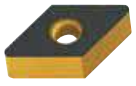
A-120

☻☹ New addition to range

Negative basic shape
DNGG/DNMG/DNMA/DNMM
Tiger·tec® Silver

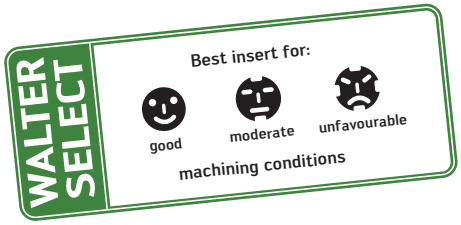


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	DNMG110408-RP5	0,8	0,18 - 0,35	0,8 - 4,0	☺	😐	☹																		
	DNMG110412-RP5	1,2	0,20 - 0,40	1,0 - 4,0	☺	😐	☹																		
	DNMG150408-RP5	0,8	0,15 - 0,35	0,8 - 5,0	☺	😐	☹																		
	DNMG150412-RP5	1,2	0,20 - 0,40	1,0 - 5,0	☺	😐	☹																		
	DNMG150416-RP5	1,6	0,25 - 0,50	1,6 - 6,0	☺	😐	☹																		
	DNMG150608-RP5	0,8	0,15 - 0,35	0,8 - 5,0	☺	😐	☹												😐						
	DNMG150612-RP5	1,2	0,20 - 0,55	1,0 - 6,0	☺	😐	☹												😐						
	DNMG150616-RP5	1,6	0,25 - 0,65	1,6 - 6,0	☺	😐	☹																		
	DNMA110404-RK5	0,4	0,16 - 0,25	0,6 - 4,0														☺	😐						
	DNMA110408-RK5	0,8	0,18 - 0,40	0,6 - 4,0														☺	😐						
	DNMA150408-RK5	0,8	0,15 - 0,50	0,8 - 3,0														☺	😐						
	DNMA150412-RK5	1,2	0,20 - 0,60	1,5 - 4,0														☺	😐						
	DNMA150608-RK5	0,8	0,20 - 0,45	0,8 - 5,0														☺	😐						
	DNMA150612-RK5	1,2	0,25 - 0,45	1,2 - 5,0														☺	😐						
	DNMA150608-RK7	0,8	0,20 - 0,45	0,8 - 5,0														☺	😐						
	DNMA150612-RK7	1,2	0,25 - 0,45	1,2 - 5,0														☺	😐						
	DNMA110404	0,4	0,16 - 0,25	0,6 - 4,0																☺	😐				
	DNMA110408	0,8	0,18 - 0,40	0,6 - 4,0																☺	😐				
	DNMA150408	0,8	0,20 - 0,45	0,8 - 5,0																☺	😐				
	DNMA150412	1,2	0,25 - 0,45	1,2 - 5,0																☺	😐				
	DNMA150608	0,8	0,20 - 0,45	0,8 - 5,0																☺	😐				
	DNMA150612	1,2	0,25 - 0,45	1,2 - 5,0																☺	😐				
	DNMM150608-NRF	0,8	0,25 - 0,45	0,8 - 5,0	☺	😐	☹																		
	DNMM150612-NRF	1,2	0,30 - 0,50	1,2 - 5,0	☺	😐	☹			☺															
	DNMM150616-NRF	1,6	0,35 - 0,60	1,6 - 5,0	☺	😐	☹			☺															

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

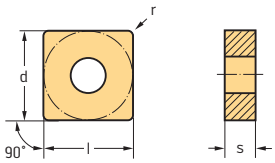


☺ 😐 ☹ New addition to range

A-120

Negative basic shape
SNMG/SNMA/SNMM

Tiger·tec® Silver

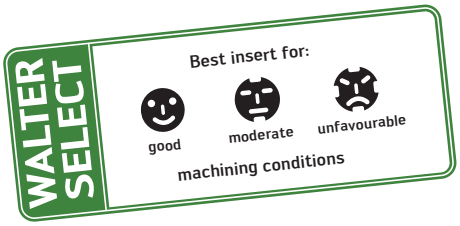


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	SNMG120404-NF4	0,4	0,05 - 0,12	0,2 - 1,0										☺	😐							☺	😐		
	SNMG120408-NF4	0,8	0,07 - 0,16	0,4 - 1,5										☺	😐							☺	😐		
	SNMG120412-NF4	1,2	0,10 - 0,20	0,5 - 1,6										☺	😐							☺	😐		
	SNMG090308-FP5	0,8	0,06 - 0,20	0,2 - 1,5	☺	😐																			
	SNMG120404-FP5	0,4	0,04 - 0,22	0,1 - 1,8	☺	😐																			
	SNMG120408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☺	😐																			
	SNMG120412-FP5	1,2	0,10 - 0,25	0,5 - 2,5	☺	😐																			
	SNMG090308-MP3	0,8	0,10 - 0,32	0,6 - 3,0	☺	😐																			
	SNMG120404-MP3	0,4	0,08 - 0,25	0,3 - 2,5	☺	😐																			
	SNMG120408-MP3	0,8	0,12 - 0,35	0,6 - 3,2	☺	😐	☹																		
	SNMG120412-MP3	1,2	0,16 - 0,40	0,8 - 3,5	☺	😐																			
	SNMG120404-NM4	0,4	0,10 - 0,18	0,5 - 2,0											😐	☹							😐	☹	
	SNMG120408-NM4	0,8	0,15 - 0,25	0,8 - 3,0				😐		☺	😐	☹	😐	☺	😐	☹						☺	😐	☹	
	SNMG120412-NM4	1,2	0,18 - 0,30	0,8 - 3,5				😐		☺	😐	☹	😐	☺	😐	☹						☺	😐	☹	
	SNMG120416-NM4	1,6	0,25 - 0,40	1,2 - 5,0						☺	😐	☹			😐	☹							😐	☹	
	SNMG150608-NM4	0,8	0,25 - 0,50	0,8 - 8,0						☺	😐	☹													
	SNMG150612-NM4	1,2	0,30 - 0,50	1,0 - 8,0						☺	😐	☹													
	SNMG150616-NM4	1,6	0,35 - 0,55	1,2 - 8,0						☺	😐	☹													
	SNMG120408-MP5	0,8	0,18 - 0,40	0,6 - 5,0	☺	😐	☹																		
	SNMG120412-MP5	1,2	0,20 - 0,45	1,0 - 5,0	☺	😐	☹																		
	SNMG120416-MP5	1,6	0,25 - 0,50	1,2 - 5,0	☺	😐	☹																		
	SNMG150608-MP5	0,8	0,25 - 0,50	0,8 - 8,0	☺	😐	☹																		
	SNMG150612-MP5	1,2	0,30 - 0,50	1,0 - 8,0	☺	😐	☹																		
	SNMG150616-MP5	1,6	0,35 - 0,55	1,2 - 8,0	☺	😐	☹																		

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

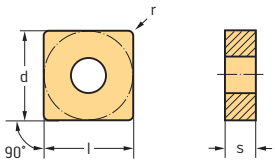


A-120

☺ 😐 ☹ New addition to range

Negative basic shape
SNMG/SNMA/SNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	SNMG090308-MK5	0,8	0,10 - 0,20	0,2 - 3,0													●	●							
	SNMG120408-MK5	0,8	0,25 - 0,50	0,8 - 5,0													●	●							
	SNMG120412-MK5	1,2	0,30 - 0,50	1,2 - 5,0													●	●							
	SNMG120416-MK5	1,6	0,35 - 0,50	1,5 - 5,0													●	●							
	SNMG150612-MK5	1,2	0,30 - 0,60	1,2 - 7,0													●	●							
	SNMG150616-MK5	1,6	0,35 - 0,60	1,5 - 7,0													●	●							
	SNMG190612-MK5	1,2	0,30 - 0,65	1,2 - 8,0													●	●							
	SNMG190616-MK5	1,6	0,35 - 0,80	1,5 - 8,0													●	●							
	SNMG120408-NM5	0,8	0,25 - 0,50	0,8 - 5,0															●	●	●				
	SNMG120412-NM5	1,2	0,30 - 0,60	1,2 - 5,0															●	●	●				
	SNMG120416-NM5	1,6	0,35 - 0,70	1,5 - 5,0															●	●	●				
	SNMG150608-NM5	0,8	0,25 - 0,50	0,8 - 7,0															●	●					
	SNMG150612-NM5	1,2	0,30 - 0,60	1,2 - 7,0															●	●	●				
	SNMG150616-NM5	1,6	0,35 - 0,70	1,5 - 7,0															●	●	●				
	SNMG190612-NM5	1,2	0,30 - 0,65	1,2 - 8,0															●	●	●				
	SNMG190616-NM5	1,6	0,35 - 0,80	1,5 - 8,0															●	●	●				
	SNMG190624-NM5	2,4	0,40 - 0,90	2,5 - 8,0															●	●	●				
	SNMG120408-NM6	0,8	0,25 - 0,50	0,8 - 5,0						●	●	●									●				
	SNMG120412-NM6	1,2	0,30 - 0,50	1,2 - 5,0						●	●	●									●				
	SNMG120416-NM6	1,6	0,35 - 0,50	1,5 - 5,0						●	●	●									●				
	SNMG150608-NM6	0,8	0,30 - 0,50	0,8 - 6,0						●	●	●													
	SNMG150612-NM6	1,2	0,35 - 0,60	1,2 - 6,0						●	●	●									●				
	SNMG150616-NM6	1,6	0,40 - 0,60	1,5 - 6,0						●	●	●									●				
	SNMG190612-NM6	1,2	0,35 - 0,60	1,2 - 7,0						●	●	●									●				
	SNMG190616-NM6	1,6	0,40 - 0,60	1,5 - 7,0						●	●	●									●				
	SNMG190624-NM6	2,4	0,40 - 0,60	2,5 - 7,0							●	●													
	SNMG250924-NM6	2,4	0,55 - 1,00	3,0 - 10,0							●										●				

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

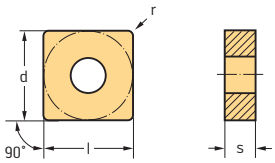
HC = Coated carbide
HW = Uncoated carbide

A-120

● ● ● New addition to range

Negative basic shape
SNMG/SNMA/SNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	SNMG120408-NM9	0,8	0,20 - 0,50	1,0 - 6,0						☻	☻	☻													
	SNMG120412-NM9	1,2	0,25 - 0,65	1,0 - 6,0					☻	☻	☻	☻													
	SNMG120416-NM9	1,6	0,35 - 0,75	1,0 - 6,0					☻	☻	☻	☻													
	SNMG150612-NM9	1,2	0,25 - 0,70	2,0 - 8,0						☻	☻	☻													
	SNMG150616-NM9	1,6	0,35 - 0,80	2,0 - 8,0					☻	☻	☻	☻													
	SNMG190612-NM9	1,2	0,30 - 0,75	2,0 - 10,0						☻	☻	☻													
	SNMG190616-NM9	1,6	0,35 - 0,90	2,0 - 10,0						☻	☻	☻													
	SNMG120412-NRT	1,2	0,25 - 0,50	0,8 - 6,0											☻								☻		☻
	SNMG150612-NRT	1,2	0,30 - 0,60	1,0 - 7,5											☻								☻		☻
	SNMG150616-NRT	1,6	0,35 - 0,70	1,2 - 7,5											☻								☻		☻
	SNMG190616-NRT	1,6	0,40 - 0,80	1,5 - 9,0											☻								☻		☻
	SNMG120408-NRS	0,8	0,20 - 0,40	0,8 - 5,0										☻	☻	☻						☻	☻	☻	
	SNMG120412-NRS	1,2	0,22 - 0,45	1,0 - 5,0										☻	☻	☻						☻	☻	☻	
	SNMG150616-NRS	1,6	0,24 - 0,55	1,2 - 7,0										☻	☻							☻	☻		
	SNMG190612-NRS	1,2	0,24 - 0,55	1,0 - 9,0										☻	☻							☻	☻		
	SNMG190616-NRS	1,6	0,27 - 0,60	1,2 - 9,0										☻	☻							☻	☻		
	SNMG120408-NR4	0,8	0,22 - 0,40	1,2 - 5,0				☻					☻		☻	☻							☻	☻	
	SNMG120412-NR4	1,2	0,25 - 0,50	1,5 - 5,0				☻					☻		☻	☻							☻	☻	
	SNMG120416-NR4	1,6	0,30 - 0,55	2,0 - 5,0											☻	☻							☻	☻	
	SNMG150608-NR4	0,8	0,22 - 0,45	1,2 - 7,0											☻	☻							☻	☻	
	SNMG150612-NR4	1,2	0,25 - 0,60	1,5 - 7,0											☻	☻							☻	☻	
	SNMG150616-NR4	1,6	0,30 - 0,65	2,0 - 7,0											☻	☻							☻	☻	
	SNMG190612-NR4	1,2	0,25 - 0,60	1,5 - 8,0											☻	☻							☻	☻	
	SNMG190616-NR4	1,6	0,30 - 0,80	2,0 - 8,0											☻	☻							☻	☻	

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

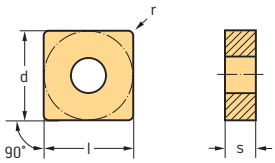
HC = Coated carbide
HW = Uncoated carbide

A-120

☻☻☻ New addition to range

Negative basic shape
SNMG/SNMA/SNMM

Tiger·tec® Silver

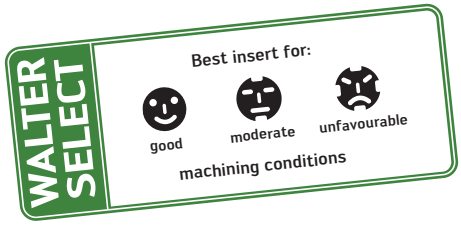


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	SNMG120408-RP5	0,8	0,20 - 0,50	0,8 - 6,0	☺	😐	☹																		
	SNMG120412-RP5	1,2	0,25 - 0,65	1,0 - 6,0	☺	😐	☹																		
	SNMG120416-RP5	1,6	0,35 - 0,75	1,6 - 6,0	☺	😐	☹																		
	SNMG150612-RP5	1,2	0,25 - 0,70	1,2 - 8,0	☺	😐	☹																		
	SNMG150616-RP5	1,6	0,35 - 0,80	1,6 - 8,0	☺	😐	☹																		
	SNMG190612-RP5	1,2	0,30 - 0,70	1,2 - 10,0	☺	😐	☹																		
	SNMG190616-RP5	1,6	0,35 - 0,80	1,6 - 10,0	☺	😐	☹																		
	SNMG190624-RP5	2,4	0,44 - 1,20	2,0 - 10,0	☺	😐	☹																		
	SNMA090308-RK5	0,8	0,20 - 0,45	0,6 - 4,0														😐							
	SNMA120408-RK5	0,8	0,25 - 0,50	0,8 - 5,0													☺	😐							
	SNMA120412-RK5	1,2	0,30 - 0,60	1,2 - 5,0													☺	😐							
	SNMA120416-RK5	1,6	0,35 - 0,70	1,5 - 5,0													☺	😐							
	SNMA150612-RK5	1,2	0,30 - 0,65	1,2 - 7,0													☺	😐							
	SNMA150616-RK5	1,6	0,35 - 0,80	1,5 - 7,0													☺	😐							
	SNMA190612-RK5	1,2	0,30 - 0,65	1,2 - 8,0													☺	😐							
	SNMA190616-RK5	1,6	0,35 - 0,80	1,5 - 8,0													☺	😐							
	SNMA190624-RK5	2,4	0,40 - 0,90	2,5 - 8,0														😐							
	SNMA120408-RK7	0,8	0,25 - 0,50	0,8 - 5,0													☺	😐							
	SNMA120412-RK7	1,2	0,30 - 0,60	1,2 - 5,0													☺	😐							
	SNMA120416-RK7	1,6	0,35 - 0,70	1,5 - 5,0													☺	😐							
	SNMA150616-RK7	1,6	0,35 - 0,80	1,5 - 7,0													☺	😐							
	SNMA190616-RK7	1,6	0,35 - 0,80	1,5 - 8,0													☺	😐							

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

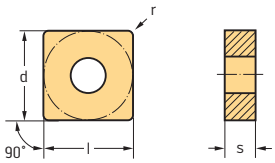


A-120

☺ 😐 ☹ New addition to range

Negative basic shape
SNMG/SNMA/SNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	SNMA120408	0,8	0,25 - 0,50	0,8 - 5,0															☺	☹					
	SNMA120412	1,2	0,30 - 0,60	1,2 - 5,0															☺	☹					
	SNMA120416	1,6	0,35 - 0,70	1,5 - 5,0															☺	☹					
	SNMA150612	1,2	0,30 - 0,65	1,2 - 7,0															☺	☹					
	SNMA150616	1,6	0,35 - 0,80	1,5 - 7,0															☺	☹					
	SNMA190612	1,2	0,30 - 0,65	1,2 - 8,0															☺	☹					
	SNMA190616	1,6	0,35 - 0,80	1,5 - 8,0															☺	☹					
	SNMA190624	2,4	0,40 - 0,90	2,5 - 8,0															☺	☹					
	SNMA120408T02020	0,8	0,25 - 0,50	0,8 - 5,0															☺	☹					
	SNMA120412T02020	1,2	0,30 - 0,60	1,2 - 5,0															☺	☹					
	SNMA120416T02020	1,6	0,35 - 0,70	1,5 - 5,0															☺	☹					
	SNMA150612T02020	1,2	0,30 - 0,65	1,2 - 7,0															☺	☹					
	SNMA150616T02020	1,6	0,35 - 0,80	1,5 - 7,0															☺	☹					
	SNMA190612T02020	1,2	0,30 - 0,65	1,2 - 8,0															☺	☹					
	SNMA190616T02020	1,6	0,35 - 0,80	1,5 - 8,0															☺	☹					
	SNMM120408-NRF	0,8	0,30 - 0,50	0,8 - 7,0		☹	☠																		
	SNMM120412-NRF	1,2	0,35 - 0,70	1,2 - 7,0	☺	☹	☠		☺																
	SNMM120416-NRF	1,6	0,40 - 0,90	1,6 - 7,0	☺	☹	☠		☺																
	SNMM150612-NRF	1,2	0,35 - 0,75	1,2 - 9,0	☺	☹	☠		☺																
	SNMM150616-NRF	1,6	0,40 - 0,90	1,6 - 9,0	☺	☹	☠		☺																
	SNMM150624-NRF	2,4	0,45 - 1,10	2,0 - 9,0	☺	☹	☠		☺																
	SNMM190612-NRF	1,2	0,35 - 0,75	1,2 - 10,0	☺	☹	☠		☺																
	SNMM190616-NRF	1,6	0,40 - 1,00	1,6 - 10,0	☺	☹	☠		☺																
	SNMM190624-NRF	2,4	0,45 - 1,20	2,0 - 10,0	☺	☹	☠		☺																
	SNMM250716-NRF	1,6	0,45 - 1,00	1,6 - 12,0		☹	☠																		
	SNMM250724-NRF	2,4	0,55 - 1,20	2,5 - 12,0		☹	☠																		
	SNMM250916-NRF	1,6	0,45 - 1,00	1,6 - 12,0	☺	☹	☠																		
	SNMM250924-NRF	2,4	0,55 - 1,20	2,5 - 12,0		☹	☠																		

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

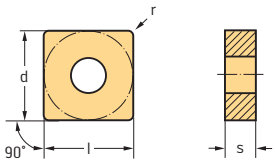
HC = Coated carbide
HW = Uncoated carbide

A-120

☺☹☠ New addition to range

Negative basic shape
SNMG/SNMA/SNMM

Tiger·tec® Silver

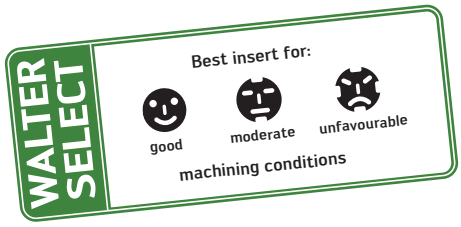


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	SNMM190616-NR6	1,6	0,45 - 0,95	2,0 - 10,0						☺	😐	☹													
	SNMM190624-NR6	2,4	0,55 - 1,25	2,5 - 10,0							😐														
	SNMM250716-NR6	1,6	0,45 - 1,00	2,0 - 12,0							😐														
	SNMM150612-NRR	1,2	0,50 - 0,80	1,5 - 10,0		😐	☹														☹				
	SNMM150616-NRR	1,6	0,45 - 1,00	2,0 - 12,0	☺	😐	☹														☹				
	SNMM150624-NRR	2,4	0,50 - 1,40	2,5 - 12,0		😐	☹																		
	SNMM190612-NRR	1,2	0,50 - 1,00	2,0 - 13,0	☺	😐	☹														☹				
	SNMM190616-NRR	1,6	0,50 - 1,10	2,5 - 13,0	☺	😐	☹														☹				
	SNMM190624-NRR	2,4	0,60 - 1,60	3,0 - 13,0	☺	😐	☹														☹				
	SNMM250716-NRR	1,6	0,50 - 1,10	2,5 - 17,0	☺	😐	☹														☹				
	SNMM250724-NRR	2,4	0,60 - 1,60	3,0 - 17,0	☺	😐	☹														☹				
	SNMM250732-NRR	3,2	0,60 - 1,80	4,0 - 17,0		😐	☹																		
	SNMM250916-NRR	1,6	0,50 - 1,10	2,5 - 17,0	☺	😐	☹														☹				
	SNMM250924-NRR	2,4	0,60 - 1,60	3,0 - 17,0	☺	😐	☹														☹				
	SNMM250932-NRR	3,2	0,60 - 1,80	4,0 - 17,0		😐	☹														☹				

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

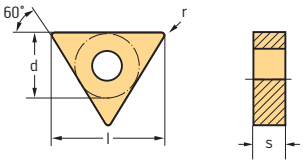


A-120

☺ 😐 ☹ New addition to range

Negative basic shape
TNMG/TNMA/TNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	TNMG160404-NF4	0,4	0,05 - 0,12	0,2 - 1,0				●					●	●	●							●	●		
	TNMG160408-NF4	0,8	0,07 - 0,16	0,4 - 1,5				●					●	●	●							●	●		
	TNMG160412-NF4	1,2	0,10 - 0,20	0,5 - 1,6										●	●							●	●		
	TNMG110304-FP5	0,4	0,04 - 0,15	0,1 - 1,2	●	●																			
	TNMG110308-FP5	0,8	0,08 - 0,20	0,2 - 1,5	●	●																			
	TNMG160404-FP5	0,4	0,04 - 0,20	0,1 - 1,5	●	●																			
	TNMG160408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	●	●																			
	TNMG160412-FP5	1,2	0,10 - 0,25	0,5 - 2,5	●	●																			
	TNMG160404-NMT	0,4	0,08 - 0,20	0,6 - 3,0											●								●		●
	TNMG160408-NMT	0,8	0,12 - 0,30	1,0 - 4,0											●								●		●
	TNMG160404-NMS	0,4	0,09 - 0,22	0,6 - 2,5										●	●	✱						●	●	✱	
	TNMG160408-NMS	0,8	0,11 - 0,30	0,8 - 3,5										●	●	✱						●	●	✱	
	TNMG110304-MP3	0,4	0,06 - 0,18	0,3 - 2,0	●	●																			
	TNMG110308-MP3	0,8	0,10 - 0,25	0,6 - 2,2	●	●																			
	TNMG160404-MP3	0,4	0,08 - 0,22	0,3 - 2,2	●	●	✱																		
	TNMG160408-MP3	0,8	0,12 - 0,32	0,6 - 3,0	●	●	✱																		
	TNMG160412-MP3	1,2	0,16 - 0,40	0,8 - 3,2	●	●	✱																		
	TNMG220408-MP3	0,8	0,12 - 0,32	0,6 - 3,2	●	●	✱																		
	TNMG220412-MP3	1,2	0,16 - 0,40	0,8 - 3,5	●	●	✱																		
	TNMG160404-NM4	0,4	0,10 - 0,18	0,5 - 2,0				●		●	●	✱	●	●	●	✱						●	●	✱	
	TNMG160408-NM4	0,8	0,15 - 0,25	0,8 - 3,0				●	●	●	●	✱	●	●	●	✱						●	●	✱	
	TNMG160412-NM4	1,2	0,20 - 0,35	1,0 - 4,0					●	●	●	✱		●	●	✱						●	●	✱	
	TNMG160416-NM4	1,6	0,20 - 0,35	1,0 - 4,0											●	✱							●	✱	
	TNMG220408-NM4	0,8	0,18 - 0,35	0,8 - 5,0						●	●	✱													
	TNMG220412-NM4	1,2	0,20 - 0,40	1,0 - 5,0					●	●	●	✱													

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

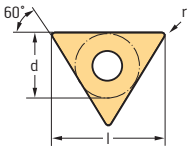
HC = Coated carbide
HW = Uncoated carbide

A-120

● ● ✱ New addition to range

Negative basic shape
TNMG/TNMA/TNMM

Tiger·tec® Silver

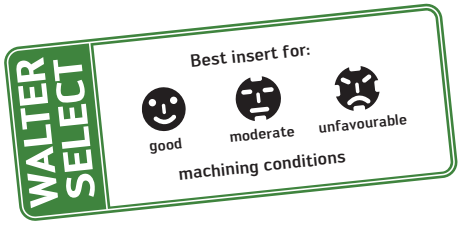


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	TNMG160404-MP5	0,4	0,16 - 0,25	0,5 - 4,0	☺	😐	☹																		
	TNMG160408-MP5	0,8	0,18 - 0,35	0,6 - 4,0	☺	😐	☹																		
	TNMG160412-MP5	1,2	0,20 - 0,40	1,0 - 4,0	☺	😐	☹																		
	TNMG220408-MP5	0,8	0,18 - 0,35	0,8 - 5,0	☺	😐	☹																		
	TNMG220412-MP5	1,2	0,20 - 0,40	1,0 - 5,0	☺	😐	☹																		
	TNMG110308-MK5	0,8	0,20 - 0,40	0,8 - 3,5													☺	😐							
	TNMG160404-MK5	0,4	0,16 - 0,25	0,6 - 4,0													☺	😐							
	TNMG160408-MK5	0,8	0,25 - 0,45	0,8 - 5,0													☺	😐							
	TNMG160412-MK5	1,2	0,30 - 0,45	1,2 - 5,0													☺	😐							
	TNMG160416-MK5	1,6	0,35 - 0,45	1,5 - 5,0													☺	😐							
	TNMG220408-MK5	0,8	0,25 - 0,45	1,0 - 6,0													☺	😐							
	TNMG220412-MK5	1,2	0,30 - 0,45	1,4 - 6,0													☺	😐							
	TNMG220416-MK5	1,6	0,35 - 0,45	1,6 - 6,0													☺	😐							
	TNMG270612-MK5	1,2	0,35 - 0,65	1,2 - 8,0													☺	😐							
	TNMG270616-MK5	1,6	0,45 - 0,90	3,0 - 9,0													☺	😐							
	TNMG160404-NM5	0,4	0,16 - 0,25	0,6 - 4,0															☺	😐					
	TNMG160408-NM5	0,8	0,25 - 0,45	0,8 - 5,0															☺	😐					
	TNMG160412-NM5	1,2	0,30 - 0,45	1,2 - 5,0															☺	😐					
	TNMG160416-NM5	1,6	0,35 - 0,45	1,5 - 5,0															☺	😐					
	TNMG220408-NM5	0,8	0,25 - 0,45	1,0 - 6,0															☺	😐					
	TNMG220412-NM5	1,2	0,30 - 0,45	1,4 - 6,0															☺	😐					
	TNMG220416-NM5	1,6	0,35 - 0,45	1,6 - 6,0															☺	😐					
	TNMG270616-NM6	1,6	0,45 - 0,90	3,0 - 9,0							😐	☹													
	TNMG270624-NM6	2,4	0,55 - 1,00	3,0 - 9,0							😐										☹				

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

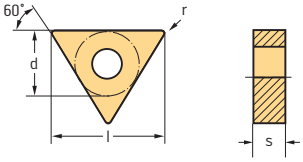


A-120

☺ 😐 ☹ New addition to range

Negative basic shape
TNMG/TNMA/TNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	TNMG160408-NM9	0,8	0,20 - 0,40	1,0 - 5,0					●	●	●	●													
	TNMG160412-NM9	1,2	0,25 - 0,55	1,0 - 5,0					●	●	●	●													
	TNMG220408-NM9	0,8	0,20 - 0,45	2,0 - 7,0						●	●	●													
	TNMG220412-NM9	1,2	0,25 - 0,60	2,0 - 7,0					●	●	●	●													
	TNMG220416-NM9	1,6	0,35 - 0,70	2,0 - 7,0					●	●	●	●													
	TNMG160408-NR4	0,8	0,22 - 0,40	1,2 - 4,0				●					●		●	●							●	●	
	TNMG160412-NR4	1,2	0,25 - 0,50	1,5 - 4,5				●					●		●	●							●	●	
	TNMG220408-NR4	0,8	0,22 - 0,40	1,2 - 5,0											●	●							●	●	
	TNMG220412-NR4	1,2	0,25 - 0,55	1,5 - 6,0											●	●							●	●	
	TNMG220416-NR4	1,6	0,30 - 0,60	2,0 - 7,0											●	●							●	●	
	TNMG270612-NR4	1,2	0,35 - 0,65	1,2 - 8,0											●	●							●	●	
	TNMG160408-RP5	0,8	0,20 - 0,40	0,8 - 5,0	●	●	●											●							
	TNMG160412-RP5	1,2	0,25 - 0,55	1,0 - 5,0	●	●	●											●							
	TNMG220408-RP5	0,8	0,20 - 0,45	0,8 - 7,0	●	●	●																		
	TNMG220412-RP5	1,2	0,25 - 0,60	1,0 - 7,0	●	●	●																		
	TNMG220416-RP5	1,6	0,35 - 0,70	1,6 - 7,0	●	●	●																		
	TNMA110308-RK5	0,8	0,15 - 0,35	1,0 - 4,0														●							
	TNMA160404-RK5	0,4	0,16 - 0,25	0,6 - 5,0													●	●							
	TNMA160408-RK5	0,8	0,25 - 0,45	0,8 - 5,0													●	●							
	TNMA160412-RK5	1,2	0,30 - 0,50	1,2 - 5,0													●	●							
	TNMA160416-RK5	1,6	0,25 - 0,60	1,5 - 5,0													●	●							
	TNMA220408-RK5	0,8	0,25 - 0,45	1,0 - 6,0													●	●							
	TNMA220412-RK5	1,2	0,30 - 0,55	1,4 - 6,0													●	●							
	TNMA220416-RK5	1,6	0,35 - 0,60	1,6 - 6,0														●							
	TNMA270616-RK5	1,6	0,40 - 0,65	1,8 - 7,0														●							
	TNMA160408-RK7	0,8	0,25 - 0,45	0,8 - 5,0													●	●							
	TNMA160412-RK7	1,2	0,30 - 0,50	1,2 - 5,0													●	●							
	TNMA220408-RK7	0,8	0,25 - 0,45	1,0 - 6,0													●	●							
	TNMA220412-RK7	1,2	0,30 - 0,55	1,4 - 6,0													●	●							

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

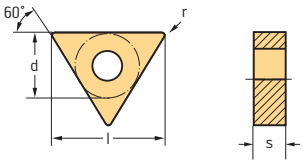
HC = Coated carbide
HW = Uncoated carbide

A-120

● ● ● New addition to range

Negative basic shape
TNMG/TNMA/TNMM

Tiger·tec® Silver

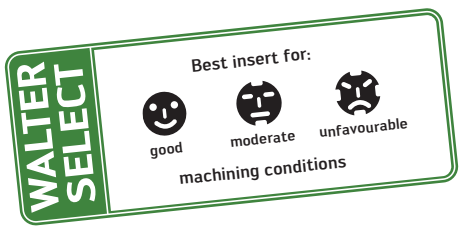


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	K HC WAK30	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	TNMA160404	0,4	0,16 - 0,25	0,6 - 5,0															☺	😐					
	TNMA160408	0,8	0,25 - 0,45	0,8 - 5,0															☺	😐					
	TNMA160412	1,2	0,30 - 0,50	1,2 - 5,0															☺	😐					
	TNMA160416	1,6	0,25 - 0,60	1,5 - 5,0															☺	😐					
	TNMA220408	0,8	0,25 - 0,45	1,0 - 6,0															☺	😐					
	TNMA220412	1,2	0,30 - 0,55	1,4 - 6,0															☺	😐					
	TNMA220416	1,6	0,35 - 0,60	1,6 - 6,0															☺	😐					
	TNMA160408T02020	0,8	0,25 - 0,45	0,8 - 5,0															☺	😐					
	TNMA160412T02020	1,2	0,30 - 0,55	1,2 - 5,0															☺	😐					
	TNMA220412T02020	1,2	0,30 - 0,55	1,4 - 6,0															☺	😐					
	TNMA220416T02020	1,6	0,35 - 0,60	1,6 - 6,0															☺	😐					
	TNMM160408-NRF	0,8	0,30 - 0,45	0,8 - 6,0	☺	😐	☹																		
	TNMM160412-NRF	1,2	0,35 - 0,50	1,2 - 6,0	☺	😐	☹																		
	TNMM220408-NRF	0,8	0,30 - 0,50	0,8 - 7,0	☺	😐	☹																		
	TNMM220412-NRF	1,2	0,35 - 0,60	1,2 - 7,0	☺	😐	☹		☺																
	TNMM220416-NRF	1,6	0,40 - 0,80	1,6 - 7,0	☺	😐	☹		☺																
	TNMM270612-NRF	1,2	0,35 - 0,65	1,2 - 8,0		😐	☹																		
	TNMM270616-NRF	1,6	0,40 - 0,85	1,6 - 8,0		😐	☹																		
	TNMM270616-NRR	1,6	0,50 - 1,10	2,0 - 13,0		😐	☹													☹					
	TNMM270624-NRR	2,4	0,60 - 1,60	3,0 - 13,0		😐	☹													☹					

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

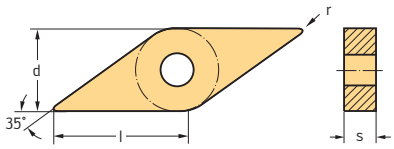


A-120

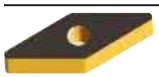
☺ 😐 ☹ New addition to range

Negative basic shape
VNGG/VNMG/VNMA

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	VNGG160404-NFT	0,4	0,04 - 0,13	0,1 - 1,5																				●
	VNGG160408-NFT	0,8	0,06 - 0,16	0,2 - 2,0																				●
	VNGG160412-NFT	1,2	0,06 - 0,16	0,2 - 2,0																				●
	VNMG160404-NFT	0,4	0,05 - 0,15	0,2 - 1,5											●							●		●
	VNMG160408-NFT	0,8	0,07 - 0,18	0,3 - 2,0											●							●		●
	VNMG160404-FP5	0,4	0,04 - 0,22	0,1 - 1,5	●	●																		
	VNMG160408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	●	●																		
	VNMG160404-NMS	0,4	0,08 - 0,16	0,5 - 1,5										●	●						●	●		
	VNMG160408-NMS	0,8	0,10 - 0,22	0,8 - 2,2										●	●						●	●		
	VNMG160404-MP3	0,4	0,08 - 0,22	0,3 - 2,2	●	●	●																	
	VNMG160408-MP3	0,8	0,12 - 0,32	0,6 - 3,0	●	●	●																	
	VNMG160412-MP3	1,2	0,16 - 0,35	0,8 - 3,2	●	●	●																	
	VNMG160404-NM4	0,4	0,10 - 0,18	0,5 - 2,0				●	●	●	●	●	●	●	●	●					●	●	●	
	VNMG160408-NM4	0,8	0,15 - 0,25	0,8 - 3,0				●	●	●	●	●	●	●	●	●					●	●	●	
	VNMG160412-NM4	1,2	0,20 - 0,40	0,8 - 4,0						●	●													
	VNMG160404-MK5	0,4	0,16 - 0,25	0,6 - 4,0													●	●						
	VNMG160408-MK5	0,8	0,18 - 0,35	0,8 - 4,0													●	●						
	VNMG160412-MK5	1,2	0,20 - 0,35	1,0 - 4,0													●	●						
	VNMG160404-NM5	0,4	0,16 - 0,25	0,6 - 4,0															●	●				
	VNMG160408-NM5	0,8	0,18 - 0,35	0,8 - 4,0															●	●				
	VNMG160412-NM5	1,2	0,20 - 0,40	1,0 - 4,0															●	●				
	VNMA160404-RK5	0,4	0,16 - 0,25	0,6 - 4,0													●	●						
	VNMA160408-RK5	0,8	0,18 - 0,35	0,8 - 4,0													●	●						
	VNMA160412-RK5	1,2	0,20 - 0,40	1,0 - 4,0													●	●						
	VNMA160404	0,4	0,16 - 0,25	0,6 - 4,0															●	●				
	VNMA160408	0,8	0,18 - 0,35	0,8 - 4,0															●	●				
	VNMA160412	1,2	0,20 - 0,40	1,0 - 4,0															●	●				

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

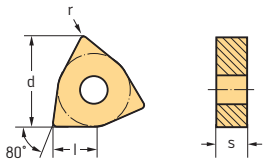
HC = Coated carbide
HW = Uncoated carbide

A-120

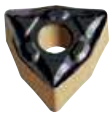
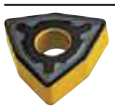
● ● ● New addition to range

Negative basic shape
WNMG/WNMA/WNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
 Wiper	WNMG060404-NF	0,4	0,10 - 0,40	0,4 - 2,0					☻		☻	☻				☻						☻		
	WNMG060408-NF	0,8	0,15 - 0,50	0,5 - 3,0					☻		☻	☻				☻						☻		
	WNMG080404-NF	0,4	0,20 - 0,40	0,4 - 2,0					☻		☻	☻				☻						☻		
	WNMG080408-NF	0,8	0,25 - 0,55	0,5 - 3,0					☻		☻	☻				☻						☻		
	WNMG080412-NF	1,2	0,25 - 0,70	0,8 - 4,0					☻		☻	☻				☻						☻		
	WNMG060404-NF4	0,4	0,05 - 0,12	0,2 - 1,0											☻	☻					☻	☻		
	WNMG060408-NF4	0,8	0,07 - 0,16	0,4 - 1,5											☻	☻					☻	☻		
	WNMG080404-NF4	0,4	0,05 - 0,12	0,2 - 1,0				☹						☹	☻	☻					☻	☻		
	WNMG080408-NF4	0,8	0,07 - 0,16	0,4 - 1,5				☹						☹	☻	☻					☻	☻		
	WNMG080412-NF4	1,2	0,10 - 0,20	0,5 - 1,6											☻	☻					☻	☻		
	WNMG060404-FP5	0,4	0,04 - 0,20	0,1 - 1,5	☻	☹																		
	WNMG060408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☻	☹																		
	WNMG080404-FP5	0,4	0,05 - 0,20	0,1 - 1,5	☻	☹																		
	WNMG080408-FP5	0,8	0,08 - 0,25	0,2 - 2,0	☻	☹																		
	WNMG080412-FP5	1,2	0,10 - 0,25	0,5 - 2,5	☻	☹																		
 Wiper	WNMG060408-NM	0,8	0,20 - 0,55	0,8 - 3,0						☻	☻	☻							☻	☻				
	WNMG060412-NM	1,2	0,25 - 0,55	1,5 - 4,0						☻	☻	☻							☻	☻				
	WNMG080408-NM	0,8	0,20 - 0,55	0,8 - 3,0						☻	☻	☻				☻			☻	☻		☻		
	WNMG080412-NM	1,2	0,25 - 0,70	1,5 - 4,0						☻	☻	☻				☻			☻	☻		☻		
	WNMG080408-NMT	0,8	0,12 - 0,30	0,8 - 4,0												☻						☻		☻
	WNMG080412-NMT	1,2	0,15 - 0,32	1,0 - 4,0												☻						☻		☻
	WNMG060408-NMS	0,8	0,10 - 0,30	0,8 - 3,0											☻	☻					☻	☻		
	WNMG080404-NMS	0,4	0,10 - 0,24	0,6 - 2,5											☻	☻	☹				☻	☻	☹	
	WNMG080408-NMS	0,8	0,13 - 0,32	0,8 - 3,5											☻	☻	☹				☻	☻	☹	

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

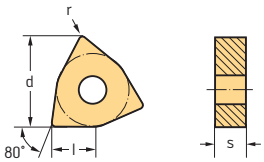
WALTER SELECT
Best insert for:
☻ good ☻ moderate ☹ unfavourable
machining conditions

☻☻☹ New addition to range

A-120

Negative basic shape
WNMG/WNMA/WNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	WNMG060404-MP3	0,4	0,08 - 0,22	0,3 - 2,2	☺	😐	☹																		
	WNMG060408-MP3	0,8	0,12 - 0,32	0,6 - 3,0	☺	😐	☹																		
	WNMG060412-MP3	1,2	0,16 - 0,35	0,8 - 3,2	☺	😐	☹																		
	WNMG080404-MP3	0,4	0,08 - 0,22	0,3 - 2,5	☺	😐	☹																		
	WNMG080408-MP3	0,8	0,12 - 0,32	0,6 - 3,2	☺	😐	☹																		
	WNMG080412-MP3	1,2	0,16 - 0,40	0,8 - 3,5	☺	😐	☹																		
	WNMG060404-NM4	0,4	0,10 - 0,18	0,5 - 2,0				😐		☺	☺	😐	☹	😐	☺	😐	☹					☺	😐	☹	
	WNMG060408-NM4	0,8	0,15 - 0,25	0,8 - 2,5				😐		☺	☺	😐	☹	😐	☺	😐	☹					☺	😐	☹	
	WNMG060412-NM4	1,2	0,20 - 0,35	1,0 - 4,0						☺	☺	😐	☹			😐	☹						😐	☹	
	WNMG080404-NM4	0,4	0,10 - 0,18	0,5 - 2,0				😐			☺	😐	☹	😐	☺	😐	☹					☺	😐	☹	
	WNMG080408-NM4	0,8	0,15 - 0,25	0,8 - 3,0				😐		☺	☺	😐	☹	😐	☺	😐	☹					☺	😐	☹	
	WNMG080412-NM4	1,2	0,18 - 0,30	0,8 - 3,5				😐		☺	☺	😐	☹	😐	☺	😐	☹					☺	😐	☹	
	WNMG080416-NM4	1,6	0,25 - 0,45	1,2 - 5,0							☺	😐	☹			😐	☹						😐	☹	
	WNMG100608-NM4	0,8	0,25 - 0,50	0,8 - 7,0							☺	😐	☹			😐	☹						😐	☹	
	WNMG100612-NM4	1,2	0,30 - 0,50	1,0 - 7,0							☺	😐	☹			😐	☹						😐	☹	
	WNMG100616-NM4	1,6	0,35 - 0,55	1,2 - 7,0							☺	😐	☹												
	WNMG060404-MP5	0,4	0,16 - 0,25	0,5 - 4,0	☺	😐	☹																		
	WNMG060408-MP5	0,8	0,18 - 0,35	0,6 - 4,0	☺	😐	☹																		
	WNMG060412-MP5	1,2	0,20 - 0,40	1,0 - 4,0	☺	😐	☹																		
	WNMG080404-MP5	0,4	0,16 - 0,25	0,5 - 4,0	☺	😐	☹																		
	WNMG080408-MP5	0,8	0,18 - 0,40	0,6 - 5,0	☺	😐	☹																		
	WNMG080412-MP5	1,2	0,20 - 0,45	1,0 - 5,0	☺	😐	☹																		
	WNMG080416-MP5	1,6	0,25 - 0,50	1,2 - 5,0	☺	😐	☹																		
	WNMG100608-MP5	0,8	0,25 - 0,40	0,8 - 7,0	☺	😐	☹																		
	WNMG100612-MP5	1,2	0,30 - 0,50	1,0 - 7,0	☺	😐	☹																		
	WNMG100616-MP5	1,6	0,35 - 0,55	1,2 - 7,0	☺	😐	☹																		

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

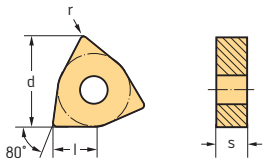
HC = Coated carbide
HW = Uncoated carbide

A-120

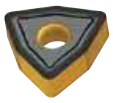
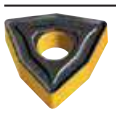
☺ 😐 ☹ New addition to range

Negative basic shape
WNMG/WNMA/WNMM

Tiger·tec® Silver

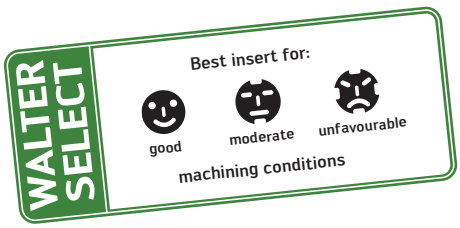


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	WNMG060404-MK5	0,4	0,16 - 0,25	0,6 - 4,0														☺	😐						
	WNMG060408-MK5	0,8	0,20 - 0,40	0,8 - 4,0														☺	😐						
	WNMG060412-MK5	1,2	0,16 - 0,45	0,6 - 4,0														☺	😐						
	WNMG080404-MK5	0,4	0,16 - 0,25	0,6 - 5,0														☺	😐						
	WNMG080408-MK5	0,8	0,20 - 0,45	1,2 - 5,0														☺	😐						
	WNMG080412-MK5	1,2	0,22 - 0,50	1,5 - 5,0														☺	😐						
	WNMG080416-MK5	1,6	0,25 - 0,55	2,0 - 5,0														☺	😐						
	WNMG100608-MK5	0,8	0,25 - 0,50	0,8 - 7,0														☺	😐						
	WNMG100612-MK5	1,2	0,30 - 0,60	1,2 - 7,0														☺	😐						
	WNMG100616-MK5	1,6	0,35 - 0,60	1,5 - 7,0														☺	😐						
	WNMG060404-NM5	0,4	0,16 - 0,25	0,6 - 4,0																☺	😐				
	WNMG060408-NM5	0,8	0,20 - 0,40	0,8 - 4,0																☺	😐				
	WNMG060412-NM5	1,2	0,22 - 0,50	1,2 - 4,0																☺	😐				
	WNMG080404-NM5	0,4	0,16 - 0,25	0,6 - 5,0																☺	😐				
	WNMG080408-NM5	0,8	0,20 - 0,45	1,2 - 5,0																☺	😐				
	WNMG080412-NM5	1,2	0,22 - 0,50	1,5 - 5,0																☺	😐				
	WNMG080416-NM5	1,6	0,25 - 0,55	2,0 - 5,0																☺	😐				
	WNMG100608-NM5	0,8	0,25 - 0,50	0,8 - 7,0																☺	😐				
	WNMG100612-NM5	1,2	0,30 - 0,60	1,2 - 7,0																☺	😐				
	WNMG100616-NM5	1,6	0,35 - 0,60	1,5 - 7,0																☺	😐				
	WNMG080408-NM6	0,8	0,16 - 0,45	1,0 - 5,0							☺	😐	☹												
	WNMG080412-NM6	1,2	0,20 - 0,45	1,5 - 5,0							☺	😐	☹												
	WNMG100608-NM6	0,8	0,25 - 0,45	1,0 - 8,0							☺	😐	☹												
	WNMG100612-NM6	1,2	0,25 - 0,60	1,5 - 8,0							☺	😐	☹												
	WNMG100616-NM6	1,6	0,35 - 0,70	2,0 - 8,0							☺	😐	☹												

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

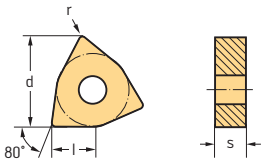


☺ 😐 ☹ New addition to range

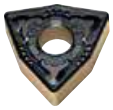
A-120

Negative basic shape
WNMG/WNMA/WNMM

Tiger·tec® Silver

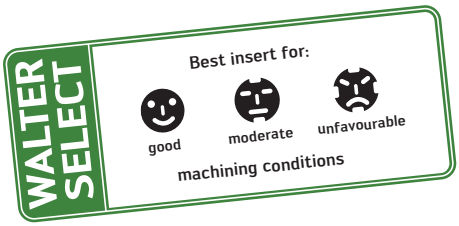


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	WNMG060408-NM9	0,8	0,20 - 0,40	0,8 - 4,0							☻	😐	☹												
	WNMG060412-NM9	1,2	0,25 - 0,50	0,8 - 4,0							☻	😐	☹												
	WNMG080408-NM9	0,8	0,20 - 0,40	1,0 - 6,0						☻	☻	😐	☹												
	WNMG080412-NM9	1,2	0,25 - 0,55	1,0 - 6,0						☻	☻	😐	☹												
	WNMG080416-NM9	1,6	0,35 - 0,65	1,0 - 6,0						☻	☻	😐	☹												
	WNMG100612-NM9	1,2	0,25 - 0,60	2,0 - 8,0						☻	☻	😐	☹												
	WNMG100616-NM9	1,6	0,35 - 0,70	2,0 - 8,0						☻	☻	😐	☹												
	WNMG080408-NRS	0,8	0,16 - 0,35	1,0 - 4,0											☻	😐						☻	😐		
	WNMG080412-NRS	1,2	0,18 - 0,40	1,2 - 4,0											☻	😐						☻	😐		
	WNMG060408-NR4	0,8	0,22 - 0,40	1,2 - 3,5												😐	☹						😐	☹	
	WNMG060412-NR4	1,2	0,25 - 0,50	1,5 - 3,5												😐	☹						😐	☹	
	WNMG080408-NR4	0,8	0,22 - 0,40	1,2 - 4,5				😐						☹	☻	😐	☹					☻	😐	☹	
	WNMG080412-NR4	1,2	0,25 - 0,50	1,5 - 4,5				😐						☹	☻	😐	☹					☻	😐	☹	
	WNMG100608-NR4	0,8	0,22 - 0,45	1,2 - 6,0												😐	☹						😐	☹	
	WNMG100612-NR4	1,2	0,25 - 0,60	1,5 - 6,0												😐	☹						😐	☹	
	WNMG100616-NR4	1,6	0,30 - 0,65	2,0 - 6,0												😐	☹						😐	☹	
	WNMG060408-RP5	0,8	0,20 - 0,40	0,8 - 4,0	☻	😐	☹																		
	WNMG060412-RP5	1,2	0,25 - 0,50	1,0 - 4,0	☻	😐	☹																		
	WNMG080408-RP5	0,8	0,20 - 0,40	0,8 - 6,0	☻	😐	☹												😐						
	WNMG080412-RP5	1,2	0,25 - 0,60	1,0 - 6,0	☻	😐	☹												😐						
	WNMG080416-RP5	1,6	0,35 - 0,70	1,6 - 6,0	☻	😐	☹																		
	WNMG100612-RP5	1,2	0,25 - 0,60	1,2 - 8,0	☻	😐	☹																		
	WNMG100616-RP5	1,6	0,35 - 0,70	1,6 - 8,0	☻	😐	☹																		

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

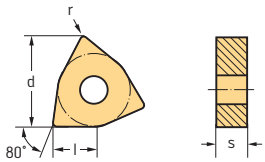


☻ 😐 ☹ New addition to range

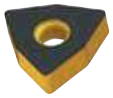
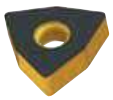
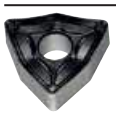
A-120

Negative basic shape
WNMG/WNMA/WNMM

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	P HC WPP01	P HC WPP05	P HC WPP10	P HC WPP20	P HC WPP30	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK10S	K HC WKK20S	K HC WAK10	K HC WAK20	S HC WSM10	S HC WSM20	S HC WSM30	HW WS10
	WNMA060404-RK5	0,4	0,16 - 0,25	0,6 - 4,0														☺	☺						
	WNMA060408-RK5	0,8	0,20 - 0,40	0,8 - 4,0														☺	☺						
	WNMA060412-RK5	1,2	0,22 - 0,50	1,2 - 4,0														☺	☺						
	WNMA080404-RK5	0,4	0,16 - 0,25	0,6 - 5,0														☺	☺						
	WNMA080408-RK5	0,8	0,20 - 0,45	1,2 - 5,0														☺	☺						
	WNMA080412-RK5	1,2	0,22 - 0,50	1,5 - 5,0														☺	☺						
	WNMA100612-RK5	1,2	0,25 - 0,60	1,5 - 6,0														☺	☺						
	WNMA100616-RK5	1,6	0,30 - 0,65	1,5 - 6,0														☺	☺						
	WNMA060408-RK7	0,8	0,20 - 0,40	0,8 - 4,0														☺	☺						
	WNMA080408-RK7	0,8	0,20 - 0,45	1,2 - 5,0														☺	☺						
	WNMA080412-RK7	1,2	0,22 - 0,50	1,5 - 5,0														☺	☺						
	WNMA060404	0,4	0,16 - 0,25	0,6 - 4,0																☺	☺				
	WNMA060408	0,8	0,20 - 0,40	0,8 - 4,0																☺	☺				
	WNMA060412	1,2	0,22 - 0,50	1,2 - 4,0																☺	☺				
	WNMA080404	0,4	0,16 - 0,25	0,6 - 5,0																☺	☺				
	WNMA080408	0,8	0,20 - 0,45	1,2 - 5,0																☺	☺				
	WNMA080412	1,2	0,22 - 0,50	1,5 - 5,0																☺	☺				
	WNMA100612	1,2	0,30 - 0,65	1,2 - 7,0																☺	☺				
	WNMA100616	1,6	0,35 - 0,80	1,5 - 7,0																☺	☺				
	WNMA060408T02020	0,8	0,20 - 0,40	0,8 - 4,0																☺	☺				
	WNMA080408T02020	0,8	0,20 - 0,45	1,2 - 5,0																☺	☺				
	WNMA080412T02020	1,2	0,22 - 0,50	1,5 - 5,0																☺	☺				
	WNMA100612T02020	1,2	0,30 - 0,65	1,2 - 7,0																	☺				
	WNMA100616T02020	1,6	0,35 - 0,80	1,5 - 7,0																	☺				
	WNMM080412-NRF	1,2	0,35 - 0,60	1,2 - 6,0	☺	☺	☹																		
	WNMM100612-NRF	1,2	0,35 - 0,70	1,2 - 8,0	☺	☺	☹			☺															
	WNMM100616-NRF	1,6	0,40 - 0,90	1,6 - 8,0	☺	☺	☹			☺															

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
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see page A 298 in the Walter General catalogue 2012.

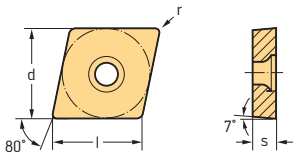
HC = Coated carbide
HW = Uncoated carbide

A-120

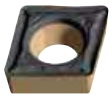
☺ ☺ ☹ New addition to range

Positive basic shape
CCGT/CCMT/CCMW

Tiger·tec®

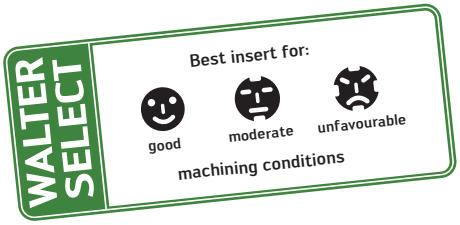


Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
 Wiper	CCMT060204-PF	6,45	0,4	0,05 - 0,30	0,3 - 2,0	☺	😐	☹			😐	☹							😐	☹
	CCMT060208-PF	6,45	0,8	0,09 - 0,35	0,3 - 2,0	☺	😐	☹			😐	☹							😐	☹
	CCMT09T304-PF	9,67	0,4	0,07 - 0,30	0,3 - 3,0	☺	😐	☹			😐	☹							😐	☹
	CCMT09T308-PF	9,67	0,8	0,12 - 0,45	0,3 - 3,0	☺	😐	☹			😐	☹							😐	☹
	CCGT060201-PF2	6,45	0,1	0,02 - 0,06	0,1 - 1,5						😐					☺	☺		😐	
	CCGT060202-PF2	6,45	0,2	0,05 - 0,12	0,2 - 2,0						😐					☺	☺		😐	
	CCGT060204-PF2	6,45	0,4	0,08 - 0,25	0,2 - 2,5						😐					☺	☺		😐	
	CCGT09T301-PF2	9,67	0,1	0,02 - 0,06	0,1 - 1,5						😐					☺	☺		😐	
	CCGT09T302-PF2	9,67	0,2	0,05 - 0,12	0,2 - 2,0						😐					☺	☺		😐	
	CCGT09T304-PF2	9,67	0,4	0,08 - 0,25	0,2 - 2,5					☺	😐					☺	☺	☺	😐	
	CCGT09T308-PF2	9,67	0,8	0,10 - 0,30	0,3 - 3,0					☺	😐					☺	☺	☺	😐	
	CCGT120404-PF2	12,9	0,4	0,08 - 0,25	0,2 - 3,0						😐					☺	☺		😐	
	CCGT120408-PF2	12,9	0,8	0,10 - 0,30	0,3 - 3,5						😐					☺	☺		😐	
	CCMT060202-PF4	6,45	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT060204-PF4	6,45	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT060208-PF4	6,45	0,8	0,08 - 0,20	0,1 - 2,5	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT09T302-PF4	9,67	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT09T304-PF4	9,67	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT09T308-PF4	9,67	0,8	0,08 - 0,20	0,1 - 2,5	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT120404-PF4	12,9	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT120408-PF4	12,9	0,8	0,08 - 0,20	0,1 - 2,5	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCGT060202-PF5	6,45	0,2	0,04 - 0,10	0,1 - 0,6			😐	☹			☹								☹
	CCGT060204-PF5	6,45	0,4	0,06 - 0,12	0,2 - 0,6			😐	☹			☹								☹
	CCGT09T302-PF5	9,67	0,2	0,04 - 0,10	0,1 - 1,0			😐	☹			☹								☹
	CCGT09T304-PF5	9,67	0,4	0,06 - 0,12	0,2 - 1,0			😐	☹			☹								☹

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

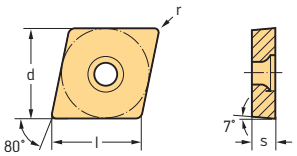


☺ 😐 ☹ New addition to range

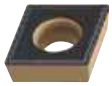
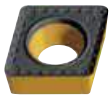
A-124

Positive basic shape
CCGT/CCMT/CCMW

Tiger·tec®



Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	CCMT060204-PS5	6,45	0,4	0,08 - 0,25	0,3 - 1,6		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT060208-PS5	6,45	0,8	0,12 - 0,30	0,5 - 1,6		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT09T304-PS5	9,67	0,4	0,08 - 0,25	0,3 - 2,0		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT09T308-PS5	9,67	0,8	0,12 - 0,32	0,5 - 2,0		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT120404-PS5	12,9	0,4	0,10 - 0,25	0,3 - 2,5		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT120408-PS5	12,9	0,8	0,12 - 0,32	0,5 - 2,5		☺	😐			😐	☹	☺	😐					😐	☹
 Wiper	CCMT09T304-PM	9,67	0,4	0,12 - 0,40	0,5 - 4,0		☺	😐					☺	😐						
	CCMT09T308-PM	9,67	0,8	0,15 - 0,50	0,7 - 4,0		☺	😐					☺	😐						
	CCMT09T312-PM	9,67	1,2	0,17 - 0,50	0,7 - 4,0		☺	😐					☺	😐						
	CCMT120404-PM	12,9	0,4	0,15 - 0,40	0,5 - 4,0		☺	😐					☺	😐						
	CCMT120408-PM	12,9	0,8	0,15 - 0,50	0,7 - 4,0		☺	😐					☺	😐						
	CCMT120412-PM	12,9	1,2	0,17 - 0,60	0,7 - 4,0		☺	😐					☺	😐						
	CCGT060201-PM2	6,45	0,1	0,02 - 0,06	0,5 - 1,5											☺	☺			
	CCGT060202-PM2	6,45	0,2	0,05 - 0,12	0,5 - 2,0											☺	☺			
	CCGT060204-PM2	6,45	0,4	0,08 - 0,25	0,6 - 3,0											☺	☺			
	CCGT09T301-PM2	9,67	0,1	0,02 - 0,06	0,5 - 1,5											☺	☺			
	CCGT09T302-PM2	9,67	0,2	0,05 - 0,12	0,5 - 2,0											☺	☺			
	CCGT09T304-PM2	9,67	0,4	0,08 - 0,25	0,6 - 4,0											☺	☺			
	CCGT09T308-PM2	9,67	0,8	0,10 - 0,35	0,8 - 4,0											☺	☺			
	CCGT120402-PM2	12,9	0,2	0,05 - 0,12	0,5 - 2,0											☺	☺			
	CCGT120404-PM2	12,9	0,4	0,08 - 0,25	0,6 - 5,0											☺	☺			
	CCGT120408-PM2	12,9	0,8	0,10 - 0,35	0,8 - 5,0											☺	☺			
	CCMT060204-PM5	6,45	0,4	0,12 - 0,25	0,4 - 2,5		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT060208-PM5	6,45	0,8	0,16 - 0,30	0,6 - 2,5		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT09T304-PM5	9,67	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT09T308-PM5	9,67	0,8	0,16 - 0,35	0,6 - 4,0		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT120404-PM5	12,9	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT120408-PM5	12,9	0,8	0,16 - 0,40	0,6 - 5,0		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT120412-PM5	12,9	1,2	0,20 - 0,50	0,8 - 5,0		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

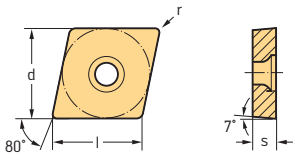
HC = Coated carbide
HW = Uncoated carbide

A-124

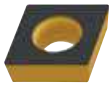
☺😐☹ New addition to range

Positive basic shape
CCGT/CCMT/CCMW

Tiger·tec®

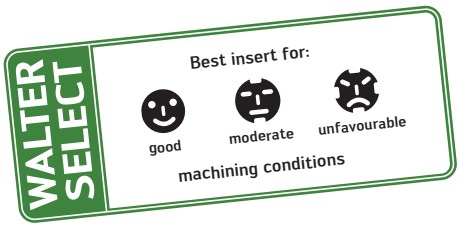


Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	CCMW060202	6,45	0,2	0,08 - 0,12	0,2 - 2,5								☺	😐						
	CCMW060204	6,45	0,4	0,12 - 0,25	0,4 - 2,5								☺	😐						
	CCMW060208	6,45	0,8	0,16 - 0,30	0,6 - 2,5								☺	😐						
	CCMW09T304	9,67	0,4	0,12 - 0,25	0,4 - 3,0								☺	😐						
	CCMW09T308	9,67	0,8	0,16 - 0,35	0,6 - 4,0								☺	😐						
	CCMW120404	12,9	0,4	0,12 - 0,25	0,4 - 4,0								☺	😐						
	CCMW120408	12,9	0,8	0,16 - 0,40	0,6 - 6,0								☺	😐						
	CCMW120412	12,9	1,2	0,20 - 0,50	0,8 - 6,0								☺	😐						

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

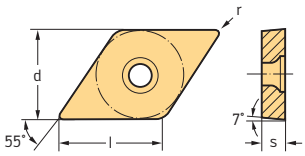


A-124

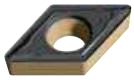
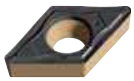
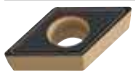
☺😐☹ New addition to range

Positive basic shape
DCGT/DCMT/DCMW

Tiger·tec®



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
 Wiper	DCMT070204-PF	0,4	0,05 - 0,25	0,3 - 2,0	☺	😐	☹			😐	☹						😐	☹
	DCMT070208-PF	0,8	0,05 - 0,25	0,3 - 2,0	☺	😐	☹			😐	☹						😐	☹
	DCMT11T304-PF	0,4	0,07 - 0,30	0,3 - 3,0	☺	😐	☹			😐	☹						😐	☹
	DCMT11T308-PF	0,8	0,12 - 0,40	0,3 - 3,0	☺	😐	☹			😐	☹						😐	☹
	DCGT070201-PF2	0,1	0,02 - 0,06	0,1 - 1,5						😐				☺	☺		😐	
	DCGT070202-PF2	0,2	0,05 - 0,12	0,2 - 2,0						😐				☺	☺		😐	
	DCGT070204-PF2	0,4	0,08 - 0,25	0,2 - 2,5						😐				☺	☺		😐	
	DCGT11T301-PF2	0,1	0,02 - 0,06	0,1 - 1,5						😐				☺	☺		😐	
	DCGT11T302-PF2	0,2	0,05 - 0,12	0,2 - 2,0						😐				☺	☺		😐	
	DCGT11T304-PF2	0,4	0,08 - 0,25	0,2 - 2,5					☺	😐				☺	☺	☺	😐	
	DCGT11T308-PF2	0,8	0,10 - 0,30	0,3 - 3,0					☺	😐				☺	☺	☺	😐	
	DCMT070202-PF4	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐	☹		☺	😐	☹					☺	😐	☹
	DCMT070204-PF4	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐	☹		☺	😐	☹					☺	😐	☹
	DCMT070208-PF4	0,8	0,08 - 0,20	0,1 - 2,5	☺	😐	☹		☺	😐	☹					☺	😐	☹
	DCMT11T302-PF4	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐	☹		☺	😐	☹					☺	😐	☹
	DCMT11T304-PF4	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐	☹		☺	😐	☹					☺	😐	☹
	DCMT11T308-PF4	0,8	0,08 - 0,20	0,1 - 2,5	☺	😐	☹		☺	😐	☹					☺	😐	☹
	DCMT070204-PS5	0,4	0,08 - 0,25	0,3 - 1,6		☺	😐			😐	☹	☺	😐				😐	☹
	DCMT070208-PS5	0,8	0,12 - 0,30	0,6 - 1,6		☺	😐			😐	☹	☺	😐				😐	☹
	DCMT11T304-PS5	0,4	0,08 - 0,25	0,3 - 2,0		☺	😐			😐	☹	☺	😐				😐	☹
	DCMT11T308-PS5	0,8	0,12 - 0,32	0,6 - 2,0		☺	😐			😐	☹	☺	😐				😐	☹
 Wiper	DCMT11T304-PM	0,4	0,12 - 0,40	0,5 - 4,0		☺	😐			😐		☺	😐				😐	
	DCMT11T308-PM	0,8	0,15 - 0,50	0,5 - 4,0		☺	😐			😐		☺	😐				😐	

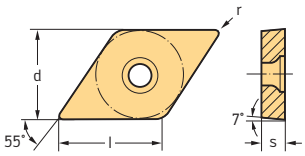
For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

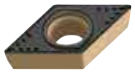
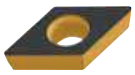
A-124

Positive basic shape
DCGT/DCMT/DCMW

Tiger·tec®

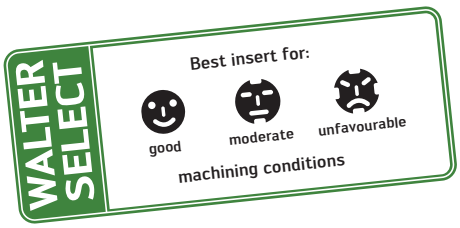


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	DCGT070201-PM2	0,1	0,02 - 0,06	0,5 - 1,5										☺	☺			
	DCGT070202-PM2	0,2	0,05 - 0,12	0,5 - 2,0										☺	☺			
	DCGT070204-PM2	0,4	0,08 - 0,25	0,6 - 2,5										☺	☺			
	DCGT11T301-PM2	0,1	0,02 - 0,06	0,5 - 1,5										☺	☺			
	DCGT11T302-PM2	0,2	0,05 - 0,12	0,5 - 2,0										☺	☺			
	DCGT11T304-PM2	0,4	0,08 - 0,25	0,6 - 3,0										☺	☺			
	DCGT11T308-PM2	0,8	0,10 - 0,30	0,8 - 3,5										☺	☺			
	DCMT070204-PM5	0,4	0,12 - 0,20	0,4 - 2,0		☺	😐	☹	☺	😐	☹	☺	😐			☺	😐	☹
	DCMT070208-PM5	0,8	0,16 - 0,25	0,6 - 2,0		☺	😐	☹	☺	😐	☹	☺	😐			☺	😐	☹
	DCMT11T304-PM5	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹	☺	😐	☹	☺	😐			☺	😐	☹
	DCMT11T308-PM5	0,8	0,16 - 0,30	0,6 - 4,0		☺	😐	☹	☺	😐	☹	☺	😐			☺	😐	☹
	DCMT11T312-PM5	1,2	0,20 - 0,35	0,8 - 4,0		☺	😐	☹		😐	☹	☺	😐				😐	☹
	DCMW11T304	0,4	0,12 - 0,25	0,4 - 3,0								☺	😐					
	DCMW11T308	0,8	0,16 - 0,30	0,6 - 4,0								☺	😐					

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

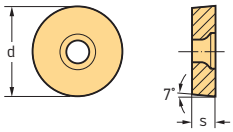
HC = Coated carbide
HW = Uncoated carbide



A-124

Positive basic shape
RCGT/RCMT/RCMX

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK20S	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30	S HW WS10
	RCGT0602M0-PF2	3	0,06 - 0,25	0,2 - 2,0														☺	☺				
	RCGT0803M0-PF2	4	0,08 - 0,30	0,3 - 3,0														☺	☺				
	RCGT10T3M0-PF2	5	0,10 - 0,40	0,3 - 4,0														☺	☺				
	RCGT1204M0-PF2	6	0,12 - 0,40	0,4 - 4,5														☺	☺				
	RCMT0602M0-PF4	3	0,07 - 0,30	0,6 - 2,5					☺	😐		☺	☺	😐						☺	☺	😐	
	RCMT0803M0-PF4	4	0,08 - 0,30	0,8 - 3,0					☺	😐		☺	☺	😐						☺	☺	😐	
	RCMT10T3M0-PF4	5	0,10 - 0,35	1,0 - 4,0					☺	😐		☺	☺	😐						☺	☺	😐	
	RCMT1204M0-PF4	6	0,12 - 0,40	1,2 - 5,0					☺	😐		☺	☺	😐						☺	☺	😐	
	RCGT0502M0-PF5	2,5	0,07 - 0,25	0,6 - 2,5																			☺
	RCGT0602M0-PF5	3	0,07 - 0,25	0,6 - 2,5						☺				😐								😐	☺
	RCGT0803M0-PF5	4	0,08 - 0,30	0,8 - 3,0						☺				😐								😐	☺
	RCGT10T3M0-PF5	5	0,10 - 0,35	1,0 - 4,0						☺				😐								😐	☺
	RCGT1204M0-PF5	6	0,12 - 0,40	1,2 - 5,0																			☺
	RCGT0602M0-PM2	3	0,10 - 0,55	0,6 - 2,5														☺	☺				
	RCGT0803M0-PM2	4	0,12 - 0,60	0,7 - 3,0														☺	☺				
	RCGT10T3M0-PM2	5	0,15 - 0,70	0,8 - 4,0														☺	☺				
	RCGT1204M0-PM2	6	0,18 - 0,80	1,0 - 5,0														☺	☺				
	RCMT10T3M0T	5	0,12 - 0,80	1,0 - 4,0						😐	😐												
	RCMT1204M0T	6	0,12 - 1,00	1,2 - 5,0						😐	😐												
	RCMT1605M0T	8	0,15 - 1,10	1,6 - 7,0						😐	😐												
	RCMT1606M0T	8	0,15 - 1,10	1,6 - 7,0						😐	😐												
	RCMT2006M0T	10	0,20 - 1,20	2,0 - 9,0						😐	😐												
	RCMT2507M0T	12,5	0,20 - 1,30	2,5 - 11,0						😐	😐												

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

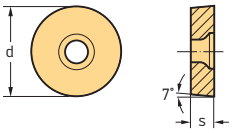
HC = Coated carbide
HW = Uncoated carbide

A-124

😐 New addition to range

Positive basic shape
RCGT/RCMT/RCMX

Tiger·tec® Silver

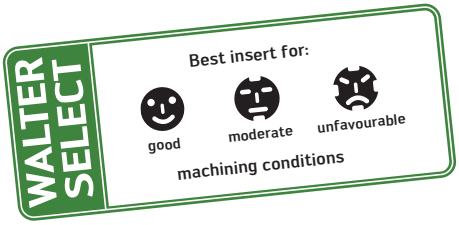


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WKK20S	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30	S HW WS10
	RCMT0602M0-PM5	3	0,08 - 0,50	0,6 - 2,5					☺	😐	☹		😐	☹		☺	😐				😐	☹	
	RCMT0803M0-PM5	4	0,10 - 0,60	0,8 - 3,0					☺	😐	☹		😐	☹		☺	😐				😐	☹	
	RCMT10T3M0-PM5	5	0,12 - 0,80	1,0 - 4,0					☺	😐	☹		😐	☹		☺	😐				😐	☹	
	RCMT1204M0-PM5	6	0,12 - 1,00	1,2 - 5,0					☺	😐	☹		😐	☹		☺	😐				😐	☹	
	RCMT1605M0-PM5	8	0,15 - 1,20	1,6 - 7,0					☺	😐	☹		😐	☹		☺	😐				😐	☹	
	RCMT1606M0-PM5	8	0,15 - 1,20	1,6 - 7,0					☺	😐	☹		😐	☹		☺	😐				😐	☹	
	RCMT10T3M0-HU6	5	0,12 - 0,80	1,0 - 4,0	☺	😐	☹																
	RCMT1204M0-HU6	6	0,12 - 1,20	1,2 - 5,0	☺	😐	☹																
	RCMT1606M0-HU6	8	0,15 - 1,20	1,6 - 7,0	☺	😐	☹								😐								
	RCMX2006M0-HU6	10	0,25 - 1,40	2,0 - 9,0	☺	😐	☹								😐								
	RCMX2507M0-HU6	12,5	0,30 - 1,60	2,5 - 11,0	☺	😐	☹								😐								
	RCMX3209M0-HU6	16	0,30 - 1,70	3,2 - 15,0	☺	😐	☹								😐								
	RCMX100300-PR5	5	0,20 - 1,00	1,0 - 4,0						😐	☹												
	RCMX120400-PR5	6	0,20 - 1,20	1,2 - 5,0						😐	☹												
	RCMX160600-PR5	8	0,20 - 1,30	1,6 - 7,0					☺	😐	☹												
	RCMX200600-PR5	10	0,25 - 1,40	2,0 - 9,0					☺	😐	☹												
	RCMX250700-PR5	12,5	0,30 - 1,60	2,5 - 11,0					☺	😐	☹												
	RCMX320900-PR5	16	0,30 - 1,70	3,2 - 15,0					☺	😐	☹												

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

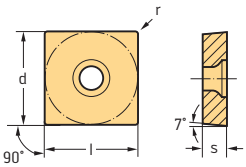


A-124

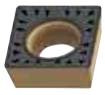
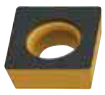
☺ 😐 ☹ New addition to range

Positive basic shape
SCGT/SCMT/SCMW

Tiger·tec®



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	SCGT09T304-PF2	0,4	0,08 - 0,25	0,2 - 2,5						●					●	●		●	
	SCGT09T308-PF2	0,8	0,10 - 0,30	0,3 - 3,0						●					●	●		●	
	SCGT120408-PF2	0,8	0,10 - 0,30	0,3 - 3,5						●					●	●		●	
	SCMT09T304-PF4	0,4	0,05 - 0,15	0,1 - 1,5	●	●	●			●	●							●	●
	SCMT09T308-PF4	0,8	0,05 - 0,18	0,1 - 1,8	●	●	●			●	●							●	●
	SCMT120404-PF4	0,4	0,05 - 0,15	0,1 - 1,5	●	●	●			●	●							●	●
	SCMT120408-PF4	0,8	0,05 - 0,18	0,1 - 1,8	●	●	●			●	●							●	●
	SCMT120412-PF4	1,2	0,12 - 0,32	0,3 - 1,8		●	●												
	SCMT09T304-PS5	0,4	0,08 - 0,25	0,3 - 2,0			●			●	●	●	●					●	●
	SCMT09T308-PS5	0,8	0,12 - 0,30	0,5 - 2,0			●			●	●	●	●					●	●
	SCMT120408-PS5	0,8	0,12 - 0,32	0,5 - 2,5			●			●	●	●	●					●	●
	SCGT09T304-PM2	0,4	0,08 - 0,25	0,6 - 4,0											●	●			
	SCGT09T308-PM2	0,8	0,10 - 0,35	0,7 - 4,0											●	●			
	SCGT120408-PM2	0,8	0,10 - 0,40	0,8 - 6,0											●	●			
	SCMT09T304-PM5	0,4	0,12 - 0,25	0,4 - 3,0		●	●	●	●	●	●	●	●	●			●	●	●
	SCMT09T308-PM5	0,8	0,16 - 0,35	0,6 - 4,0		●	●	●	●	●	●	●	●	●			●	●	●
	SCMT120404-PM5	0,4	0,12 - 0,25	0,4 - 3,0		●	●	●	●	●	●	●	●	●			●	●	●
	SCMT120408-PM5	0,8	0,16 - 0,40	0,6 - 5,0		●	●	●	●	●	●	●	●	●			●	●	●
	SCMT120412-PM5	1,2	0,20 - 0,50	0,8 - 5,0		●	●	●	●	●	●	●	●	●			●	●	●
	SCMW09T304	0,4	0,12 - 0,25	0,4 - 3,0								●	●						
	SCMW09T308	0,8	0,16 - 0,35	0,6 - 4,0								●	●						
	SCMW120404	0,4	0,12 - 0,25	0,4 - 4,0								●	●						
	SCMW120408	0,8	0,16 - 0,40	0,6 - 5,0								●	●						
	SCMW120412	1,2	0,16 - 0,40	0,8 - 5,0								●	●						

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

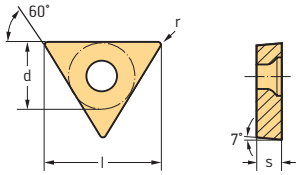
HC = Coated carbide
HW = Uncoated carbide

A-124

● ● ● New addition to range

Positive basic shape
TCGT/TCMT/TCMW

Tiger·tec®



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	TCGT06T101-PF2	0,1	0,02 - 0,06	0,1 - 1,5							✕					☺	☺			
	TCGT06T102-PF2	0,2	0,05 - 0,12	0,2 - 2,0							✕					☺	☺			
	TCGT06T104-PF2	0,4	0,08 - 0,25	0,2 - 2,5							✕					☺	☺			
	TCGT090201-PF2	0,1	0,02 - 0,06	0,1 - 1,5						☺						☺	☺		☺	
	TCGT090202-PF2	0,2	0,05 - 0,12	0,2 - 2,0						☺						☺	☺		☺	
	TCGT090204-PF2	0,4	0,08 - 0,25	0,2 - 2,5						☺						☺	☺		☺	
	TCGT110201-PF2	0,1	0,02 - 0,06	0,1 - 1,5						☺						☺	☺		☺	
	TCGT110202-PF2	0,2	0,05 - 0,12	0,2 - 2,0						☺						☺	☺		☺	
	TCGT110204-PF2	0,4	0,08 - 0,25	0,2 - 2,5						☺						☺	☺		☺	
	TCGT16T301-PF2	0,1	0,02 - 0,06	0,1 - 1,5						☺						☺	☺		☺	
	TCGT16T302-PF2	0,2	0,05 - 0,12	0,2 - 2,0						☺						☺	☺		☺	
	TCGT16T304-PF2	0,4	0,08 - 0,25	0,2 - 2,5						☺						☺	☺		☺	
	TCGT16T308-PF2	0,8	0,10 - 0,30	0,3 - 3,0						☺						☺	☺		☺	
	TCMT06T102-PF4	0,2	0,02 - 0,10	0,1 - 1,0			✕				✕									
	TCMT06T104-PF4	0,4	0,04 - 0,17	0,1 - 1,0			✕				✕									
	TCMT090202-PF4	0,2	0,04 - 0,12	0,1 - 1,0	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT090204-PF4	0,4	0,05 - 0,16	0,1 - 1,5	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT090208-PF4	0,8	0,08 - 0,20	0,1 - 2,5	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT110202-PF4	0,2	0,04 - 0,12	0,1 - 1,0	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT110204-PF4	0,4	0,05 - 0,16	0,1 - 1,5	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT110208-PF4	0,8	0,08 - 0,20	0,1 - 2,5	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT16T302-PF4	0,2	0,04 - 0,12	0,1 - 1,0	☺	☺	✕			☺		✕							☺	✕
	TCMT16T304-PF4	0,4	0,05 - 0,16	0,1 - 1,5	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT16T308-PF4	0,8	0,08 - 0,20	0,1 - 2,5	☺	☺	✕		☺	☺		✕						☺	☺	✕
	TCMT110204-PS5	0,4	0,08 - 0,25	0,3 - 1,6			☺			☺		✕	☺	☺					☺	✕
	TCMT110208-PS5	0,8	0,12 - 0,30	0,5 - 1,6			☺			☺		✕	☺	☺					☺	✕
	TCMT16T304-PS5	0,4	0,08 - 0,25	0,3 - 2,0			☺			☺		✕	☺	☺					☺	✕
	TCMT16T308-PS5	0,8	0,12 - 0,32	0,5 - 2,5			☺			☺		✕	☺	☺					☺	✕

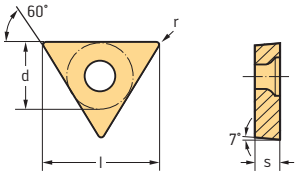
For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

A-124

Positive basic shape
TCGT/TCMT/TCMW

Tiger·tec®

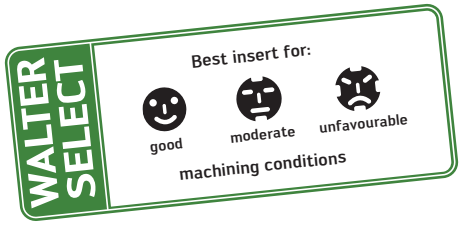


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	TCGT110201-PM2	0,1	0,02 - 0,06	0,5 - 1,5												☺	☺			
	TCGT110202-PM2	0,2	0,05 - 0,12	0,6 - 2,0												☺	☺			
	TCGT110204-PM2	0,4	0,08 - 0,25	0,6 - 3,0												☺	☺			
	TCGT16T302-PM2	0,2	0,05 - 0,12	0,5 - 2,0												☺	☺			
	TCGT16T304-PM2	0,4	0,08 - 0,25	0,6 - 4,0												☺	☺			
	TCGT16T308-PM2	0,8	0,10 - 0,35	0,8 - 4,0												☺	☺			
	TCMT090204-PM5	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹		😐		☹	☺	😐	☹				😐	☹
	TCMT090208-PM5	0,8	0,16 - 0,30	0,6 - 3,0		☺	😐	☹		😐		☹	☺	😐	☹				😐	☹
	TCMT110204-PM5	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT110208-PM5	0,8	0,16 - 0,30	0,6 - 3,0		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT16T304-PM5	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT16T308-PM5	0,8	0,16 - 0,30	0,6 - 4,0		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT16T312-PM5	1,2	0,20 - 0,40	0,8 - 4,0		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMW110202	0,2	0,08 - 0,12	0,2 - 3,0									☺	😐						
	TCMW110204	0,4	0,12 - 0,25	0,4 - 3,0									☺	😐						
	TCMW110208	0,8	0,16 - 0,30	0,6 - 3,0									☺	😐						
	TCMW16T304	0,4	0,12 - 0,25	0,4 - 3,0									☺	😐						
	TCMW16T308	0,8	0,16 - 0,30	0,6 - 4,0									☺	😐						
	TCMW16T312	1,2	0,20 - 0,40	0,8 - 4,0									☺	😐						

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

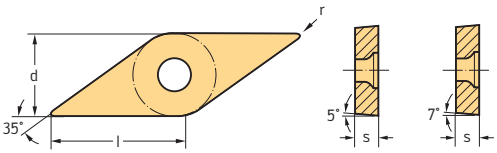
HC = Coated carbide
HW = Uncoated carbide



A-124

Positive basic shape
VBGT/VBMT/VCGT/VCMT/VCMW

Tiger·tec®



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	VCGT110301-PF2	0,1	0,02 - 0,06	0,1 - 1,5						☺				☺	☺		☺	
	VCGT110302-PF2	0,2	0,05 - 0,12	0,2 - 2,0						☺				☺	☺		☺	
	VCGT110304-PF2	0,4	0,08 - 0,25	0,2 - 2,5					☺	☺				☺	☺	☺	☺	
	VCGT160402-PF2	0,2	0,05 - 0,12	0,2 - 2,0						☺				☺	☺		☺	
	VCGT160404-PF2	0,4	0,08 - 0,25	0,2 - 2,5					☺	☺				☺	☺	☺	☺	
	VCGT160408-PF2	0,8	0,10 - 0,30	0,3 - 3,0					☺	☺				☺	☺	☺	☺	
	VCMT110302-PF4	0,2	0,04 - 0,12	0,1 - 1,0	☺	☺	☹		☺	☺	☹					☺	☺	☹
	VCMT110304-PF4	0,4	0,05 - 0,16	0,1 - 1,5	☺	☺	☹		☺	☺	☹					☺	☺	☹
	VCMT160402-PF4	0,2	0,04 - 0,12	0,1 - 1,0	☺	☺	☹		☺	☺	☹					☺	☺	☹
	VCMT160404-PF4	0,4	0,05 - 0,16	0,1 - 1,5	☺	☺	☹		☺	☺	☹					☺	☺	☹
	VCMT160408-PF4	0,8	0,08 - 0,20	0,1 - 2,5	☺	☺	☹		☺	☺	☹					☺	☺	☹
	VBGT110302-PF5	0,2	0,04 - 0,10	0,1 - 0,6			☹	☹			☹							☹
	VBGT110304-PF5	0,4	0,06 - 0,12	0,2 - 0,6			☹	☹			☹							☹
	VBMT110304-PS5	0,4	0,08 - 0,20	0,3 - 1,6		☺	☹		☺	☺	☹	☺	☹			☺	☺	☹
	VBMT110308-PS5	0,8	0,12 - 0,30	0,5 - 1,6		☺	☹		☺	☺	☹	☺	☹			☺	☺	☹
	VBMT160404-PS5	0,4	0,08 - 0,25	0,3 - 2,0		☺	☹		☺	☺	☹	☺	☹			☺	☺	☹
	VBMT160406-PS5	0,6	0,12 - 0,30	0,4 - 2,0		☺	☹					☺	☹					
	VBMT160408-PS5	0,8	0,12 - 0,30	0,6 - 2,5		☺	☹		☺	☺	☹	☺	☹			☺	☺	☹
	VBMT160412-PS5	1,2	0,15 - 0,30	1,0 - 2,5		☺	☹		☺	☺	☹	☺	☹			☺	☺	☹
	VCGT110301-PM2	0,1	0,02 - 0,06	0,5 - 1,5										☺	☺			
	VCGT110302-PM2	0,2	0,05 - 0,12	0,5 - 2,0										☺	☺			
	VCGT110304-PM2	0,4	0,08 - 0,25	0,6 - 2,5										☺	☺			
	VCGT110308-PM2	0,8	0,10 - 0,35	0,8 - 3,0										☺	☺			
	VCGT130301-PM2	0,1	0,02 - 0,06	0,5 - 1,5										☺	☺			
	VCGT130302-PM2	0,2	0,05 - 0,12	0,5 - 2,0										☺	☺			
	VCGT130304-PM2	0,4	0,08 - 0,25	0,6 - 3,0										☺	☺			
	VCGT160404-PM2	0,4	0,08 - 0,25	0,6 - 3,5										☺	☺			
	VCGT160408-PM2	0,8	0,10 - 0,35	0,8 - 3,5										☺	☺			
	VCGT160412-PM2	1,2	0,10 - 0,45	1,0 - 3,5										☺	☺			

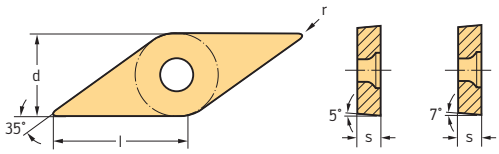
For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

A-124

Positive basic shape
VBGT/VBMT/VCGT/VCMT/VCMW

Tiger·tec®

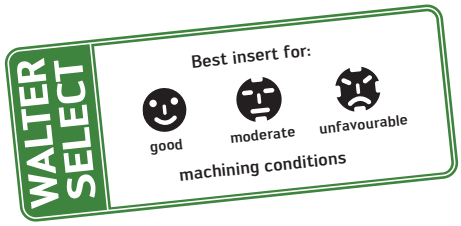


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	VCMT110304-PM5	0,4	0,12 - 0,20	0,4 - 2,5		😊	😐	☹	😊	😐	☹	😊	😐			😊	😐	☹
	VCMT110308-PM5	0,8	0,16 - 0,25	0,6 - 3,0		😊	😐	☹	😊	😐	☹	😊	😐			😊	😐	☹
	VCMT160404-PM5	0,4	0,12 - 0,25	0,4 - 2,5		😊	😐	☹	😊	😐	☹	😊	😐			😊	😐	☹
	VCMT160406-PM5	0,6	0,15 - 0,25	0,6 - 3,0		😊	😐	☹	😊	😐	☹		😐			😊	😐	☹
	VCMT160408-PM5	0,8	0,16 - 0,30	0,6 - 3,0		😊	😐	☹	😊	😐	☹	😊	😐			😊	😐	☹
	VCMT160412-PM5	1,2	0,20 - 0,35	0,8 - 4,0		😊	😐	☹	😊	😐	☹	😊	😐			😊	😐	☹
	VCMW160404	0,4	0,12 - 0,25	0,4 - 2,5								😊	😐					
	VCMW160408	0,8	0,16 - 0,30	0,6 - 3,0								😊	😐					
	VCMW160412	1,2	0,20 - 0,25	0,8 - 4,0								😊	😐					

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

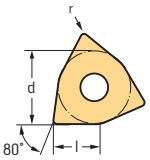
HC = Coated carbide
HW = Uncoated carbide



A-124

Positive basic shape
WCGT/WCMT

Tiger·tec®



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
 Wiper	WCMT040204-PF	0,4	0,05 - 0,30	0,3 - 1,5		☺	☹			☺								☺	
	WCMT040208-PF	0,8	0,05 - 0,30	0,3 - 1,5		☺	☹			☺								☺	
	WCMT06T304-PF	0,4	0,07 - 0,30	0,3 - 2,0		☺	☹			☺								☺	
	WCMT06T308-PF	0,8	0,07 - 0,35	0,3 - 2,0		☺	☹			☺								☺	
	WCGT030201-PF2	0,1	0,02 - 0,06	0,1 - 1,5											☻	☻			
	WCGT030202-PF2	0,2	0,05 - 0,12	0,2 - 2,0							☹				☻	☻			
	WCGT030204-PF2	0,4	0,08 - 0,25	0,2 - 2,5							☹				☻	☻			
	WCGT040201-PF2	0,1	0,02 - 0,06	0,1 - 1,5											☻	☻			
	WCGT040202-PF2	0,2	0,05 - 0,12	0,2 - 2,0							☹				☻	☻			
	WCGT040204-PF2	0,4	0,08 - 0,25	0,2 - 2,5							☹				☻	☻			
	WCGT06T301-PF2	0,1	0,02 - 0,06	0,1 - 1,5											☻	☻			
	WCGT06T302-PF2	0,2	0,05 - 0,12	0,2 - 2,0											☻	☻			
	WCGT06T304-PF2	0,4	0,08 - 0,25	0,2 - 2,5											☻	☻			
	WCGT06T308-PF2	0,8	0,10 - 0,30	0,3 - 3,0											☻	☻			
	WCMT040202-PF4	0,2	0,04 - 0,12	0,1 - 1,0		☺	☹			☺		☹						☺	☹
	WCMT040204-PF4	0,4	0,05 - 0,16	0,1 - 1,5		☺	☹			☺		☹						☺	☹
	WCMT040208-PF4	0,8	0,08 - 0,20	0,1 - 2,5		☺	☹			☺		☹						☺	☹
	WCMT06T302-PF4	0,2	0,04 - 0,12	0,1 - 1,0		☺	☹			☺		☹						☺	☹
	WCMT06T304-PF4	0,4	0,05 - 0,16	0,1 - 1,5		☺	☹			☺		☹						☺	☹
	WCMT06T308-PF4	0,8	0,08 - 0,20	0,1 - 2,5		☺	☹			☺		☹						☺	☹
	WCMT080404-PF4	0,4	0,05 - 0,16	0,1 - 1,5		☺	☹			☺		☹						☺	☹
	WCMT080408-PF4	0,8	0,08 - 0,20	0,1 - 2,5		☺	☹			☺		☹						☺	☹
	WCMT040204-PS5	0,4	0,08 - 0,25	0,3 - 1,6			☺						☻	☺					
	WCMT040208-PS5	0,8	0,12 - 0,30	0,5 - 1,6			☺						☻	☺					
	WCMT06T304-PS5	0,4	0,08 - 0,25	0,3 - 2,0			☺						☻	☺					
	WCMT06T308-PS5	0,8	0,12 - 0,32	0,5 - 2,0			☺						☻	☺					
	WCMT080404-PS5	0,4	0,08 - 0,25	0,3 - 2,5			☺						☻	☺					
	WCMT080408-PS5	0,8	0,12 - 0,32	0,5 - 2,5			☺						☻	☺					

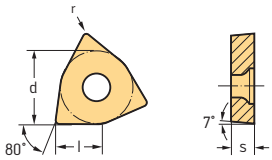
For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

A-124

Positive basic shape
WCGT/WCMT

Tiger·tec®

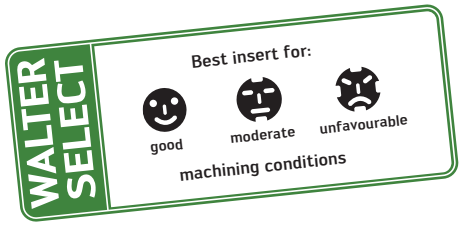


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	WCMT06T304-PM	0,4	0,12 - 0,35	0,5 - 2,5		☺	😐						☺	😐					
	WCMT06T308-PM	0,8	0,12 - 0,35	0,5 - 2,5		☺	😐						☺	😐					
Wiper																			
	WCGT030202-PM2	0,2	0,05 - 0,12	0,5 - 1,5											☺	☺			
	WCGT030204-PM2	0,4	0,08 - 0,20	0,6 - 1,5											☺	☺			
	WCGT040202-PM2	0,2	0,05 - 0,12	0,5 - 2,0											☺	☺			
	WCGT040204-PM2	0,4	0,08 - 0,25	0,6 - 2,5											☺	☺			
	WCGT06T302-PM2	0,2	0,05 - 0,12	0,6 - 2,0											☺	☺			
	WCGT06T304-PM2	0,4	0,08 - 0,25	0,6 - 3,0											☺	☺			
	WCGT080404-PM2	0,4	0,08 - 0,25	0,6 - 4,0											☺	☺			
	WCGT080408-PM2	0,8	0,10 - 0,35	0,8 - 4,0											☺	☺			
	WCMT030202-PM5	0,2	0,08 - 0,12	0,2 - 1,5		☺	😐	☹		😐		☹		😐				😐	☹
	WCMT040202-PM5	0,2	0,08 - 0,12	0,4 - 2,0		☺	😐	☹		😐		☹		😐				😐	☹
	WCMT040204-PM5	0,4	0,12 - 0,25	0,4 - 2,5		☺	😐	☹		😐		☹		😐				😐	☹
	WCMT06T304-PM5	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹		😐		☹	☺	😐				😐	☹
	WCMT06T308-PM5	0,8	0,16 - 0,35	0,6 - 4,0		☺	😐	☹		😐		☹	☺	😐				😐	☹
	WCMT080404-PM5	0,4	0,12 - 0,25	0,4 - 3,0		☺	😐	☹		😐		☹	☺	😐				😐	☹
	WCMT080408-PM5	0,8	0,16 - 0,40	0,6 - 4,0		☺	😐	☹		😐		☹	☺	😐				😐	☹
	WCMT080412-PM5	1,2	0,20 - 0,55	0,8 - 5,0		☺	😐	☹		😐		☹	☺	😐				😐	☹

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 298 in the Walter General catalogue 2012.

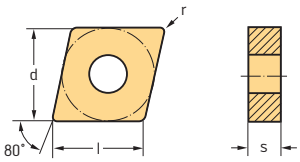
HC = Coated carbide
HW = Uncoated carbide



A-124

Negative basic shape
CNGN/CNMA

Ceramic and CBN

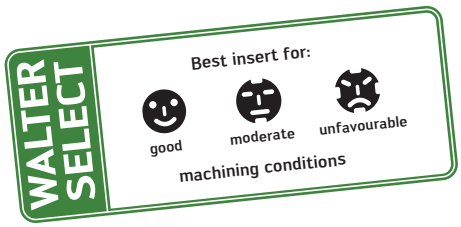


Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	K CN WSN10	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	CNGN120708T01020	12,9	0,8	0,10 - 0,22	0,1 - 3,6		☻	☻		
	CNGN120712T01020	12,9	1,2	0,10 - 0,32	0,1 - 3,6		☻	☻		
	CNGN120716T01020	12,9	1,6	0,10 - 0,42	0,1 - 3,6		☻	☻		
	CNMA120408T02020	12,9	0,8	0,10 - 0,36	0,1 - 6,0	☻				
	CNMA120412T02020	12,9	1,2	0,10 - 0,54	0,1 - 6,0	☻				
	CNMA120416T02020	12,9	1,6	0,10 - 0,60	0,1 - 6,0	☻				
	CNMA120404	12,9	0,4	0,05 - 0,20	0,1 - 2,5				☻	☻
	CNMA120408	12,9	0,8	0,05 - 0,25	0,1 - 2,4				☻	☻
	CNMA120412	12,9	1,2	0,05 - 0,30	0,1 - 2,3				☻	☻
	CNMA120404-2	12,9	0,4	0,05 - 0,20	0,1 - 2,5				☻	☻
	CNMA120408-2	12,9	0,8	0,05 - 0,25	0,1 - 2,4				☻	☻
	CNMA120412-2	12,9	1,2	0,05 - 0,30	0,1 - 2,3				☻	☻

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 299 in the Walter General catalogue 2012.

CN = Silicon nitride Si_3N_4
CR = Reinforced ceramic
BL = CBN with low CBN content
BH = CBN with high CBN content

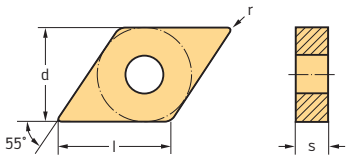


A-128

☻☻☻ New addition to range

Negative basic shape
DNGN/DNMA

Ceramic and CBN

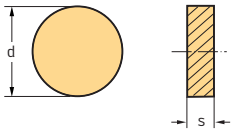


Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	K CN WSN10	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	DNGN150708T01020	15,5	0,8	0,10 - 0,20	0,1 - 2,5			☹		
	DNGN150712T01020	15,5	1,2	0,10 - 0,32	0,1 - 2,5			☹		
	DNMA150608T02020	15,5	0,8	0,10 - 0,36	0,1 - 7,5	☺				
	DNMA150612T02020	15,5	1,2	0,10 - 0,54	0,1 - 7,5	☺				
	DNMA150604-2	15,5	0,4	0,05 - 0,20	0,1 - 2,5				☺	☹
	DNMA150608-2	15,5	0,8	0,05 - 0,25	0,1 - 2,1				☺	☹
	DNMA150612-2	15,5	1,2	0,05 - 0,30	0,1 - 2,1				☺	☹

Negative basic shape
RNGN

Ceramic and CBN



Indexable inserts

	Designation	d mm	f mm	ap mm	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	RNGN120700E	12,7	0,10 - 0,32	0,1 - 3,6	☺	☹		
	RNGN120700T01020	12,7	0,20 - 0,32	0,2 - 3,6	☺	☹		
	RNGN150700T01020	15,875	0,10 - 0,40	0,2 - 4,5		☹		
	RNGN190700T01020	19,05	0,10 - 0,45	0,2 - 5,7		☹		
	RNGN250700E	25,4	0,10 - 0,50	0,2 - 7,5		☹		

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 299 in the Walter General catalogue 2012.

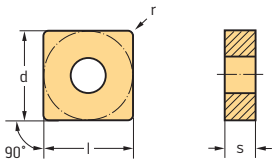
CN = Silicon nitride Si_3N_4
CR = Reinforced ceramic
BL = CBN with low CBN content
BH = CBN with high CBN content

A-128

☺☹☠ New addition to range

Negative basic shape SNGN/SNMA

Ceramic and CBN

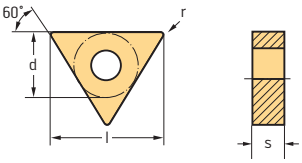


Indexable inserts

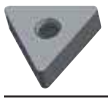
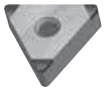
	Designation	l mm	r mm	f mm	ap mm	K CN WSN10	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	SNGN120708T01020	12,7	0,8	0,10 - 0,22	0,1 - 3,6			😐		
	SNGN120712E	12,7	1,2	0,10 - 0,32	0,1 - 3,6		😊			
	SNGN120712T01020	12,7	1,2	0,10 - 0,32	0,1 - 3,6		😊	😐		
	SNGN120716T01020	12,7	1,6	0,10 - 0,42	0,1 - 3,6			😐		
	SNMA120408T02020	12,7	0,8	0,10 - 0,36	0,1 - 6,0	😊				
	SNMA120412T02020	12,7	1,2	0,10 - 0,54	0,1 - 6,0	😊				
	SNMA120416T02020	12,7	1,6	0,10 - 0,60	0,1 - 6,0	😊				
	SNMA120408	12,7	0,8	0,05 - 0,25	0,1 - 2,3				😊	😐
	SNMA120412	12,7	1,2	0,05 - 0,30	0,1 - 2,1				😊	😐

Negative basic shape TNMA

Ceramic and CBN

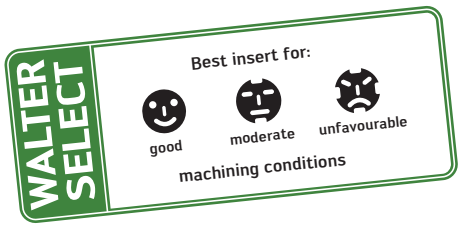


Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	K CN WSN10	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	TNMA160408T02020	16,5	0,8	0,05 - 0,36	0,1 - 8,0	😊				
	TNMA160412T02020	16,5	1,2	0,10 - 0,54	0,1 - 8,0	😊				
	TNMA160404-3	16,5	0,4	0,05 - 0,20	0,1 - 2,3				😊	😐
	TNMA160408-3	16,5	0,8	0,05 - 0,25	0,1 - 2,0				😊	😐
	TNMA160412-3	16,5	1,2	0,05 - 0,30	0,1 - 2,0				😊	😐

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information, see page A 299 in the Walter General catalogue 2012.

CN = Silicon nitride Si_3N_4
CR = Reinforced ceramic
BL = CBN with low CBN content
BH = CBN with high CBN content

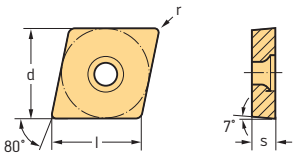


😊 😐 ☹ New addition to range

A-128

Positive basic shape
CCMW

Ceramic and CBN

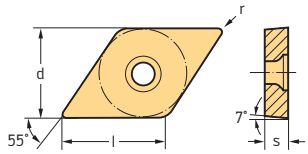


Indexable inserts

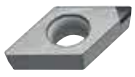
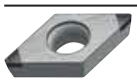
	Designation	l mm	r mm	f mm	ap mm	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	CCMW060204	6,45	0,4	0,05 - 0,20	0,1 - 2,5			☻	☻
	CCMW060208	6,45	0,8	0,05 - 0,25	0,1 - 2,4			☻	☻
	CCMW09T304	9,67	0,4	0,05 - 0,20	0,1 - 2,4			☻	☻
	CCMW09T308	9,67	0,8	0,05 - 0,25	0,1 - 2,3			☻	☻
	CCMW060204-2	6,45	0,4	0,05 - 0,20	0,1 - 2,5			☻	☻
	CCMW060208-2	6,45	0,8	0,05 - 0,25	0,1 - 2,4			☻	☻
	CCMW09T304-2	9,67	0,4	0,05 - 0,20	0,1 - 2,4			☻	☻
	CCMW09T308-2	9,67	0,8	0,05 - 0,25	0,1 - 2,3			☻	☻

Positive basic shape
DCMW

Ceramic and CBN



Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	DCMW11T302	11,63	0,2	0,05 - 0,15	0,1 - 2,6			☻	☻
	DCMW11T304	11,63	0,4	0,05 - 0,20	0,1 - 2,5			☻	☻
	DCMW11T308	11,63	0,8	0,05 - 0,25	0,1 - 2,1			☻	☻
	DCMW11T304-2	11,63	0,4	0,05 - 0,20	0,1 - 2,5			☻	☻
	DCMW11T308-2	11,63	0,8	0,05 - 0,25	0,1 - 2,1			☻	☻

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 299 in the Walter General catalogue 2012.

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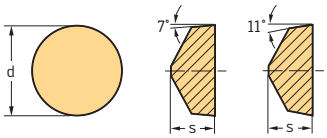
CR = Reinforced ceramic
BL = CBN with low CBN content
BH = CBN with high CBN content

A-128

Positive basic shape
RCGX/RPGX

Ceramic and CBN

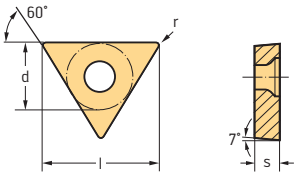


Indexable inserts

	Designation	d mm	f mm	ap mm	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	RCGX060600T01020	6,35	0,10 - 0,20	0,2 - 1,8	☺	😐		
	RCGX090700E	9,525	0,10 - 0,25	0,1 - 2,4	☺			
	RCGX090700T01020	9,525	0,10 - 0,25	0,2 - 2,4	☺	😐		
	RCGX120700E	12,7	0,10 - 0,32	0,1 - 3,6	☺	😐		
	RCGX120700T01020	12,7	0,10 - 0,32	0,2 - 3,6	☺	😐		
	RPGX090700E	9,525	0,10 - 0,20	0,1 - 2,4	☺			
	RPGX090700T01020	9,525	0,10 - 0,20	0,2 - 2,4	☺			
	RPGX120700E	12,7	0,10 - 0,30	0,1 - 3,6	☺			
	RPGX120700T01020	12,7	0,10 - 0,30	0,2 - 3,6	☺	😐		

Positive basic shape
TCMW

Ceramic and CBN



Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	TCMW110204	11	0,4	0,05 - 0,20	0,1 - 2,2			☺	😐
	TCMW110208	11	0,8	0,05 - 0,25	0,1 - 1,9			☺	😐

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
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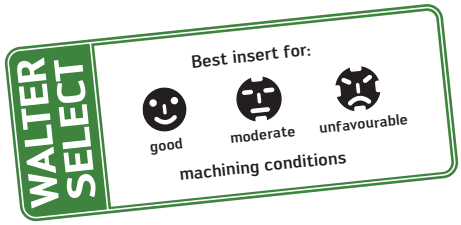
see page A 299 in the Walter General catalogue 2012.

CN = Silicon nitride Si_3N_4
CR = Reinforced ceramic
BL = CBN with low CBN content
BH = CBN with high CBN content

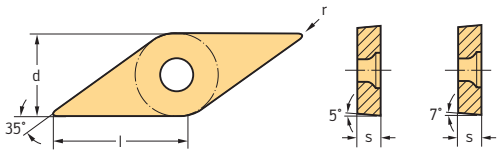


A-128

☺ 😐 ☹ New addition to range

Positive basic shape
VBMW

Ceramic and CBN



Indexable inserts

	Designation	l mm	r mm	f mm	ap mm	S CN WIS10	S CR WWS20	H BL WCB30	H BH WCB50
	VBMW160402	16,6	0,2	0,05 - 0,15	0,1 - 3,8			☻	☻
	VBMW160404	16,6	0,4	0,05 - 0,20	0,1 - 3,3			☻	☻
	VBMW160408	16,6	0,8	0,05 - 0,25	0,1 - 2,5			☻	☻
	VBMW160404-2	16,6	0,4	0,05 - 0,20	0,1 - 3,3			☻	☻
	VBMW160408-2	16,6	0,8	0,05 - 0,25	0,1 - 2,5			☻	☻

For dimensions, see the ISO 1832 designation key from page A-4 onwards.
For achievable surface finish qualities and technical information,
see page A 299 in the Walter General catalogue 2012.

CN = Silicon nitride Si_3N_4
CR = Reinforced ceramic
BL = CBN with low CBN content
BH = CBN with high CBN content

A-128

Designation key for cutting inserts

Example

GX	24	–	2	E	300	N	03	–	U	F	4
1	2		3	4	5	6	7		8	9	10

1 – Insert type

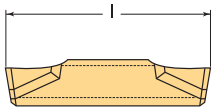
GX 

LX 

FX 

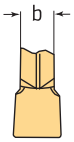
SX 

2 – Insert length (l) [mm]



09	l = 9
16	l = 16
24	l = 24
30	l = 30

3 – Width category



0

1

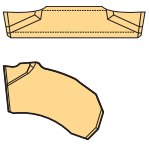
2

3

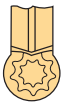
4

5

4 – Basic shape

E 

F 

R 

S 

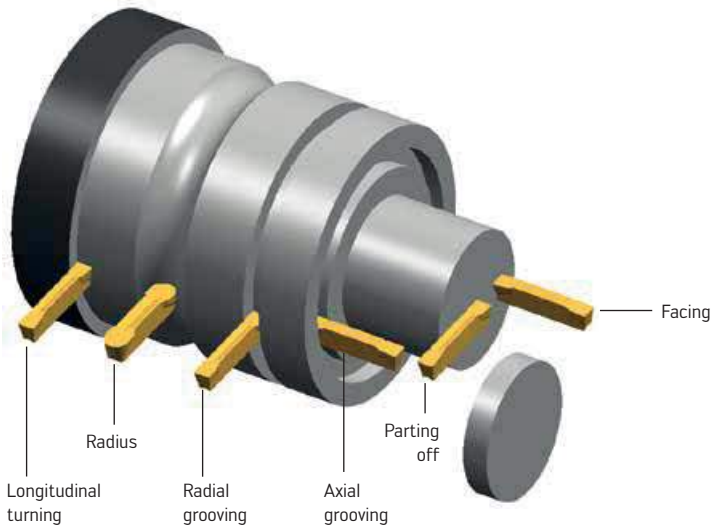
8 – Application

C **"Cut off"**
- Parting off
- Radial grooving

G **"Grooving"**
- Radial grooving
- Axial grooving
- Parting off

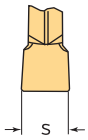
R **Full radius**
- Radial grooving
- Axial grooving
- Longitudinal turning
- Facing

U **Universal**
- Longitudinal turning
- Radial grooving
- Axial grooving
- Facing
- Parting off



5

Groove width s [mm]



for example:

200	s = 2,0
220	s = 2,2
250	s = 2,5
300	s = 3,0
310	s = 3,1

etc.

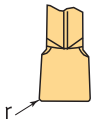
6

Version

Grooving:	**R**		right-hand
	L		left-hand
	N		neutral
Parting off:	**R**		right-hand
	L		left-hand

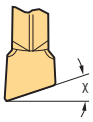
7

Corner radius r [mm]/ clearance angle X [°]



02	r = 0,2
03	r = 0,3
04	r = 0,4
05	r = 0,5

etc.



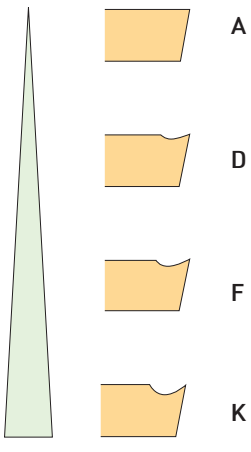
6	X = 6°
7	X = 7°
15	X = 15°

etc.

9

Rake angle

smaller

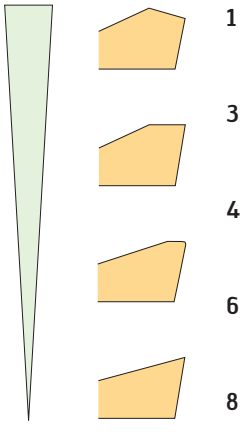


larger

10

Cutting edge

stable



sharp

Walter Select for parting off inserts

Step by step to the right cutting insert

STEP 1

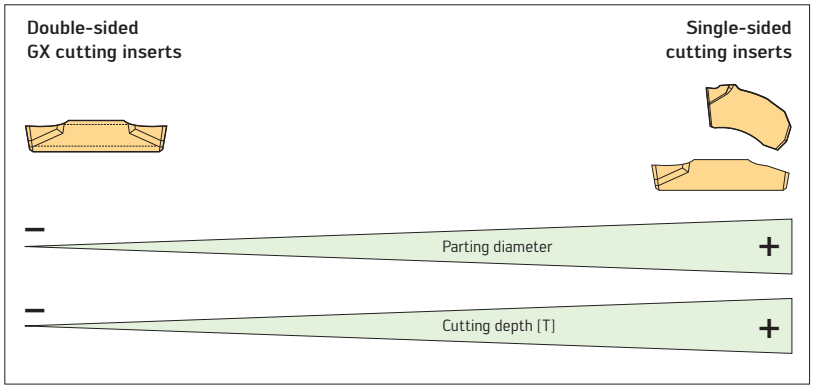
Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	P1–P15	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	M1–M3	**Stainless steel**	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	K1–K7	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	N1–N10	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	S1–S10	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	H1–H4	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	O1–O6	**Other**	Plastics, fibre glass and carbon fibre reinforced plastics, graphite

STEP 2

Determine the **basic shape** of the cutting insert:



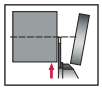
STEP 3

Select the **machining conditions:**

Type of workpiece	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut Parting into a bore	☺	😐	☹
Smooth cut Parting to centre	😐	☹	☹
Interrupted cuts	😐	☹	☹

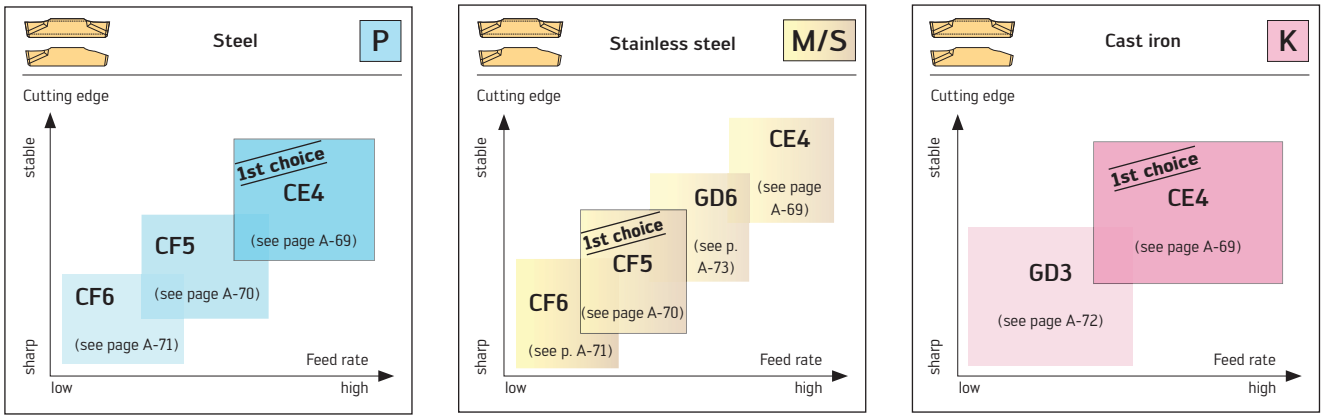
STEP 4

Determine the **indexable insert geometry** via the cutting edge stability and the feed.

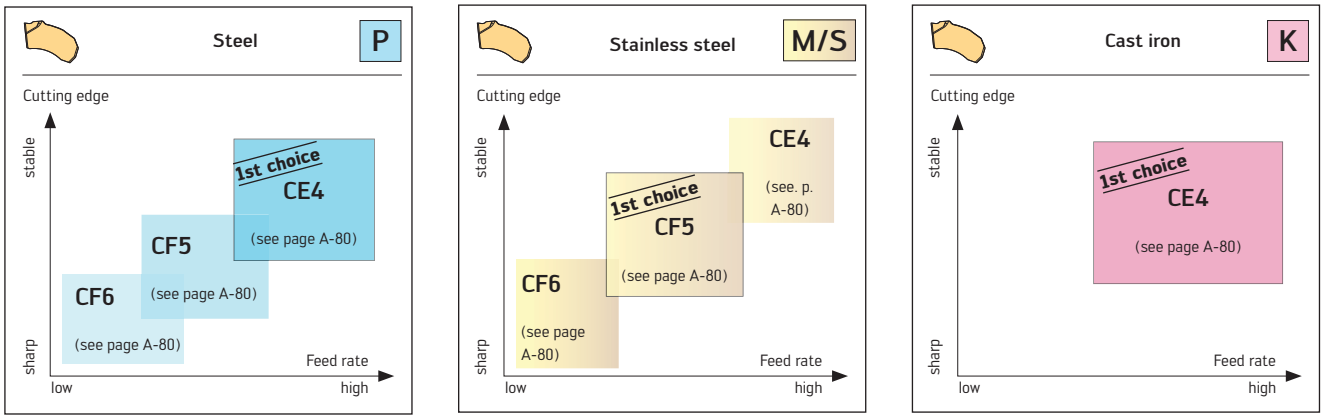


Geometry selection for cutting inserts for parting off

GX cutting inserts



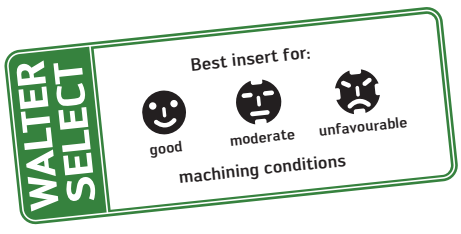
SX cutting inserts

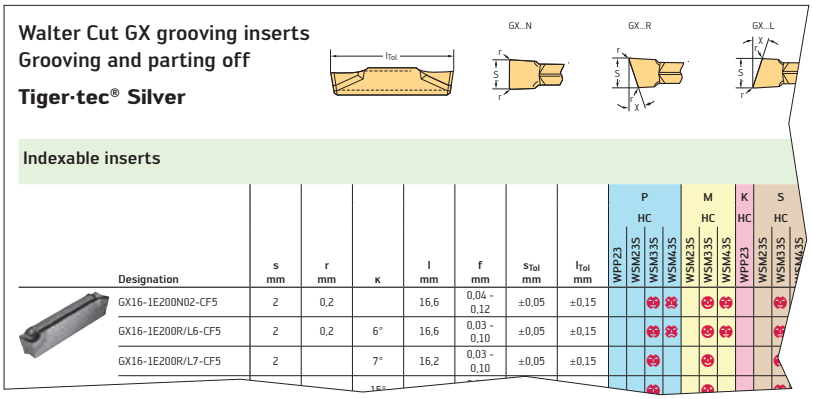


Geometry selection for FX cutting inserts, see page A 55 in the Walter General catalogue 2012.

STEP 5

You will find the cutting tool material recommendation and the feed value (f) on the specified catalogue page.



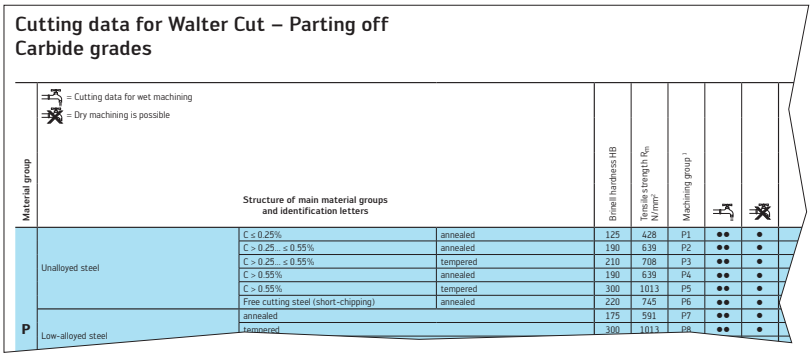


Walter Cut GX grooving inserts
Grooving and parting off
Tiger·tec® Silver

GX...N GX...R GX...L

Indexable inserts

Designation	s mm	r mm	κ	l mm	f mm	s_{Tol} mm	l_{Tol} mm	P WPP23	P HC WSM35S	P HC WSM43S	M WSM35S	M HC WSM43S	K WPP23	K HC WSM35S	S WSM35S	S HC WSM43S
GX16-1E200N02-CF5	2	0,2		16,6	0,04 - 0,12	±0,05	±0,15		☺	☹	☺	☺				☺
GX16-1E200R/L6-CF5	2	0,2	6°	16,6	0,03 - 0,10	±0,05	±0,15		☺	☹	☺	☺				☺
GX16-1E200R/L7-CF5	2		7°	16,2	0,03 - 0,10	±0,05	±0,15		☺		☺					☺



Cutting data for Walter Cut – Parting off
Carbide grades

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and identification letters		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group		
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●● ●
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●● ●
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●● ●
		C > 0.55%	annealed	190	639	P4	●● ●
		C > 0.55%	tempered	300	1013	P5	●● ●
		Free cutting steel (short-chipping)	annealed	220	745	P6	●● ●
	Low-alloyed steel		annealed	175	591	P7	●● ●
			tempered	300	1013	P8	●● ●

STEP 6

Choose the **cutting data** for your selected cutting insert from the technical information from page A-142 onwards.

Walter Select for grooving and recessing inserts

Step by step to the right cutting insert

STEP 1

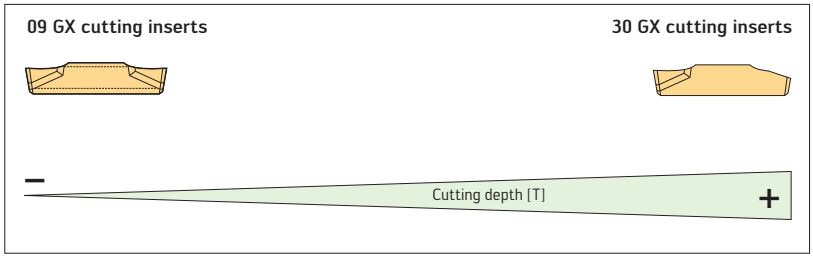
Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	P1–P15	Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	M1–M3	Stainless steel	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	K1–K7	Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	N1–N10	NF metals	Aluminium and other non-ferrous metals, non-ferrous materials
S	S1–S10	High temperature alloys and titanium alloys	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	H1–H4	Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron
O	O1–O6	Other	Plastics, fibre glass and carbon fibre reinforced plastics, graphite

STEP 2

Determine the **basic shape** of the cutting insert:



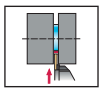
STEP 3

Select the **machining conditions:**

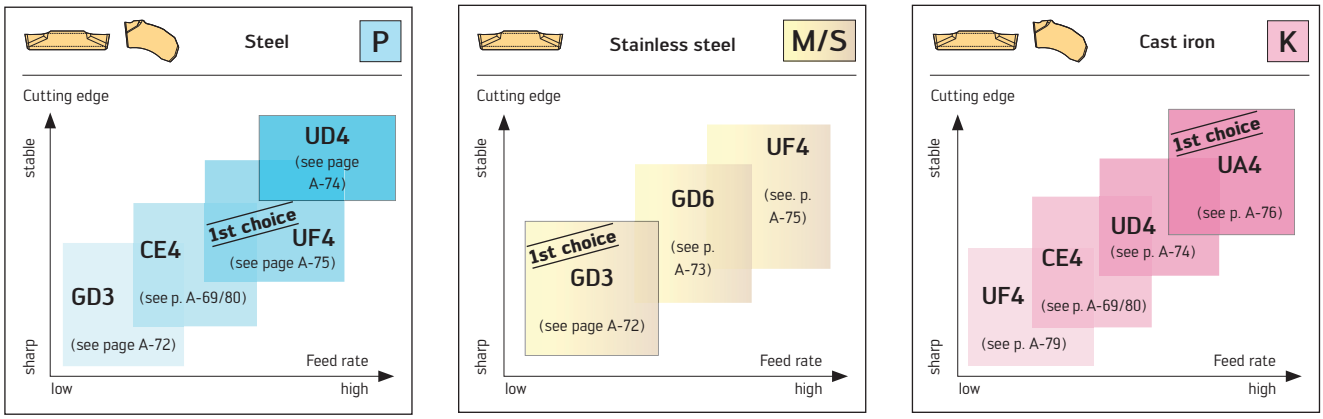
Type of workpiece	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut Premachined surface	☺	☺	😐
Casting or forged skin Variable cutting depths	☺	😐	☹
Interrupted cuts	😐	☹	☹

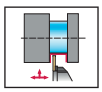
STEP 4

Determine the indexable insert geometry via the cutting edge stability and the feed.

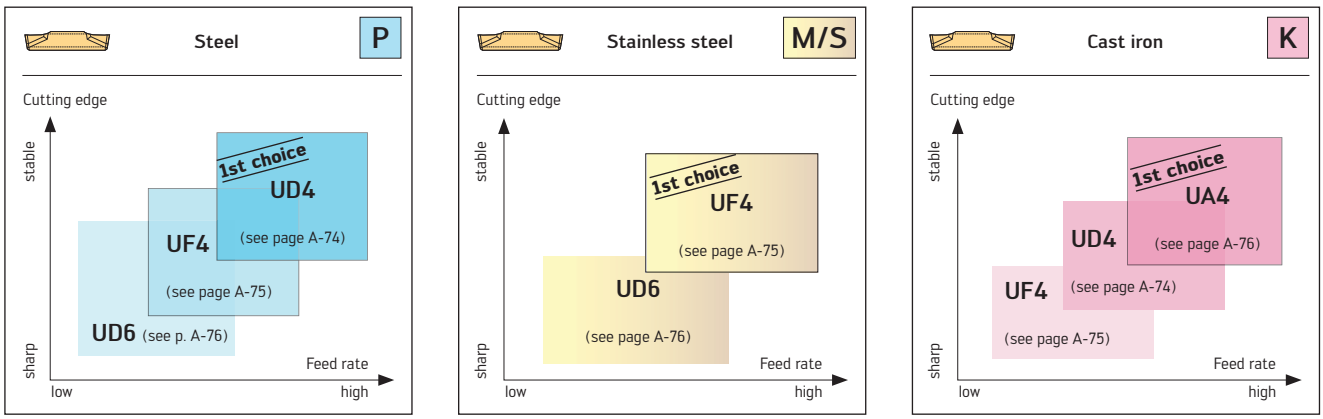


Geometry selection for grooving



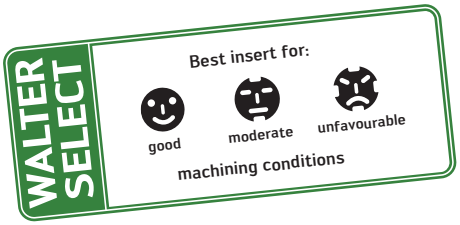


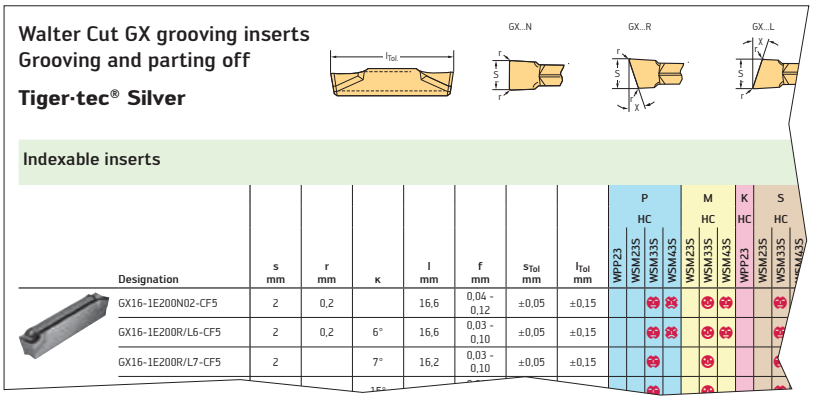
Geometry selection for groove turning



STEP 5

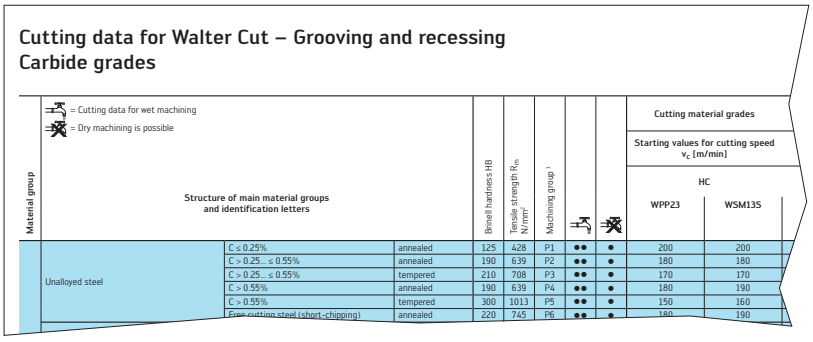
On the specified catalogue page you will find the cutting tool material recommendation, the feed value (f) and the cutting depth (a_p).





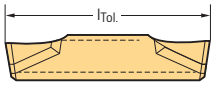
STEP 6

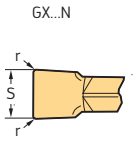
Choose the **cutting data** for your selected cutting insert in the technical information from page A-140 onwards.

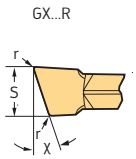


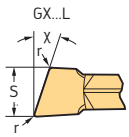

WALTER

Walter Cut GX grooving inserts
Grooving and parting off
Tiger·tec® Silver







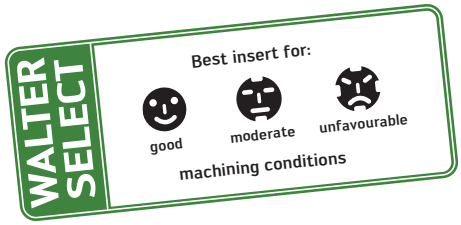


Indexable inserts

	Designation	s mm	r mm	κ	l mm	f mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX16-1E200N02-CE4	2	0,2		16,6	0,06 - 0,15	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX16-1E200R/L6-CE4	2	0,2	6°	16,6	0,04 - 0,10	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX16-1E250N02-CE4	2,5	0,2		16,6	0,07 - 0,18	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX16-1E250R/L6-CE4	2,5	0,2	6°	16,6	0,05 - 0,12	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX16-2E300N02-CE4	3	0,2		16,6	0,09 - 0,30	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX16-2E300R/L6-CE4	3	0,2	6°	16,6	0,09 - 0,24	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-2E300N02-CE4	3	0,2		24	0,09 - 0,30	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-2E300N020-CE4	3	0,2		24	0,09 - 0,30	±0,05	±0,15	☺							☹			
	GX24-2E300R/L6-CE4	3	0,2	6°	24,6	0,09 - 0,24	±0,05	±0,15	☺		☹	☹		☺	☹	☹		☹	☹
	GX24-3E400N03-CE4	4	0,3		24	0,10 - 0,32	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-3E400N030-CE4	4	0,3		24	0,10 - 0,32	±0,05	±0,15	☺							☹			
	GX24-3E400R/L6-CE4	4	0,2	6°	24,6	0,10 - 0,26	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-3E500N03-CE4	5	0,3		24	0,12 - 0,35	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-3E500N030-CE4	5	0,3		24	0,12 - 0,35	±0,05	±0,15	☺							☹			
	GX24-4E600N03-CE4	6	0,3		24	0,12 - 0,40	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-4E600N030-CE4	6	0,3		24	0,12 - 0,40	±0,05	±0,15	☺							☹			
	GX16-1F200N02-CE4	2	0,2		16	0,04 - 0,12	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX16-1F250N02-CE4	2,5	0,2		16	0,05 - 0,15	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-2F300N02-CE4	3	0,2		24	0,09 - 0,30	±0,05	±0,15			☹	☹		☺	☹			☹	☹
	GX24-3F400N03-CE4	4	0,3		24	0,10 - 0,32	±0,05	±0,15			☹	☹		☺	☹			☹	☹

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05
Parting off with diameters up to 32 mm is possible with these inserts (l = 16.6 mm).

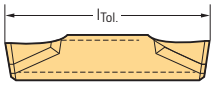
HC = Coated carbide

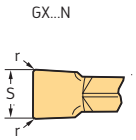


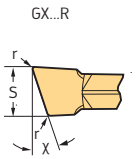
A-140

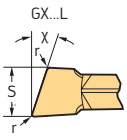
☺ ☹ ☹ New addition to range

Walter Cut GX grooving inserts
Grooving and parting off
Tiger·tec® Silver









Indexable inserts

	Designation	s mm	r mm	κ	l mm	f mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX16-1E200N02-CF5	2	0,2		16,6	0,04 - 0,12	±0,05	±0,15			●	●		●	●			●	●
	GX16-1E200R/L6-CF5	2	0,2	6°	16,6	0,03 - 0,10	±0,05	±0,15			●	●		●	●			●	●
	GX16-1E200R/L7-CF5	2		7°	16,2	0,03 - 0,10	±0,05	±0,15			●			●				●	
	GX16-1E200R/L15-CF5	2		15°	16,2	0,03 - 0,10	±0,05	±0,15			●			●				●	
	GX16-1E250N02-CF5	2,5	0,2		16,6	0,05 - 0,15	±0,05	±0,15			●	●		●	●			●	●
	GX16-1E250R/L6-CF5	2,5	0,2	6°	16,6	0,03 - 0,12	±0,05	±0,15			●	●		●	●			●	●
	GX16-2E300N02-CF5	3	0,2		16,6	0,08 - 0,20	±0,05	±0,15			●	●		●	●			●	●
	GX16-2E300R/L6-CF5	3	0,2	6°	16,6	0,04 - 0,16	±0,05	±0,15			●	●		●	●			●	●
	GX16-2E300R/L7-CF5	3		7°	16,2	0,04 - 0,13	±0,05	±0,15			●			●				●	
	GX16-2E300R/L15-CF5	3		15°	16,2	0,04 - 0,13	±0,05	±0,15			●			●				●	
	GX24-2E300N02-CF5	3	0,2		24	0,08 - 0,20	±0,05	±0,15			●	●		●	●			●	●
	GX24-2E300R/L6-CF5	3	0,2	6°	24,6	0,04 - 0,16	±0,05	±0,15			●	●		●	●			●	●
	GX24-3E400N02-CF5	4	0,2		24	0,10 - 0,22	±0,05	±0,15			●	●		●	●			●	●
	GX24-3E400R/L6-CF5	4	0,2	6°	24,6	0,10 - 0,18	±0,05	±0,15			●	●		●	●			●	●
	GX24-3E500N03-CF5	5	0,3		24	0,10 - 0,25	±0,05	±0,15			●	●		●	●			●	●
	GX16-1F200N02-CF5	2	0,2		16	0,03 - 0,12	±0,05	±0,15			●	●		●	●			●	●
	GX16-1F250N02-CF5	2,5	0,2		16	0,03 - 0,15	±0,05	±0,15			●	●		●	●			●	●
	GX24-2F300N02-CF5	3	0,2		23,7	0,04 - 0,20	±0,05	±0,15			●	●		●	●			●	●
	GX24-3F400N02-CF5	4	0,2		23,7	0,10 - 0,22	±0,05	±0,15			●	●		●	●			●	●
	GX24-3F500N03-CF5	5	0,3		23,7	0,10 - 0,25	±0,05	±0,15			●	●		●	●			●	●

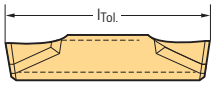
l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05
Parting off with diameters up to 32 mm is possible with these inserts (l = 16.6 mm).

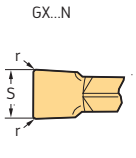
HC = Coated carbide

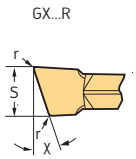
A-140

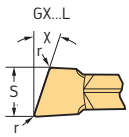
● ● ● New addition to range

Walter Cut GX grooving inserts
Grooving and parting off
Tiger·tec® Silver









Indexable inserts

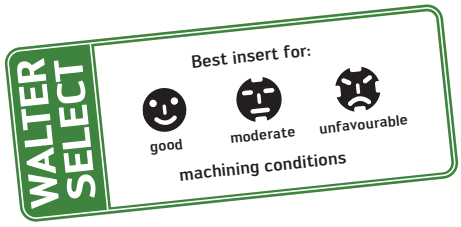
	Designation	s mm	r mm	κ	l mm	f mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX16-0E150N01-CF6	1,5	0,15		16,6	0,03 - 0,10	±0,02	±0,05			●	●		●	●			●	●
	GX16-0E150R/L10-CF6	1,5	0,15	10°	16,6	0,03 - 0,10	±0,02	±0,05			●			●				●	
	GX16-1E200N02-CF6	2	0,2		16,6	0,03 - 0,12	±0,05	±0,15			●	●		●	●			●	●
	GX16-1E200R/L6-CF6	2	0,2	6°	16,6	0,03 - 0,10	±0,05	±0,15			●	●		●	●			●	●
	GX16-1E200R/L7-CF6	2		7°	16,2	0,03 - 0,10	±0,05	±0,15			●			●				●	
	GX16-1E200R/L15-CF6	2		15°	16,2	0,03 - 0,10	±0,05	±0,15			●			●				●	
	GX16-1E250N02-CF6	2,5	0,2		16,6	0,03 - 0,15	±0,05	±0,15			●	●		●	●			●	●
	GX16-1E250R/L6-CF6	2,5	0,2	6°	16,6	0,03 - 0,12	±0,05	±0,15			●	●		●	●			●	●
	GX16-2E300N02-CF6	3	0,2		16,6	0,04 - 0,20	±0,05	±0,15			●	●		●	●			●	●
	GX16-2E300R/L6-CF6	3	0,2	6°	16,6	0,04 - 0,16	±0,05	±0,15			●	●		●	●			●	●
	GX16-2E300R/L7-CF6	3		7°	16,2	0,04 - 0,13	±0,05	±0,15			●			●				●	
	GX16-2E300R/L15-CF6	3		15°	16,2	0,04 - 0,13	±0,05	±0,15			●			●				●	
	GX24-2E300N02-CF6	3	0,2		24,6	0,04 - 0,20	±0,05	±0,15			●	●		●	●			●	●
	GX24-2E300R/L6-CF6	3	0,2	6°	24,6	0,04 - 0,16	±0,05	±0,15			●	●		●	●			●	●
	GX16-1F200N02-CF6	2	0,2		16	0,03 - 0,12	±0,05	±0,15			●	●		●	●			●	●
	GX16-1F250N02-CF6	2,5	0,2		16	0,03 - 0,15	±0,05	±0,15			●	●		●	●			●	●
	GX24-2F300N02-CF6	3	0,2		24	0,04 - 0,20	±0,05	±0,15			●	●		●	●			●	●

l_{Tol} = Repeat accuracy when changing indexable insert

HC = Coated carbide

Radius tolerance r_{tol} = ± 0.05

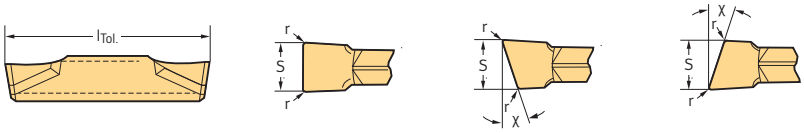
Parting off with diameters up to 32 mm is possible with these inserts (l = 16.6 mm).



A-140

● ● ● New addition to range

Walter Cut GX grooving inserts
Grooving and parting off
Tiger·tec® Silver



Indexable inserts

	Designation	s mm	r mm	κ	l mm	f mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX09-1E200N02-GD3	2	0,2		9	0,04 - 0,12	±0,02	±0,05			●	●		●	●			●	●
	GX09-1E250N02-GD3	2,5	0,2		9	0,04 - 0,14	±0,02	±0,05			●	●		●	●			●	●
	GX09-2E300N03-GD3	3	0,3		9	0,06 - 0,18	±0,02	±0,05			●	●		●	●			●	●
	GX09-2E300N030-GD3	3	0,3		9	0,06 - 0,18	±0,02	±0,05	●							●			
	GX09-2E350N03-GD3	3,5	0,3		9	0,06 - 0,18	±0,02	±0,05			●	●		●	●			●	●
	GX16-1E200N02-GD3	2	0,2		16	0,04 - 0,12	±0,02	±0,05			●	●		●	●			●	●
	GX16-1E200N020-GD3	2	0,2		16	0,04 - 0,12	±0,02	±0,05	●							●			
	GX16-1E250N02-GD3	2,5	0,2		16	0,04 - 0,14	±0,02	±0,05			●	●		●	●			●	●
	GX16-1E250N020-GD3	2,5	0,2		16	0,04 - 0,14	±0,02	±0,05	●							●			
	GX16-2E300N03-GD3	3	0,3		16	0,06 - 0,18	±0,02	±0,05			●	●		●	●			●	●
	GX16-2E300N030-GD3	3	0,3		16	0,06 - 0,18	±0,02	±0,05	●							●			
	GX16-3E400N04-GD3	4	0,4		16	0,10 - 0,20	±0,02	±0,05			●	●		●	●			●	●
	GX16-3E400N040-GD3	4	0,4		16	0,10 - 0,20	±0,02	±0,05	●							●			
	GX16-3E500N04-GD3	5	0,4		16	0,12 - 0,25	±0,02	±0,05			●	●		●	●			●	●
	GX16-3E500N040-GD3	5	0,4		16	0,12 - 0,25	±0,02	±0,05	●							●			
	GX24-2E300N03-GD3	3	0,3		24	0,06 - 0,18	±0,05	±0,15			●	●		●	●			●	●
	GX24-2E300N030-GD3	3	0,3		24	0,06 - 0,18	±0,05	±0,15	●							●			
	GX24-3E400N04-GD3	4	0,4		24	0,10 - 0,20	±0,05	±0,15			●	●		●	●			●	●
	GX24-3E400N040-GD3	4	0,4		24	0,10 - 0,20	±0,05	±0,15	●							●			
	GX24-3E500N04-GD3	5	0,4		24	0,12 - 0,25	±0,05	±0,15			●	●		●	●			●	●
	GX24-3E500N040-GD3	5	0,4		24	0,12 - 0,25	±0,05	±0,15	●							●			
	GX24-4E600N05-GD3	6	0,5		24	0,14 - 0,28	±0,05	±0,15			●	●		●	●			●	●
	GX24-4E600N050-GD3	6	0,5		24	0,14 - 0,28	±0,05	±0,15	●							●			

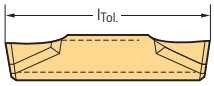
l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

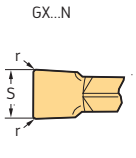
HC = Coated carbide

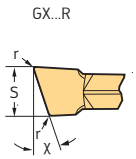
A-140

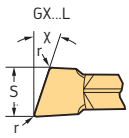
● ● ● New addition to range

Walter Cut GX grooving inserts
Grooving and parting off
Tiger·tec® Silver







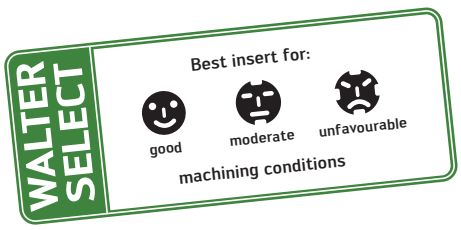


Indexable inserts

	Designation	s mm	r mm	κ	l mm	f mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX16-1E200N02-GD6	2	0,2		16	0,04 - 0,12	±0,05	±0,15		●	●		●	●			●	●	
	GX16-1E250N02-GD6	2,5	0,2		16	0,06 - 0,17	±0,05	±0,15		●	●		●	●			●	●	
	GX16-2E300N03-GD6	3	0,3		16	0,08 - 0,18	±0,05	±0,15		●	●		●	●			●	●	
	GX16-3E400N04-GD6	4	0,4		16	0,10 - 0,22	±0,05	±0,15		●	●		●	●			●	●	
	GX16-3E500N04-GD6	5	0,4		16	0,12 - 0,24	±0,05	±0,15		●	●		●	●			●	●	
	GX16-4E600N05-GD6	6	0,5		16	0,14 - 0,30	±0,05	±0,15		●	●		●	●			●	●	
	GX24-2E300N03-GD6	3	0,3		24	0,08 - 0,18	±0,05	±0,15		●	●		●	●			●	●	
	GX24-3E400N04-GD6	4	0,4		24	0,10 - 0,22	±0,05	±0,15		●	●		●	●			●	●	
	GX24-3E500N04-GD6	5	0,4		24	0,12 - 0,24	±0,05	±0,15		●	●		●	●			●	●	
	GX24-4E600N05-GD6	6	0,5		24	0,14 - 0,30	±0,05	±0,15		●	●		●	●			●	●	

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

HC = Coated carbide

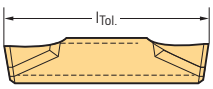


A-140

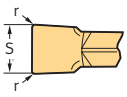
● ● ● New addition to range

Walter Cut GX grooving inserts
Grooving and longitudinal turning

Tiger·tec® Silver



GX...N

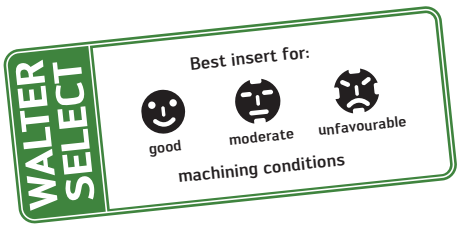


Indexable inserts

	Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WAK20	K HC WAK30	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX24-2E300N03-UD4	3	0,3	24	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15			☺			☺						☺	
	GX24-3E400N04-UD4	4	0,4	24	0,10 - 0,30	0,5 - 2,8	±0,05	±0,15			☺			☺						☺	
	GX24-3E400N08-UD4	4	0,8	24	0,10 - 0,30	0,9 - 2,8	±0,05	±0,15			☺			☺						☺	
	GX24-3E500N04-UD4	5	0,4	24	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15			☺			☺						☺	
	GX24-3E500N08-UD4	5	0,8	24	0,12 - 0,35	0,9 - 3,0	±0,05	±0,15			☺			☺						☺	
	GX24-4E600N05-UD4	6	0,5	24	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15			☺			☺						☺	
	GX24-4E600N08-UD4	6	0,8	24	0,14 - 0,40	0,9 - 3,5	±0,05	±0,15			☺			☺						☺	
	GX30-5E800N08-UD4	8	0,8	30	0,14 - 0,40	0,6 - 4,0	±0,05	±0,15			☺			☺						☺	
	GX30-5E800N12-UD4	8	1,2	30	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15			☺			☺						☺	

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

HC = Coated carbide

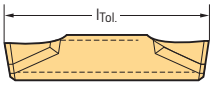


A-140

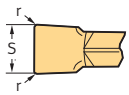
☺☺☺ New addition to range

Walter Cut GX grooving inserts
Grooving and longitudinal turning

Tiger·tec® Silver



GX...N



Indexable inserts

Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WAK20	K HC WAK30	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
GX09-1E200N02-UF4	2	0,2	9	0,10 - 0,15	0,3 - 1,0	±0,05	±0,15			●	●		●	●					●	●
GX09-2E300N03-UF4	3	0,3	9	0,10 - 0,20	0,4 - 1,5	±0,05	±0,15			●	●		●	●					●	●
GX16-1E200N02-UF4	2	0,2	16	0,10 - 0,15	0,3 - 1,2	±0,05	±0,15			●	●		●	●					●	●
GX16-1E200N020-UF4	2	0,2	16	0,10 - 0,15	0,3 - 1,2	±0,05	±0,15	●									●			
GX16-1E250N02-UF4	2,5	0,2	16	0,10 - 0,18	0,3 - 1,3	±0,05	±0,15			●	●		●	●					●	●
GX16-1E250N020-UF4	2,5	0,2	16	0,10 - 0,18	0,3 - 1,3	±0,05	±0,15	●									●			
GX16-2E300N03-UF4	3	0,3	16	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15			●	●		●	●					●	●
GX16-2E300N030-UF4	3	0,3	16	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15	●									●			
GX16-3E400N04-UF4	4	0,4	16	0,10 - 0,30	0,5 - 2,8	±0,05	±0,15			●	●		●	●					●	●
GX16-3E400N040-UF4	4	0,4	16	0,10 - 0,30	0,5 - 2,8	±0,05	±0,15	●									●			
GX16-3E500N04-UF4	5	0,4	16	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15			●	●		●	●					●	●
GX16-3E500N040-UF4	5	0,4	16	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15	●									●			
GX16-4E600N05-UF4	6	0,5	16	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15			●	●		●	●					●	●
GX16-4E600N050-UF4	6	0,5	16	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15	●									●			
GX24-2E300N03-UF4	3	0,3	24	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15			●	●		●	●					●	●
GX24-2E300N030-UF4	3	0,3	24	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15	●									●			
GX24-2E318N030-UF4	3,18	0,3	24	0,08 - 0,35	2,5	±0,05	±0,15	●									●			
GX24-2E318N03-UF4	3,18	0,3	24	0,08 - 0,35	2,5	±0,05	±0,15			●	●		●	●					●	●
GX24-3E400N04-UF4	4	0,4	24	0,10 - 0,30	0,5 - 2,8	±0,05	±0,15			●	●		●	●					●	●
GX24-3E400N040-UF4	4	0,4	24	0,10 - 0,30	0,5 - 2,8	±0,05	±0,15	●									●			
GX24-3E400N08-UF4	4	0,8	24	0,10 - 0,30	0,9 - 2,8	±0,05	±0,15			●			●						●	
GX24-3E400N080-UF4	4	0,8	24	0,10 - 0,30	0,9 - 2,8	±0,05	±0,15	●									●			
GX24-3E475N04-UF4	4,75	0,4	24	0,10 - 0,40	3	±0,05	±0,15			●	●		●	●					●	●
GX24-3E475N040-UF4	4,75	0,4	24	0,10 - 0,40	3	±0,05	±0,15	●									●			
GX24-3E500N04-UF4	5	0,4	24	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15			●	●		●	●					●	●
GX24-3E500N040-UF4	5	0,4	24	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15	●									●			
GX24-3E500N08-UF4	5	0,8	24	0,12 - 0,35	0,9 - 3,0	±0,05	±0,15			●			●						●	
GX24-3E500N080-UF4	5	0,8	24	0,12 - 0,35	0,9 - 3,0	±0,05	±0,15	●									●			

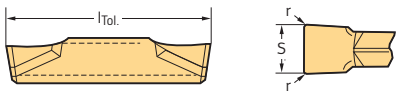
l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

HC = Coated carbide

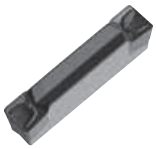
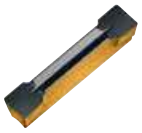
A-140

● ● ● New addition to range

Walter Cut GX grooving inserts
Grooving and longitudinal turning
Tiger·tec® Silver



Indexable inserts

	Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WAK20	K HC WAK30	K HC WPP23	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX24-4E600N05-UF4	6	0,5	24	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15			●	●		●	●					●	●
	GX24-4E600N050-UF4	6	0,5	24	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15	●									●			
	GX24-4E600N08-UF4	6	0,8	24	0,14 - 0,40	0,9 - 3,5	±0,05	±0,15			●			●						●	
	GX24-4E600N080-UF4	6	0,8	24	0,14 - 0,40	0,9 - 3,5	±0,05	±0,15	●									●			
	GX24-4E635N05-UF4	6,35	0,5	24	0,15 - 0,60	3,5	±0,05	±0,15			●	●		●	●					●	●
	GX24-4E635N050-UF4	6,35	0,5	24	0,15 - 0,60	3,5	±0,05	±0,15	●									●			
	GX16-1E200N02-UD6	2	0,2	16	0,06 - 0,15	0,3 - 1,2	±0,05	±0,15		●	●		●	●					●	●	
	GX16-1E250N02-UD6	2,5	0,2	16	0,08 - 0,14	0,3 - 1,3	±0,05	±0,15		●	●		●	●					●	●	
	GX16-2E300N03-UD6	3	0,3	16	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15		●	●		●	●					●	●	
	GX16-3E400N04-UD6	4	0,4	16	0,12 - 0,25	0,5 - 2,8	±0,05	±0,15		●	●		●	●					●	●	
	GX16-3E500N04-UD6	5	0,4	16	0,12 - 0,30	0,5 - 3,0	±0,05	±0,15		●	●		●	●					●	●	
	GX16-4E600N05-UD6	6	0,5	16	0,14 - 0,35	0,6 - 3,5	±0,05	±0,15		●	●		●	●					●	●	
	GX24-2E300N03-UD6	3	0,3	24	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15		●	●		●	●					●	●	
	GX24-3E400N04-UD6	4	0,4	24	0,12 - 0,25	0,5 - 2,8	±0,05	±0,15		●	●		●	●					●	●	
	GX24-3E500N04-UD6	5	0,4	24	0,12 - 0,30	0,5 - 3,0	±0,05	±0,15		●	●		●	●					●	●	
	GX24-4E600N05-UD6	6	0,5	24	0,14 - 0,35	0,6 - 3,5	±0,05	±0,15		●	●		●	●					●	●	
	GX16-1E200N020-UA4	2	0,2	16	0,08 - 0,15	0,3 - 1,2	±0,05	±0,15								●	●				
	GX16-2E300N030-UA4	3	0,3	16	0,10 - 0,22	0,4 - 2,0	±0,05	±0,15								●	●				
	GX16-3E400N040-UA4	4	0,4	16	0,10 - 0,35	0,5 - 2,8	±0,05	±0,15								●	●				
	GX16-3E500N040-UA4	5	0,4	16	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15								●	●				
	GX16-4E600N050-UA4	6	0,5	16	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15								●	●				
	GX24-2E300N030-UA4	3	0,3	24	0,10 - 0,22	0,4 - 2,0	±0,05	±0,15								●	●				
	GX24-3E400N040-UA4	4	0,4	24	0,10 - 0,35	0,5 - 2,8	±0,05	±0,15								●	●				
	GX24-3E500N040-UA4	5	0,4	24	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15								●	●				
	GX24-4E600N050-UA4	6	0,5	24	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15								●	●				

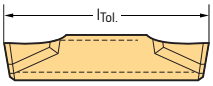
l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

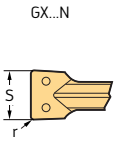
HC = Coated carbide

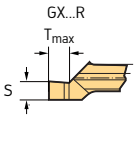
A-140

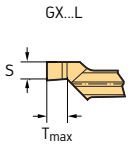
● ● ● New addition to range

Walter Cut GX grooving inserts
Circlip grooves







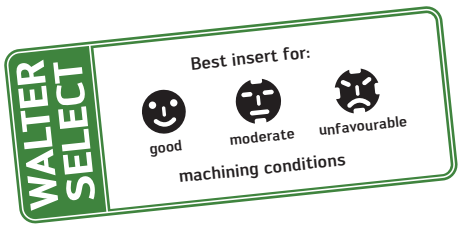


Indexable inserts

	Designation	s mm	r mm	T_{max} mm	l mm	f mm	s_{Tol} mm	l_{Tol} mm	P HC WSM23S	P HC WSM33S	P HC WTA33	M HC WSM23S	M HC WSM33S	K HC WTA33	S HC WSM23S	S HC WSM33S
	GX09-1S1.00R/L	1		1,14	9	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX09-1S1.20R/L	1,2		1,34	9	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX09-1S1.40R/L	1,4		1,53	9	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX09-1S1.70R/L	1,7		1,82	9	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX09-1S1.95N	2	0,1		9	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX09-1S2.25N	2,3	0,1		9	0,05 - 0,12	±0,02	±0,05			😐			😐		
	GX09-2S2.75N	2,8	0,1		9	0,05 - 0,12	±0,02	±0,05			😐			😐		
	GX09-2S3.25N	3,3	0,1		9	0,05 - 0,12	±0,02	±0,05			😐			😐		
	GX16-2S0.60R/L	0,6		0,75	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S0.80R/L	0,8		0,94	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S0.90R/L	0,9		1,04	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S1.00R/L	1		1,14	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S1.20R/L	1,2		1,34	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S1.40R/L	1,4		1,53	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S1.70R/L	1,7		1,82	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S1.95R/L	2		2,07	16	0,05 - 0,10	±0,02	±0,05			😐			😐		
	GX16-2S2.25R/L	2,3		2,36	16	0,05 - 0,12	±0,02	±0,05			😐			😐		
	GX16-2S2.75N	2,8	0,1		16	0,05 - 0,12	±0,02	±0,05			😐			😐		
	GX16-2S3.25N	3,3	0,1		16	0,07 - 0,14	±0,02	±0,05			😐			😐		
	GX16-3S4.25N	4,3	0,2		16	0,07 - 0,20	±0,02	±0,05			😐			😐		
	GX16-4S5.25N	5,3	0,2		16	0,08 - 0,20	±0,02	±0,05			😐			😐		

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

HC = Coated carbide



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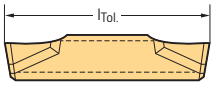
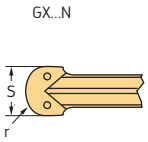
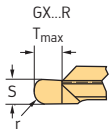
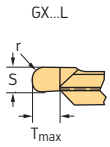
Walter Cut GX grooving inserts
Grooving and longitudinal turning
Tiger·tec® Silver









Indexable inserts

	Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM13S	P HC WSM23S	P HC WSM33S	P HC WSM33	P HC WSP43	P HC WTA33	M HC WSM13S	M HC WSM23S	M HC WSM33S	M HC WSM33	K HC WPP23	K HC WTA33	N HW WK1	S HC WSM13S	S HC WSM23S	S HC WSM33S
	GX16-1E200N10-RD4	2	1	16	0,08 - 0,25	0,2 - 1,0	±0,05	±0,15	●		●	●					●	●		●				●	●
	GX16-1E239N12-RD4	2,39	1,2	16	0,08 - 0,25	0,2 - 1,0	±0,05	±0,15	●			●						●		●					●
	GX24-2E300N15-RD4	3	1,5	24	0,10 - 0,35	0,5 - 1,5	±0,05	±0,15				●						●							●
	GX24-2E300N150-RD4	3	1,5	24	0,08 - 0,35	1,5	±0,05	±0,15	●											●					
	GX24-2E318N159-RD4	3,18	1,59	24	0,08 - 0,35	1,6	±0,05	±0,15	●											●					
	GX24-2E318N16-RD4	3,18	1,59	24	0,08 - 0,35	1,6	±0,05	±0,15				●						●							●
	GX24-3E400N20-RD4	4	2	24	0,15 - 0,50	0,5 - 2,0	±0,05	±0,15				●						●							●
	GX24-3E400N200-RD4	4	2	24	0,10 - 0,40	2	±0,05	±0,15	●											●					
	GX24-3E475N238-RD4	4,75	2,38	24	0,10 - 0,40	2,4	±0,05	±0,15	●											●					
	GX24-3E475N24-RD4	4,75	2,38	24	0,10 - 0,40	2,4	±0,05	±0,15				●						●							●
	GX24-3E500N25-RD4	5	2,5	24	0,17 - 0,70	0,5 - 2,5	±0,05	±0,15				●						●							●
	GX24-3E500N250-RD4	5	2,5	24	0,12 - 0,50	2,5	±0,05	±0,15	●											●					
	GX24-4E600N30-RD4	6	3	24	0,17 - 0,70	0,5 - 3,0	±0,05	±0,15				●						●							●
	GX24-4E600N300-RD4	6	3	24	0,15 - 0,60	3	±0,05	±0,15	●											●					
	GX24-4E635N318-RD4	6,35	3,18	24	0,15 - 0,60	3	±0,05	±0,15	●											●					
	GX24-4E635N32-RD4	6,35	3,18	24	0,15 - 0,60	3	±0,05	±0,15				●						●							●
	GX24-2E300N15-RF8	3	1,5	24	0,10 - 0,30	0,1 - 1,5	±0,02	±0,02		●	●					●	●						●	●	
	GX24-3E400N20-RF8	4	2	24	0,12 - 0,45	0,1 - 2,0	±0,02	±0,02		●	●					●	●						●	●	
	GX24-3E500N25-RF8	5	2,5	24	0,15 - 0,50	0,1 - 2,5	±0,02	±0,02		●	●					●	●						●	●	
	GX24-4E600N30-RF8	6	3	24	0,15 - 0,55	0,1 - 3,0	±0,02	±0,02		●	●					●	●						●	●	
	GX09-1R1.00N	2	1	9	0,05 - 0,17	1	±0,02	±0,02							●						●				
	GX09-1R1.20N	2,4	1,2	9	0,05 - 0,17	1,2	±0,02	±0,02							●						●				
	GX16-2R1.00R/L*	2	1	16	0,05 - 0,17	1	±0,02	±0,02							●						●				
	GX16-2R1.20R/L*	2,4	1,2	16	0,05 - 0,17	1,2	±0,02	±0,02							●						●				
	GX16-2R1.50N	3	1,5	16	0,10 - 0,20	1,5	±0,02	±0,02							●						●				
	GX16-3R2.00N	4	2	16	0,10 - 0,30	2	±0,02	±0,02							●						●				
	GX16-3R2.50N	5	2,5	16	0,15 - 0,35	2,5	±0,02	±0,02							●						●				
	GX16-4R3.00N	6	3	16	0,15 - 0,40	3	±0,02	±0,02							●						●				

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05
* T_{max} values for GX16-2R1.00R/L = 2.18 mm and GX162R1,20R/L = 2.58 mm

HC = Coated carbide
HW = Uncoated carbide

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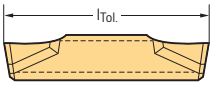
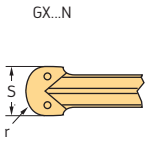
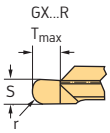
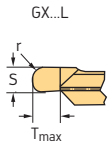
● ● ● New addition to range

Walter Cut GX/LX grooving inserts
Grooving and longitudinal turning
Tiger·tec® Silver

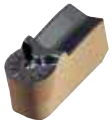
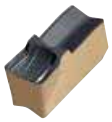






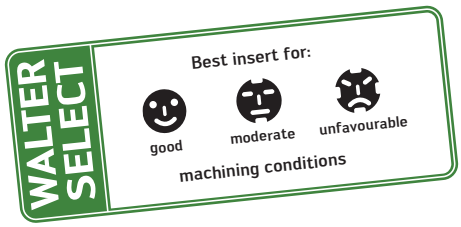


Indexable inserts

	Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM13S	P HC WSM23S	P HC WSM33S	P HC WSM33	P HC WSP43	P HC WTA33	M HC WSM13S	M HC WSM23S	M HC WSM33S	M HC WSM33	K HC WPP23	K HC WTA33	N HW WK1	S HC WSM13S	S HC WSM23S	S HC WSM33S
	GX24-4R300N-RK8	6	3	25,4	0,10 - 0,30	4	±0,02	±0,05														☻			
	GX24-5R400N-RK8	8	4	25,4	0,10 - 0,35	5	±0,02	±0,05														☻			
	LX-E800N400-RD3	8	4	19	0,15 - 0,50	4	±0,08	±0,15	☻				😐						☻	😐					
	LX-E800N080-UE4	8	0,8	19	0,20 - 0,50	0,9 - 5,0	-0,08	±0,15	☻				😐	☹					☻	☻					

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

HC = Coated carbide
HW = Uncoated carbide



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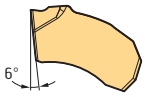
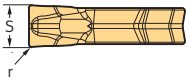
☻😐☹ New addition to range

Walter Cut SX grooving inserts
Grooving and parting off
Tiger·tec® Silver



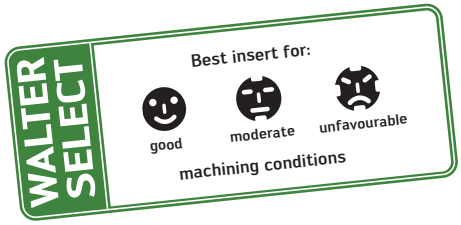


Indexable inserts

	Designation	s mm	r mm	f mm	s_{Tol} mm	l_{Tol} mm	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	S HC WSM23S	S HC WSM33S	S HC WSM43S
	SX-2E200N02-CE4	2	0,2	0,06 - 0,15	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-3E300N02-CE4	3	0,2	0,09 - 0,30	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-4E400N02-CE4	4	0,2	0,10 - 0,32	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-5E500N04-CE4	5	0,4	0,12 - 0,35	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-6E600N04-CE4	6	0,4	0,12 - 0,40	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-2E200N02-CF5	2	0,2	0,04 - 0,12	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-3E300N02-CF5	3	0,2	0,08 - 0,20	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-4E400N02-CF5	4	0,2	0,10 - 0,22	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-5E500N04-CF5	5	0,4	0,10 - 0,25	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-6E600N04-CF5	6	0,4	0,10 - 0,30	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-2E200N02-CF6	2	0,2	0,03 - 0,12	±0,05	±0,01		😐	😣		😊	😐		😐	😣
	SX-3E300N02-CF6	3	0,2	0,04 - 0,20	±0,05	±0,01		😐	😣		😊	😐		😐	😣

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

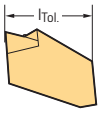
HC = Coated carbide

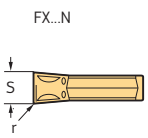


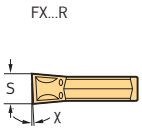
A-140

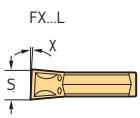
😊😐😣 New addition to range

Walter Cut FX grooving inserts
Grooving and parting off
Tiger·tec®

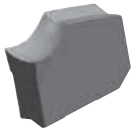








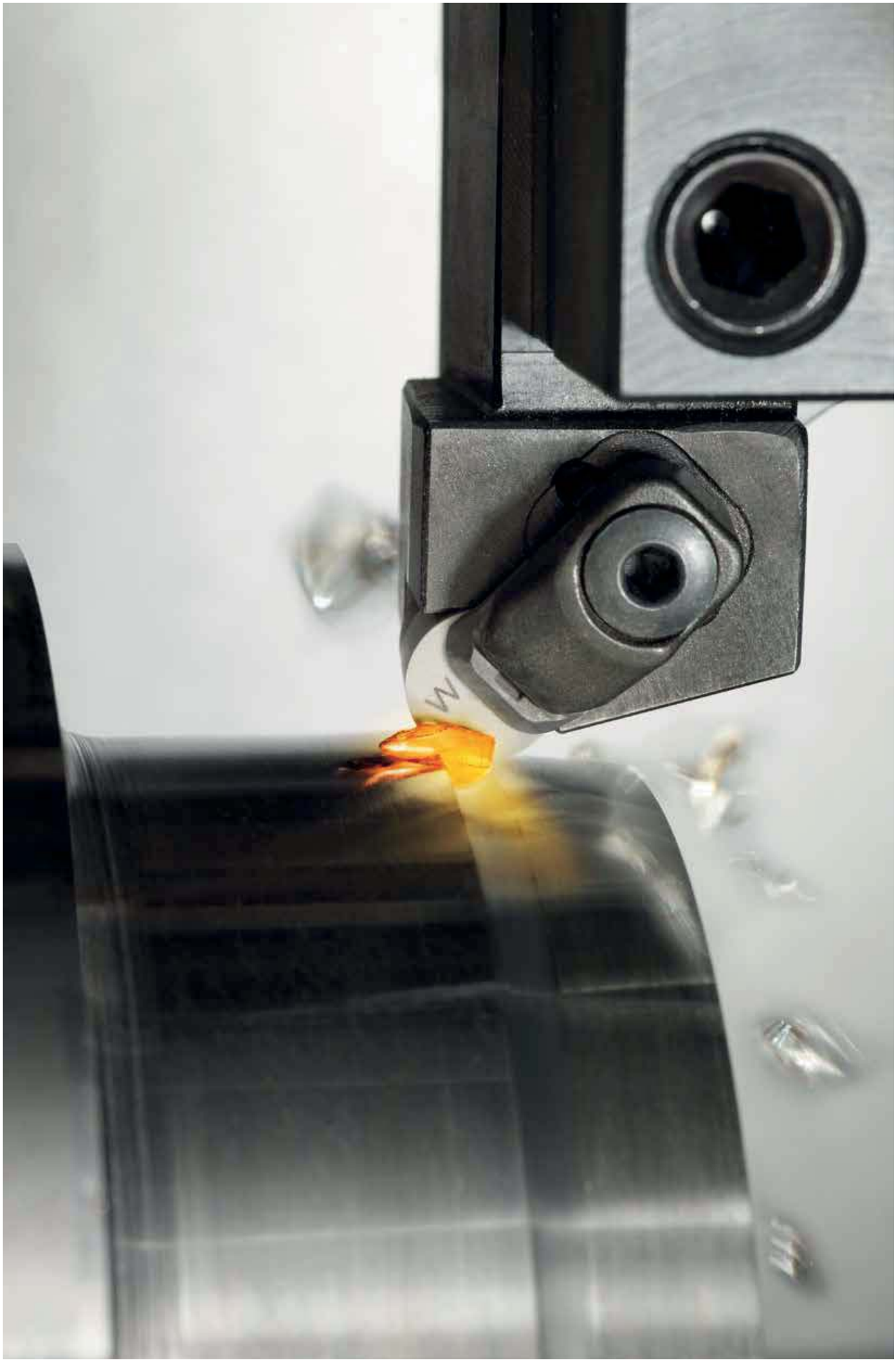
Indexable inserts

	Designation	s mm	r mm	κ	f mm	s_{Tol} mm	l_{Tol} mm	P HC WPP23	P HC WSM23S	P HC WSM33S	P HC WSM33	P HC WSP43	M HC WSM23S	M HC WSM33S	M HC WSM33	M HC WSP43	K HC WPP23	N HW WK1	S HC WSM23S	S HC WSM33S	S HC WSM33	S HC WSP43
	FX2.2-E220N010-CE4	2,2	0,1		0,05 - 0,15	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX3.1-E310N015-CE4	3,1	0,15		0,09 - 0,30	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX3.1-E310R/L6-CE4	3,1	0,15	6°	0,09 - 0,24	±0,05	±0,10				●	●			●	●					●	●
	FX4.1-E410N020-CE4	4,1	0,2		0,10 - 0,32	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX4.1-E410R/L6-CE4	4,1	0,2	6°	0,10 - 0,26	±0,05	±0,10				●	●			●	●					●	●
	FX5.1-E510N025-CE4	5,1	0,25		0,12 - 0,35	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX5.1-E510R/L6-CE4	5,1	0,25	6°	0,12 - 0,28	±0,05	±0,10				●	●			●	●					●	●
	FX6.5-E650N030-CE4	6,5	0,3		0,12 - 0,40	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX6.5-E650R/L6-CE4	6,5	0,3	6°	0,12 - 0,32	±0,05	±0,10				●	●			●	●					●	●
	FX8.2-E820N040-CE4	8,2	0,4		0,15 - 0,45	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX9.7-E970N040-CE4	9,7	0,4		0,15 - 0,50	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX3.1-E310N040-CD3	3,1	0,4		0,10 - 0,30	±0,05	±0,10	●				●				●	●					●
	FX4.1-E410N020-CD3	4,1	0,2		0,15 - 0,35	±0,05	±0,10	●				●				●	●					●
	FX4.1-E410N050-CD3	4,1	0,5		0,15 - 0,35	±0,05	±0,10	●				●				●	●					●
	FX2.2-E220N015-CE6	2,2	0,15		0,05 - 0,15	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX2.2-E220R/L5-CE6	2,2	0,15	5°	0,05 - 0,15	±0,05	±0,10				●	●			●	●					●	●
	FX3.1-E310N020-CE6	3,1	0,2		0,06 - 0,25	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX3.1-E310R/L5-CE6	3,1	0,2	5°	0,06 - 0,20	±0,05	±0,10				●	●			●	●					●	●
	FX3.1-E310N040-CE6	3,1	0,4		0,06 - 0,25	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX4.1-E410N020-CE6	4,1	0,2		0,08 - 0,25	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX4.1-E410R/L5-CE6	4,1	0,2	5°	0,08 - 0,20	±0,05	±0,10				●	●			●	●					●	●
	FX4.1-E410N050-CE6	4,1	0,5		0,08 - 0,25	±0,05	±0,10	●			●	●			●	●	●				●	●
	FX2.2-E220N010-CK8	2,2	0,1		0,05 - 0,10	±0,05	±0,10											●				
	FX3.1-E310N015-CK8	3,1	0,15		0,05 - 0,15	±0,05	±0,10											●				
	FX4.1-E410N015-CK8	4,1	0,15		0,05 - 0,20	±0,05	±0,10											●				

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{tol} = ± 0.05

HC = Coated carbide
HW = Uncoated carbide

A-140



System overview of Walter Turn/Walter Capto™ – External machining

External toolholder for indexable inserts with a negative basic shape

Walter Turn rigid clamping system (D)

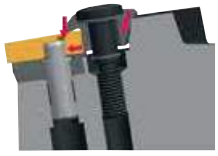
- The number one choice for machining short-chipping material such as cast iron
- Functionality is also maintained in "dirty environments", e.g. grey cast iron machining
- The number one choice for interrupted cuts thanks to extremely stable insert clamping
- Indexable insert and shim replaced using the same wrench
- Reinforced clamps with carbide shoe available for longer clamp service life

Walter Turn lever type clamping (P)

- Universal system with easy indexable insert replacement
- The number one choice for single-sided negative inserts, e.g. SNMM for heavy roughing
- Unobstructed chip evacuation and usable as an alternative to the rigid clamping system

Walter Turn wedge-type clamping system (M)

- For indexable inserts with a negative T basic shape
- Profiling is possible up to an angle of 22° with TNMG indexable inserts
- Insert that is frequently used when shaft machining with undercuts



Walter Turn clamping system for ceramics (C)

- Special system for ceramic inserts without a hole
- Rigid clamping system with carbide shoe for a long service life
- First choice for machining high temperature alloys and cast iron material with ceramic inserts

External toolholder for indexable inserts with a positive basic shape

Walter Turn screw clamping (S)

- For indexable inserts with positive basic shape with clearance angle of 5° and 7°
- The number one choice for use with low cutting pressures/small diameter shafts
- Fewer assembly parts are needed
- Torx Plus screw clamping for transmitting higher tightening torques
- Indexable insert and shim replaced using the same wrench

Walter Turn positive lever type clamping (P)

- For indexable inserts with positive V/R basic shape with clearance angle of 5° and 7°
- A high degree of shape accuracy is achieved on the component because of the large amount of pre-tension via the knee lever with V inserts
- No risk of the clamping screw slackening during machining caused by round insert distortion

Product range overview of Walter Turn tools
External machining – Negative basic shape

Rigid-clamping system

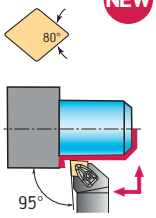
Walter Turn

Walter Capto™

95° DCLN R/L

NEW

h = 16–32 mm

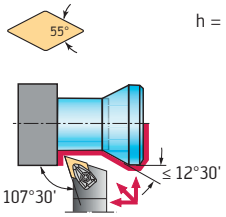


Shank tool: Page A-88

Walter Capto Page A 122*

107°30' DDHN R/L

h = 20–25 mm

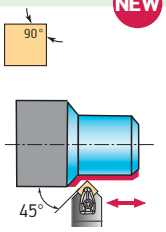


*Shank tool: Page A 88**

45° DSDN N

NEW

h = 16–32 mm

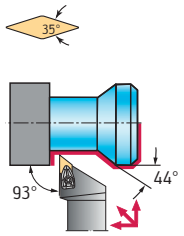


Shank tool: Page A-90

Walter Capto *Page A 126**

93° DVJN R/L

h = 20–32 mm

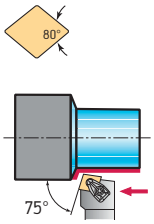


*Shank tool: Page A 95**

Walter Capto *Page A 129**

75° DCBN R/L

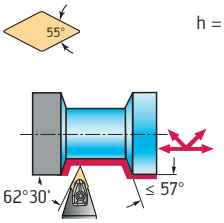
h = 25–32 mm



*Shank tool: Page A 85**

62°30' DDNN N

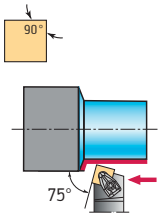
h = 20–32 mm



*Shank tool: Page A 89**

75° DSBN / DSRN R/L

h = 25–40 mm



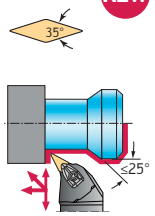
*Shank tool: Page A 92**

Walter Capto *Page A 127**

117,5° DVPN R/L

NEW

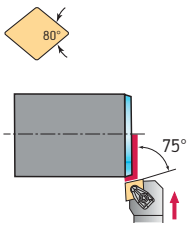
h = 25–32 mm



Shank tool: Page A-91

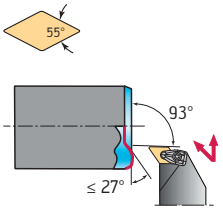
75° DCKN R/L

h = 25–32 mm



*Shank tool: Page A 86**

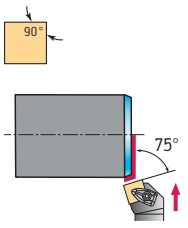
93° DDUN R/L



Walter Capto *Page A 124**

75° DSKN R/L

h = 25–32 mm

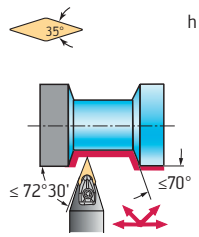


*Shank tool: Page A 93**

Walter Capto *Page A 128**

72°30' DVNN N

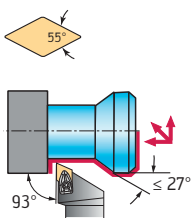
h = 20–32 mm



*Shank tool: Page A 95**

93° DDJN R/L

h = 20–32 mm



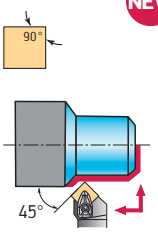
*Shank tool: Page A 87**

Walter Capto *Page A 123**

45° DSSN R/L

NEW

h = 16–32 mm

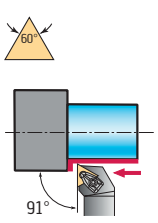


Shank tool: Page A-89

Walter Capto *Page A 125**

91° DTGN R/L

h = 20–32 mm

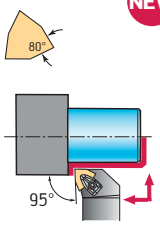


*Shank tool: Page A 94**

95° DWLN R/L

NEW

h = 16–32 mm



Shank tool: Page A-92

Walter Capto *Page A 130**

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Lever-type clamping system

Walter Turn

Walter Capto™

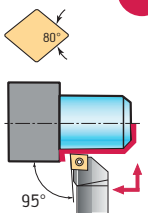
Wedge-type clamping system

Walter Turn

Walter Capto™

95° PCLN R/L NEW

h = 16–50 mm

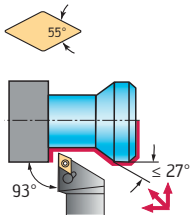


Shank tool: Page A-93

Walter Capto *Page A 131**

93° PDJN R/L

h = 16–32 mm

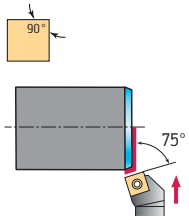


*Shank tool: Page A 100**

Walter Capto *Page A 132**

75° PSKN R/L

h = 20–25 mm

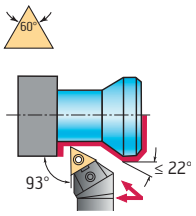


*Shank tool: Page A 104**

Walter Capto *Page A 135**

93° MTJN R/L

h = 20–32 mm

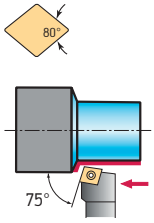


*Shank tool: Page A 106**

Walter Capto *Page A 136**

75° PCBN R/L

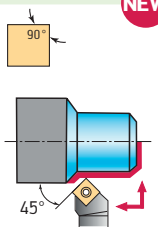
h = 25–32 mm



*Shank tool: Page A 98**

45° PSSN R/L NEW

h = 16–32 mm

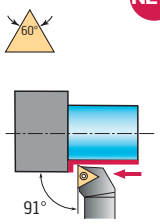


Shank tool: Page A-94

Walter Capto *Page A 133**

91° PTGN R/L NEW

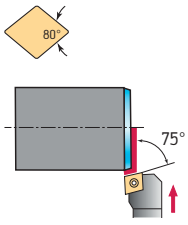
h = 12–40 mm



Shank tool: Page A-96

75° PCKN R/L

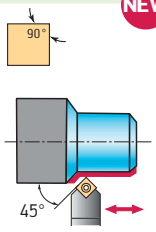
h = 25 mm



*Shank tool: Page A 99**

45° PSDN N NEW

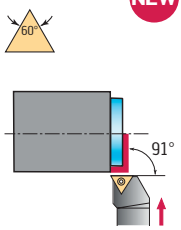
h = 12–40 mm



Shank tool: Page A-95

91° PTFN R/L NEW

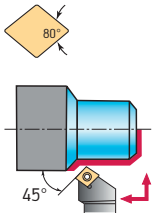
h = 12–32 mm



Shank tool: Page A-96

45° PCSN R/L

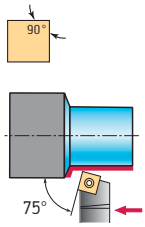
h = 25 mm



*Shank tool: Page A 99**

75° PSBN / PSRN R/L

h = 20–50 mm

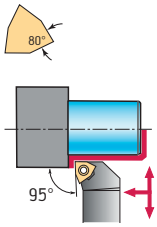


*Shank tool: Page A 103**

Walter Capto *Page A 134**

95° PWLN R/L

h = 16–32 mm



*Shank tool: Page A 107**

Walter Capto *Page A 137**

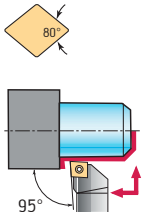
Product range overview of Walter Turn tools
External machining – Positive basic shape

Screw clamping system/lever-type clamping system

Walter Turn

Walter Capto™

95° SCLC R/L

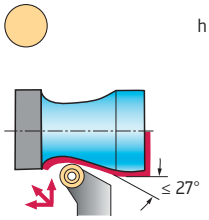


h = 10–25 mm

*Shank tool: Page A 108**

*Page A 138**

SRSC R/L

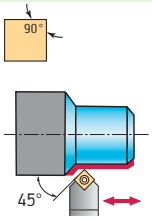


h = 20–40 mm

*Shank tool: Page A 113**

*Page A 142**

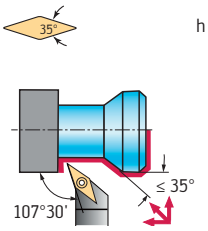
45° SSDC N



h = 12–25 mm

*Shank tool: Page A 115**

107°30' SVHB / PVHB[1] R/L

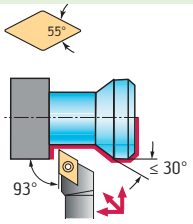


h = 16–32 mm

*Shank tool: Page A 117-118**

*Page A 146-147**

93° SDJC R/L

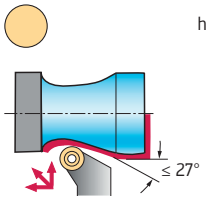


h = 10–25 mm

*Shank tool: Page A 109**

*Page A 139**

PRGC[1] / PRSC[1] R/L

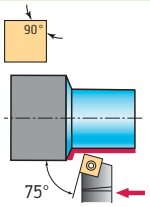


h = 20–40 mm

*Shank tool: Page A 114**

*Page A 143**

75° SSBC / SSRC R/L

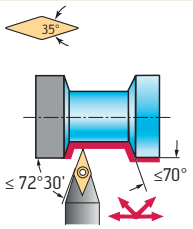


h = 12–25 mm

*Shank tool: Page A 115**

*Page A 144**

72°30' SVVB / PVVB[1] N

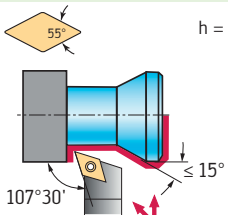


h = 12–32 mm

*Shank tool: Page A 119-120**

*Page A 148-149**

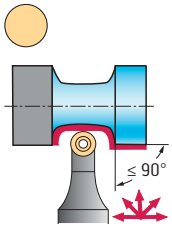
107°30' SDHC R/L



h = 12–25 mm

*Shank tool: Page A 109**

SRDC / PRDC[1] N

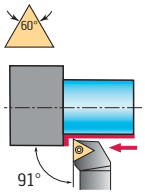


h = 12–50 mm

*Shank tool: Page A 111-112**

*Page A 140-144**

91° STGC R/L

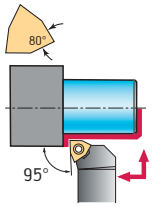


h = 12–25 mm

*Shank tool: Page A 116**

*Page A 145**

95° SWLC R/L

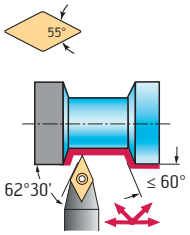


h = 12–25 mm

*Shank tool: Page A 121**

*Page A 150**

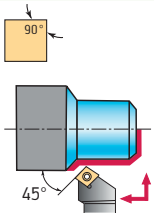
62°30' SDNC N



*Shank tool: Page A 110**

*Page A 139**

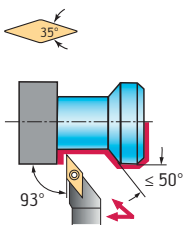
45° SSDC R/L



h = 16–25 mm

*Shank tool: Page A 115**

93° SVJB / PVJB[1] R/L



h = 12–32 mm

*Shank tool: Page A 117-118**

*Page A 146-147**

[1] Walter Turn positive lever type clamping

** The pages indicated in italics refer to the Walter General catalogue 2012.*

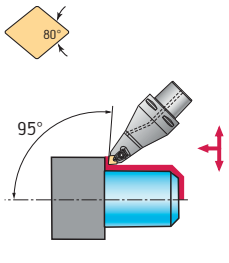
Product range overview of Walter Turn 45° Toolholders for turning/milling centres

Rigid-clamping system

Negative basic shape

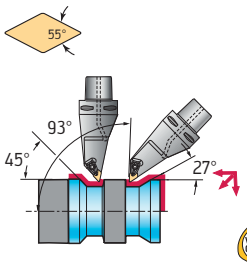
Walter Capto™

95° DCMN N R/L



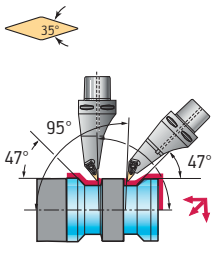
*Page A 151**

93° DDMN L R/L



*Page A 152**

95° DVMN L



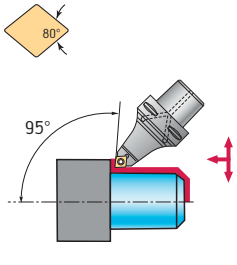
*Page A 153**

Screw clamping system

Positive basic shape

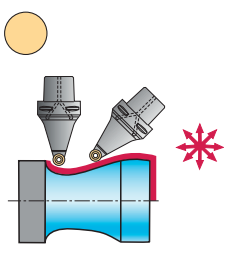
Walter Capto™

95° SCMC N



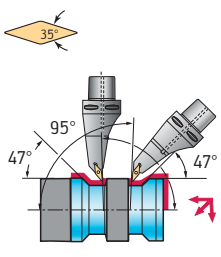
*Page A 154**

SRDC N



*Page A 155**

95° SVMB L



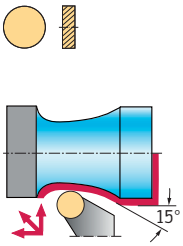
*Page A 156**

Product range overview for Walter Turn turning toolholders for ceramic inserts

Rigid clamping system[1]

CRSN

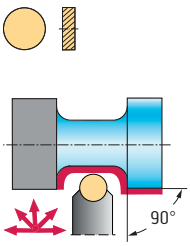
NEW



Shank tool
Page A-97

CRDN N

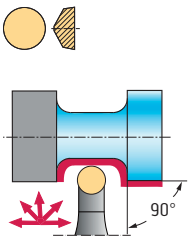
NEW



Shank tool
Page A-98

CRDC

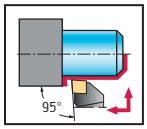
NEW



Shank tool
Page A-99

[1] For further information on Walter Turn turning toolholders for ceramic inserts with CN . . 12 . . / DN . . 15 . . / SN . . 12 . . see page A-137.

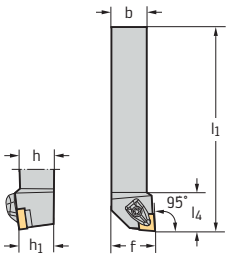
Walter Turn
DCLN



- Negative toolholder range
- External machining
- Rigid clamping system

Tool

κ = 95°



Designation		h = h1 mm	b mm	f mm	l1 mm	l4 mm	γ	λS	Type
★ DCLNR/L1616H09	9	16	16	20	100	25	-6°	-6°	
★ DCLNR/L2020K09	9	20	20	25	125	25	-6°	-6°	CN . . 0903 . .
★ DCLNR/L2525M09	9	25	25	32	150	25	-6°	-6°	
DCLNR/L1616H12	12	16	16	20	100	32	-6°	-6°	
DCLNR/L2020K12	12	20	20	25	125	32	-6°	-6°	
DCLNR/L2525M12	12	25	25	32	150	32	-6°	-6°	CN . . 1204 . .
DCLNR/L3225P12	12	32	25	32	170	32	-6°	-6°	
DCLNR/L2525M16	16	25	25	32	150	39	-6°	-6°	
DCLNR/L3225P16	16	32	25	32	170	39	-6°	-6°	CN . . 1606 . .
DCLNR/L3232P16	16	32	32	40	170	39	-6°	-6°	
DCLNR/L3232P19	19	32	32	40	170	44	-6°	-6°	CN . . 1906 . .

Measured with master insert CN . .090304 / CN . . 120408 / CN . . 160612 / CN . . 190612

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	CN . . 0903 . . 16-25	CN . . 1204 . . 16	CN . . 1204 . . 20-32	CN . . 1606 . . 25-32	CN . . 1906 . . 32
Shim	AP414-CN09	AP354-CN12	AP301-CN12	AP302-CN16	AP303-CN19
Screw for shim	FS1462 (Torx 9IP)	FS1461 (Torx 15IP)	FS1461 (Torx 15IP)	FS1463 (Torx 20IP)	FS1463 (Torx 20IP)
Clamp	PK240	PK241	PK241	PK242	PK243
Clamp screw Tightening torque	FS1472 (Torx 9IP) 1,7 Nm	FS1473 (Torx 15IP) 3,9 Nm	FS1473 (Torx 15IP) 3,9 Nm	FS1474 (Torx 20IP) 6,4 Nm	FS1474 (Torx 20IP) 6,4 Nm
Pressure spring	FS1469	FS1470	FS1470	FS1471	FS1471
Pin	RS116	RS117	RS117	RS117	RS117
Torx key	FS1466 (Torx 9IP)	FS1465 (Torx 15IP/SW 3,5)	FS1465 (Torx 15IP/SW 3,5)	FS1464 (Torx 20IP)	FS1464 (Torx 20IP)

Accessories

Type h mm	CN . . 0903 . . 16-25	CN . . 1204 . . 16-32	CN . . 1606 . . 25-32	CN . . 1906 . . 32
Clamp set (standard mounting parts)	PK240 SET	PK241 SET	PK242 SET	PK243 SET
Clamp set with carbide clamping plate		PK245 SET	PK246 SET	

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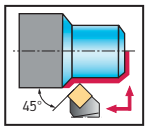
★ New addition to range

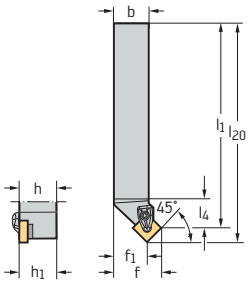
Walter Turn
DSSN



- Negative toolholder range
- External machining
- Rigid clamping system

Tool

κ = 45°



Designation		h = h_1 mm	b mm	f mm	f_1 mm	l_1 mm	l_4 mm	l_{20} mm	γ	Type
★ DSSNR/L1616H09	9	16	16	20	14	100	21	106,1	-8°	SN . . 0903 . .
DSSNR/L2020K12	12	20	20	25	17	125	37	133,3	-8°	
DSSNR/L2525M12	12	25	25	32	24	150	37	158,3	-8°	SN . . 1204 . .
DSSNR/L3225P12	12	32	25	32	24	170	37	178,3	-8°	
DSSNR/L2525M15	15	25	25	32	22	150	45	160,2	-8°	
DSSNR/L3225P15	15	32	25	32	22	170	45	180,2	-8°	SN . . 1506 . .
DSSNR/L3232P15	15	32	32	40	30	170	45	180,2	-8°	
DSSNR/L3232P19	19	32	32	40	28	170	50	182,5	-8°	SN . . 1906 . .

Measured with master insert SN . . 090304 / SN . . 120408 / SN . . 150612 / SN . . 190612.
For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle $λ_S$, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	SN . . 0903 . . 16	SN . . 1204 . . 20-32	SN . . 1506 . . 25-32	SN . . 1906 . . 32
Shim	AP415-SN09	AP308-SN12	AP309-SN15	AP310-SN19
Screw for shim	FS1462 (Torx 9IP)	FS1461 (Torx 15IP)	FS1463 (Torx 20IP)	FS1463 (Torx 20IP)
Clamp	PK240	PK241	PK242	PK243
Screw for clamp Tightening torque	FS1472 (Torx 9IP) 1,7 Nm	FS1473 (Torx 15IP) 3,9 Nm	FS1474 (Torx 20IP) 6,4 Nm	FS1474 (Torx 20IP) 6,4 Nm
Pressure spring	FS1469	FS1470	FS1471	FS1471
Pin	RS116	RS117	RS117	RS117
Torx key	FS1466 (Torx 9IP)	FS1465 (Torx 15IP / SW 3,5)	FS1464 (Torx 20IP)	FS1464 (Torx 20IP)

Accessories

Type h mm	SN . . 0903 . . 16	SN . . 1204 . . 25-32	SN . . 1506 . . 25-32	SN . . 1906 . . 32
Clamp set (standard mounting parts)	PK240 SET	PK241 SET	PK242 SET	PK243 SET
Clamp set with carbide clamping plate		PK245 SET	PK246 SET	

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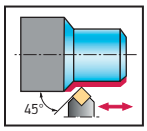
★ New addition to range

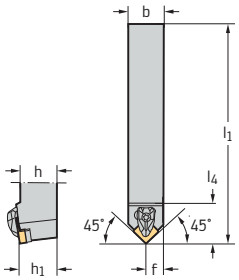
Walter Turn
DSDN



- Negative toolholder range
- External machining
- Rigid clamping system

Tool

κ = 45°



Designation		h = h_1 mm	b mm	f mm	l_1 mm	l_4 mm	γ	$λ_S$	Type
★ DSDNN1616H09	9	16	16	8	100	28	-6°	-6°	SN . . 0903 . .
DSDNN2020K12	12	20	20	10	125	37	-6°	-6°	
DSDNN2525M12	12	25	25	13	150	37	-6°	-6°	SN . . 1204 . .
DSDNN3225P12	12	32	25	13	170	37	-6°	-6°	
DSDNN2525M15	15	25	25	13	150	45	-6°	-6°	SN . . 1506 . .
DSDNN3225P19	19	32	25	13	170	50	-6°	-6°	SN . . 1906 . .

Measured with master insert SN . . 090304 / SN . . 120408 / SN . . 150612 / SN . . 190612.

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle $λ_S$, see page A 301 in the Walter General catalogue 2012.

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	SN . . 0903 . . 16	SN . . 1204 . . 20-32	SN . . 1506 . . 25	SN . . 1906 . . 32
Shim	AP415-SN09	AP308-SN12	AP309-SN15	AP310-SN19
Screw for shim	FS1462 (Torx 9IP)	FS1461 (Torx 15IP)	FS1463 (Torx 20IP)	FS1463 (Torx 20IP)
Clamp	PK240	PK241	PK242	PK243
Screw for clamp Tightening torque	FS1472 (Torx 9IP) 1,7 Nm	FS1473 (Torx 15IP) 3,9 Nm	FS1474 (Torx 20IP) 6,4 Nm	FS1474 (Torx 20IP) 6,4 Nm
Pressure spring	FS1469	FS1470	FS1471	FS1471
Pin	RS116	RS117	RS117	RS117
Torx key	FS1466 (Torx 9IP)	FS1465 (Torx 15IP / SW 3,5)	FS1464 (Torx 20IP)	FS1464 (Torx 20IP)

Accessories

Type h mm	SN . . 0903 . . 16	SN . . 1204 . . 25-32	SN . . 1506 . . 25	SN . . 1906 . . 32
Clamp set (standard mounting parts)	PK240 SET	PK241 SET	PK242 SET	PK243 SET
Clamp set with carbide clamping plate		PK245 SET	PK246 SET	

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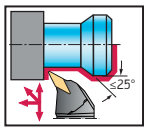
★ New addition to range

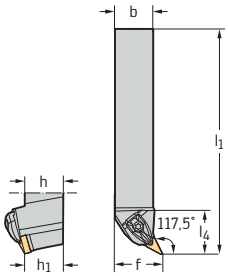
Walter Turn
DVPN



- Negative toolholder range
- External machining
- Rigid clamping system

Tool

κ = 117,5°



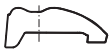
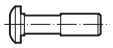
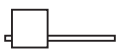
Designation		h = h_1 mm	b mm	f mm	l_1 mm	l_4 mm	γ	$λ_S$	Type
★ DVPNR/L2525M16	16	25	25	32	150	39	-4°	-13°	VN . . 1604 . .
★ DVPNR/L3225P16	16	32	25	32	170	39	-4°	-13°	

Measured with master insert VN . . 160408.

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle $λ_S$, see page A 301 in the Walter General catalogue 2012.

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Type h mm	VN . . 1604 . . 25-32
	Shim	AP312-VN16
	Screw for shim	FS1467 (Torx 15IP)
	Clamp	PK244
	Screw for clamp Tightening torque	FS1473 (Torx 15IP) 1,7 Nm
	Pressure spring	FS1470
	Pin	RS117
	Torx key	FS1465 (Torx 15IP / SW 3,5)

Accessories

	Type h mm	VN . . 1604 . . 25
	Clamp set (standard mounting parts)	PK244 SET

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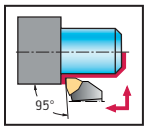
★ New addition to range

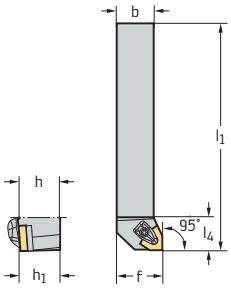
Walter Turn
DWLN



- Negative toolholder range
- External machining
- Rigid clamping system

Tool

κ = 95°



Designation		h = h1 mm	b mm	f mm	l1 mm	l4 mm	γ	λS	Type
★ DWLNR/L1616H06	6	16	16	20	100	26	-6°	-6°	WN . . 0604 . .
DWLNR/L2020K06	6	20	20	25	125	26	-6°	-6°	
DWLNR/L2525M06	6	25	25	32	150	26	-6°	-6°	
DWLNR/L3225P06	6	32	25	32	170	26	-6°	-6°	
DWLNR/L2020K08	8	20	20	25	125	34	-6°	-6°	WN . . 0804 . .
DWLNR/L2525M08	8	25	25	32	150	34	-6°	-6°	
DWLNR/L3225P08	8	32	25	32	170	34	-6°	-6°	
DWLNR/L2525M10	10	25	25	32	150	40	-6°	-6°	WN . . 1006 . .
DWLNR/L3225P10	10	32	25	32	170	40	-6°	-6°	
DWLNR/L3232P10	10	32	32	40	170	42	-6°	-6°	

Measured with master insert WN . . 060408 / WN . . 080408 / WN . . 100612.
For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	WN . . 0604 . . 16-32	WN . . 0804 . . 20-32	WN . . 1006 . . 25-32
Shim	AP306-WN06	AP307-WN08 r ≤ 1,6	AP311-WN10
Screw for shim	FS1462 (Torx 9IP)	FS1461 (Torx 15IP)	FS1463 (Torx 20IP)
Clamp	PK240	PK241	PK242
Screw for clamp Tightening torque	FS1472 (Torx 9IP) 1,7 Nm	FS1473 (Torx 15IP) 3,9 Nm	FS1474 (Torx 20IP) 6,4 Nm
Pressure spring	FS1469	FS1470	FS1471
Pin	RS116	RS117	RS117
Torx key	FS1466 (Torx 9IP)	FS1465 (Torx 15IP / SW 3,5)	FS1464 (Torx 20IP)

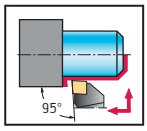
Accessories

Type h mm	WN . . 0604 . . 16-32	WN . . 0804 . . 20-32	WN . . 1006 . . 25-32
Clamp set (standard mounting parts)	PK240 SET	PK241 SET	PK242 SET
Clamp set with carbide clamping plate		PK245 SET	PK246 SET

A-37 G-2 A-137 A-120

★ New addition to range

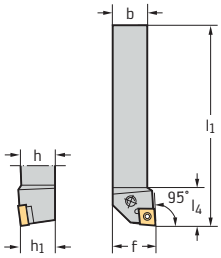
Walter Turn
PCLN



- Negative toolholder range
- External machining
- Lever type clamping

Tool

κ = 95°



Designation		$h = h_1$ mm	b mm	f mm	l_1 mm	l_4 mm	γ	λ_S	Type
★ PCLNR/L1616H09	9	16	16	20	100	24	-6°	-6°	CN . . 0903 . .
★ PCLNR/L2020K09	9	20	20	25	125	24	-6°	-6°	
★ PCLNR/L2525M09	9	25	25	32	150	24	-6°	-6°	
PCLNR/L1616H12	12	16	16	20	100	27	-6°	-6°	CN . . 1204 . .
PCLNR/L2020K12	12	20	20	25	125	26	-6°	-6°	
PCLNR/L2525M12	12	25	25	32	150	26	-6°	-6°	
PCLNR/L3225P12	12	32	25	32	170	26	-6°	-6°	
PCLNR/L2525M16	16	25	25	32	150	28	-6°	-6°	CN . . 1606 . .
PCLNR/L3225P16	16	32	25	32	170	38	-6°	-6°	
PCLNR/L3232P16	16	32	32	40	170	36	-6°	-6°	
PCLNR/L3232P19	19	32	32	40	170	36	-6°	-6°	CN . . 1906 . .
PCLNR/L4040S19	19	40	40	50	250	36	-6°	-6°	
PCLNR/L4040S25	25	40	40	50	250	50	-6°	-6°	CN . . 2509 . .
PCLNR/L5050T25	25	50	50	60	300	50	-6°	-6°	

Measured with master insert CN . . 090304 / CN . . 120408 / CN . . 160612 / CN . . 190612 / CN . . 250924.
For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	CN . . 0903 . . 16-25	CN . . 1204 . . 16	CN . . 1204 . . 20-32	CN . . 1606 . . 25-32	CN . . 1906 . . 32-40	CN . . 2509 . . 40-50
Shim	AP408-CN0908 r ≤ 0,8	AP134-CN1216 r ≤ 1,6	AP134-CN1216 r ≤ 1,6	AP135-CN1624 r ≤ 2,4	AP136-CN1924 r ≤ 2,4	AP192-CN2524 r ≤ 2,4
Lever	KN101	KN121	KN102	KN104	KN106	KN107
Clamping screw	FS351 (SW 2,5)	FS2129 (SW 3)	FS352 (SW 3)	FS354 (SW 3)	FS356 (SW 4)	FS357 (SW 5)
Tightening torque	2,0 Nm	5,0 Nm	5,0 Nm	5,0 Nm	10,0 Nm	14,0 Nm
Pipe pin	RS120	RS102	RS102	RS103	RS104	RS105
Assembly plug	MD101	MD101	MD101	MD102	MD102	MD103
Allen key	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)	ISO2936-4 (SW 4)	ISO2936-5 (SW 5)

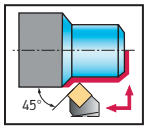
Accessories

Type h mm		CN . . 1204 . . 16-32	CN . . 1606 . . 25-32	CN . . 1906 . . 32-40	
Shim		AP134-CN1208 r ≤ 0,8	AP135-CN1616 r ≤ 1,6	AP136-CN1912 r ≤ 1,2	

A-15 G-2 A-120

★ New addition to range

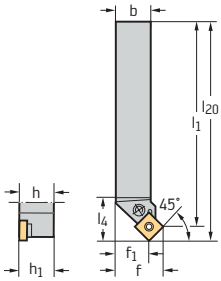
Walter Turn
PSSN



- Negative toolholder range
- External machining
- Lever type clamping

Tool

κ = 45°



Designation		h = h1 mm	b mm	f mm	f1 mm	l1 mm	l4 mm	l20 mm	γ	Type
★ PSSNR/L1616H09	9	16	16	20	14	100	22	106,1	-8°	SN . . 0903 . .
PSSNR/L2020K12	12	20	20	25	17	125	28	133,3	-8°	
PSSNR/L2525M12	12	25	25	32	24	150	28	158,3	-8°	SN . . 1204 . .
PSSNR/L3225P12	12	32	25	32	24	170	29	178,3	-8°	
PSSNR/L2525M15	15	25	25	32	22	150	32	160,2	-8°	
PSSNR/L3232P15	15	32	32	40	30	170	32	180,2	-8°	SN . . 1506 . .
PSSNR/L3232P19	19	32	32	40	28	170	38	182,5	-8°	SN . . 1906 . .

Measured with master insert SN . . 090304 . . / SN . . 120408 / SN . . 150612 / SN . . 190612.
For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	SN . . 0903 . . 16	SN . . 1204 . . 20-32	SN . . 1506 . . 25-32	SN . . 1906 . . 32
Shim	AP409-SN0908 r ≤ 0,8	AP141-SN1216 r ≤ 1,6	AP142-SN1524 r ≤ 2,4	AP143-SN1924 r ≤ 2,4
Lever	KN101	KN102	KN104	KN106
Clamping screw Tightening torque	FS351 (SW 2,5) 2,0 Nm	FS352 (SW 3) 5,0 Nm	FS354 (SW 3) 5,0 Nm	FS356 (SW 4) 10,0 Nm
Shim pin	RS120	RS102	RS103	RS104
Assembly plug	MD101	MD101	MD102	MD102
Allen key	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)	ISO2936-4 (SW 4)

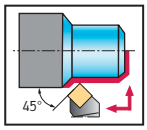
Accessories

Type h mm		SN . . 1204 . . 20-32	SN . . 1506 . . 25-32	SN . . 1906 . . 32
Shim		AP141-SN1208 r ≤ 0,8	AP142-SN1516 r ≤ 1,6	AP143-SN1912 r ≤ 1,2

A-26 G-2 A-120

★ New addition to range

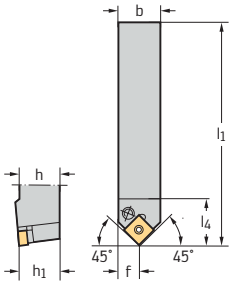
Walter Turn
PSDN



- Negative toolholder range
- External machining
- Lever type clamping

Tool

κ = 45°



Designation		$h = h_1$ mm	b mm	f mm	l_1 mm	l_4 mm	γ	λ_S	Type
★ PSDNN1212F09	9	12	12	6	80	20	-6°	-6°	SN . . 0903 . .
★ PSDNN1616H09	9	16	16	8	100	21	-6°	-6°	
PSDNN2020K12	12	20	20	10	125	28	-6°	-6°	SN . . 1204 . .
PSDNN2525M12	12	25	25	13	150	28	-6°	-6°	
PSDNN3225P12	12	32	25	13	170	28	-6°	-6°	
PSDNN3225P15	15	32	25	13	170	36	-6°	-6°	SN . . 1506 . .
PSDNN3232P19	19	32	32	16	170	40	-6°	-6°	SN . . 1906 . .
PSDNN4040S25	25	40	40	21	250	49	-6°	-6°	SN . . 2507 . .

Measured with master insert SN . . 090304. . / SN . . 120408 / SN . . 150612 / SN . . 190612 / SN..250716.
For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	SN . . 0903 . . 12	SN . . 0903 . . 16	SN . . 1204 . . 20-32	SN . . 1506 . . 32	SN . . 1906 . . 32	SN . . 2507 . . 40
Shim		AP409-SN0908 r ≤ 0,8	AP141-SN1216 r ≤ 1,6	AP142-SN1524 r ≤ 2,4	AP143-SN1924 r ≤ 2,4	AP144-SN2524 r ≤ 2,4
Lever	KN126	KN101	KN102	KN104	KN106	KN107
Clamping screw	FS2182 (SW 2)	FS351 (SW 2,5)	FS352 (SW 3)	FS354 (SW 3)	FS356 (SW 4)	FS357 (SW 5)
Tightening torque	2,0 Nm	2,0 Nm	5,0 Nm	5,0 Nm	10,0 Nm	14,0 Nm
Pipe pin		RS120	RS102	RS103	RS104	RS105
Assembly plug		MD101	MD101	MD102	MD102	MD103
Allen key	ISO2936-2 (SW 2)	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)	ISO2936-4 (SW 4)	ISO2936-5 (SW 5)

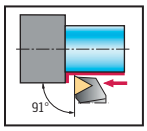
Accessories

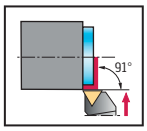
Type h mm			SN . . 1204 . . 20-32	SN . . 1506 . . 32	SN . . 1906 . . 32	SN . . 2507 . . 40
Shim			AP141-SN1208 r ≤ 0,8	AP142-SN1516 r ≤ 1,6	AP143-SN1912 r ≤ 1,2	AP191-SN250924 r ≤ 2,4

A-26 G-2 A-120

★ New addition to range

Walter Turn
PTGN/PTFN





- Negative toolholder range
- External machining
- Lever type clamping

Tool

Designation		$h = h_1$ mm	b mm	f mm	l_1 mm	l_4 mm	γ	λ_S	Type
κ = 91°									
★ PTGNR/L1212F11	11	12	12	16	80	16	-6°	-6°	TN . . 1103 . .
★ PTGNR/L1616H11	11	16	16	20	100	16	-6°	-6°	
PTGNR/L1616H16	16	16	16	20	100	20	-6°	-6°	TN . . 1604 . .
PTGNR/L2020K16	16	20	20	25	125	20	-6°	-6°	
PTGNR/L2525M16	16	25	25	32	150	20	-6°	-6°	
PTGNR/L3225P16	16	32	25	32	170	20	-6°	-6°	
PTGNR/L3232P22	22	32	32	40	170	26	-6°	-6°	TN . . 2204 . .
PTGNR/L4040S27	27	40	40	50	250	34	-6°	-6°	TN . . 2706 . .
κ = 91°									
★ PTFNR/L1212F11	11	12	12	16	80	15	-6°	-6°	TN . . 1103 . .
★ PTFNR/L1616H16	16	16	16	20	100	20	-6°	-6°	TN . . 1604 . .
PTFNR/L2020K16	16	20	20	25	125	20	-6°	-6°	
PTFNR/L2525M16	16	25	25	32	150	20	-6°	-6°	
PTFNR/L3225P16	16	32	25	32	170	20	-6°	-6°	

Measured with master insert TN . .110304 . . / TN . . 160408 / TN . . 220408.
For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	TN . . 1103 . . 12-16	TN . . 1604 . . 16-32	TN . . 2204 . . 32	TN . . 2706 . . 40
Shim		AP137-TN1616 r ≤ 1,6	AP138-TN2216 r ≤ 1,6	AP193-TN2716 r ≤ 1,6
Lever	KN127	KN101	KN102	KN125
Clamping screw Tightening torque	FS2182 (SW 2) 2,0 Nm	FS351 (SW 2,5) 2,0 Nm	FS352 (SW 3) 5,0 Nm	FS2156 (SW 3) 5 Nm
Shim pin		RS101	RS102	RS103
Assembly plug		MD101	MD101	MD102
Allen key	ISO2936-2 (SW 2)	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)

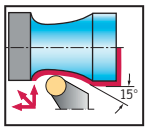
Accessories

Type h mm		TN . . 1604 . . 16-32	TN . . 2204 . . 32	
Shim		AP137-TN1608 r ≤ 0,8	AP138-TN2208 r ≤ 0,8	

A-32 G-2 A-120

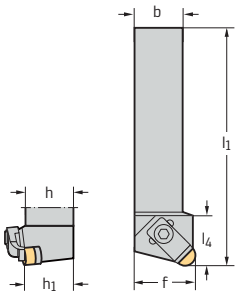
★ New addition to range

Walter Turn
CRSN



- Negative toolholder range
- External machining
- Rigid clamping system with carbide shoe

Tool



Designation		h = h_1 mm	b mm	f mm	l_1 mm	l_4 mm	γ	λ_S	Type
★ CRSNR/L2525M12-ID	12	25	25	32	150	28	-6°	-6°	RNGN1207..
★ CRSNR/L3225P12-ID	12	32	25	32	170	28	-6°	-6°	
★ CRSNR/L3232P15-ID	15	32	32	40	170	30	-6°	-6°	RNGN1507..
★ CRSNR/L3232P19-ID	19	32	32	40	170	32	-6°	-6°	RNGN1907..

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	RNGN1207.. 25-32	RNGN1507.. 32	RNGN1907.. 32
Shim	AP418-RN1207	AP419-RN1507	AP420-RN1907
Screw for shim Tightening torque	FS2241 (Torx 20) 5Nm	FS2242 (SW 2) 2Nm	FS2243 (SW 2,5) 3Nm
Clamp with screw	PK258-SET (Torx 25IP)	PK258-SET (Torx 25IP)	PK258-SET (Torx 25IP)
Carbide clamping plate	FK380	FK380	FK380
Torx key for clamp	FS1592 (Torx 25IP)	FS1592 (Torx 25IP)	FS1592 (Torx 25IP)
Torx key for support plate	FS256 (Torx 20)	ISO2936-2 (SW 2)	ISO2936-2,5 (SW 2,5)

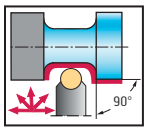
Accessories

Type h mm	RNGN1207.. 25-32	RNGN1507.. 32	RNGN1907.. 32
Clamp set with carbide clamping plate	PK259 SET	PK259 SET	PK259 SET

A-57 G-2 A-137 A-128

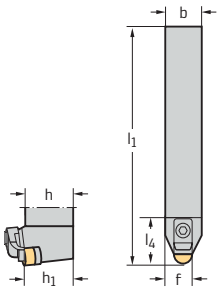
★ New addition to range

Walter Turn
CRDN



- Negative toolholder range
- External machining
- Rigid clamping system with carbide shoe

Tool



Designation		$h = h_1$ mm	b mm	f mm	l_1 mm	l_4 mm	γ	Type
★ CRDNN2525M12-ID	12	25	25	19	150	32	-8°	RNGN1207..
★ CRDNN3225P12-ID	12	32	25	19	170	32	-8°	

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm	RNGN1207.. 25-32
Shim	AP418-RN1207
Screw for shim Tightening torque	FS2241 (Torx 20) 5Nm
Clamp with screw	PK258-SET (Torx 25IP)
Carbide clamping plate	FK380
Torx key for clamp	FS1592 (Torx 25IP)
Torx key for support plate	FS256 (Torx 20)

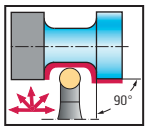
Accessories

Type h mm	RNGN1207.. 25
Clamp set with carbide clamping plate	PK259 SET

A-57 G-2 A-137 A-128

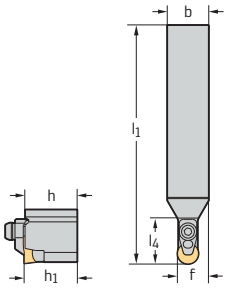
★ New addition to range

Walter Turn
CRDC



- Negative toolholder range
- External machining
- Rigid clamping system with carbide shoe

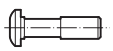
Tool



Designation		$h = h_1$ mm	b mm	f mm	l_1 mm	l_4 mm	Type
★ CRDCN3225P09-A	9	32	25	17	170	31	RC/P . . 0907 . .
★ CRDCN3225P12-A	12	32	25	19	170	40	RC/P . . 1207 . .

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type h mm		RC/P . . 0907 . . 32	RC/P . . 1207 . . 32
	Shim	AP416-RC0907	AP417-RC1207
	Clamping sleeve	RS121	RS122
	Clamp with screw	PK257 SET	PK257 SET
	Screw for clamp Tightening torque	FS2240 (SW 4) 8 Nm	FS2240 (SW 4) 8 Nm
	Allen key	ISO2936-4 (SW 4)	ISO2936-4 (SW 4)

A-60 G-2 A-137 A-128

★ New addition to range

System overview of Walter Turn/Walter Capto™ – Internal machining

Boring bars for indexable inserts with a negative basic shape

Walter Turn rigid clamping system (D)

- The number one choice for machining short-chipping material such as cast iron
- Functionality is also maintained in "dirty environments", e.g. grey cast iron machining
- The number one choice for interrupted cuts thanks to extremely stable insert clamping
- Indexable insert or shim replaced using the same wrench
- Reinforced clamps with carbide shoe available for longer clamp service life
- Internal coolant supply on all tools

Walter Turn lever-type clamping (P)

- Universal system with easy indexable insert replacement
- Number one choice for single-sided negative inserts, e.g. CNMM
- Number one choice when machining small bore diameters with negative inserts
- Unobstructed chip evacuation from the bore and therefore an alternative to the rigid clamping system

Boring bars for indexable inserts with a positive basic shape

Walter Turn screw clamping (S)

- For indexable inserts with positive basic shape with clearance angle of 5° and 7°
- Machining of small hole diameters
- For use with low cutting pressures/long projection lengths
- Few assembly parts
- Torx Plus screw clamping for transmitting higher tightening torques
- Indexable insert or shim replaced using the same wrench
- Unobstructed chip evacuation from the bore
- Internal coolant supply on all tools
- Versions with steel and solid carbide shank

Walter Turn positive lever type clamping (P)

- For indexable inserts with positive V basic shape with clearance angle of 5° and 7°
- A high degree of shape accuracy is achieved on the component by means of the high degree of clamping via the lever type clamping
- For use with low cutting pressures/long projection lengths
- Unobstructed chip evacuation from the bore

Retaining sleeves for boring bars with cylindrical shank

Walter Turn boring bar holder AK 600

- Easy handling due to automatic tip height adjustment via a spring-loaded ball/flute detent
- Full round shank boring bars are completely enclosed for maximum stability
- Clamping of steel and solid carbide boring bars without flats (-R)

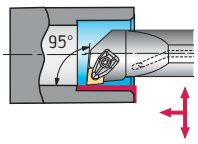
Product range overview of Walter Turn tools
Internal machining – Negative basic shape

Rigid-clamping system

95° DCLN R/L

80°

d_1 = 25–50 mm



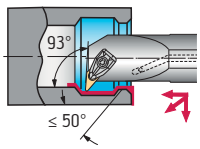
*Boring bar: Page A 164**

Walter Capto *Page A 186**

93° DVUN R/L

35°

d_1 = 40 mm

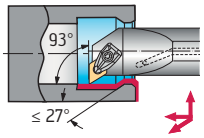


*Boring bar: Page A 168**

93° DDUN R/L

55°

d_1 = 25–50 mm



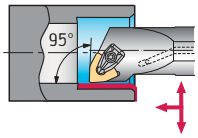
*Boring bar: Page A 165**

Walter Capto *Page A 187**

95° DWLN R/L

80°

d_1 = 25–50 mm



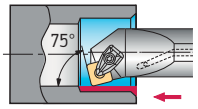
*Boring bar: Page A 169**

Walter Capto *Page A 188**

75° DSKN R/L

90°

d_1 = 25–40 mm

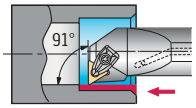


*Boring bar: Page A 166**

91° DTFN R/L

60°

d_1 = 25–50 mm



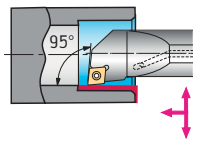
*Boring bar: Page A 167**

Lever-type clamping system

95° NEW PCLN R/L

80°

d_1 = 16–40 mm



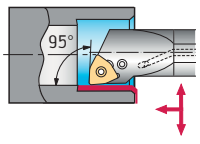
Boring bar: Page A-104

Walter Capto *Page A 189**

95° NEW PWLN R/L

80°

d_1 = 20–32 mm



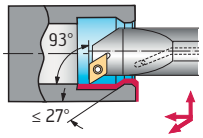
Boring bar: Page A-108

Walter Capto *Page A 193**

93° NEW PDUN R/L

55°

d_1 = 25–40 mm



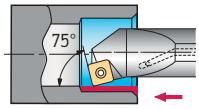
Boring bar: Page A-105

Walter Capto *Page A 190**

75° NEW PSKN R/L

90°

d_1 = 25–40 mm



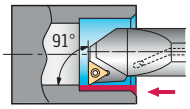
Boring bar: Page A-106

Walter Capto *Page A 191**

91° NEW PTFN N

60°

d_1 = 16–40 mm



Boring bar: Page A-107

Walter Capto *Page A 192**

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Product range overview of Walter Turn tools
Internal machining – Positive basic shape

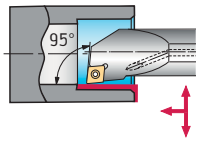
Screw clamping system/lever-type clamping system

Walter Turn

Walter Capto™

95° SCLC R/L NEW

d_1 = 08–32 mm

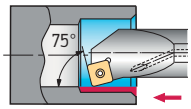


Boring bar: Page A-109

Walter Capto *Page A 194**

75° SSKC R/L

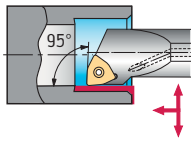
d_1 = 16–32 mm



*Boring bar: Page A 179**

95° SWLC R/L

d_1 = 10–32 mm

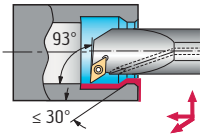


*Boring bar: Page A 185**

Walter Capto *Page A 199**

93° SDUC R/L NEW

d_1 = 10–32 mm

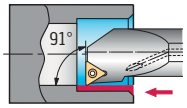


Boring bar: Page A-110

Walter Capto *Page A 195**

91° STFC R/L NEW

d_1 = 06–32 mm

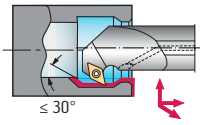


Boring bar: Page A-111

Walter Capto *Page A 196**

93° SDUC R/L-X

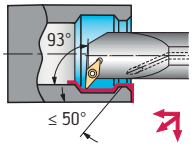
d_1 = 16–32 mm



*Boring bar: Page A 177**

93° SVUB / PVUB[1] R/L

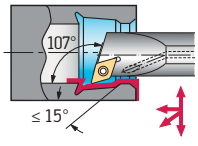
d_1 = 16–40 mm



*Boring bar: Page A 181-182**

107°30' SDQC R/L

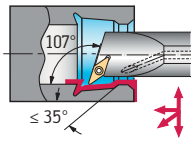
d_1 = 12–25 mm



*Boring bar: Page A 178**

107°30' SVQB / PVQB[1] R/L

d_1 = 16–40 mm

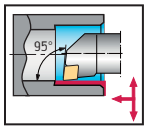


*Boring bar: Page A 183-184**

Walter Capto *Page A 197-198**

[1] Walter Turn positive lever type clamping

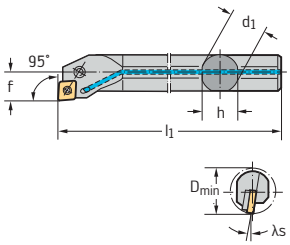
Walter Turn
A ... – PCLN



- Negative toolholder range
- Internal machining
- Lever type clamping

Tool

κ = 95°



Designation	D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	$λ_S$	Type
★ A16R-PCLNR/L09	9	20	16	11	15	200	-6°	-13°	CN . . 0903 . .
★ A20S-PCLNR/L09	9	25	20	13	18	250	-6°	-11°	
★ A25T-PCLNR/L09	9	32	25	17	23	300	-6°	-11°	
★ A25T-PCLNR/L12	12	32	25	17	23	300	-6°	-10°	CN . . 1204 . .
★ A32T-PCLNR/L12	12	40	32	22	30	300	-6°	-11°	
★ A40T-PCLNR/L12	12	50	40	27	37	300	-6°	-10°	
★ A32T-PCLNR/L16	16	55	32	22	30	300	-6°	-10°	CN . . 1606 . .
★ A40T-PCLNR/L16	16	58	40	27	37	300	-6°	-10°	

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle $λ_S$, see page A 301 in the Walter General catalogue 2012.
Measured with master insert CN . . 090304 . . / CN . . 120408 / CN . . 160612.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type D_{min} mm	CN . . 0903 . . 20-32	CN . . 1204 . . 32	CN . . 1204 . . 40	CN . . 1204 . . 50	CN . . 1606 . . 55-58
Shim			AP134-CN1216 r ≤ 1,6	AP134-CN1216 r ≤ 1,6	AP135-CN1624 r ≤ 2,4
Lever	KN126	KN128	KN121	KN102	KN104
Clamping screw Tightening torque	FS2182 (SW 2) 2,0 Nm	FS332 (SW 2,5) 2,5 Nm	FS2129 (SW 3) 5,0 Nm	FS352 (SW 3) 5,0 Nm	FS354 (SW 3) 5,0 Nm
Shim pin			RS102	RS102	RS103
Assembly plug			MD101	MD101	MD102
Allen key	ISO2936-2 (SW 2)	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)

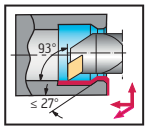
Accessories

Type D_{min} mm	CN . . 1204 . . 40-50	CN . . 1606 . . 55-58
Shim	AP134-CN1208 r ≤ 0,8	AP135-CN1616 r ≤ 1,6

A-15 G-2 A-120

★ New addition to range

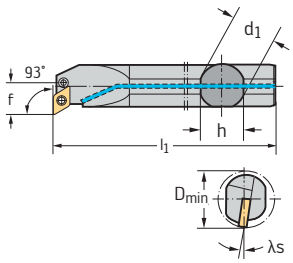
Walter Turn
A ... – PDUN



- Negative toolholder range
- Internal machining
- Lever type clamping

Tool

κ = 93°



Designation		D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	λ_S	Type
★ A25T-PDUNR/L11	11	32	25	17	23	300	-6°	-11°	DN . . 1104 . .
★ A32T-PDUNR/L11	11	40	32	22	30	300	-6°	-10°	
★ A40T-PDUNR/L11	11	50	40	27	37	300	-6°	-11°	
★ A32T-PDUNR/L15	15	40	32	22	30	300	-6°	-12°	DN . . 1506 . .
★ A40T-PDUNR/L15	15	50	40	27	37	300	-6°	-11°	

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Measured with master insert DN . . 110408 / DN . . 150608.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type D_{min} mm	DN . . 1104 . . 32	DN . . 1104 . . 40-50	DN . . 1506 . . 40-50
Shim		AP171-DN1112 r ≤ 1,2	AP145-DN1516 r ≤ 1,6
Lever	KN120	KN119	KN103
Shim pin		RS101	RS102
Clamping screw Tightening torque	FS905 (SW 2) 2,0 Nm	FS351 (SW 2,5) 2,0 Nm	FS355 (SW 3) 5,0 Nm
Assembly plug		MD101	MD101
Allen key	ISO2936-2 (SW 2)	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)

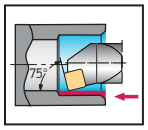
Accessories

Type D_{min} mm		DN . . 1104 . . 40-50	DN . . 1506 . . 40-50
Shim		AP171-DN1108 r ≤ 0,8	AP145-DN1508 r ≤ 0,8
Shim for DN . . 1504 . . for			AP357-DN1516 r ≤ 0,8 / 1,6

A-21 G-2 A-120

★ New addition to range

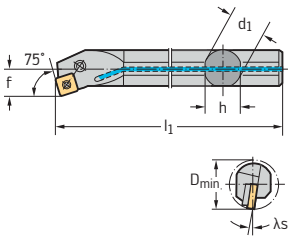
Walter Turn
A ... – PSKN



- Negative toolholder range
- Internal machining
- Lever type clamping

Tool

κ = 75°



Designation		D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	$λ_S$	Type
★ A25T-PSKNR/L12	12	32	25	17	23	300	-6°	-11°	SN . . 1204 . .
★ A32T-PSKNR/L12	12	40	32	22	30	300	-6°	-10°	
★ A40T-PSKNR/L12	12	50	40	27	37	300	-6°	-10°	

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle $λ_S$, see page A 301 in the Walter General catalogue 2012.
Measured with master insert SN . . 120408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type D_{min} mm	SN . . 1204 . . 32	SN . . 1204 . . 40	SN . . 1204 . . 50
Shim		AP141-SN1216 r ≤ 1,6	AP141-SN1216 r ≤ 1,6
Lever	KN128	KN121	KN102
Clamping screw Tightening torque	FS332 (SW 2,5) 2,5 Nm	FS2129 (SW 3) 5,0 Nm	FS352 (SW 3) 5,0 Nm
Shim pin		RS102	RS102
Assembly plug		MD101	MD101
Allen key	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)	ISO2936-3 (SW 3)

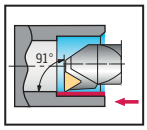
Accessories

Type D_{min} mm	SN . . 1204 . . 40
Shim	AP141-SN1208 r ≤ 0,8

A-26 G-2 A-120

★ New addition to range

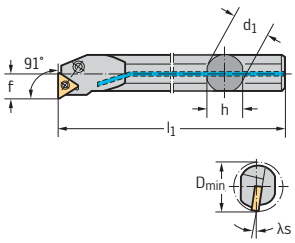
Walter Turn
A ... – PTFN



- Negative toolholder range
- Internal machining
- Lever type clamping

Tool

κ = 91°



Designation		D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	$λ_S$	Type
★ A16R-PTFNR/L11	11	20	16	11	15	200	-6°	-14°	TN . . 1103 . .
★ A20S-PTFNR/L11	11	25	20	13	18	250	-6°	-12°	
★ A25T-PTFNR/L11	11	32	25	17	23	300	-6°	-10°	
★ A25T-PTFNR/L16	16	32	25	17	23	300	-6°	-13°	TN . . 1604 . .
★ A32T-PTFNR/L16	16	50	32	22	30	300	-6°	-12°	
★ A40T-PTFNR/L22	22	50	40	27	37	300	-6°	-11°	TN . . 2204 . .

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle $λ_S$, see page A 301 in the Walter General catalogue 2012.
Measured with master insert TN . . 110304 . . / TN . . 160408 / TN . . 220408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type D_{min} mm	TN . . 1103 . . 20-32	TN . . 1604 . . 32-50	TN . . 2204 . . 50
Shim		AP137-TN1616 r ≤ 1,6	AP138-TN2216 r ≤ 1,6
Lever	KN127	KN101	KN102
Clamping screw Tightening torque	FS2182 (SW 2) 2,0 Nm	FS351 (SW 2,5) 2,0 Nm	FS352 (SW 3) 5,0 Nm
Shim pin		RS101	RS102
Assembly plug		MD101	MD101
Allen key	ISO2936-2 (SW 2)	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)

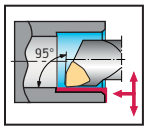
Accessories

Type D_{min} mm		TN . . 1604 . . 32-50	TN . . 2204 . . 50
Shim		AP137-TN1608 r ≤ 0,8	AP138-TN2208 r ≤ 0,8

A-32 G-2 A-120

★ New addition to range

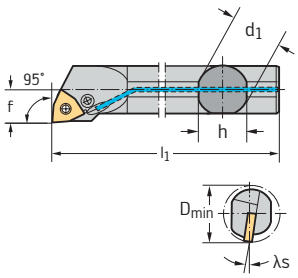
Walter Turn
A ... – PWLN



- Negative toolholder range
- Internal machining
- Lever type clamping

Tool

κ = 95°



Designation	D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	$λ_S$	Type
★ A20S-PWLNR/L06	6	25	20	13	18	250	-6°	-15°	
★ A25T-PWLNR/L06	6	32	25	17	23	300	-6°	-12°	WN . . 0604 . .
★ A32T-PWLNR/L06	6	40	32	22	30	300	-6°	-12°	
★ A25T-PWLNR/L08	8	32	25	17	23	300	-6°	-10°	WN . . 0804 . .
★ A32T-PWLNR/L08	8	40	32	22	30	300	-6°	-10°	

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle $λ_S$, see page A 301 in the Walter General catalogue 2012.
Measured with master insert WN . . 060408 / WN . . 080408 / WN . . 100612.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

Type D_{min} mm	WN . . 0604 . . 25-32	WN . . 0604 . . 40	WN . . 0804 . . 32	WN . . 0804 . . 40
Shim		AP172-WN0612 r ≤ 1,2		AP170-WN0816 r ≤ 1,6
Lever	KN108	KN101	KN128	KN102
Shim pin		RS101		RS102
Clamping screw Tightening torque	FS331 (SW 2) 2,0 Nm	FS351 (SW 2,5) 2,0 Nm	FS332 (SW 2,5) 2,5 Nm	FS352 (SW 3) 5,0 Nm
Assembly plug		MD101		MD101
Allen key	ISO2936-2 (SW 2)	ISO2936-2,5 (SW 2,5)	ISO2936-2,5 (SW 2,5)	ISO2936-3 (SW 3)

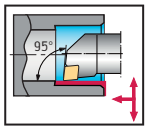
Accessories

Type D_{min} mm	WN . . 0804 . . 40
Shim	AP170-WN0808 r ≤ 0,8

A-37 G-2 A-120

★ New addition to range

Walter Turn
A … – SCLC / E … – SCLC



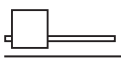
- Positive toolholder range
- Internal machining
- Screw clamping

Tool

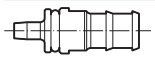
Designation		D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	λ_S	Type
κ = 95°	A08H-SCLCR/L06	6	10	8	5	7	100	0°	-14°	
	A10K-SCLCR/L06	6	12	10	6	9	125	0°	-11°	CC . . 0602 . .
	A12M-SCLCR/L06	6	16	12	9	11	150	0°	-7°	
	A16R-SCLCR/L09	9	20	16	11	15	200	0°	-8,5°	
	A20S-SCLCR/L09	9	25	20	13	18	250	0°	-6°	CC . . 09T3 . .
	A25T-SCLCR/L09	9	32	25	17	23	300	0°	-3,5°	
	A25T-SCLCR/L12	12	32	25	17	23	300	0°	-4,5°	
	A32T-SCLCR/L12	12	40	32	22	30	300	0°	-10°	CC . . 1204 . .
κ = 95°	A08H-SCLCR/L06-R	6	10	8	5		100	0°	-14°	
	E08K-SCLCR/L06-R	6	10	8	5		125	0°	-10°	
	A10K-SCLCR/L06-R	6	12	10	6		125	0°	-11°	CC . . 0602 . .
	E10M-SCLCR/L06-R	6	12	10	6		150	0°	-7°	
	A12M-SCLCR/L06-R	6	16	12	9		150	0°	-7°	
	E12Q-SCLCR/L06-R	6	16	12	9		180	0°	-3°	
	A16R-SCLCR/L09-R	9	20	16	11		200	0°	-8,5°	
	E16R-SCLCR/L09-R	9	20	16	11		200	0°	0°	
	A20S-SCLCR/L09-R	9	25	20	13		250	0°	-6°	CC . . 09T3 . .
	★ E20S-SCLCR/L09-R	9	25	20	13		250	0°	-6°	
	★ E25T-SCLCR/L09-R	9	32	25	17		300	0°	-4,5°	

For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Measured with master insert CC . . 060204 / CC . . 09T308 / CC . . 120408.
Bodies and assembly parts are included in the scope of delivery.
A = Boring bar in steel version
E = Boring bar made of solid carbide

Assembly parts

Type D_{min} mm	CC . . 0602 . . 10-16	CC . . 09T3 . . 20-25	CC . . 09T3 . . 32	CC . . 1204 . . 32	CC . . 1204 . . 40
 Clamping screw for insert Tightening torque	FS2066 (Torx 7IP) 0,9 Nm	FS2062 (Torx 15IP) 3,0 Nm	FS2063 (Torx 15IP) 3,0 Nm	FS2064 (Torx 15IP) 3,0 Nm	FS2065 (Torx 15IP) 3,0 Nm
 Shim					AP314-CC1212 r ≤ 1,2
 Screw for shim					FS2069 (SW 4)
 Torx key	FS1490 (Torx 7IP)	FS1465 (Torx 15IP / SW 3,5)	FS1465 (Torx 15IP / SW 3,5)	FS1496 (Torx 15IP / SW 4)	FS1496 (Torx 15IP / SW 4)

Accessories

	d_1 mm		
 Coolant adapter	8	K600.08.28.066	
	10	K600.10.28.086	
	12	K600.12.38.086	
	16	K600.16.40.137	
	20	K600.20.40.137	
	25	K600.25.44.137	
	32	K600.32.44.137	

★ New addition to range

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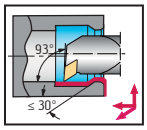
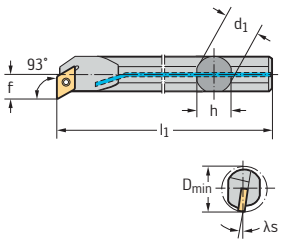
Walter Turn
A ... – SDUC / E ... – SDUC

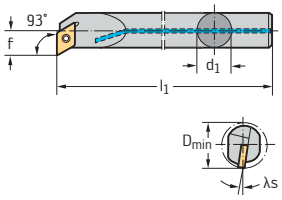


- Positive toolholder range
- Internal machining
- Screw clamping

Tool

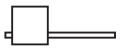
	Designation		D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	λ_S	Type
κ = 93°	A10K-SDUCR/L07		7	13	10	7	9	125	0°	-9°	
	A12M-SDUCR/L07		7	16	12	9	11	150	0°	-6,5°	DC . . 0702 . .
	A16R-SDUCR/L07		7	20	16	11	15	200	0°	-4°	
	A20S-SDUCR/L11		11	25	20	13	18	250	0°	-6°	
	A25T-SDUCR/L11		11	32	25	17	23	300	0°	-3°	DC . . 11T3 . .
	★ A32T-SDUCR/L11		11	40	32	22	30	300	0°	-3°	
κ = 93°	A10K-SDUCR/L07-R		7	15	10	7		125	0°	-7°	
	E10M-SDUCR/L07-R		7	15	10	9		150	0°	-5°	
	A12M-SDUCR/L07-R		7	18	12	9		150	0°	-5°	
	E12Q-SDUCR/L07-R		7	18	12	11		180	0°	-5°	DC . . 0702 . .
	A16R-SDUCR/L07-R		7	20	16	11		200	0°	-4°	
	E16R-SDUCR/L07-R		7	22	16	13		200	0°	-5°	
	A20S-SDUCR/L11-R		11	25	20	13		250	0°	-6°	
	★ E20S-SDUCR/L11-R		11	25	20	13		250	0°	-6°	DC . . 11T3 . .
	★ E25T-SDUCR/L11-R		11	32	25	17		300	0°	-3°	



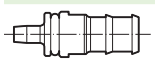


For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Measured with master insert DC . . 070204 / DC . . 11T308.
Bodies and assembly parts are included in the scope of delivery.
A = Boring bar in steel version
E = Boring bar made of solid carbide

Assembly parts

	Type D_{min} mm	DC . . 0702 . . 13-22	DC . . 11T3 . . 25	DC . . 11T3 . . 32
	Clamping screw for insert Tightening torque	FS2061 (Torx 7IP) 0,9 Nm	FS2062 (Torx 15IP) 3,0 Nm	FS2063 (Torx 15IP) 3,0 Nm
	Torx key	FS1490 (Torx 7IP)	FS1465 (Torx 15IP / SW 3,5)	FS1465 (Torx 15IP / SW 3,5)

Accessories

		d_1 mm		
	Coolant adaptor	8	K600.08.28.066	
		10	K600.10.28.086	
		12	K600.12.38.086	
		16	K600.16.40.137	
		20	K600.20.40.137	
		25	K600.25.44.137	
		32	K600.32.44.137	

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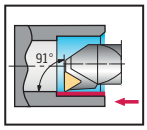
★ New addition to range

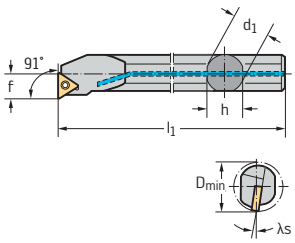
Walter Turn
A ... – STFC / E ... – STFC

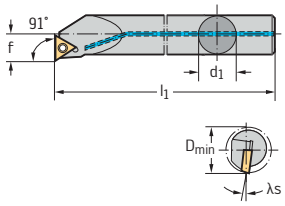


- Positive toolholder range
- Internal machining
- Screw clamping

Tool

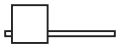
Designation		D_{min} mm	d_1 mm	f mm	h mm	l_1 mm	γ	λ_S	Type
κ = 91°	A06F-STFCR/L06	6	8,5	6	5	5	80	0°	-12°	TC . . 06T1 . .
	A08H-STFCR/L06	6	11	8	6	5	100	0°	-10°	
	A10K-STFCR/L09	9	13	10	7	9	125	0°	-9°	TC . . 0902 . .
	A12M-STFCR/L11	11	16	12	9	11	150	0°	-6,5°	
	A16R-STFCR/L11	11	20	16	11	15	200	0°	-4,5°	TC . . 1102 . .
	A20S-STFCR/L11	11	25	20	13	18	250	0°	-3°	
	A25T-STFCR/L16	16	32	25	17	23	300	0°	-3°	TC . . 16T3 . .
	A32T-STFCR/L16	16	40	32	22	30	300	0°	-7°	
κ = 91°	A06F-STFCR/L06-R	6	8,5	6	5		80	0°	-10°	TC . . 06T1 . .
	E06H-STFCR/L06-R	6	8,5	6	5		100	0°	-10°	
	A08H-STFCR/L06-R	6	11	8	6		100	0°	-6°	
	E08K-STFCR/L06-R	6	11	8	6		125	0°	-10°	
	A10K-STFCR/L09-R	9	13	10	7		125	0°	-8°	TC . . 0902 . .
	E10M-STFCR/L09-R	9	13	10	7		150	0°	-8°	
	E12Q-STFCR/L09-R	9	16	12	9		180	0°	-6°	
	A12M-STFCR/L11-R	11	16	12	9		150	0°	-6,5°	TC . . 1102 . .
	A16R-STFCR/L11-R	11	20	16	11		200	0°	-4,5°	
	E16R-STFCR/L11-R	11	20	16	11		200	0°	-4°	
	★ E20S-STFCR/L11-R	11	25	20	13		250	0°	-3°	
	★ E25T-STFCR/L16-R	16	32	25	17		300	0°	-3°	TC . . 16T3 . .



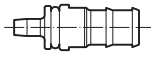


For information on the rake angle γ (for indexable inserts without geometry) and on the inclination angle λ_S, see page A 301 in the Walter General catalogue 2012.
Measured with master insert TC . . 06T102 / TC . .090204 / TC . . 110204 / TC . . 16T308.
Bodies and assembly parts are included in the scope of delivery. A = Boring bar in steel version/E = Boring bar made of solid carbide

Assembly parts

Type D_{min} mm	TC . . 06T1 . . 8,5	TC . . 06T1 . . 11	TC . . 0902 . . 13-16	TC . . 1102 . . 16	TC . . 1102 . . 20-25	TC . . 16T3 . . 32	TC . . 16T3 . . 40
 Clamping screw for insert Tightening torque	FS2147 (Torx 6 IP) 0,5 Nm	FS2148 (Torx 6 IP) 0,5 Nm	FS2149 (Torx 7 IP) 0,9 Nm	FS2067 (Torx 7IP) 0,9 Nm	FS2061 (Torx 7IP) 0,9 Nm	FS2063 (Torx 15IP) 3,0 Nm	FS2060 (Torx 15 IP) 3,0 Nm
 Shim for							AP317-TC1612 r ≤ 1,2
 Screw for shim							FS2068 (SW 3,5)
 Torx key	FS2146 (Torx 6IP)	FS2146 (Torx 6IP)	FS1490 (Torx 7IP)	FS1490 (Torx 7IP)	FS1490 (Torx 7IP)	FS1465 (Torx 15IP / SW 3,5)	FS1465 (Torx 15IP / SW 3,5)

Accessories

	d_1 mm	
 Coolant adaptor	8	K600.08.28.066
	10	K600.10.28.086
	12	K600.12.38.086
	16	K600.16.40.137
	20	K600.20.40.137
	25	K600.25.44.137
	32	K600.32.44.137

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★ New addition to range

Walter Cut system overview

Tool families for grooving

G1011 monoblock tool

- For GX cutting inserts
- For grooving, parting off and longitudinal turning
- For all types of lathe
- Different cutting depths available
- Clamped with screws
- Access to the screw from above and below.
- Extremely easy tool handling even in inverted use
- Excellent chip evacuation by means of low head height

XLDE monoblock tool for parting off

- Simple tool handling because of angled access clamping screw
- Shank sizes 10 x 10 mm – 20 x 20 mm for use on sliding head machines and multi-spindle machines
- Quick cutting insert replacement time through possibility of insert replacement in the machine
- For parting diameters of up to 32 mm

G1042 deep parting blade

- Cost-effective, double-edged parting off solution with cutting depth of up to 23 mm
- Single-edged parting off solution with cutting depth of up to 60 mm
- Stable 4-point clamping
- Simple tool handling
- Defined clamping force
- One tool system for single and double-edged cutting inserts

G1041 reinforced parting blade

- Maximum process reliability due to stable tool design
- Maximum cost efficiency due to double-sided cutting inserts for parting off operation
- Optimum cutting insert retention due to Torx Plus screw clamping and insert seat design
- Little tool deflection due to reinforced tool body
- Longer tool life due to reduction in micro-vibration

Walter Cut Modular

- Maximum grooving flexibility
- Small inventory
- Short set-up times
- For GX, FX and LX cutting inserts
- 3 different parting systems can be used
- 900 possible combinations

G1111 monoblock tool for axial grooving

- For GX24 cutting inserts
- For grooving and recessing
- Excellent chip evacuation by means of low tool head height
- Access to the screw from above and below; Extremely easy tool handling even in inverted use

Tool families for grooving

G15 . . monoblock tool for shallow cutting depths

- For GX cutting inserts
- For grooving, groove-turning and recess turning
- Cutting depth of up to 6 mm
- Groove widths of 2–6 mm in one and the same tool
- Excellent chip evacuation by means of low tool head height
- Access to the screw from above and below; Extremely easy tool handling even in inverted use

NEW

G2012 monoblock tool with internal coolant supply

- For SX cutting inserts
- With internal coolant supply on all tools
- For grooving and parting off
- For all types of lathe
- Different cutting depths available
- Stable self-clamping system by top clamp
- Connection to high-pressure cooling is possible

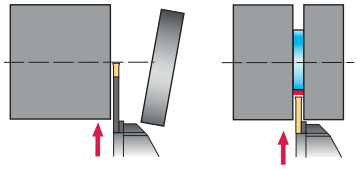
NEW

G2042 deep parting blade

- Cost-effective, single-edged parting off solution for cutting depth up to 80 mm
- Stable self-clamping system by top clamp
- Simple tool handling
- Special deep parting blade for SX cutting inserts
- Available in neutral and reinforced right-/left-hand versions

Product range overview of Walter Cut grooving tools

Parting off/grooving



GX system

XLDE

s = 1,5–3 mm
T_{max} = 16 mm

*Page A 210**

NCAE / NCBE

s = 2–8 mm
T_{max} = 21 mm

*Shank tool: Page A 218**

*Page A 250**

G1041

s = 1,5–4 mm
T_{max} = 32 mm

*Page A 214**

SX/FX system

G2012

NEW

s = 3–4 mm
T_{max} = 33 mm

Page A-118

XLDE-C

s = 1,5–3 mm
T_{max} = 16 mm

*Page A 211**

NCLE

s = 2–8 mm
T_{max} = 21 mm

*Shank tool: Page A 220**

*Page A 254**

G1041-C

s = 1,5–4 mm
T_{max} = 32 mm

*Page A 215**

G2042

NEW

s = 2–6 mm
T_{max} = 80 mm

Page A-119

G1011

NEW

s = 2–8 mm
T_{max} = 32 mm

Page A-117

NCCE

s = 0,6–2,25 mm
T_{max} = 3 mm

*Shank tool: Page A 220**

*Page A 256**

G1042

s = 3–6 mm
T_{max} = 60 mm

*Page A 213**

NCDE

s = 2,2–8,0 mm
T_{max} = 45 mm

*Shank tool: Page A 226**

*Page A 260**

NCNE

s = 0,6–2,25 mm
T_{max} = 3 mm

*Shank tool: Page A 224**

*Page A 258**

XLCFN

s = 3–8 mm
T_{max} = 80 mm

*Page A 216**

NCME

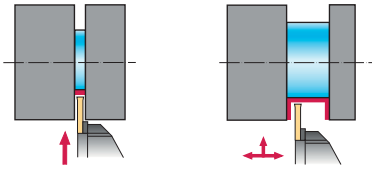
s = 2,2–4,0 mm
T_{max} = 45 mm

*Shank tool: Page A 228**

*Page A 262**

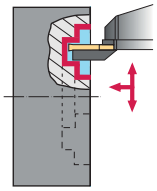
** The pages indicated in italics refer to the Walter General catalogue 2012.*

Grooving/recessing



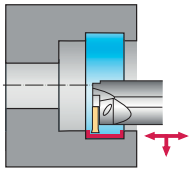
GX system

Axial grooving



GX system

Internal grooving



GX system

G1011

NEW

s = 2–8 mm
T_{max} = 32 mm

Page A-117

G1511

s = 2–6 mm
T_{max} = 6 mm

*Page A 208**

G1111

s = 3–6 mm
T_{max} = 25 mm

*Page A 230**

I 12

s = 1,95–2,5 mm
T_{max} = 3 mm

*Page A 245**

G1521

s = 2–6 mm
T_{max} = 6 mm

*Page A 208**

G1551

s = 3–6 mm
T_{max} = 6 mm

*Page A 209**

NCEE

s = 3–6 mm
T_{max} = 15 mm

*Shank tool: Page A 232**

*Page A 264**

NCHE

s = 3–6 mm
T_{max} = 15 mm

*Shank tool: Page A 234**

*Page A 266**

NCAI

s = 1,95–6 mm
T_{max} = 19 mm

*Page A 246**

NCAE / NCBE

s = 2–8 mm
T_{max} = 21 mm

*Shank tool: Page A 218**

*Page A 250**

NCCE

s = 0,6–2,25 mm
T_{max} = 3 mm

*Shank tool: Page A 222**

*Page A 256**

NCFE

s = 3–6 mm
T_{max} = 21 mm

*Shank tool: Page A 236**

*Page A 286**

NCOE

s = 3–6 mm
T_{max} = 21 mm

*Shank tool: Page A 238**

*Page A 270**

NCCI

s = 0,6–3,25 mm
T_{max} = 3 mm

*Page A 248**

NCLE

s = 2–8 mm
T_{max} = 21 mm

*Shank tool: Page A 220**

*Page A 254**

NCNE

s = 0,6–2,25 mm
T_{max} = 3 mm

*Shank tool: Page A 224**

*Page A 258**

NCFE-C

s = 3–6 mm
T_{max} = 21 mm

*Shank tool: Page A 240**

*Page A 272**

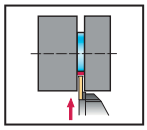
NCOE-C

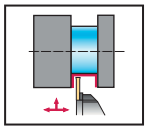
s = 3–6 mm
T_{max} = 21 mm

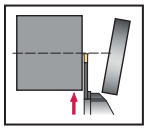
*Shank tool: Page A 242**

*Page A 274**

Walter Cut G1011

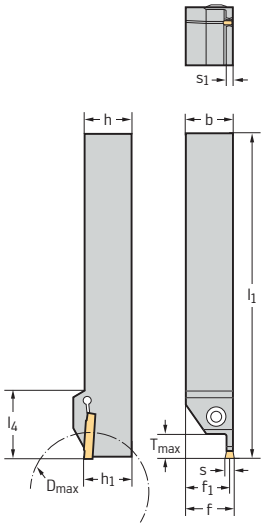






- External machining
- Radial grooving 0°
- One-piece shank tool
- For grooving, recessing and parting off
- For GX cutting inserts

Tool



Designation	s mm	T_{max} mm	D_{max} mm	$h=h_1$ mm	b mm	f_1 mm	l_1 mm	l_4 mm	s_1 mm	Type
G1011.1212R/L-2T8GX16	2	8		12	12	11	122	32	1,6	GX 16-1E2/F2 . .
G1011.1212R/L-2T12GX16		12		12	12	11	122	32	1,6	
G1011.1616R/L-2T8GX16		8		16	16	15	132	36	1,6	
G1011.1616R/L-2T15GX16		16		16	16	15	136	36	1,6	
G1011.2020R/L-2T8GX16		8		20	20	19	142	32	1,6	
G1011.2020R/L-2T15GX16		16		20	20	19	146	36	1,6	
G1011.2525R/L-2T8GX16		8		25	25	24	142	32	1,6	
G1011.2525R/L-2T15GX16		16		25	25	24	146	36	1,6	
G1011.1616R/L-3T12GX24	3	12		16	16	15	135	35	2,4	GX 24-2E3/F3 . .
G1011.1616R/L-3T21GX24		21	80	16	16	15	150	40	2,4	
G1011.2020R/L-3T12GX24		12		20	20	19	145	35	2,4	
G1011.2012R/L-3T21GX24		21	80	20	12	11	150	40	2,4	
G1011.2020R/L-3T21GX24		21	80	20	20	19	150	40	2,4	
G1011.2525R/L-3T12GX24		12		25	25	24	145	35	2,4	
G1011.2525R/L-3T21GX24		21	80	25	25	24	150	40	2,4	
G1011.1616R/L-4T12GX24	4	12		16	16	14	135	35	3,4	GX 24-3E4/F4 . .
G1011.1616R/L-4T21GX24		21	80	16	16	14	150	40	3,4	
G1011.2020R/L-4T12GX24		12		20	20	18	145	35	3,4	
G1011.2012R/L-4T21GX24		21	80	20	12	10	150	40	3,4	
G1011.2020R/L-4T21GX24		21	80	20	20	18	150	40	3,4	
G1011.2525R/L-4T12GX24		12		25	25	23	145	35	3,4	
G1011.2525R/L-4T21GX24		21	80	25	25	23	150	40	3,4	
G1011.2020R/L-5T12GX24	5	12		20	20	18	145	35	4,2	GX 24-3E5/F5 . .
G1011.2020R/L-5T21GX24		21	80	20	20	18	150	40	4,2	
G1011.2525R/L-5T12GX24		12		25	25	23	145	35	4,2	
G1011.2525R/L-5T21GX24		21	80	25	25	23	150	40	4,2	
G1011.2525R/L-5T32GX24		32	120	25	25	23	165	55	4,2	
G1011.2020R/L-6T12GX24	6	12		20	20	17	145	35	5,2	GX 24-4E6/F6 . .
G1011.2020R/L-6T21GX24		21	80	20	20	17	150	40	5,2	
G1011.2525R/L-6T12GX24		12		25	25	22	145	35	5,2	
G1011.2525R/L-6T21GX24		21	80	25	25	22	150	40	5,2	
G1011.2525R/L-6T32GX24		32	120	25	25	22	165	55	5,2	
★ G1011.2525R/L-8T28GX30	8	28	120	25	25	22	165	55	6,1	GX 30-5E8..
★ G1011.3232R/L-8T28GX30		28	120	32	32	29	165	55	6,1	

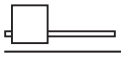
For T_{max} with greater diameters than D_{max}, see technical information on page A 318 of the Walter General catalogue 2012.

f = f1 + s/2

Ordering example: Right-handed shank tool: G1011.2020R-3T12GX24 / left-handed shank tool: G1011.2020L-3T12GX24

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Type	GX 16-1E2/F2 . .-GX 30-5E8..
	Clamping screw for grooving insert Tightening torque	FS2118 (Torx 20IP) 5,0 Nm
	Torx key	FS1464 (Torx 20IP)

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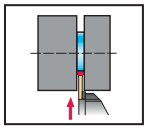
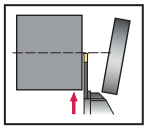
★ New addition to range

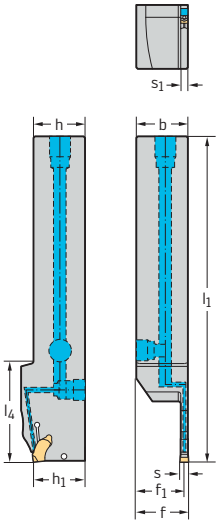
Walter Cut
G2012





- External machining
- Radial grooving 0°
- One-piece shank tool with internal coolant supply
- For grooving and parting off
- For SX cutting inserts

Tool



Designation	s mm	T_{max} mm	$h=h_1$ mm	b mm	f_1 mm	l_1 mm	l_4 mm	Type
★ G2012.2020R/L-3T22SX-P	3	22	20	20	19	125	38	SX-3 . .
★ G2012.2525R/L-3T33SX-P		33	25	25	24	150	43	
★ G2012.2020R/L-4T29SX-P	4	29	20	20	18	125	45	SX-4 . .
★ G2012.2525R/L-4T33SX-P		33	25	25	23	150	48	

For instructions on replacing the cutting edge, see page A-150.
Connection set for internal coolant supply with G 1/8" thread, see page A-151.
f = f1 + s/2
Ordering example: Right-handed shank tool: G2012.2020R-3T22SX-P / left-handed shank tool: G2012.2020L-3T22SX-P
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Type	SX-3 . . – SX-4 . .	
	1/8" blind plugs	FS2258	

Accessories

	Type	SX-3 . . – SX-4 . .	
	Mounting wrench for grooving insert	FS1494	

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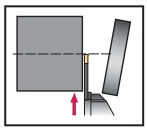
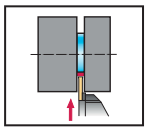
★ New addition to range

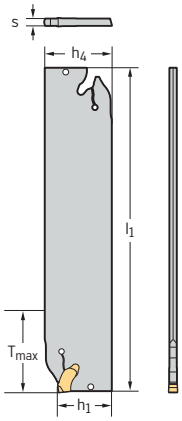
Walter Cut
G2042



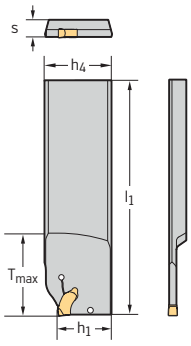


- External machining
- Radial grooving 0°
- Deep parting blade
- For parting off and grooving
- For SX cutting inserts

Tool



Designation	s mm	T_{max} mm	h_4 mm	l_1 mm	h_1 mm	Type
★ G2042.26N-2T30SX	2	30	26	150	21,1	SX-2 . .
★ G2042.32N-2T30SX		30	32	150	24,8	
★ G2042.26N-3T38SX	3	38	26	150	21	SX-3 . .
★ G2042.32N-3T50SX		50	32	150	24,7	
★ G2042.26N-4T40SX	4	40	26	150	20,9	SX-4 . .
★ G2042.32N-4T50SX		50	32	150	24,6	
★ G2042.32N-5T60SX	5	60	32	150	24,5	SX-5 . .
★ G2042.45N-5T80SX		80	45	150	37	
★ G2042.32N-6T60SX	6	60	32	150	24,4	SX-6 . .
★ G2042.45N-6T80SX		80	45	150	36,9	



Designation	s mm	T_{max} mm	h_4 mm	l_1 mm	h_1 mm	Type
★ G2042.26R/L-2T26SX	2	26	26	110	21	SX-2 . .
★ G2042.32R/L-2T26SX		26	32	110	24,6	
★ G2042.26R/L-3T33SX	3	33	26	110	21	SX-3 . .
★ G2042.32R/L-3T33SX		33	32	110	24,6	
★ G2042.32R/L-4T33SX	4	33	32	110	24,6	SX-4 . .

For clamping blocks, see page A 217 of the Walter General catalogue 2012.
For instructions on replacing the cutting edge, see page A-150.

Accessories

Type	SX-2 . . –SX-6 . .
Mounting wrench for grooving insert	FS1494

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★ New addition to range

Cutting data for turning inserts – Negative basic shape
Carbide grades

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WPP10S f [mm/U] 0,10	0,40	0,60	WPP20S f [mm/U] 0,10	0,40	0,60
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●	●	620	470	360	520	380	310
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●●	●	530	380	300	440	310	240
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●●	●	400	320	260	330	260	210
		C > 0.55%	annealed	190	639	P4	●●	●	500	360	280	420	290	220
		C > 0.55%	tempered	300	1013	P5	●●	●	320	240	220	260	190	170
		Free cutting steel (short-chipping)	annealed	220	745	P6	●●	●	500	360	280	420	290	220
	Low-alloyed steel	annealed		175	591	P7	●●	●	460	340	290	380	280	230
		tempered		300	1013	P8	●●	●	290	230	200	240	170	150
		tempered		380	1282	P9	●●	●	250	180	140	210	150	110
		tempered		430	1477	P10	●●	●	60	50				
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●	●	480	340	220	400	280	170
		hardened and tempered		300	1013	P12	●●	●	240	140	120	190	120	90
		hardened and tempered		400	1361	P13	●●	●	70	60				
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●	●	380	300	260	310	250	200
		martensitic, tempered		330	1114	P15	●●	●	280	200	160	220	150	110
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●						
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●						
		austenitic/ferritic, duplex		230	778	M3	●●	●						
K	Malleable cast iron	ferritic		200	675	K1	●●	●	320	210	160	280	220	160
		pearlitic		260	867	K2	●●	●	270	170	120	240	180	110
	Grey cast iron	low tensile strength		180	602	K3	●●	●	580	340	240	510	260	190
		high tensile strength/austenitic		245	825	K4	●●	●	320	220	150	240	180	110
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	340	240	180	260	190	140
		pearlitic		265	885	K6	●●	●	240	180	150	190	140	110
	GGV (CGI)			200	675	K7	●●	●	290	190	160			
N	Aluminium wrought alloys	cannot be hardened		30	–	N1								
		hardenable, hardened		100	343	N2								
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3								
		≤ 12% Si, hardenable, hardened		90	314	N4								
		> 12% Si, cannot be hardened		130	447	N5								
	Magnesium alloys			70	250	N6								
	Copper and copper alloys (bronze/brass)	unalloyed, electrolytic copper		100	343	N7								
		brass, bronze, red brass		90	314	N8								
		Cu-alloys, short-chipping		110	382	N9								
		high-strength, Ampco		300	1013	N10								
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●	●						
			hardened	280	943	S2	●●	●						
		Ni or Co base	annealed	250	839	S3	●●	●						
			hardened	350	1177	S4	●●	●						
			cast	320	1076	S5	●●	●						
	Titanium alloys	pure titanium		200	675	S6	●●	●						
		α and β alloys, hardened		375	1262	S7	●●	●						
		β alloys		410	1396	S8	●●	●						
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●	●●						
		hardened and tempered		55 HRC	–	H2	●	●●						
		hardened and tempered		60 HRC	–	H3	●	●●						
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●	●●						
O	Thermoplasts	without abrasive fillers				O1								
	Thermosetting plastics	without abrasive fillers				O2								
	Plastic, glass-fibre reinforced	GFRP				O3								
	Plastic, carbon-fibre reinforced	CFRP				O4								
	Plastic, aramid-fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application)
● Possible application

Note:
If dry machining is possible, the tool life reduces by an average of 20–30%.

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Cutting material grades																					
Starting values for cutting speed v_c [m/min]																					
HC																					
WPP30S			WMP20S			WPP01			WPP05			WPP10			WPP20			WPP30		
f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]		
0,10	0,40	0,60	0,10	0,30	0,50	0,10	0,20	0,30	0,10	0,40	0,60	0,10	0,40	0,60	0,10	0,40	0,60	0,10	0,40	0,60
440	300	250	340	230	190	620	590	560	610	470	350	590	450	340	500	370	300	430	290	240
370	250	200	290	190	150	530	500	480	520	380	300	500	360	290	420	300	230	360	240	190
270	220	160	210	170	130	400	380	360	400	310	260	380	300	250	320	250	200	260	210	160
350	230	180	270	170	130	510	480	460	500	360	280	480	340	270	400	280	210	340	220	170
210	140	110	160	110	90	320	300	290	310	240	220	300	230	210	250	180	160	200	140	110
350	230	180				510	490	470	500	360	280	480	340	270	400	280	210	340	220	170
310	220	200	240	170	150	460	440	420	460	330	290	440	320	280	370	270	220	300	210	190
190	120	90	160	100	70	300	280	270	290	230	200	280	220	190	230	160	140	180	120	90
150	100	70	120	80	50	270	250	220	260	180	140	240	170	130	200	140	110	150	100	70
						80	70	60	70	60		60	50							
310	220	120	240	170	100	480	460	440	480	300	220	460	320	210	380	270	160	300	210	120
120	90	70	100	70	60	250	240	230	250	140	110	230	130	110	180	120	90	120	90	70
						90	80	70	80	70		70	60							
240	200	150	280	240	200							360	290	250	300	240	190	230	190	150
160	110	100	190	150	130							270	190	150	210	140	110	160	110	100
			250	190	120											230	200		150	130
			150	130												100	90		90	70
			160	140	100											160	110		110	90
						300	270	250				300	200	150	270	210	150			
						260	230	210				260	160	110	230	170	110			
						550	490	440				550	320	230	490	250	180			
						300	270	250				300	210	140	230	170	110			
						320	290	260				320	230	170	250	180	130			
						230	210	190				230	170	140	180	130	110			
									380	250		280	180	150						
			90	60																
			70	50																
			70	50																
			60	40																
			50	30																
			70	45	40															
			40	30	25															

HC = Coated carbide
HW = Uncoated carbide

Cutting data for turning inserts – Negative basic shape
Carbide grades

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WSM10 f [mm/U] 0,10	0,30	0,50
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●	●	310	290	
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●●	●	260	240	
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●●	●	220	200	
		C > 0.55%	annealed	190	639	P4	●●	●	240	220	
		C > 0.55%	tempered	300	1013	P5	●●	●			
		Free cutting steel (short-chipping)	annealed	220	745	P6	●●	●	240	220	
	Low-alloyed steel	annealed		175	591	P7	●●	●			
		tempered		300	1013	P8	●●	●			
		tempered		380	1282	P9	●●	●			
		tempered		430	1477	P10	●●	●			
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●	●			
		hardened and tempered		300	1013	P12	●●	●			
		hardened and tempered		400	1361	P13	●●	●			
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●	●	270	240	200
		martensitic, tempered		330	1114	P15	●●	●	230	170	150
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●	260	210	130
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●	160	140	
		austenitic/ferritic, duplex		230	778	M3	●●	●	170	150	110
K	Malleable cast iron	ferritic		200	675	K1	●●	●			
		pearlitic		260	867	K2	●●	●			
	Grey cast iron	low tensile strength		180	602	K3	●●	●			
		high tensile strength/austenitic		245	825	K4	●●	●			
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●			
		pearlitic		265	885	K6	●●	●			
	GGV (CGI)			200	675	K7	●●	●			
N	Aluminium wrought alloys	cannot be hardened		30	–	N1					
		hardenable, hardened		100	343	N2					
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3					
		≤ 12% Si, hardenable, hardened		90	314	N4					
		> 12% Si, cannot be hardened		130	447	N5					
	Magnesium alloys			70	250	N6					
	Copper and copper alloys (bronze/brass)	unalloyed, electrolytic copper		100	343	N7					
		brass, bronze, red brass		90	314	N8					
		Cu-alloys, short-chipping		110	382	N9					
		high-strength, Ampco		300	1013	N10					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●	●	100	65	
			hardened	280	943	S2	●●	●	80	55	
		Ni or Co base	annealed	250	839	S3	●●	●	80	55	
			hardened	350	1177	S4	●●	●	70	45	
			cast	320	1076	S5	●●	●	60	35	
	Titanium alloys	pure titanium		200	675	S6	●●	●			
		α and β alloys, hardened		375	1262	S7	●●	●			
		β alloys		410	1396	S8	●●	●			
	Tungsten alloys			300	1013	S9					
	Molybdenum alloys			300	1013	S10					
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●	●●			
		hardened and tempered		55 HRC	–	H2	●	●●			
		hardened and tempered		60 HRC	–	H3	●	●●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●	●●			
O	Thermoplasts	without abrasive fillers				O1					
	Thermosetting plastics	without abrasive fillers				O2					
	Plastic, glass-fibre reinforced	GFRP				O3					
	Plastic, carbon-fibre reinforced	CFRP				O4					
	Plastic, aramid-fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6					

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application)
● Possible application

Note:
If dry machining is possible, the tool life reduces by an average of 20–30%.

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Cutting material grades																									
Starting values for cutting speed v_c [m/min]																									
HC																							HW		
WSM20			WSM30			WKK10S			WKK20S			WAK10			WAK20			WAK30			WS10		
f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]		
0,10	0,30	0,50	0,10	0,30	0,50	0,10	0,40	0,60	0,10	0,40	0,60	0,10	0,40	0,60	0,10	0,40	0,60	0,10	0,40	0,60	0,10	0,30	0,50
270	250		250	230					620	470	360				620	470	360	340	230	190			
220	200		200	180					530	380	310				530	380	310	290	190	150			
180	160		160	140					400	310	260				400	310	260	210	170	130			
200	180		180	160					510	360	290				510	360	290	270	170	130			
									320	240	220				320	240	220	160	110	90			
200	180		180	160																			
									240	170	150				460	340	290	240	170	150			
									160	100	70				360	260	240	160	100	70			
									120	80	50				260	180	140	120	80	50			
															70	60							
									240	170	100				480	340	220	240	170	100			
									100	70	60				250	150	110	100	70	60			
															80	70							
250	220	180	230	200	160																		
190	150	130	150	130	110																		
240	170	110	200	140	90																		
140	120		110	90																			
150	130	90	130	110	70																		
						370	260	180	300	200	150	370	260	180	300	200	150	240	160	130			
						330	220	140	260	160	110	330	220	140	260	160	110	200	120	90			
						620	410	300	550	320	230	620	410	300	550	320	230	490	250	180			
						390	260	180	300	210	140	390	260	180	300	210	140	230	170	110			
						410	300	230	320	230	170	410	300	230	320	230	170	250	180	130			
						300	230	180	230	170	140	300	230	180	230	170	140	180	130	110			
						320	200					320	200										
90	60		80	50																	90		
70	50		60	40																	70		
70	50		60	30																	70		
60	40		50	30																	60		
50	30		40	20																	50		
																					200	180	140
70	45	40																			90	55	45
40	30	25																			55	35	30
						55						55											
						45						45											
						35						35											
						45						45											

HC = Coated carbide
HW = Uncoated carbide

Cutting data for turning inserts – Positive basic shape
Carbide grades

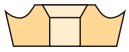
= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Cutting material grades – Starting values for cutting speed v_c [m/min] – HC – WPP10S – f [mm/U] 0,10	0,20	0,40	WPP20S – f [mm/U] 0,10	0,20	0,40
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●	●	560	500	430	470	430	350
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●●	●	470	430	340	400	360	280
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●●	●	360	330	300	290	260	240
		C > 0.55%	annealed	190	639	P4	●●	●	460	430	410	380	350	330
		C > 0.55%	tempered	300	1013	P5	●●	●	270	240	220	220	190	170
		Free cutting steel (short-chipping)	annealed	220	745	P6	●●	●	460	430	410	380	350	330
	Low-alloyed steel	annealed		175	591	P7	●●	●	420	390	370	360	330	300
		tempered		300	1013	P8	●●	●	250	220	200	200	170	150
		tempered		380	1282	P9	●●	●	190	160	140	150	120	90
		tempered		430	1477	P10	●●	●	60	50		50	40	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●	●	440	410	390	360	330	300
		hardened and tempered		300	1013	P12	●●	●	210	190	170	170	140	120
		hardened and tempered		400	1361	P13	●●	●	70	60		60	50	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●	●	380	350	330	270	240	220
		martensitic, tempered		330	1114	P15	●●	●	190	160	140	160	130	110
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●						
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●						
		austenitic/ferritic, duplex		230	778	M3	●●	●						
K	Malleable cast iron	ferritic		200	675	K1	●●	●	280	250	230	250	220	200
		pearlitic		260	867	K2	●●	●	240	210	190	210	180	160
	Grey cast iron	low tensile strength		180	602	K3	●●	●	530	490	450	480	450	430
		high tensile strength/austenitic		245	825	K4	●●	●	280	250	230	210	180	160
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	300	270	250	230	200	180
		pearlitic		265	885	K6	●●	●	210	180	160	160	130	110
	GGV (CGI)			200	675	K7	●●	●	280	230	210			
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●	●						
		hardenable, hardened		100	343	N2	●●	●						
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●	●						
		≤ 12% Si, hardenable, hardened		90	314	N4	●●	●						
		> 12% Si, cannot be hardened		130	447	N5								
	Magnesium alloys			70	250	N6								
	Copper and copper alloys (bronze/brass)	unalloyed, electrolytic copper		100	343	N7	●●	●						
		brass, bronze, red brass		90	314	N8	●●	●						
		Cu-alloys, short-chipping		110	382	N9	●●	●						
		high-strength, Ampco		300	1013	N10								
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●	●						
			hardened	280	943	S2	●●	●						
		Ni or Co base	annealed	250	839	S3	●●	●						
			hardened	350	1177	S4	●●	●						
			cast	320	1076	S5	●●	●						
	Titanium alloys	pure titanium		200	675	S6	●●	●						
		α and β alloys, hardened		375	1262	S7	●●	●						
		β alloys		410	1396	S8	●●	●						
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●	●●						
		hardened and tempered		55 HRC	–	H2	●	●●						
		hardened and tempered		60 HRC	–	H3	●	●●						
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●	●●						
O	Thermoplasts	without abrasive fillers				O1								
	Thermosetting plastics	without abrasive fillers				O2								
	Plastic, glass-fibre reinforced	GFRP				O3								
	Plastic, carbon-fibre reinforced	CFRP				O4								
	Plastic, aramid-fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application)
● Possible application

Note:
If dry machining is possible, the tool life reduces by an average of 20–30%.

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.



The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Cutting material grades

Starting values for cutting speed v_c [m/min]

HC

WPP30S			WPP01			WPP10			WPP20			WPP30			WSM10			WSM20			WSM21			WSM30		
f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]		
0,10	0,20	0,40	0,10	0,20	0,30	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40
450	410	300	560	530	500	530	480	410	450	410	330	430	390	290	290	270		260	240		230	210		230	210	
380	340	250	480	450	430	450	410	320	380	340	270	360	320	240	240	220		200	180		180	160		180	160	
230	200	180	360	330	330	340	310	290	280	250	230	220	190	170	200	180		160	140		140	120		140	120	
320	280	260	470	440	420	440	410	390	360	330	310	300	270	250	220	200		180	160		160	140		160	140	
170	140	120	280	250	220	260	230	210	210	180	160	160	130	110												
320	280	260	470	440	420	440	410	390	360	330	310	300	270	250	220	200		180	160		160	140		160	140	
270	240	220	420	390	370	400	370	350	340	310	290	260	230	210												
150	120	90	260	230	210	240	210	190	190	160	140	140	110	90												
120	80	60	200	180	160	180	150	130	140	110	90	110	80	60												
			70	60	50	60	50		50	40																
270	240	220	440	410	390	420	390	370	340	310	290	260	230	210												
140	110	80	230	200	180	200	180	160	160	130	110	130	100	80												
			80	70	60	70	60		60	50																
200	170	150				360	330	310	260	230	210	190	160	140												
130	90	70				180	150	130	150	120	100	120	90	70												
										220	180		160	125	220	200	130	200	180	110	180	140	90	180	140	90
										110	80		90	70	160	140		140	120		110	90		110	90	
										160	110		120	90	170	150	110	150	130	80	130	110	70	130	110	70
			270	240	220	270	240	220	240	210	190															
			230	200	180	230	200	180	200	170	150															
			520	490	470	500	470	430	460	430	410															
			270	240	220	270	240	220	200	170	150															
			290	260	240	290	260	240	220	190	170															
			200	170	150	200	170	150	150	120	100															
						270	220	200																		
															100	70		90	70		70	50		70	50	
															80	60		70	60		50	40		50	40	
															80	60		70	60		50	30		50	30	
															70	50		60	50		40	30		40	30	
															60	40		50	40		30	20		30	20	
																		70	50	40						
																		40	30	25						

HC = Coated carbide

Cutting data for turning inserts – Positive basic shape
Carbide grades

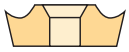
= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Cutting material grades		
									Starting values for cutting speed v_c [m/min]		
									HC		
									WKK20S		
									f [mm/U]		
									0,10	0,20	0,40
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●	●	560	500	420
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●●	●	480	430	340
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●●	●	340	300	260
		C > 0.55%	annealed	190	639	P4	●●	●	440	400	310
		C > 0.55%	tempered	300	1013	P5	●●	●	290	260	220
		Free cutting steel (short-chipping)	annealed	220	745	P6	●●	●	360	330	280
	Low-alloyed steel	annealed		175	591	P7	●●	●	410	370	310
		tempered		300	1013	P8	●●	●	290	260	220
		tempered		380	1282	P9	●●	●	220	200	140
		tempered		430	1477	P10	●●	●	60	50	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●	●	430	380	300
		hardened and tempered		300	1013	P12	●●	●	220	200	130
		hardened and tempered		400	1361	P13	●●	●	70	60	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●	●	340	300	280
		martensitic, tempered		330	1114	P15	●●	●	250	220	180
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●			
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●			
		austenitic/ferritic, duplex		230	778	M3	●●	●			
K	Malleable cast iron	ferritic		200	675	K1	●●	●	240	220	170
		pearlitic		260	867	K2	●●	●	220	200	150
	Grey cast iron	low tensile strength		180	602	K3	●●	●	500	450	290
		high tensile strength/austenitic		245	825	K4	●●	●	270	240	190
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	290	260	210
		pearlitic		265	885	K6	●●	●	210	190	160
	GGV (CGI)			200	675	K7	●●	●			
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●	●			
		hardenable, hardened		100	343	N2	●●	●			
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●	●			
		≤ 12% Si, hardenable, hardened		90	314	N4	●●	●			
		> 12% Si, cannot be hardened		130	447	N5					
	Magnesium alloys			70	250	N6					
	Copper and copper alloys (bronze/brass)	unalloyed, electrolytic copper		100	343	N7	●●	●			
		brass, bronze, red brass		90	314	N8	●●	●			
		Cu-alloys, short-chipping		110	382	N9	●●	●			
		high-strength, Ampco		300	1013	N10					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●	●			
			hardened	280	943	S2	●●	●			
		Ni or Co base	annealed	250	839	S3	●●	●			
			hardened	350	1177	S4	●●	●			
			cast	320	1076	S5	●●	●			
	Titanium alloys	pure titanium		200	675	S6	●●	●			
		α and β alloys, hardened		375	1262	S7	●●	●			
		β alloys		410	1396	S8	●●	●			
	Tungsten alloys			300	1013	S9					
	Molybdenum alloys			300	1013	S10					
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●	●●			
		hardened and tempered		55 HRC	–	H2	●	●●			
		hardened and tempered		60 HRC	–	H3	●	●●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●	●●			
O	Thermoplasts	without abrasive fillers				O1					
	Thermosetting plastics	without abrasive fillers				O2					
	Plastic, glass-fibre reinforced	GFRP				O3					
	Plastic, carbon-fibre reinforced	CFRP				O4					
	Plastic, aramid-fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6					

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application)
● Possible application

Note:
If dry machining is possible, the tool life reduces by an average of 20–30%.

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.



The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades																		
	Starting values for cutting speed v_c [m/min]																		
													HW						
	WAK10			WAK20			WAK30			WXN10			WK1			WS10			
	f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			
	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40	
				560	500	420	430	390	290										
				480	430	340	360	320	240										
				340	300	260	240	220	190										
				440	400	310	330	290	240										
				290	260	220	200	180	140										
				360	330	280	260	240	210										
				410	370	310	300	270	210										
				290	260	220	190	170	140										
				220	200	140	120	100	60										
				60	50														
				430	380	300	300	270	210										
				220	200	130	110	100	80										
				70	60														
				340	300	280	230	210	190										
				250	220	180	160	140	110										
										220	200								
										100	80								
										170	130								
	310	280	210	240	220	170	190	170	120										
	290	260	190	220	200	150	170	150	100										
	560	500	370	500	450	290	450	470	230										
	350	320	240	270	240	190	210	180	150										
	370	330	270	290	260	210	230	200	160										
	270	240	210	210	190	160	160	150	120										
	310	260	210																
										3000	2400	1800	2400	1800	1300				
										900	720	360	750	600	300				
										960	540	360	800	450	300				
										600	360	240	500	300	200				
										720	480	320	600	400	270				
										480	360	300	400	300	250				
										340	240	160	280	200	130				
										110	90					90			
										80	70					70			
										60	50					70			
										60	25					60			
										50	25					50			
										220	200	160				200	180	140	
										100	70	60				90	60	45	
																55	35	30	
	50																		
	40																		
	30																		
	40																		

Cutting data for turning inserts – Positive and negative basic shape
CBN and ceramic

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1			
		C > 0.25... ≤ 0.55%	annealed	190	639	P2			
		C > 0.25... ≤ 0.55%	tempered	210	708	P3			
		C > 0.55%	annealed	190	639	P4			
		C > 0.55%	tempered	300	1013	P5			
		Free cutting steel (short-chipping)	annealed	220	745	P6			
	Low-alloyed steel	annealed		175	591	P7			
		tempered		300	1013	P8			
		tempered		380	1282	P9			
		tempered		430	1477	P10			
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11			
		hardened and tempered		300	1013	P12			
		hardened and tempered		400	1361	P13			
	Stainless steel	ferritic/martensitic, annealed		200	675	P14			
		martensitic, tempered		330	1114	P15			
M	Stainless steel	austenitic, quench hardened		200	675	M1			
		austenitic, precipitation hardened (PH)		300	1013	M2			
		austenitic/ferritic, duplex		230	778	M3			
K	Malleable cast iron	ferritic		200	675	K1		●●	
		pearlitic		260	867	K2		●●	
	Grey cast iron	low tensile strength		180	602	K3		●●	
		high tensile strength/austenitic		245	825	K4		●●	
	Cast iron with spheroidal graphite	ferritic		155	518	K5		●●	
		pearlitic		265	885	K6		●●	
	GGV (CGI)			200	675	K7			
N	Aluminium wrought alloys	cannot be hardened		30	–	N1			
		hardenable, hardened		100	343	N2			
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3			
		≤ 12% Si, hardenable, hardened		90	314	N4			
		> 12% Si, cannot be hardened		130	447	N5			
	Magnesium alloys			70	250	N6			
	Copper and copper alloys (bronze/brass)	unalloyed, electrolytic copper		100	343	N7			
		brass, bronze, red brass		90	314	N8			
		Cu-alloys, short-chipping		110	382	N9			
		high-strength, Ampco		300	1013	N10			
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1			
			hardened	280	943	S2			
		Ni or Co base	annealed	250	839	S3		●●	
			hardened	350	1177	S4		●●	
			cast	320	1076	S5		●●	
	Titanium alloys	pure titanium		200	675	S6			
		α and β alloys, hardened		375	1262	S7			
		β alloys		410	1396	S8			
	Tungsten alloys			300	1013	S9			
	Molybdenum alloys			300	1013	S10			
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●	●●	
		hardened and tempered		55 HRC	–	H2	●	●●	
		hardened and tempered		60 HRC	–	H3	●	●●	
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●	●●	
O	Thermoplasts	without abrasive fillers				O1			
	Thermosetting plastics	without abrasive fillers				O2			
	Plastic, glass-fibre reinforced	GFRP				O3			
	Plastic, carbon-fibre reinforced	CFRP				O4			
	Plastic, aramid-fibre reinforced	AFRP				O5			
	Graphite (technical)			80 Shore		O6			

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application)
● Possible application

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades																
	Starting values for cutting speed v_c [m/min]																
	CN WSN10 a_p = 0,1–0,5 mm f [mm/U]			Sialon ceramic WIS10 a_p = 0,10–5,0 mm f [mm/U]			Whisker ceramic WWS20 a_p = 0,10–4,0 mm f [mm/U]			BL WCB30 a_p = 0,1–0,5 mm f [mm/U]			BH WCB50 a_p = 0,1–0,5 mm f [mm/U]				
	0,20	0,40	0,60	0,10	0,20	0,30	0,10	0,20	0,30	0,05	0,15	0,20	0,05	0,15	0,20	0,30	0,40
		600	500												1500	1300	1100
		500	400												1300	1100	900
		600	500												1500	1000	500
		500	400												500	400	300
		450	350														
		450	350												1300	800	500
				410	340	280	390	320	240								
				320	250	190	330	250	190								
				250	220	180	250	220	190								
							170	150	120		180	160		170	130		
							150	120	100		160	110		150	100		
							130	110	90		150	90		130	80		
							150	120	100		170	120		160	110		

BH = CBN with high CBN content
BL = CBN with low CBN content
CN = Silicon nitride Si_3N_4

Cutting tool material application tables – Turning

Carbide

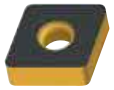
Walter grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Application range 01 05 10 15 20 25 30 35 40 45	Coating procedure	Coating composition	Indexable insert example
WPP 10S	HC – P 10	●●								CVD	TiCN + Al_2O_3 (+TiCN)	
	HC – K 20			●								
WPP 20S	HC – P 20	●●								CVD	TiCN + Al_2O_3 (+TiCN)	
	HC – K 30			●								
WPP 30S	HC – P 30	●●								CVD	TiCN + Al_2O_3 (+TiCN)	
WMP 20S	HC – M 15		●●							CVD	TiCN + Al_2O_3 (+TiCN)	
	HC – P 25	●●										
	HC – S 20					●						
WPP 01	HC – P 01	●●								CVD	TiCN + Al_2O_3 (+TiN)	
	HC – K 10			●								
WPP 05	HC – P 05	●●								CVD	TiCN + Al_2O_3 (+TiN)	
WPP 10	HC – P 10	●●								CVD	TiCN + Al_2O_3 (TiN)	
	HC – K 20			●								
WPP 20	HC – P 20	●●								CVD	TiCN + Al_2O_3 (TiN)	
	HC – K 30			●								
WPP 30	HC – P 30	●●								CVD	TiCN + Al_2O_3 (TiN)	
WSM 10	HC – M 10		●●							PVD	TiAlN + Al_2O_3 (ZrCN)	
	HC – S 10					●●						
	HC – P 10	●										
WSM 20	HC – M 20		●●							PVD	TiAlN + Al_2O_3 (ZrCN)	
	HC – S 20					●●						
	HC – P 20	●										
WSM 30	HC – M 30		●●							PVD	TiAlN + Al_2O_3 (ZrCN)	
	HC – S 30					●●						
	HC – P 30	●										
WSM 21	HC – M 20		●●							PVD	TiAlN	
	HC – S 20					●●						
	HC – P 20	●●										
WS 10	HW – S 10					●●				—	—	

HC = Coated carbide
HW = Uncoated carbide

●● Primary application
● Other application

Cutting tool material application tables – Turning

Carbide

Walter grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Application range: 01 05 10 15 20 25 30 35 40 45	Coating procedure	Coating composition	Indexable insert example
WKK 10S	HC – K 10			●●						CVD	TiCN + Al_2O_3 (+TiCN)	
	HC – H 30						●					
WKK 20S	HC – K 20			●●						CVD	TiCN + Al_2O_3 (+TiCN)	
	HC – P 10	●										
WAK 10	HC – K 10			●●						CVD	TiCN + Al_2O_3 (+TiN)	
	HC – H 30						●					
WAK 20	HC – K 20			●●						CVD	TiCN + Al_2O_3 (+TiN)	
	HC – P 10	●										
WAK 30	HC – K 30			●●						CVD	TiCN + Al_2O_3 (+TiN)	
	HC – P 40	●										
WXN 10	HC – N 10				●●					PVD	$TiCN^{plus}$	
	HC – P 01	●										
	HC – M 01		●									
WK 1	HW – N 10				●●					—	—	
	HW – S 10					●						

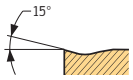
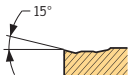
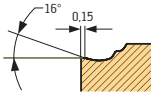
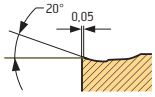
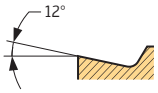
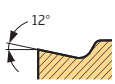
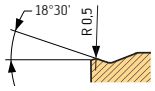
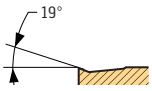
CBN and ceramic

Walter grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Application range: 01 05 10 15 20 25 30 35 40 45	Coating procedure	Description	Indexable insert example
WSN 10	CN – K 20			●●						—	Si_3N_4 Ceramic	
WIS 10	CN – S 10					●●				—	Sialon	
WWS 20	CR – S 20					●●				—	Whisker	
	CR – H 20						●					
WCB 30	BL – H 05						●●			—	CBN	
WCB 50	BH – H 10						●●			—	CBN	
	BH – K 10			●								

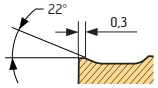
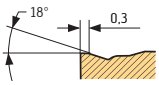
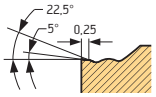
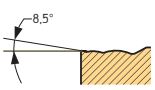
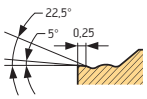
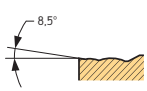
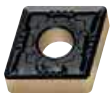
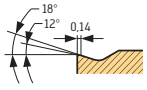
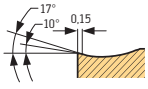
HC = Coated carbide
HW = Uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content
CN = Silicon nitride Si_3N_4
CR = Reinforced ceramic
●● Primary application
● Other application

Geometry overview of turning inserts – Negative basic shape

Finishing

Geometry	Remarks/field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Cut Main cutting edge	Cut Corner radius	a_p [mm]	f [mm]
 Wiper	**NF** – Finishing with wiper technology – High surface quality – High feeds	●●	●●	●●		●					0,4–3,0	0,10–0,55
	**FP5** – Finishing steel materials – Can also be used in semi-finishing as an alternative to MP3 – Curved cutting edge for low cutting forces	●●									0,1–2,5	0,04–0,25
	**NFT** – Finishing titanium materials – Sharp cutting edge with fully ground circumference, first choice – 100° corner with roughing geometry implemented with CNMG basic shape		●		●	●●					0,1–2,0	0,05–0,20
	**NF4** – Finishing stainless materials – Finishing alloys with difficult cutting properties – Finishing long-chipping steel materials – Curved cutting edge for cutting pressure reduction	●	●●			●●					0,2–1,6	0,05–0,20

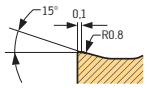
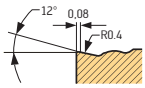
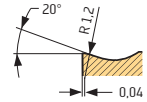
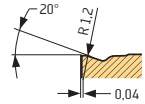
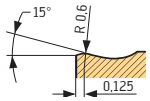
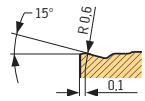
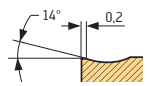
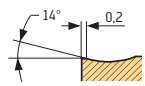
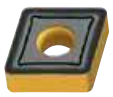
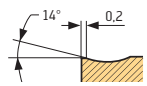
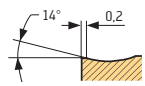
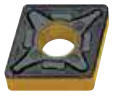
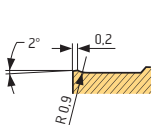
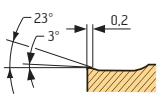
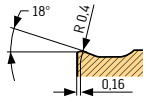
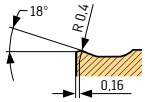
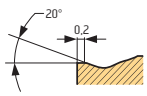
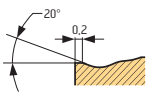
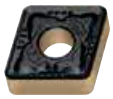
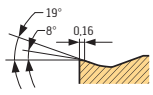
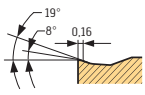
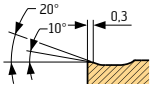
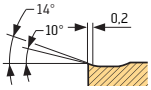
Medium machining

Geometry	Remarks/field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Cut Main cutting edge	Cut Corner radius	a_p [mm]	f [mm]
 Wiper	**NM** – Medium machining with wiper technology – High surface quality – High feeds	●●	●	●●		●					0,8–4,0	0,15–0,70
	**MP3** – Medium machining of long-chipping steel materials – Low cutting forces due to curved cutting edge – Machining forged parts with low material removal	●●									0,3–4,0	0,06–0,40
	**NMT** – Medium machining of titanium materials – Low cutting forces – Machining long-chipping steel materials – Machining forged parts with low material removal	●●				●●					0,6–4,0	0,12–0,32
	**NMS** – Medium machining especially for high temperature alloy (Ni, Co, Fe-based alloys) – Sharp, precise cutting edge design – Alternative to NM4 stainless geometry		●			●●					0,5–4,0	0,10–0,40

●● Primary application
● Other application

Comment: Sectional views show CNMG 120408 . .

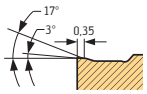
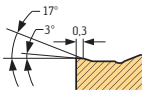
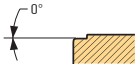
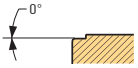
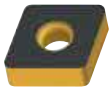
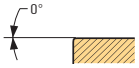
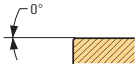
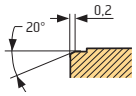
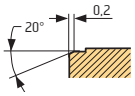
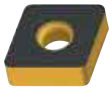
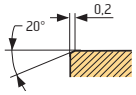
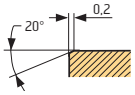
Medium machining – continued

Geometry	Remarks/field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Cut Main cutting edge	Cut Corner radius	a_p [mm]	f [mm]
	**MP5** – Universal geometry, steel materials – Reinforced chip breaker blades – Extremely wide range of applications	●●									0,5–8,0	0,16–0,55
	**NM4 Stainless** – Universal geometry, stainless materials – Universal geometry, high temperature alloys – Machining long-chipping steels	●	●●			●●					0,5–4,5	0,10–0,40
	**NM4 Steel** – Universal geometry, steel materials	●●									0,5–8,0	0,16–0,55
	**MK5** – Universal geometry, cast iron materials – Machining high-strength steel materials	●		●●							0,6–8,0	0,15–0,90
	**NM5** – Universal geometry, cast iron materials	●		●●							0,6–7,0	0,15–0,80
	**NM9** – Universal roughing of steel materials – Roughing of cast iron materials with WPP05/WPP10	●●		●							0,8–10,0	0,15–0,90
	**NM6** – Interrupted cuts – Cast skins/forged skins – Stable cutting edge	●●		●●							0,8–8,0	0,16–0,70
Roughing – Double-sided inserts												
	**NRT** – Roughing of titanium materials – Stable cutting edge with protective chamfer					●●					0,8–9,0	0,18–0,80
	**NRS** – Roughing especially for high temperature alloy (Ni, Co, Fe-based alloys) – Sharp, precise cutting edge design – Alternative to NR4 geometry		●			●●					1,0–6,0	0,15–0,70
	**NR4** – Roughing of stainless materials – Roughing of high temperature alloys		●●			●●					1,2–8,5	0,22–0,80

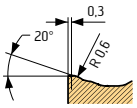
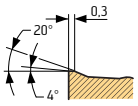
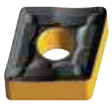
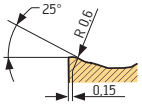
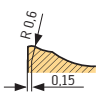
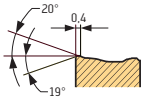
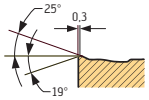
●● Primary application
● Other application

Comment: Sectional views show CNMG 120408 . .

Roughing – Double-sided inserts – continued

Geometry	Remarks/field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Cut Main cutting edge	Cut Corner radius	a_p [mm]	f [mm]
	**RP5** – Roughing steel materials – Stable, positive cutting edge – Open groove for a low cutting temperature	●●		●							0,8–12,0	0,2–1,2
	**RK5** – Universal geometry, cast iron materials – First choice for grey cast iron			●●				●			0,6–8,0	0,16–0,80
	**. NMA** – Universal geometry, cast iron materials			●●				●			0,6–8,0	0,16–0,80
	**RK7** – Cast iron machining with hard crust – Interrupted cuts – Hard machining of steel materials			●●				●●			0,8–8,0	0,25–0,80
	**T02020** – Cast iron machining with hard crust – Hard machining of steel materials			●●				●●			0,8–8,0	0,25–0,80

Roughing – Single-sided inserts

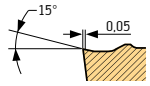
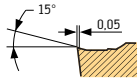
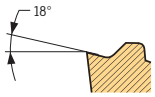
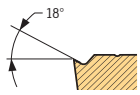
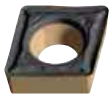
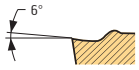
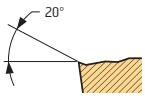
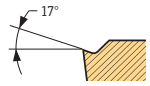
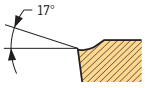
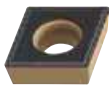
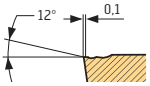
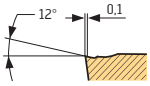
	**NRF** – Universal single-sided roughing insert – Forged parts with uneven material removal – Low power consumption – Easy-cutting geometry	●●	●	●							0,8–12,0	0,25–1,20
	**NR6** – Single-sided roughing geometry – Alternative to NRF geometry – Advantages in case of crater wear	●●									1,5–12,0	0,35–1,40
	**NRR** – Heavy roughing – Machining of cast skins/forged parts – Interrupted cuts – Maximum cutting depths and feeds	●●		●							2,0–17,0	0,50–1,80

●● Primary application
● Other application

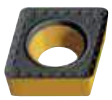
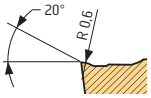
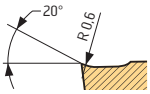
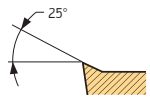
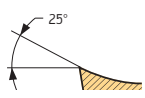
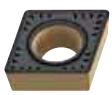
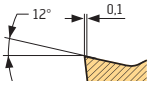
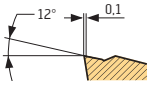
Comment: Sectional views show SNMM 190616 . .

Geometry overview of turning inserts – Positive basic shape

Finishing

Geometry	Remarks/field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Cut Main cutting edge	Cut Corner radius	a_p [mm]	f [mm]
 Wiper	**PF** – Finishing with wiper technology – High surface quality – High feeds	●●	●●	●●		●					0,30–3,0	0,12–0,60
	**PF2** – Finishing insert with fully ground circumference – Long, small diameter shafts with vibration tendency – Low cutting forces	●●	●●	●	●●	●●					0,12–4,5	0,02–0,45
	**PF4** – Finishing insert – Outstanding chip control – Can also be used for precision boring	●●	●●			●●					0,1–5,0	0,04–0,40
	**PF5** – Finishing insert with fully ground circumference – Can also be used for precision boring – Extremely narrow chip breaker groove	●●	●●			●					0,1–4,0	0,04–0,35
	**PS5 – Semi-finishing** – Universal insert for finishing up to medium machining – Can also be used for counterboring	●●	●●	●●		●					0,3–2,5	0,08–0,32

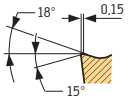
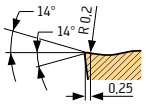
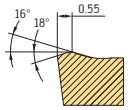
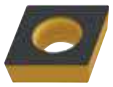
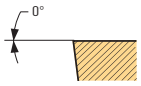
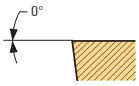
Medium machining

 Wiper	**PM** – Finishing with wiper technology – High surface quality – High feeds	●●	●	●●		●					0,5–4,0	0,12–0,60
	**PM2** – Universal insert for non-ferrous materials – Sharp cutting edge with fully ground circumference – Polished rake face – Precision finishing on steel and stainless materials	●	●		●●	●					0,5–6,0	0,02–0,80
	**PM5** – Universal geometry, medium machining to roughing – Extremely large chip breaking area	●●	●●	●●		●					0,6–5,0	0,12–0,50

●● Primary application
● Other application

Comment: Sectional views show CCMT 09T308 . . or CCGT 09T308 . .

Roughing

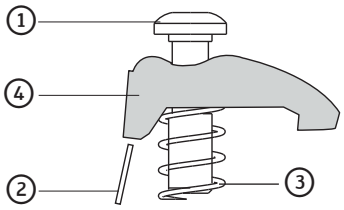
Geometry	Remarks/field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Cut Main cutting edge	Cut Corner radius	a_p [mm]	f [mm]
	**M0T** – Geometry specifically for Round inserts – Interrupted cuts	●●		●							1,0–11,0	0,12–1,3
	**PR5** – Geometry specifically for Round inserts – Heavy roughing – Heavy industry, e.g. railways	●●		●							1,0–15,0	0,20–1,7
	**HU6** – Heavy roughing – Very good chip breaking – Machining forged parts – Use for machining train wheels	●●		●●							1,0–15,0	0,12–1,7
	**. CMW** – Cast iron machining with hard crust – Interrupted cuts – Stable cutting edge design			●●				●			0,2–0,6	0,12–0,50

●● Primary application
● Other application

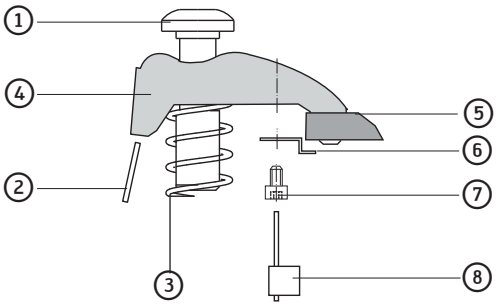
Comment: Sectional views show CCMT 09T308 . . , CCGT 09T308 . . CCMW 09T308 . . and . RCM . 2006 . .

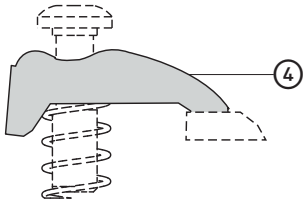
Usage information:
Assembly parts and accessories for the Walter Turn rigid clamping system

Standard clamp



Strengthened clamp with carbide shoe





PK254 clamp set for ceramic inserts without a hole

Basic shape and size of indexable insert	Standard clamp						Strengthened clamp with carbide shoe		
	CN 09 . .		CN 12 . .	CN 16 . .	CN 19 . .		CN 12 . .	CN 16 . .	CN 12 . .
	DN 11 . .		DN 15 . .	DN 15 . .			DN 15 . .	DN 15 . .	DN 15 . .
	SN 09 . .			SN 15 . .	SN 19 . .	SN 25 . .		SN 15 . .	
	TN 16 .. .		TN 22 . .				TN 22 . .		TN 22 . .
		VN 16 . .							
	WN 06 . .		WN 08 . .	WN 10. .			WN 08 . .	WN 10. .	WN 08 . .
Set	**PK 240 set**	**PK 244 set**	**PK 241 set**	**PK 242 set**	**PK 243 set**	**PK 301 set**	**PK 245 set***	**PK 246 set***	**PK 254 set****
① Clamp screw	FS 1472 (9 IP)	FS 1473 (15 IP)	FS 1473 (15 IP)	FS 1474 (20 IP)	FS 1474 (20 IP)	FS 1589 (25 IP)	FS 1473 (15 IP)	FS 1474 (20 IP)	FS 1473 (15 IP)
② Pin (fitted in toolholder)	RS 116	RS 117	RS 117	RS 117	RS 117	RS 117	RS 117	RS 117	RS 117
③ Pressure spring	FS 1469	FS 1470	FS 1470	FS 1471	FS 1471	FS 1590	FS 1470	FS 1471	FS 1470
④ Clamp	PK 240	PK 244	PK 241	PK 242	PK 243	PK 301	PK 245	PK 246	PK 254
⑤ Carbide clamping plate							FK 371	FK 372	FK 371
⑥ Clip for clamping plate							FK 373	FK 373	FK 373
⑦ Screw for clamping plate							FS 1492	FS 1492	FS 1492
⑧ Key for clip screw							FS 1490 (7 IP)	FS 1490 (7 IP)	FS 1490 (7 IP)
Support plate for basic shape CN . . 1207 . .									AP411-CN1207
Support plate for basic shape DN . . 1507 . .									AP412-DN1507
Support plate for basic shape SN . . 1207 . .									AP413-SN1207

* for inserts with a hole (dimple)
** for ceramic inserts without a hole

Walter Turn clamp holders have been used to mount the PK 241 set as standard. By using the PK 254 set, the following ceramic inserts without a hole can be clamped: CN . . 12 . . / DN . . 15 . . /SN . . 12 . . → For this, separate support plates must be ordered (see table).

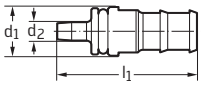
Usage information:
Coolant nozzles and coolant adaptors

Coolant nozzles – Walter Capto™

		Capto sizes		
		C3 + C4	C5 + C6	C6 + C 8
	Standard coolant nozzle up to 30 bar	FS 1477	FS 1476	FS 1479
	Brass high-pressure coolant nozzle up to 80 bar	FS 1477HP	FS 1476HP	FS 1479HP
	Plug-in inserts for changing the nozzles	FS 1477HEX (SW5)	FS 1476HEX (SW5)	FS 1479HEX (SW5)
	Key for plug-in insert	FS 2158 (SW5)	FS 2158 (SW5)	FS 2158 (SW5)

Please note:
A different coolant nozzle is installed in certain Walter Capto™ tools (C3–C8) from the one specified in the table above.
This detailed information can be found on the relevant tool page.

Coolant adaptor K600 for Walter Turn boring bars with screw or rigid clamping system

	Designation	d_1 mm	l_1 mm	d_2 mm
	K600.06.25.054	6	25	5,4
	K600.08.28.066	8	28	6,6
	K600.10.28.086	10	28	8,6
	K600.12.38.086	12	38	8,6
	K600.16.40.137	16	40	13,7
	K600.20.40.137	20	40	13,7
	K600.25.44.137	25	44	13,7
	K600.32.44.137	32	44	13,7
	K600.40.46.137	40	46	13,7
	K600.50.46.137	50	46	13,7

Comment: d_1 corresponds to the shank diameter of the boring bar.

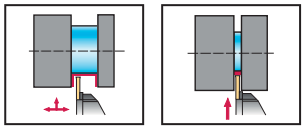
Please note:
Coolant adaptors can be cut off if necessary, approx. 3 mm after the O-ring. This makes shorter clamping possible when using the boring bar and coolant adaptor in a Walter Capto™ or VDI boring bar holder. Furthermore, the exit of coolant via the clamping surface is avoided, and a higher pressure is also available for the internal supply of coolant.

Cutting data for Walter Cut – Grooving and recessing
Carbide grades

Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	= Cutting data for wet machining	= Dry machining is possible	Cutting material grades	
									Starting values for cutting speed v_c [m/min]	
									HC	
									WPP23	WSM13S
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●	●	200	200
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●●	●	180	180
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●●	●	170	170
		C > 0.55%	annealed	190	639	P4	●●	●	180	190
		C > 0.55%	tempered	300	1013	P5	●●	●	150	160
		Free cutting steel (short-chipping)	annealed	220	745	P6	●●	●	180	190
	Low-alloyed steel	annealed		175	591	P7	●●	●	180	190
		tempered		300	1013	P8	●●	●	150	160
		tempered		380	1282	P9	●●	●	150	160
		tempered		430	1477	P10	●●	●		
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●	●	130	140
		hardened and tempered		300	1013	P12	●●	●	110	120
		hardened and tempered		400	1361	P13	●●	●		
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●	●		190
		martensitic, tempered		330	1114	P15	●●	●		120
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●		190
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●		120
		austenitic/ferritic, duplex		230	778	M3	●●	●		170
K	Malleable cast iron	ferritic		200	675	K1	●●	●	190	190
		pearlitic		260	867	K2	●●	●	170	170
	Grey cast iron	low tensile strength		180	602	K3	●●	●	250	220
		high tensile strength/austenitic		245	825	K4	●●	●	210	180
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	220	220
		pearlitic		265	885	K6	●●	●	180	180
	GGV (CGI)			200	675	K7	●●	●	200	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●	●		
		hardenable, hardened		100	343	N2	●●	●		
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●	●		
		≤ 12% Si, hardenable, hardened		90	314	N4	●●	●		
		> 12% Si, cannot be hardened		130	447	N5				
	Magnesium alloys			70	250	N6				
	Copper and copper alloys (bronze/brass)	unalloyed, electrolytic copper		100	343	N7	●●	●		
		brass, bronze, red brass		90	314	N8	●●	●		
		Cu-alloys, short-chipping		110	382	N9	●●	●		
		high-strength, Ampco		300	1013	N10				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●	●		110
			hardened	280	943	S2	●●	●		60
		Ni or Co base	annealed	250	839	S3	●●	●		90
			hardened	350	1177	S4	●●	●		80
			cast	320	1076	S5	●●	●		80
	Titanium alloys	pure titanium		200	675	S6	●●	●		160
		α and β alloys, hardened		375	1262	S7	●●	●		45
		β alloys		410	1396	S8	●●	●		35
	Tungsten alloys			300	1013	S9				
	Molybdenum alloys			300	1013	S10				
H	Hardened steel	hardened and tempered		50 HRC	–	H1				
		hardened and tempered		55 HRC	–	H2				
		hardened and tempered		60 HRC	–	H3				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4				
O	Thermoplasts	without abrasive fillers				O1				
	Thermosetting plastics	without abrasive fillers				O2				
	Plastic, glass-fibre reinforced	GFRP				O3				
	Plastic, carbon-fibre reinforced	CFRP				O4				
	Plastic, aramid-fibre reinforced	AFRP				O5				
	Graphite (technical)			80 Shore		O6				

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application)
● Possible application

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.



The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Cutting material grades

Starting values for cutting speed
v_c [m/min]

	HC										HW
	WSM23S	WSM33S	WSM43S	WSM33	WSP43	WTA33	WAM20	WXM33	WAK20	WAK30	WK1
	190	180	170	180	170	190		180	190	180	
	170	170	160	170	160	180		180	180	170	
	160	150	140	150	140	160		160	170	160	
	180	170	160	170	160	180		180	180	170	
	150	140	130	140	130	120		100	160	150	
	180	170	160	170	160	180		180	180	170	
	180	160	150	160	150	180		160	180	160	
	150	110	100	110	100	150		130	160	150	
	150	100	100	100	100	130		90	150	130	
									80	60	
	130	120	110	120	110	180		100	180	160	
	110	90	80	90	80	140			160	140	
									80	60	
	180	160	140	160	140	180	180	170	200	180	
	100	80	60	80	60	100	110	80	130	110	
	170	150	130	150	130	150	160	140			
	100	80	60	80	60	100	110	80	130	110	
	150	130	110	130	110	130	140	120			
	180	170		170		100			160	140	
	160	150		150		60			130	100	
	210	200		220		260			350	330	
	170	160		180		210			310	290	
	210	200		200		240			300	280	
	170	160		160		190			260	240	
									220	180	
											900
											600
											350
											250
											400
											300
											200
	100	90	80	90	80						
	50	40	30	40	30						
	80	70	60	70	60						
	70	60	50	60	50						
	70	60	50	60	50						
	150	130	120	130	120						
	40	35	30	35	30						
	30	25		25							

HC = Coated carbide
HW = Uncoated carbide

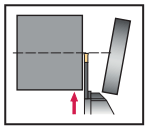
Cutting data for Walter Cut – Parting off
Carbide grades

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and identification letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]		
P	Unalloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●	●
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	●●	●
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	●●	●
		C > 0.55%	annealed	190	639	P4	●●	●
		C > 0.55%	tempered	300	1013	P5	●●	●
		Free cutting steel (short-chipping)	annealed	220	745	P6	●●	●
	Low-alloyed steel	annealed		175	591	P7	●●	●
		tempered		300	1013	P8	●●	●
		tempered		380	1282	P9	●●	●
		tempered		430	1477	P10		
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●	●
		hardened and tempered		300	1013	P12	●●	●
		hardened and tempered		400	1361	P13		
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●	●
		martensitic, tempered		330	1114	P15	●●	●
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●
		austenitic/ferritic, duplex		230	778	M3	●●	●
K	Malleable cast iron	ferritic		200	675	K1	●●	●
		pearlitic		260	867	K2	●●	●
	Grey cast iron	low tensile strength		180	602	K3	●●	●
		high tensile strength/austenitic		245	825	K4	●●	●
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●
		pearlitic		265	885	K6	●●	●
	GGV (CGI)			200	675	K7	●●	●
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●	●
		hardenable, hardened		100	343	N2	●●	●
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●	●
		≤ 12% Si, hardenable, hardened		90	314	N4	●●	●
		> 12% Si, cannot be hardened		130	447	N5		
	Magnesium alloys			70	250	N6		
	Copper and copper alloys (bronze/brass)	unalloyed, electrolytic copper		100	343	N7	●●	●
		brass, bronze, red brass		90	314	N8	●●	●
		Cu-alloys, short-chipping		110	382	N9	●●	●
		high-strength, Ampco		300	1013	N10		
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●	●
			hardened	280	943	S2	●●	●
		Ni or Co base	annealed	250	839	S3	●●	●
			hardened	350	1177	S4	●●	●
			cast	320	1076	S5	●●	●
	Titanium alloys	pure titanium		200	675	S6	●●	●
		α and β alloys, hardened		375	1262	S7	●●	●
		β alloys		410	1396	S8	●●	●
	Tungsten alloys			300	1013	S9		
	Molybdenum alloys			300	1013	S10		
H	Hardened steel	hardened and tempered		50 HRC	–	H1		
		hardened and tempered		55 HRC	–	H2		
		hardened and tempered		60 HRC	–	H3		
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		
O	Thermoplasts	without abrasive fillers				O1		
	Thermosetting plastics	without abrasive fillers				O2		
	Plastic, glass-fibre reinforced	GFRP				O3		
	Plastic, carbon-fibre reinforced	CFRP				O4		
	Plastic, aramid-fibre reinforced	AFRP				O5		
	Graphite (technical)			80 Shore		O6		

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application)
● Possible application

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

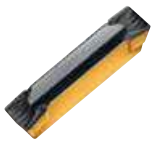
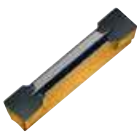


The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Cutting material grades									
Starting values for cutting speed v_c [m/min]									
HC									HW
WPP23	WSM13S	WSM23S	WSM33S	WSM43S	WSM33	WSP43	WAM20	WXM33	WK1
190	190	180	170	160	170	160		170	
170	180	170	160	150	160	150		170	
160	160	150	140	130	140	130		150	
170	180	170	160	150	160	150		170	
140	150	140	130	120	130	120		90	
170	180	170	160	150	160	150		170	
170	180	170	150	140	150	140		150	
140	150	140	100	90	100	90		120	
140	150	140	90	90	90	90		80	
120	130	120	110	100	110	100		90	
100	110	100	80	70	80	70			
	180	170	150	130	150	130	170	160	
	100	90	70	50	70	50	100	70	
	170	160	140	120	140	120	150	130	
	100	90	70	50	70	50	100	70	
	150	140	120	100	120	100	130	110	
180	180	170	160		160				
160	160	150	140		140				
230	230	220	210		210				
190	190	180	170		170				
210	210	200	190		190				
170	170	160	150		150				
190									
									900
									600
									350
									250
									400
									300
									200
	100	90	80	70	80		70		
	50	40	30	25	30		20		
	80	70	60	50	60		50		
	70	60	50	40	50		40		
	70	60	50	40	50		40		
	150	140	130	110	130		120		
	50	40	30	25	30		25		
	40	30	25		25		20		

HC = Coated carbide
HW = Uncoated carbide

Cutting tool material application tables – Grooving

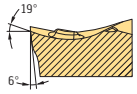
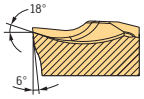
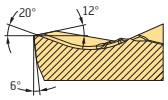
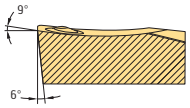
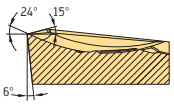
Walter grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Application range 01 05 10 15 20 25 30 35 40 45	Coating procedure	Coating composition	Indexable insert example
WPP 23	HC – P 20	●●								CVD	TiCN + Al_2O_3 (+TiN)	
	HC – K 30			●								
WSM 13S	HC – M 10		●●							PVD	TiAlN + Al_2O_3 (Al)	
	HC – S 10					●●						
	HC – P 10	●										
WSM 23S	HC – M 20		●●							PVD	TiAlN + Al_2O_3 (Al)	
	HC – S 20					●●						
	HC – P 20	●●										
WSM 33S	HC – S 30					●●				PVD	TiAlN + Al_2O_3 (Al)	
	HC – M 30		●●									
	HC – P 35	●●										
WSM 43S	HC – S 45					●●				PVD	TiAlN + Al_2O_3 (Al)	
	HC – M 45		●●									
	HC – P 45	●●										
WSM 33	HC – S 30					●●				PVD	TiAlN + Al_2O_3 (ZrCN)	
	HC – M 30		●●									
	HC – P 35	●●										
WSP 43	HC – S 45					●●				PVD	TiAlN + Al_2O_3 (ZrCN)	
	HC – P 45	●●										
	HC – M 45		●●									
WAK 20	HC – K 20			●●						CVD	TiCN + Al_2O_3 (+TiN)	
	HC – H 10						●					
WAK 30	HC – K 30			●●						CVD	TiCN + Al_2O_3 (+TiN)	
	HC – P 40	●										
WK 1	HW – N 10				●●					–	–	
	HW – S 10					●						
WTA 33	HC – P 10	●●								CVD	TiCN + Al_2O_3	
	HC – K 10			●								

HC = Coated carbide
HW = Uncoated carbide

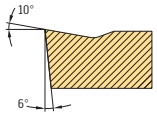
●● Primary application
● Other application

Geometry overview of cutting inserts

GX system for grooving and parting off

Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through main cutting edge	Front view Main cutting edge	s [mm]	f [mm]
	**CF6** – Low feeds – Low burr/centre pip formation – Low cutting force	●●	●●		●●	●●		●			1,5 2 2,5 3	0,03–0,10 0,03–0,12 0,03–0,15 0,04–0,20
	**CF5** – Grooving and parting off operations – Light to moderate feeds – Good chip control – Low burr/centre pip formation	●●	●●	●	●●	●●		●			2 2,5 3 4 5	0,04–0,15 0,05–0,15 0,08–0,20 0,10–0,22 0,10–0,25
	**CE4** – Grooving and parting off operations – Moderate to high feeds – Excellent chip constriction – Stable cutting edge	●●	●	●●	●	●	●				2 2,5 3 4 5 6	0,06–0,15 0,07–0,18 0,09–0,30 0,10–0,32 0,12–0,35 0,12–0,40
	**GD3** – Extremely soft cutting action – Light to moderate feeds – General parting off and grooving operations	●●	●●	●	●	●		●			2 2,5 3 4 5 6	0,04–0,12 0,04–0,14 0,06–0,18 0,10–0,20 0,12–0,25 0,14–0,28
	**GD6** – Medium feeds – Long-chipping materials – Medium machining conditions	●●	●●	●	●	●●					2 2,5 3 4 5 6	0,04–0,12 0,06–0,17 0,08–0,18 0,10–0,22 0,12–0,24 0,14–0,30

GX system for grooving of circlip grooves

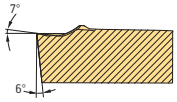
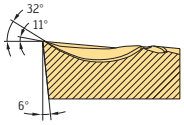
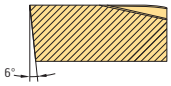
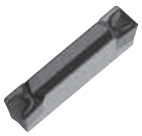
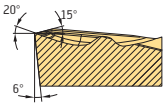
Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through Main cutting edge	Front view Main cutting edge	s [mm]	f [mm]
	**Cutting inserts for circlip grooves** – Excellent surface quality – All common circlip types – Low burr formation	●●	●	●●							0,6-1,99 2-2,99 3-3,99 4-4,99 5-5,99	0,05–0,10 0,05–0,12 0,07–0,14 0,07–0,20 0,08–0,20

●● Primary application
● Other application

Geometry overview of cutting inserts

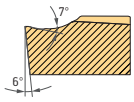
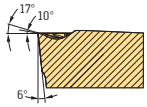
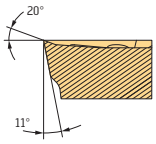
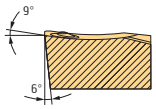
(continued)

GX system for grooving, parting off and recessing

Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through main cutting edge	Front view Main cutting edge	s [mm]	a_p [mm]	f [mm]
	**UD4** – Large chip breaking area – Optimum chip breaking when machining forged parts – Stable cutting edge – For moderate to high feeds	●●	●	●●							3	0,4–2,0	0,08–0,20
											4	0,5–2,8	0,10–0,30
											5	0,5–3,0	0,12–0,35
											6	0,6–3,5	0,14–0,40
											8	0,9–4,0	0,14–0,40
	**UF4** – All grooving operations – Good chip control – Average feed range – Positive cut	●●	●●	●●		●					2	0,30–2,50	0,10–0,15
											2,5	0,30–2,50	0,10–0,18
											3	0,40–3,00	0,10–0,20
											4	0,50–3,50	0,10–0,30
											5	0,50–3,50	0,12–0,35
											6	0,60–4,00	0,14–0,40
	**UA4** – For cast iron machining – For middle to high machining parameters – For extremely high level of process reliability in cast iron machining			●●			●				2	0,30–2,50	0,08–0,15
											2,5	0,30–2,50	0,10–0,20
											3	0,40–3,00	0,10–0,22
											4	0,50–3,50	0,10–0,35
											5	0,50–3,00	0,12–0,35
											6	0,60–3,50	0,14–0,40
	**UD6** – Grooving in rust-resistant steel – Average feed range – Soft cutting action	●	●●								2	0,30–2,50	0,06–0,15
											2,5	0,30–2,50	0,08–0,14
											3	0,40–3,00	0,10–0,20
											4	0,50–3,50	0,12–0,25
											5	0,50–3,00	0,12–0,30
											6	0,60–3,50	0,14–0,35

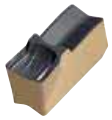
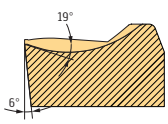
●● Primary application
● Other application

GX system, full radius cutting inserts

Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through main cutting edge	Front view Main cutting edge	s [mm]	a_p [mm] max	f [mm]
	**RD4** – For copy turning – Outstanding chip control during grooving – For moderate to high feeds – Circumference-sintered	●●	●	●●		●					3	1,50	0,08–0,35
											4	2,00	0,10–0,40
											5	2,50	0,12–0,50
											6	3,00	0,15–0,60
	**RF8** – For copy and back turning – Fully ground circumference – High surface quality – Stable cutting edge	●●	●●	●		●●					3	0,1–1,5	0,10–0,30
											4	0,1–2,0	0,12–0,45
											5	0,1–2,5	0,15–0,50
											6	0,1–3,0	0,15–0,55
	**RK8** – Polished rake face – Sharp cutting edge – Fully ground circumference – Extremely positive				●●			●			6	4,00	0,10–0,30
											8	5,00	0,10–0,35
	**R** – Sharp cutting edge – Fully ground circumference – High surface quality	●●		●							1,6	0,80	0,05–0,15
											2	1,00	0,05–0,17
											2,4	1,20	0,05–0,17
											3	1,50	0,10–0,20
											4	2,00	0,10–0,30
											5	2,50	0,15–0,35
											6	3,00	0,15–0,40

●● Primary application
● Other application

LX system for grooving, parting off and recessing

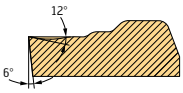
Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through main cutting edge	Front view Main cutting edge	s [mm]	a_p [mm]	f [mm]
	**UE4** – For grooving and recessing – Outstanding chip control – Moderate to high feeds	●●	●	●●		●					8	0,90–5,00	0,20–0,50

●● Primary application
● Other application

Geometry overview of cutting inserts

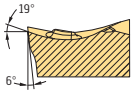
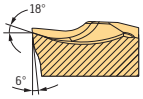
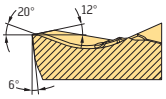
(continued)

LX system, full radius cutting inserts

Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through main cutting edge	Front view Main cutting edge	s [mm]	a_p [mm] max	f [mm]
	**RD3** – For copy turning – Stable cutting edge – For moderate to high feeds	●●	●	●●		●					8	4,00	0,15–0,50

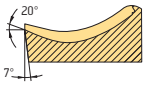
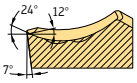
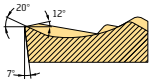
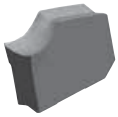
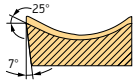
●● Primary application
● Other application

SX system for grooving and parting off

Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through main cutting edge	Front view Main cutting edge	s [mm]	f [mm]
	**CF6** – Low feeds – Low burr/centre pip formation – Low cutting force	●●	●●		●●	●●		●			2 3	0,03 –0,12 0,04–0,20
	**CF5** – Grooving and parting off operations – Light to moderate feeds – Good chip control – Low burr/centre pip formation	●●	●●	●	●●	●●		●			2 3 4 5 6	0,04–0,15 0,08–0,20 0,10–0,20 0,10–0,25 0,12–0,28
	**CE4** – Grooving and parting off operations – Moderate to high feeds – Excellent chip constriction – Stable cutting edge	●●	●	●●	●	●	●				2 3 4 5 6	0,06–0,15 0,09–0,30 0,10–0,32 0,12–0,35 0,12–0,40

●● Primary application
● Other application

FX system for grooving and parting off

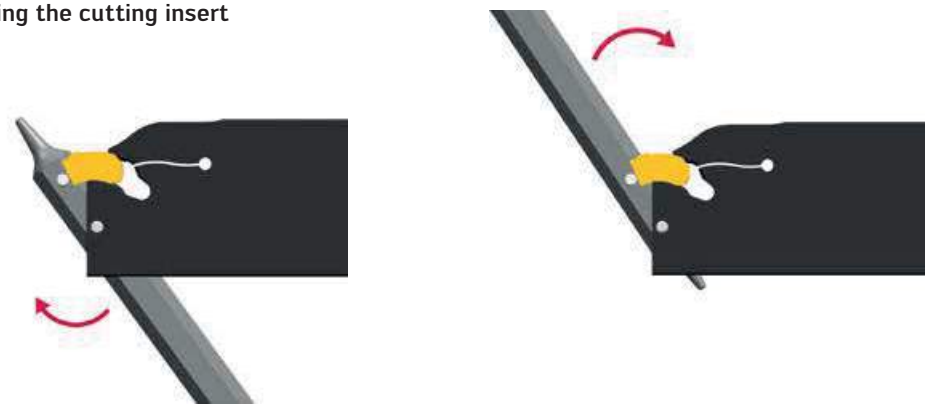
Geometry	Remarks/ field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-cut materials	H Hard materials	O Other	Section through main cutting edge	Front view Main cutting edge	s [mm]	f [mm]
	**CE6** – Light to moderate feeds – Long-chipping materials – Low centre pip formation	●●	●●	●		●●					2,2 3,1 4,1	0,05–0,15 0,06–0,25 0,08–0,25
	**CD3** – Unfavourable machining conditions – Average feed range – Machining steel	●●	●●	●●							3,1 4,1	0,10–0,30 0,15–0,35
	**CE4** – Grooving and parting off operations – Moderate to high feeds – Excellent chip constriction	●●	●	●●							2,2 3,1 4,1 5,1 6,5 8,2 9,7	0,05–0,15 0,09–0,30 0,10–0,32 0,12–0,35 0,12–0,40 0,15–0,45 0,15–0,50
	**CK8** – For small and moderate feeds – Polished rake face – Highly positive geometry				●●	●		●			2,2 3,1 4,1	0,05–0,10 0,05–0,15 0,05–0,20

●● Primary application
● Other application

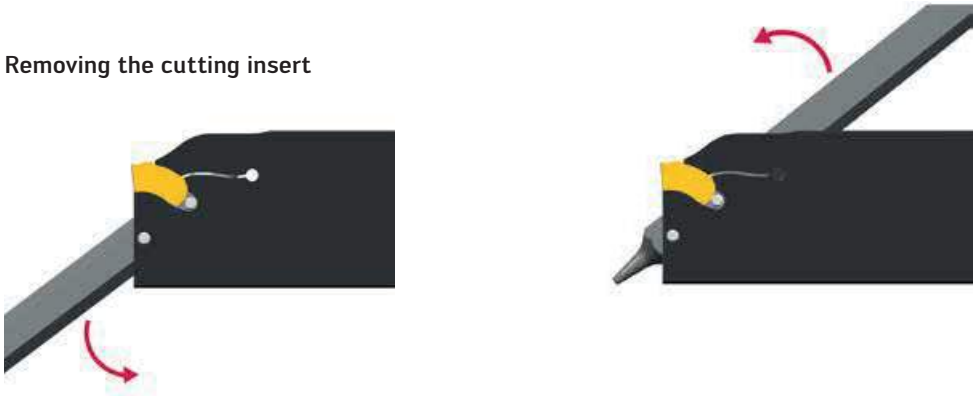
Usage information:
Replacing the cutting edge on Walter Cut tools

Mounting SX cutting inserts

Fitting the cutting insert



Removing the cutting insert



Mounting wrench	For groove width
FS 2249	1,0–1,99 mm
FS 1494	2,0–6,0 mm

Mounting wrench must be ordered separately.

Usage information:
Walter Cut tool standard/contra version

G2042 / G1041 / G1041 . . . –C

Right-hand version

Standard
Example: G1041.32R–3T32GX24

Contra
Example: G1041.32R–3T32GX24C

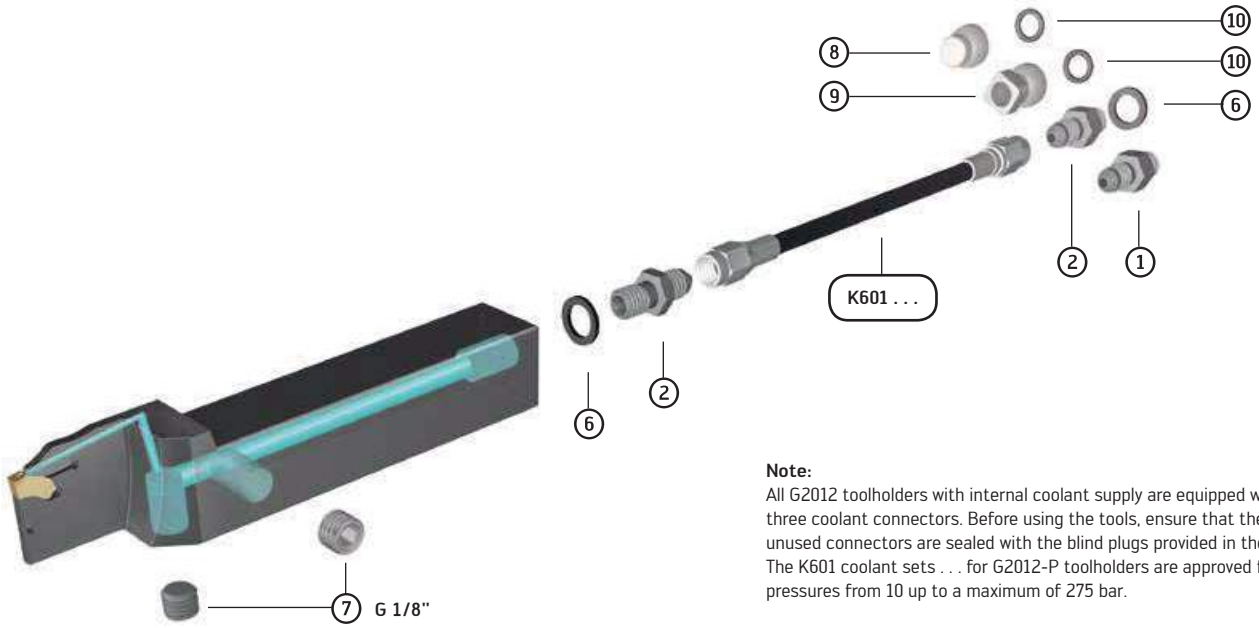
Left-hand version

Standard
Example: G1041.32L–3T32GX24

Contra
Example: G1041.32L–3T32GX24C

Usage information:
Coolant hose set for grooving holders with internal coolant supply

Grooving holder G2012-P



Note:
All G2012 toolholders with internal coolant supply are equipped with three coolant connectors. Before using the tools, ensure that the unused connectors are sealed with the blind plugs provided in the set. The K601 coolant sets . . . for G2012-P toolholders are approved for pressures from 10 up to a maximum of 275 bar.

Walter P coolant hose set

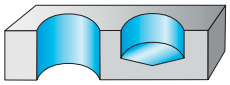
				Length			
				150 mm	K601.01.150 SET	K601.02.150 SET	K601.03.150 SET
				250 mm	K601.01.250 SET	K601.02.250 SET	K601.03.250 SET
Individual components			Designation	300 mm	K601.01.300 SET	K601.02.300 SET	K601.03.300 SET
					Number per set		
①		M10 connection element	FS2252		1 x	—	—
②		1/8" double connection element	FS2253		2 x	1 x	—
③		1/8" angle connection	FS2254		—	1 x	1 x
④		M10 angle connection	FS2255		—	1 x	2 x
⑤		1/4" – 1/8" reduction adaptor	FS2256		—	1 x	1 x
⑥		Copper gasket	FS2257		2 x	3 x	4 x
⑦		1/8" blind plug	FS2258		1 x	1 x	1 x
⑧		Brass blind plug	FS2259		1 x	1 x	1 x
⑨		1/8" brass nozzle	FS2260		1 x	1 x	1 x
⑩		O-ring	FS2261		2 x	2 x	2 x

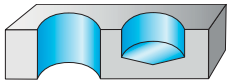
CONTENTS

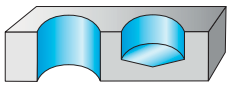
Drilling and reaming tools made from solid carbide and HSS

B

Product range overview of solid carbide drills with internal cooling

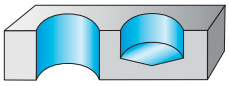
Application								
Drilling depth	**3 x D_c**		**3 x D_c**				**5 x D_c**		
Designation	**K3299XPL**	**K3899XPL**	**A3289DPL**	**A3293TTP**	**A3299XPL**	**A3899XPL**	**A3389AML**	**A3389DPL**	**A3393TTP**
Type	X-treme Step 90	X-treme Step 90	X-treme Plus	X-treme Inox	X-treme	X-treme	X-treme M	X-treme Plus	X-treme Inox
Ø range	3,30 – 14,00	3,30 – 14,00	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00	2,00 – 2,95	3,00 – 20,00	3,00 – 20,00
Page	**B-75**	**B-77**	*B 70**	**B-30**	**B-33**	**B-54**	**B-41**	*B 86**	**B-42**
									

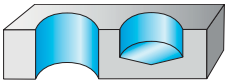
Application								
Drilling depth	**5 x D_c**					**8 x D_c**			
Designation	**A3382XPL**	**A3399XPL**	**A3999XPL**	**A3387**	**A3384**	**A6489AMP**	**A6488TML**	**A6489DPP**	**A3487**
Type	X-treme CI	X-treme	X-treme	Alpha® Jet	Alpha® Ni	X-treme DM8	Alpha® 4 Plus Micro	X-treme D8	Alpha® Jet
Ø range	3,00 – 20,00	3,00 – 25,00	3,00 – 25,00	4,00 – 20,00	3,00 – 12,00	2,00 - 2,95	0,75 – 1,95	3,00 – 20,00	5,00 – 20,00
Page	*B 81**	**B-45**	**B-62**	*B 85**	*B 84**	**B-67**	*B 121**	*B 123**	*B 95**
									

Application								
Drilling depth	**8 x D_c**		**12 x D_c**				**16 x D_c**	
Designation	**A3486TIP**	**A3586TIP**	**A6589AMP**	**A6588TML**	**A6589DPP**	**A3687**	**A6689AMP**	**A6685TFP**
Type	Alpha® 44	Alpha® 44	X-treme DM12	Alpha® 4 Plus Micro	X-treme D12	Alpha® Jet	X-treme DM16	Alpha® 4 XD16
Ø range	5,00 – 12,00	5,00 – 12,00	2,00 - 2,90	1,00 – 1,90	3,00 – 20,00	5,00 – 20,00	2,00 – 2,90	3,00 – 16,00
Page	*B 94**	*B 96**	**B-68**	*B 126**	*B 127**	*B 97**	**B-69**	*B 130**
									

** The pages indicated in italics refer to the Walter General catalogue 2012.*

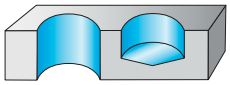
Product range overview of solid carbide drills with internal cooling

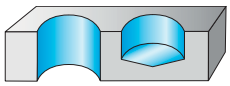
Application									
Drilling depth	**20 x D_c**			**25 x D_c**		**30 x D_c**			**40 x D_c**
Designation	**A6789AMP**	**A6794TFP**	**A6785TFP**	**A6889AMP**	**A6885TFP**	**A6989AMP**	**A6994TFP**	**A6985TFP**	**A7495TTP**
Type	X-treme DM20	X-treme DH20	Alpha® 4 XD20	X-treme DM25	Alpha® 4 XD25	X-treme DM30	X-treme DH30	Alpha® 4 XD30	X-treme D40
Ø range	2,00 – 2,90	3,00 – 10,00	3,00 – 16,00	2,00 – 2,90	3,00 – 12,00	2,00 – 2,90	3,00 – 10,00	3,00 – 12,00	4,50 – 11,00
Page	**B-70**	*B 133**	*B 131**	**B-71**	*B 134**	**B-72**	*B 137**	*B 136**	**B-73**
									

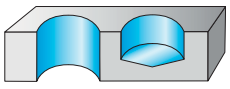
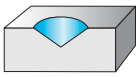
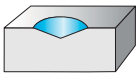
Application					
Drilling depth	**Pilot**				
Designation	**K3281TFT**	**A6181AML**	**A6181TFT**	**A7191TFT**	**K5191TFT**
Type	X-treme Pilot Step 90	X-treme Pilot 150	XD Pilot	X-treme Pilot 180	X-treme Pilot 180C
Ø range	3,00 – 16,00	2,00 – 2,95	3,00 – 16,00	3,00 – 10,00	4,00 – 7,00
Page	**B-74**	**B-66**	*B 118**	*B 138**	*B 140**
					

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Product range overview of solid carbide drills without internal cooling

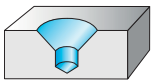
Application										
Drilling depth	**3 x D_c**	**3 x D_c**								
Designation	**K3879XPL**	**A3279XPL**	**A3879XPL**	**A3269TFL**	**A1164TIN**	**A1163**	**A1166TIN**	**A1166**	**A1167A**	**A1167B**
Type	X-treme Step 90	X-treme	X-treme	Alpha® Rc	Alpha® 2	N	Maximiza	Maximiza	Maximiza	Maximiza
Ø range	3,30 – 14,50	3,00 – 20,00	3,00 – 20,00	3,40 – 10,40	1,50 – 20,00	1,00 – 12,00	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00
Page	**B-76**	**B-26**	**B-50**	*B 65**	*B 38**	*B 36**	*B 46**	*B 42**	*B 47**	*B 50**
										

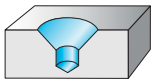
Application									
Drilling depth	**5 x D_c**						**8 x D_c**		
Designation	**A3378TML**	**A3162**	**A3379XPL**	**A3979XPL**	**A3367**	**A3967**	**A6478TML**	**A1276TFL**	**A1263**
Type	Alpha® 2 Plus Micro	ESU	X-treme	X-treme	BSX	BSX	Alpha® 2 Plus Micro	Alpha® 22	N
Ø range	0,50 – 2,95	0,10 – 1,45	3,00 – 25,00	3,00 – 25,00	3,00 – 16,00	3,00 – 16,00	0,50 – 2,95	3,00 – 12,00	0,60 – 12,00
Page	*B 79**	*B 59**	**B-37**	**B-58**	*B 77**	*B 110**	*B 119**	*B 57**	*B 55**
									

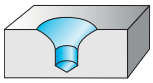
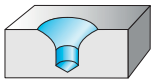
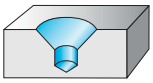
Application				
Drilling depth	**3 x D_c – Carbide-tipped**		**NC spot drill**	
Designation	**A2971**	**A5971**	**A1174**	**A1174C**
Type	HM	HM	90°	120°
Ø range	3,00 – 16,00	8,00 – 32,00	3,00 – 20,00	3,00 – 20,00
Page	*B 58**	*B 116**	*B 53**	*B 54**
				

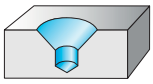
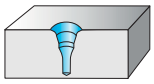
** The pages indicated in italics refer to the Walter General catalogue 2012.*

Product range overview of centre drills

Application		
Dimensions	**DIN 333**	
Designation	**K1161**	**K1161XPL**
Type	VHM	VHM-XPL
Form	A	A
Ø range	0,50 – 6,30	0,50 – 6,30
Page	**B-84**	**B-85**
Solid carbide centre drills		 NEW

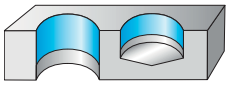
Application				
Dimensions	**DIN 333**			
Designation	**K1111TIN**	**K1111**	**K1112**	**K1131**
Type	–	–	with flat	left-hand
Form	A	A	A	A
Ø range	1,00 – 5,00	0,50 – 12,50	1,60 – 5,00	0,50 – 6,30
Page	*B 292**	*B 292**	*B 293**	*B 297**
HSS centre drills				

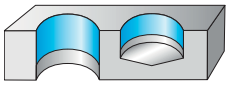
Application							
Dimensions	**DIN 333**			**DIN 333**	**Walter standard**	**Walter standard**	
Designation	**K1113TIN**	**K1113**	**K1114**	**K1215**	**K1313**	**K1311**	**K1411S**
Type	–	–	with flat	–	–	–	–
Form	R	R	R	B	R	A	A
Ø range	1,00 – 5,00	0,50 – 12,50	1,60 – 5,00	1,00 – 10,00	1,00 – 4,00	0,63 – 6,00	0,75 – 5,00
Page	*B 295**	*B 294**	*B 296**	*B 299**	*B 301**	*B 300**	*B 304**
HSS centre drills							

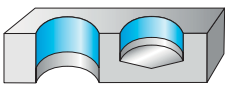
Application						
Dimensions	**Walter standard**		**ANSI B 94.11 M-1979**	**B.S. 328**	**Step centre drill**	
Designation	**K1411M**	**K1411L**	**K1811**	**K1911**	**K2511**	**K2513**
Type	–	–	–	–	60°	Radius
Form	A	A	A	A	–	R
Ø range	0,75 – 4,00	2,00 – 4,00	Nr.00 – Nr.8	B.S.1 – B.S.7	3,30 – 21,00	3,30 – 21,00
Page	*B 303**	*B 302**	*B 305**	*B 306**	*B 307**	*B 308**
HSS centre drills						

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Product range overview of reamers

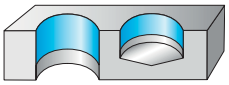
Application				
Dimensions	**Walter standard**			
Designation	**F2482**	**F2482TMS**	**F2481**	**F2481TMS**
Type	Straight flute	Straight flute	Left-hand spiral	Left-hand spiral
Form	A	A	B	B
Ø range	3,97 – 20,00	3,97 – 20,00	3,97 – 20,00	3,97 – 20,00
Page	**B-98**	**B-100**	**B-94**	**B-96**
Solid carbide HSC reaming tools				

Application				
Dimensions	**Walter standard**			
Designation	**F2162**	**F2171**	**F4162**	**F4171**
Type	Straight flute	Left-hand spiral	Straight flute	Left-hand spiral
Form	A / C	B / D	A	B
Ø range	4,00 – 20,00	2,00 – 20,00	5,00 – 32,00	5,00 – 20,00
Page	**B-92**	**B-93**	*B 341**	*B 342**
Carbide reamers				

Application					
Dimensions	**DIN 212**			**DIN 208**	
Designation	**F1342**	**F1352**	**F1352HUN**	**F4142**	**F4152**
Type	Straight flute	Left-hand spiral	Left-hand spiral	Straight flute	Left-hand spiral
Form	A / C	B / D	B / D	A	B
Ø range	1,00 – 20,00	0,90 – 20,00	0,95 – 12,00	5,00 – 32,00	5,00 – 40,00
Page	*B 322**	*B 325**	*B 329**	*B 337**	*B 338**
HSS reamers					

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Product range overview of reamers

Application							
Dimensions	**DIN 219**		**DIN 2179**	**DIN 2180**	**DIN 311**	**DIN 206**	**DIN 859**
Designation	**F7133**	**Z2311**	**F3234**	**F6134**	**F4535**	**F1131**	**F1231**
Type	Left-hand spiral	Adaptor:	Taper 1:50	Taper 1:50	Rivet hole	Hand reamer with left-hand spiral	Adjustable reamer with left-hand spiral
Form	B	–	–	–	–	B	B
Ø range	25,00 – 60,00	–	1,00 – 12,00	5,00 – 20,00	6,40 – 32,00	1,00 – 50,00	8,00 – 30,00
Page	*B 345**	*G 66**	*B 334**	*B 344**	*B 343**	*B 317**	*B 321**
HSS reamers							

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select for carbide and HSS drilling and reaming tools

Step by step to the correct tool

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the **machining group** that corresponds to your material e.g.: K5.

Code letter	Machining group	Groups of the materials to be machined	
P	**P1–P15**	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	**M1–M3**	**Stainless steel**	Stainless austenitic steel and austenitic-ferritic steel and cast steel
K	**K1–K7**	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	**N1–N10**	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	**S1–S10**	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	**H1–H4**	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	**O1–O6**	**Other**	Plastics, glass and carbon fibre Reinforced plastics, graphite

STEP 2

Select the **machining conditions:**

Machine stability, clamping system and workpiece		
very good	good	moderate
		

STEP 3

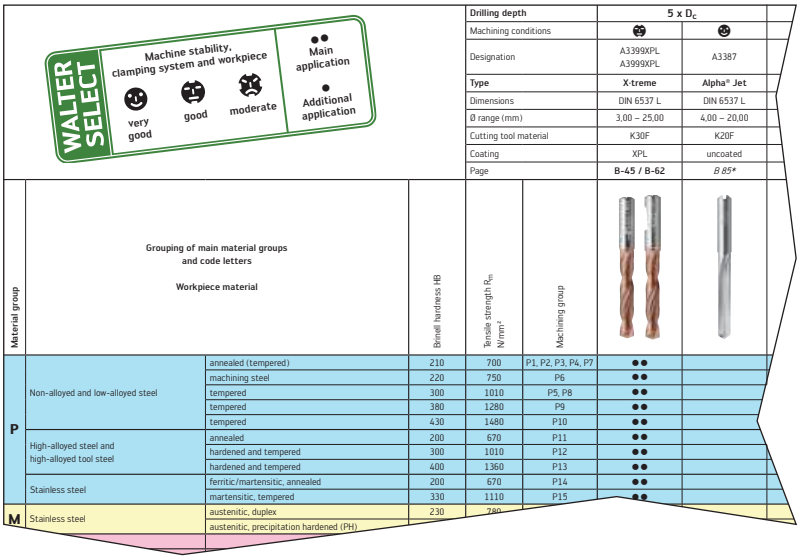
Select the **cutting tool material** (HSS, carbide) and the **type of cooling**:

Tools made from **carbide with internal cooling**: Page B-10 onwards
Tools made from **carbide without internal cooling**: Page B-20 onwards
Tools made from **HSS**: Page B 26 onwards in the Walter General catalogue 2012.

STEP 4

Choose your tool:

– In acc. with the **drilling depth** or **DIN** (e.g. 3 x D_C or DIN 338)
– In acc. with the **machining conditions** (see step 2: ☻ 😐 ☹)
– For the relevant **machining group** (see step 1: P1–P15; M1–M3; . . . 01–06)



WALTER SELECT: Machine stability, clamping system and workpiece — very good ☻ / good 😐 / moderate ☹ — ●● Main application / ● Additional application

Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	Drilling depth	5 x D_C	
						Machining conditions	☻	☻
						Designation	A3399XPL A3999XPL	A3387
						Type	X-treme	Alpha® Jet
						Dimensions	DIN 6537 L	DIN 6537 L
						Ø range (mm)	3,00 – 25,00	4,00 – 20,00
						Cutting tool material	K30F	K20F
						Coating	XPL	uncoated
						Page	B-45 / B-62	*B 85**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		●●	
		machining steel	220	750	P6		●●	
		tempered	300	1010	P5, P8		●●	
		tempered	380	1280	P9		●●	
		tempered	430	1480	P10		●●	
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		●●	
		hardened and tempered	300	1010	P12		●●	
		hardened and tempered	400	1360	P13		●●	
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		●●	
		martensitic, tempered	330	1110	P15		●●	
M	Stainless steel	austenitic, duplex	230	780				
		austenitic, precipitation hardened (PH)						

STEP 5

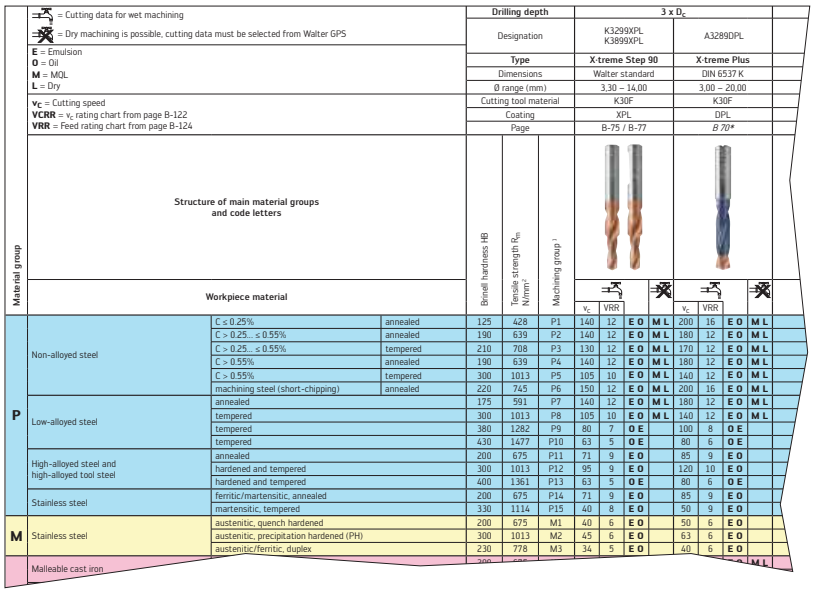
Choose your **cutting data** from the table from page B-102 onwards:

– **Cutting speed:**
v_C; VCRR (v_C rating chart for micro)

– **Feed:**
VRR (feed rating chart)

Go to the row of your machining group (e.g. K5) and the column of your selected drilling and boring tool. You will find the cutting speed v_C or the VCRR and VRR there.

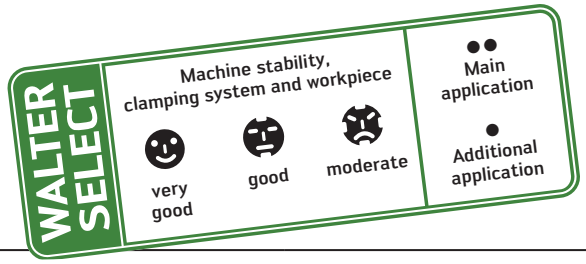
The v_C rating chart (**VCRR**) and the feed rating chart (**VRR**) can be found from page B-122 onwards.



= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS
E = Emulsion
O = Oil
M = MQL
L = Dry
v_C = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

Material group	Structure of main material groups and code letters / Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Drilling depth	3 x D_C							
							Designation	K3299XPL K3899XPL				A3289DPL			
							Type	X-treme Step 90				X-treme Plus			
							Dimensions	Walter standard				DIN 6537 K			
							Ø range (mm)	3,30 – 14,00				3,00 – 20,00			
							Cutting tool material	K30F				K30F			
							Coating	XPL				DPL			
							Page	B-75 / B-77				*B 70**			
								v_c	VRR			v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		140	12	E O	M L	200	16	E O	M L
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		140	12	E O	M L	180	12	E O	M L
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		130	12	E O	M L	170	12	E O	M L
		C > 0.55%	annealed	190	639	P4		140	12	E O	M L	180	12	E O	M L
		C > 0.55%	tempered	300	1013	P5		105	10	E O	M L	140	12	E O	M L
		machining steel (short-chipping)	annealed	220	745	P6		150	12	E O	M L	200	16	E O	M L
	Low-alloyed steel	annealed		175	591	P7		140	12	E O	M L	180	12	E O	M L
		tempered		300	1013	P8		105	10	E O	M L	140	12	E O	M L
		tempered		380	1282	P9		80	7	O E		100	8	O E	
		tempered		430	1477	P10		63	5	O E		80	6	O E	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		71	9	E O		85	9	E O	
		hardened and tempered		300	1013	P12		95	9	E O		120	10	E O	
		hardened and tempered		400	1361	P13		63	5	O E		80	6	O E	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		71	9	E O		85	9	E O	
		martensitic, tempered		330	1114	P15		40	8	E O		50	9	E O	
M	Stainless steel	austenitic, quench hardened		200	675	M1		40	6	E O		50	6	E O	
		austenitic, precipitation hardened (PH)		300	1013	M2		45	6	E O		63	6	E O	
		austenitic/ferritic, duplex		230	778	M3		34	5	E O		40	6	E O	
	Malleable cast iron														

Walter Select – Drilling
Solid carbide drills with internal cooling



Drilling depth	3 x D_c
Machining conditions	☺
Designation	K3299XPL K3899XPL
Type	**X-treme Step 90**
Dimensions	Walter standard
Ø range (mm)	3,30 – 14,00
Cutting tool material	K30F
Coating	XPL
Page	**B-75 / B-77**

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●
		machining steel	220	750	P6	●●
		tempered	300	1010	P5, P8	●●
		tempered	380	1280	P9	●●
		tempered	430	1480	P10	●●
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●
		hardened and tempered	300	1010	P12	●●
		hardened and tempered	400	1360	P13	●●
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●
		martensitic, tempered	330	1110	P15	●●
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●●
		austenitic, precipitation hardened (PH)	300	1010	M2	●●
K	Grey cast iron		245	–	K3, K4	●●
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●
	GGV (CGI)		200	–	K7	●●
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	
		hardenable, hardened	100	340	N2	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●
		> 12% Si	130	450	N5	●●
	Magnesium alloys		70	250	N6	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●
		brass, bronze, red brass	90	310	N8	●●
		Cu-alloys, short-chipping	110	380	N9	●●
		high-strength, Ampco	300	1010	N10	●●
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●●
		Ni or Co base	250	840	S3	●●
		Ni or Co base	350	1080	S4, S5	●●
	Titanium alloys	pure titanium	200	670	S6	●●
		α and β alloys, hardened	375	1260	S7	●●
		β alloys	410	1400	S8	●●
	Tungsten alloys		300	1010	S9	●
	Molybdenum alloys		300	1010	S10	●
H	Hardened steel		50 HRC	–	H1	●●
			55 HRC	–	H2, H4	●
			60 HRC	–	H3	
O	Thermoplasts	without abrasive fillers			O1	
	Thermosetting plastics	without abrasive fillers			O2	
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	
		CFRP			O4	
	Graphite (technical)			65	O6	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	3 x D_c			5 x D_c			
	A3289DPL	A3293TTP	A3299XPL A3899XPL	A3389AML	A3389DPL	A3393TTP	A3382XPL
	X-treme Plus	**X-treme Inox**	**X-treme**	**X-treme M**	**X-treme Plus**	**X-treme Inox**	**X-treme CI**
	DIN 6537 K	DIN 6537 K	DIN 6537 K	Walter Norm	DIN 6537 L	DIN 6537 L	DIN 6537 L
	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00	2,00 – 2,95	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00
	K30F	K30F	K30F	K30F	K30F	K30F	K30F
	DPL	TTP	XPL	AML	DPL	TTP	XPL
	*B 70**	**B-30**	**B-33 / B-54**	**B-41**	*B 86**	**B-42**	*B 81**
							
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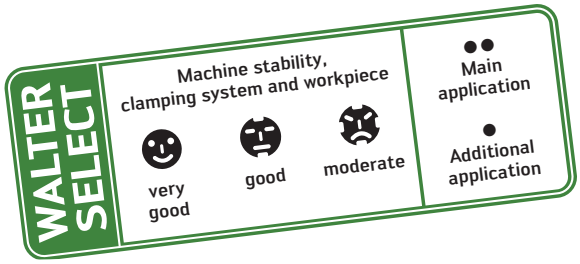
Walter Select – Drilling
Solid carbide drills with internal cooling



			Drilling depth			**5 x D_c**		
			Machining conditions			😠	🙂	
			Designation			A3399XPL A3999XPL	A3387	
			Type			**X-treme**	**Alpha® Jet**	
			Dimensions			DIN 6537 L	DIN 6537 L	
			Ø range (mm)			3,00 – 25,00	4,00 – 20,00	
			Cutting tool material			K30F	K20F	
			Coating			XPL	uncoated	
			Page			**B-45 / B-62**	*B 85**	
Material group	**Grouping of main material groups and code letters** **Workpiece material**		**Brinell hardness HB**	**Tensile strength R_m N/mm²**	**Machining group**			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●		
		machining steel	220	750	P6	●●		
		tempered	300	1010	P5, P8	●●		
		tempered	380	1280	P9	●●		
		tempered	430	1480	P10	●●		
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●		
		hardened and tempered	300	1010	P12	●●		
		hardened and tempered	400	1360	P13	●●		
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●		
		martensitic, tempered	330	1110	P15	●●		
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●●		
		austenitic, precipitation hardened (PH)	300	1010	M2	●●		
K	Grey cast iron		245	–	K3, K4	●●	●●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●	●●	
	GGV (CGI)		200	–	K7	●●		
N	Aluminium wrought alloys	cannot be hardened	30	–	N1		●	
		hardenable, hardened	100	340	N2		●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●	●●	
		> 12% Si	130	450	N5	●●	●●	
	Magnesium alloys		70	250	N6			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●		
		brass, bronze, red brass	90	310	N8	●●		
		Cu-alloys, short-chipping	110	380	N9	●●	●●	
		high-strength, Ampco	300	1010	N10	●●		
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●●		
		Ni or Co base	250	840	S3	●●		
		Ni or Co base	350	1080	S4, S5	●●		
	Titanium alloys	pure titanium	200	670	S6	●●		
		α and β alloys, hardened	375	1260	S7	●●		
		β alloys	410	1400	S8	●●		
	Tungsten alloys		300	1010	S9	●	●	
	Molybdenum alloys		300	1010	S10	●	●	
H	Hardened steel		50 HRC	–	H1	●●		
			55 HRC	–	H2, H4	●		
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1		●●	
	Thermosetting plastics	without abrasive fillers			O2			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	5 x D_c	8 x D_c				
	☺	☺	☺	☺	☺	☺
	A3384	A6489AMP	A6488TML	A6489DPP	A3487	A3486TIP A3586TIP
	Alpha® Ni	**X-treme DM8**	**Alpha® 4 Plus Micro**	**X-treme D8**	**Alpha® Jet**	**Alpha® 44**
	DIN 6537 L	Walter standard	Walter standard	Walter standard	Walter standard	Walter standard
	3,00 – 12,00	2,00 – 2,95	0,75 – 1,95	3,00 – 20,00	5,00 – 20,00	5,00 – 12,00
	K20F	K30F	K30F	K30F	K20F	K30F
	uncoated	AMP	TML	DPP	uncoated	TIP
	*B 84**	**B-67**	*B 121**	*B 123**	*B 95**	*B 94* / B 96**
						
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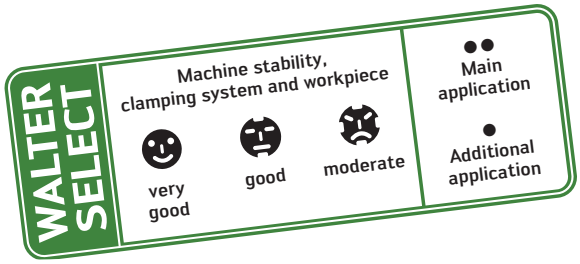
Walter Select – Drilling
Solid carbide drills with internal cooling



					Drilling depth	**12 x D_c**		
					Machining conditions	☻	☹	
					Designation	A6589AMP	A6588TML	
					Type	**X-treme DM12**	**Alpha® 4 Plus Micro**	
					Dimensions	Walter standard	Walter standard	
					Ø range (mm)	2,00 – 2,90	1,00 – 1,90	
					Cutting tool material	K30F	K30F	
					Coating	AMP	TML	
					Page	**B-68**	*B 126**	
Material group	**Grouping of main material groups and code letters**	**Workpiece material**		**Brinell hardness HB**	**Tensile strength R_m N/mm²**	**Machining group**			
P	Non-alloyed and low-alloyed steel	annealed (tempered)		210	700	P1, P2, P3, P4, P7	●●	●●	
		machining steel		220	750	P6	●●	●●	
		tempered		300	1010	P5, P8	●●	●●	
		tempered		380	1280	P9	●	●●	
		tempered		430	1480	P10	●	●●	
	High-alloyed steel and high-alloyed tool steel	annealed		200	670	P11	●●	●●	
		hardened and tempered		300	1010	P12	●●	●●	
		hardened and tempered		400	1360	P13	●	●●	
	Stainless steel	ferritic/martensitic, annealed		200	670	P14	●●	●●	
		martensitic, tempered		330	1110	P15	●●	●●	
M	Stainless steel	austenitic, duplex		230	780	M1, M3	●●	●●	
		austenitic, precipitation hardened (PH)		300	1010	M2	●●	●●	
K	Grey cast iron			245	–	K3, K4	●●	●●	
	Cast iron with spheroidal graphite	ferritic, pearlitic		365	–	K1, K2, K5, K6	●●	●●	
	GGV (CGI)			200	–	K7	●●	●●	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●	●●	
		hardenable, hardened		100	340	N2	●●	●●	
	Cast aluminium alloys	≤ 12% Si		90	310	N3, N4	●●	●●	
		> 12% Si		130	450	N5	●●	●●	
	Magnesium alloys			70	250	N6			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	340	N7	●●	●●	
		brass, bronze, red brass		90	310	N8	●●	●●	
		Cu-alloys, short-chipping		110	380	N9	●●	●●	
		high-strength, Ampco		300	1010	N10	●●	●●	
S	Heat-resistant alloys	Fe-based		280	940	S1, S2	●●	●●	
		Ni or Co base		250	840	S3	●●	●●	
		Ni or Co base		350	1080	S4, S5	●	●●	
	Titanium alloys	pure titanium		200	670	S6	●●	●●	
		α and β alloys, hardened		375	1260	S7	●●	●●	
		β alloys		410	1400	S8	●●	●●	
	Tungsten alloys			300	1010	S9	●●	●	
	Molybdenum alloys			300	1010	S10	●●	●	
H	Hardened steel			50 HRC	–	H1	●	●	
				55 HRC	–	H2, H4	●	●	
				60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers				O1	●●	●●	
	Thermosetting plastics	without abrasive fillers				O2			
	Plastic, fibre-reinforced	GFRP, AFRP				O3, O5			
		CFRP				O4			
	Graphite (technical)				65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	12 x D_c		16 x D_c		20 x D_c		
	☺	☺	☺	😐	☺	😐	😐
	A6589DPP	A3687	A6689AMP	A6685TFP	A6789AMP	A6794TFP	A6785TFP
	X-treme D12	**Alpha® Jet**	**X-treme DM16**	**Alpha® 4 XD16**	**X-treme DM20**	**X-treme DH20**	**Alpha® 4 XD20**
	Walter standard	Walter standard	Walter standard	Walter standard	Walter standard	Walter standard	Walter standard
	3,00 – 20,00	5,00 – 20,00	2,00 – 2,90	3,00 – 16,00	2,00 – 2,90	3,00 – 10,00	3,00 – 16,00
	K30F	K20F	K30F	K30F	K30F	K30F	K30F
	DPP	uncoated	AMP	TFP	AMP	TFP	TFP
	*B 127**	*B 97**	**B-69**	*B 130**	**B-70**	*B 133**	*B 131**
							
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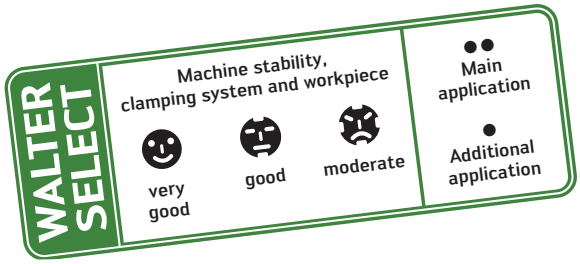
Walter Select – Drilling
Solid carbide drills with internal cooling



			Drilling depth			**25 x D_c**		
			Machining conditions			☺	😐	
			Designation			A6889AMP	A6885TFP	
			Type			**X-treme DM25**	**Alpha® 4 XD25**	
			Dimensions			Walter standard	Walter standard	
			Ø range (mm)			2,00 – 2,90	3,00 – 12,00	
			Cutting tool material			K30F	K30F	
			Coating			AMP	TFP	
			Page			**B-71**	*B 134**	
Material group	Grouping of main material groups and code letters	Workpiece material	Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●	●●	
		machining steel	220	750	P6	●●	●●	
		tempered	300	1010	P5, P8	●●	●	
		tempered	380	1280	P9	●	●	
		tempered	430	1480	P10	●	●	
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●	●	
		hardened and tempered	300	1010	P12	●●	●	
		hardened and tempered	400	1360	P13	●	●	
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●	●	
		martensitic, tempered	330	1110	P15	●●	●	
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●●	●●	
		austenitic, precipitation hardened (PH)	300	1010	M2	●●	●	
K	Grey cast iron		245	–	K3, K4	●●	●●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●	●●	
	GGV (CGI)		200	–	K7	●●	●●	
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●	●●	
		hardenable, hardened	100	340	N2	●●	●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●	
		> 12% Si	130	450	N5	●●	●●	
	Magnesium alloys		70	250	N6			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●	●●	
		brass, bronze, red brass	90	310	N8	●●	●●	
		Cu-alloys, short-chipping	110	380	N9	●●	●●	
		high-strength, Ampco	300	1010	N10	●●	●●	
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●●	●	
		Ni or Co base	250	840	S3	●●	●●	
		Ni or Co base	350	1080	S4, S5	●	●	
	Titanium alloys	pure titanium	200	670	S6	●●	●●	
		α and β alloys, hardened	375	1260	S7	●●	●●	
		β alloys	410	1400	S8	●●	●●	
	Tungsten alloys		300	1010	S9	●●	●	
	Molybdenum alloys		300	1010	S10	●●	●	
H	Hardened steel		50 HRC	–	H1	●	●	
			55 HRC	–	H2, H4	●		
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1	●●	●●	
	Thermosetting plastics	without abrasive fillers			O2			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	30 x D_c			40 x D_c
	☺	😐	😐	☺
	A6989AMP	A6994TFP	A6985TFP	A7495TTP
	X-treme DM30	**X-treme DH30**	**Alpha® 4 XD30**	**X-treme D40**
	Walter standard	Walter standard	Walter standard	Walter standard
	2,00 – 2,90	3,00 – 10,00	3,00 – 12,00	4,50 – 11,00
	K30F	K30F	K30F	K30F
	AMP	TFP	TFP	TTP
	B-72	*B 137**	*B 136**	**B-73**
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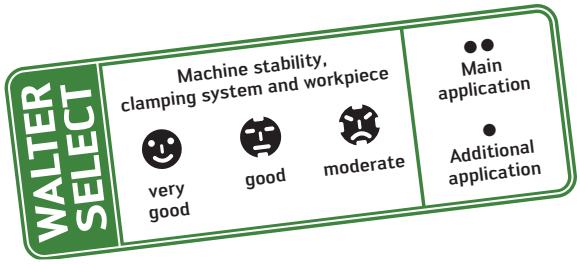
Walter Select – Drilling
Solid carbide drills with internal cooling



Drilling depth	Pilot drill
Machining conditions	☻
Designation	K3281TFT
Type	**X-treme Pilot Step 90**
Dimensions	Walter standard
Ø range (mm)	3,00 – 16,00
Cutting tool material	K30F
Coating	TFT
Page	**B-74**

Material group	Grouping of main material groups and code letters – Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●
		machining steel	220	750	P6	●●
		tempered	300	1010	P5, P8	●●
		tempered	380	1280	P9	●●
		tempered	430	1480	P10	●●
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●
		hardened and tempered	300	1010	P12	●●
		hardened and tempered	400	1360	P13	●●
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●
		martensitic, tempered	330	1110	P15	●●
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●●
		austenitic, precipitation hardened (PH)	300	1010	M2	●●
K	Grey cast iron		245	–	K3, K4	●●
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●
	GGV (CGI)		200	–	K7	●●
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●
		hardenable, hardened	100	340	N2	●●
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●
		> 12% Si	130	450	N5	●●
	Magnesium alloys		70	250	N6	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●
		brass, bronze, red brass	90	310	N8	●●
		Cu-alloys, short-chipping	110	380	N9	●●
		high-strength, Ampco	300	1010	N10	●●
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●●
		Ni or Co base	250	840	S3	●●
		Ni or Co base	350	1080	S4, S5	●●
	Titanium alloys	pure titanium	200	670	S6	●●
		α and β alloys, hardened	375	1260	S7	●●
		β alloys	410	1400	S8	●●
	Tungsten alloys		300	1010	S9	●
	Molybdenum alloys		300	1010	S10	●
H	Hardened steel		50 HRC	–	H1	●●
			55 HRC	–	H2, H4	
			60 HRC	–	H3	
O	Thermoplasts	without abrasive fillers			O1	●●
	Thermosetting plastics	without abrasive fillers			O2	
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	
		CFRP			O4	
	Graphite (technical)			65	O6	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	Pilot drill			
	A6181AML	A6181TFT	A7191TFT	K5191TFT
	X-treme Pilot 150	**XD Pilot**	**X-treme Pilot 180**	**X treme Pilot 180C**
	Walter standard	Walter standard	Walter standard	Walter standard
	2,00 – 2,95	3,00 – 16,00	3,00 – 10,00	4,00 – 7,00
	K30F	K30F	K30F	K30F
	AML	TFT	TFT	TFT
	B-66	*B 118**	*B 138**	*B 140**
				
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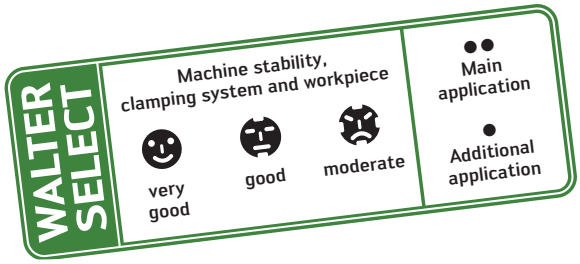
Walter Select – Drilling
Solid carbide drills without internal cooling



					Drilling depth	**3 x D_c**		
					Machining conditions			
					Designation	K3879XPL	A3279XPL A3879XPL	
					Type	**X-treme Step 90**	**X-treme**	
					Dimensions	Walter standard	DIN 6537 K	
					Ø range (mm)	3,30 – 14,50	3,00 – 20,00	
					Cutting tool material	K30F	K30F	
					Coating	XPL	XPL	
					Page	**B-76**	**B-26 / B-50**	
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●	●●	
		machining steel	220	750	P6	●●	●●	
		tempered	300	1010	P5, P8	●●	●●	
		tempered	380	1280	P9	●●	●●	
		tempered	430	1480	P10	●●	●●	
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●	●●	
		hardened and tempered	300	1010	P12	●●	●●	
		hardened and tempered	400	1360	P13	●●	●●	
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●	●●	
		martensitic, tempered	330	1110	P15	●●	●●	
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2	●●	●●	
K	Grey cast iron		245	–	K3, K4	●●	●●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●	●●	
	GGV (CGI)		200	–	K7	●●	●●	
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●	●●	
		hardenable, hardened	100	340	N2	●●	●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●	
		> 12% Si	130	450	N5	●●	●●	
	Magnesium alloys		70	250	N6			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●	●●	
		brass, bronze, red brass	90	310	N8	●●	●●	
		Cu-alloys, short-chipping	110	380	N9	●●	●●	
		high-strength, Ampco	300	1010	N10	●●	●●	
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6	●●	●●	
		α and β alloys, hardened	375	1260	S7	●●	●●	
		β alloys	410	1400	S8	●●	●●	
	Tungsten alloys		300	1010	S9	●	●	
	Molybdenum alloys		300	1010	S10	●	●	
H	Hardened steel		50 HRC	–	H1	●●	●●	
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1	●●	●●	
	Thermosetting plastics	without abrasive fillers			O2			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	3 x D_c						
	A3269TFL	A1164TIN	A1163	A1166TIN	A1166	A1167A	A1167B
	Alpha® Rc	**Alpha® 2**	**N**	**Maximiza**	**Maximiza**	**Maximiza**	**Maximiza**
	DIN 6537 K	DIN 6539	DIN 6539	Walter standard	Walter standard	Walter standard	Walter standard
	3,40 – 10,40	1,50 – 20,00	1,00 – 12,00	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00	3,00 – 20,00
	K30F	K30F	K30F	K30F	K30F	K30F	K30F
	TFL	TiN	uncoated	TiN	uncoated	uncoated	uncoated
	*B 65**	*B 38**	*B 36**	*B 46**	*B 42**	*B 47**	*B 50**
							
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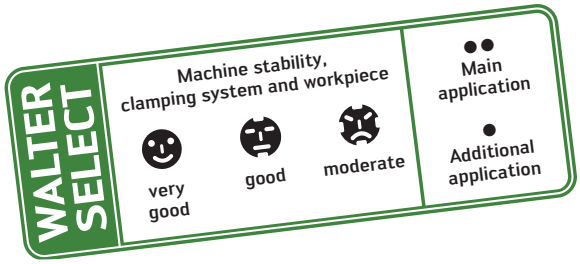
Walter Select – Drilling
Solid carbide drills without internal cooling



Drilling depth	**5 x D_c**
Machining conditions	
Designation	A3378TML
Type	**Alpha® 2 Plus Micro**
Dimensions	Walter standard
Ø range (mm)	0,50 – 2,95
Cutting tool material	K30F
Coating	TML
Page	*B 79**

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●
		machining steel	220	750	P6	●●
		tempered	300	1010	P5, P8	●●
		tempered	380	1280	P9	●●
		tempered	430	1480	P10	●●
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●
		hardened and tempered	300	1010	P12	●●
		hardened and tempered	400	1360	P13	●●
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	
		martensitic, tempered	330	1110	P15	●●
M	Stainless steel	austenitic, duplex	230	780	M1, M3	
		austenitic, precipitation hardened (PH)	300	1010	M2	
K	Grey cast iron		245	–	K3, K4	●●
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●
	GGV (CGI)		200	–	K7	●●
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●
		hardenable, hardened	100	340	N2	●●
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●
		> 12% Si	130	450	N5	●●
	Magnesium alloys		70	250	N6	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●
		brass, bronze, red brass	90	310	N8	●●
		Cu-alloys, short-chipping	110	380	N9	●●
		high-strength, Ampco	300	1010	N10	●●
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	
		Ni or Co base	250	840	S3	
		Ni or Co base	350	1080	S4, S5	
	Titanium alloys	pure titanium	200	670	S6	●●
		α and β alloys, hardened	375	1260	S7	●●
		β alloys	410	1400	S8	●●
	Tungsten alloys		300	1010	S9	●●
	Molybdenum alloys		300	1010	S10	●●
H	Hardened steel		50 HRC	–	H1	●
			55 HRC	–	H2, H4	
			60 HRC	–	H3	
O	Thermoplasts	without abrasive fillers			O1	●●
	Thermosetting plastics	without abrasive fillers			O2	
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	
		CFRP			O4	
	Graphite (technical)			65	O6	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	5 x D_c			8 x D_c		
	A3162	A3379XPL A3979XPL	A3367 A3967	A6478TML	A1276TFL	A1263
	ESU	**X-treme**	**BSX**	**Alpha® 2 Plus Micro**	**Alpha® 22**	**N**
	DIN 1899	DIN 6537 L	DIN 6537 L	Walter standard	DIN 338	DIN 338
	0,10 – 1,45	3,00 – 25,00	3,00 – 16,00	0,50 – 2,95	3,00 – 12,00	0,60 – 12,00
	K30F	K30F	K30F	K30F	K30F	K30F
	uncoated	XPL	uncoated	TML	TFL	uncoated
	*B 59**	**B-37 / B-58**	*B 77* / B 110**	*B 119**	*B 57**	*B 55**
						
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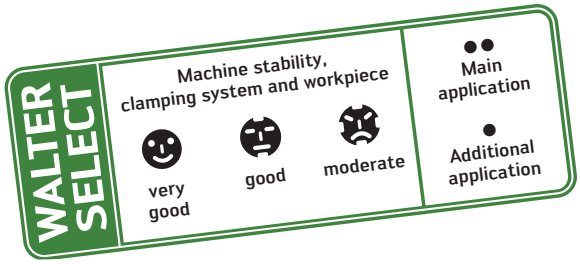
Walter Select – Drilling
Solid carbide drills without internal cooling



Drilling depth					3 x D_c – Carbide-tipped		
Machining conditions							
Designation					A2971	A5971	
Type					**HM**	**HM**	
Dimensions					DIN 8037	DIN 8041	
Ø range (mm)					3,00 – 16,00	8,00 – 32,00	
Cutting tool material					K10/20	K10/20	
Coating					uncoated	uncoated	
Page					*B 58**	*B 116**	
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7			
		machining steel	220	750	P6			
		tempered	300	1010	P5, P8			
		tempered	380	1280	P9			
		tempered	430	1480	P10	●	●	
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11			
		hardened and tempered	300	1010	P12			
		hardened and tempered	400	1360	P13	●	●	
	Stainless steel	ferritic/martensitic, annealed	200	670	P14			
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4	●	●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●	●	
	GGV (CGI)		200	–	K7	●	●	
N	Aluminium wrought alloys	cannot be hardened	30	–	N1			
		hardenable, hardened	100	340	N2			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4			
		> 12% Si	130	450	N5			
	Magnesium alloys		70	250	N6			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7			
		brass, bronze, red brass	90	310	N8			
		Cu-alloys, short-chipping	110	380	N9	●	●	
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1	●	●	
			55 HRC	–	H2, H4	●	●	
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1			
	Thermosetting plastics	without abrasive fillers			O2	●	●	
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	●	●	
		CFRP			O4	●	●	
	Graphite (technical)			65	O6	●	●	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	NC spot drill
	A1174 A1174C
	NC spot drill 90°/120°
	Walter standard
	3,00 – 20,00
	K30F
	uncoated
	B 53 / B 54**
	
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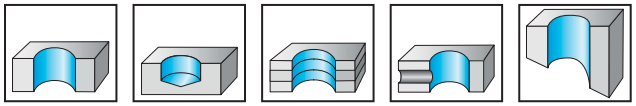
Solid carbide twist drill
A3279XPL
X·treme

3 x D_C



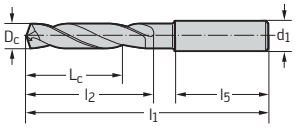
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

DIN 6537 short

Shank DIN 6535 HA



D_C m7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3279XPL
3		6	14	62	20	36	★ -3
3,1		6	14	62	20	36	★ -3.1
3,175	1/8"	6	14	62	20	36	★ -1/8IN
3,2		6	14	62	20	36	★ -3.2
3,25		6	14	62	20	36	★ -3.25
3,3		6	14	62	20	36	★ -3.3
3,4		6	14	62	20	36	★ -3.4
3,5		6	14	62	20	36	★ -3.5
3,572	9/64"	6	14	62	20	36	★ -9/64IN
3,6		6	14	62	20	36	★ -3.6
3,65		6	14	62	20	36	★ -3.65
3,7		6	14	62	20	36	★ -3.7
3,8		6	17	66	24	36	★ -3.8
3,9		6	17	66	24	36	★ -3.9
3,969	5/32"	6	17	66	24	36	★ -5/32IN
4		6	17	66	24	36	★ -4
4,1		6	17	66	24	36	★ -4.1
4,2		6	17	66	24	36	★ -4.2
4,3		6	17	66	24	36	★ -4.3
4,366	11/64"	6	17	66	24	36	★ -11/64IN
4,4		6	17	66	24	36	★ -4.4
4,5		6	17	66	24	36	★ -4.5
4,6		6	17	66	24	36	★ -4.6
4,65		6	17	66	24	36	★ -4.65
4,7		6	17	66	24	36	★ -4.7
4,763	3/16"	6	20	66	28	36	★ -3/16IN
4,8		6	20	66	28	36	★ -4.8
4,9		6	20	66	28	36	★ -4.9
5		6	20	66	28	36	★ -5
5,1		6	20	66	28	36	★ -5.1
5,159	13/64"	6	20	66	28	36	★ -13/64IN
5,2		6	20	66	28	36	★ -5.2
5,3		6	20	66	28	36	★ -5.3
5,4		6	20	66	28	36	★ -5.4
5,5		6	20	66	28	36	★ -5.5
5,55		6	20	66	28	36	★ -5.55
5,556	7/32"	6	20	66	28	36	★ -7/32IN
5,6		6	20	66	28	36	★ -5.6
5,7		6	20	66	28	36	★ -5.7
5,8		6	20	66	28	36	★ -5.8
5,9		6	20	66	28	36	★ -5.9
5,953	15/64"	6	20	66	28	36	★ -15/64IN
6		6	20	66	28	36	★ -6
6,1		8	24	79	34	36	★ -6.1
6,2		8	24	79	34	36	★ -6.2
6,3		8	24	79	34	36	★ -6.3
6,35	1/4"	8	24	79	34	36	★ -1/4IN

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3279XPL
X·treme

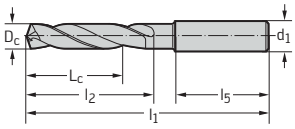
3 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 short

Shank DIN 6535 HA



D_C m7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3279XPL
6,4		8	24	79	34	36	★ -6.4
6,5		8	24	79	34	36	★ -6.5
6,6		8	24	79	34	36	★ -6.6
6,7		8	24	79	34	36	★ -6.7
6,747	17/64"	8	24	79	34	36	★ -17/64IN
6,8		8	24	79	34	36	★ -6.8
6,9		8	24	79	34	36	★ -6.9
7		8	24	79	34	36	★ -7
7,1		8	29	79	41	36	★ -7.1
7,144	9/32"	8	29	79	41	36	★ -9/32IN
7,2		8	29	79	41	36	★ -7.2
7,3		8	29	79	41	36	★ -7.3
7,4		8	29	79	41	36	★ -7.4
7,5		8	29	79	41	36	★ -7.5
7,541	19/64"	8	29	79	41	36	★ -19/64IN
7,55		8	29	79	41	36	★ -7.55
7,6		8	29	79	41	36	★ -7.6
7,7		8	29	79	41	36	★ -7.7
7,8		8	29	79	41	36	★ -7.8
7,9		8	29	79	41	36	★ -7.9
7,938	5/16"	8	29	79	41	36	★ -5/16IN
8		8	29	79	41	36	★ -8
8,1		10	35	89	47	40	★ -8.1
8,2		10	35	89	47	40	★ -8.2
8,3		10	35	89	47	40	★ -8.3
8,334	21/64"	10	35	89	47	40	★ -21/64IN
8,4		10	35	89	47	40	★ -8.4
8,5		10	35	89	47	40	★ -8.5
8,6		10	35	89	47	40	★ -8.6
8,7		10	35	89	47	40	★ -8.7
8,731	11/32"	10	35	89	47	40	★ -11/32IN
8,8		10	35	89	47	40	★ -8.8
8,9		10	35	89	47	40	★ -8.9
9		10	35	89	47	40	★ -9
9,1		10	35	89	47	40	★ -9.1
9,128	23/64"	10	35	89	47	40	★ -23/64IN
9,2		10	35	89	47	40	★ -9.2
9,3		10	35	89	47	40	★ -9.3
9,4		10	35	89	47	40	★ -9.4
9,5		10	35	89	47	40	★ -9.5
9,525	3/8"	10	35	89	47	40	★ -3/8IN
9,55		10	35	89	47	40	★ -9.55
9,6		10	35	89	47	40	★ -9.6
9,7		10	35	89	47	40	★ -9.7
9,8		10	35	89	47	40	★ -9.8
9,9		10	35	89	47	40	★ -9.9
9,922	25/64"	10	35	89	47	40	★ -25/64IN
10		10	35	89	47	40	★ -10
10,1		12	40	102	55	45	★ -10.1
10,2		12	40	102	55	45	★ -10.2
10,3		12	40	102	55	45	★ -10.3
10,319	13/32"	12	40	102	55	45	★ -13/32IN
10,4		12	40	102	55	45	★ -10.4
10,5		12	40	102	55	45	★ -10.5
10,6		12	40	102	55	45	★ -10.6

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3279XPL
X·treme

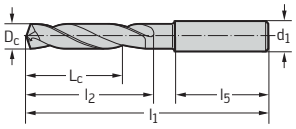
3 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 short

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3279XPL
10,7		12	40	102	55	45	★ -10.7
10,716	27/64"	12	40	102	55	45	★ -27/64IN
10,8		12	40	102	55	45	★ -10.8
10,9		12	40	102	55	45	★ -10.9
11		12	40	102	55	45	★ -11
11,1		12	40	102	55	45	★ -11.1
11,113	7/16"	12	40	102	55	45	★ -7/16IN
11,2		12	40	102	55	45	★ -11.2
11,3		12	40	102	55	45	★ -11.3
11,4		12	40	102	55	45	★ -11.4
11,5		12	40	102	55	45	★ -11.5
11,509	29/64"	12	40	102	55	45	★ -29/64IN
11,55		12	40	102	55	45	★ -11.55
11,6		12	40	102	55	45	★ -11.6
11,7		12	40	102	55	45	★ -11.7
11,8		12	40	102	55	45	★ -11.8
11,9		12	40	102	55	45	★ -11.9
11,906	15/32"	12	40	102	55	45	★ -15/32IN
12		12	40	102	55	45	★ -12
12,1		14	43	107	60	45	★ -12.1
12,2		14	43	107	60	45	★ -12.2
12,25		14	43	107	60	45	★ -12.25
12,3		14	43	107	60	45	★ -12.3
12,303	31/64"	14	43	107	60	45	★ -31/64IN
12,4		14	43	107	60	45	★ -12.4
12,5		14	43	107	60	45	★ -12.5
12,6		14	43	107	60	45	★ -12.6
12,7	1/2"	14	43	107	60	45	★ -1/2IN
12,75		14	43	107	60	45	★ -12.75
12,8		14	43	107	60	45	★ -12.8
12,9		14	43	107	60	45	★ -12.9
13		14	43	107	60	45	★ -13
13,1		14	43	107	60	45	★ -13.1
13,2		14	43	107	60	45	★ -13.2
13,3		14	43	107	60	45	★ -13.3
13,4		14	43	107	60	45	★ -13.4
13,494	17/32"	14	43	107	60	45	★ -17/32IN
13,5		14	43	107	60	45	★ -13.5
13,6		14	43	107	60	45	★ -13.6
13,7		14	43	107	60	45	★ -13.7
13,8		14	43	107	60	45	★ -13.8
13,9		14	43	107	60	45	★ -13.9
14		14	43	107	60	45	★ -14
14,1		16	45	115	65	48	★ -14.1
14,2		16	45	115	65	48	★ -14.2
14,288	9/16"	16	45	115	65	48	★ -9/16IN
14,3		16	45	115	65	48	★ -14.3
14,4		16	45	115	65	48	★ -14.4
14,5		16	45	115	65	48	★ -14.5
14,6		16	45	115	65	48	★ -14.6
14,7		16	45	115	65	48	★ -14.7
14,75		16	45	115	65	48	★ -14.75
14,8		16	45	115	65	48	★ -14.8
15		16	45	115	65	48	★ -15
15,1		16	45	115	65	48	★ -15.1

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3279XPL
X·treme

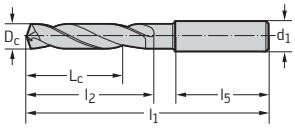
3 x D_C

Continued

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

DIN 6537 short

Shank DIN 6535 HA



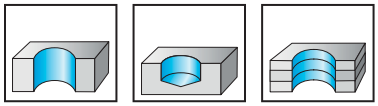
D_C m7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3279XPL
15,2		16	45	115	65	48	★ -15.2
15,3		16	45	115	65	48	★ -15.3
15,5		16	45	115	65	48	★ -15.5
15,6		16	45	115	65	48	★ -15.6
15,7		16	45	115	65	48	★ -15.7
15,8		16	45	115	65	48	★ -15.8
15,875	5/8"	16	45	115	65	48	★ -5/8IN
15,9		16	45	115	65	48	★ -15.9
16		16	45	115	65	48	★ -16
16,1		18	51	123	73	48	★ -16.1
16,2		18	51	123	73	48	★ -16.2
16,3		18	51	123	73	48	★ -16.3
16,4		18	51	123	73	48	★ -16.4
16,5		18	51	123	73	48	★ -16.5
16,6		18	51	123	73	48	★ -16.6
16,7		18	51	123	73	48	★ -16.7
16,75		18	51	123	73	48	★ -16.75
16,8		18	51	123	73	48	★ -16.8
17		18	51	123	73	48	★ -17
17,2		18	51	123	73	48	★ -17.2
17,3		18	51	123	73	48	★ -17.3
17,5		18	51	123	73	48	★ -17.5
17,6		18	51	123	73	48	★ -17.6
17,7		18	51	123	73	48	★ -17.7
17,8		18	51	123	73	48	★ -17.8
18		18	51	123	73	48	★ -18
18,2		20	55	131	79	50	★ -18.2
18,5		20	55	131	79	50	★ -18.5
18,7		20	55	131	79	50	★ -18.7
18,8		20	55	131	79	50	★ -18.8
19		20	55	131	79	50	★ -19
19,05	3/4"	20	55	131	79	50	★ -3/4IN
19,5		20	55	131	79	50	★ -19.5
19,7		20	55	131	79	50	★ -19.7
19,8		20	55	131	79	50	★ -19.8
20		20	55	131	79	50	★ -20

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3293TTP
X·treme Inox

3 x D_C



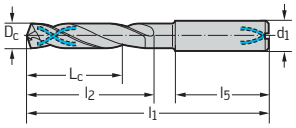
- K30F - TTP
- Type X·treme Inox
- Right-hand cutting
- 140° point angle

Special features:
Specially developed for machining stainless steels

	P	M	K	N	S	H	O
TTP	●●	●●		●	●●		●

DIN 6537 short

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3293TTP
3		6	14	62	20	36	★ -3
3,1		6	14	62	20	36	★ -3.1
3,175	1/8"	6	14	62	20	36	★ -1/8IN
3,2		6	14	62	20	36	★ -3.2
3,25		6	14	62	20	36	★ -3.25
3,3		6	14	62	20	36	★ -3.3
3,4		6	14	62	20	36	★ -3.4
3,5		6	14	62	20	36	★ -3.5
3,6		6	14	62	20	36	★ -3.6
3,7		6	14	62	20	36	★ -3.7
3,8		6	17	66	24	36	★ -3.8
3,9		6	17	66	24	36	★ -3.9
3,969	5/32"	6	17	66	24	36	★ -5/32IN
4		6	17	66	24	36	★ -4
4,1		6	17	66	24	36	★ -4.1
4,2		6	17	66	24	36	★ -4.2
4,3		6	17	66	24	36	★ -4.3
4,365	11/64"	6	17	66	24	36	★ -11/64IN
4,4		6	17	66	24	36	★ -4.4
4,5		6	17	66	24	36	★ -4.5
4,6		6	17	66	24	36	★ -4.6
4,65		6	17	66	24	36	★ -4.65
4,7		6	17	66	24	36	★ -4.7
4,763	3/16"	6	20	66	28	36	★ -3/16IN
4,8		6	20	66	28	36	★ -4.8
4,9		6	20	66	28	36	★ -4.9
5		6	20	66	28	36	★ -5
5,1		6	20	66	28	36	★ -5.1
5,2		6	20	66	28	36	★ -5.2
5,3		6	20	66	28	36	★ -5.3
5,4		6	20	66	28	36	★ -5.4
5,5		6	20	66	28	36	★ -5.5
5,55		6	20	66	28	36	★ -5.55
5,566		6	20	66	28	36	★ -7/32IN
5,6		6	20	66	28	36	★ -5.6
5,7		6	20	66	28	36	★ -5.7
5,8		6	20	66	28	36	★ -5.8
5,9		6	20	66	28	36	★ -5.9
6		6	20	66	28	36	★ -6
6,1		8	24	79	34	36	★ -6.1
6,2		8	24	79	34	36	★ -6.2
6,3		8	24	79	34	36	★ -6.3
6,35	1/4"	8	24	79	34	36	★ -1/4IN
6,4		8	24	79	34	36	★ -6.4
6,5		8	24	79	34	36	★ -6.5
6,6		8	24	79	34	36	★ -6.6
6,7		8	24	79	34	36	★ -6.7

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3293TTP
X·treme Inox

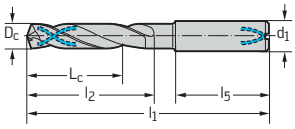
3 x D_c

	P	M	K	N	S	H	O
TTP	●●	●●		●	●●		●

Continued

DIN 6537 short

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3293TTP
6,8		8	24	79	34	36	★ -6.8
6,9		8	24	79	34	36	★ -6.9
7		8	24	79	34	36	★ -7
7,1		8	29	79	41	36	★ -7.1
7,144	9/32"	8	29	79	41	36	★ -9/32IN
7,2		8	29	79	41	36	★ -7.2
7,3		8	29	79	41	36	★ -7.3
7,4		8	29	79	41	36	★ -7.4
7,5		8	29	79	41	36	★ -7.5
7,6		8	29	79	41	36	★ -7.6
7,7		8	29	79	41	36	★ -7.7
7,8		8	29	79	41	36	★ -7.8
7,9		8	29	79	41	36	★ -7.9
7,938	5/16"	8	29	79	41	36	★ -5/16IN
8		8	29	79	41	36	★ -8
8,1		10	35	89	47	40	★ -8.1
8,2		10	35	89	47	40	★ -8.2
8,3		10	35	89	47	40	★ -8.3
8,4		10	35	89	47	40	★ -8.4
8,5		10	35	89	47	40	★ -8.5
8,6		10	35	89	47	40	★ -8.6
8,7		10	35	89	47	40	★ -8.7
8,731	11/32"	10	35	89	47	40	★ -11/32IN
8,8		10	35	89	47	40	★ -8.8
8,9		10	35	89	47	40	★ -8.9
9		10	35	89	47	40	★ -9
9,1		10	35	89	47	40	★ -9.1
9,128	23/64"	10	35	89	47	40	★ -23/64IN
9,2		10	35	89	47	40	★ -9.2
9,3		10	35	89	47	40	★ -9.3
9,4		10	35	89	47	40	★ -9.4
9,5		10	35	89	47	40	★ -9.5
9,525	3/8"	10	35	89	47	40	★ -3/8IN
9,6		10	35	89	47	40	★ -9.6
9,7		10	35	89	47	40	★ -9.7
9,8		10	35	89	47	40	★ -9.8
9,9		10	35	89	47	40	★ -9.9
10		10	35	89	47	40	★ -10
10,1		12	40	102	55	45	★ -10.1
10,2		12	40	102	55	45	★ -10.2
10,3		12	40	102	55	45	★ -10.3
10,319	13/32"	12	40	102	55	45	★ -13/32IN
10,4		12	40	102	55	45	★ -10.4
10,5		12	40	102	55	45	★ -10.5
10,6		12	40	102	55	45	★ -10.6
10,7		12	40	102	55	45	★ -10.7
10,8		12	40	102	55	45	★ -10.8
10,9		12	40	102	55	45	★ -10.9
11		12	40	102	55	45	★ -11
11,1		12	40	102	55	45	★ -11.1
11,113	7/16"	12	40	102	55	45	★ -7/16IN
11,2		12	40	102	55	45	★ -11.2
11,3		12	40	102	55	45	★ -11.3
11,4		12	40	102	55	45	★ -11.4
11,5		12	40	102	55	45	★ -11.5

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3293TTP
X·treme Inox

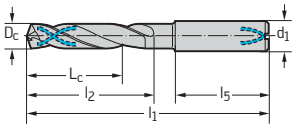
3 x D_c

	P	M	K	N	S	H	O
TTP	●●	●●		●	●●		●

Continued

DIN 6537 short

Shank DIN 6535 HA



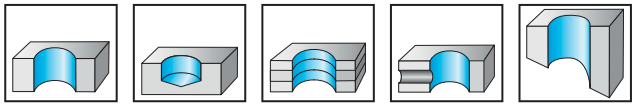
D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3293TTP
11,6		12	40	102	55	45	★ -11.6
11,7		12	40	102	55	45	★ -11.7
11,8		12	40	102	55	45	★ -11.8
11,9		12	40	102	55	45	★ -11.9
11,906	15/32"	12	40	102	55	45	★ -15/32IN
12		12	40	102	55	45	★ -12
12,5		14	43	107	60	45	★ -12.5
12,7	1/2"	14	43	107	60	45	★ -1/2IN
12,9		14	43	107	60	45	★ -12.9
13		14	43	107	60	45	★ -13
13,1		14	43	107	60	45	★ -13.1
13,3		14	43	107	60	45	★ -13.3
13,5		14	43	107	60	45	★ -13.5
13,8		14	43	107	60	45	★ -13.8
14		14	43	107	60	45	★ -14
14,2		16	45	115	65	48	★ -14.2
14,288	9/16"	16	45	115	65	48	★ -9/16IN
14,5		16	45	115	65	48	★ -14.5
14,75		16	45	115	65	48	★ -14.75
15		16	45	115	65	48	★ -15
15,1		16	45	115	65	48	★ -15.1
15,2		16	45	115	65	48	★ -15.2
15,5		16	45	115	65	48	★ -15.5
15,8		16	45	115	65	48	★ -15.8
15,875	5/8"	16	45	115	65	48	★ -5/8IN
16		16	45	115	65	48	★ -16
16,5		18	51	123	73	48	★ -16.5
16,8		18	51	123	73	48	★ -16.8
17		18	51	123	73	48	★ -17
17,5		18	51	123	73	48	★ -17.5
17,8		18	51	123	73	48	★ -17.8
18		18	51	123	73	48	★ -18
18,5		20	55	131	79	50	★ -18.5
18,8		20	55	131	79	50	★ -18.8
19		20	55	131	79	50	★ -19
19,05	3/4"	20	55	131	79	50	★ -3/4IN
19,5		20	55	131	79	50	★ -19.5
19,8		20	55	131	79	50	★ -19.8
20		20	55	131	79	50	★ -20

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3299XPL
X·treme

3 x D_C



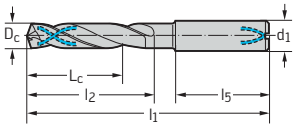
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

DIN 6537 short

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3299XPL
3		6	14	62	20	36	★ -3
3,1		6	14	62	20	36	★ -3.1
3,175	1/8"	6	14	62	20	36	★ -1/8IN
3,2		6	14	62	20	36	★ -3.2
3,25		6	14	62	20	36	★ -3.25
3,3		6	14	62	20	36	★ -3.3
3,4		6	14	62	20	36	★ -3.4
3,5		6	14	62	20	36	★ -3.5
3,572	9/64"	6	14	62	20	36	★ -9/64IN
3,6		6	14	62	20	36	★ -3.6
3,65		6	14	62	20	36	★ -3.65
3,7		6	14	62	20	36	★ -3.7
3,8		6	17	66	24	36	★ -3.8
3,9		6	17	66	24	36	★ -3.9
3,969	5/32"	6	17	66	24	36	★ -5/32IN
4		6	17	66	24	36	★ -4
4,1		6	17	66	24	36	★ -4.1
4,2		6	17	66	24	36	★ -4.2
4,3		6	17	66	24	36	★ -4.3
4,366	11/64"	6	17	66	24	36	★ -11/64IN
4,4		6	17	66	24	36	★ -4.4
4,5		6	17	66	24	36	★ -4.5
4,6		6	17	66	24	36	★ -4.6
4,65		6	17	66	24	36	★ -4.65
4,7		6	17	66	24	36	★ -4.7
4,763	3/16"	6	20	66	28	36	★ -3/16IN
4,8		6	20	66	28	36	★ -4.8
4,9		6	20	66	28	36	★ -4.9
5		6	20	66	28	36	★ -5
5,1		6	20	66	28	36	★ -5.1
5,159	13/64"	6	20	66	28	36	★ -13/64IN
5,2		6	20	66	28	36	★ -5.2
5,3		6	20	66	28	36	★ -5.3
5,4		6	20	66	28	36	★ -5.4
5,5		6	20	66	28	36	★ -5.5
5,55		6	20	66	28	36	★ -5.55
5,556	7/32"	6	20	66	28	36	★ -7/32IN
5,6		6	20	66	28	36	★ -5.6
5,7		6	20	66	28	36	★ -5.7
5,8		6	20	66	28	36	★ -5.8
5,9		6	20	66	28	36	★ -5.9
5,953	15/64"	6	20	66	28	36	★ -15/64IN
6		6	20	66	28	36	★ -6
6,1		8	24	79	34	36	★ -6.1
6,2		8	24	79	34	36	★ -6.2
6,3		8	24	79	34	36	★ -6.3
6,35	1/4"	8	24	79	34	36	★ -1/4IN

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3299XPL
X·treme

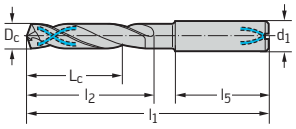
3 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 short

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3299XPL
6,4		8	24	79	34	36	★ -6.4
6,5		8	24	79	34	36	★ -6.5
6,6		8	24	79	34	36	★ -6.6
6,7		8	24	79	34	36	★ -6.7
6,747	17/64"	8	24	79	34	36	★ -17/64IN
6,8		8	24	79	34	36	★ -6.8
6,9		8	24	79	34	36	★ -6.9
7		8	24	79	34	36	★ -7
7,1		8	29	79	41	36	★ -7.1
7,144	9/32"	8	29	79	41	36	★ -9/32IN
7,2		8	29	79	41	36	★ -7.2
7,3		8	29	79	41	36	★ -7.3
7,4		8	29	79	41	36	★ -7.4
7,5		8	29	79	41	36	★ -7.5
7,541	19/64"	8	29	79	41	36	★ -19/64IN
7,55		8	29	79	41	36	★ -7.55
7,6		8	29	79	41	36	★ -7.6
7,7		8	29	79	41	36	★ -7.7
7,8		8	29	79	41	36	★ -7.8
7,9		8	29	79	41	36	★ -7.9
7,938	5/16"	8	29	79	41	36	★ -5/16IN
8		8	29	79	41	36	★ -8
8,1		10	35	89	47	40	★ -8.1
8,2		10	35	89	47	40	★ -8.2
8,3		10	35	89	47	40	★ -8.3
8,334	21/64"	10	35	89	47	40	★ -21/64IN
8,4		10	35	89	47	40	★ -8.4
8,5		10	35	89	47	40	★ -8.5
8,6		10	35	89	47	40	★ -8.6
8,7		10	35	89	47	40	★ -8.7
8,731	11/32"	10	35	89	47	40	★ -11/32IN
8,8		10	35	89	47	40	★ -8.8
8,9		10	35	89	47	40	★ -8.9
9		10	35	89	47	40	★ -9
9,1		10	35	89	47	40	★ -9.1
9,128	23/64"	10	35	89	47	40	★ -23/64IN
9,2		10	35	89	47	40	★ -9.2
9,3		10	35	89	47	40	★ -9.3
9,4		10	35	89	47	40	★ -9.4
9,5		10	35	89	47	40	★ -9.5
9,525	3/8"	10	35	89	47	40	★ -3/8IN
9,55		10	35	89	47	40	★ -9.55
9,6		10	35	89	47	40	★ -9.6
9,7		10	35	89	47	40	★ -9.7
9,8		10	35	89	47	40	★ -9.8
9,9		10	35	89	47	40	★ -9.9
9,922	25/64"	10	35	89	47	40	★ -25/64IN
10		10	35	89	47	40	★ -10
10,1		12	40	102	55	45	★ -10.1
10,2		12	40	102	55	45	★ -10.2
10,3		12	40	102	55	45	★ -10.3
10,319	13/32"	12	40	102	55	45	★ -13/32IN
10,4		12	40	102	55	45	★ -10.4
10,5		12	40	102	55	45	★ -10.5
10,6		12	40	102	55	45	★ -10.6

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3299XPL
X·treme

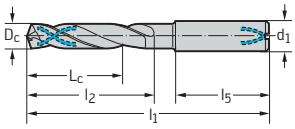
3 x D_c

Continued

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

DIN 6537 short

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3299XPL
10,7		12	40	102	55	45	★ -10.7
10,716	27/64"	12	40	102	55	45	★ -27/64IN
10,8		12	40	102	55	45	★ -10.8
10,9		12	40	102	55	45	★ -10.9
11		12	40	102	55	45	★ -11
11,1		12	40	102	55	45	★ -11.1
11,113	7/16"	12	40	102	55	45	★ -7/16IN
11,2		12	40	102	55	45	★ -11.2
11,3		12	40	102	55	45	★ -11.3
11,4		12	40	102	55	45	★ -11.4
11,5		12	40	102	55	45	★ -11.5
11,509	29/64"	12	40	102	55	45	★ -29/64IN
11,55		12	40	102	55	45	★ -11.55
11,6		12	40	102	55	45	★ -11.6
11,7		12	40	102	55	45	★ -11.7
11,8		12	40	102	55	45	★ -11.8
11,9		12	40	102	55	45	★ -11.9
11,906	15/32"	12	40	102	55	45	★ -15/32IN
12		12	40	102	55	45	★ -12
12,1		14	43	107	60	45	★ -12.1
12,2		14	43	107	60	45	★ -12.2
12,25		14	43	107	60	45	★ -12.25
12,3		14	43	107	60	45	★ -12.3
12,303	31/64"	14	43	107	60	45	★ -31/64IN
12,4		14	43	107	60	45	★ -12.4
12,5		14	43	107	60	45	★ -12.5
12,6		14	43	107	60	45	★ -12.6
12,7	1/2"	14	43	107	60	45	★ -1/2IN
12,75		14	43	107	60	45	★ -12.75
12,8		14	43	107	60	45	★ -12.8
12,9		14	43	107	60	45	★ -12.9
13		14	43	107	60	45	★ -13
13,1		14	43	107	60	45	★ -13.1
13,2		14	43	107	60	45	★ -13.2
13,3		14	43	107	60	45	★ -13.3
13,4		14	43	107	60	45	★ -13.4
13,494	17/32"	14	43	107	60	45	★ -17/32IN
13,5		14	43	107	60	45	★ -13.5
13,6		14	43	107	60	45	★ -13.6
13,7		14	43	107	60	45	★ -13.7
13,8		14	43	107	60	45	★ -13.8
13,9		14	43	107	60	45	★ -13.9
14		14	43	107	60	45	★ -14
14,1		16	45	115	65	48	★ -14.1
14,2		16	45	115	65	48	★ -14.2
14,288	9/16"	16	45	115	65	48	★ -9/16IN
14,3		16	45	115	65	48	★ -14.3
14,4		16	45	115	65	48	★ -14.4
14,5		16	45	115	65	48	★ -14.5
14,6		16	45	115	65	48	★ -14.6
14,7		16	45	115	65	48	★ -14.7
14,75		16	45	115	65	48	★ -14.75
14,8		16	45	115	65	48	★ -14.8
15		16	45	115	65	48	★ -15
15,1		16	45	115	65	48	★ -15.1

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3299XPL
X·treme

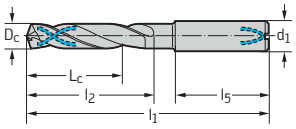
3 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 short

Shank DIN 6535 HA



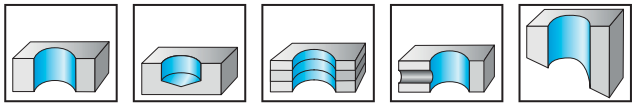
D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3299XPL
15,2		16	45	115	65	48	★ -15.2
15,3		16	45	115	65	48	★ -15.3
15,5		16	45	115	65	48	★ -15.5
15,6		16	45	115	65	48	★ -15.6
15,7		16	45	115	65	48	★ -15.7
15,8		16	45	115	65	48	★ -15.8
15,875	5/8"	16	45	115	65	48	★ -5/8IN
15,9		16	45	115	65	48	★ -15.9
16		16	45	115	65	48	★ -16
16,1		18	51	123	73	48	★ -16.1
16,2		18	51	123	73	48	★ -16.2
16,3		18	51	123	73	48	★ -16.3
16,4		18	51	123	73	48	★ -16.4
16,5		18	51	123	73	48	★ -16.5
16,6		18	51	123	73	48	★ -16.6
16,7		18	51	123	73	48	★ -16.7
16,75		18	51	123	73	48	★ -16.75
16,8		18	51	123	73	48	★ -16.8
17		18	51	123	73	48	★ -17
17,2		18	51	123	73	48	★ -17.2
17,3		18	51	123	73	48	★ -17.3
17,5		18	51	123	73	48	★ -17.5
17,6		18	51	123	73	48	★ -17.6
17,7		18	51	123	73	48	★ -17.7
17,8		18	51	123	73	48	★ -17.8
18		18	51	123	73	48	★ -18
18,2		20	55	131	79	50	★ -18.2
18,5		20	55	131	79	50	★ -18.5
18,7		20	55	131	79	50	★ -18.7
18,8		20	55	131	79	50	★ -18.8
19		20	55	131	79	50	★ -19
19,05	3/4"	20	55	131	79	50	★ -3/4IN
19,5		20	55	131	79	50	★ -19.5
19,7		20	55	131	79	50	★ -19.7
19,8		20	55	131	79	50	★ -19.8
20		20	55	131	79	50	★ -20

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3379XPL
X·treme

5 x D_C



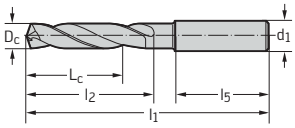
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3379XPL
3		6	23	66	28	36	★ -3
3,1		6	23	66	28	36	★ -3.1
3,175	1/8"	6	23	66	28	36	★ -1/8IN
3,2		6	23	66	28	36	★ -3.2
3,25		6	23	66	28	36	★ -3.25
3,3		6	23	66	28	36	★ -3.3
3,4		6	23	66	28	36	★ -3.4
3,5		6	23	66	28	36	★ -3.5
3,572	9/64"	6	23	66	28	36	★ -9/64IN
3,6		6	23	66	28	36	★ -3.6
3,65		6	23	66	28	36	★ -3.65
3,7		6	23	66	28	36	★ -3.7
3,8		6	29	74	36	36	★ -3.8
3,9		6	29	74	36	36	★ -3.9
3,969	5/32"	6	29	74	36	36	★ -5/32IN
4		6	29	74	36	36	★ -4
4,1		6	29	74	36	36	★ -4.1
4,2		6	29	74	36	36	★ -4.2
4,3		6	29	74	36	36	★ -4.3
4,366	11/64"	6	29	74	36	36	★ -11/64IN
4,4		6	29	74	36	36	★ -4.4
4,5		6	29	74	36	36	★ -4.5
4,6		6	29	74	36	36	★ -4.6
4,65		6	29	74	36	36	★ -4.65
4,7		6	29	74	36	36	★ -4.7
4,763	3/16"	6	35	82	44	36	★ -3/16IN
4,8		6	35	82	44	36	★ -4.8
4,9		6	35	82	44	36	★ -4.9
5		6	35	82	44	36	★ -5
5,1		6	35	82	44	36	★ -5.1
5,159	13/64"	6	35	82	44	36	★ -13/64IN
5,2		6	35	82	44	36	★ -5.2
5,3		6	35	82	44	36	★ -5.3
5,4		6	35	82	44	36	★ -5.4
5,5		6	35	82	44	36	★ -5.5
5,55		6	35	82	44	36	★ -5.55
5,556	7/32"	6	35	82	44	36	★ -7/32IN
5,6		6	35	82	44	36	★ -5.6
5,7		6	35	82	44	36	★ -5.7
5,8		6	35	82	44	36	★ -5.8
5,9		6	35	82	44	36	★ -5.9
5,953	15/64"	6	35	82	44	36	★ -15/64IN
6		6	35	82	44	36	★ -6
6,1		8	43	91	53	36	★ -6.1
6,2		8	43	91	53	36	★ -6.2
6,3		8	43	91	53	36	★ -6.3
6,35	1/4"	8	43	91	53	36	★ -1/4IN

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3379XPL
X·treme

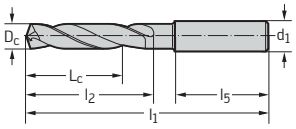
5 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 long

Shank DIN 6535 HA



D_C m7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3379XPL
6,4		8	43	91	53	36	★ -6.4
6,5		8	43	91	53	36	★ -6.5
6,6		8	43	91	53	36	★ -6.6
6,7		8	43	91	53	36	★ -6.7
6,747	17/64"	8	43	91	53	36	★ -17/64IN
6,8		8	43	91	53	36	★ -6.8
6,9		8	43	91	53	36	★ -6.9
7		8	43	91	53	36	★ -7
7,1		8	43	91	53	36	★ -7.1
7,144	9/32"	8	43	91	53	36	★ -9/32IN
7,2		8	43	91	53	36	★ -7.2
7,3		8	43	91	53	36	★ -7.3
7,4		8	43	91	53	36	★ -7.4
7,5		8	43	91	53	36	★ -7.5
7,541	19/64"	8	43	91	53	36	★ -19/64IN
7,55		8	43	91	53	36	★ -7.55
7,6		8	43	91	53	36	★ -7.6
7,7		8	43	91	53	36	★ -7.7
7,8		8	43	91	53	36	★ -7.8
7,9		8	43	91	53	36	★ -7.9
7,938	5/16"	8	43	91	53	36	★ -5/16IN
8		8	43	91	53	36	★ -8
8,1		10	49	103	61	40	★ -8.1
8,2		10	49	103	61	40	★ -8.2
8,3		10	49	103	61	40	★ -8.3
8,334	21/64"	10	49	103	61	40	★ -21/64IN
8,4		10	49	103	61	40	★ -8.4
8,5		10	49	103	61	40	★ -8.5
8,6		10	49	103	61	40	★ -8.6
8,7		10	49	103	61	40	★ -8.7
8,731	11/32"	10	49	103	61	40	★ -11/32IN
8,8		10	49	103	61	40	★ -8.8
8,9		10	49	103	61	40	★ -8.9
9		10	49	103	61	40	★ -9
9,1		10	49	103	61	40	★ -9.1
9,128	23/64"	10	49	103	61	40	★ -23/64IN
9,2		10	49	103	61	40	★ -9.2
9,3		10	49	103	61	40	★ -9.3
9,4		10	49	103	61	40	★ -9.4
9,5		10	49	103	61	40	★ -9.5
9,525	3/8"	10	49	103	61	40	★ -3/8IN
9,55		10	49	103	61	40	★ -9.55
9,6		10	49	103	61	40	★ -9.6
9,7		10	49	103	61	40	★ -9.7
9,8		10	49	103	61	40	★ -9.8
9,9		10	49	103	61	40	★ -9.9
9,922	25/64"	10	49	103	61	40	★ -25/64IN
10		10	49	103	61	40	★ -10
10,1		12	56	118	71	45	★ -10.1
10,2		12	56	118	71	45	★ -10.2
10,3		12	56	118	71	45	★ -10.3
10,319	13/32"	12	56	118	71	45	★ -13/32IN
10,4		12	56	118	71	45	★ -10.4
10,5		12	56	118	71	45	★ -10.5
10,6		12	56	118	71	45	★ -10.6

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3379XPL
X·treme

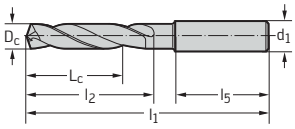
5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3379XPL
10,7		12	56	118	71	45	★ -10.7
10,716	27/64"	12	56	118	71	45	★ -27/64IN
10,8		12	56	118	71	45	★ -10.8
10,9		12	56	118	71	45	★ -10.9
11		12	56	118	71	45	★ -11
11,1		12	56	118	71	45	★ -11.1
11,113	7/16"	12	56	118	71	45	★ -7/16IN
11,2		12	56	118	71	45	★ -11.2
11,3		12	56	118	71	45	★ -11.3
11,4		12	56	118	71	45	★ -11.4
11,5		12	56	118	71	45	★ -11.5
11,509	29/64"	12	56	118	71	45	★ -29/64IN
11,55		12	56	118	71	45	★ -11.55
11,6		12	56	118	71	45	★ -11.6
11,7		12	56	118	71	45	★ -11.7
11,8		12	56	118	71	45	★ -11.8
11,9		12	56	118	71	45	★ -11.9
11,906	15/32"	12	56	118	71	45	★ -15/32IN
12		12	56	118	71	45	★ -12
12,1		14	60	124	77	45	★ -12.1
12,2		14	60	124	77	45	★ -12.2
12,25		14	60	124	77	45	★ -12.25
12,3		14	60	124	77	45	★ -12.3
12,303	31/64"	14	60	124	77	45	★ -31/64IN
12,4		14	60	124	77	45	★ -12.4
12,5		14	60	124	77	45	★ -12.5
12,6		14	60	124	77	45	★ -12.6
12,7	1/2"	14	60	124	77	45	★ -1/2IN
12,75		14	60	124	77	45	★ -12.75
12,8		14	60	124	77	45	★ -12.8
12,9		14	60	124	77	45	★ -12.9
13		14	60	124	77	45	★ -13
13,1		14	60	124	77	45	★ -13.1
13,2		14	60	124	77	45	★ -13.2
13,3		14	60	124	77	45	★ -13.3
13,4		14	60	124	77	45	★ -13.4
13,494	17/32"	14	60	124	77	45	★ -17/32IN
13,5		14	60	124	77	45	★ -13.5
13,6		14	60	124	77	45	★ -13.6
13,7		14	60	124	77	45	★ -13.7
13,8		14	60	124	77	45	★ -13.8
13,9		14	60	124	77	45	★ -13.9
14		14	60	124	77	45	★ -14
14,1		16	63	133	83	48	★ -14.1
14,2		16	63	133	83	48	★ -14.2
14,288	9/16"	16	63	133	83	48	★ -9/16IN
14,3		16	63	133	83	48	★ -14.3
14,4		16	63	133	83	48	★ -14.4
14,5		16	63	133	83	48	★ -14.5
14,6		16	63	133	83	48	★ -14.6
14,7		16	63	133	83	48	★ -14.7
14,75		16	63	133	83	48	★ -14.75
14,8		16	63	133	83	48	★ -14.8
15		16	63	133	83	48	★ -15
15,1		16	63	133	83	48	★ -15.1

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3379XPL
X·treme

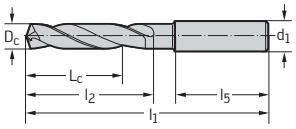
5 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 long

Shank DIN 6535 HA



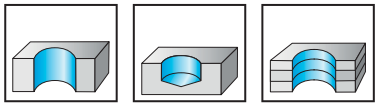
D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3379XPL
15,2		16	63	133	83	48	★ -15.2
15,3		16	63	133	83	48	★ -15.3
15,5		16	63	133	83	48	★ -15.5
15,6		16	63	133	83	48	★ -15.6
15,7		16	63	133	83	48	★ -15.7
15,8		16	63	133	83	48	★ -15.8
15,875	5/8"	16	63	133	83	48	★ -5/8IN
15,9		16	63	133	83	48	★ -15.9
16		16	63	133	83	48	★ -16
16,1		18	71	143	93	48	★ -16.1
16,2		18	71	143	93	48	★ -16.2
16,3		18	71	143	93	48	★ -16.3
16,4		18	71	143	93	48	★ -16.4
16,5		18	71	143	93	48	★ -16.5
16,6		18	71	143	93	48	★ -16.6
16,7		18	71	143	93	48	★ -16.7
16,75		18	71	143	93	48	★ -16.75
16,8		18	71	143	93	48	★ -16.8
17		18	71	143	93	48	★ -17
17,2		18	71	143	93	48	★ -17.2
17,3		18	71	143	93	48	★ -17.3
17,5		18	71	143	93	48	★ -17.5
17,6		18	71	143	93	48	★ -17.6
17,7		18	71	143	93	48	★ -17.7
17,8		18	71	143	93	48	★ -17.8
18		18	71	143	93	48	★ -18
18,2		20	77	153	101	50	★ -18.2
18,5		20	77	153	101	50	★ -18.5
18,7		20	77	153	101	50	★ -18.7
18,8		20	77	153	101	50	★ -18.8
19		20	77	153	101	50	★ -19
19,05	3/4"	20	77	153	101	50	★ -3/4IN
19,5		20	77	153	101	50	★ -19.5
19,7		20	77	153	101	50	★ -19.7
19,8		20	77	153	101	50	★ -19.8
20		20	77	153	101	50	★ -20
20,5		25	86	166	108	56	★ -20.5
21		25	86	166	108	56	★ -21
21,5		25	86	166	108	56	★ -21.5
22		25	86	166	108	56	★ -22
22,5		25	91	173	115	56	★ -22.5
23		25	91	173	115	56	★ -23
23,5		25	91	173	115	56	★ -23.5
24		25	91	173	115	56	★ -24
24,5		25	97	180	122	56	★ -24.5
25		25	97	180	122	56	★ -25

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drill Micro
A3389AML
X·treme M

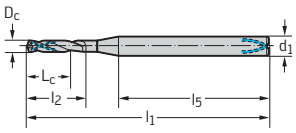
5 x D_C



- K30F - AML
- Type X·treme M
- Right-hand cutting
- 140° point angle

	P	M	K	N	S	H	O
AML	●●	●●	●●	●●	●●	●	●●

Shank DIN 6535 HA



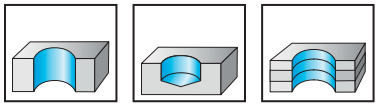
D_C m7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3389AML
2		3	14	57	17	35	★ -2
2,05		3	14	57	18	35	★ -2.05
2,1		3	14	57	18	35	★ -2.1
2,15		3	15	57	19	34	★ -2.15
2,2		3	15	57	19	34	★ -2.2
2,25		3	16	59	20	35	★ -2.25
2,3		3	16	59	20	35	★ -2.3
2,35		3	16	59	20	35	★ -2.35
2,381	3/32"	3	16	59	20	35	★ -3/32IN
2,4		3	16	59	20	35	★ -2.4
2,45		3	17	59	21	34	★ -2.45
2,5		3	17	59	21	34	★ -2.5
2,55		3	18	62	22	36	★ -2.55
2,6		3	18	62	22	36	★ -2.6
2,65		3	18	62	23	36	★ -2.65
2,7		3	18	62	23	36	★ -2.7
2,75		3	19	62	24	35	★ -2.75
2,778	7/64"	3	19	62	24	35	★ -7/64IN
2,8		3	19	62	24	35	★ -2.8
2,85		3	20	62	25	34	★ -2.85
2,9		3	20	62	25	34	★ -2.9
2,95		3	20	62	25	34	★ -2.95

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3393TTP
X·treme Inox

5 x D_C



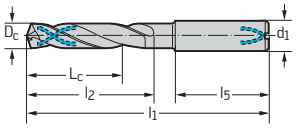
- K30F - TTP
- Type X·treme Inox
- Right-hand cutting
- 140° point angle

Special features:
Specially for machining stainless steels

	P	M	K	N	S	H	O
TTP	●●	●●		●	●●		●

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3393TTP
3		6	23	66	28	36	★ -3
3,1		6	23	66	28	36	★ -3.1
3,175	1/8"	6	23	66	28	36	★ -1/8IN
3,2		6	23	66	28	36	★ -3.2
3,25		6	23	66	28	36	★ -3.25
3,3		6	23	66	28	36	★ -3.3
3,4		6	23	66	28	36	★ -3.4
3,5		6	23	66	28	36	★ -3.5
3,6		6	23	66	28	36	★ -3.6
3,7		6	23	66	28	36	★ -3.7
3,8		6	29	74	36	36	★ -3.8
3,9		6	29	74	36	36	★ -3.9
3,969	5/32"	6	29	74	36	36	★ -5/32IN
4		6	29	74	36	36	★ -4
4,1		6	29	74	36	36	★ -4.1
4,2		6	29	74	36	36	★ -4.2
4,3		6	29	74	36	36	★ -4.3
4,365	11/64"	6	23	74	36	36	★ -11/64IN
4,4		6	29	74	36	36	★ -4.4
4,5		6	29	74	36	36	★ -4.5
4,6		6	29	74	36	36	★ -4.6
4,65		6	29	74	36	36	★ -4.65
4,7		6	29	74	36	36	★ -4.7
4,763	3/16"	6	35	82	44	36	★ -3/16IN
4,8		6	35	82	44	36	★ -4.8
4,9		6	35	82	44	36	★ -4.9
5		6	35	82	44	36	★ -5
5,1		6	35	82	44	36	★ -5.1
5,2		6	35	82	44	36	★ -5.2
5,3		6	35	82	44	36	★ -5.3
5,4		6	35	82	44	36	★ -5.4
5,5		6	35	82	44	36	★ -5.5
5,55		6	35	82	44	36	★ -5.55
5,556	7/32"	6	35	82	44	36	★ -7/32IN
5,6		6	35	82	44	36	★ -5.6
5,7		6	35	82	44	36	★ -5.7
5,8		6	35	82	44	36	★ -5.8
5,9		6	35	82	44	36	★ -5.9
5,953	15/64"	6	29	82	44	36	★ -15/64IN
6		6	35	82	44	36	★ -6
6,1		8	43	91	53	36	★ -6.1
6,2		8	43	91	53	36	★ -6.2
6,3		8	43	91	53	36	★ -6.3
6,35	1/4"	8	43	91	53	36	★ -1/4IN
6,4		8	43	91	53	36	★ -6.4
6,5		8	43	91	53	36	★ -6.5
6,6		8	43	91	53	36	★ -6.6

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3393TTP
X·treme Inox

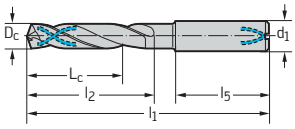
5 x D_c

Continued

	P	M	K	N	S	H	O
TTP	●●	●●		●	●●		●

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3393TTP
6,7		8	43	91	53	36	★ -6.7
6,8		8	43	91	53	36	★ -6.8
6,9		8	43	91	53	36	★ -6.9
7		8	43	91	53	36	★ -7
7,1		8	43	91	53	36	★ -7.1
7,144	9/32"	8	43	91	53	36	★ -9/32IN
7,2		8	43	91	53	36	★ -7.2
7,3		8	43	91	53	36	★ -7.3
7,4		8	43	91	53	36	★ -7.4
7,5		8	43	91	53	36	★ -7.5
7,6		8	43	91	53	36	★ -7.6
7,7		8	43	91	53	36	★ -7.7
7,8		8	43	91	53	36	★ -7.8
7,9		8	43	91	53	36	★ -7.9
7,938	5/16"	8	43	91	53	36	★ -5/16IN
8		8	43	91	53	36	★ -8
8,1		10	49	103	61	40	★ -8.1
8,2		10	49	103	61	40	★ -8.2
8,3		10	49	103	61	40	★ -8.3
8,4		10	49	103	61	40	★ -8.4
8,5		10	49	103	61	40	★ -8.5
8,6		10	49	103	61	40	★ -8.6
8,7		10	49	103	61	40	★ -8.7
8,731	11/32"	10	49	103	61	40	★ -11/32IN
8,8		10	49	103	61	40	★ -8.8
8,9		10	49	103	61	40	★ -8.9
9		10	49	103	61	40	★ -9
9,1		10	49	103	61	40	★ -9.1
9,128	23/64"	10	49	103	61	40	★ -23/64IN
9,2		10	49	103	61	40	★ -9.2
9,3		10	49	103	61	40	★ -9.3
9,4		10	49	103	61	40	★ -9.4
9,5		10	49	103	61	40	★ -9.5
9,525	3/8"	10	49	103	61	40	★ -3/8IN
9,6		10	49	103	61	40	★ -9.6
9,7		10	49	103	61	40	★ -9.7
9,8		10	49	103	61	40	★ -9.8
9,9		10	49	103	61	40	★ -9.9
9,921	25/64"	10	49	103	61	40	★ -25/64IN
10		10	49	103	61	40	★ -10
10,1		12	56	118	71	45	★ -10.1
10,2		12	56	118	71	45	★ -10.2
10,3		12	56	118	71	45	★ -10.3
10,319	13/32"	12	56	118	71	45	★ -13/32IN
10,4		12	56	118	71	45	★ -10.4
10,5		12	56	118	71	45	★ -10.5
10,6		12	56	118	71	45	★ -10.6
10,7		12	56	118	71	45	★ -10.7
10,8		12	56	118	71	45	★ -10.8
10,9		12	56	118	71	45	★ -10.9
11		12	56	118	71	45	★ -11
11,1		12	56	118	71	45	★ -11.1
11,113	7/16"	12	56	118	71	45	★ -7/16IN
11,2		12	56	118	71	45	★ -11.2
11,3		12	56	118	71	45	★ -11.3

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3393TTP
X-treme Inox

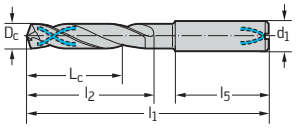
5 x D_c

	P	M	K	N	S	H	O
TTP	●●	●●		●	●●		●

Continued

DIN 6537 long

Shank DIN 6535 HA



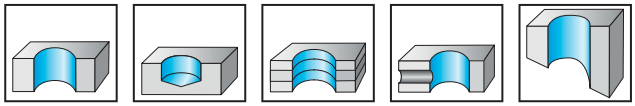
D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3393TTP
11,4		12	56	118	71	45	★ -11.4
11,5		12	56	118	71	45	★ -11.5
11,509	29/64"	12	56	118	71	45	★ -29/64IN
11,6		12	56	118	71	45	★ -11.6
11,7		12	56	118	71	45	★ -11.7
11,8		12	56	118	71	45	★ -11.8
11,9		12	56	118	71	45	★ -11.9
11,906	15/32"	12	56	118	71	45	★ -15/32IN
12		12	56	118	71	45	★ -12
12,2		14	60	124	77	45	★ -12.2
12,5		14	60	124	77	45	★ -12.5
12,7	1/2"	14	60	124	77	45	★ -1/2IN
12,8		14	60	124	77	45	★ -12.8
13		14	60	124	77	45	★ -13
13,494	17/32"	14	60	124	77	45	★ -17/32IN
13,5		14	60	124	77	45	★ -13.5
13,8		14	60	124	77	45	★ -13.8
14		14	60	124	77	45	★ -14
14,2		16	63	133	83	48	★ -14.2
14,288	9/16"	16	63	133	83	48	★ -9/16IN
14,4		16	63	133	83	48	★ -14.4
14,5		16	63	133	83	48	★ -14.5
14,8		16	63	133	83	48	★ -14.8
15		16	63	133	83	48	★ -15
15,1		16	63	133	83	48	★ -15.1
15,5		16	63	133	83	48	★ -15.5
15,8		16	63	133	83	48	★ -15.8
15,875	5/8"	16	63	133	83	48	★ -5/8IN
16		16	63	133	83	48	★ -16
16,5		18	71	143	93	48	★ -16.5
16,8		18	71	143	93	48	★ -16.8
17		18	71	143	93	48	★ -17
17,5		18	71	143	93	48	★ -17.5
17,8		18	71	143	93	48	★ -17.8
18		18	71	143	93	48	★ -18
18,5		20	77	153	101	50	★ -18.5
18,8		20	77	153	101	50	★ -18.8
19		20	77	153	101	50	★ -19
19,05	3/4"	20	77	153	101	50	★ -3/4IN
19,5		20	77	153	101	50	★ -19.5
19,8		20	77	153	101	50	★ -19.8
20		20	77	153	101	50	★ -20

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3399XPL
X·treme

5 x D_C



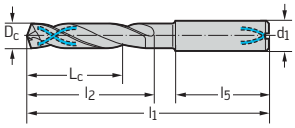
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3399XPL
3		6	23	66	28	36	-3
3,1		6	23	66	28	36	-3.1
3,175	1/8"	6	23	66	28	36	-1/8IN
3,2		6	23	66	28	36	-3.2
3,25		6	23	66	28	36	-3.25
3,3		6	23	66	28	36	-3.3
3,4		6	23	66	28	36	-3.4
3,5		6	23	66	28	36	-3.5
3,572	9/64"	6	23	66	28	36	-9/64IN
3,6		6	23	66	28	36	-3.6
3,65		6	23	66	28	36	-3.65
3,7		6	23	66	28	36	-3.7
3,8		6	29	74	36	36	-3.8
3,9		6	29	74	36	36	-3.9
3,969	5/32"	6	29	74	36	36	-5/32IN
4		6	29	74	36	36	-4
4,1		6	29	74	36	36	-4.1
4,2		6	29	74	36	36	-4.2
4,3		6	29	74	36	36	-4.3
4,366	11/64"	6	29	74	36	36	-11/64IN
4,4		6	29	74	36	36	-4.4
4,5		6	29	74	36	36	-4.5
4,6		6	29	74	36	36	-4.6
4,65		6	29	74	36	36	-4.65
4,7		6	29	74	36	36	-4.7
4,763	3/16"	6	35	82	44	36	-3/16IN
4,8		6	35	82	44	36	-4.8
4,9		6	35	82	44	36	-4.9
5		6	35	82	44	36	-5
5,1		6	35	82	44	36	-5.1
5,159	13/64"	6	35	82	44	36	-13/64IN
5,2		6	35	82	44	36	-5.2
5,3		6	35	82	44	36	-5.3
5,4		6	35	82	44	36	-5.4
5,5		6	35	82	44	36	-5.5
5,55		6	35	82	44	36	-5.55
5,556	7/32"	6	35	82	44	36	-7/32IN
5,6		6	35	82	44	36	-5.6
5,7		6	35	82	44	36	-5.7
5,8		6	35	82	44	36	-5.8
5,9		6	35	82	44	36	-5.9
5,953	15/64"	6	35	82	44	36	-15/64IN
6		6	35	82	44	36	-6
6,1		8	43	91	53	36	-6.1
6,2		8	43	91	53	36	-6.2
6,3		8	43	91	53	36	-6.3
6,35	1/4"	8	43	91	53	36	-1/4IN

Continued

B-137 G-2 B-102

Solid carbide coolant through drills
A3399XPL
X·treme

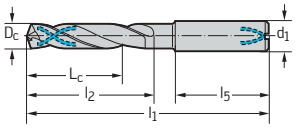
5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3399XPL
6,4		8	43	91	53	36	-6.4
6,5		8	43	91	53	36	-6.5
6,6		8	43	91	53	36	-6.6
6,7		8	43	91	53	36	-6.7
6,747	17/64"	8	43	91	53	36	-17/64IN
6,8		8	43	91	53	36	-6.8
6,9		8	43	91	53	36	-6.9
7		8	43	91	53	36	-7
7,1		8	43	91	53	36	-7.1
7,144	9/32"	8	43	91	53	36	-9/32IN
7,2		8	43	91	53	36	-7.2
7,3		8	43	91	53	36	-7.3
7,4		8	43	91	53	36	-7.4
7,5		8	43	91	53	36	-7.5
7,541	19/64"	8	43	91	53	36	-19/64IN
7,55		8	43	91	53	36	-7.55
7,6		8	43	91	53	36	-7.6
7,7		8	43	91	53	36	-7.7
7,8		8	43	91	53	36	-7.8
7,9		8	43	91	53	36	-7.9
7,938	5/16"	8	43	91	53	36	-5/16IN
8		8	43	91	53	36	-8
8,1		10	49	103	61	40	-8.1
8,2		10	49	103	61	40	-8.2
8,3		10	49	103	61	40	-8.3
8,334	21/64"	10	49	103	61	40	-21/64IN
8,4		10	49	103	61	40	-8.4
8,5		10	49	103	61	40	-8.5
8,6		10	49	103	61	40	-8.6
8,7		10	49	103	61	40	-8.7
8,731	11/32"	10	49	103	61	40	-11/32IN
8,8		10	49	103	61	40	-8.8
8,9		10	49	103	61	40	-8.9
9		10	49	103	61	40	-9
9,1		10	49	103	61	40	-9.1
9,128	23/64"	10	49	103	61	40	-23/64IN
9,2		10	49	103	61	40	-9.2
9,3		10	49	103	61	40	-9.3
9,4		10	49	103	61	40	-9.4
9,5		10	49	103	61	40	-9.5
9,525	3/8"	10	49	103	61	40	-3/8IN
9,55		10	49	103	61	40	-9.55
9,6		10	49	103	61	40	-9.6
9,7		10	49	103	61	40	-9.7
9,8		10	49	103	61	40	-9.8
9,9		10	49	103	61	40	-9.9
9,922	25/64"	10	49	103	61	40	-25/64IN
10		10	49	103	61	40	-10
10,1		12	56	118	71	45	-10.1
10,2		12	56	118	71	45	-10.2
10,3		12	56	118	71	45	-10.3
10,319	13/32"	12	56	118	71	45	-13/32IN
10,4		12	56	118	71	45	-10.4
10,5		12	56	118	71	45	-10.5
10,6		12	56	118	71	45	-10.6

Continued

B-137 G-2 B-102

Solid carbide coolant through drills
A3399XPL
X·treme

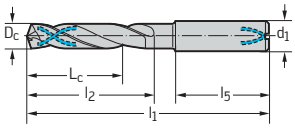
5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3399XPL
10,7		12	56	118	71	45	-10.7
10,716	27/64"	12	56	118	71	45	-27/64IN
10,8		12	56	118	71	45	-10.8
10,9		12	56	118	71	45	-10.9
11		12	56	118	71	45	-11
11,1		12	56	118	71	45	-11.1
11,113	7/16"	12	56	118	71	45	-7/16IN
11,2		12	56	118	71	45	-11.2
11,3		12	56	118	71	45	-11.3
11,4		12	56	118	71	45	-11.4
11,5		12	56	118	71	45	-11.5
11,509	29/64"	12	56	118	71	45	-29/64IN
11,55		12	56	118	71	45	-11.55
11,6		12	56	118	71	45	-11.6
11,7		12	56	118	71	45	-11.7
11,8		12	56	118	71	45	-11.8
11,9		12	56	118	71	45	-11.9
11,906	15/32"	12	56	118	71	45	-15/32IN
12		12	56	118	71	45	-12
12,1		14	60	124	77	45	-12.1
12,2		14	60	124	77	45	-12.2
12,25		14	60	124	77	45	-12.25
12,3		14	60	124	77	45	-12.3
12,303	31/64"	14	60	124	77	45	-31/64IN
12,4		14	60	124	77	45	-12.4
12,5		14	60	124	77	45	-12.5
12,6		14	60	124	77	45	-12.6
12,7	1/2"	14	60	124	77	45	-1/2IN
12,75		14	60	124	77	45	-12.75
12,8		14	60	124	77	45	-12.8
12,9		14	60	124	77	45	-12.9
13		14	60	124	77	45	-13
13,1		14	60	124	77	45	-13.1
13,2		14	60	124	77	45	-13.2
13,3		14	60	124	77	45	-13.3
13,4		14	60	124	77	45	-13.4
13,494	17/32"	14	60	124	77	45	-17/32IN
13,5		14	60	124	77	45	-13.5
13,6		14	60	124	77	45	-13.6
13,7		14	60	124	77	45	-13.7
13,8		14	60	124	77	45	-13.8
13,9		14	60	124	77	45	-13.9
14		14	60	124	77	45	-14
14,1		16	63	133	83	48	-14.1
14,2		16	63	133	83	48	-14.2
14,288	9/16"	16	63	133	83	48	-9/16IN
14,3		16	63	133	83	48	-14.3
14,4		16	63	133	83	48	-14.4
14,5		16	63	133	83	48	-14.5
14,6		16	63	133	83	48	-14.6
14,7		16	63	133	83	48	-14.7
14,75		16	63	133	83	48	-14.75
14,8		16	63	133	83	48	-14.8
14,9		16	63	133	83	48	-14.9
15		16	63	133	83	48	-15

Continued

B-137 G-2 B-102

Solid carbide coolant through drills
A3399XPL
X·treme

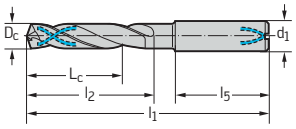
5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 long

Shank DIN 6535 HA



D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3399XPL
15,1		16	63	133	83	48	-15.1
15,2		16	63	133	83	48	-15.2
15,3		16	63	133	83	48	-15.3
15,4		16	63	133	83	48	-15.4
15,5		16	63	133	83	48	-15.5
15,6		16	63	133	83	48	-15.6
15,7		16	63	133	83	48	-15.7
15,8		16	63	133	83	48	-15.8
15,875	5/8"	16	63	133	83	48	-5/8IN
15,9		16	63	133	83	48	-15.9
16		16	63	133	83	48	-16
16,1		18	71	143	93	48	-16.1
16,2		18	71	143	93	48	-16.2
16,3		18	71	143	93	48	-16.3
16,4		18	71	143	93	48	-16.4
16,5		18	71	143	93	48	-16.5
16,6		18	71	143	93	48	-16.6
16,7		18	71	143	93	48	-16.7
16,75		18	71	143	93	48	-16.75
16,8		18	71	143	93	48	-16.8
16,9		18	71	143	93	48	-16.9
17		18	71	143	93	48	-17
17,1		18	71	143	93	48	-17.1
17,2		18	71	143	93	48	-17.2
17,3		18	71	143	93	48	-17.3
17,4		18	71	143	93	48	-17.4
17,5		18	71	143	93	48	-17.5
17,6		18	71	143	93	48	-17.6
17,7		18	71	143	93	48	-17.7
17,8		18	71	143	93	48	-17.8
17,9		18	71	143	93	48	-17.9
18		18	71	143	93	48	-18
18,1		20	77	153	101	50	-18.1
18,2		20	77	153	101	50	-18.2
18,3		20	77	153	101	50	-18.3
18,4		20	77	153	101	50	-18.4
18,5		20	77	153	101	50	-18.5
18,6		20	77	153	101	50	-18.6
18,7		20	77	153	101	50	-18.7
18,8		20	77	153	101	50	-18.8
18,9		20	77	153	101	50	-18.9
19		20	77	153	101	50	-19
19,05	3/4"	20	77	153	101	50	-3/4IN
19,1		20	77	153	101	50	-19.1
19,2		20	77	153	101	50	-19.2
19,3		20	77	153	101	50	-19.3
19,4		20	77	153	101	50	-19.4
19,5		20	77	153	101	50	-19.5
19,6		20	77	153	101	50	-19.6
19,7		20	77	153	101	50	-19.7
19,8		20	77	153	101	50	-19.8
19,9		20	77	153	101	50	-19.9
20		20	77	153	101	50	-20
20,5		25	86	166	108	56	-20.5
21		25	86	166	108	56	-21

Continued

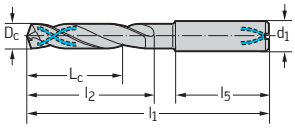
B-137 G-2 B-102

Solid carbide coolant through drills
A3399XPL
X·treme

5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

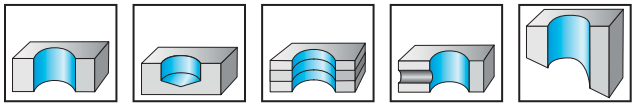
Continued

DIN 6537 long	D_c m7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3399XPL
Shank DIN 6535 HA	21,5		25	86	166	108	56	-21.5
	22		25	86	166	108	56	-22
	22,5		25	91	173	115	56	-22.5
	23		25	91	173	115	56	-23
	23,5		25	91	173	115	56	-23.5
	24		25	91	173	115	56	-24
	24,5		25	97	180	122	56	-24.5
	25		25	97	180	122	56	-25

B-137 G-2 B-102

Solid carbide twist drill
A3879XPL
X·treme

3 x D_C



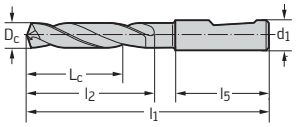
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

DIN 6537 short

Shank DIN 6535 HE



D_C m7 mm	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3879XPL
3	6	14	62	20	36	★ -3
3,1	6	14	62	20	36	★ -3.1
3,2	6	14	62	20	36	★ -3.2
3,25	6	14	62	20	36	★ -3.25
3,3	6	14	62	20	36	★ -3.3
3,4	6	14	62	20	36	★ -3.4
3,5	6	14	62	20	36	★ -3.5
3,6	6	14	62	20	36	★ -3.6
3,65	6	14	62	20	36	★ -3.65
3,7	6	14	62	20	36	★ -3.7
3,8	6	17	66	24	36	★ -3.8
3,9	6	17	66	24	36	★ -3.9
4	6	17	66	24	36	★ -4
4,1	6	17	66	24	36	★ -4.1
4,2	6	17	66	24	36	★ -4.2
4,3	6	17	66	24	36	★ -4.3
4,4	6	17	66	24	36	★ -4.4
4,5	6	17	66	24	36	★ -4.5
4,6	6	17	66	24	36	★ -4.6
4,65	6	17	66	24	36	★ -4.65
4,7	6	17	66	24	36	★ -4.7
4,8	6	20	66	28	36	★ -4.8
4,9	6	20	66	28	36	★ -4.9
5	6	20	66	28	36	★ -5
5,1	6	20	66	28	36	★ -5.1
5,2	6	20	66	28	36	★ -5.2
5,3	6	20	66	28	36	★ -5.3
5,4	6	20	66	28	36	★ -5.4
5,5	6	20	66	28	36	★ -5.5
5,55	6	20	66	28	36	★ -5.55
5,6	6	20	66	28	36	★ -5.6
5,7	6	20	66	28	36	★ -5.7
5,8	6	20	66	28	36	★ -5.8
5,9	6	20	66	28	36	★ -5.9
6	6	20	66	28	36	★ -6
6,1	8	24	79	34	36	★ -6.1
6,2	8	24	79	34	36	★ -6.2
6,3	8	24	79	34	36	★ -6.3
6,4	8	24	79	34	36	★ -6.4
6,5	8	24	79	34	36	★ -6.5
6,6	8	24	79	34	36	★ -6.6
6,7	8	24	79	34	36	★ -6.7
6,8	8	24	79	34	36	★ -6.8
6,9	8	24	79	34	36	★ -6.9
7	8	24	79	34	36	★ -7
7,1	8	29	79	41	36	★ -7.1
7,2	8	29	79	41	36	★ -7.2

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3879XPL
X·treme

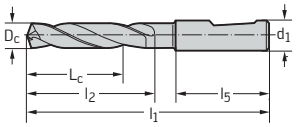
3 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 short

Shank DIN 6535 HE



D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3879XPL
7,3	8	29	79	41	36	★ -7.3
7,4	8	29	79	41	36	★ -7.4
7,5	8	29	79	41	36	★ -7.5
7,55	8	29	79	41	36	★ -7.55
7,6	8	29	79	41	36	★ -7.6
7,7	8	29	79	41	36	★ -7.7
7,8	8	29	79	41	36	★ -7.8
7,9	8	29	79	41	36	★ -7.9
8	8	29	79	41	36	★ -8
8,1	10	35	89	47	40	★ -8.1
8,2	10	35	89	47	40	★ -8.2
8,3	10	35	89	47	40	★ -8.3
8,4	10	35	89	47	40	★ -8.4
8,5	10	35	89	47	40	★ -8.5
8,6	10	35	89	47	40	★ -8.6
8,7	10	35	89	47	40	★ -8.7
8,8	10	35	89	47	40	★ -8.8
8,9	10	35	89	47	40	★ -8.9
9	10	35	89	47	40	★ -9
9,1	10	35	89	47	40	★ -9.1
9,2	10	35	89	47	40	★ -9.2
9,3	10	35	89	47	40	★ -9.3
9,4	10	35	89	47	40	★ -9.4
9,5	10	35	89	47	40	★ -9.5
9,55	10	35	89	47	40	★ -9.55
9,6	10	35	89	47	40	★ -9.6
9,7	10	35	89	47	40	★ -9.7
9,8	10	35	89	47	40	★ -9.8
9,9	10	35	89	47	40	★ -9.9
10	10	35	89	47	40	★ -10
10,1	12	40	102	55	45	★ -10.1
10,2	12	40	102	55	45	★ -10.2
10,3	12	40	102	55	45	★ -10.3
10,4	12	40	102	55	45	★ -10.4
10,5	12	40	102	55	45	★ -10.5
10,6	12	40	102	55	45	★ -10.6
10,7	12	40	102	55	45	★ -10.7
10,8	12	40	102	55	45	★ -10.8
10,9	12	40	102	55	45	★ -10.9
11	12	40	102	55	45	★ -11
11,1	12	40	102	55	45	★ -11.1
11,2	12	40	102	55	45	★ -11.2
11,3	12	40	102	55	45	★ -11.3
11,4	12	40	102	55	45	★ -11.4
11,5	12	40	102	55	45	★ -11.5
11,55	12	40	102	55	45	★ -11.55
11,6	12	40	102	55	45	★ -11.6
11,7	12	40	102	55	45	★ -11.7
11,8	12	40	102	55	45	★ -11.8
11,9	12	40	102	55	45	★ -11.9
12	12	40	102	55	45	★ -12
12,1	14	43	107	60	45	★ -12.1
12,2	14	43	107	60	45	★ -12.2
12,25	14	43	107	60	45	★ -12.25
12,3	14	43	107	60	45	★ -12.3

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3879XPL
X·treme

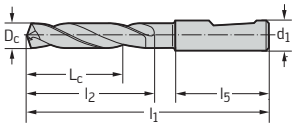
3 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 short

Shank DIN 6535 HE



D_C m7 mm	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3879XPL
12,4	14	43	107	60	45	★ -12.4
12,5	14	43	107	60	45	★ -12.5
12,6	14	43	107	60	45	★ -12.6
12,7	14	43	107	60	45	★ -12.7
12,75	14	43	107	60	45	★ -12.75
12,8	14	43	107	60	45	★ -12.8
12,9	14	43	107	60	45	★ -12.9
13	14	43	107	60	45	★ -13
13,1	14	43	107	60	45	★ -13.1
13,2	14	43	107	60	45	★ -13.2
13,3	14	43	107	60	45	★ -13.3
13,4	14	43	107	60	45	★ -13.4
13,5	14	43	107	60	45	★ -13.5
13,6	14	43	107	60	45	★ -13.6
13,7	14	43	107	60	45	★ -13.7
13,8	14	43	107	60	45	★ -13.8
13,9	14	43	107	60	45	★ -13.9
14	14	43	107	60	45	★ -14
14,2	16	45	115	65	48	★ -14.2
14,3	16	45	115	65	48	★ -14.3
14,4	16	45	115	65	48	★ -14.4
14,5	16	45	115	65	48	★ -14.5
14,6	16	45	115	65	48	★ -14.6
14,7	16	45	115	65	48	★ -14.7
14,75	16	45	115	65	48	★ -14.75
14,8	16	45	115	65	48	★ -14.8
15	16	45	115	65	48	★ -15
15,1	16	45	115	65	48	★ -15.1
15,2	16	45	115	65	48	★ -15.2
15,3	16	45	115	65	48	★ -15.3
15,5	16	45	115	65	48	★ -15.5
15,6	16	45	115	65	48	★ -15.6
15,7	16	45	115	65	48	★ -15.7
15,8	16	45	115	65	48	★ -15.8
15,9	16	45	115	65	48	★ -15.9
16	16	45	115	65	48	★ -16
16,1	18	51	123	73	48	★ -16.1
16,2	18	51	123	73	48	★ -16.2
16,3	18	51	123	73	48	★ -16.3
16,4	18	51	123	73	48	★ -16.4
16,5	18	51	123	73	48	★ -16.5
16,6	18	51	123	73	48	★ -16.6
16,7	18	51	123	73	48	★ -16.7
16,75	18	51	123	73	48	★ -16.75
16,8	18	51	123	73	48	★ -16.8
17	18	51	123	73	48	★ -17
17,2	18	51	123	73	48	★ -17.2
17,3	18	51	123	73	48	★ -17.3
17,5	18	51	123	73	48	★ -17.5
17,6	18	51	123	73	48	★ -17.6
17,7	18	51	123	73	48	★ -17.7
17,8	18	51	123	73	48	★ -17.8
18	18	51	123	73	48	★ -18
18,2	20	55	131	79	50	★ -18.2
18,5	20	55	131	79	50	★ -18.5

Continued

★ New addition to range

B-137 G-2 B-102

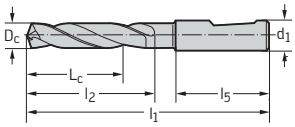
Solid carbide twist drill
A3879XPL
X·treme

3 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 short	D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3879XPL
Shank DIN 6535 HE	18,7	20	55	131	79	50	★ -18.7
	18,8	20	55	131	79	50	★ -18.8
	19	20	55	131	79	50	★ -19
	19,5	20	55	131	79	50	★ -19.5
	19,7	20	55	131	79	50	★ -19.7
	19,8	20	55	131	79	50	★ -19.8
	20	20	55	131	79	50	★ -20

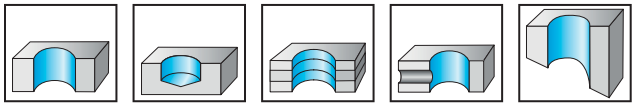


★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3899XPL
X·treme

3 x D_C



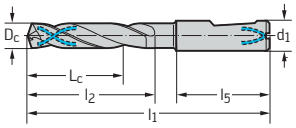
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

DIN 6537 short

Shank DIN 6535 HE



D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3899XPL
3	6	14	62	20	36	★ -3
3,1	6	14	62	20	36	★ -3.1
3,2	6	14	62	20	36	★ -3.2
3,25	6	14	62	20	36	★ -3.25
3,3	6	14	62	20	36	★ -3.3
3,4	6	14	62	20	36	★ -3.4
3,5	6	14	62	20	36	★ -3.5
3,6	6	14	62	20	36	★ -3.6
3,65	6	14	62	20	36	★ -3.65
3,7	6	14	62	20	36	★ -3.7
3,8	6	17	66	24	36	★ -3.8
3,9	6	17	66	24	36	★ -3.9
4	6	17	66	24	36	★ -4
4,1	6	17	66	24	36	★ -4.1
4,2	6	17	66	24	36	★ -4.2
4,3	6	17	66	24	36	★ -4.3
4,4	6	17	66	24	36	★ -4.4
4,5	6	17	66	24	36	★ -4.5
4,6	6	17	66	24	36	★ -4.6
4,65	6	17	66	24	36	★ -4.65
4,7	6	17	66	24	36	★ -4.7
4,8	6	20	66	28	36	★ -4.8
4,9	6	20	66	28	36	★ -4.9
5	6	20	66	28	36	★ -5
5,1	6	20	66	28	36	★ -5.1
5,2	6	20	66	28	36	★ -5.2
5,3	6	20	66	28	36	★ -5.3
5,4	6	20	66	28	36	★ -5.4
5,5	6	20	66	28	36	★ -5.5
5,55	6	20	66	28	36	★ -5.55
5,6	6	20	66	28	36	★ -5.6
5,7	6	20	66	28	36	★ -5.7
5,8	6	20	66	28	36	★ -5.8
5,9	6	20	66	28	36	★ -5.9
6	6	20	66	28	36	★ -6
6,1	8	24	79	34	36	★ -6.1
6,2	8	24	79	34	36	★ -6.2
6,3	8	24	79	34	36	★ -6.3
6,4	8	24	79	34	36	★ -6.4
6,5	8	24	79	34	36	★ -6.5
6,6	8	24	79	34	36	★ -6.6
6,7	8	24	79	34	36	★ -6.7
6,8	8	24	79	34	36	★ -6.8
6,9	8	24	79	34	36	★ -6.9
7	8	24	79	34	36	★ -7
7,1	8	29	79	41	36	★ -7.1
7,2	8	29	79	41	36	★ -7.2

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3899XPL
X·treme

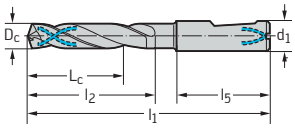
3 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 short

Shank DIN 6535 HE



D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3899XPL
7,3	8	29	79	41	36	★ -7.3
7,4	8	29	79	41	36	★ -7.4
7,5	8	29	79	41	36	★ -7.5
7,55	8	29	79	41	36	★ -7.55
7,6	8	29	79	41	36	★ -7.6
7,7	8	29	79	41	36	★ -7.7
7,8	8	29	79	41	36	★ -7.8
7,9	8	29	79	41	36	★ -7.9
8	8	29	79	41	36	★ -8
8,1	10	35	89	47	40	★ -8.1
8,2	10	35	89	47	40	★ -8.2
8,3	10	35	89	47	40	★ -8.3
8,4	10	35	89	47	40	★ -8.4
8,5	10	35	89	47	40	★ -8.5
8,6	10	35	89	47	40	★ -8.6
8,7	10	35	89	47	40	★ -8.7
8,8	10	35	89	47	40	★ -8.8
8,9	10	35	89	47	40	★ -8.9
9	10	35	89	47	40	★ -9
9,1	10	35	89	47	40	★ -9.1
9,2	10	35	89	47	40	★ -9.2
9,3	10	35	89	47	40	★ -9.3
9,4	10	35	89	47	40	★ -9.4
9,5	10	35	89	47	40	★ -9.5
9,55	10	35	89	47	40	★ -9.55
9,6	10	35	89	47	40	★ -9.6
9,7	10	35	89	47	40	★ -9.7
9,8	10	35	89	47	40	★ -9.8
9,9	10	35	89	47	40	★ -9.9
10	10	35	89	47	40	★ -10
10,1	12	40	102	55	45	★ -10.1
10,2	12	40	102	55	45	★ -10.2
10,3	12	40	102	55	45	★ -10.3
10,4	12	40	102	55	45	★ -10.4
10,5	12	40	102	55	45	★ -10.5
10,6	12	40	102	55	45	★ -10.6
10,7	12	40	102	55	45	★ -10.7
10,8	12	40	102	55	45	★ -10.8
10,9	12	40	102	55	45	★ -10.9
11	12	40	102	55	45	★ -11
11,1	12	40	102	55	45	★ -11.1
11,2	12	40	102	55	45	★ -11.2
11,3	12	40	102	55	45	★ -11.3
11,4	12	40	102	55	45	★ -11.4
11,5	12	40	102	55	45	★ -11.5
11,55	12	40	102	55	45	★ -11.55
11,6	12	40	102	55	45	★ -11.6
11,7	12	40	102	55	45	★ -11.7
11,8	12	40	102	55	45	★ -11.8
11,9	12	40	102	55	45	★ -11.9
12	12	40	102	55	45	★ -12
12,1	14	43	107	60	45	★ -12.1
12,2	14	43	107	60	45	★ -12.2
12,25	14	43	107	60	45	★ -12.25
12,3	14	43	107	60	45	★ -12.3

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3899XPL
X·treme

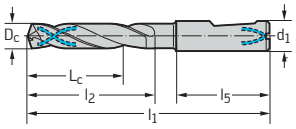
3 x D_c

Continued

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

DIN 6537 short

Shank DIN 6535 HE



D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3899XPL
12,4	14	43	107	60	45	★ -12.4
12,5	14	43	107	60	45	★ -12.5
12,6	14	43	107	60	45	★ -12.6
12,7	14	43	107	60	45	★ -12.7
12,75	14	43	107	60	45	★ -12.75
12,8	14	43	107	60	45	★ -12.8
12,9	14	43	107	60	45	★ -12.9
13	14	43	107	60	45	★ -13
13,1	14	43	107	60	45	★ -13.1
13,2	14	43	107	60	45	★ -13.2
13,3	14	43	107	60	45	★ -13.3
13,4	14	43	107	60	45	★ -13.4
13,5	14	43	107	60	45	★ -13.5
13,6	14	43	107	60	45	★ -13.6
13,7	14	43	107	60	45	★ -13.7
13,8	14	43	107	60	45	★ -13.8
13,9	14	43	107	60	45	★ -13.9
14	14	43	107	60	45	★ -14
14,1	16	45	115	65	48	★ -14.1
14,2	16	45	115	65	48	★ -14.2
14,3	16	45	115	65	48	★ -14.3
14,4	16	45	115	65	48	★ -14.4
14,5	16	45	115	65	48	★ -14.5
14,6	16	45	115	65	48	★ -14.6
14,7	16	45	115	65	48	★ -14.7
14,75	16	45	115	65	48	★ -14.75
14,8	16	45	115	65	48	★ -14.8
15	16	45	115	65	48	★ -15
15,1	16	45	115	65	48	★ -15.1
15,2	16	45	115	65	48	★ -15.2
15,3	16	45	115	65	48	★ -15.3
15,5	16	45	115	65	48	★ -15.5
15,6	16	45	115	65	48	★ -15.6
15,7	16	45	115	65	48	★ -15.7
15,8	16	45	115	65	48	★ -15.8
15,9	16	45	115	65	48	★ -15.9
16	16	45	115	65	48	★ -16
16,1	18	51	123	73	48	★ -16.1
16,2	18	51	123	73	48	★ -16.2
16,3	18	51	123	73	48	★ -16.3
16,4	18	51	123	73	48	★ -16.4
16,5	18	51	123	73	48	★ -16.5
16,6	18	51	123	73	48	★ -16.6
16,7	18	51	123	73	48	★ -16.7
16,75	18	51	123	73	48	★ -16.75
16,8	18	51	123	73	48	★ -16.8
17	18	51	123	73	48	★ -17
17,2	18	51	123	73	48	★ -17.2
17,3	18	51	123	73	48	★ -17.3
17,5	18	51	123	73	48	★ -17.5
17,6	18	51	123	73	48	★ -17.6
17,7	18	51	123	73	48	★ -17.7
17,8	18	51	123	73	48	★ -17.8
18	18	51	123	73	48	★ -18
18,2	20	55	131	79	50	★ -18.2

Continued

★ New addition to range

B-137 G-2 B-102

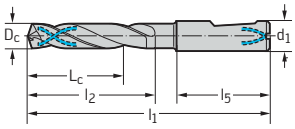
Solid carbide coolant through drills
A3899XPL
X·treme

3 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 short	D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3899XPL
Shank DIN 6535 HE	18,5	20	55	131	79	50	★ -18.5
	18,7	20	55	131	79	50	★ -18.7
	18,8	20	55	131	79	50	★ -18.8
	19	20	55	131	79	50	★ -19
	19,5	20	55	131	79	50	★ -19.5
	19,7	20	55	131	79	50	★ -19.7
	19,8	20	55	131	79	50	★ -19.8
	20	20	55	131	79	50	★ -20

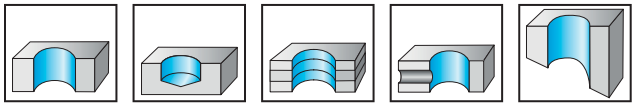


★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3979XPL
X·treme

5 x D_C



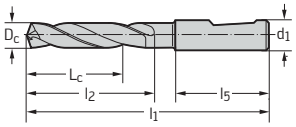
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

DIN 6537 long

Shank DIN 6535 HE



D_C m7 mm	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3979XPL
3	6	23	66	28	36	★ -3
3,1	6	23	66	28	36	★ -3.1
3,2	6	23	66	28	36	★ -3.2
3,25	6	23	66	28	36	★ -3.25
3,3	6	23	66	28	36	★ -3.3
3,4	6	23	66	28	36	★ -3.4
3,5	6	23	66	28	36	★ -3.5
3,6	6	23	66	28	36	★ -3.6
3,65	6	23	66	28	36	★ -3.65
3,7	6	23	66	28	36	★ -3.7
3,8	6	29	74	36	36	★ -3.8
3,9	6	29	74	36	36	★ -3.9
4	6	29	74	36	36	★ -4
4,1	6	29	74	36	36	★ -4.1
4,2	6	29	74	36	36	★ -4.2
4,3	6	29	74	36	36	★ -4.3
4,4	6	29	74	36	36	★ -4.4
4,5	6	29	74	36	36	★ -4.5
4,6	6	29	74	36	36	★ -4.6
4,65	6	29	74	36	36	★ -4.65
4,7	6	29	74	36	36	★ -4.7
4,8	6	35	82	44	36	★ -4.8
4,9	6	35	82	44	36	★ -4.9
5	6	35	82	44	36	★ -5
5,1	6	35	82	44	36	★ -5.1
5,2	6	35	82	44	36	★ -5.2
5,3	6	35	82	44	36	★ -5.3
5,4	6	35	82	44	36	★ -5.4
5,5	6	35	82	44	36	★ -5.5
5,55	6	35	82	44	36	★ -5.55
5,6	6	35	82	44	36	★ -5.6
5,7	6	35	82	44	36	★ -5.7
5,8	6	35	82	44	36	★ -5.8
5,9	6	35	82	44	36	★ -5.9
6	6	35	82	44	36	★ -6
6,1	8	43	91	53	36	★ -6.1
6,2	8	43	91	53	36	★ -6.2
6,3	8	43	91	53	36	★ -6.3
6,4	8	43	91	53	36	★ -6.4
6,5	8	43	91	53	36	★ -6.5
6,6	8	43	91	53	36	★ -6.6
6,7	8	43	91	53	36	★ -6.7
6,8	8	43	91	53	36	★ -6.8
6,9	8	43	91	53	36	★ -6.9
7	8	43	91	53	36	★ -7
7,1	8	43	91	53	36	★ -7.1
7,2	8	43	91	53	36	★ -7.2

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3979XPL
X·treme

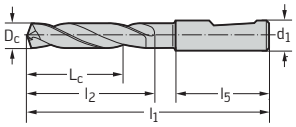
5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 long

Shank DIN 6535 HE



D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3979XPL
7,3	8	43	91	53	36	★ -7.3
7,4	8	43	91	53	36	★ -7.4
7,5	8	43	91	53	36	★ -7.5
7,55	8	43	91	53	36	★ -7.55
7,6	8	43	91	53	36	★ -7.6
7,7	8	43	91	53	36	★ -7.7
7,8	8	43	91	53	36	★ -7.8
7,9	8	43	91	53	36	★ -7.9
8	8	43	91	53	36	★ -8
8,1	10	49	103	61	40	★ -8.1
8,2	10	49	103	61	40	★ -8.2
8,3	10	49	103	61	40	★ -8.3
8,4	10	49	103	61	40	★ -8.4
8,5	10	49	103	61	40	★ -8.5
8,6	10	49	103	61	40	★ -8.6
8,7	10	49	103	61	40	★ -8.7
8,8	10	49	103	61	40	★ -8.8
8,9	10	49	103	61	40	★ -8.9
9	10	49	103	61	40	★ -9
9,1	10	49	103	61	40	★ -9.1
9,2	10	49	103	61	40	★ -9.2
9,3	10	49	103	61	40	★ -9.3
9,4	10	49	103	61	40	★ -9.4
9,5	10	49	103	61	40	★ -9.5
9,55	10	49	103	61	40	★ -9.55
9,6	10	49	103	61	40	★ -9.6
9,7	10	49	103	61	40	★ -9.7
9,8	10	49	103	61	40	★ -9.8
9,9	10	49	103	61	40	★ -9.9
10	10	49	103	61	40	★ -10
10,1	12	56	118	71	45	★ -10.1
10,2	12	56	118	71	45	★ -10.2
10,3	12	56	118	71	45	★ -10.3
10,4	12	56	118	71	45	★ -10.4
10,5	12	56	118	71	45	★ -10.5
10,6	12	56	118	71	45	★ -10.6
10,7	12	56	118	71	45	★ -10.7
10,8	12	56	118	71	45	★ -10.8
10,9	12	56	118	71	45	★ -10.9
11	12	56	118	71	45	★ -11
11,1	12	56	118	71	45	★ -11.1
11,2	12	56	118	71	45	★ -11.2
11,3	12	56	118	71	45	★ -11.3
11,4	12	56	118	71	45	★ -11.4
11,5	12	56	118	71	45	★ -11.5
11,55	12	56	118	71	45	★ -11.55
11,6	12	56	118	71	45	★ -11.6
11,7	12	56	118	71	45	★ -11.7
11,8	12	56	118	71	45	★ -11.8
11,9	12	56	118	71	45	★ -11.9
12	12	56	118	71	45	★ -12
12,1	14	60	124	77	45	★ -12.1
12,2	14	60	124	77	45	★ -12.2
12,25	14	60	124	77	45	★ -12.25
12,3	14	60	124	77	45	★ -12.3

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3979XPL
X·treme

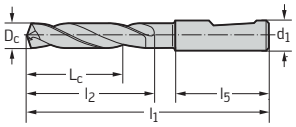
5 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

DIN 6537 long

Shank DIN 6535 HE



D_C m7 mm	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3979XPL
12,4	14	60	124	77	45	★ -12.4
12,5	14	60	124	77	45	★ -12.5
12,6	14	60	124	77	45	★ -12.6
12,7	14	60	124	77	45	★ -12.7
12,75	14	60	124	77	45	★ -12.75
12,8	14	60	124	77	45	★ -12.8
12,9	14	60	124	77	45	★ -12.9
13	14	60	124	77	45	★ -13
13,1	14	60	124	77	45	★ -13.1
13,2	14	60	124	77	45	★ -13.2
13,3	14	60	124	77	45	★ -13.3
13,4	14	60	124	77	45	★ -13.4
13,5	14	60	124	77	45	★ -13.5
13,6	14	60	124	77	45	★ -13.6
13,7	14	60	124	77	45	★ -13.7
13,8	14	60	124	77	45	★ -13.8
13,9	14	60	124	77	45	★ -13.9
14	14	60	124	77	45	★ -14
14,1	16	63	133	83	48	★ -14.1
14,2	16	63	133	83	48	★ -14.2
14,3	16	63	133	83	48	★ -14.3
14,4	16	63	133	83	48	★ -14.4
14,5	16	63	133	83	48	★ -14.5
14,6	16	63	133	83	48	★ -14.6
14,7	16	63	133	83	48	★ -14.7
14,75	16	63	133	83	48	★ -14.75
14,8	16	63	133	83	48	★ -14.8
15	16	63	133	83	48	★ -15
15,1	16	63	133	83	48	★ -15.1
15,2	16	63	133	83	48	★ -15.2
15,3	16	63	133	83	48	★ -15.3
15,5	16	63	133	83	48	★ -15.5
15,6	16	63	133	83	48	★ -15.6
15,7	16	63	133	83	48	★ -15.7
15,8	16	63	133	83	48	★ -15.8
15,9	16	63	133	83	48	★ -15.9
16	16	63	133	83	48	★ -16
16,1	18	71	143	93	48	★ -16.1
16,2	18	71	143	93	48	★ -16.2
16,3	18	71	143	93	48	★ -16.3
16,4	18	71	143	93	48	★ -16.4
16,5	18	71	143	93	48	★ -16.5
16,6	18	71	143	93	48	★ -16.6
16,7	18	71	143	93	48	★ -16.7
16,75	18	71	143	93	48	★ -16.75
16,8	18	71	143	93	48	★ -16.8
17	18	71	143	93	48	★ -17
17,2	18	71	143	93	48	★ -17.2
17,3	18	71	143	93	48	★ -17.3
17,5	18	71	143	93	48	★ -17.5
17,6	18	71	143	93	48	★ -17.6
17,7	18	71	143	93	48	★ -17.7
17,8	18	71	143	93	48	★ -17.8
18	18	71	143	93	48	★ -18
18,2	20	77	153	101	50	★ -18.2

Continued

★ New addition to range

B-137 G-2 B-102

Solid carbide twist drill
A3979XPL
X·treme

5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Continued

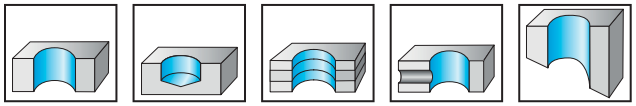
DIN 6537 long	D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3979XPL
Shank DIN 6535 HE	18,5	20	77	153	101	50	★ -18.5
	18,7	20	77	153	101	50	★ -18.7
	18,8	20	77	153	101	50	★ -18.8
	19	20	77	153	101	50	★ -19
	19,5	20	77	153	101	50	★ -19.5
	19,7	20	77	153	101	50	★ -19.7
	19,8	20	77	153	101	50	★ -19.8
	20	20	77	153	101	50	★ -20
	20,5	25	86	166	108	56	★ -20.5
	21	25	86	166	108	56	★ -21
	21,5	25	86	166	108	56	★ -21.5
	22	25	86	166	108	56	★ -22
	22,5	25	91	173	115	56	★ -22.5
	23	25	91	173	115	56	★ -23
	23,5	25	91	173	115	56	★ -23.5
	24	25	91	173	115	56	★ -24
	24,5	25	97	180	122	56	★ -24.5
	25	25	97	180	122	56	★ -25

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drills
A3999XPL
X·treme

5 x D_C



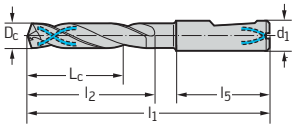
- K30F - XPL
- Type X·treme
- Right-hand cutting
- 140° point angle

Special features:
Suitable for dry machining in steel and cast iron
45 - 55 HRC

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

DIN 6537 long

Shank DIN 6535 HE



D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3999XPL
3	6	23	66	28	36	-3
3,1	6	23	66	28	36	-3.1
3,2	6	23	66	28	36	-3.2
3,25	6	23	66	28	36	-3.25
3,3	6	23	66	28	36	-3.3
3,4	6	23	66	28	36	-3.4
3,5	6	23	66	28	36	-3.5
3,6	6	23	66	28	36	-3.6
3,65	6	23	66	28	36	-3.65
3,7	6	23	66	28	36	-3.7
3,8	6	29	74	36	36	-3.8
3,9	6	29	74	36	36	-3.9
4	6	29	74	36	36	-4
4,1	6	29	74	36	36	-4.1
4,2	6	29	74	36	36	-4.2
4,3	6	29	74	36	36	-4.3
4,4	6	29	74	36	36	-4.4
4,5	6	29	74	36	36	-4.5
4,6	6	29	74	36	36	-4.6
4,65	6	29	74	36	36	-4.65
4,7	6	29	74	36	36	-4.7
4,8	6	35	82	44	36	-4.8
4,9	6	35	82	44	36	-4.9
5	6	35	82	44	36	-5
5,1	6	35	82	44	36	-5.1
5,2	6	35	82	44	36	-5.2
5,3	6	35	82	44	36	-5.3
5,4	6	35	82	44	36	-5.4
5,5	6	35	82	44	36	-5.5
5,55	6	35	82	44	36	-5.55
5,6	6	35	82	44	36	-5.6
5,7	6	35	82	44	36	-5.7
5,8	6	35	82	44	36	-5.8
5,9	6	35	82	44	36	-5.9
6	6	35	82	44	36	-6
6,1	8	43	91	53	36	-6.1
6,2	8	43	91	53	36	-6.2
6,3	8	43	91	53	36	-6.3
6,4	8	43	91	53	36	-6.4
6,5	8	43	91	53	36	-6.5
6,6	8	43	91	53	36	-6.6
6,7	8	43	91	53	36	-6.7
6,8	8	43	91	53	36	-6.8
6,9	8	43	91	53	36	-6.9
7	8	43	91	53	36	-7
7,1	8	43	91	53	36	-7.1
7,2	8	43	91	53	36	-7.2

Continued

B-137 G-2 B-102

Solid carbide coolant through drills
A3999XPL
X·treme

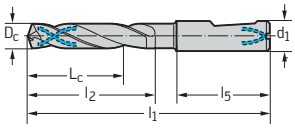
5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 long

Shank DIN 6535 HE



D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3999XPL
7,3	8	43	91	53	36	-7.3
7,4	8	43	91	53	36	-7.4
7,5	8	43	91	53	36	-7.5
7,55	8	43	91	53	36	-7.55
7,6	8	43	91	53	36	-7.6
7,7	8	43	91	53	36	-7.7
7,8	8	43	91	53	36	-7.8
7,9	8	43	91	53	36	-7.9
8	8	43	91	53	36	-8
8,1	10	49	103	61	40	-8.1
8,2	10	49	103	61	40	-8.2
8,3	10	49	103	61	40	-8.3
8,4	10	49	103	61	40	-8.4
8,5	10	49	103	61	40	-8.5
8,6	10	49	103	61	40	-8.6
8,7	10	49	103	61	40	-8.7
8,8	10	49	103	61	40	-8.8
8,9	10	49	103	61	40	-8.9
9	10	49	103	61	40	-9
9,1	10	49	103	61	40	-9.1
9,2	10	49	103	61	40	-9.2
9,3	10	49	103	61	40	-9.3
9,4	10	49	103	61	40	-9.4
9,5	10	49	103	61	40	-9.5
9,55	10	49	103	61	40	-9.55
9,6	10	49	103	61	40	-9.6
9,7	10	49	103	61	40	-9.7
9,8	10	49	103	61	40	-9.8
9,9	10	49	103	61	40	-9.9
10	10	49	103	61	40	-10
10,1	12	56	118	71	45	-10.1
10,2	12	56	118	71	45	-10.2
10,3	12	56	118	71	45	-10.3
10,4	12	56	118	71	45	-10.4
10,5	12	56	118	71	45	-10.5
10,6	12	56	118	71	45	-10.6
10,7	12	56	118	71	45	-10.7
10,8	12	56	118	71	45	-10.8
10,9	12	56	118	71	45	-10.9
11	12	56	118	71	45	-11
11,1	12	56	118	71	45	-11.1
11,2	12	56	118	71	45	-11.2
11,3	12	56	118	71	45	-11.3
11,4	12	56	118	71	45	-11.4
11,5	12	56	118	71	45	-11.5
11,55	12	56	118	71	45	-11.55
11,6	12	56	118	71	45	-11.6
11,7	12	56	118	71	45	-11.7
11,8	12	56	118	71	45	-11.8
11,9	12	56	118	71	45	-11.9
12	12	56	118	71	45	-12
12,1	14	60	124	77	45	-12.1
12,2	14	60	124	77	45	-12.2
12,25	14	60	124	77	45	-12.25
12,3	14	60	124	77	45	-12.3

Continued

B-137 G-2 B-102

Solid carbide coolant through drills
A3999XPL
X·treme

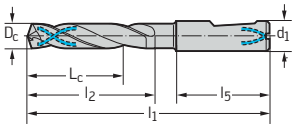
5 x D_C

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 long

Shank DIN 6535 HE



D_C m7 mm	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A3999XPL
12,4	14	60	124	77	45	-12.4
12,5	14	60	124	77	45	-12.5
12,6	14	60	124	77	45	-12.6
12,7	14	60	124	77	45	-12.7
12,75	14	60	124	77	45	-12.75
12,8	14	60	124	77	45	-12.8
12,9	14	60	124	77	45	-12.9
13	14	60	124	77	45	-13
13,1	14	60	124	77	45	-13.1
13,2	14	60	124	77	45	-13.2
13,3	14	60	124	77	45	-13.3
13,4	14	60	124	77	45	-13.4
13,5	14	60	124	77	45	-13.5
13,6	14	60	124	77	45	-13.6
13,7	14	60	124	77	45	-13.7
13,8	14	60	124	77	45	-13.8
13,9	14	60	124	77	45	-13.9
14	14	60	124	77	45	-14
14,1	16	63	133	83	48	-14.1
14,2	16	63	133	83	48	-14.2
14,3	16	63	133	83	48	-14.3
14,4	16	63	133	83	48	-14.4
14,5	16	63	133	83	48	-14.5
14,6	16	63	133	83	48	-14.6
14,7	16	63	133	83	48	-14.7
14,75	16	63	133	83	48	-14.75
14,8	16	63	133	83	48	-14.8
14,9	16	63	133	83	48	-14.9
15	16	63	133	83	48	-15
15,1	16	63	133	83	48	-15.1
15,2	16	63	133	83	48	-15.2
15,3	16	63	133	83	48	-15.3
15,4	16	63	133	83	48	-15.4
15,5	16	63	133	83	48	-15.5
15,6	16	63	133	83	48	-15.6
15,7	16	63	133	83	48	-15.7
15,8	16	63	133	83	48	-15.8
15,9	16	63	133	83	48	-15.9
16	16	63	133	83	48	-16
16,1	18	71	143	93	48	-16.1
16,2	18	71	143	93	48	-16.2
16,3	18	71	143	93	48	-16.3
16,4	18	71	143	93	48	-16.4
16,5	18	71	143	93	48	-16.5
16,6	18	71	143	93	48	-16.6
16,7	18	71	143	93	48	-16.7
16,75	18	71	143	93	48	-16.75
16,8	18	71	143	93	48	-16.8
16,9	18	71	143	93	48	-16.9
17	18	71	143	93	48	-17
17,1	18	71	143	93	48	-17.1
17,2	18	71	143	93	48	-17.2
17,3	18	71	143	93	48	-17.3
17,4	18	71	143	93	48	-17.4
17,5	18	71	143	93	48	-17.5

Continued

B-137 G-2 B-102

Solid carbide coolant through drills
A3999XPL
X·treme

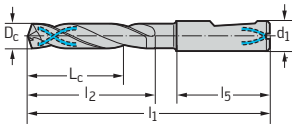
5 x D_c

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Continued

DIN 6537 long

Shank DIN 6535 HE

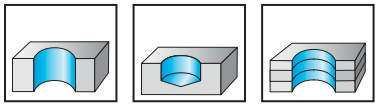


D_c m7 mm	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A3999XPL
17,6	18	71	143	93	48	-17.6
17,7	18	71	143	93	48	-17.7
17,8	18	71	143	93	48	-17.8
17,9	18	71	143	93	48	-17.9
18	18	71	143	93	48	-18
18,1	20	77	153	101	50	-18.1
18,2	20	77	153	101	50	-18.2
18,3	20	77	153	101	50	-18.3
18,4	20	77	153	101	50	-18.4
18,5	20	77	153	101	50	-18.5
18,6	20	77	153	101	50	-18.6
18,7	20	77	153	101	50	-18.7
18,8	20	77	153	101	50	-18.8
18,9	20	77	153	101	50	-18.9
19	20	77	153	101	50	-19
19,1	20	77	153	101	50	-19.1
19,2	20	77	153	101	50	-19.2
19,3	20	77	153	101	50	-19.3
19,4	20	77	153	101	50	-19.4
19,5	20	77	153	101	50	-19.5
19,6	20	77	153	101	50	-19.6
19,7	20	77	153	101	50	-19.7
19,8	20	77	153	101	50	-19.8
19,9	20	77	153	101	50	-19.9
20	20	77	153	101	50	-20
20,5	25	86	166	108	56	-20.5
21	25	86	166	108	56	-21
21,5	25	86	166	108	56	-21.5
22	25	86	166	108	56	-22
22,5	25	91	173	115	56	-22.5
23	25	91	173	115	56	-23
23,5	25	91	173	115	56	-23.5
24	25	91	173	115	56	-24
24,5	25	97	180	122	56	-24.5
25	25	97	180	122	56	-25

B-137 G-2 B-102

Solid carbide Micro-Pilot drill
A6181AML
X·treme Pilot 150

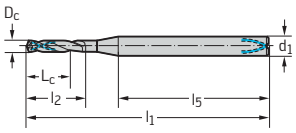
2 x D_C



- K30F - AML
- Type X·treme Pilot 150
- Right-hand cutting
- 150° point angle
- Special diameter tolerance for micro XD technology

	P	M	K	N	S	H	O
AML	●●	●●	●●	●●	●●	●●	●●

Shank DIN 6535 HA



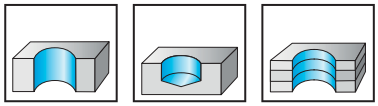
D_C p7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A6181AML
2		3	7	57	10	42	-2
2,05		3	7	57	11	42	★ -2.05
2,1		3	7	57	11	42	-2.1
2,15		3	7	57	11	42	★ -2.15
2,2		3	7	57	11	42	-2.2
2,25		3	8	57	12	42	★ -2.25
2,3		3	8	59	12	43	-2.3
2,35		3	8	59	12	42	★ -2.35
2,381	3/32"	3	8	59	12	43	★ -3/32IN
2,4		3	8	59	12	43	-2.4
2,45		3	9	59	13	43	★ -2.45
2,5		3	9	59	13	42	-2.5
2,55		3	9	62	13	42	★ -2.55
2,6		3	9	62	13	45	-2.6
2,65		3	9	62	14	45	★ -2.65
2,7		3	9	62	14	45	-2.7
2,75		3	9	62	14	45	★ -2.75
2,778	7/64"	3	9	62	14	45	★ -7/64IN
2,8		3	9	62	14	45	-2.8
2,85		3	10	62	15	45	★ -2.85
2,9		3	10	62	15	44	-2.9
2,95		3	10	62	15	44	★ -2.95

★ New addition to range

G-2 B-102

Solid carbide coolant through drill Micro
A6489AMP
X·treme DM8

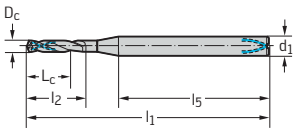
8 x D_C



- K30F - AMP
- Type X-treme DM8
- Right-hand cutting
- 140° point angle

	P	M	K	N	S	H	O
AMP	●●	●●	●●	●●	●●	●	●●

Shank DIN 6535 HA



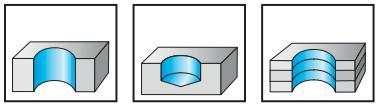
D_C m7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A6489AMP
2		3	20	63	23	35	★ -2
2,05		3	20	63	24	35	★ -2.05
2,1		3	20	63	24	35	★ -2.1
2,15		3	21	63	25	34	★ -2.15
2,2		3	21	63	25	34	★ -2.2
2,25		3	22	67	26	37	★ -2.25
2,3		3	22	67	26	37	★ -2.3
2,35		3	24	67	28	35	★ -2.35
2,381	3/32"	3	24	67	28	35	★ -3/32IN
2,4		3	24	67	28	35	★ -2.4
2,45		3	25	67	29	34	★ -2.45
2,5		3	25	67	29	34	★ -2.5
2,55		3	26	71	30	37	★ -2.55
2,6		3	26	71	30	37	★ -2.6
2,65		3	26	71	31	37	★ -2.65
2,7		3	26	71	31	37	★ -2.7
2,75		3	27	71	32	36	★ -2.75
2,778	7/64"	3	27	71	32	36	★ -7/64IN
2,8		3	27	71	32	36	★ -2.8
2,85		3	28	71	33	35	★ -2.85
2,9		3	28	71	33	35	★ -2.9
2,95		3	29	71	34	34	★ -2.95

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drill Micro
A6589AMP
X·treme DM12

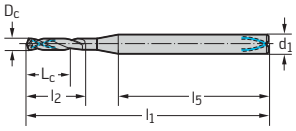
12 x D_C



- K30F - AMP
- Type X·treme DM12
- Right-hand cutting
- 140° point angle

	P	M	K	N	S	H	O
AMP	●●	●●	●●	●●	●●	●	●●

Shank DIN 6535 HA



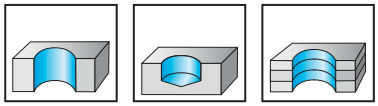
D_C h7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A6589AMP
2		3	28	72	31	36	★ -2
2,1		3	29	72	33	35	★ -2.1
2,2		3	30	72	34	34	★ -2.2
2,3		3	32	77	36	37	★ -2.3
2,381	3/32"	3	33	77	37	36	★ -3/32IN
2,4		3	33	77	37	36	★ -2.4
2,5		3	35	77	39	34	★ -2.5
2,6		3	36	83	40	39	★ -2.6
2,7		3	37	83	42	38	★ -2.7
2,778	7/64"	3	38	83	43	37	★ -7/64IN
2,8		3	38	83	43	37	★ -2.8
2,9		3	40	83	45	35	★ -2.9

★ New addition to range

B-137 G-2 B-102

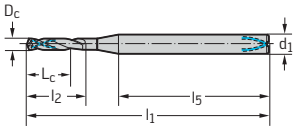
Solid carbide coolant through drill Micro
A6689AMP
X·treme DM16

16 x D_C



- K30F - AMP
- Type X-treme DM16
- Right-hand cutting
- 140° point angle

	P	M	K	N	S	H	O
AMP	●●	●●	●●	●●	●●	●	●●

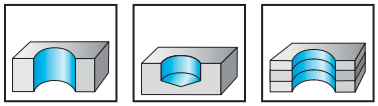
	D_C h7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_5 mm	Designation A6689AMP
Shank DIN 6535 HA	2		3	36	81	37	★ -2
	2,1		3	37	81	36	★ -2.1
	2,2		3	39	81	34	★ -2.2
	2,3		3	39	87	38	★ -2.3
	2,381	3/32"	3	43	87	36	★ -3/32IN
	2,4		3	43	87	36	★ -2.4
	2,5		3	45	87	34	★ -2.5
	2,6		3	47	95	40	★ -2.6
	2,7		3	48	95	39	★ -2.7
	2,778	7/64"	3	50	95	37	★ -7/64IN
	2,8		3	50	95	37	★ -2.8
	2,9		3	52	95	35	★ -2.9

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drill Micro
A6789AMP
X·treme DM20

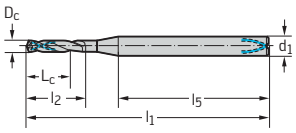
20 x D_c



- K30F - AMP
- Type X·treme DM20
- Right-hand cutting
- 140° point angle

	P	M	K	N	S	H	O
AMP	●●	●●	●●	●●	●●	●	●●

Shank DIN 6535 HA



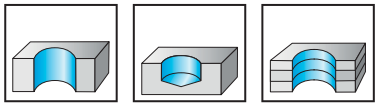
D_c h7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A6789AMP
2		3	44	90	47	38	-2
2,1		3	45	90	49	37	-2.1
2,2		3	48	90	52	34	-2.2
2,3		3	50	97	54	39	-2.3
2,381	3/32"	3	52	97	56	39	★ -3/32IN
2,4		3	52	97	56	37	-2.4
2,5		3	55	97	59	34	-2.5
2,6		3	57	107	61	42	-2.6
2,7		3	58	107	63	41	-2.7
2,778	7/64"	3	61	107	66	41	★ -7/64IN
2,8		3	61	107	66	38	-2.8
2,9		3	63	107	68	36	-2.9

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drill Micro
A6889AMP
X·treme DM25

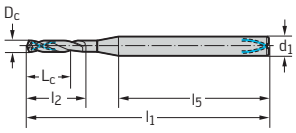
25 x D_C



- K30F - AMP
- Type X·treme DM25
- Right-hand cutting
- 140° point angle

	P	M	K	N	S	H	O
AMP	●●	●●	●●	●●	●●	●	●●

Shank DIN 6535 HA



D_C h7 mm	D_C Inches/No	d_1 h6 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation A6889AMP
2		3	54	101	57	39	★ -2
2,1		3	56	101	60	37	★ -2.1
2,2		3	59	101	63	34	★ -2.2
2,3		3	62	107	66	39	★ -2.3
2,381	3/32"	3	62	107	66	39	★ -3/32IN
2,4		3	64	107	68	35	★ -2.4
2,5		3	67	107	71	32	-2.5
2,6		3	70	122	74	44	-2.6
2,7		3	72	122	77	41	-2.7
2,778	7/64"	3	75	122	80	41	★ -7/64IN
2,8		3	75	122	80	38	-2.8
2,9		3	78	122	83	36	-2.9

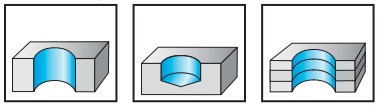
★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through drill Micro A6989AMP

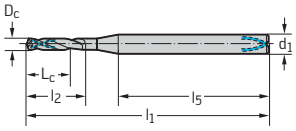
X·treme DM30

30 x D_c



- K30F - AMP
- Type X·treme DM30
- Right-hand cutting
- 140° point angle

	P	M	K	N	S	H	O
AMP	●●	●●	●●	●●	●●	●	●●

	D_c h7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A6989AMP
Shank DIN 6535 HA	2		3	64	112	67	40	★ -2
	2,1		3	66	112	70	38	★ -2.1
	2,2		3	70	112	74	34	★ -2.2
	2,3		3	73	122	77	41	★ -2.3
	2,381	3/32"	3	76	122	80	38	★ -3/32IN
	2,4		3	76	122	80	38	★ -2.4
	2,5		3	80	122	84	34	★ -2.5
	2,6		3	83	136	87	45	★ -2.6
	2,7		3	85	136	90	42	★ -2.7
	2,778	7/64"	3	89	136	94	38	★ -7/64IN
	2,8		3	89	136	94	38	★ -2.8
	2,9		3	92	136	97	36	★ -2.9

★ New addition to range

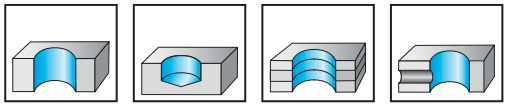
B-137 G-2 B-102

Solid carbide coolant through drills

A7495TTP

X·treme D40

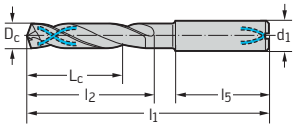
40 x D_c



- K30F - TTP
- Type X·treme D40
- Right-hand cutting
- 130° point angle

	P	M	K	N	S	H	O
TTP	●●	●	●●	●●	●		

Shank DIN 6535 HA



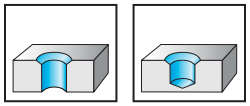
D_c e7 mm	D_c Inches/No	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A7495TTP
4,5		5	188	228	195	28	★ -4.5
4,736	3/16"	5	209	249	217	28	★ -3/16IN
4,8		5	209	249	217	28	★ -4.8
5		5	209	249	217	28	★ -5
5,5		6	230	279	239	36	★ -5.5
5,556	7/32"	6	248	297	257	36	★ -7/32IN
5,8		6	248	297	257	36	★ -5.8
6		6	248	297	257	36	★ -6
6,1		8	272	324	282	36	★ -6.1
6,35	1/4"	8	272	324	282	36	★ -1/4IN
6,5		8	272	324	282	36	★ -6.5
6,8		8	287	339	298	36	★ -6.8
7		8	287	339	298	36	★ -7
7,144	9/32"	8	313	366	325	36	★ -9/32IN
7,4		8	313	366	325	36	★ -7.4
7,5		8	313	366	325	36	★ -7.5
7,938	5/16"	8	330	382	342	36	★ -5/16IN
8		8	330	382	342	36	★ -8
8,3		10	356	415	369	40	★ -8.3
8,5		10	356	415	369	40	★ -8.5
8,731	11/32"	10	371	430	385	40	★ -11/32IN
9		10	371	430	385	40	★ -9
9,525	3/8"	10	397	457	412	40	★ -3/8IN
9,8		10	418	477	433	40	★ -9.8
10		10	418	477	433	40	★ -10
10,2		12	460	528	477	45	★ -10.2
10,319	13/32"	12	460	528	477	45	★ -13/32IN
11		12	460	528	477	45	★ -11

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through chamfer pilot drill
K3281TFT
X·treme Pilot Step 90

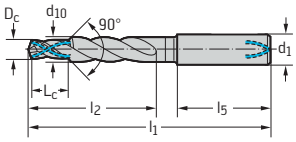
2 x D_C



- K30F - TFT
- Type X·treme Pilot Step 90
- Right-hand cutting
- 150° point angle
- 90° countersink angle
- Special diameter tolerance for XD technology

	P	M	K	N	S	H	O
unbeschichtet	●●	●●	●●	●●	●●	●●	●●

Shank DIN 6535 HA



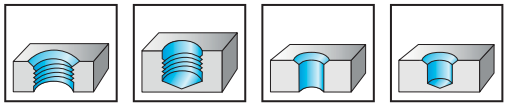
D_C p7 mm	D_C Inches/No	d_1 h6 mm	d_{10} h8 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation K3281TFT
3		6	6	6	66	20	36	★ -3
3,175	1/8"	6	6	7,6	66	20	36	★ -1/8IN
3,5		6	6	7,6	66	20	36	★ -3.5
3,571	9/64"	6	6	7,6	66	20	36	★ -9/64IN
3,967	5/32"	6	6	9,6	66	22	36	★ -5/32IN
4		6	6	9,6	66	22	36	★ -4
4,5		6	6	9,6	66	22	36	★ -4.5
4,763	3/16"	8	8	12	79	28	36	★ -3/16IN
4,8		8	8	12	79	28	36	★ -4.8
5		8	8	12	79	28	36	★ -5
5,5		8	8	12	79	28	36	★ -5.5
5,558	7/32"	8	8	12	79	28	36	★ -7/32IN
5,8		8	8	12	79	28	36	★ -5.8
6		8	8	12	79	28	36	★ -6
6,1		10	10	14	89	34	40	★ -6.1
6,35	1/4"	10	10	14	89	34	40	★ -1/4IN
6,5		10	10	14	89	34	40	★ -6.5
6,8		10	10	14	89	34	40	★ -6.8
7		10	10	14	89	34	40	★ -7
7,142	9/32"	12	12	16	102	40	45	★ -9/32IN
7,4		12	12	16	102	40	45	★ -7.4
7,5		12	12	16	102	40	45	★ -7.5
7,938	5/16"	12	12	16	102	40	45	★ -5/16IN
8		12	12	16	102	40	45	★ -8
8,3		12	12	20	102	44	45	★ -8.3
8,5		12	12	20	102	44	45	★ -8.5
8,733	11/32"	12	12	20	102	44	45	★ -11/32IN
9		12	12	20	102	44	45	★ -9
9,525	3/8"	12	12	20	102	44	45	★ -3/8IN
9,8		12	12	20	102	44	45	★ -9.8
10		12	12	20	102	44	45	★ -10
10,2		14	14	24	107	52	45	★ -10.2
10,317	13/32"	14	14	24	107	52	45	★ -13/32IN
11		14	14	24	107	52	45	★ -11
11,113	7/16"	14	14	24	107	52	45	★ -7/16IN
11,5		14	14	24	107	52	45	★ -11.5
11,8		14	14	24	107	52	45	★ -11.8
11,908	15/32"	14	14	24	107	52	45	★ -15/32IN
12		14	14	24	107	52	45	★ -12
12,7	1/2"	16	16	28	115	58	48	★ -1/2IN
13		16	16	28	115	58	48	★ -13
14		16	16	28	115	58	48	★ -14
14,288	9/16"	18	18	32	123	66	48	★ -9/16IN
15		18	18	32	123	66	48	★ -15
16		18	18	32	123	66	48	★ -16

★ New addition to range

G-2 B-102

Solid carbide coolant through chamfer drill
K3299XPL
X·treme Step 90

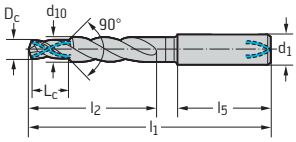
3 x D_C



- K30F - XPL
- Type X·treme Step 90
- Right-hand cutting
- 140° point angle
- 90° countersink angle
- Step length in accordance with DIN 8378

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Shank DIN 6535 HA



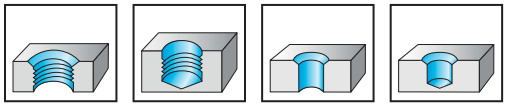
for thread	D_C m7 mm	d_1 h6 mm	d_{10} h8 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation K3299XPL
M 4	3,3	6	5	11,4	66	28	36	★ -M4
M 5	4,2	6	6	13,6	66	28	36	★ -M5
M 6	5	8	8	16,5	79	41	36	★ -M6
M 8	6,8	10	10	21	89	47	40	★ -M8
M 10	8,5	12	12	25,5	102	55	45	★ -M10
M 12	10,2	14	14	30	107	60	45	★ -M12
M 14	12	16	16	34,5	115	65	48	★ -M14
M 16	14	18	18	38,5	123	73	48	★ -M16

★ New addition to range

B-137 G-2 B-102

Solid carbide chamfer drill
K3879XPL
X·treme Step 90

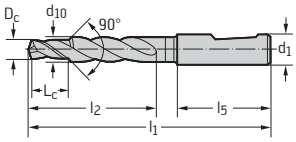
3 x D_C



- K30F - XPL
- Type X·treme Step 90
- Right-hand cutting
- 140° point angle
- 90° countersink angle
- Step length in accordance with DIN 8378

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

Shank DIN 6535 HE



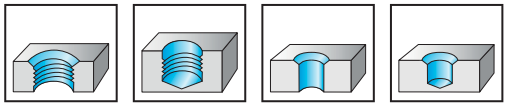
for thread	D_C m7 mm	d_1 h6 mm	d_{10} h8 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation K3879XPL
M 4	3,3	6	5	11,4	66	28	36	★ -M4
M 5	4,2	6	6	13,6	66	28	36	★ -M5
M 6	5	8	8	16,5	79	41	36	★ -M6
M 8	6,8	10	10	21	89	47	40	★ -M8
M 8 x 1	7	10	10	21	89	47	40	★ -M8X1
M 10	8,5	12	12	25,5	102	55	45	★ -M10
M 10 x 1	9	12	12	25,5	102	55	45	★ -M10X1
M 12	10,2	14	14	30	107	60	45	★ -M12
M 12 x 1,5	10,5	14	14	30	107	60	45	★ -M12X1.5
M 14	12	16	16	34,5	115	65	48	★ -M14
M 14 x 1,5	12,5	16	16	34,5	115	65	48	★ -M14X1.5
M 16	14	18	18	38,5	123	73	48	★ -M16
M 16 x 1,5	14,5	18	18	38,5	123	73	48	★ -M16X1.5

★ New addition to range

B-137 G-2 B-102

Solid carbide coolant through - chamfer drill
K3899XPL
X·treme Step 90

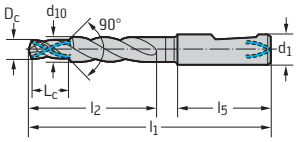
3 x D_C



- K30F - XPL
- Type X·treme Step 90
- Right-hand cutting
- 140° point angle
- 90° countersink angle
- Step length in accordance with DIN 8378

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	

Shank DIN 6535 HE



for thread	D_C m7 mm	d_1 h6 mm	d_{10} h8 mm	L_C mm	l_1 mm	l_2 mm	l_5 mm	Designation K3899XPL
M 4	3,3	6	5	11,4	66	28	36	★ -M4
M 5	4,2	6	6	13,6	66	28	36	★ -M5
M 6	5	8	8	16,5	79	41	36	★ -M6
M 8	6,8	10	10	21	89	47	40	★ -M8
M 10	8,5	12	12	25,5	102	55	45	★ -M10
M 12	10,2	14	14	30	107	60	45	★ -M12
M 14	12	16	16	34,5	115	65	48	★ -M14
M 16	14	18	18	38,5	123	73	48	★ -M16

★ New addition to range

B-137 G-2 B-102

Walter Select for HSS core drilling, countersinking and centre drills

Step by step to the correct tool

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the **machining group** that corresponds to your material e.g.: K5.

Code letter	Machining group	Groups of the materials to be machined	
P	P1–P15	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	M1–M3	**Stainless steel**	Stainless austenitic steel and austenitic-ferritic steel and cast steel
K	K1–K7	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	N1–N10	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	S1–S10	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	H1–H4	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	O1–O6	**Other**	Plastics, glass and carbon fibre Reinforced plastics, graphite

STEP 2

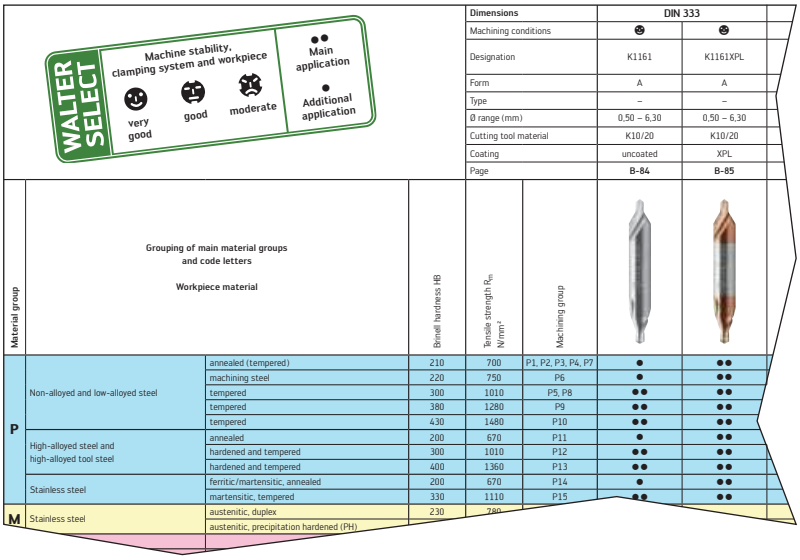
Select the **machining conditions:**

Machine stability, clamping system and workpiece		
very good	good	moderate
		

STEP 3

Select your tool from the table from page B-80:

– In acc. with **DIN** and **form** (e.g. DIN 345, form C; Form A)
– In acc. with the **machining conditions** (see step 2: ☻ 😐 ☹)
– For the relevant **machining group** (see step 1: P1–P15; M1–M3; . . . 01–06)



						Dimensions	DIN 333	
						Machining conditions	☻	☻
						Designation	K1161	K1161XPL
						Form	A	A
						Type	–	–
						Ø range (mm)	0,50 – 6,30	0,50 – 6,30
						Cutting tool material	K10/20	K10/20
						Coating	uncoated	XPL
						Page	B-84	B-85
Material group	Grouping of main material groups and code letters	Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group		
P	Non-alloyed and low-alloyed steel	annealed (tempered)		210	700	P1, P2, P3, P4, P7	●	●●
		machining steel		220	750	P6	●	●●
		tempered		300	1010	P5, P8	●●	●●
		tempered		380	1280	P9	●●	●●
		tempered		430	1480	P10	●●	●●
	High-alloyed steel and high-alloyed tool steel	annealed		200	670	P11	●	●●
		hardened and tempered		300	1010	P12	●●	●●
		hardened and tempered		400	1360	P13	●●	●●
	Stainless steel	ferritic/martensitic, annealed		200	670	P14	●	●●
		martensitic, tempered		330	1110	P15	●●	●●
M	Stainless steel	austenitic, duplex		230	780			
		austenitic, precipitation hardened (PH)						

STEP 4

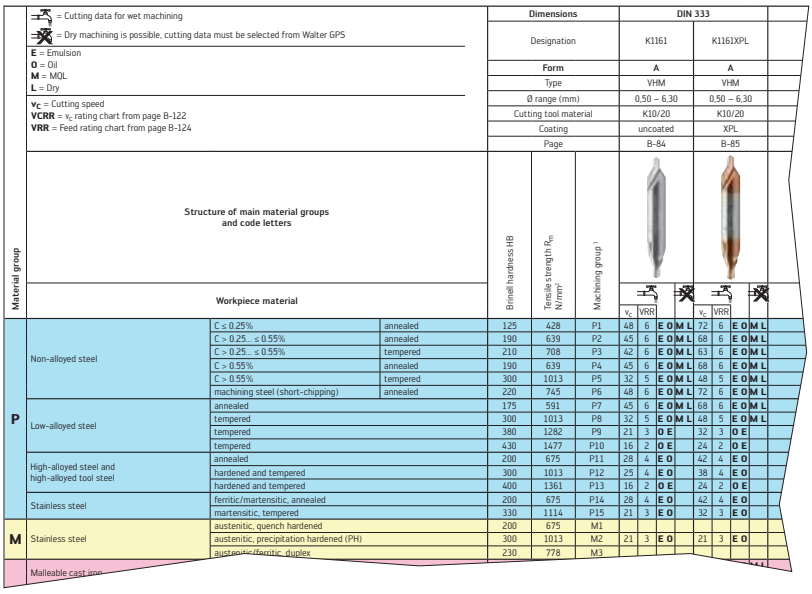
Choose your **cutting data** from the table from page B-114 onwards:

– **Cutting speed:** v_c

– **Feed:** VRR (feed rating chart)

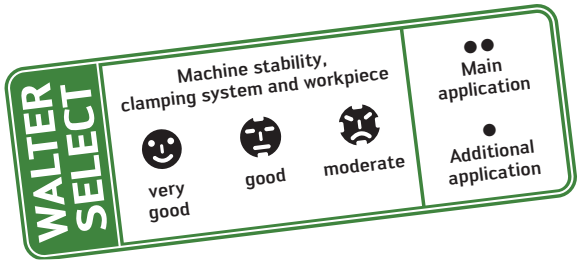
Go to the row of your machining group (e.g. K5) and the column of your selected tool. You will find the cutting speed v_c and the VRR there.

The feed rating chart (**VRR**) can be found from page B-124 onwards.



							Dimensions	DIN 333												
							Designation	K1161							K1161XPL					
							Form	A							A					
							Type	VHM							VHM					
							Ø range (mm)	0,50 – 6,30							0,50 – 6,30					
							Cutting tool material	K10/20							K10/20					
							Coating	uncoated							XPL					
							Page	B-84							B-85					
Material group	Structure of main material groups and code letters	Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group ¹													
								v_c	VRR						v_c	VRR				
P	Non-alloyed steel	C ≤ 0.25%	annealed		125	428	P1	48	6	E	O	M	L		72	6	E	O	M	L
		C > 0.25... ≤ 0.55%	annealed		190	639	P2	45	6	E	O	M	L		68	6	E	O	M	L
		C > 0.25... ≤ 0.55%	tempered		210	708	P3	42	6	E	O	M	L		63	6	E	O	M	L
		C > 0.55%	annealed		190	639	P4	45	6	E	O	M	L		68	6	E	O	M	L
		C > 0.55%	tempered		300	1013	P5	32	5	E	O	M	L		48	5	E	O	M	L
		machining steel (short-chipping)	annealed		220	745	P6	48	6	E	O	M	L		72	6	E	O	M	L
	Low-alloyed steel	annealed			175	591	P7	45	6	E	O	M	L		68	6	E	O	M	L
		tempered			300	1013	P8	32	5	E	O	M	L		48	5	E	O	M	L
		tempered			380	1282	P9	21	3	O	E				32	3	O	E		
		tempered			430	1477	P10	16	2	O	E				24	2	O	E		
	High-alloyed steel and high-alloyed tool steel	annealed			200	675	P11	28	4	E	O				42	4	E	O		
		hardened and tempered			300	1013	P12	25	4	E	O				38	4	E	O		
		hardened and tempered			400	1361	P13	16	2	O	E				24	2	O	E		
	Stainless steel	ferritic/martensitic, annealed			200	675	P14	28	4	E	O				42	4	E	O		
		martensitic, tempered			330	1114	P15	21	3	E	O				32	3	E	O		
M	Stainless steel	austenitic, quench hardened			200	675	M1													
		austenitic, precipitation hardened (PH)			300	1013	M2	21	3	E	O				21	3	E	O		
		austenitic/ferritic, duplex			230	778	M3													
	Malleable cast iron																			

Walter Select – Centring
Solid carbide and HSS centre drills



						Dimensions	DIN 333	
						Machining conditions	☻	☻
						Designation	K1161	K1161XPL
						Form	A	A
						Type	–	–
						Ø range (mm)	0,50 – 6,30	0,50 – 6,30
						Cutting tool material	K10/20	K10/20
						Coating	uncoated	XPL
						Page	**B-84**	**B-85**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●	●●	
		machining steel	220	750	P6	●	●●	
		tempered	300	1010	P5, P8	●●	●●	
		tempered	380	1280	P9	●●	●●	
		tempered	430	1480	P10	●●	●●	
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●	●●	
		hardened and tempered	300	1010	P12	●●	●●	
		hardened and tempered	400	1360	P13	●●	●●	
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●	●●	
		martensitic, tempered	330	1110	P15	●●	●●	
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2	●●	●●	
K	Grey cast iron		245	–	K3, K4	●●	●●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●	●●	
	GGV (CGI)		200	–	K7	●●	●●	
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●	●●	
		hardenable, hardened	100	340	N2	●●	●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●	
		> 12% Si	130	450	N5	●●	●●	
	Magnesium alloys		70	250	N6	●●	●●	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●	●●	
		brass, bronze, red brass	90	310	N8	●●	●●	
		Cu-alloys, short-chipping	110	380	N9	●●	●●	
		high-strength, Ampco	300	1010	N10	●●	●●	
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●●	●●	
		Ni or Co base	250	840	S3	●●	●●	
		Ni or Co base	350	1080	S4, S5	●●	●●	
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9	●●	●●	
	Molybdenum alloys		300	1010	S10	●●	●●	
H	Hardened steel		50 HRC	–	H1	●	●●	
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1	●●	●●	
	Thermosetting plastics	without abrasive fillers			O2	●●	●●	
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	●●	●●	
		CFRP			O4	●●	●●	
	Graphite (technical)			65	O6	●●	●●	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	DIN 333							
	●●	●●	●●	●●	●●	●●	●●	●●
	K1111TIN	K1111	K1112	K1131	K1113TIN	K1113	K1114	K1215
	A	A	A	A	R	R	R	B
	–	–	with flat	left-hand	–	–	with flat	–
	1,00 – 5,00	0,50 – 12,50	1,60 – 5,00	0,50 – 6,30	1,00 – 5,00	0,50 – 12,50	1,60 – 5,00	1,00 – 10,00
	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
	TiN	uncoated	uncoated	uncoated	TiN	uncoated	uncoated	uncoated
	*B 292**	*B 292**	*B 293**	*B 297**	*B 295**	*B 294**	*B 296**	*B 299**
								
	●●	●●		●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●	●●	●●
	●●	●	●	●	●●	●	●	●
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	●●	●●	●●	●●	●●	●●	●●	●●
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	●●	●●	●●	●●	●●	●●	●●	●●
	●	●	●	●	●	●	●	●
	●●	●●	●●	●●	●●	●●	●●	●●
	●	●	●	●	●	●	●	●
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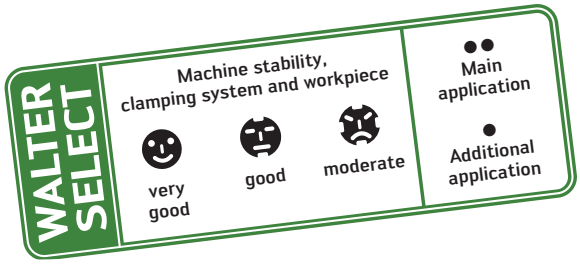
Walter Select – Centring
Solid carbide and HSS centre drills



						Dimensions	Walter standard		
						Machining conditions			
						Designation	K1313	K1311	
						Form	R	A	
						Type	–	–	
						Ø range (mm)	1,00 – 4,00	0,63 – 6,00	
						Cutting tool material	HSS	HSS	
						Coating	uncoated	uncoated	
						Page	*B 301**	*B 300**	
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●	●●		
		machining steel	220	750	P6	●●	●●		
		tempered	300	1010	P5, P8	●	●		
		tempered	380	1280	P9	●	●		
		tempered	430	1480	P10				
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●	●●		
		hardened and tempered	300	1010	P12	●	●		
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●	●●		
		martensitic, tempered	330	1110	P15	●	●		
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●●	●●		
		austenitic, precipitation hardened (PH)	300	1010	M2	●	●		
K	Grey cast iron		245	–	K3, K4	●●	●●		
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●	●●		
	GGV (CGI)		200	–	K7	●●	●●		
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●	●●		
		hardenable, hardened	100	340	N2	●●	●●		
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●		
		> 12% Si	130	450	N5	●	●		
	Magnesium alloys		70	250	N6	●●	●●		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●	●●		
		brass, bronze, red brass	90	310	N8	●●	●●		
		Cu-alloys, short-chipping	110	380	N9	●●	●●		
		high-strength, Ampco	300	1010	N10	●	●		
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●●	●●		
		Ni or Co base	250	840	S3	●●	●●		
		Ni or Co base	350	1080	S4, S5	●	●		
	Titanium alloys	pure titanium	200	670	S6	●●	●●		
		α and β alloys, hardened	375	1260	S7	●	●		
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9	●	●		
	Molybdenum alloys		300	1010	S10	●	●		
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1	●●	●●		
	Thermosetting plastics	without abrasive fillers			O2	●●	●●		
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	Walter standard			ANSI B 94.11 M-1979	B.S. 328	Step centre drill	
	⁂	⁂	⁂	⁂	⁂	⁂	⁂
	K1411S	K1411M	K1411L	K1811	K1911	K2511	K2513
	A	A	A	A	A	60°	Radius
	–	–	–	–	–	–	–
	0,75 – 5,00	0,75 – 4,00	2,00 – 4,00	0,64 – 7,97	1,19 – 7,94	3,30 – 21,00	3,30 – 21,00
	HSS	HSS	HSS	HSS	HSS	HSS	HSS
	uncoated	uncoated	uncoated	uncoated	uncoated	uncoated	uncoated
	*B 304**	*B 303**	*B 302**	*B 305**	*B 306**	*B 307**	*B 308**
							
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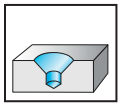
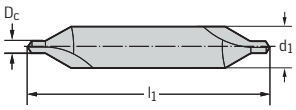
Solid carbide centre drill
K1161
Form A



- K10/20 - uncoated
- Form A
- Right-hand cutting
- For centring 60° without protective countersink
- For straight contact surfaces in acc. with DIN 332 A

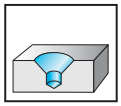
	P	M	K	N	S	H	O
uncoated	●●	●●	●●	●●	●●	●	●●

DIN 333	D_c k12 mm	d_1 h9 mm	l_1 mm	Designation K1161
Cylindrical shank	0,5	3,15	25	-0.5
	0,8	3,15	25	-0.8
	1	3,15	32	-1
	1,25	3,15	32	-1.25
	1,6	4	36	-1.6
	2	5	40	-2
	2,5	6,3	45	-2.5
	3,15	8	50	-3.15
	4	10	56	-4
	5	12,5	63	-5
	6,3	16	71	-6.3

D_c 0.5/0.8 single-sided

G-2 B-102

Solid carbide centre drill
K1161XPL
Form A

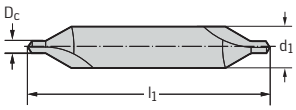


- K10/20 - XPL
- Form A
- Right-hand cutting
- For centring 60° without protective countersink
- For straight contact surfaces in acc. with DIN 332 A

	P	M	K	N	S	H	O
XPL	●●	●●	●●	●●	●●	●●	●●

DIN 333

Cylindrical shank



D_c k12 mm	d_1 h9 mm	l_1 mm	Designation K1161XPL
0,5	3,15	25	★ -0.5
0,8	3,15	25	★ -0.8
1	3,15	32	★ -1
1,25	3,15	32	★ -1.25
1,6	4	36	★ -1.6
2	5	40	★ -2
2,5	6,3	45	★ -2.5
3,15	8	50	★ -3.15
4	10	56	★ -4
5	12,5	63	★ -5
6,3	16	71	★ -6.3

D_c 0.5/0.8 single-sided

★ New addition to range

G-2 B-102

Walter Select for carbide and HSS reamers

Step by step to the correct tool

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the **machining group** that corresponds to your material e.g.: K5.

Code letter	Machining group	Groups of the materials to be machined	
P	**P1–P15**	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	**M1–M3**	**Stainless steel**	Stainless austenitic steel and austenitic-ferritic steel and cast steel
K	**K1–K7**	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	**N1–N10**	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	**S1–S10**	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	**H1–H4**	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	**O1–O6**	**Other**	Plastics, glass- and carbon fibre reinforced plastics, graphite

STEP 2

Select the **machining conditions:**

Machine stability, clamping system and workpiece		
very good	good	moderate
		

STEP 3

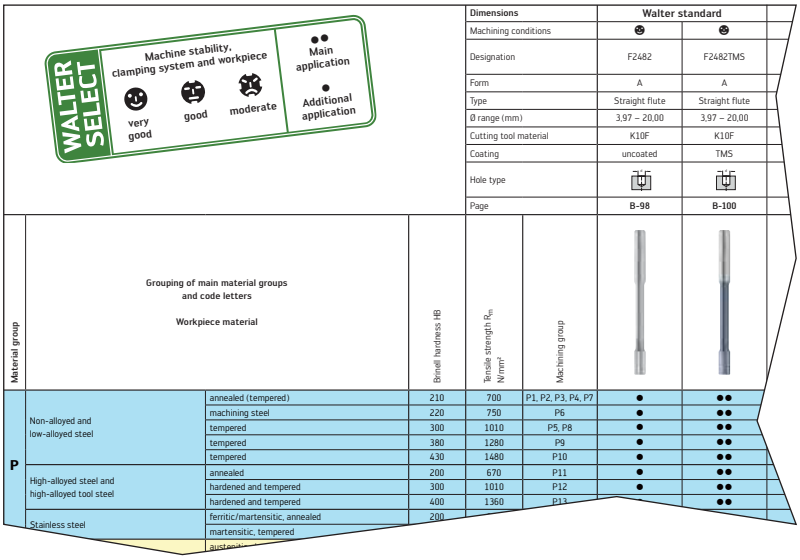
Select your tool from the table from page B-88:

– In acc. with **DIN, form** and the **drill hole type** (e.g. DIN 345, form C, blind hole)
– In acc. with **machining conditions** (see step 2: ☻ 😐 ☹)
– For the relevant **machining group** (see step 1: P1–P15; M1–M3; . . . 01–06)

= Blind hole

= Through hole depth ≤ 1 x d

= Through hole depth > 1 x d



			Dimensions	Walter standard	
			Machining conditions	☻	☻
			Designation	F2482	F2482TMS
			Form	A	A
			Type	Straight flute	Straight flute
			Ø range (mm)	3,97 – 20,00	3,97 – 20,00
			Cutting tool material	K10F	K10F
			Coating	uncoated	TMS
			Hole type		
			Page	B-98	B-100
Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●	●●
		machining steel	220	750	P6	●	●●
		tempered	300	1010	P5, P8	●	●●
		tempered	380	1280	P9	●	●●
		tempered	430	1480	P10	●	●●
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●	●●
		hardened and tempered	300	1010	P12	●	●●
		hardened and tempered	400	1360	P13		●●
	Stainless steel	ferritic/martensitic, annealed	200				
		martensitic, tempered					

STEP 4

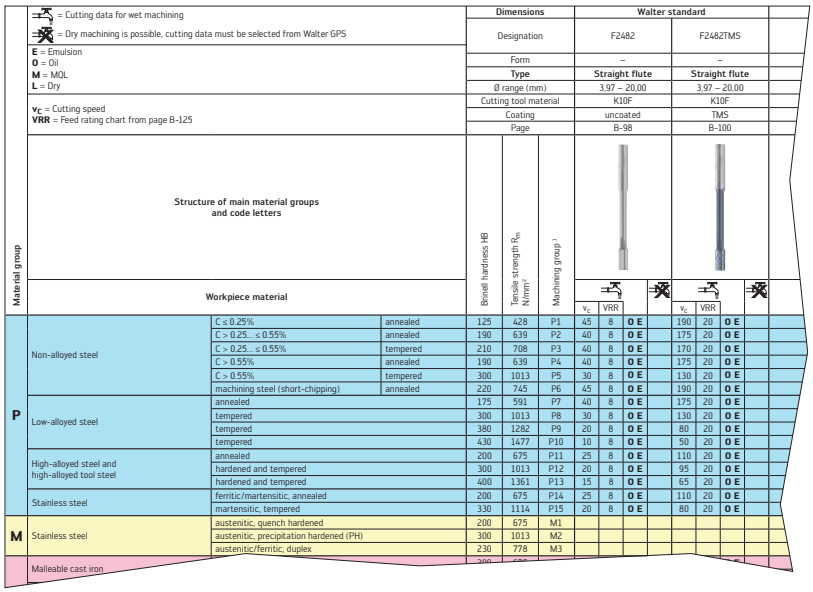
Choose your **cutting data** from the table from page B -118 onwards:

– **Cutting speed:** v_c

– **Feed:** VRR (feed rating chart)

Go to the row of your machining group (e.g. K5) and the column of your selected reamer. You will find the cutting speed v_c and the VRR there.

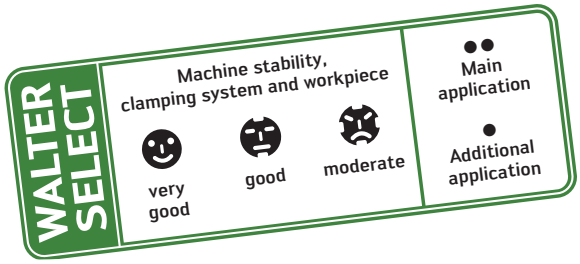
The feed rating chart (**VRR**) can be found from page B-125 onwards.



= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS
E = Emulsion
O = Oil
M = MQL
L = Dry
v_c = Cutting speed
VRR = Feed rating chart from page B-125

				Dimensions	Walter standard								
				Designation	F2482				F2482TMS				
				Form	–				–				
				Type	Straight flute				Straight flute				
				Ø range (mm)	3,97 – 20,00				3,97 – 20,00				
				Cutting tool material	K10F				K10F				
				Coating	uncoated				TMS				
				Page	B-98				B-100				
Material group	Structure of main material groups and code letters / Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]							
							v_c	VRR			v_c	VRR	
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	45	8	O E		190	20	O E
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	40	8	O E		175	20	O E
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	40	8	O E		170	20	O E
		C > 0.55%	annealed	190	639	P4	40	8	O E		175	20	O E
		C > 0.55%	tempered	300	1013	P5	30	8	O E		130	20	O E
		machining steel (short-chipping)	annealed	220	745	P6	45	8	O E		190	20	O E
	Low-alloyed steel	annealed		175	591	P7	40	8	O E		175	20	O E
		tempered		300	1013	P8	30	8	O E		130	20	O E
		tempered		380	1282	P9	20	8	O E		80	20	O E
		tempered		430	1477	P10	10	8	O E		50	20	O E
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	25	8	O E		110	20	O E
		hardened and tempered		300	1013	P12	20	8	O E		95	20	O E
		hardened and tempered		400	1361	P13	15	8	O E		65	20	O E
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	25	8	O E		110	20	O E
		martensitic, tempered		330	1114	P15	20	8	O E		80	20	O E
M	Stainless steel	austenitic, quench hardened		200	675	M1							
		austenitic, precipitation hardened (PH)		300	1013	M2							
		austenitic/ferritic, duplex		230	778	M3							
	Malleable cast iron												

Walter Select – Reaming
Carbide and HSS reamers



Dimensions	Walter standard	
Machining conditions	☻	☻
Designation	F2482	F2482TMS
Form	A	A
Type	Straight flute	Straight flute
Ø range (mm)	3,97 – 20,00	3,97 – 20,00
Cutting tool material	K10F	K10F
Coating	uncoated	TMS
Hole type		
Page	**B-98**	**B-100**

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●	●●	
		machining steel	220	750	P6	●	●●	
		tempered	300	1010	P5, P8	●	●●	
		tempered	380	1280	P9	●	●●	
		tempered	430	1480	P10	●	●●	
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●	●●	
		hardened and tempered	300	1010	P12	●	●●	
		hardened and tempered	400	1360	P13	●	●●	
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●	●●	
		martensitic, tempered	330	1110	P15	●	●●	
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4	●	●●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●	●●	
	GGV (CGI)		200	–	K7	●	●●	
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●		
		hardenable, hardened	100	340	N2	●●		
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●		
		> 12% Si	130	450	N5	●●		
	Magnesium alloys		70	250	N6	●●		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●		
		brass, bronze, red brass	90	310	N8	●●		
		Cu-alloys, short-chipping	110	380	N9	●●		
		high-strength, Ampco	300	1010	N10	●●		
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1	●●		
	Thermosetting plastics	without abrasive fillers			O2	●●		
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	●		
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

= Blind hole

= Through hole depth ≤ 1 x d

= Through hole depth > 1 x d

	Walter standard						DIN 212	
	☻	☻	☻	☻	☻	☻	☹	☹
	F2481	F2481TMS	F2162	F2171	F4162	F4171	F1342	F1352 F1352HUN
	B	B	A / C	B / D	A	B	A / C	B / D
	Left-hand spiral	Left-hand spiral	Straight flute	Left-hand spiral	Straight flute	Left-hand spiral	Straight flute	Left-hand spiral
	3,97 – 20,00	3,97 – 20,00	4,00 – 20,00	2,00 – 20,00	5,00 – 32,00	5,00 – 20,00	1,00 – 20,00	0,90 – 20,00
	K10F	K10F	K10	K10	K10	K10	HSS-E	HSS-E
	uncoated	TMS	uncoated	uncoated	uncoated	uncoated	uncoated	uncoated
	B-94	**B-96**	**B-92**	**B-93**	*B 341**	*B 342**	*B 322**	*B 325* / B 329**
								
	●	●●	●●	●●	●●	●●	●●	●●
	●	●●	●●	●●	●●	●●	●●	●●
	●	●●	●●	●●	●●	●●	●	●
	●	●●	●●	●●	●●	●●		
	●	●●	●	●	●	●		
	●	●●	●●	●●	●●	●●	●	●
	●	●●	●●	●●	●●	●●		
	●	●●	●●	●●	●●	●●		
	●	●●	●●	●●	●●	●●	●	●
	●	●●	●●	●●	●●	●●		
			●●	●●	●●	●●		
			●●	●●	●●	●●		
	●	●●	●●	●●	●●	●●	●●	●●
	●	●●	●●	●●	●●	●●	●●	●●
	●	●●	●●	●●	●●	●●	●	●
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			●●	●●	●●	●●		
			●●	●●	●●	●●		
			●	●	●	●		
			●●	●●	●●	●●		
			●●	●●	●●	●●		
			●	●	●	●		
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			●	●	●	●		
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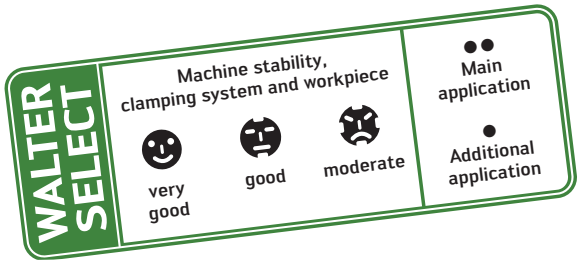
	●		●	●	●	●		

Walter Select – Reaming
Carbide and HSS reamers



Dimensions			DIN 208		
Machining conditions					
Designation			F4142	F4152	
Form			A	B	
Type			Straight flute	Left-hand spiral	
Ø range (mm)			5,00 – 32,00	5,00 – 40,00	
Cutting tool material			HSS-E	HSS-E	
Coating			uncoated	uncoated	
Hole type					
Page			*B 337**	*B 338**	

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●	●●	
		machining steel	220	750	P6	●●	●●	
		tempered	300	1010	P5, P8	●	●	
		tempered	380	1280	P9			
		tempered	430	1480	P10			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●	●	
		hardened and tempered	300	1010	P12			
		hardened and tempered	400	1360	P13			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●	●	
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4	●●	●●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●	●●	
	GGV (CGI)		200	–	K7	●	●	
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●	●●	
		hardenable, hardened	100	340	N2	●●	●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●	
		> 12% Si	130	450	N5			
	Magnesium alloys		70	250	N6	●●	●●	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●	●●	
		brass, bronze, red brass	90	310	N8	●●	●●	
		Cu-alloys, short-chipping	110	380	N9	●	●	
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1	●●	●●	
	Thermosetting plastics	without abrasive fillers			O2	●	●	
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

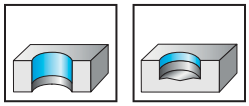

= Blind hole


= Through hole depth ≤ 1 x d


= Through hole depth > 1 x d

	DIN 219	DIN 2179	DIN 2180	DIN 311	DIN 206	DIN 859
	⛭	⛭	⛭	⛭	⛭	⛭
	F7133	F3234	F6134	F4535	F1131	F1231
	B	–	–	–	Hand reamer	Adjustable hand reamer
	Left-hand spiral	For tapered holes 1:50	For tapered holes 1:50	Bridge reamers	Left-hand spiral	Left-hand spiral
	25,00 – 60,00	1,00 – 12,00	5,00 – 20,00	6,40 – 32,00	1,00 – 50,00	8,00 – 30,00
	HSS	HSS-E	HSS-E	HSS	HSS	HSS
	uncoated	uncoated	uncoated	uncoated	uncoated	uncoated
	B 345 / G 66**	*B 334**	*B 344**	*B 343**	*B 317**	*B 321**
						
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●	●	●	●	●	●
	●	●	●	●	●	●
	●	●	●	●	●	●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●	●	●	●	●	●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●	●	●	●	●	●
	●●	●●	●●	●●	●●	●●
	●	●	●	●	●	●

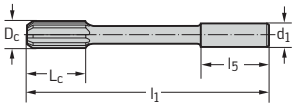
Carbide machine reamers
F2162
H7



- K10 - uncoated
- Form A
- Right handed - straight flute
- Differential pitch
- Solid carbide up to Ø 13, solid carbide point over Ø 13

	P	M	K	N	S	H	O
uncoated	●●	●●	●●	●●	●●	●	●●

Shank DIN 6535 HA



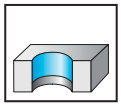
D_c mm	d_1 h6 mm	L_c mm	l_1 mm	l_5 mm	Z	Designation F2162
4	4	19	75	28	6	★ -4
4,5	6	21	80	36	6	★ -4.5
5	6	23	86	36	6	★ -5
5,5	6	26	93	36	6	★ -5.5
6	6	26	93	36	6	★ -6
6,5	6	28	101	36	6	★ -6.5
7	8	31	109	36	6	★ -7
7,5	8	31	109	36	6	★ -7.5
8	8	33	117	36	6	★ -8
8,5	8	33	117	36	6	★ -8.5
9	10	36	125	40	6	★ -9
9,5	10	36	125	40	6	★ -9.5
10	10	38	133	40	6	★ -10
11	12	41	142	45	6	★ -11
12	12	44	151	45	6	★ -12
13	12	44	151	45	6	★ -13
14	16	47	160	48	8	★ -14
15	16	50	162	48	8	★ -15
16	16	52	170	48	8	★ -16
17	18	52	175	48	8	★ -17
18	18	52	182	48	8	★ -18
20	20	52	195	50	8	★ -20

Dimensions similar to DIN 8093

★ New addition to range

G-2 B-102

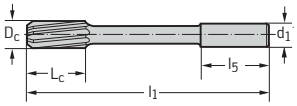
Carbide machine reamers
F2171
H7



- K10 - uncoated
- Form B
- Right handed - spiral flute
- Differential pitch
- Solid carbide up to Ø 13, solid carbide point over Ø 13

	P	M	K	N	S	H	O
uncoated	●●	●●	●●	●●	●●	●	●●

Shank DIN 6535 HA



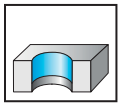
D_c mm	d_1 h6 mm	L_c mm	l_1 mm	l_5 mm	Z	Designation F2171
2	4	12	49	28	4	★ -2
2,5	4	16	59	28	4	★ -2.5
3	4	17	63	28	6	★ -3
3,2	4	18	65	28	6	★ -3.2
3,5	4	18	70	28	6	★ -3.5
4	4	19	75	28	6	★ -4
4,5	6	21	80	36	6	★ -4.5
5	6	23	86	36	6	★ -5
5,5	6	26	93	36	6	★ -5.5
6	6	26	93	36	6	★ -6
6,5	6	28	101	36	6	★ -6.5
7	8	31	109	36	6	★ -7
7,5	8	31	109	36	6	★ -7.5
8	8	33	117	36	6	★ -8
8,5	8	33	117	36	6	★ -8.5
9	10	36	125	40	6	★ -9
10	10	38	133	40	6	★ -10
11	12	41	142	45	6	★ -11
12	12	44	151	45	6	★ -12
13	12	44	151	45	6	★ -13
14	16	47	160	48	8	★ -14
15	16	50	162	48	8	★ -15
16	16	52	170	48	8	★ -16
18	18	52	182	48	8	★ -18
20	20	52	195	50	8	★ -20

Dimensions similar to DIN 8093

★ New addition to range

G-2 B-102

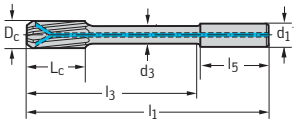
Solid carbide HSC reaming tools
F2481
H7



- K10F - uncoated
- Right handed - spiral flute
- Differential pitch
- Tolerance for 1/100 size: +0.004 mm

	P	M	K	N	S	H	O
uncoated	●		●	●●			●●

Shank DIN 6535 HA



Dc mm	d1 h6 mm	d3 mm	Lc mm	l1 mm	l3 mm	l5 mm	Z	Designation F2481
3,97	6	3,4	12	75	34	36	4	★ -3.97
3,98	6	3,4	12	75	34	36	4	★ -3.98
3,99	6	3,4	12	75	34	36	4	★ -3.99
4	6	3,4	12	75	34	36	4	★ -4
4,01	6	3,4	12	75	34	36	4	★ -4.01
4,02	6	3,4	12	75	34	36	4	★ -4.02
4,03	6	3,4	12	75	34	36	4	★ -4.03
4,5	6	3,4	12	75	34	36	4	★ -4.5
4,97	6	3,8	12	75	35	36	4	★ -4.97
4,98	6	3,8	12	75	35	36	4	★ -4.98
4,99	6	3,8	12	75	35	36	4	★ -4.99
5	6	3,8	12	75	35	36	4	★ -5
5,01	6	3,8	12	75	35	36	4	★ -5.01
5,02	6	3,8	12	75	35	36	4	★ -5.02
5,03	6	3,8	12	75	35	36	4	★ -5.03
5,5	6	4,2	12	75	35	36	4	★ -5.5
5,97	6	4,5	12	75	35	36	4	★ -5.97
5,98	6	4,5	12	75	35	36	4	★ -5.98
5,99	6	4,5	12	75	35	36	4	★ -5.99
6	6	4,5	12	75	35	36	4	★ -6
6,01	6	4,5	12	75	35	36	4	★ -6.01
6,02	6	4,5	12	75	35	36	4	★ -6.02
6,03	6	4,5	12	75	35	36	4	★ -6.03
6,5	8	4,8	16	100	59	36	6	★ -6.5
7	8	5	16	100	59	36	6	★ -7
7,5	8	5,5	16	100	60	36	6	★ -7.5
7,97	8	6	16	100	60	36	6	★ -7.97
7,98	8	6	16	100	60	36	6	★ -7.98
7,99	8	6	16	100	60	36	6	★ -7.99
8	8	6	16	100	60	36	6	★ -8
8,01	8	6	16	100	60	36	6	★ -8.01
8,02	8	6	16	100	60	36	6	★ -8.02
8,03	8	6	16	100	60	36	6	★ -8.03
8,5	10	6,5	20	100	55	40	6	★ -8.5
9	10	7	20	100	55	40	6	★ -9
9,5	10	7,5	20	120	76	40	6	★ -9.5
9,97	10	7,5	20	120	76	40	6	★ -9.97
9,98	10	7,5	20	120	76	40	6	★ -9.98
9,99	10	7,5	20	120	76	40	6	★ -9.99
10	10	7,5	20	120	76	40	6	★ -10
10,01	10	7,5	20	120	76	40	6	★ -10.01
10,02	10	7,5	20	120	76	40	6	★ -10.02
10,03	10	7,5	20	120	76	40	6	★ -10.03
10,5	12	8	20	120	70	45	6	★ -10.5
11	12	8,5	20	120	70	45	6	★ -11
11,5	12	8,5	20	120	71	45	6	★ -11.5
11,97	12	9	20	120	71	45	6	★ -11.97

Continued

★ New addition to range

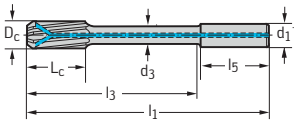
B-137 G-2 B-102

Solid carbide HSC reaming tools
F2481
H7

Continued

	P	M	K	N	S	H	O
uncoated	●		●	●●			●●

Shank DIN 6535 HA

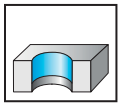


D_c mm	d_1 h6 mm	d_3 mm	L_c mm	l_1 mm	l_3 mm	l_5 mm	Z	Designation F2481
11,98	12	9	20	120	71	45	6	★ -11.98
11,99	12	9	20	120	71	45	6	★ -11.99
12	12	9	20	120	71	45	6	★ -12
12,01	12	9	20	120	71	45	6	★ -12.01
12,02	12	9	20	120	71	45	6	★ -12.02
12,03	12	9	20	120	71	45	6	★ -12.03
13	14	10	22	130	80	45	6	★ -13
14	14	10,5	22	130	80	45	6	★ -14
15	16	11,5	22	130	77	48	6	★ -15
16	16	12	25	150	97	48	6	★ -16
17	18	13	25	150	97	48	8	★ -17
18	18	13,5	25	150	97	48	8	★ -18
19	20	14	25	150	95	50	8	★ -19
20	20	14,5	25	150	95	50	8	★ -20

★ New addition to range

B-137 G-2 B-102

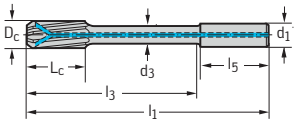
Solid carbide HSC reaming tools
F2481TMS
H7



- K10F - TMS
- Right handed - spiral flute
- Differential pitch
- Tolerance for 1/100 size: +0.004 mm

	P	M	K	N	S	H	O
TMS	●●		●●				

Shank DIN 6535 HA



Dc mm	d1 h6 mm	d3 mm	Lc mm	l1 mm	l3 mm	l5 mm	Z	Designation F2481TMS
3,97	6	3,4	12	75	34	36	4	★ -3.97
3,98	6	3,4	12	75	34	36	4	★ -3.98
3,99	6	3,4	12	75	34	36	4	★ -3.99
4	6	3,4	12	75	34	36	4	★ -4
4,01	6	3,4	12	75	34	36	4	★ -4.01
4,02	6	3,4	12	75	34	36	4	★ -4.02
4,03	6	3,4	12	75	34	36	4	★ -4.03
4,5	6	3,4	12	75	34	36	4	★ -4.5
4,97	6	3,8	12	75	35	36	4	★ -4.97
4,98	6	3,8	12	75	35	36	4	★ -4.98
4,99	6	3,8	12	75	35	36	4	★ -4.99
5	6	3,8	12	75	35	36	4	★ -5
5,01	6	3,8	12	75	35	36	4	★ -5.01
5,02	6	3,8	12	75	35	36	4	★ -5.02
5,03	6	3,8	12	75	35	36	4	★ -5.03
5,5	6	4,2	12	75	35	36	4	★ -5.5
5,97	6	4,5	12	75	35	36	4	★ -5.97
5,98	6	4,5	12	75	35	36	4	★ -5.98
5,99	6	4,5	12	75	35	36	4	★ -5.99
6	6	4,5	12	75	35	36	4	★ -6
6,01	6	4,5	12	75	35	36	4	★ -6.01
6,02	6	4,5	12	75	35	36	4	★ -6.02
6,03	6	4,5	12	75	35	36	4	★ -6.03
6,5	8	4,8	16	100	59	36	6	★ -6.5
7	8	5	16	100	59	36	6	★ -7
7,5	8	5,5	16	100	60	36	6	★ -7.5
7,97	8	6	16	100	60	36	6	★ -7.97
7,98	8	6	16	100	60	36	6	★ -7.98
7,99	8	6	16	100	60	36	6	★ -7.99
8	8	6	16	100	60	36	6	★ -8
8,01	8	6	16	100	60	36	6	★ -8.01
8,02	8	6	16	100	60	36	6	★ -8.02
8,03	8	6	16	100	60	36	6	★ -8.03
8,5	10	6,5	20	100	55	40	6	★ -8.5
9	10	7	20	100	55	40	6	★ -9
9,5	10	7,5	20	120	76	40	6	★ -9.5
9,97	10	7,5	20	120	76	40	6	★ -9.97
9,98	10	7,5	20	120	76	40	6	★ -9.98
9,99	10	7,5	20	120	76	40	6	★ -9.99
10	10	7,5	20	120	76	40	6	★ -10
10,01	10	7,5	20	120	76	40	6	★ -10.01
10,02	10	7,5	20	120	76	40	6	★ -10.02
10,03	10	7,5	20	120	76	40	6	★ -10.03
10,5	12	8	20	120	70	45	6	★ -10.5
11	12	8,5	20	120	70	45	6	★ -11
11,5	12	8,5	20	120	71	45	6	★ -11.5
11,97	12	9	20	120	71	45	6	★ -11.97

Continued

★ New addition to range

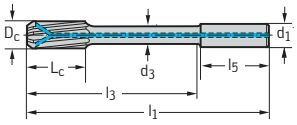
B-137 G-2 B-102

Solid carbide HSC reaming tools
F2481TMS
H7

	P	M	K	N	S	H	O
TMS	●●		●●				

Continued

Shank DIN 6535 HA

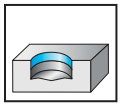


D_c mm	d_1 h6 mm	d_3 mm	L_c mm	l_1 mm	l_3 mm	l_5 mm	Z	Designation F2481TMS
11,98	12	9	20	120	71	45	6	★ -11.98
11,99	12	9	20	120	71	45	6	★ -11.99
12	12	9	20	120	71	45	6	★ -12
12,01	12	9	20	120	71	45	6	★ -12.01
12,02	12	9	20	120	71	45	6	★ -12.02
12,03	12	9	20	120	71	45	6	★ -12.03
13	14	10	22	130	80	45	6	★ -13
14	14	10,5	22	130	80	45	6	★ -14
15	16	11,5	22	130	77	48	6	★ -15
16	16	12	25	150	97	48	6	★ -16
17	18	13	25	150	97	48	8	★ -17
18	18	13,5	25	150	97	48	8	★ -18
19	20	14	25	150	95	50	8	★ -19
20	20	14,5	25	150	95	50	8	★ -20

★ New addition to range

B-137 G-2 B-102

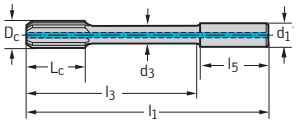
Solid carbide HSC reaming tools
F2482
H7



- K10F - uncoated
- Right handed - straight flute
- Differential pitch
- Tolerance for 1/100 size: +0.004 mm

	P	M	K	N	S	H	O
uncoated	●		●	●●			●●

Shank DIN 6535 HA



D_c mm	d_1 h6 mm	d_3 mm	L_c mm	l_1 mm	l_3 mm	l_5 mm	Z	Designation F2482
3,97	6	3,5	12	75	34	36	4	★ -3.97
3,98	6	3,5	12	75	34	36	4	★ -3.98
3,99	6	3,5	12	75	34	36	4	★ -3.99
4	6	3,5	12	75	34	36	4	★ -4
4,01	6	3,5	12	75	34	36	4	★ -4.01
4,02	6	3,5	12	75	34	36	4	★ -4.02
4,03	6	3,5	12	75	34	36	4	★ -4.03
4,5	6	4	12	75	34	36	4	★ -4.5
4,97	6	4,4	12	75	35	36	4	★ -4.97
4,98	6	4,4	12	75	35	36	4	★ -4.98
4,99	6	4,4	12	75	35	36	4	★ -4.99
5	6	4,4	12	75	35	36	4	★ -5
5,01	6	4,4	12	75	35	36	4	★ -5.01
5,02	6	4,4	12	75	35	36	4	★ -5.02
5,03	6	4,4	12	75	35	36	4	★ -5.03
5,5	6	4,9	12	75	35	36	4	★ -5.5
5,97	6	5,3	12	75	35	36	4	★ -5.97
5,98	6	5,3	12	75	35	36	4	★ -5.98
5,99	6	5,3	12	75	35	36	4	★ -5.99
6	6	5,3	12	75	35	36	4	★ -6
6,01	6	5,3	12	75	35	36	4	★ -6.01
6,02	6	5,3	12	75	35	36	4	★ -6.02
6,03	6	5,3	12	75	35	36	4	★ -6.03
6,5	8	5,7	16	100	59	36	6	★ -6.5
7	8	6,2	16	100	59	36	6	★ -7
7,5	8	6,7	16	100	60	36	6	★ -7.5
7,97	8	7,2	16	100	60	36	6	★ -7.97
7,98	8	7,2	16	100	60	36	6	★ -7.98
7,99	8	7,2	16	100	60	36	6	★ -7.99
8	8	7,2	16	100	60	36	6	★ -8
8,01	8	7,2	16	100	60	36	6	★ -8.01
8,02	8	7,2	16	100	60	36	6	★ -8.02
8,03	8	7,2	16	100	60	36	6	★ -8.03
8,5	10	7,7	20	100	55	40	6	★ -8.5
9	10	8,2	20	100	55	40	6	★ -9
9,5	10	8,7	20	120	76	40	6	★ -9.5
9,97	10	9	20	120	76	40	6	★ -9.97
9,98	10	9	20	120	76	40	6	★ -9.98
9,99	10	9	20	120	76	40	6	★ -9.99
10	10	9	20	120	76	40	6	★ -10
10,01	10	9	20	120	76	40	6	★ -10.01
10,02	10	9	20	120	76	40	6	★ -10.02
10,03	10	9	20	120	76	40	6	★ -10.03
10,5	12	9,5	20	120	70	45	6	★ -10.5
11	12	10	20	120	70	45	6	★ -11
11,5	12	10,5	20	120	71	45	6	★ -11.5
11,97	12	11	20	120	71	45	6	★ -11.97

Continued

★ New addition to range

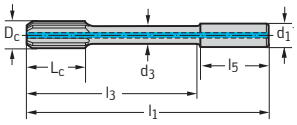
B-137 G-2 B-102

Solid carbide HSC reaming tools
F2482
H7

Continued

	P	M	K	N	S	H	O
uncoated	●		●	●●			●●

Shank DIN 6535 HA

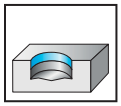


D_c mm	d_1 h6 mm	d_3 mm	L_c mm	l_1 mm	l_3 mm	l_5 mm	Z	Designation F2482
11,98	12	11	20	120	71	45	6	★ -11.98
11,99	12	11	20	120	71	45	6	★ -11.99
12	12	11	20	120	71	45	6	★ -12
12,01	12	11	20	120	71	45	6	★ -12.01
12,02	12	11	20	120	71	45	6	★ -12.02
12,03	12	11	20	120	71	45	6	★ -12.03
13	14	11,5	22	130	80	45	6	★ -13
14	14	12,5	22	130	80	45	6	★ -14
15	16	13,5	22	130	77	48	6	★ -15
16	16	14,2	25	150	97	48	6	★ -16
17	18	15,2	25	150	97	48	8	★ -17
18	18	16,2	25	150	97	48	8	★ -18
19	20	17,2	25	150	95	50	8	★ -19
20	20	18,2	25	150	95	50	8	★ -20

★ New addition to range

B-137 G-2 B-102

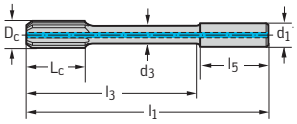
Solid carbide HSC reaming tools
F2482TMS
H7



- K10F - TMS
- Right handed - straight flute
- Differential pitch
- Tolerance for 1/100 size: +0.004 mm

	P	M	K	N	S	H	O
TMS	●●		●●				

Shank DIN 6535 HA



D_c mm	d_1 h6 mm	d_3 mm	L_c mm	l_1 mm	l_3 mm	l_5 mm	Z	Designation F2482TMS
3,97	6	3,5	12	75	34	36	4	★ -3.97
3,98	6	3,5	12	75	34	36	4	★ -3.98
3,99	6	3,5	12	75	34	36	4	★ -3.99
4	6	3,5	12	75	34	36	4	★ -4
4,01	6	3,5	12	75	34	36	4	★ -4.01
4,02	6	3,5	12	75	34	36	4	★ -4.02
4,03	6	3,5	12	75	34	36	4	★ -4.03
4,5	6	4	12	75	34	36	4	★ -4.5
4,97	6	4,4	12	75	35	36	4	★ -4.97
4,98	6	4,4	12	75	35	36	4	★ -4.98
4,99	6	4,4	12	75	35	36	4	★ -4.99
5	6	4,4	12	75	35	36	4	★ -5
5,01	6	4,4	12	75	35	36	4	★ -5.01
5,02	6	4,4	12	75	35	36	4	★ -5.02
5,03	6	4,4	12	75	35	36	4	★ -5.03
5,5	6	4,9	12	75	35	36	4	★ -5.5
5,97	6	5,3	12	75	35	36	4	★ -5.97
5,98	6	5,3	12	75	35	36	4	★ -5.98
5,99	6	5,3	12	75	35	36	4	★ -5.99
6	6	5,3	12	75	35	36	4	★ -6
6,01	6	5,3	12	75	35	36	4	★ -6.01
6,02	6	5,3	12	75	35	36	4	★ -6.02
6,03	6	5,3	12	75	35	36	4	★ -6.03
6,5	8	5,7	16	100	59	36	6	★ -6.5
7	8	6,2	16	100	59	36	6	★ -7
7,5	8	6,7	16	100	60	36	6	★ -7.5
7,97	8	7,2	16	100	60	36	6	★ -7.97
7,98	8	7,2	16	100	60	36	6	★ -7.98
7,99	8	7,2	16	100	60	36	6	★ -7.99
8	8	7,2	16	100	60	36	6	★ -8
8,01	8	7,2	16	100	60	36	6	★ -8.01
8,02	8	7,2	16	100	60	36	6	★ -8.02
8,03	8	7,2	16	100	60	36	6	★ -8.03
8,5	10	7,7	20	100	55	40	6	★ -8.5
9	10	8,2	20	100	55	40	6	★ -9
9,5	10	8,7	20	120	76	40	6	★ -9.5
9,97	10	9	20	120	76	40	6	★ -9.97
9,98	10	9	20	120	76	40	6	★ -9.98
9,99	10	9	20	120	76	40	6	★ -9.99
10	10	9	20	120	76	40	6	★ -10
10,01	10	9	20	120	76	40	6	★ -10.01
10,02	10	9	20	120	76	40	6	★ -10.02
10,03	10	9	20	120	76	40	6	★ -10.03
10,5	12	9,5	20	120	70	45	6	★ -10.5
11	12	10	20	120	70	45	6	★ -11
11,5	12	10,5	20	120	71	45	6	★ -11.5
11,97	12	11	20	120	71	45	6	★ -11.97

Continued

★ New addition to range

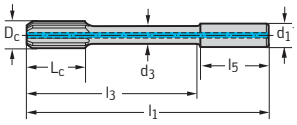
B-137 G-2 B-102

Solid carbide HSC reaming tools
F2482TMS
H7

	P	M	K	N	S	H	O
TMS	●●		●●				

Continued

Shank DIN 6535 HA



D_c mm	d_1 h6 mm	d_3 mm	L_c mm	l_1 mm	l_3 mm	l_5 mm	Z	Designation F2482TMS
11,98	12	11	20	120	71	45	6	★ -11.98
11,99	12	11	20	120	71	45	6	★ -11.99
12	12	11	20	120	71	45	6	★ -12
12,01	12	11	20	120	71	45	6	★ -12.01
12,02	12	11	20	120	71	45	6	★ -12.02
12,03	12	11	20	120	71	45	6	★ -12.03
13	14	11,5	22	130	80	45	6	★ -13
14	14	12,5	22	130	80	45	6	★ -14
15	16	13,5	22	130	77	48	6	★ -15
16	16	14,2	25	150	97	48	6	★ -16
17	18	15,2	25	150	97	48	8	★ -17
18	18	16,2	25	150	97	48	8	★ -18
19	20	17,2	25	150	95	50	8	★ -19
20	20	18,2	25	150	95	50	8	★ -20

★ New addition to range

B-137 G-2 B-102

Cutting data for solid carbide drills with internal cooling

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

							Drilling depth			**3 x D_c**						
							Designation			K3299XPL K3899XPL				A3289DPL		
							Type			**X-treme Step 90**				**X-treme Plus**		
							Dimensions			Walter standard				DIN 6537 K		
							Ø range (mm)			3,30 – 14,00				3,00 – 20,00		
							Cutting tool material			K30F				K30F		
							Coating			XPL				DPL		
							Page			B-75 / B-77				*B 70**		
Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]										
	Workpiece material						v_c	VRR			v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	140	12	**E O**	**M L**	200	16	**E O**	**M L**
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	140	12	**E O**	**M L**	180	12	**E O**	**M L**
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	130	12	**E O**	**M L**	170	12	**E O**	**M L**
		C > 0.55%	annealed	190	639	P4	140	12	**E O**	**M L**	180	12	**E O**	**M L**
		C > 0.55%	tempered	300	1013	P5	105	10	**E O**	**M L**	140	12	**E O**	**M L**
		machining steel (short-chipping)	annealed	220	745	P6	150	12	**E O**	**M L**	200	16	**E O**	**M L**
	Low-alloyed steel	annealed		175	591	P7	140	12	**E O**	**M L**	180	12	**E O**	**M L**
		tempered		300	1013	P8	105	10	**E O**	**M L**	140	12	**E O**	**M L**
		tempered		380	1282	P9	80	7	**O E**		100	8	**O E**	
		tempered		430	1477	P10	63	5	**O E**		80	6	**O E**	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	71	9	**E O**		85	9	**E O**	
		hardened and tempered		300	1013	P12	95	9	**E O**		120	10	**E O**	
		hardened and tempered		400	1361	P13	63	5	**O E**		80	6	**O E**	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	71	9	**E O**		85	9	**E O**	
		martensitic, tempered		330	1114	P15	40	8	**E O**		50	9	**E O**	
M	Stainless steel	austenitic, quench hardened		200	675	M1	40	6	**E O**		50	6	**E O**	
		austenitic, precipitation hardened (PH)		300	1013	M2	45	6	**E O**		63	6	**E O**	
		austenitic/ferritic, duplex		230	778	M3	34	5	**E O**		40	6	**E O**	
K	Malleable cast iron	ferritic		200	675	K1	100	16	**E O**	**M L**	130	20	**E O**	**M L**
		pearlitic		260	867	K2	63	10	**E O**	**M L**	120	16	**E O**	**M L**
	Grey cast iron	low tensile strength		180	602	K3	125	16	**E O**	**M L**	160	20	**E O**	**M L**
		high tensile strength/austenitic		245	825	K4	105	16	**E O**	**M L**	130	20	**E O**	**M L**
	Cast iron with spheroidal graphite	ferritic		155	518	K5	130	16	**E O**	**M L**	150	16	**E**	**M L**
		pearlitic		265	885	K6	95	16	**E O**	**M L**	120	16	**E O**	**M L**
	GGV (CGI)			200	675	K7	110	16	**E O**	**M L**	140	16	**O E**	**M L**
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	400	16	**E O**	**M**	450	16	**E O**	**M**
		hardenable, hardened		100	343	N2	400	16	**E O**	**M**	450	16	**E O**	**M**
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	250	16	**E O**	**M**	320	16	**E O**	**M**
		≤ 12% Si, hardenable, hardened		90	314	N4	240	16	**E O**	**M**	300	16	**E O**	**M**
		> 12% Si, cannot be hardened		130	447	N5	190	16	**E O**	**M**	250	16	**E O**	**M**
	Magnesium alloys			70	250	N6	240	16		**M L**	300	16		**M L**
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	190	8	**E O**	**M**	280	12	**E O**	**M**
		brass, bronze, red brass		90	314	N8	160	10	**E O**		240	16	**E O**	
		Cu-alloys, short-chipping		110	382	N9	190	16	**E O**	**M**	260	20	**E O**	**M**
		high-strength, Ampco		300	1013	N10	60	5	**E O**		120	10	**E O**	
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	50	6	**E O**		50	6	**E O**	
			hardened	280	943	S2	30	5	**O E**		38	5	**O E**	
		Ni or Co base	annealed	250	839	S3	34	5	**E O**		42	5	**E O**	
			hardened	350	1177	S4	19	4	**O E**		26	4	**O E**	
			cast	320	1076	S5	26	4	**O E**		32	4	**O E**	
	Titanium alloys	pure titanium		200	675	S6	56	6	**O E**		71	6	**O E**	
		α and β alloys, hardened		375	1262	S7	50	5	**O E**		63	5	**O E**	
		β alloys		410	1396	S8	12,5	4	**O E**		20	4	**O E**	
	Tungsten alloys			300	1013	S9	60	5	**E O**		120	10	**E O**	
	Molybdenum alloys			300	1013	S10	60	5	**E O**		120	10	**E O**	
H	Hardened steel	hardened and tempered		50 HRC	–	H1	48	4	**O E**		53	4	**O E**	
		hardened and tempered		55 HRC	–	H2	32	3	**O E**		45	4	**O E**	
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	32	3	**O E**		45	4	**O E**	
O	Thermoplasts	without abrasive fillers				O1	100	16	**E O**		130	16	**E O**	
	Thermosetting plastics	without abrasive fillers				O2								
	Plastic, glass fibre reinforced	GFRP				O3								
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

** The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	3 x D_c								5 x D_c															
	A3293TTP				A3299XPL A3899XPL				A3389AML				A3389DPL				A3393TTP				A3382XPL				A3399XPL A3999XPL			
	X·treme Inox				**X·treme**				**X·treme M**				**X·treme Plus**				**X·treme Inox**				**X·treme CI**				**X·treme**			
	DIN 6537 K				DIN 6537 K				Walter Norm				DIN 6537 L				DIN 6537 L				DIN 6537 L				DIN 6537 L			
	3,00 – 20,00				3,00 – 20,00				2,00 – 2,95				3,00 – 20,00				3,00 – 20,00				3,00 – 20,00				3,00 – 25,00			
	K30F				K30F				K30F				K30F				K30F				K30F				K30F			
	TTP				XPL				AML				DPL				TTP				XPL				XPL			
	B-30				B-33 / B-54				B-41				*B 86**				B-42				*B 81**				*B 89* / B 112**			
																												
	v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	160	10	**E O**	**M L**	140	12	**E O**	**M L**	C100	12	**E**		190	12	**E O**	**M L**	150	10	**E O**	**M L**					120	10	**E O**	**M L**
	120	10	**E O**	**M L**	140	12	**E O**	**M L**	C80	12	**E**		170	12	**E O**	**M L**	110	10	**E O**	**M L**					100	10	**E O**	**M L**
	110	10	**E O**	**M L**	130	12	**E O**	**M L**	C80	12	**E**		160	12	**E O**	**M L**	100	10	**E O**	**M L**					95	10	**E O**	**M L**
	120	10	**E O**	**M L**	140	12	**E O**	**M L**	C100	12	**E**		170	12	**E O**	**M L**	110	10	**E O**	**M L**					100	10	**E O**	**M L**
					105	10	**E O**	**M L**	C71	12	**E**		130	12	**E O**	**M L**									71	8	**E O**	**M L**
	145	12	**E O**	**M L**	150	12	**E O**	**M L**	C100	12	**E**		190	16	**E O**	**M L**	135	12	**E O**	**M L**					120	12	**E O**	**M L**
	120	10	**E O**	**M L**	140	12	**E O**	**M L**	C80	12	**E**		170	12	**E O**	**M L**	110	10	**E O**	**M L**					100	10	**E O**	**M L**
					105	10	**E O**	**M L**	C71	12	**E**		130	12	**E O**	**M L**									71	8	**E O**	**M L**
					80	7	**O E**		C56	9	**E**		95	8	**O E**										48	6	**O E**	
					63	5	**O E**		C40	6	**E**		71	6	**O E**										38	4	**O E**	
					71	9	**E O**		C63	10	**E**		85	9	**E O**										63	8	**E O**	
					95	9	**E O**		C63	12	**E**		120	10	**E O**										56	7	**E O**	
					63	5	**O E**		C40	6	**E**		71	6	**O E**										38	4	**O E**	
	95	9	**E O**		71	9	**E O**		C63	10	**E**		85	9	**E O**		90	9	**E O**						63	8	**E O**	
	55	8	**E O**		40	8	**E O**		C50	8	**E**		48	9	**E O**		50	8	**E O**						42	7	**E O**	
	53	6	**E O**		40	6	**E O**		C40	8	**E**		48	6	**E O**		50	6	**E O**						38	5	**E O**	
	68	6	**E O**		45	6	**E O**		C63	10	**E**		60	6	**E O**		65	6	**E O**						42	6	**E O**	
	53	6	**E O**		34	5	**E O**		C32	5	**E**		38	6	**E O**		50	6	**E O**						31	5	**E O**	
					100	16	**E O**	**M L**	C160	21	**E**		125	16	**E O**	**M L**					130	20	**E O**	**M L**	95	16	**E O**	**M L**
					63	10	**E O**	**M L**	C160	21	**E**		120	16	**E O**	**M L**					120	16	**E O**	**M L**	71	12	**E O**	**M L**
					125	16	**E O**	**M L**	C160	21	**E**		150	16	**E O**	**M L**					160	20	**E O**	**M L**	120	16	**E O**	**M L**
					105	16	**E O**	**M L**	C160	21	**E**		125	16	**E O**	**M L**					130	20	**E O**	**M L**	95	16	**E O**	**M L**
					130	16	**E O**	**M L**	C160	21	**E**		140	16	**E**	**M L**					160	20	**E O**	**M L**	95	16	**E O**	**M L**
					95	16	**E O**	**M L**	C125	16	**E**		120	16	**E O**	**M L**					120	16	**E O**	**M L**	71	12	**E O**	**M L**
					110	16	**E O**	**M L**	C140	19	**E**		130	16	**O E**	**M L**					140	20	**E O**	**M L**	85	16	**E O**	**M L**
	450	16	**E O**	**M**	400	16	**E O**	**M**	C160	26	**E**		450	16	**E O**	**M**	450	16	**E O**	**M**					400	16	**E O**	**M**
	450	16	**E O**	**M**	400	16	**E O**	**M**	C160	26	**E**		450	16	**E O**	**M**	450	16	**E O**	**M**					400	16	**E O**	**M**
	250	16	**E O**	**M**	250	16	**E O**	**M**	C160	24	**E**		320	16	**E O**	**M**	250	16	**E O**	**M**					250	16	**E O**	**M**
	240	16	**E O**	**M**	240	16	**E O**	**M**	C160	24	**E**		300	16	**E O**	**M**	240	16	**E O**	**M**					240	16	**E O**	**M**
	190	16	**E O**	**M**	190	16	**E O**	**M**	C125	20	**E**		250	16	**E O**	**M**	190	16	**E O**	**M**					190	16	**E O**	**M**
	240	16		**M L**	240	16		**M L**					300	16		**M L**	240	16		**M L**					240	16		**M L**
	210	9	**E O**	**M**	190	8	**E O**	**M**	C100	6	**E**		240	10	**E O**	**M**	210	9	**E O**	**M**					180	8	**E O**	**M**
	180	12	**E O**		160	10	**E O**		C80	12	**E**		200	12	**E O**		180	12	**E O**						150	10	**E O**	
	190	16	**E O**	**M**	190	16	**E O**	**M**	C100	20	**E**		260	20	**E O**	**M**	190	16	**E O**	**M**					190	16	**E O**	**M**
	60	7	**E O**		60	5	**E O**		C56	8	**E**		120	10	**E O**		60	7	**E O**						56	7	**E O**	
	50	6	**E O**		50	6	**E O**		C50	8	**E**		48	6	**E O**		48	6	**E O**						42	5	**E O**	
	38	5	**O E**		30	5	**O E**		C26	6	**E**		36	5	**O E**		36	5	**O E**						24	4	**O E**	
	42	5	**E O**		34	5	**E O**		C32	5	**E**		40	5	**E O**		40	5	**E O**						30	4	**E O**	
	26	4	**O E**		19	4	**O E**		C16	6	**E**		24	4	**O E**		24	4	**O E**						15	3	**O E**	
	32	4	**O E**		26	4	**O E**		C16	6	**E**		30	4	**O E**		30	4	**O E**						18	3	**O E**	
	71	6	**O E**		56	6	**O E**		C50	6	**E**		60	6	**O E**		60	6	**O E**						48	6	**O E**	
	63	5	**O E**		50	5	**O E**		C32	5	**E**		53	5	**O E**		53	5	**O E**						40	5	**O E**	
	20	4	**O E**		12,5	4	**O E**		C16	5	**E**		18	4	**O E**		18	4	**O E**						11	3	**O E**	
	120	9	**E O**		60	5	**E O**		C56	8	**E**		120	10	**E O**		120	9	**E O**						56	7	**E O**	
	120	9	**E O**		60	5	**E O**		C56	8	**E**		120	10	**E O**		120	9	**E O**						56	7	**E O**	
					48	4	**O E**		C32	3	**E**		53	4	**O E**										30	3	**O E**	
					32	3	**O E**		C32	3	**E**		45	4	**O E**										26	3	**O E**	
					32	3	**O E**		C32	3	**E**		45	4	**O E**										26	3	**O E**	
	130	16	**E O**		100	16	**E O**		C100	22	**E**		130	16	**E O**		130	16	**E O**									

Cutting data for solid carbide drills with internal cooling

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

Material group	Structure of main material groups and code letters	Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Drilling depth				5 x D_c			
							Designation				A3387			
							Type				Alpha® Jet			
							Dimensions				DIN 6537 L			
							Ø range (mm)				4,00 – 20,00			
							Cutting tool material				K20F			
							Coating				uncoated			
							Page				*B 85**			
														
											v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1								
		C > 0.25... ≤ 0.55%	annealed	190	639	P2								
		C > 0.25... ≤ 0.55%	tempered	210	708	P3								
		C > 0.55%	annealed	190	639	P4								
		C > 0.55%	tempered	300	1013	P5								
		machining steel (short-chipping)	annealed	220	745	P6								
	Low-alloyed steel	annealed		175	591	P7								
		tempered		300	1013	P8								
		tempered		380	1282	P9								
		tempered		430	1477	P10					50	5	**O E**	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11								
		hardened and tempered		300	1013	P12								
		hardened and tempered		400	1361	P13					50	5	**O E**	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14								
		martensitic, tempered		330	1114	P15								
M	Stainless steel	austenitic, quench hardened		200	675	M1								
		austenitic, precipitation hardened (PH)		300	1013	M2								
		austenitic/ferritic, duplex		230	778	M3								
K	Malleable cast iron	ferritic		200	675	K1	100	10	**E O**					
		pearlitic		260	867	K2	75	10	**E O**					
	Grey cast iron	low tensile strength		180	602	K3	125	10	**E O**	**M L**				
		high tensile strength/austenitic		245	825	K4	100	10	**E O**	**M L**				
	Cast iron with spheroidal graphite	ferritic		155	518	K5	100	6	**E O**					
		pearlitic		265	885	K6								
	GGV (CGI)			200	675	K7	75	10	**E O**					
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	400	9	**E O**					
		hardenable, hardened		100	343	N2	400	9	**E O**					
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	260	9	**E O**					
		≤ 12% Si, hardenable, hardened		90	314	N4	240	9	**E O**					
		> 12% Si, cannot be hardened		130	447	N5	200	9	**E O**					
	Magnesium alloys			70	250	N6	240	9		**M L**				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7								
		brass, bronze, red brass		90	314	N8								
		Cu-alloys, short-chipping		110	382	N9	210	16	**E O**					
		high-strength, Ampco		300	1013	N10								
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1								
			hardened	280	943	S2					28	5	**O E**	
		Ni or Co base	annealed	250	839	S3								
			hardened	350	1177	S4					20	5	**O E**	
			cast	320	1076	S5					24	4	**O E**	
	Titanium alloys	pure titanium		200	675	S6								
		α and β alloys, hardened		375	1262	S7					53	5	**O E**	
		β alloys		410	1396	S8					16	5	**O E**	
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1					32	4	**O E**	
		hardened and tempered		55 HRC	–	H2					32	4	**O E**	
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4					32	4	**O E**	
O	Thermoplasts	without abrasive fillers				O1	80	8	**E O**					
	Thermosetting plastics	without abrasive fillers				O2	130	16		**L**	130	16		**L**
	Plastic, glass fibre reinforced	GFRP				O3					50	5		**L**
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5					50	5		**L**
	Graphite (technical)			80 Shore		O6	30	5		**L**	30	5		**L**

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

** The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	8 x D_c																				12 x D_c							
	A6489AMP				A6488TML				A6489DPP				A3487				A3486TIP A3586TIP				A6589AMP				A6588TML			
	X-treme DM8				**Alpha® 4 Plus Micro**				**X-treme D8**				**Alpha® Jet**				**Alpha® 44**				**X-treme DM12**				**Alpha® 4 Plus Micro**			
	Walter standard				Walter standard				Walter standard				Walter standard				Walter standard				Walter standard				Walter standard			
	2,00 – 2,95				0,75 – 1,95				3,00 – 20,00				5,00 – 20,00				5,00 – 12,00				2,00 – 2,90				1,00 – 1,90			
	K30F				K30F				K30F				K20F				K30F				K30F				K30F			
	AMP				TML				DPP				uncoated				TIP				AMP				TML			
	B-76				*B 121**				*B 123**				*B 95**				*B 94* / B 96**				B-68				*B 126**			
																												
	VCRR	VRR			VCRR	VRR			v_c	VRR			v_c	VRR			v_c	VRR			VCRR	VRR			VCRR	VRR		
	C100	12	**E**		C80	10	**E**		180	12	**E O**	**M L**					95	9	**E O**		C80	12	**E**		C63	10	**E**	
	C80	12	**E**		C80	10	**E**		160	12	**E O**	**M L**					90	9	**E O**		C80	12	**E**		C63	10	**E**	
	C80	12	**E**		C71	10	**E**		150	12	**E O**	**M L**					80	9	**E O**		C80	12	**E**		C63	10	**E**	
	C80	12	**E**		C80	10	**E**		160	12	**E O**	**M L**					90	9	**E O**		C80	12	**E**		C63	10	**E**	
	C71	12	**E**		C56	8	**E**		125	10	**E O**	**M L**					60	7	**E O**		C59	10	**E**		C53	8	**E**	
	C100	12	**E**		C80	10	**E**		180	12	**E O**	**M L**					95	10	**E O**		C80	12	**E**		C70	10	**E**	
	C80	12	**E**		C80	10	**E**		160	12	**E O**	**M L**					90	9	**E O**		C80	12	**E**		C63	10	**E**	
	C71	12	**E**		C56	8	**E**		125	10	**E O**	**M L**					60	7	**E O**		C59	10	**E**		C53	8	**E**	
	C53	8	**E**		C42	6	**E**		85	7	**O E**										C45	7	**E**		C36	6	**E**	
	C40	6	**E**		C32	5	**E**		63	5	**O E**										C40	6	**E**		C32	5	**E**	
	C63	10	**E**		C50	8	**E**		80	8	**E O**						50	6	**E O**		C63	10	**E**		C50	8	**E**	
	C63	10	**E**		C50	6	**E**		110	9	**E O**						45	5	**E O**		C50	8	**E**		C40	6	**E**	
	C40	6	**E**		C32	5	**E**		63	5	**O E**										C40	6	**E**		C32	5	**E**	
	C63	10	**E**		C50	8	**E**		80	8	**E O**						50	6	**E O**		C63	10	**E**		C50	8	**E**	
	C50	8	**E**		C32	7	**E**		45	8	**E O**						32	5	**E O**		C50	8	**E**		C32	7	**E**	
	C40	8	**E**		C32	6	**E**		45	6	**E O**						32	4	**E O**		C40	7	**E**		C32	6	**E**	
	C50	8	**E**		C40	5	**E**		56	6	**E O**						42	4	**E O**		C50	7	**E**		C32	4	**E**	
	C32	5	**E**		C20	4	**E**		36	6	**E O**						26	4	**E O**		C25	5	**E**		C16	4	**E**	
	C125	17	**E**		C80	12	**E**		120	12	**E O**	**M L**	85	9	**E O**		80	12	**E O**		C100	13	**E**		C80	12	**E**	
	C125	17	**E**		C80	12	**E**		110	12	**E O**	**M L**	63	9	**E O**		60	12	**E O**		C100	13	**E**		C80	11	**E**	
	C125	17	**E**		C80	13	**E**		140	12	**E O**	**M L**	105	9	**E O**	**M L**	90	12	**E O**		C100	13	**E**		C80	11	**E**	
	C125	17	**E**		C80	10	**E**		120	12	**E O**	**M L**	85	9	**E O**	**M L**	80	12	**E O**		C100	13	**E**		C63	8	**E**	
	C125	17	**E**		C80	13	**E**		140	12	**E O**	**M L**					80	12	**E O**		C100	13	**E**		C63	11	**E**	
	C100	14	**E**		C63	10	**E**		110	12	**E O**	**M L**					56	10	**E O**		C80	11	**E**		C50	9	**E**	
	C110	16	**E**		C71	12	**E**		125	12	**E O**	**M L**					67	12	**E O**		C100	12	**E**		C67	12	**E**	
	C160	26	**E**		C125	17	**E**		450	16	**E O**	**M**	400	9	**E O**		320	10	**E O**		C160	25	**E**		C100	16	**E**	
	C160	26	**E**		C125	17	**E**		450	16	**E O**	**M**	400	9	**E O**		320	10	**E O**		C160	25	**E**		C100	16	**E**	
	C160	24	**E**		C125	17	**E**		320	16	**E O**	**M**	260	9	**E O**		220	10	**E O**		C160	23	**E**		C100	16	**E**	
	C160	24	**E**		C100	15	**E**		300	16	**E O**	**M**	240	9	**E O**		200	10	**E O**		C160	23	**E**		C100	13	**E**	
	C125	20	**E**		C100	13	**E**		250	16	**E O**	**M**	200	9	**E O**		160	10	**E O**		C125	19	**E**		C100	12	**E**	
									300	16		**M L**	240	9		**M L**	200	10		**M L**								
	C80	6	**E**		C63	5	**E**		200	9	**E O**	**M**					160	5	**E O**		C80	6	**E**		C63	5	**E**	
	C80	12	**E**		C63	7	**E**		170	12	**E O**						105	8	**E O**		C80	11	**E**		C63	7	**E**	
	C100	20	**E**		C80	11	**E**		260	20	**E O**	**M**	210	16	**E O**		140	12	**E O**		C80	19	**E**		C80	10	**E**	
	C52	8	**E**		C40	4	**E**		110	9	**E O**						45	5	**E O**		C50	7	**E**		C40	3	**E**	
	C40	8	**E**		C32	6	**E**		45	6	**E O**						32	4	**E O**		C40	7	**E**		C32	5	**E**	
	C24	6	**E**		C16	5	**E**		32	5	**O E**										C21	6	**E**		C16	4	**E**	
	C32	5	**E**		C20	5	**E**		38	5	**E O**						20	3	**E O**		C25	5	**E**		C20	4	**E**	
	C16	6	**E**		C12	4	**E**		21	4	**O E**										C16	5	**E**		C12	3	**E**	
	C16	6	**E**		C12	4	**E**		26	4	**O E**										C16	5	**E**		C12	4	**E**	
	C50	6	**E**		C40	5	**E**		50	5	**O E**						38	4	**O E**		C40	6	**E**		C32	5	**E**	
	C32	5	**E**		C25	4	**E**		45	5	**O E**						32	3	**O E**		C32	5	**E**		C25	4	**E**	
	C16	5	**E**		C12	4	**E**		16	4	**O E**										C16	5	**E**		C12	3	**E**	
	C52	8	**E**		C40	4	**E**		110	9	**E O**						45	5	**E O**		C56	8	**E**		C40	3	**E**	
	C52	8	**E**		C40	4	**E**		110	9	**E O**						45	5	**E O**		C56	8	**E**		C40	3	**E**	
	C32	3	**E**		C25	2	**E**		45	3	**O E**										C32	3	**E**		C20	2	**E**	
	C32	3	**E**		C25	2	**E**		38	3	**O E**										C32	3	**E**		C20	2	**E**	
	C32	3	**E**		C25	2	**E**		38	3	**O E**										C32	3	**E**		C20	2	**E**	
	C100	22	**E**		C100	20	**E**		130	16	**E O**		80	8	**E O**		100	16	**E O**		C100	20	**E**		C80	18	**E**	
													130	16		**L**												
													30	5		**L**												

Cutting data for solid carbide drills with internal cooling

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

Material group	Structure of main material groups and code letters	Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Drilling depth	12 x D_c							
							Designation	A6589DPP				A3687			
							Type	X-treme D12				Alpha® Jet			
							Dimensions	Walter standard				Walter standard			
							Ø range (mm)	3,00 – 20,00				5,00 – 20,00			
							Cutting tool material	K30F				K20F			
							Coating	DPP				uncoated			
							Page	*B 127**				*B 97**			
															
								v_c	VRR			v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		170	12	E O	M L				
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		150	12	E O	M L				
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		140	12	E O	M L				
		C > 0.55%	annealed	190	639	P4		150	12	E O	M L				
		C > 0.55%	tempered	300	1013	P5		120	10	E O	M L				
		machining steel (short-chipping)	annealed	220	745	P6		170	12	E O	M L				
	Low-alloyed steel	annealed		175	591	P7		150	12	E O	M L				
		tempered		300	1013	P8		120	10	E O	M L				
		tempered		380	1282	P9		80	7	O E					
		tempered		430	1477	P10		56	5	O E					
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		75	8	E O					
		hardened and tempered		300	1013	P12		105	9	E O					
		hardened and tempered		400	1361	P13		56	5	O E					
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		75	8	E O					
		martensitic, tempered		330	1114	P15		42	8	E O					
M	Stainless steel	austenitic, quench hardened		200	675	M1		42	6	E O					
		austenitic, precipitation hardened (PH)		300	1013	M2		56	6	E O					
		austenitic/ferritic, duplex		230	778	M3		34	6	E O					
K	Malleable cast iron	ferritic		200	675	K1		110	12	E O	M L	80	8	E O	
		pearlitic		260	867	K2		83	12	E O	M L	60	8	E O	
	Grey cast iron	low tensile strength		180	602	K3		130	12	E O	M L	100	8	E O	M L
		high tensile strength/austenitic		245	825	K4		110	12	E O	M L	80	8	E O	M L
	Cast iron with spheroidal graphite	ferritic		155	518	K5		130	12	E O	M L				
		pearlitic		265	885	K6		105	12	E O	M L				
	GGV (CGI)			200	675	K7		120	12	E O	M L				
N	Aluminium wrought alloys	cannot be hardened		30	–	N1		420	16	E O	M	380	9	E O	
		hardenable, hardened		100	343	N2		420	16	E O	M	380	9	E O	
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3		320	16	E O	M	250	9	E O	
		≤ 12% Si, hardenable, hardened		90	314	N4		280	16	E O	M	240	9	E O	
		> 12% Si, cannot be hardened		130	447	N5		240	16	E O	M	190	9	E O	
	Magnesium alloys			70	250	N6		280	16		M L	240	9		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7		190	8	E O	M				
		brass, bronze, red brass		90	314	N8		160	10	E O					
		Cu-alloys, short-chipping		110	382	N9		250	20	E O	M	200	16	E O	
		high-strength, Ampco		300	1013	N10		105	9	E O					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1		42	6	E O					
			hardened	280	943	S2		30	4	O E					
		Ni or Co base	annealed	250	839	S3		36	5	E O					
			hardened	350	1177	S4		18	3	O E					
			cast	320	1076	S5		22	3	O E					
	Titanium alloys	pure titanium		200	675	S6		45	5	O E					
		α and β alloys, hardened		375	1262	S7		40	4	O E					
		β alloys		410	1396	S8		14	3	O E					
	Tungsten alloys			300	1013	S9		105	9	E O					
	Molybdenum alloys			300	1013	S10		105	9	E O					
H	Hardened steel	hardened and tempered		50 HRC	–	H1		38	3	O E					
		hardened and tempered		55 HRC	–	H2		32	3	O E					
		hardened and tempered		60 HRC	–	H3									
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		32	3	O E					
O	Thermoplasts	without abrasive fillers				O1		125	16	E O		75	8	E O	
	Thermosetting plastics	without abrasive fillers				O2						130	16		L
	Plastic, glass fibre reinforced	GFRP				O3									
	Plastic, carbon fibre reinforced	CFRP				O4									
	Plastic, aramid fibre reinforced	AFRP				O5									
	Graphite (technical)			80 Shore		O6						30	5		L

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

* *The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	16 x D_c								20 x D_c												25 x D_c							
	A6689AMP				A6685TFP				A6789AMP				A6794TFP				A6785TFP				A6889AMP				A6885TFP			
	X-treme DM16				**Alpha® 4 XD16**				**X-treme DM20**				**X-treme DH20**				**Alpha® 4 XD20**				**X-treme DM25**				**Alpha® 4 XD25**			
	Walter standard				Walter standard				Walter standard				Walter standard				Walter standard				Walter standard				Walter standard			
	2,00 – 2,90				3,00 – 16,00				2,00 – 2,90				3,00 – 10,00				3,00 – 16,00				2,00 – 2,90				3,00 – 12,00			
	K30F				K30F				K30F				K30F				K30F				K30F				K30F			
	AMP				TFP				AMP				TFP				TFP				AMP				TFP			
	B-69				*B 130**				*B 132**				*B 133**				*B 131**				*B 135**				*B 134**			
																												
	VCRR	VRR			v_c	VRR			VCRR	VRR			v_c	VRR			v_c	VRR			VCRR	VRR			v_c	VRR		
	C80	10	**E**		110	10	**E O**	**M L**	C80	10	**E**						105	10	**E O**	**M L**	C80	10	**E**		95	9	**E O**	**M L**
	C71	10	**E**		95	10	**E O**	**M L**	C63	10	**E**						90	10	**E O**	**M L**	C63	10	**E**		85	9	**E O**	**M L**
	C63	10	**E**		90	10	**E O**	**M L**	C71	10	**E**						85	10	**E O**	**M L**	C63	10	**E**		80	9	**E O**	**M L**
	C71	10	**E**		95	10	**E O**	**M L**	C63	10	**E**						90	10	**E O**	**M L**	C63	10	**E**		85	9	**E O**	**M L**
	C45	6	**E**		67	9	**E O**	**M L**	C50	8	**E**		63	8	**E O**	**M L**	63	8	**E O**	**M L**	C50	8	**E**		60	8	**E O**	**M L**
	C80	10	**E**		110	12	**E O**	**M L**	C80	10	**E**						105	10	**E O**	**M L**	C80	10	**E**		95	10	**E O**	**M L**
	C71	10	**E**		95	10	**E O**	**M L**	C63	10	**E**						90	10	**E O**	**M L**	C63	10	**E**		85	9	**E O**	**M L**
	C45	6	**E**		67	9	**E O**	**M L**	C50	8	**E**		63	8	**E O**	**M L**	63	8	**E O**	**M L**	C50	8	**E**		60	8	**E O**	**M L**
	C45	10	**E**		42	7	**O E**		C36	5	**E**		40	7	**O E**	**M L**	40	7	**O E**		C36	5	**E**		36	6	**O E**	
	C36	5	**E**		28	6	**O E**		C32	5	**E**		25	6	**O E**		25	6	**O E**		C32	5	**E**		24	5	**O E**	
	C63	9	**E**		60	8	**E O**		C50	9	**E**		56	7	**E O**		56	8	**E O**		C50	9	**E**		53	7	**E O**	
	C45	6	**E**		56	8	**E O**		C40	5	**E**		53	7	**E O**	**M L**	53	7	**E O**		C40	5	**E**		48	7	**E O**	
	C45	10	**E**		28	6	**O E**		C32	5	**E**		25	6	**O E**		25	6	**O E**		C32	5	**E**		24	5	**O E**	
	C50	10	**E**		60	8	**E O**		C50	9	**E**		56	7	**E O**		56	8	**E O**		C50	9	**E**		53	7	**E O**	
	C45	4	**E**		40	7	**E O**		C40	8	**E**		36	6	**E O**		36	6	**E O**		C40	8	**E**		34	6	**E O**	
	C36	7	**E**		40	5	**O E**		C32	6	**E**						36	5	**O E**		C32	6	**E**		34	4	**O E**	
	C45	4	**E**		50	5	**E O**		C32	4	**E**		48	5	**E O**		48	5	**E O**		C32	4	**E**		45	5	**E O**	
	C28	5	**E**		32	5	**O E**		C25	4	**E**						29	5	**O E**		C25	4	**E**		27	4	**O E**	
	C71	10	**E**		90	16	**E O**	**M L**	C63	8	**E**						85	12	**E O**	**M L**	C63	8	**E**		80	12	**E O**	**M L**
	C63	10	**E**		67	12	**E O**	**M L**	C63	8	**E**						63	12	**E O**	**M L**	C63	8	**E**		60	12	**E O**	**M L**
	C90	10	**E**		110	16	**E O**	**M L**	C80	8	**E**						105	12	**E O**	**M L**	C80	8	**E**		95	12	**E O**	**M L**
	C71	11	**E**		90	16	**E O**	**M L**	C63	8	**E**						85	12	**E O**	**M L**	C63	8	**E**		80	12	**E O**	**M L**
	C80	12	**E**		90	16	**E O**	**M L**	C63	8	**E**						85	12	**E O**	**M L**	C63	8	**E**		80	12	**E O**	**M L**
	C63	10	**E**		67	12	**E O**	**M L**	C50	8	**E**		63	12	**E O**	**M L**	63	12	**E O**	**M L**	C50	8	**E**		60	12	**E O**	**M L**
	C63	9	**E**		80	16	**E O**	**M L**	C63	9	**E**		71	12	**O E**	**M L**	75	12	**E O**	**M L**	C63	9	**E**		71	12	**E O**	**M L**
	C125	24	**E**		130	16	**E O**	**M**	C125	22	**E**						105	16	**E O**	**M**	C125	22	**E**		80	16	**E O**	**M**
	C125	24	**E**		130	16	**E O**	**M**	C125	22	**E**						105	16	**E O**	**M**	C125	22	**E**		80	16	**E O**	**M**
	C125	22	**E**		130	16	**E O**	**M**	C125	20	**E**						105	16	**E O**	**M**	C125	20	**E**		80	16	**E O**	**M**
	C125	22	**E**		130	16	**E O**	**M**	C125	20	**E**						105	16	**E O**	**M**	C125	20	**E**		80	16	**E O**	**M**
	C100	18	**E**		130	16	**E O**	**M**	C100	17	**E**						105	16	**E O**	**M**	C100	17	**E**		80	12	**E O**	**M**
					130	16		**M L**									105	16		**M L**					80	16		**M L**
	C63	5	**E**		110	7	**E O**	**M**	C63	5	**E**						105	7	**E O**	**M**	C63	5	**E**		95	6	**E O**	**M**
	C80	9	**E**		90	9	**E O**		C63	10	**E**						85	9	**E O**		C63	10	**E**		80	8	**E O**	
	C80	18	**E**		110	10	**E O**	**M**	C80	17	**E**						105	10	**E O**	**M**	C80	17	**E**		95	10	**E O**	**M**
	C40	5	**E**		56	8	**E O**		C45	6	**E**		53	7	**E O**	**M**	53	7	**E O**		C45	6	**E**		48	7	**E O**	
	C20	5	**E**		40	5	**O E**		C32	6	**E**						36	5	**O E**		C32	6	**E**		34	4	**O E**	
	C28	5	**E**		24	4	**O E**		C21	5	**E**		16	3	**O E**		21	3	**O E**		C19	5	**E**		20	3	**O E**	
	C14	5	**E**		30	4	**E O**		C25	4	**E**						28	3	**E O**		C25	4	**E**		26	3	**E O**	
	C14	5	**E**		13	3	**O E**		C14	5	**E**		12	3	**O E**		12	3	**O E**		C14	5	**E**		11	2	**O E**	
	C25	5	**E**		16	3	**O E**		C14	5	**E**		15	3	**O E**		15	3	**O E**		C14	5	**E**		14	2	**O E**	
	C40	5	**E**		36	5	**O E**		C40	5	**E**						34	5	**O E**		C40	5	**E**		32	5	**O E**	
	C22	4	**E**		24	5	**O E**		C25	4	**E**						21	4	**O E**		C25	4	**E**		19	4	**O E**	
	C18	3	**E**		9,5	3	**O E**		C14	4	**E**		9	3	**O E**		9	3	**O E**		C14	4	**E**		8,5	2	**O E**	
	C14	5	**E**		56	8	**E O**		C45	7	**E**		53	7	**E O**	**M**	53	7	**E O**		C45	7	**E**		48	7	**E O**	
	C14	5	**E**		56	8	**E O**		C45	7	**E**		53	7	**E O**	**M**	53	7	**E O**		C45	7	**E**		48	7	**E O**	
	C28	3	**E**		22	2	**O E**		C25	3	**E**		21	2	**O E**		21	2	**O E**		C25	3	**E**		20	2	**O E**	
									C25	3	**E**										C25	3	**E**					
									C25	3	**E**										C25	3	**E**					
	C90	20	**E**		90	16	**E O**		C100	20	**E**						85	12	**E O**		C100	20	**E**		80	12	**E O**	

Cutting data for solid carbide drills with internal cooling

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

Material group	Structure of main material groups and code letters: Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Drilling depth: 30 x D_c							
	Designation						A6989AMP				A6994TFP			
	Type						X-treme DM30				X-treme DH30			
	Dimensions						Walter standard				Walter standard			
	Ø range (mm)						2,00 – 2,90				3,00 – 10,00			
	Cutting tool material						K30F				K30F			
	Coating						AMP				TFP			
	Page						B-72				*B 137**			
							VCRR	VRR			v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	C56	10	E					
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	C50	10	E					
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	C45	10	E					
		C > 0.55%	annealed	190	639	P4	C50	10	E					
		C > 0.55%	tempered	300	1013	P5	C23	4	E		60	8	E O	M L
		machining steel (short-chipping)	annealed	220	745	P6	C56	10	E					
	Low-alloyed steel	annealed		175	591	P7	C50	10	E					
		tempered		300	1013	P8	C23	4	E		60	8	E O	M L
		tempered		380	1282	P9	C32	7	E		36	6	O E	M L
		tempered		430	1477	P10	C25	4	E		24	5	O E	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	C45	6	E		53	7	E O	
		hardened and tempered		300	1013	P12	C22	4	E		48	7	E O	M L
		hardened and tempered		400	1361	P13	C32	7	E		24	5	O E	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	C36	10	E		53	7	E O	
		martensitic, tempered		330	1114	P15	C22	4	E		34	6	E O	
M	Stainless steel	austenitic, quench hardened		200	675	M1	C25	5	E					
		austenitic, precipitation hardened (PH)		300	1013	M2	C22	3	E		45	5	E O	
		austenitic/ferritic, duplex		230	778	M3	C18	3	E					
K	Malleable cast iron	ferritic		200	675	K1	C45	8	E					
		pearlitic		260	867	K2	C40	5	E					
	Grey cast iron	low tensile strength		180	602	K3	C45	8	E					
		high tensile strength/austenitic		245	825	K4	C45	7	E					
	Cast iron with spheroidal graphite	ferritic		155	518	K5	C50	7	E					
		pearlitic		265	885	K6	C40	5	E		60	12	E O	M L
	GGV (CGI)			200	675	K7	C40	5	E		71	12	O E	M L
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	C90	22	E					
		hardenable, hardened		100	343	N2	C90	22	E					
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	C90	15	E					
		≤ 12% Si, hardenable, hardened		90	314	N4	C90	15	E					
		> 12% Si, cannot be hardened		130	447	N5	C71	13	E					
	Magnesium alloys			70	250	N6								
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	C32	4	E					
		brass, bronze, red brass		90	314	N8	C56	6	E					
		Cu-alloys, short-chipping		110	382	N9	C56	13	E					
		high-strength, Ampco		300	1013	N10	C28	4	E		48	7	E O	M
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	C14	3	E					
			hardened	280	943	S2	C20	4	E		15	2	O E	
		Ni or Co base	annealed	250	839	S3	C10	4	E					
			hardened	350	1177	S4	C10	3	E		11	2	O E	
			cast	320	1076	S5	C16	3	E		14	2	O E	
	Titanium alloys	pure titanium		200	675	S6	C28	4	E					
		α and β alloys, hardened		375	1262	S7	C14	3	E					
		β alloys		410	1396	S8	C12	2	E		9	2	O E	
	Tungsten alloys			300	1013	S9	C10	4	E		48	7	E O	M
	Molybdenum alloys			300	1013	S10	C10	4	E		48	7	E O	M
H	Hardened steel	hardened and tempered		50 HRC	–	H1	C20	2	E		20	2	O E	
		hardened and tempered		55 HRC	–	H2								
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4								
O	Thermoplasts	without abrasive fillers				O1	C63	14	E					
	Thermosetting plastics	without abrasive fillers				O2								
	Plastic, glass fibre reinforced	GFRP				O3								
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

** The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	30 x D_c				40 x D_c				Pilot drill															
	A6985TFP				A7495TTP				K3281TFT				A6181AML				A6181TFT				A7191TFT				K5191TFT			
	Alpha® 4 XD30				**X-treme D40**				**X-treme Pilot Step 90**				**X-treme Pilot 150**				**XD-Pilot**				**X-treme Pilot 180**				**X-treme Pilot 180C**			
	Walter standard				Walter standard				Walter standard				Walter standard				Walter standard				Walter standard				Walter standard			
	3,00 – 12,00				4,50 –11,00				3,00 – 16,00				2,00 – 2,95				3,00 – 16,00				3,00 – 10,00				4,00 – 7,00			
	K30F				K30F				K30F				K30F				K30F				K30F				K30F			
	TFP				TTP				TFT				AML				TFT				TFT				TFT			
	*B 136**				B-73				B-74				*B 117**				*B 118**				*B 138**				*B 140**			
																												
	v_c	VRR			v_c	VRR			v_c	VRR			VCRR	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	95	9	**E O**	**M L**	90	10	**E O**		120	12	**E O**	**M L**	C100	12	**E**		120	12	**E O**	**M L**	120	9	**E O**	**M L**	120	9	**E O**	**M L**
	85	9	**E O**	**M L**	90	10	**E O**		105	12	**E O**	**M L**	C80	12	**E**		105	12	**E O**	**M L**	105	8	**E O**	**M L**	105	8	**E O**	**M L**
	80	9	**E O**	**M L**	80	10	**E O**		100	12	**E O**	**M L**	C80	12	**E**		100	12	**E O**	**M L**	100	8	**E O**	**M L**	100	8	**E O**	**M L**
	85	9	**E O**	**M L**	90	10	**E O**		105	12	**E O**	**M L**	C80	12	**E**		105	12	**E O**	**M L**	105	8	**E O**	**M L**	105	8	**E O**	**M L**
	60	8	**E O**	**M L**	63	10	**E O**		75	9	**E O**	**M L**	C67	9	**E**		75	9	**E O**	**M L**	75	6	**E O**	**M L**	75	6	**E O**	**M L**
	95	10	**E O**	**M L**	80	10	**E O**		120	12	**E O**	**M L**	C100	12	**E**		120	12	**E O**	**M L**	120	9	**E O**	**M L**	120	9	**E O**	**M L**
	85	9	**E O**	**M L**	90	10	**E O**		105	12	**E O**	**M L**	C80	12	**E**		105	12	**E O**	**M L**	105	8	**E O**	**M L**	105	8	**E O**	**M L**
	60	8	**E O**	**M L**	71	8	**E O**		75	9	**E O**	**M L**	C67	9	**E**		75	9	**E O**	**M L**	75	6	**E O**	**M L**	75	6	**E O**	**M L**
	36	6	**O E**						50	6	**O E**	**M L**	C45	6	**E**		50	6	**O E**	**M L**	50	4	**O E**	**M L**	50	4	**O E**	**M L**
	24	5	**O E**						42	4	**O E**		C40	6	**E**		42	4	**O E**		42	2	**O E**		42	2	**O E**	
	53	7	**E O**		80	10	**E O**		67	9	**E O**		C63	10	**E**		67	9	**E O**		67	6	**E O**		67	6	**E O**	
	48	7	**E O**		63	10	**E O**		60	7	**E O**	**M L**	C50	6	**E**		60	7	**E O**	**M L**	60	5	**E O**	**M L**	60	5	**E O**	**M L**
	24	5	**O E**						42	4	**O E**		C40	6	**E**		42	4	**O E**		42	2	**O E**		42	2	**O E**	
	53	7	**E O**		71	9	**E O**		67	9	**E O**		C63	10	**E**		67	9	**E O**		67	6	**E O**		67	6	**E O**	
	34	6	**E O**		56	8	**E O**		42	7	**E O**		C50	8	**E**		42	7	**E O**		42	5	**E O**		42	5	**E O**	
	34	4	**O E**		56	6	**O E**		42	5	**E O**		C40	8	**E**		42	5	**E O**		42	4	**E O**		42	4	**E O**	
	45	5	**E O**						56	6	**E O**		C50	6	**E**		56	6	**E O**		56	4	**E O**		56	4	**E O**	
	27	4	**O E**		50	6	**O E**		34	5	**E O**		C25	5	**E**		34	5	**E O**		34	4	**E O**		34	4	**E O**	
	80	12	**E O**	**M L**	90	12	**E O**		100	16	**E O**	**M L**	C80	10	**E**		100	16	**E O**	**M L**	100	12	**E O**	**M L**	100	12	**E O**	**M L**
	60	12	**E O**	**M L**	71	9	**E O**		75	16	**E O**	**M L**	C80	10	**E**		75	16	**E O**	**M L**	75	12	**E O**	**M L**	75	12	**E O**	**M L**
	95	12	**E O**	**M L**	90	11	**E O**		120	16	**E O**	**M L**	C100	10	**E**		120	16	**E O**	**M L**	120	12	**E O**	**M L**	120	12	**E O**	**M L**
	80	12	**E O**	**M L**	90	12	**E O**		100	16	**E O**	**M L**	C80	10	**E**		100	16	**E O**	**M L**	100	12	**E O**	**M L**	100	12	**E O**	**M L**
	80	12	**E O**	**M L**	90	11	**E O**		95	20	**E**	**M L**	C80	10	**E**		95	20	**E**	**M L**	100	12	**E O**	**M L**	100	12	**E O**	**M L**
	60	12	**E O**	**M L**	71	9	**E O**		75	16	**E O**	**M L**	C63	10	**E**		75	16	**E O**	**M L**	75	12	**E O**	**M L**	75	12	**E O**	**M L**
	71	12	**E O**	**M L**	71	9	**E O**		85	20	**O E**	**M L**	C71	10	**E**		85	20	**O E**	**M L**	90	12	**E O**	**M L**	90	12	**E O**	**M L**
	80	16	**E O**	**M**	90	13	**E O**		400	16	**E O**	**M**	C160	20	**E**		400	16	**E O**	**M**	400	12	**E O**	**M**	400	12	**E O**	**M**
	80	16	**E O**	**M**	90	13	**E O**		400	16	**E O**	**M**	C160	20	**E**		400	16	**E O**	**M**	400	12	**E O**	**M**	400	12	**E O**	**M**
	80	16	**E O**	**M**	90	13	**E O**		250	16	**E O**	**M**	C160	20	**E**		250	16	**E O**	**M**	250	12	**E O**	**M**	250	12	**E O**	**M**
	80	16	**E O**	**M**	90	13	**E O**		240	16	**E O**	**M**	C160	20	**E**		240	16	**E O**	**M**	240	12	**E O**	**M**	240	12	**E O**	**M**
	80	12	**E O**	**M**	90	13	**E O**		190	16	**E O**	**M**	C125	20	**E**		190	16	**E O**	**M**	190	10	**E O**	**M**	190	10	**E O**	**M**
	80	16		**M L**					240	16		**M L**					240	16		**M L**	240	12		**M L**	240	12		**M L**
	95	6	**E O**	**M**	90	13	**E O**		210	9	**E O**	**M**	C80	6	**E**		210	9	**E O**	**M**	210	6	**E O**	**M**	210	6	**E O**	**M**
	80	8	**E O**		90	13	**E O**		180	12	**E O**		C80	12	**E**		180	12	**E O**		180	8	**E O**		180	8	**E O**	
	95	10	**E O**	**M**					190	16	**E O**	**M**	C100	20	**E**		190	16	**E O**	**M**	190	12	**E O**	**M**	190	12	**E O**	**M**
	48	7	**E O**						60	7	**E O**	**M**	C56	8	**E**		60	7	**E O**	**M**	60	5	**E O**	**M**	60	5	**E O**	**M**
	34	4	**O E**						42	5	**E O**		C40	8	**E**		42	5	**E O**		42	4	**E O**		42	4	**E O**	
	20	3	**O E**						26	4	**O E**		C22	6	**E**		26	4	**O E**		26	3	**O E**		26	3	**O E**	
	26	3	**E O**						32	4	**E O**		C25	5	**E**		32	4	**E O**		32	3	**E O**		32	3	**E O**	
	11	2	**O E**						16	3	**O E**		C20	6	**E**		16	3	**O E**		16	2	**O E**		16	2	**O E**	
	14	2	**O E**						20	3	**O E**		C20	6	**E**		20	3	**O E**		20	2	**O E**		20	2	**O E**	
	32	5	**O E**						56	6	**O E**		C50	6	**E**		56	6	**O E**		56	5	**O E**		56	5	**O E**	
	19	4	**O E**		32	4	**O E**		48	5	**O E**		C32	5	**E**		48	5	**O E**		48	4	**O E**		48	4	**O E**	
	8,5	2	**O E**						12	3	**O E**		C20	5	**E**		12	3	**O E**		12	2	**O E**		12	2	**O E**	
	48	7	**E O**						60	7	**E O**	**M**	C56	8	**E**		60	7	**E O**	**M**	60	5	**E O**	**M**	60	5	**E O**	**M**
	48	7	**E O**						60	7	**E O**	**M**	C56	8	**E**		60	7	**E O**	**M**	60	5	**E O**	**M**	60	5	**E O**	**M**
	20	2	**O E**						36	3	**O E**		C40	3	**E**		36	3	**O E**		36	2	**O E**		36	2	**O E**	
									31	3	**O E**		C40	3	**E**		31	3	**O E**		31	2	**O E**		31	2	**O E**	
									31	3	**O E**		C40	3	**E**		31	3	**O E**		31	2	**O E**		31	2	**O E**	
	80	12	**E O**						100	16	**E O**		C100	20	**E**		100	16	**E O**		100	12	**E O**		100	12	**E O**	

Cutting data for solid carbide drills without internal cooling

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Drilling depth	3 x D_c							
	Designation							K3279XPL				A3279XPL A3879XPL			
	Type							X-treme Step 90				X-treme			
	Dimensions							Walter standard				DIN 6537 K			
	Ø range (mm)							3,30 – 14,50				3,00 – 20,00			
	Cutting tool material							K30F				K30F			
	Coating							XPL				XPL			
	Page							B-76				B-26 / B-50			
	Workpiece material														
								v_c	VRR			v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		110	12	E O	M L	110	12	E O	M L
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		120	12	E O	M L	120	12	E O	M L
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		110	12	E O	M L	110	12	E O	M L
		C > 0.55%	annealed	190	639	P4		120	12	E O	M L	120	12	E O	M L
		C > 0.55%	tempered	300	1013	P5		95	10	E O	M L	95	10	E O	M L
		machining steel (short-chipping)	annealed	220	745	P6		110	12	E O	M L	110	12	E O	M L
	Low-alloyed steel	annealed		175	591	P7		120	12	E O	M L	120	12	E O	M L
		tempered		300	1013	P8		95	10	E O	M L	95	10	E O	M L
		tempered		380	1282	P9		63	7	O E		63	7	O E	
		tempered		430	1477	P10		48	5	O E		48	5	O E	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		63	9	E O		63	9	E O	
		hardened and tempered		300	1013	P12		80	9	E O		80	9	E O	
		hardened and tempered		400	1361	P13		48	5	O E		48	5	O E	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		63	9	E O		63	9	E O	
		martensitic, tempered		330	1114	P15		40	7	E O		40	7	E O	
M	Stainless steel	austenitic, quench hardened		200	675	M1									
		austenitic, precipitation hardened (PH)		300	1013	M2		53	6	E O		53	6	E O	
		austenitic/ferritic, duplex		230	778	M3									
K	Malleable cast iron	ferritic		200	675	K1		90	16	E O	M L	90	16	E O	M L
		pearlitic		260	867	K2		90	16	E O	M L	90	16	E O	M L
	Grey cast iron	low tensile strength		180	602	K3		110	16	E O	M L	110	16	E O	M L
		high tensile strength/austenitic		245	825	K4		95	16	E O	M L	95	16	E O	M L
	Cast iron with spheroidal graphite	ferritic		155	518	K5		110	16	E O	M L	110	16	E O	M L
		pearlitic		265	885	K6		90	16	E O	M L	90	16	E O	M L
	GGV (CGI)			200	675	K7		100	16	E O	M L	100	16	E O	M L
N	Aluminium wrought alloys	cannot be hardened		30	–	N1		260	10	E O		260	10	E O	
		hardenable, hardened		100	343	N2		260	10	E O		260	10	E O	
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3		240	16	E O		240	16	E O	
		≤ 12% Si, hardenable, hardened		90	314	N4		210	16	E O		210	16	E O	
		> 12% Si, cannot be hardened		130	447	N5		170	12	E O		170	12	E O	
	Magnesium alloys			70	250	N6									
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7		200	7	E O	M	200	7	E O	M
		brass, bronze, red brass		90	314	N8		170	12	E O		170	12	E O	
		Cu-alloys, short-chipping		110	382	N9		190	16	E O	M L	190	16	E O	M L
		high-strength, Ampco		300	1013	N10		67	5	E O		67	5	E O	
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1									
			hardened	280	943	S2									
		Ni or Co base	annealed	250	839	S3									
			hardened	350	1177	S4									
			cast	320	1076	S5									
	Titanium alloys	pure titanium		200	675	S6		42	5	O E		42	5	O E	
		α and β alloys, hardened		375	1262	S7		36	4	O E		36	4	O E	
		β alloys		410	1396	S8									
	Tungsten alloys			300	1013	S9		67	5	E O		67	5	E O	
	Molybdenum alloys			300	1013	S10		67	5	E O		67	5	E O	
H	Hardened steel	hardened and tempered		50 HRC	–	H1		34	4	O E		34	4	O E	
		hardened and tempered		55 HRC	–	H2		26	3	O E		26	3	O E	
		hardened and tempered		60 HRC	–	H3									
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		26	3	O E		26	3	O E	
O	Thermoplasts	without abrasive fillers				O1		95	16	E O		95	16	E O	
	Thermosetting plastics	without abrasive fillers				O2									
	Plastic, glass fibre reinforced	GFRP				O3									
	Plastic, carbon fibre reinforced	CFRP				O4									
	Plastic, aramid fibre reinforced	AFRP				O5									
	Graphite (technical)			80 Shore		O6									

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

** The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	3 x D_c																													
	A3269TFL				A1164TIN				A1163				A1166TIN				A1166				A1167A				A1167B			
	Alpha® Rc				**Alpha® 2**				**N**				**Maximiza**				**Maximiza**				**Maximiza**				**Maximiza**			
	DIN 6537 K				DIN 6539				DIN 6539				Walter standard				Walter standard				Walter standard				Walter standard			
	3,40 – 10,40				1,50 – 20,00				1,00 – 12,00				3,00 – 20,00				3,00 – 20,00				3,00 – 20,00				3,00 – 20,00			
	K30F				K30F				K30F				K30F				K30F				K30F				K30F			
	TFL				TiN				uncoated				TiN				uncoated				uncoated				uncoated			
	*B 65**				*B 38**				*B 36**				*B 46**				*B 42**				*B 47**				*B 50**			
																												
	v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
					95	12	**E O**	**M L**																				
					90	12	**E O**	**M L**																				
					85	12	**E O**	**M L**																				
					90	12	**E O**	**M L**																				
					63	9	**E O**	**M L**					63	7	**E O**		40	4	**O E**									
					95	12	**E O**	**M L**																				
					90	12	**E O**	**M L**																				
					63	9	**E O**	**M L**					63	7	**E O**		40	4	**O E**									
					40	6	**O E**						45	4	**O E**		38	4	**O E**									
					32	4	**O E**						40	4	**O E**		36	4	**O E**									
					56	9	**E O**						56	8	**E O**													
					48	7	**E O**						50	4	**E O**		40	4	**E O**									
					32	4	**O E**						40	4	**O E**		36	4	**O E**									
					56	9	**E O**						56	8	**E O**													
					40	6	**E O**						38	6	**E O**													
					42	5	**E O**																					
					80	16	**E O**	**M L**	45	8	**E O**										75	12	**E O**					
					63	16	**E O**	**M L**	34	6	**E O**										60	10	**E O**					
					95	16	**E O**	**M L**	56	8	**E O**										90	12	**E O**					
					80	16	**E O**	**M L**	45	8	**E O**										75	12	**E O**					
					80	16	**E O**	**M L**	45	8	**E O**										75	12	**E O**					
					63	16	**E O**	**M L**	34	6	**E O**										60	10	**E O**					
					71	16	**E O**	**M L**	40	7	**E O**										67	12	**E O**					
					250	10	**E O**		220	10	**E O**	**M**													200	10	**E O**	
					250	10	**E O**		220	10	**E O**	**M**													200	10	**E O**	
					200	16	**E O**		170	10	**E O**	**M**													150	10	**E O**	
					180	16	**E O**		150	10	**E O**	**M**									130	10	**E O**					
					140	12	**E O**		100	9	**E O**										90	9	**E O**					
									210	10		**M L**													170	10		**M L**
					180	7	**E O**	**M**	140	7	**E O**														160	8	**E O**	
					150	12	**E O**		100	9	**E O**														130	10	**E O**	
					160	16	**E O**	**M L**	110	12	**E O**	**M L**									140	12	**E O**	**M L**				
					63	9	**E O**	**M L**					63	7	**E O**		40	4	**O E**									
	18	3	**O E**														15	4	**O E**									
																	18	4	**O E**									
	13	3	**O E**														10	3	**O E**									
	16	3	**O E**														12	3	**O E**									
					36	5	**O E**										28	3	**O E**									
					30	4	**O E**										21	2	**O E**									
	10	3	**O E**														8	3	**O E**									
					63	9	**E O**						63	7	**E O**		40	4	**O E**									
					63	9	**E O**						63	7	**E O**		40	4	**O E**									
	34	3	**O E**		24	3	**O E**						30	3	**O E**		26	3	**O E**									
	29	3	**O E**		20	3	**O E**						26	3	**O E**		22	3	**O E**									
	24	2	**O E**																									
	29	3	**O E**		20	3	**O E**						26	3	**O E**		22	3	**O E**									
					90	16	**E O**		40	12	**E O**																	
									67	5		**L**									50	8		**L**				
									30	5		**L**																
									20	5		**L**																
									67	5		**L**																
									20	5		**L**									50	5		**L**				

Cutting data for solid carbide drills without internal cooling

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Drilling depth	5 x D_c							
	Workpiece material						Designation	A3378TML				A3162			
							Type	Alpha® 2 Plus Micro				ESU			
							Dimensions	Walter standard				DIN 1899			
							Ø range (mm)	0,50 – 2,95				0,10 – 1,45			
							Cutting tool material	K30F				K30F			
							Coating	TML				uncoated			
							Page	*B 79**				*B 59**			
															
								VCRR	VRR			VCRR	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		C100	16	**E O**	**M L**	C80	5	**E O**	
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		C100	16	**E O**	**M L**	C80	6	**E O**	
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		C90	16	**E O**	**M L**	C71	6	**E O**	
		C > 0.55%	annealed	190	639	P4		C100	16	**E O**	**M L**	C80	6	**E O**	
		C > 0.55%	tempered	300	1013	P5		C67	12	**E O**	**M L**	C53	5	**E O**	
		machining steel (short-chipping)	annealed	220	745	P6		C100	20	**E O**	**M L**	C80	6	**E O**	
	Low-alloyed steel	annealed		175	591	P7		C100	16	**E O**	**M L**	C80	6	**E O**	
		tempered		300	1013	P8		C67	12	**E O**	**M L**	C53	5	**E O**	
		tempered		380	1282	P9		C45	7	**O E**		C32	4	**O E**	
		tempered		430	1477	P10		C40	6	**O E**		C25	3	**O E**	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		C50	10	**E O**		C32	4	**E O**	
		hardened and tempered		300	1013	P12		C50	8	**E O**		C40	4	**E O**	
		hardened and tempered		400	1361	P13		C40	6	**O E**		C25	3	**O E**	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		C50	10	**E O**		C32	4	**E O**	
		martensitic, tempered		330	1114	P15						C16	3	**E O**	
M	Stainless steel	austenitic, quench hardened		200	675	M1						C16	3	**E O**	
		austenitic, precipitation hardened (PH)		300	1013	M2		C42	5	**E O**		C25	3	**E O**	
		austenitic/ferritic, duplex		230	778	M3									
K	Malleable cast iron	ferritic		200	675	K1		C80	20	**E O**	**M L**	C63	6	**E O**	
		pearlitic		260	867	K2		C63	20	**E O**	**M L**	C50	4	**E O**	
	Grey cast iron	low tensile strength		180	602	K3		C100	20	**E O**	**M L**	C80	7	**E O**	
		high tensile strength/austenitic		245	825	K4		C80	20	**E O**	**M L**	C63	6	**E O**	
	Cast iron with spheroidal graphite	ferritic		155	518	K5		C80	20	**E O**		C63	6	**E O**	
		pearlitic		265	885	K6		C63	20	**E O**	**M L**	C50	4	**E O**	
	GGV (CGI)			200	675	K7		C71	20	**E O**	**M L**	C56	5	**E O**	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1		C125	16	**O E**		C200	9	**E O**	**M**
		hardenable, hardened		100	343	N2		C125	16	**O E**		C200	9	**E O**	**M**
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3		C125	20	**O E**		C160	9	**E O**	**M**
		≤ 12% Si, hardenable, hardened		90	314	N4		C125	20	**O E**		C125	9	**E O**	**M**
		> 12% Si, cannot be hardened		130	447	N5		C125	20	**O E**		C80	8	**E O**	
	Magnesium alloys			70	250	N6						C160	9		**M L**
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7		C125	10	**O E**	**M**	C125	6	**E O**	
		brass, bronze, red brass		90	314	N8		C100	12	**O E**		C100	8	**E O**	
		Cu-alloys, short-chipping		110	382	N9		C100	20	**O E**	**M L**	C100	8	**E O**	**M L**
		high-strength, Ampco		300	1013	N10		C67	12	**E O**	**M L**	C53	5	**E O**	
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1						C16	3	**E O**	
			hardened	280	943	S2						C12	2	**O E**	
		Ni or Co base	annealed	250	839	S3						C12	2	**O E**	
			hardened	350	1177	S4									
			cast	320	1076	S5									
	Titanium alloys	pure titanium		200	675	S6		C50	9	**O E**		C25	3	**O E**	
		α and β alloys, hardened		375	1262	S7		C40	8	**O E**		C20	2	**O E**	
		β alloys		410	1396	S8									
	Tungsten alloys			300	1013	S9		C67	12	**E O**		C53	5	**E O**	
	Molybdenum alloys			300	1013	S10		C67	12	**E O**		C53	5	**E O**	
H	Hardened steel	hardened and tempered		50 HRC	–	H1		C25	3	**O E**					
		hardened and tempered		55 HRC	–	H2									
		hardened and tempered		60 HRC	–	H3									
	Hardened cast iron	hardened and tempered		55 HRC	–	H4									
O	Thermoplasts	without abrasive fillers				O1		C100	20	**O E**		C32	12	**E O**	
	Thermosetting plastics	without abrasive fillers				O2						C50	5		**L**
	Plastic, glass fibre reinforced	GFRP				O3						C50	5		**L**
	Plastic, carbon fibre reinforced	CFRP				O4						C50	5		**L**
	Plastic, aramid fibre reinforced	AFRP				O5						C50	5		**L**
	Graphite (technical)			80 Shore		O6						C50	5		**L**

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

** The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	5 x D_c								8 x D_c												3 x D_c – Carbide-tipped								NC spot drill			
	A3379XPL A3979XPL				A3367 A3967				A6478TML				A1276TFL				A1263				A2971				A5971				A1174 A1174C			
	X-treme				BSX				Alpha® 2 Plus Micro				Alpha® 22				N				HM				HM				NC spot drill			
	DIN 6537 L				DIN 6537 L				Walter standard				DIN 338				DIN 338				DIN 8037				DIN 8041				Walter standard			
	3,00 – 25,00				3,00 – 16,00				0,50 – 2,95				3,00 – 12,00				0,60 – 12,00				3,00 – 16,00				8,00 – 32,00				3,00 – 20,00			
	K30F				K30F				K30F				K30F				K30F				K10/20				K10/20				K30F			
	XPL				uncoated				TML				TFL				uncoated				uncoated				uncoated				uncoated			
	B-37 / B-58				*B 77* / B 110**				*B 119**				*B 57**				*B 55**				*B 58**				*B 116**				*B 53* / B 54**			
																																
	v_c	VRR			v_c	VRR			VCRR	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	100	10	**E O**	**M L**					C100	16	**E O**	**M L**	75	8	**E O**	**M L**																
	105	10	**E O**	**M L**					C100	16	**E O**	**M L**	71	8	**E O**	**M L**																
	100	10	**E O**	**M L**					C90	16	**E O**	**M L**	71	8	**E O**	**M L**																
	105	10	**E O**	**M L**					C100	16	**E O**	**M L**	71	8	**E O**	**M L**																
	85	8	**E O**	**M L**					C67	12	**E O**	**M L**			**E O**	**M L**																
	100	12	**E O**	**M L**					C100	20	**E O**	**M L**	75	9	**E O**	**M L**																
	105	10	**E O**	**M L**					C100	16	**E O**	**M L**	71	8	**E O**	**M L**																
	85	8	**E O**	**M L**					C67	12	**E O**	**M L**			**E O**	**M L**																
	56	6	**O E**						C45	7	**O E**																					
	38	4	**O E**						C40	6	**O E**										23	2	**O E**		23	2	**O E**					
	53	7	**E O**						C50	10	**E O**		53	7	**E O**																	
	71	7	**E O**						C50	8	**E O**																					
	38	4	**O E**						C40	6	**O E**										25	2	**O E**		25	2	**O E**					
	53	7	**E O**						C50	10	**E O**		53	7	**E O**																	
	36	6	**E O**										38	5	**E O**																	
	48	6	**E O**						C42	5	**E O**																					
	75	16	**E O**	**M L**	75	16	**E O**		C80	20	**E O**	**M L**	67	12	**E O**	**M L**	36	6	**E O**		26	6	**E O**		26	6	**E O**		45	8	**E O**	
	75	16	**E O**	**M L**	60	16	**E O**		C63	20	**E O**	**M L**	56	10	**E O**	**M L**	28	5	**E O**		21	4	**O E**		21	4	**O E**		34	6	**E O**	
	95	16	**E O**	**M L**	90	16	**E O**		C100	20	**E O**	**M L**	80	12	**E O**	**M L**	45	6	**E O**		32	6	**E O**		32	6	**E O**		56	8	**E O**	
	80	16	**E O**	**M L**	75	16	**E O**		C80	20	**E O**	**M L**	67	12	**E O**	**M L**	36	6	**E O**		26	6	**E O**		26	6	**E O**		45	8	**E O**	
	95	16	**E O**	**M L**	75	16	**E O**		C80	20	**E O**		67	12	**E O**	**M L**	36	6	**E O**		26	6	**E O**		26	6	**E O**		45	8	**E O**	
	75	12	**E O**	**M L**	60	16	**E O**		C63	20	**E O**	**M L**	56	10	**E O**	**M L**	28	5	**E O**		16	4	**E O**		16	4	**E O**		34	6	**E O**	
	85	16	**E O**	**M L**	67	16	**E O**		C71	20	**E O**	**M L**	63	12	**E O**	**M L**	32	6	**E O**		21	5	**E O**		21	5	**E O**		40	7	**E O**	
	260	10	**E O**		300	10	**E O**	**M**	C125	16	**O E**						200	9	**E O**	**M**									220	10	**E O**	**M**
	260	10	**E O**		300	10	**E O**	**M**	C125	16	**O E**						200	9	**E O**	**M**									220	10	**E O**	**M**
	240	16	**E O**		200	16	**E O**	**M**	C125	20	**O E**		220	12	**E O**		150	9	**E O**	**M**									170	10	**E O**	**M**
	210	16	**E O**		180	16	**E O**	**M**	C125	20	**O E**		200	12	**E O**		130	9	**E O**	**M**									150	10	**E O**	**M**
	170	12	**E O**		140	16	**E O**		C125	20	**O E**		160	12	**E O**		90	8	**E O**										100	9	**E O**	
					180	16		**M L**									170	8		**M L**									210	10		**M L**
	170	6	**E O**	**M**	190	8	**E O**	**M**	C125	10	**O E**	**M**	140	5	**E O**	**M**	110	5	**E O**										140	7	**E O**	
	140	10	**E O**		140	12	**E O**		C100	12	**O E**		120	9	**E O**		80	7	**E O**										100	9	**E O**	
	190	16	**E O**	**M L**	150	16	**E O**	**M L**	C100	20	**O E**	**M L**	150	16	**E O**	**M L**	90	9	**E O**	**M L**	67	8	**E O**	**M L**	67	8	**E O**	**M L**	110	12	**E O**	**M L**
	67	5	**E O**						C67	12	**E O**	**M L**									25	2	**O E**		25	2	**O E**		50	6	**E O**	**M L**
																													7	3	**O E**	
																													7	3	**O E**	
																													7	3	**O E**	
	34	5	**O E**		30	4	**O E**		C50	9	**O E**		34	5	**O E**														25	3	**O E**	
	30	4	**O E**		24	3	**O E**		C40	8	**O E**		28	4	**O E**														17	2	**O E**	
	67	5	**E O**						C67	12	**E O**		67	8	**E O**						25	2	**O E**		25	2	**O E**					
	67	5	**E O**						C67	12	**E O**		67	8	**E O**						25	2	**O E**		25	2	**O E**					
	28	3	**O E**						C25	3	**O E**										21	2	**O E**		21	2	**O E**					
	24	3	**O E**																		12	2	**O E**		12	2	**O E**					
	24	3	**O E**																		12	2	**O E**		12	2	**O E**					
	95	16	**E O**		40	16	**E O**		C100	20	**O E**						36	12	**E O**										40	12	**E O**	
					50	8		**L**									67	5		**L**	45	5	**E O**	**L**	45	5	**E O**	**L**	67	5		**L**
					30	8		**L**									30	5		**L**	35	4		**L**	35	4		**L**	30	5		**L**
					20	8		**L**									20	5		**L**									20	5		**L**
					67	8		**L**									67	5		**L**									67	5		**L**
					20	8		**L**									20	5		**L**	25	3		**L**	25	3		**L**	20	5		**L**

Cutting data for centre drills

= Cutting data for wet machining

= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

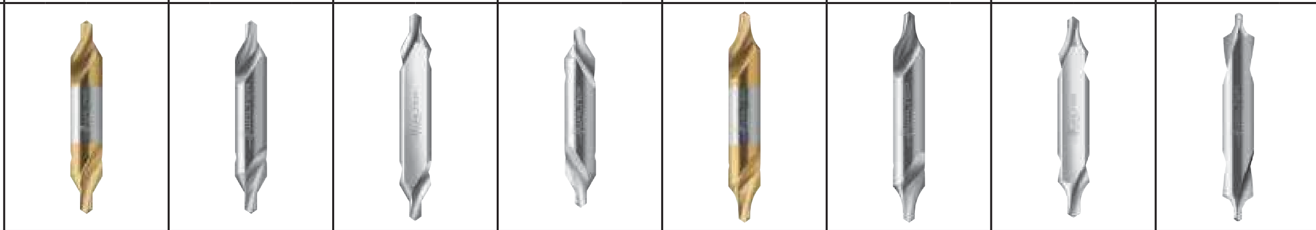
v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

Material group	Structure of main material groups and code letters: Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Dimensions: Designation	DIN 333: K1161					DIN 333: K1161XPL				
							Form	A					A				
							Type	VHM					VHM				
							Ø range (mm)	0,50 – 6,30					0,50 – 6,30				
							Cutting tool material	K10/20					K10/20				
							Coating	uncoated					XPL				
							Page	B-84					B-85				
								v_c	VRR				v_c	VRR			
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		48	6	E O	M L		72	6	E O	M L	
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		45	6	E O	M L		68	6	E O	M L	
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		42	6	E O	M L		63	6	E O	M L	
		C > 0.55%	annealed	190	639	P4		45	6	E O	M L		68	6	E O	M L	
		C > 0.55%	tempered	300	1013	P5		32	5	E O	M L		48	5	E O	M L	
		machining steel (short-chipping)	annealed	220	745	P6		48	6	E O	M L		72	6	E O	M L	
	Low-alloyed steel	annealed		175	591	P7		45	6	E O	M L		68	6	E O	M L	
		tempered		300	1013	P8		32	5	E O	M L		48	5	E O	M L	
		tempered		380	1282	P9		21	3	O E			32	3	O E		
		tempered		430	1477	P10		16	2	O E			24	2	O E		
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		28	4	E O			42	4	E O		
		hardened and tempered		300	1013	P12		25	4	E O			38	4	E O		
		hardened and tempered		400	1361	P13		16	2	O E			24	2	O E		
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		28	4	E O			42	4	E O		
		martensitic, tempered		330	1114	P15		21	3	E O			32	3	E O		
M	Stainless steel	austenitic, quench hardened		200	675	M1											
		austenitic, precipitation hardened (PH)		300	1013	M2		21	3	E O			21	3	E O		
		austenitic/ferritic, duplex		230	778	M3											
K	Malleable cast iron	ferritic		200	675	K1		40	8	E O	M L		72	8	E O	M L	
		pearlitic		260	867	K2		32	7	E O	M L		58	7	E O	M L	
	Grey cast iron	low tensile strength		180	602	K3		48	8	E O	M L		86	8	E O	M L	
		high tensile strength/austenitic		245	825	K4		40	8	E O	M L		72	8	E O	M L	
	Cast iron with spheroidal graphite	ferritic		155	518	K5		40	8	E O	M L		72	8	E O	M L	
		pearlitic		265	885	K6		32	7	E O	M L		58	7	E O	M L	
	GGV (CGI)			200	675	K7		36	8	E O	M L		65	8	E O	M L	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1		130	5	E O			130	5	E O		
		hardenable, hardened		100	343	N2		130	5	E O			130	5	E O		
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3		105	7	E O			105	7	E O		
		≤ 12% Si, hardenable, hardened		90	314	N4		90	7	E O			90	7	E O		
		> 12% Si, cannot be hardened		130	447	N5		71	7	E O			71	7	E O		
	Magnesium alloys			70	250	N6		90	7		M L		90	7		M L	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7		90	3	E O	M		90	3	E O	M	
		brass, bronze, red brass		90	314	N8		75	6	E O			75	6	E O		
		Cu-alloys, short-chipping		110	382	N9		80	8	E O	M L		80	8	E O	M L	
		high-strength, Ampco		300	1013	N10		32	5	E O			48	5	E O		
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1		22	2	O E			33	2	O E		
			hardened	280	943	S2		15	2	O E			15	2	O E		
		Ni or Co base	annealed	250	839	S3		18	2	O E			27	2	O E		
			hardened	350	1177	S4		10	1	O E			10	1	O E		
			cast	320	1076	S5		12	1	O E			12	1	O E		
	Titanium alloys	pure titanium		200	675	S6											
		α and β alloys, hardened		375	1262	S7											
		β alloys		410	1396	S8											
	Tungsten alloys			300	1013	S9		32	5	E O			48	5	E O		
	Molybdenum alloys			300	1013	S10		32	5	E O			48	5	E O		
H	Hardened steel	hardened and tempered		50 HRC	–	H1		12,5	2	O E			19	2	O E		
		hardened and tempered		55 HRC	–	H2											
		hardened and tempered		60 HRC	–	H3											
	Hardened cast iron	hardened and tempered		55 HRC	–	H4											
O	Thermoplasts	without abrasive fillers				O1		45	7	E O			45	7	E O		
	Thermosetting plastics	without abrasive fillers				O2		45	7	E O			45	7	E O		
	Plastic, glass fibre reinforced	GFRP				O3		35	6		L		35	6		L	
	Plastic, carbon fibre reinforced	CFRP				O4		25	5		L		25	5		L	
	Plastic, aramid fibre reinforced	AFRP				O5		45	7		L		45	7		L	
	Graphite (technical)			80 Shore		O6		25	5		L		25	5		L	

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

* *The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.



	DIN 333															
	K1111TIN				K1111				K1112				K1131			
	A				A				A				A			
	–				–				with flat				left-hand			
	1,00 – 5,00				0,50 – 12,50				1,60 – 5,00				0,50 – 6,30			
	HSS				HSS				HSS				HSS			
	TiN				uncoated				uncoated				uncoated			
	*B 292**				*B 292**				*B 293**				*B 297**			
	v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	38	8	**E O**		30	7	**E O**		30	7	**E O**		30	7	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	36	9	**E O**		28	8	**E O**		28	8	**E O**		28	8	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	28	8	**E O**		20	7	**E O**		20	7	**E O**		20	7	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	28	8	**E O**		20	7	**E O**		20	7	**E O**		20	7	**E O**	
	13	6	**E O**		11	6	**O E**		11	6	**O E**		11	6	**O E**	
					7	5	**O E**		7	5	**O E**		7	5	**O E**	
	9	4	**E O**		8	4	**E O**		8	4	**E O**		8	4	**E O**	
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
					7	5	**O E**		7	5	**O E**		7	5	**O E**	
	9	4	**E O**		8	4	**E O**		8	4	**E O**		8	4	**E O**	
					7	4	**E O**		7	4	**E O**		7	4	**E O**	
	7	4	**O E**		6	3	**O E**		6	3	**O E**		6	3	**O E**	
	13	5	**O E**		8	5	**O E**		8	5	**O E**		8	5	**O E**	
	6	4	**O E**		5	3	**O E**		5	3	**O E**		5	3	**O E**	
	34	12	**E O**		22	12	**E O**		22	12	**E O**		22	12	**E O**	
	26	10	**E O**		17	10	**E O**		17	10	**E O**		17	10	**E O**	
	42	12	**E O**		28	12	**E O**		28	12	**E O**		28	12	**E O**	
	34	12	**E O**		22	12	**E O**		22	12	**E O**		22	12	**E O**	
	34	12	**E O**		22	12	**E O**		22	12	**E O**		22	12	**E O**	
	26	10	**E O**		17	10	**E O**		17	10	**E O**		17	10	**E O**	
	30	12	**E O**		20	12	**E O**		20	12	**E O**		20	12	**E O**	
	79	12	**E O**		63	12	**E O**		63	12	**E O**		63	12	**E O**	
	79	12	**E O**		63	12	**E O**		63	12	**E O**		63	12	**E O**	
	50	12	**E O**		40	12	**E O**		40	12	**E O**		40	12	**E O**	
	35	10	**E O**		28	10	**E O**		28	10	**E O**		28	10	**E O**	
	35	10		**M L**	28	10		**M L**	28	10		**M L**	28	10		**M L**
	56	5	**E O**		45	5	**E O**		45	5	**E O**		45	5	**E O**	
					36	10	**E O**		36	10	**E O**		36	10	**E O**	
	71	12	**E O**	**M L**	63	12	**E O**	**M L**	63	12	**E O**	**M L**	63	12	**E O**	**M L**
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
	7	4	**O E**		6	3	**O E**		6	3	**O E**		6	3	**O E**	
	4	3	**O E**		4	3	**O E**		[6	[3	**O E**		4	3	**O E**	
					6	3	**O E**		6	3	**O E**		6	3	**O E**	
	8	4	**E O**		8	4	**E O**		8	4	**E O**		8	4	**E O**	
	6	4	**O E**		6	4	**O E**		6	4	**O E**		6	4	**O E**	
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
					38	12	**E O**		38	12	**E O**		38	12	**E O**	
	34	8		**L**	22	7		**L**	22	7		**L**	22	7		**L**
	34	8		**L**	22	7		**L**	22	7		**L**	22	7		**L**

	DIN 333															
	K1113TIN				K1113				K1114				K1215			
	R				R				R				B			
	–				–				with flat				–			
	1,00 – 5,00				0,50 – 12,50				1,60 – 5,00				1,00 – 10,00			
	HSS				HSS				HSS				HSS			
	TiN				uncoated				uncoated				uncoated			
	*B 295**				*B 294**				*B 296**				*B 299**			
	v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	38	8	**E O**		30	7	**E O**		30	7	**E O**		30	7	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	36	9	**E O**		28	8	**E O**		28	8	**E O**		28	8	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	28	8	**E O**		20	7	**E O**		20	7	**E O**		20	7	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	38	9	**E O**		30	8	**E O**		30	8	**E O**		30	8	**E O**	
	28	8	**E O**		20	7	**E O**		20	7	**E O**		20	7	**E O**	
	13	6	**E O**		11	6	**O E**		11	6	**O E**		11	6	**O E**	
					7	5	**O E**		7	5	**O E**		7	5	**O E**	
	9	4	**E O**		8	4	**E O**		8	4	**E O**		8	4	**E O**	
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
					7	5	**O E**		7	5	**O E**		7	5	**O E**	
	9	4	**E O**		8	4	**E O**		8	4	**E O**		8	4	**E O**	
					7	4	**E O**		7	4	**E O**		7	4	**E O**	
	7	4	**O E**		6	3	**O E**		6	3	**O E**		6	3	**O E**	
	13	5	**O E**		8	5	**O E**		8	5	**O E**		8	5	**O E**	
	6	4	**O E**		5	3	**O E**		5	3	**O E**		5	3	**O E**	
	34	12	**E O**		22	12	**E O**		22	12	**E O**		22	12	**E O**	
	26	10	**E O**		17	10	**E O**		17	10	**E O**		17	10	**E O**	
	42	12	**E O**		28	12	**E O**		28	12	**E O**		28	12	**E O**	
	34	12	**E O**		22	12	**E O**		22	12	**E O**		22	12	**E O**	
	34	12	**E O**		22	12	**E O**		22	12	**E O**		22	12	**E O**	
	26	10	**E O**		17	10	**E O**		17	10	**E O**		17	10	**E O**	
	30	12	**E O**		20	12	**E O**		20	12	**E O**		20	12	**E O**	
	79	12	**E O**		63	12	**E O**		63	12	**E O**		63	12	**E O**	
	79	12	**E O**		63	12	**E O**		63	12	**E O**		63	12	**E O**	
	50	12	**E O**		40	12	**E O**		40	12	**E O**		40	12	**E O**	
	35	10	**E O**		28	10	**E O**		28	10	**E O**		28	10	**E O**	
	35	10		**M L**	28	10		**M L**	28	10		**M L**	28	10		**M L**
	56	5	**E O**		45	5	**E O**		45	5	**E O**		45	5	**E O**	
					36	10	**E O**		36	10	**E O**		36	10	**E O**	
	71	12	**E O**	**M L**	63	12	**E O**	**M L**	63	12	**E O**	**M L**	63	12	**E O**	**M L**
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
	7	4	**O E**		6	3	**O E**		6	3	**O E**		6	3	**O E**	
	4	3	**O E**		4	3	**O E**		4	3	**O E**		4	3	**O E**	
					6	3	**O E**		6	3	**O E**		6	3	**O E**	
	8	4	**E O**		8	4	**E O**		8	4	**E O**		8	4	**E O**	
	6	4	**O E**		6	4	**O E**		6	4	**O E**		6	4	**O E**	
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
	21	6	**E O**		14	6	**E O**		14	6	**E O**		14	6	**E O**	
					38	12	**E O**		38	12	**E O**		38	12	**E O**	
	34	8		**L**	22	7		**L**	22	7		**L**	22	7		**L**
	34	8		**L**	22	7		**L**	22	7		**L**	22	7		**L**

Cutting data for centre drills

= Cutting data for wet machining

= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VCRR = v_c rating chart from page B-122
VRR = Feed rating chart from page B-124

				Dimensions			Walter standard			
				Designation			K1313			
				Form			R			
				Ø range (mm)			1,00 – 4,00			
				Cutting tool material			HSS			
				Coating			uncoated			
				Page			*B 301**			
Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]				
	Workpiece material						v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	30	7	**E O**	
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	30	8	**E O**	
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	28	8	**E O**	
		C > 0.55%	annealed	190	639	P4	30	8	**E O**	
		C > 0.55%	tempered	300	1013	P5	20	7	**E O**	
		machining steel (short-chipping)	annealed	220	745	P6	30	8	**E O**	
	Low-alloyed steel	annealed		175	591	P7	30	8	**E O**	
		tempered		300	1013	P8	20	7	**E O**	
		tempered		380	1282	P9	11	6	**O E**	
		tempered		430	1477	P10	7	5	**O E**	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	8	4	**E O**	
		hardened and tempered		300	1013	P12	14	6	**E O**	
		hardened and tempered		400	1361	P13	7	5	**O E**	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	8	4	**E O**	
		martensitic, tempered		330	1114	P15	7	4	**E O**	
M	Stainless steel	austenitic, quench hardened		200	675	M1	6	3	**O E**	
		austenitic, precipitation hardened (PH)		300	1013	M2	8	5	**O E**	
		austenitic/ferritic, duplex		230	778	M3	4,8	3	**O E**	
K	Malleable cast iron	Ferritic		200	675	K1	22	12	**E O**	
		pearlitic		260	867	K2	17	10	**E O**	
	Grey cast iron	low tensile strength		180	602	K3	28	12	**E O**	
		high tensile strength/austenitic		245	825	K4	22	12	**E O**	
	Cast iron with spheroidal graphite	ferritic		155	518	K5	22	12	**E O**	
		pearlitic		265	885	K6	17	10	**E O**	
	GGV (CGI)			200	675	K7	20	12	**E O**	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	63	12	**E O**	
		hardenable, hardened		100	343	N2	63	12	**E O**	
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	40	12	**E O**	
		≤ 12% Si, hardenable, hardened		90	314	N4	28	10	**E O**	
		> 12% Si, cannot be hardened		130	447	N5				
	Magnesium alloys			70	250	N6	28	10		**M L**
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	45	5	**E O**	
		brass, bronze, red brass		90	314	N8	36	10	**E O**	
		Cu-alloys, short-chipping		110	382	N9	63	12	**E O**	**M L**
		high-strength, Ampco		300	1013	N10	14	6	**E O**	
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	6	3	**O E**	
			hardened	280	943	S2	4	3	**O E**	
		Ni or Co base	annealed	250	839	S3	6	3	**O E**	
			hardened	350	1177	S4				
			cast	320	1076	S5				
	Titanium alloys	pure titanium		200	675	S6	8	4	**E O**	
		α and β alloys, hardened		375	1262	S7	6	4	**O E**	
		β alloys		410	1396	S8				
	Tungsten alloys			300	1013	S9	14	6	**E O**	
	Molybdenum alloys			300	1013	S10	14	6	**E O**	
H	Hardened steel	hardened and tempered		50 HRC	–	H1				
		hardened and tempered		55 HRC	–	H2				
		hardened and tempered		60 HRC	–	H3				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4				
O	Thermoplasts	without abrasive fillers				O1	38	12	**E O**	
	Thermosetting plastics	without abrasive fillers				O2	22	7		**L**
	Plastic, glass fibre reinforced	GFRP				O3				
	Plastic, carbon fibre reinforced	CFRP				O4				
	Plastic, aramid fibre reinforced	AFRP				O5	22	7		**L**
	Graphite (technical)			80 Shore		O6				

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

** The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Walter standard																ANSI B 94.11 M-1979				B.S. 328				Step centre drill							
	K1311				K1411S				K1411M				K1411L				K1811				K1911				K2511				K2513			
	A				A				A				A				A				A				60°				Radius			
	0,63 – 6,00				0,75 – 5,00				0,75 – 4,00				2,00 – 4,00				0,64 – 7,97				1,19 – 7,94				3,30 – 21,00				3,30 – 21,00			
	HSS				HSS				HSS				HSS				HSS				HSS				HSS				HSS			
	uncoated				uncoated				uncoated				uncoated				uncoated				uncoated				uncoated				uncoated			
	*B 300**				*B 304**				*B 303**				*B 302**				*B 305**				*B 306**				*B 307**				*B 308**			
																																
	v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	30	7	E O		30	7	E O		30	7	E O		30	7	E O		30	7	E O		30	7	E O		30	7	E O		30	7	E O	
	30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O	
	28	8	E O		28	8	E O		28	8	E O		28	8	E O		28	8	E O		28	8	E O		28	8	E O		28	8	E O	
	30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O	
	20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O	
	30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O	
	30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O		30	8	E O	
	20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O		20	7	E O	
	11	6	O E		11	6	O E		11	6	O E		11	6	O E		11	6	O E		11	6	O E		11	6	O E		11	6	O E	
	7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E	
	8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O	
	14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O	
	7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E		7	5	O E	
	8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O	
	7	4	E O		7	4	E O		7	4	E O		7	4	E O		7	4	E O		7	4	E O		7	4	E O		7	4	E O	
	6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E	
	8	5	O E		8	5	O E		8	5	O E		8	5	O E		8	5	O E		8	5	O E		8	5	O E		8	5	O E	
	4,8	3	O E		4,8	3	O E		4,8	3	O E		4,8	3	O E		4,8	3	O E		5	3	O E		4,8	3	O E		4,8	3	O E	
	22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O	
	17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O	
	28	12	E O		28	12	E O		28	12	E O		28	12	E O		28	12	E O		28	12	E O		28	12	E O		28	12	E O	
	22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O	
	22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O		22	12	E O	
	17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O		17	10	E O	
	20	12	E O		20	12	E O		20	12	E O		20	12	E O		20	12	E O		20	12	E O		20	12	E O		20	12	E O	
	63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O	
	63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O		63	12	E O	
	40	12	E O		40	12	E O		40	12	E O		40	12	E O		40	12	E O		40	12	E O		40	12	E O		40	12	E O	
	28	10	E O		28	10	E O		28	10	E O		28	10	E O		28	10	E O		28	10	E O		28	10	E O		28	10	E O	
	28	10		M L	28	10		M L	28	10		M L	28	10		M L	28	10		M L	28	10		M L	28	10		M L	28	10		M L
	45	5	E O		45	5	E O		45	5	E O		45	5	E O		45	5	E O		45	5	E O		45	5	E O		45	5	E O	
	36	10	E O		36	10	E O		36	10	E O		36	10	E O		36	10	E O		36	10	E O		36	10	E O		36	10	E O	
	63	12	E O	M L	63	12	E O	M L	63	12	E O	M L	63	12	E O	M L	63	12	E O	M L	63	12	E O	M L	63	12	E O	M L	63	12	E O	M L
	14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O	
	6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E	
	4	3	O E		4	3	O E		4	3	O E		4	3	O E		4	3	O E		4	3	O E		4	3	O E		4	3	O E	
	6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E		6	3	O E	
	8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O		8	4	E O	
	6	4	O E		6	4	O E		6	4	O E		6	4	O E		6	4	O E		6	4	O E		6	4	O E		6	4	O E	
	14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O	
	14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O		14	6	E O	
	38	12	E O		38	12	E O		38	12	E O		38	12	E O		38	12	E O		38	12	E O		38	12	E O		38	12	E O	
	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L
	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L	22	7		L

Cutting data for reamers

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VRR = Feed rating chart from page B-125

Material group	Structure of main material groups and code letters: Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Walter standard: Designation							
							F2482				F2482TMS			
							Form				–			
							Type				**Straight flute**			
							Ø range (mm)				3,97 – 20,00			
							Cutting tool material				K10F			
							Coating				uncoated			
							Page				B-98			
														
							v_c	VRR			v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	45	8	**O E**		190	20	**O E**	
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	40	8	**O E**		175	20	**O E**	
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	40	8	**O E**		170	20	**O E**	
		C > 0.55%	annealed	190	639	P4	40	8	**O E**		175	20	**O E**	
		C > 0.55%	tempered	300	1013	P5	30	8	**O E**		130	20	**O E**	
		machining steel (short-chipping)	annealed	220	745	P6	45	8	**O E**		190	20	**O E**	
	Low-alloyed steel	annealed		175	591	P7	40	8	**O E**		175	20	**O E**	
		tempered		300	1013	P8	30	8	**O E**		130	20	**O E**	
		tempered		380	1282	P9	20	8	**O E**		80	20	**O E**	
		tempered		430	1477	P10	10	8	**O E**		50	20	**O E**	
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	25	8	**O E**		110	20	**O E**	
		hardened and tempered		300	1013	P12	20	8	**O E**		95	20	**O E**	
		hardened and tempered		400	1361	P13	15	8	**O E**		65	20	**O E**	
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	25	8	**O E**		110	20	**O E**	
		martensitic, tempered		330	1114	P15	20	8	**O E**		80	20	**O E**	
M	Stainless steel	austenitic, quench hardened		200	675	M1								
		austenitic, precipitation hardened (PH)		300	1013	M2								
		austenitic/ferritic, duplex		230	778	M3								
K	Malleable cast iron	ferritic		200	675	K1	35	8	**O E**		120	20	**O E**	
		pearlitic		260	867	K2	30	8	**O E**		95	20	**O E**	
	Grey cast iron	low tensile strength		180	602	K3	45	8	**O E**		145	20	**O E**	
		high tensile strength/austenitic		245	825	K4	35	8	**O E**		120	20	**O E**	
	Cast iron with spheroidal graphite	ferritic		155	518	K5	35	8	**O E**		120	20	**O E**	
		pearlitic		265	885	K6	30	8	**O E**		95	20	**O E**	
	GGV (CGI)			200	675	K7	35	8	**O E**		110	20	**O E**	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	115	8	**O E**					
		hardenable, hardened		100	343	N2	115	8	**O E**					
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	90	8	**O E**					
		≤ 12% Si, hardenable, hardened		90	314	N4	80	8	**O E**					
		> 12% Si, cannot be hardened		130	447	N5	65	8	**O E**					
	Magnesium alloys			70	250	N6	80	8	**O**					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	80	8	**O E**					
		brass, bronze, red brass		90	314	N8	65	8	**O E**					
		Cu-alloys, short-chipping		110	382	N9	70	8	**O E**					
		high-strength, Ampco		300	1013	N10	20	8	**O E**					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1								
			hardened	280	943	S2								
		Ni or Co base	annealed	250	839	S3								
			hardened	350	1177	S4								
			cast	320	1076	S5								
	Titanium alloys	pure titanium		200	675	S6								
		α and β alloys, hardened		375	1262	S7								
		β alloys		410	1396	S8								
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1								
		hardened and tempered		55 HRC	–	H2								
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4								
O	Thermoplasts	without abrasive fillers				O1	40	8	**E**					
	Thermosetting plastics	without abrasive fillers				O2	40	8	**E**					
	Plastic, glass fibre reinforced	GFRP				O3	30	8	**E**					
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

* *The pages indicated in italics refer to the Walter General catalogue 2012.*

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Walter standard																					
	F2481				F2481TMS				F2162				F2171				F4162				F4171			
	–				–				A / C				B / D				A				B			
	Left-hand spiral				**Left-hand spiral**				**Straight flute**				**Left-hand spiral**				**Straight flute**				**Left-hand spiral**			
	3,97 – 20,00				3,97 – 20,00				4,00 – 20,00				2,00 – 20,00				5,00 – 32,00				5,00 – 20,00			
	K10F				K10F				K10				K10				K10				K10			
	uncoated				TMS				uncoated				uncoated				uncoated				uncoated			
	B-94				B-96				B-92				B-93				*B 341**				*B 342**			
																								
	v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	45	8	**O E**		190	20	**O E**		24	8	**E O**		24	8	**E O**		24	8	**E O**		24	8	**E O**	
	40	8	**O E**		175	20	**O E**		22	8	**E O**		22	8	**E O**		22	8	**E O**		22	8	**E O**	
	40	8	**O E**		170	20	**O E**		21	8	**E O**		21	8	**E O**		21	8	**E O**		21	8	**E O**	
	40	8	**O E**		175	20	**O E**		22	8	**E O**		22	8	**E O**		22	8	**E O**		22	8	**E O**	
	30	8	**O E**		130	20	**O E**		16	8	**E O**		16	8	**E O**		16	8	**E O**		16	8	**E O**	
	45	8	**O E**		190	20	**O E**		24	8	**E O**		24	8	**E O**		24	8	**E O**		24	8	**E O**	
	40	8	**O E**		175	20	**O E**		22	8	**E O**		22	8	**E O**		22	8	**E O**		22	8	**E O**	
	30	8	**O E**		130	20	**O E**		16	8	**E O**		16	8	**E O**		16	8	**E O**		16	8	**E O**	
	20	8	**O E**		80	20	**O E**		10	8	**O E**		10	8	**O E**		10	8	**O E**		10	8	**O E**	
	10	8	**O E**		50	20	**O E**		6	8	**O E**		6	8	**O E**		6	8	**O E**		6	8	**O E**	
	25	8	**O E**		110	20	**O E**		14	8	**E O**		14	8	**E O**		14	8	**E O**		14	8	**E O**	
	20	8	**O E**		95	20	**O E**		12	8	**E O**		12	8	**E O**		12	8	**E O**		12	8	**E O**	
	15	8	**O E**		65	20	**O E**		8	8	**O E**		8	8	**O E**		8	8	**O E**		8	8	**O E**	
	25	8	**O E**		110	20	**O E**		14	8	**E O**		14	8	**E O**		14	8	**E O**		14	8	**E O**	
	20	8	**O E**		80	20	**O E**		10	8	**E O**		10	8	**E O**		10	8	**E O**		10	8	**E O**	
									8	8			8	8			8	8			8	8		
									12	8			12	8			12	8			12	8		
									6	8			6	8			6	8			6	8		
	35	8	**O E**		120	20	**O E**		20	8	**E O**		20	8	**E O**		20	8	**E O**		20	8	**E O**	
	30	8	**O E**		95	20	**O E**		16	8	**E O**		16	8	**E O**		16	8	**E O**		16	8	**E O**	
	45	8	**O E**		145	20	**O E**		24	8	**E O**		24	8	**E O**		24	8	**E O**		24	8	**E O**	
	35	8	**O E**		120	20	**O E**		20	8	**E O**		20	8	**E O**		20	8	**E O**		20	8	**E O**	
	35	8	**O E**		120	20	**O E**		20	8	**E O**		20	8	**E O**		20	8	**E O**		20	8	**E O**	
	30	8	**O E**		95	20	**O E**		16	8	**E O**		16	8	**E O**		16	8	**E O**		16	8	**E O**	
	35	8	**O E**		110	20	**O E**		18	8	**E O**		18	8	**E O**		18	8	**E O**		18	8	**E O**	
	115	8	**O E**						63	10	**E O**		63	10	**E O**		63	10	**E O**		63	10	**E O**	
	115	8	**O E**						63	10	**E O**		63	10	**E O**		63	10	**E O**		63	10	**E O**	
	90	8	**O E**						50	10	**E O**		50	10	**E O**		50	10	**E O**		50	10	**E O**	
	80	8	**O E**						45	10	**E O**		45	10	**E O**		45	10	**E O**		45	10	**E O**	
	65	8	**O E**						36	10	**E O**		36	10	**E O**		36	10	**E O**		36	10	**E O**	
	80	8	**O**						45	10	**O**		45	10	**O**		45	10	**O**		45	10	**O**	
	80	8	**O E**						45	10	**E O**		45	10	**E O**		45	10	**E O**		45	10	**E O**	
	65	8	**O E**						36	10	**E O**		36	10	**E O**		36	10	**E O**		36	10	**E O**	
	70	8	**O E**						40	10	**E O**		40	10	**E O**		40	10	**E O**		40	10	**E O**	
	20	8	**O E**						12	10	**E O**		12	10	**E O**		12	10	**E O**		12	10	**E O**	
									12	8	**E O**		12	8	**E O**		12	8	**E O**		12	8	**E O**	
									10	8	**E O**		10	8	**E O**		10	8	**E O**		10	8	**E O**	
									10	8	**E O**		10	8	**E O**		10	8	**E O**		10	8	**E O**	
									6	8	**E O**		6	8	**E O**		6	8	**E O**		6	8	**E O**	
									6	8	**E O**		6	8	**E O**		6	8	**E O**		6	8	**E O**	
									10	8	**E O**		10	8	**E O**		10	8	**E O**		10	8	**E O**	
									8	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
									6	8	**E O**		6	8	**E O**		6	8	**E O**		6	8	**E O**	
									12	8	**E O**		12	8	**E O**		12	8	**E O**		12	8	**E O**	
									12	8	**E O**		12	8	**E O**		12	8	**E O**		12	8	**E O**	
	40	8	**E**						22	8	**E**		22	8	**E**		22	8	**E**		22	8	**E**	
	40	8	**E**						22	8		**L**	22	8		**L**	22	8		**L**	22	8		**L**
	30	8	**E**						16	8		**L**	16	8		**L**	16	8		**L**	16	8		**L**

Cutting data for reamers

= Cutting data for wet machining
= Dry machining is possible, cutting data must be selected from Walter GPS

E = Emulsion
O = Oil
M = MQL
L = Dry

v_c = Cutting speed
VRR = Feed rating chart from page B-125

Material group	Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Dimensions / DIN 212							
							Designation				F1342			
							Form				A / C			
							Type				**Straight flute**			
							Ø range (mm)				1,00 – 20,00			
							Cutting tool material				HSS-E			
							Coating				uncoated			
							Page				*B 322**			
											v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1					14	8	**E O**	
		C > 0.25... ≤ 0.55%	annealed	190	639	P2					14	8	**E O**	
		C > 0.25... ≤ 0.55%	tempered	210	708	P3					13	8	**E O**	
		C > 0.55%	annealed	190	639	P4					14	8	**E O**	
		C > 0.55%	tempered	300	1013	P5								
		machining steel (short-chipping)	annealed	220	745	P6					14	8	**E O**	
	Low-alloyed steel	annealed		175	591	P7					14	8	**E O**	
		tempered		300	1013	P8					10	8	**E O**	
		tempered		380	1282	P9								
		tempered		430	1477	P10								
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11					4	8	**E O**	
		hardened and tempered		300	1013	P12								
		hardened and tempered		400	1361	P13								
	Stainless steel	ferritic/martensitic, annealed		200	675	P14					4	8	**E O**	
		martensitic, tempered		330	1114	P15								
M	Stainless steel	austenitic, quench hardened		200	675	M1								
		austenitic, precipitation hardened (PH)		300	1013	M2								
		austenitic/ferritic, duplex		230	778	M3								
K	Malleable cast iron	ferritic		200	675	K1					11	8	**E O**	
		pearlitic		260	867	K2					8	8	**E O**	
	Grey cast iron	low tensile strength		180	602	K3					13	8	**E O**	
		high tensile strength/austenitic		245	825	K4					11	8	**E O**	
	Cast iron with spheroidal graphite	ferritic		155	518	K5					11	8	**E O**	
		pearlitic		265	885	K6					8	8	**E O**	
	GGV (CGI)			200	675	K7					10	8	**E O**	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1					28	10	**E O**	
		hardenable, hardened		100	343	N2					28	10	**E O**	
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3					18	10	**E O**	
		≤ 12% Si, hardenable, hardened		90	314	N4					13	10	**E O**	
		> 12% Si, cannot be hardened		130	447	N5								
	Magnesium alloys			70	250	N6					13	10	**O**	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7					21	10	**E O**	
		brass, bronze, red brass		90	314	N8					17	10	**E O**	
		Cu-alloys, short-chipping		110	382	N9					30	10	**E O**	
		high-strength, Ampco		300	1013	N10								
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1								
			hardened	280	943	S2								
		Ni or Co base	annealed	250	839	S3								
			hardened	350	1177	S4								
			cast	320	1076	S5								
	Titanium alloys	pure titanium		200	675	S6								
		α and β alloys, hardened		375	1262	S7								
		β alloys		410	1396	S8								
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1								
		hardened and tempered		55 HRC	–	H2								
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4								
O	Thermoplasts	without abrasive fillers				O1					18	8	**E**	
	Thermosetting plastics	without abrasive fillers				O2					11	8		**L**
	Plastic, glass fibre reinforced	GFRP				O3								
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

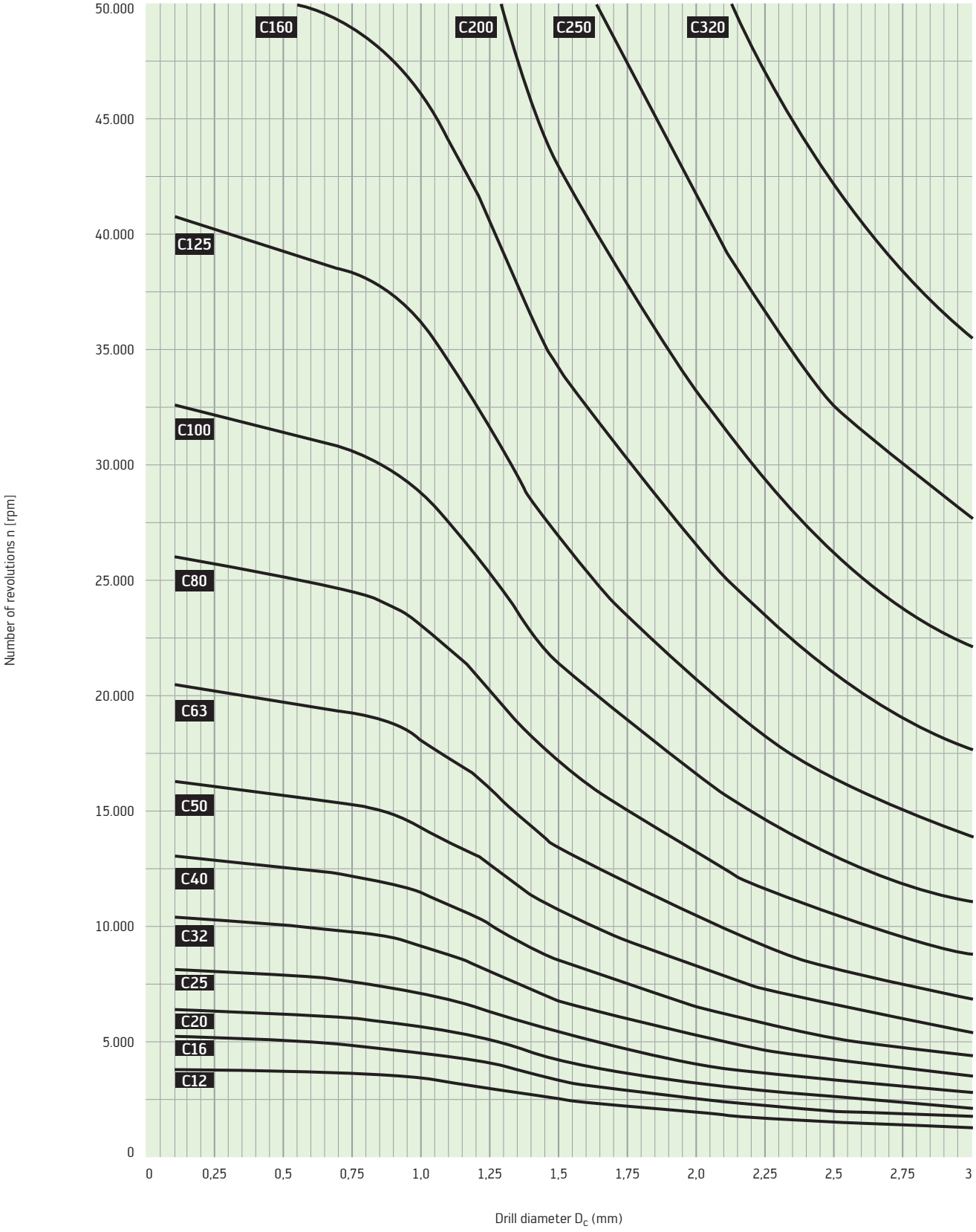
Material group	Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Dimensions / DIN 212							
							Designation				F1352 F1352HUN			
							Form				B / D			
							Type				**Left-hand spiral**			
							Ø range (mm)				0,90 – 20,00			
							Cutting tool material				HSS-E			
							Coating				uncoated			
							Page				*B 325* / B 329**			
											v_c	VRR		
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1					14	8	**E O**	
		C > 0.25... ≤ 0.55%	annealed	190	639	P2					14	8	**E O**	
		C > 0.25... ≤ 0.55%	tempered	210	708	P3					13	8	**E O**	
		C > 0.55%	annealed	190	639	P4					14	8	**E O**	
		C > 0.55%	tempered	300	1013	P5								
		machining steel (short-chipping)	annealed	220	745	P6					14	8	**E O**	
	Low-alloyed steel	annealed		175	591	P7					14	8	**E O**	
		tempered		300	1013	P8					10	8	**E O**	
		tempered		380	1282	P9								
		tempered		430	1477	P10								
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11					4	8	**E O**	
		hardened and tempered		300	1013	P12								
		hardened and tempered		400	1361	P13								
	Stainless steel	ferritic/martensitic, annealed		200	675	P14					4	8	**E O**	
		martensitic, tempered		330	1114	P15								
M	Stainless steel	austenitic, quench hardened		200	675	M1								
		austenitic, precipitation hardened (PH)		300	1013	M2								
		austenitic/ferritic, duplex		230	778	M3								
K	Malleable cast iron	ferritic		200	675	K1					11	8	**E O**	
		pearlitic		260	867	K2					8	8	**E O**	
	Grey cast iron	low tensile strength		180	602	K3					13	8	**E O**	
		high tensile strength/austenitic		245	825	K4					11	8	**E O**	
	Cast iron with spheroidal graphite	ferritic		155	518	K5					11	8	**E O**	
		pearlitic		265	885	K6					8	8	**E O**	
	GGV (CGI)			200	675	K7					10	8	**E O**	
N	Aluminium wrought alloys	cannot be hardened		30	–	N1					28	10	**E O**	
		hardenable, hardened		100	343	N2					28	10	**E O**	
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3					18	10	**E O**	
		≤ 12% Si, hardenable, hardened		90	314	N4					13	10	**E O**	
		> 12% Si, cannot be hardened		130	447	N5								
	Magnesium alloys			70	250	N6					13	10	**O**	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7					21	10	**E O**	
		brass, bronze, red brass		90	314	N8					17	10	**E O**	
		Cu-alloys, short-chipping		110	382	N9					30	10	**E O**	
		high-strength, Ampco		300	1013	N10								
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1								
			hardened	280	943	S2								
		Ni or Co base	annealed	250	839	S3								
			hardened	350	1177	S4								
			cast	320	1076	S5								
	Titanium alloys	pure titanium		200	675	S6								
		α and β alloys, hardened		375	1262	S7								
		β alloys		410	1396	S8								
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1								
		hardened and tempered		55 HRC	–	H2								
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4								
O	Thermoplasts	without abrasive fillers				O1					18	8	**E**	
	Thermosetting plastics	without abrasive fillers				O2					11	8		**L**
	Plastic, glass fibre reinforced	GFRP				O3								
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*
* *The pages indicated in italics refer to the Walter General catalogue 2012.*

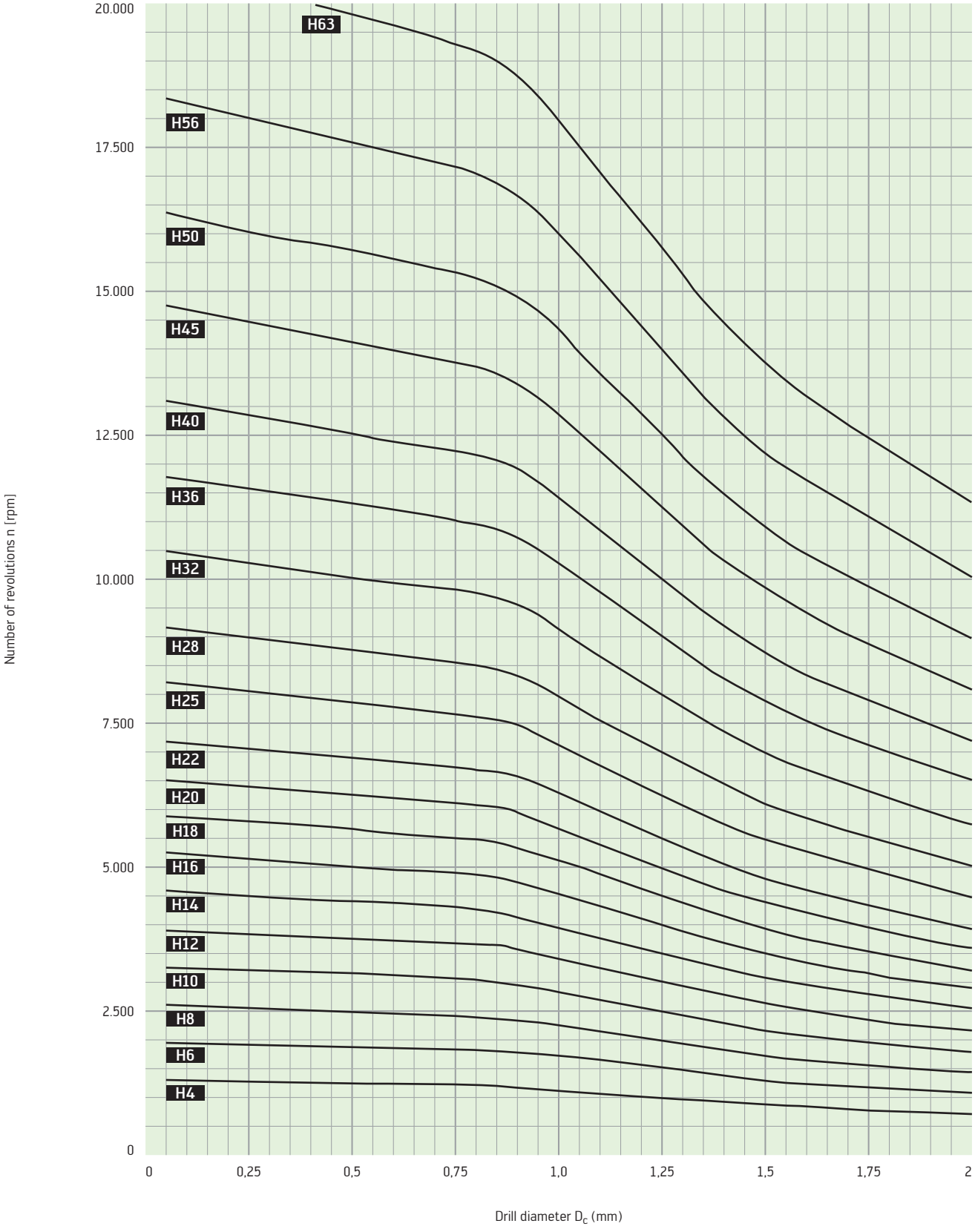
The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	DIN 208				DIN 208				DIN 219				DIN 2179				DIN 2180				DIN 311			
	F4142				F4152				F7133				F3234				F6134				F4535			
	A				B				B				–				–				–			
	Straight flute				**Left-hand spiral**				**Left-hand spiral**				**Taper 1:50**				**Taper 1:50**				**Bridge reamers**			
	5,00 – 32,00				5,00 – 40,00				25,00 – 60,00				1,00 – 12,00				5,00 – 20,00				6,40 – 32,00			
	HSS-E				HSS-E				HSS				HSS-E				HSS-E				HSS			
	uncoated				uncoated				uncoated				uncoated				uncoated				uncoated			
	*B 337**				*B 338**				*B 345* / G 66**				*B 334**				*B 344**				*B 343**			
																								
	v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR			v_c	VRR		
	14	8	**E O**		14	8	**E O**		14	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
	14	8	**E O**		14	8	**E O**		14	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
	13	8	**E O**		13	8	**E O**		13	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
	14	8	**E O**		14	8	**E O**		14	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
	14	8	**E O**		14	8	**E O**		14	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
	14	8	**E O**		14	8	**E O**		14	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
	10	8	**E O**		10	8	**E O**		10	8	**E O**		5	8	**E O**		5	8	**E O**		5	8	**E O**	
	4	8	**E O**		4	8	**E O**		4	8	**E O**		2	8	**E O**		2	8	**E O**		2	8	**E O**	
	4	8	**E O**		4	8	**E O**		4	8	**E O**		2	8	**E O**		2	8	**E O**		2	8	**E O**	
	11	8	**E O**		11	8	**E O**		11	8	**E O**		6	8	**E O**		6	8	**E O**		6	8	**E O**	
	8	8	**E O**		8	8	**E O**		8	8	**E O**		5	8	**E O**		5	8	**E O**		5	8	**E O**	
	13	8	**E O**		13	8	**E O**		13	8	**E O**		8	8	**E O**		8	8	**E O**		8	8	**E O**	
	11	8	**E O**		11	8	**E O**		11	8	**E O**		6	8	**E O**		6	8	**E O**		6	8	**E O**	
	11	8	**E O**		11	8	**E O**		11	8	**E O**		6	8	**E O**		6	8	**E O**		6	8	**E O**	
	8	8	**E O**		8	8	**E O**		8	8	**E O**		5	8	**E O**		5	8	**E O**		5	8	**E O**	
	10	8	**E O**		10	8	**E O**		10	8	**E O**		5	8	**E O**		5	8	**E O**		5	8	**E O**	
	28	10	**E O**		28	10	**E O**		28	10	**E O**		16	10	**E O**		16	10	**E O**		16	10	**E O**	
	28	10	**E O**		28	10	**E O**		28	10	**E O**		16	10	**E O**		16	10	**E O**		16	10	**E O**	
	18	10	**E O**		18	10	**E O**		18	10	**E O**		11	10	**E O**		11	10	**E O**		11	10	**E O**	
	13	10	**E O**		13	10	**E O**		13	10	**E O**		8	10	**E O**		8	10	**E O**		8	10	**E O**	
	13	10	**O**		13	10	**O**		13	10	**O**		8	10	**O**		8	10	**O**		8	10	**O**	
	21	10	**E O**		21	10	**E O**		21	10	**E O**		12	10	**E O**		12	10	**E O**		12	10	**E O**	
	17	10	**E O**		17	10	**E O**		17	10	**E O**		10	10	**E O**		10	10	**E O**		10	10	**E O**	
	30	10	**E O**		30	10	**E O**		30	10	**E O**		17	10	**E O**		17	10	**E O**		17	10	**E O**	
	18	8	**E**		18	8	**E**		18	8	**E**		10	8	**E**		10	8	**E**		10	8	**E**	
	11	8		**L**	11	8		**L**	11	8		**L**	6	8		**L**	6	8		**L**	6	8		**L**

VCRR: RPM diagram
Solid carbide micro-drill



VCRR: RPM diagram
HSS micro-drill



VRR: feed rate charts for HSS and carbide drills, core drills, countersinks and centre drills

VRR	Feed f (mm) for Ø (mm)														
	0,05	0,06	0,08	0,1	0,12	0,15	0,2	0,25	0,4	0,5	0,6	0,8	1	1,2	1,5
1	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005
2	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,002	0,003	0,003	0,004	0,005	0,007	0,008	0,010
3	0,001	0,001	0,001	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,012	0,015
4	0,001	0,001	0,001	0,001	0,002	0,002	0,003	0,003	0,005	0,007	0,008	0,011	0,013	0,016	0,020
5	0,001	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,007	0,008	0,010	0,013	0,017	0,020	0,025
6	0,001	0,001	0,002	0,002	0,002	0,003	0,004	0,005	0,008	0,010	0,012	0,016	0,020	0,024	0,030
7	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,009	0,012	0,014	0,019	0,023	0,028	0,035
8	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,007	0,011	0,013	0,016	0,021	0,027	0,032	0,040
9	0,002	0,002	0,002	0,003	0,004	0,005	0,006	0,008	0,012	0,015	0,018	0,024	0,030	0,036	0,045
10	0,002	0,002	0,003	0,003	0,004	0,005	0,007	0,008	0,013	0,017	0,020	0,027	0,033	0,040	0,050
12	0,002	0,002	0,003	0,004	0,005	0,006	0,008	0,010	0,016	0,020	0,024	0,032	0,040	0,048	0,060
16	0,003	0,003	0,004	0,005	0,006	0,008	0,011	0,013	0,021	0,027	0,032	0,043	0,053	0,064	0,080
20	0,003	0,004	0,005	0,007	0,008	0,010	0,013	0,017	0,027	0,033	0,040	0,053	0,067	0,080	0,10

VRR	Feed f (mm) for Ø (mm)															
	2	2,5	4	5	6	8	10	12	15	20	25	40	50	60	80	100
1	0,007	0,008	0,013	0,017	0,018	0,021	0,024	0,026	0,029	0,033	0,037	0,047	0,053	0,058	0,067	0,075
2	0,013	0,017	0,027	0,033	0,037	0,042	0,047	0,052	0,058	0,067	0,075	0,094	0,11	0,12	0,13	0,15
3	0,020	0,025	0,040	0,050	0,055	0,063	0,071	0,077	0,087	0,10	0,11	0,14	0,16	0,17	0,20	0,22
4	0,027	0,033	0,053	0,067	0,073	0,084	0,094	0,10	0,12	0,13	0,15	0,19	0,21	0,23	0,27	0,30
5	0,033	0,042	0,067	0,083	0,091	0,11	0,12	0,13	0,14	0,17	0,19	0,24	0,26	0,29	0,33	0,37
6	0,040	0,050	0,080	0,10	0,11	0,13	0,14	0,15	0,17	0,20	0,22	0,28	0,32	0,35	0,40	0,45
7	0,047	0,058	0,093	0,12	0,13	0,15	0,16	0,18	0,20	0,23	0,26	0,33	0,37	0,40	0,47	0,52
8	0,053	0,067	0,11	0,13	0,15	0,17	0,19	0,21	0,23	0,27	0,30	0,38	0,42	0,46	0,53	0,60
9	0,060	0,075	0,12	0,15	0,16	0,19	0,21	0,23	0,26	0,30	0,34	0,42	0,47	0,52	0,60	0,67
10	0,067	0,083	0,13	0,17	0,18	0,21	0,24	0,26	0,29	0,33	0,37	0,47	0,53	0,58	0,67	0,75
12	0,080	0,10	0,16	0,20	0,22	0,25	0,28	0,31	0,35	0,40	0,45	0,57	0,63	0,69	0,80	0,89
16	0,11	0,13	0,21	0,27	0,29	0,34	0,38	0,41	0,46	0,53	0,60	0,75	0,84	0,92	1,07	1,19
20	0,13	0,17	0,27	0,33	0,37	0,42	0,47	0,52	0,58	0,67	0,75	0,94	1,05	1,15	1,33	1,49

VRR: Feed rate charts for reamers

VRR	Feed f (mm) for Ø (mm)															
	1	1,2	1,5	2	2,5	4	5	6	8	10	12	15	20	25	40	50
6	0,04	0,04	0,04	0,05	0,06	0,08	0,09	0,10	0,12	0,14	0,15	0,17	0,21	0,23	0,31	0,35
8	0,05	0,05	0,06	0,07	0,08	0,11	0,12	0,14	0,16	0,18	0,20	0,23	0,27	0,31	0,41	0,47
10	0,06	0,07	0,07	0,09	0,10	0,13	0,15	0,17	0,20	0,23	0,25	0,29	0,34	0,39	0,51	0,59
12	0,07	0,08	0,09	0,11	0,12	0,16	0,18	0,20	0,24	0,27	0,30	0,35	0,41	0,47	0,62	0,70
20						0,18	0,30	0,70	0,80	0,90	1,00	1,20	1,30			

Hole material removal for reaming tools

Material removal in Ø (mm)			
≤5	5-12	12-16	16-20
0,1	0,1-0,2	0,2	0,2-0,3

Cutting tool materials

HSS cutting tool materials

4 groups of high-speed steel are used for Walter Titex tools:

HSS	High-speed steel for general applications (twist drills, core drills, countersinks, reamers in some cases, centre drills, multi-diameter step drills)
HSS-E	High-speed steel with 5% Co for increased loading, particularly extreme thermal loading (high-performance twist drill, reamers in some cases)
HSS-E Co8	High-speed steel with 8% Co for maximum thermal loading capability, in accordance with American standard designation M 42 (Special tools)
HSS-PM	High-speed steel manufactured using powder metallurgy with extremely high alloy content Advantages: High degree of purity and uniformity, outstanding wear resistance and thermal loading capability (Special tools)

	Material no.	Short name	Old standard Designation	AISI ASTM	AFNOR	B.S.	UNI	Alloy table C	Cr	W	Mo	V	Co
HSS	1.3343	S 6-5-2	DMo5	M2	–	BM2	HS 6-5-2	0,82	4,0	6,5	5,0	2,0	–
HSS-E	1.3243	S 6-5-2-5	EMo5 Co5	M35	6.5.2.5	–	HS 6-5-2-5	0,82	4,5	6,0	5,0	2,0	5,0
HSS-E Co8	1.3247	S 2-10-1-8	–	M42	–	BM42	HS 2-9-1-8	1,08	4,0	1,5	9,5	1,2	8,25
HSS-PM	Trade designation ASP												

Carbide cutting tool materials

Carbides mainly consist of tungsten carbide (WC) as the hard material and cobalt (Co) as the binding material.
In the majority of cases, the cobalt content is between 6 and 12%. The following rule generally applies:
The higher the cobalt content, the tougher the material, but the less resistance to wear and vice-versa.
Another determining factor in carbides is the grain size. The hardness increases as the grain size becomes finer.

		Co in %	Grain size	Hardness HV
K10	– extremely wear-resistant substrate – use in brazed drilling and boring tools	6	normal	1650
K20F	– extremely wear-resistant substrate with fine grain size – use in short-chipping materials such as cast iron workpieces	6–7	fine	1650–1800
K30F	– extremely fine substrate, extremely tough and wear-resistant – universal application for a variety of materials	10	finest	1550

Surface treatments and hard material coating for increasing performance

Surface treatments

Steam treatment of tools made from HSS

Implementation Dry steam atmosphere, 520 °C to 580 °C

Effect Adherent oxide layer consisting of Fe_3O_4 approx. 0.003 to 0.010 mm deep

Property
- low inclination towards cold welding
- increased surface hardness and therefore improved wear resistance
- increased corrosion resistance
- improved sliding properties due to better lubricant adhesion as a result of FeO crystals
- reduction in grinding stress

Nitriding of tools made from HSS

Implementation Treatment in media giving off nitrogen, 520 °C to 570 °C

Effect Enrichment of surface with nitrogen and partially with carbon

Property
- low inclination towards cold welding and built up edges
- increased hardness and therefore more wear resistance

Hard material coatings

Surface coating has developed into a proven technological process for improving the performance of metal cutting tools. By contrast with surface treatment, the tool surface remains chemically unaltered and a thin layer is applied.
With Walter Titex tools made from high-speed steel and carbide, PVD processes are used for coating which operate at process temperatures of less than 600 °C and therefore do not change the basic tool material. Hard material layers have a higher hardness and wear resistance than the cutting tool material itself.

Also:
- they separate the cutting tool material and the material that is going to be cut from each other
- they act as a thermal insulating layer

Coated tools not only have a longer life, they can also be used with higher cutting speeds and feed rates.

Surface treatment/ coating	Process/ coating	Property	Example tool
Uncoated	No treatment	–	
Steam treated	Steam treatment	Universal treatment for HSS	
Fibre-steamed	Steam treatment	Universal treatment of lands for HSS	
TiN	TiN coating	Universal coating	
TIP	TiN point coating	Special coating for optimum chip evacuation	
TFL	Tinal coating	High-performance coating with a wide range of applications	
TFT	Tinal TOP coating	High-performance coating with particularly low friction	
TFP	Tinal point coating	High-performance coating for optimum chip evacuation	
TTP	Tinal point coating	High-performance coating with particularly low friction	
TML	Tinal micro- coating	Special coating for small drills with extremely low friction	
XPL	AlCrN coating	High-performance coating for maximum wear resistance	
DPL	Double coating	High-performance coating for maximum wear resistance	
DPP	Double point coating	High-performance coating for maximum wear resistance and optimum chip evacuation	
AML	AlTiN micro coating	Special coating for small drills with extremely low friction	
AMP	AlTiN micro point coating	Special coating for small drills with extremely low friction and optimum chip evacuation	
TMS	AlTiN thin coating	High performance coating for solid carbide reaming tools	

Tool types

Tool type	Remarks on field of applications	Workpiece material group						
		P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other
X·treme Pilot 150	– Pilot drill, specially designed for X·treme DM.... – 150° point angle	●●	●●	●●	●●	●●	●●	●●
X·treme M, DM8 ... DM30	– Solid carbide micro deep-hole drill diameter 2.00–2.95 mm, 5 to 30 x D_c with internal cooling – D stands for "Deep" – M stands for "Micro" – For universal use	●●	●●	●●	●●	●●	●	●●
Alpha® 4 Plus Micro	– Solid carbide micro-drill diameter 0.75-1.95 mm, 8 and 12 x D_c with internal cooling – For universal use	●●	●●	●●	●●	●●	●	●●
Alpha® 2 Plus Micro	– Solid carbide micro-drill diameter 0.5-3 mm, 5 and 8 x D_c without internal cooling – For universal use	●●		●●	●●	●●	●	●●
X·treme Step 90 	– Solid carbide chamfer drill with internal cooling – Step length in accordance with DIN 8378 – Can be used universally with high cutting data	●●	●●	●●	●●	●●	●●	
X·treme Step 90 	– Solid carbide chamfer drill without internal cooling – Step length in accordance with DIN 8378 – Can be used universally with high cutting data	●●	●●	●●	●●	●●	●●	●●
X·treme 	– Solid carbide drill in acc. with DIN 6537 short/long with internal cooling – Can be used universally with high cutting data	●●	●●	●●	●●	●●	●●	
X·treme 	– Solid carbide drill in acc. with DIN 6537 short/long without internal cooling – Can be used universally with high cutting data	●●	●●	●●	●●	●●	●●	●●
X·treme Plus 	– Solid high-performance carbide drill in acc. with DIN 6537 long with internal cooling – Can be used universally with maximum cutting data	●●	●●	●●	●●	●●	●●	●
X·treme CI 	– Solid carbide high-performance drill in acc. with DIN 6537 long with internal cooling – Specially developed for cast iron materials – CI stands for "Cast iron"			●●				
X·treme Inox 	– Solid carbide drill in acc. with DIN 6537 short/long with internal cooling – Specially developed for stainless steels	●●	●●		●	●●		●
Alpha® Ni 	– Solid carbide drill in acc. with DIN 6537 long with internal cooling – Specially developed for Ni alloys	●	●			●●	●	

Drilling depth

	2 x D_c	3 x D_c	5 x D_c	8 x D_c	12 x D_c	16 x D_c	20 x D_c	25 x D_c	30 x D_c
	A6181AML								
			A3389AML	A6489AMP	A6589AMP	A6689AMP	A6789AMP	A6889AMP	A6989AMP
				A6488TML	A6588TML				
			A3378TML	A6478TML					
		K3299XPL K3899XPL							
		K3879XPL							
		A3299XPL A3899XPL	A3399XPL A3999XPL						
		A3279XPL A3879XPL	A3379XPL A3979XPL						
		A3289DPL	A3389DPL						
			A3382XPL						
		A3293TTP	A3393TTP						
			A3384						

Tool types

Tool type	Remarks on field of applications	Workpiece material group						
		P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other
Alpha® Rc 	– Solid carbide drill in acc. with DIN 6537 short without internal cooling – Specially developed for hardened materials				●●	●●	●●	
Alpha® Jet 	– Straight flute solid carbide drill in acc. with DIN 6537 long, 8 and 12 x D_c with internal cooling – For short-chipping cast iron and aluminium materials			●●	●●	●		●●
X·treme D8...D12 	– Solid carbide deep-hole drill, 8 x D_c and 12 x D_c with internal cooling – D stands for "Deep" – Can be used universally with high cutting data	●●	●●	●●	●●	●●	●●	●
Alpha® 44 	– Solid carbide drill 8 x D_c with internal cooling – UFL® profile – For universal use	●●	●	●	●●	●●		●●
Alpha® 22 	– Solid carbide drill 8 x D_c without internal cooling – UFL® profile – For universal use	●●		●●	●●	●●		
X·treme Pilot Step 90 	– Stepped pilot drill, specially designed for Alpha® 4 XD, X·treme D & DH and XD70 technology with internal cooling – 150° point angle – 90° countersink angle	●●	●●	●●	●●	●●	●●	●●
XD Pilot 	– Pilot drill, specially designed for Alpha® 4 XD, X·treme D & DH and XD70 technology with internal cooling – 150° point angle	●●	●●	●●	●●	●●	●●	●●
X·treme Pilot 180 	– Pilot drill, specially designed for Alpha® 4 XD, X·treme D & DH and XD70 technology with internal cooling – 180° point angle – Specially developed for angled and convex surfaces	●●	●●	●●	●●	●●	●●	●●
X treme Pilot 180C 	– Pilot drill, specially designed for Alpha® 4 XD, X·treme D & DH and XD70 technology with internal cooling – Specially developed for angled and convex surfaces – The conical design means that there is no shoulder between the pilot hole and the deep-hole drill (important with crankshafts) – 180° point angle	●●	●●	●●	●●	●●	●●	●●
Alpha® 4 XD16...30	– Solid carbide deep-hole drill 16 to 30 x D_c with internal cooling – For universal use	●●	●●	●●	●●	●●	●	●●
X·treme DH20 - DH30	– Solid carbide deep-hole drill, 20 x D_c and 30 x D_c with internal cooling – D stands for "Deep" – H stands for "Heavy duty materials" (steel that is difficult to cut), e.g. crankshafts	●●	●●	●●	●	●●	●	
X·treme D40	– Solid carbide deep-hole drill 40 x D_c with internal cooling – For universal use	●●	●	●●	●●	●		

Drilling depth

	2 x D_c	3 x D_c	5 x D_c	8 x D_c	12 x D_c	16 x D_c	20 x D_c	25 x D_c	30 x D_c	40 x D_c
		A3269TFL								
			A3387	A3487	A3687					
				A6489DPP	A6589DPP					
				A3486TIP A3586TIP						
				A1276TFL						
	K3281TFT									
	A6181TFT									
	A7191TFT									
	K5191TFT									
						A6685TFP	A6785TFP	A6885TFP	A6985TFP	
							A6794TFP		A6994TFP	
										A7495TTP

Drilling strategy 1:

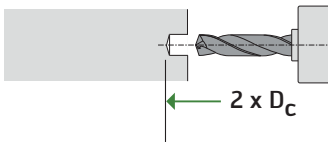
XD technology ≤ 30 x D_C

suitable for:

– A6685TFP	– A6985TFP
– A6785TFP	– A6794TFP
– A6885TFP	– A6994TFP

P	M	K	N	S	H	O
✓	✓	✓		✓	✓	✓

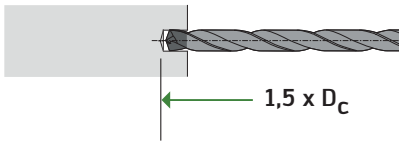
1 Pilot drilling 1



10 - 30 bar
on

2 x D_C
A6181TFT
A7191TFT
K5191TFT
K3281TFT

2 Piloting

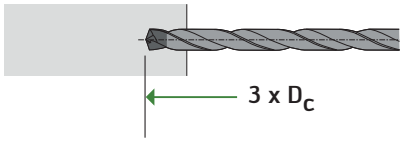


off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

3 Spot drilling

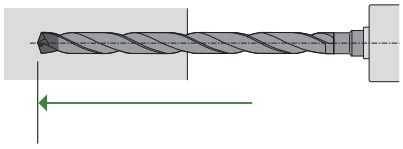


10 - 30 bar
on

XD Technology

v_c = 25 - 50 %
v_f = 25 - 50 %

4 Deep-hole drilling

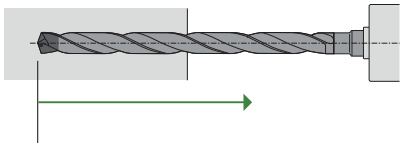


10 - 30 bar
on

XD Technology

v_c = 100%
v_f = 100%

5 Retract



off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

V_c / V_f → GPS

Drilling strategy 2:

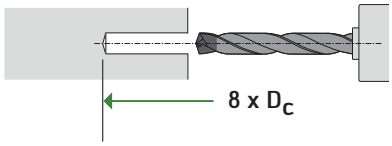
XD technology ≤ 30 x D_C

suitable for:

– A6685TFP	– A6885TFP
– A6785TFP	– A6985TFP

P	M	K	N	S	H	O
			✓			

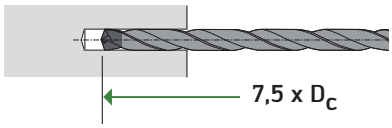
1 Pilot drilling



10 - 30 bar
on

8 x D_C
A6489DPP

2 Piloting

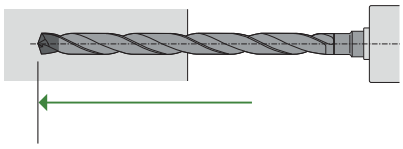


off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

3 Deep-hole drilling

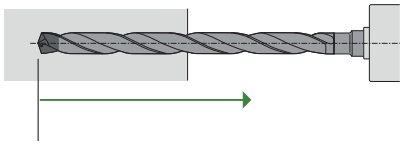


10 - 30 bar
on

XD Technology

v_c = 100%
v_f = 100%

4 Retract



off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

V_c / V_f → GPS

Drilling strategy 3:

XD technology ≤ 50 x D_C

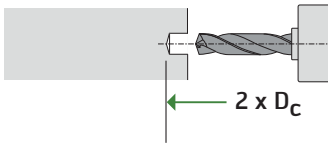
suitable for:

– A7495TTP

– Special boring tools up to 50 x D_C

P	M	K	N	S	H	O
✓		✓	✓			

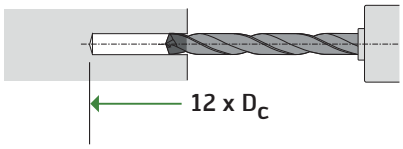
1 Pilot drilling 1



10 - 30 bar
on

2 x D_C
A6181TFT
A7191TFT
K3281TFT

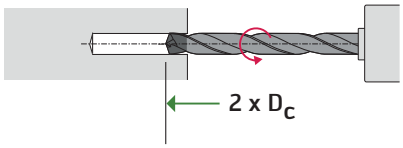
2 Pilot drilling 2



10 - 30 bar
on

12 x D_C
A6589DPP

3 Piloting

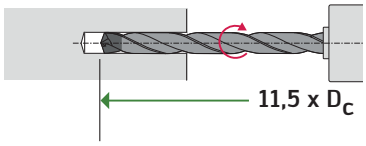


off

XD Technology

With anti-clockwise rotation:
n_{max} = 100 rpm
v_f = 1000 mm/min

4 Piloting

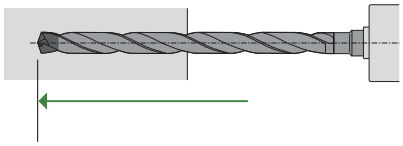


off

XD Technology

Continue operation with clockwise rotation
n_{max} = 100 rpm
v_f = 1000 mm/min

5 Deep-hole drilling

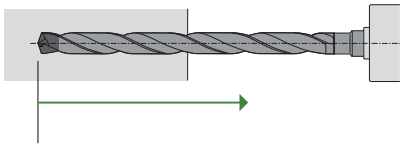


20 - 40 bar
on

XD Technology

v_c = 100%
v_f = 100%

6 Retract



off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

V_c / V_f → GPS

Drilling strategy 4:

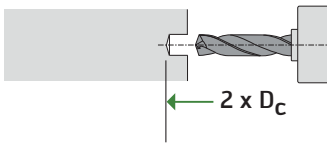
XD technology ≤ 50 - 70 x D_C

suitable for:

– Special boring tools ≥ 50 x D_C

P	M	K	N	S	H	O
✓		✓	✓			

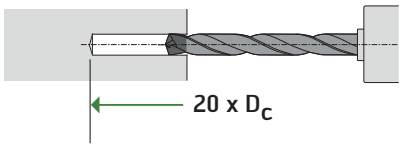
1 Pilot drilling 1



10 - 30 bar
on

2 x D_C
A6181TFT
A7191TFT
K3281TFT

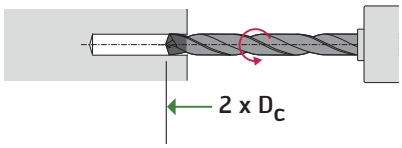
2 Pilot drilling 2



10 - 30 bar
on

20 x D_C
A6785TFP

3 Piloting

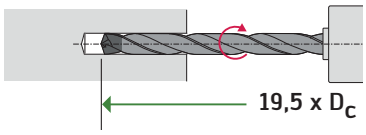


off

XD Technology

With anti-clockwise rotation:
n_{max} = 100 rpm
v_f = 1000 mm/min

4 Piloting

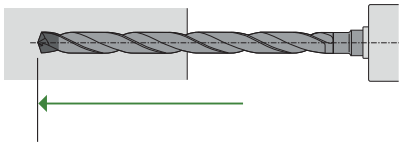


off

XD Technology

Continue operation with clockwise rotation
n_{max} = 100 rpm
v_f = 1000 mm/min

5 Deep-hole drilling

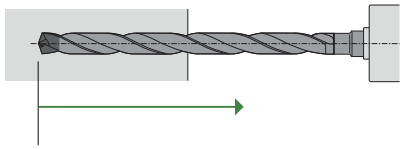


20 - 40 bar
on

XD Technology

v_c = 100%
v_f = 100%

6 Retract



off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

V_c / V_f → GPS

Drilling strategy 5:

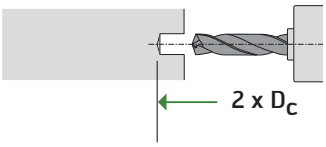
Micro XD technology ≤ 30 x D_C

suitable for:

– A6489AMP	– A6789AMP
– A6589AMP	– A6889AMP
– A6689AMP	– A6989AMP

P	M	K	N	S	H	O
✓	✓	✓	✓	✓	✓	✓

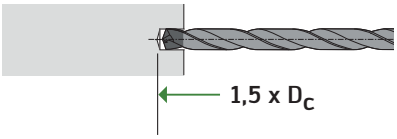
1 Pilot drilling



10 - 30 bar
on

2 x D_C
A6181AML

2 Piloting

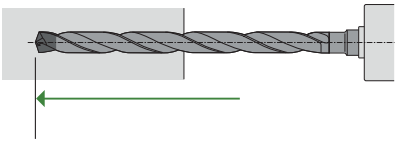


off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

3 Deep-hole drilling

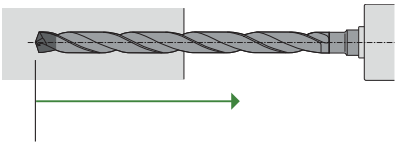


10 - 30 bar
on

XD Technology

v_c = 100%
v_f = 100%

4 Retract



off

XD Technology

n_{max} = 100 rpm
v_f = 1000 mm/min

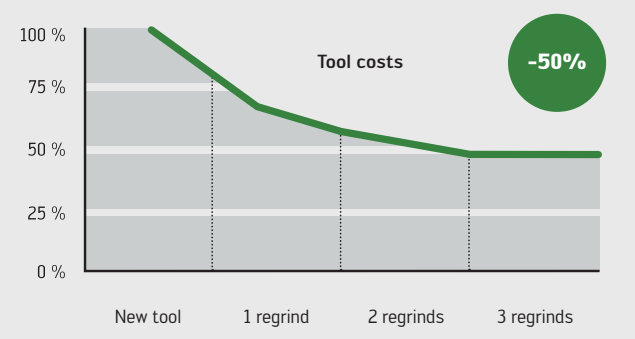
V_c / V_f → GPS

Regrinding and coating service: Top quality, easy handling and prompt delivery

The Walter Multiply "Almost as good as new" workflow

Demanding customers require 100% performance at all times. This requirement must of course also apply to reconditioning when it comes to users of high-performance tools. Reconditioned as originally manufactured, a tool is returned to an "almost as good as new" condition by Walter Multiply. This has been proven in actual practice. The recycled tool impresses customers with its 100% performance. It's worth it, no question about it: The service life of a tool is extended each time it is reconditioned.

Regrinding & re-coating pays off



Walter Multiply reconditioning is available for:

- Solid carbide drills
- XD drills
- Solid carbide milling cutters*
- Solid carbide and HSS step drills and special tools
- High-performance HSS-Co drills and milling cutters

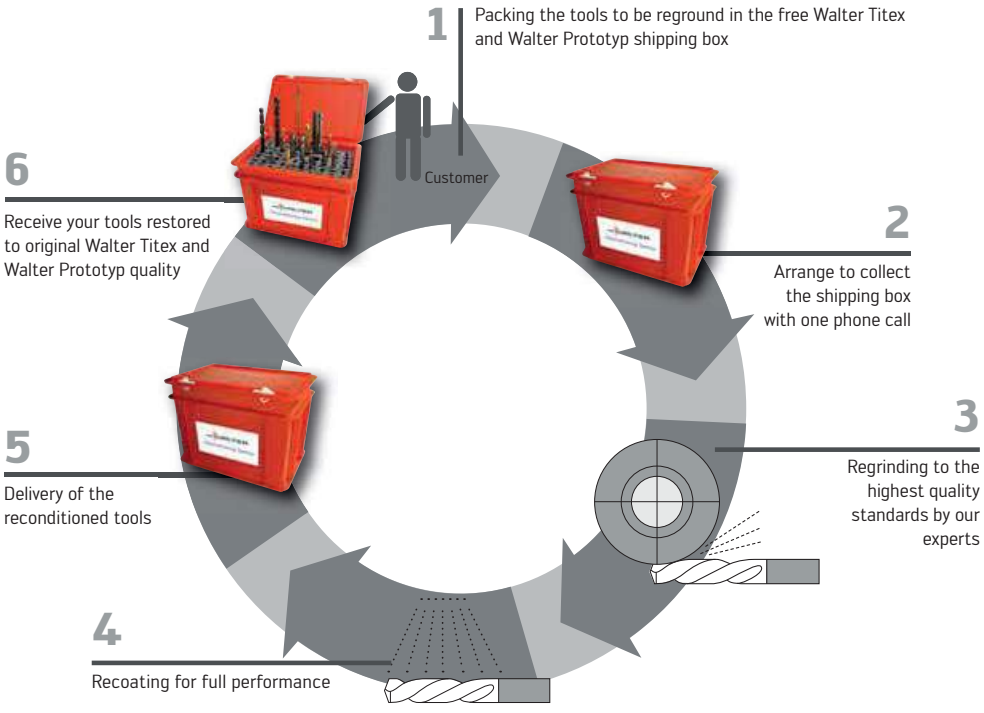
Take advantage of the clear benefits of Walter Multiply:

- Original geometry and coating
- Certified reconditioning cycles
- Stable production processes thanks to consistent tool life

ORIGINAL

Not to be ignored, and extremely practical: The RedBox for collecting tools is made available and collected by Walter free of charge

Reliable, just like the tool itself: The reconditioning cycle of Walter Multiply



* Reconditioning of Walter Prototyp products is not available in all regions. For further details, please contact your local Walter representative.

CONTENTS

Drilling and boring tools with indexable inserts

C

Product range overview of indexable/ exchangeable inserts for drilling, boring and reaming

Application	Insert shape		Description	Page
Drilling		P 6001 . . P 6002 . . P 6003 . . P 6004 . .	for drilling	C-8
		L	for drilling	C-14
		P 484 . .	for drilling	C-12
		T	for drilling	C-11
		W	for drilling	C-15
Application	**Insert shape**		**Description**	**Page**
Counterboring Precision boring		C	for counterboring for precision boring	C-19 C-25
		S	for counterboring	C-20
		W	for counterboring for precision boring	C-21 C-27
Application	**Insert shape**		**Description**	**Page**
Reaming		P 6500	for reaming	*C 35**

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Designation key for indexable inserts for drilling

P 484	0	P	–	2	R	–	A57
1	2	3		4	5		6

1
Walter indexable insert designation

2	
Version	
0	Ground
1	Sintered

3	
Position	
C	Centre insert
P	Outer insert

4
Insert size

5	
Cutting direction	
R	right handed

6	
Walter geometry	
A57	The stable one
E57	The universal one
E67	The sharp one

Designation key for Xtra·tec® Insert Drill

B421	2	.	F25	.	24	.	Z1	.	048	R	–	3
1	2		3		4		5		6	7		8

1
Walter drill designation

2	
Drilling depth (L/D ratio)	
2	2 x D_c
3	3 x D_c
4	4 x D_c
5	5 x D_c

3	
Shank variants and diameters	
F	Cylindrical shank with clamping surface
UF	Inch
N	NCT
DF	Combi-shank DIN 1835 B and DIN 6535 HE
C	Walter Capto™ ISO 26623
T	ScrewFit

4
Nominal diameter [mm]

5
Effective number of teeth

6
Drilling depth [mm]

7	
Cutting direction	
R	right handed

8
Insert size

Walter Select for drilling inserts

Step by step to the right indexable insert

STEP 1

Define the **material** to be machined from page H 8 onwards of the General catalogue.

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	**P1–P15**	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	**M1–M3**	**Stainless steel**	Stainless austenitic steel and austenitic-ferritic steel and cast steel
K	**K1–K7**	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	**N1–N10**	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	**S1–S10**	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	**H1–H4**	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	**O1–O6**	**Other**	Plastics, glass- and carbon fibre reinforced plastics, graphite

STEP 2

Select the **machining conditions:**

	Machine stability, clamping system and workpiece		
Tool projection	**very good**	**good**	**moderate**
Short projection length			
Extended tool projection			

STEP 3

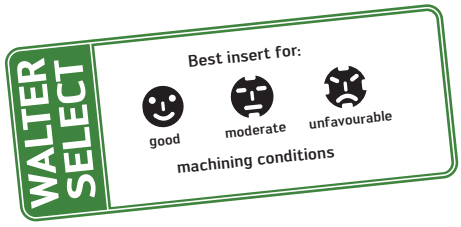
Select your **tool** according to your application and individual requirements.
Then select your drill from the corresponding tool page.

Drilling depth	Page
1 x D_c	*C 50**
2 x D_c	*C 52**
3 x D_c	*C 64**
4 x D_c	*C 74**
5 x D_c	*C 80**
7 x D_c	**C-40**
10 x D_c	*C 88**

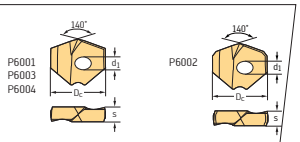
** The pages indicated in italics refer to the Walter General catalogue 2012.*

STEP 4

Determine your optimum **indexable insert grade and geometry** on the appropriate tool page.
In so doing, please take into consideration the machining conditions (step 2) and the material to be machined.



Drill inserts
P6001, P6002, P6003, P6004
for Xtra·tec® Point Drill



Drill inserts

	Designation	Cutting edges	D_c mm	D_c Inches/ No	d_1 mm	s mm	P6001 P HC WXP 45	P6001 P HC WPP45C	P6003 P HC WMP 35	P6003 M HC WMP 35	P6002 K HC WXK 25	P6004 N HC WNN 25	P6003 S HC WMP 35
P6001	P60 . . –D12,00R*	2	12,00		3	3,6	●●	●	●●	●●	●●	●●	●●
	P60 . . –D12,10R	2	12,10		3	3,6	●●		●●	●●			●●
	P60 . . –D12,20R	2	12,20		3	3,6	●●		●●	●●			●●
	P60 . . –D12,30R	2	12,30		3	3,6	●●		●●	●●			●●
	P60 . . –D12,40R	2	12,40		3	3,6	●●		●●	●●			●●
	P60 . . –D12,50R	2	12,50		3	3,6	●●	●	●●	●●	●●	●●	●●
P6002	P60 . . –D12,60R	2	12,60		3	3,6	●●		●●	●●			●●
	P60 . . –D12,70R	2	12,70	1/2"	3	3,6	●●	●	●●	●●	●●		●●
	P60 . . –D12,80R	2	12,80		3	3,6	●●		●●	●●			●●
	P60 . . –D12,90R	2	12,90		3	3,6	●●		●●	●●			●●
	P60 . . –D12,95R	2	12,95		3	3,6	●●		●●	●●			●●
	P60 . . –D13,00R	2	13,00		3	3,6	●●	●	●●	●●	●●	●●	●●
P6003	P60 . . –D13,11R	2	13,11	33/64"	3	3,6	●●		●●	●●	●●		●●

STEP 5

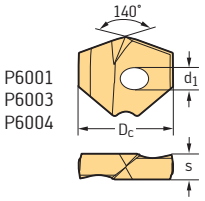
Select the **cutting data** from page C-76 onwards.

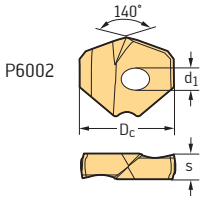
Cutting data for drilling
with Xtra·tec® Point Drill D_c 12–38 mm

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			Insert geometry			
									Starting values for feed f [mm/U]			
									P6001			
									D_c [mm]			
									12,0–15,9	16,0–21,9	22,0–31,99	32,0–37,99
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●		0,2	0,25	0,3	0,4
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●		0,2	0,25	0,3	0,4
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●		0,2	0,25	0,3	0,4
		C > 0.55%	annealed	190	639	P4	●●		0,2	0,25	0,3	0,4
		C > 0.55%	tempered	300	1013	P5	●●		0,15	0,2	0,22	0,25
		machining steel (short-chipping)	annealed	220	745	P6	●●	●	0,18	0,22	0,25	0,3
	Low-alloyed steel	annealed		175	591	P7	●●		0,2	0,25	0,3	0,4
		tempered		300	1013	P8	●●		0,2	0,25	0,3	0,4
		tempered		380	1282	P9	●●		0,18	0,22	0,25	0,3
		tempered		430	1477	P10	●●		0,15	0,2	0,22	0,28
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●		0,15	0,2	0,22	0,28
		hardened and tempered		300	1013	P12	●●		0,12	0,15	0,2	0,25
		hardened and tempered		400	1361	P13	●●		0,1	0,12	0,8	0,22
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●		0,15	0,2	0,22	0,2
		martensitic, tempered		330	1114	P15	●●		0,12	0,15	0,2	0,2
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●					
		austenitic, precipitation hardened (PH)		300	1013	M2						
		austenitic/ferritic, duplex		230	778	M3	●●					
K	Malleable cast iron	ferritic		200	675	K1	●●	●	0,2	0,25	0,3	0,4
				260	867	K2	●●	●	0,2	0,25	0,3	0,4
	Grey cast											

Drill inserts
P6001, P6002, P6003, P6004
for **Xtra·tec® Point Drill**





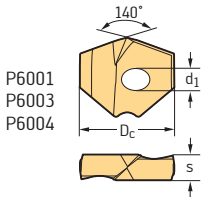
Drill inserts

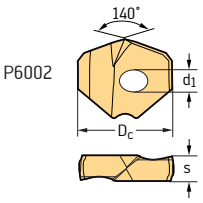
	Designation	Cutting edges	D_c mm	D_c Inches/ No	d_1 mm	s mm	P6001 P HC WXP 45	P6001 P HC WPP45C	P6003 P HC WMP 35	P6003 M HC WMP 35	P6002 K HC WXK 25	P6004 N HC WNN 25	P6003 S HC WMP 35
P6001	P60 . . –D12,00R*	2	12,00		3	3,6	●	●	●	●	●	●	●
	P60 . . –D12,10R	2	12,10		3	3,6	●		○	○			○
	P60 . . –D12,20R	2	12,20		3	3,6	●		○	○			○
	P60 . . –D12,30R	2	12,30		3	3,6	●		○	○			○
	P60 . . –D12,40R	2	12,40		3	3,6	●		○	○			○
	P60 . . –D12,50R	2	12,50		3	3,6	●	●	●	●	●	●	●
P6002	P60 . . –D12,60R	2	12,60		3	3,6	●		○	○			○
	P60 . . –D12,70R	2	12,70	1/2"	3	3,6	●	●	●	●	●		●
	P60 . . –D12,80R	2	12,80		3	3,6	●		○	○			○
	P60 . . –D12,90R	2	12,90		3	3,6	●		○	○			○
	P60 . . –D12.95R	2	12,95		3	3,6	○		○	○			○
	P60 . . –D13,00R	2	13,00		3	3,6	●	●	●	●	●	●	●
P6003	P60 . . –D13,11R	2	13,11	33/64"	3	3,6	●		○	○	●		○
	P60 . . –D13,20R	2	13,20		3	3,6	●		●	●			●
	P60 . . –D13,25R	2	13,25		3	3,6	○		○	○			●
	P60 . . –D13,30R	2	13,30		3	3,6	●		○	○			○
	P60 . . –D13,40R	2	13,40		3	3,6	●		○	○			○
	P60 . . –D13,50R	2	13,50	17/32"	3	3,6	●	●	●	●	●	●	●
	P60 . . –D13,60R	2	13,60		3	3,6	●		○	○			○
P6004	P60 . . –D13,70R	2	13,70		3	3,6	●		●	●	●		●
	P60 . . –D13,80R	2	13,80		3	3,6	●		○	○			○
	P60 . . –D13,89R	2	13,89	35/64"	3	3,6	●		○	○	●		○
	P60 . . –D14,00R	2	14,00		3	4,0	●	●	●	●	●	●	●
	P60 . . –D14,10R	2	14,10		3	4,0	●		○	○			○
	P60 . . –D14,20R	2	14,20		3	4,0	●		○	○			○
	P60 . . –D14,30R	2	14,30	9/16"	3	4,0	●	●	●	●	●		●
	P60 . . –D14,40R	2	14,40		3	4,0	●		○	○			○
	P60 . . –D14,50R	2	14,50		3	4,0	●	○	●	●	●	●	●
	P60 . . –D14,60R	2	14,60		3	4,0	●	○	○	○			○
	P60 . . –D14,68R	2	14,68	37/64"	3	4,0	●		●	●	●		●
	P60 . . –D14,80R	2	14,80		3	4,0	●	○	○	○		●	○
	P60 . . –D14,90R	2	14,90		3	4,0	●		○	○			○
	P60 . . –D15,00R	2	15,00		3	4,0	●	●	●	●	●	●	●
	P60 . . –D15,09R	2	15,09	19/32"	3	4,0	●		○	○	●		○
	P60 . . –D15,20R	2	15,20		3	4,0	●		○	○			○
	P60 . . –D15,30R	2	15,30		3	4,0	●		○	○			○
	P60 . . –D15,40R	2	15,40		3	4,0	●		○	○			○
	P60 . . –D15,47R	2	15,47	39/64"	3	4,0	●		○	○	●		○
	P60 . . –D15,50R	2	15,50		3	4,0	●	●	●	●	●	●	●
	P60 . . –D15,60R	2	15,60		3	4,0	●		○	○			○
	P60 . . –D15,70R	2	15,70		3	4,0	●		●	●	●		●
	P60 . . –D15,80R	2	15,80		3	4,0	●		○	○			○
	P60 . . –D15,87R	2	15,87	5/8"	3	4,0	●		●	●	●		●
	P60 . . –D16,00R	2	16,00		4	4,5	●	●	●	●	●	●	●
	P60 . . –D16.13R	2	16,13		4	4,5	○		○	○			○
	P60 . . –D16,26R	2	16,26	41/64"	4	4,5	●	●	●	●	●		●
	P60 . . –D16,43R	2	16,43		4	4,5	○		○	○			○
	P60 . . –D16,50R	2	16,50		4	4,5	●	●	●	●	●	●	●

***Order example:**
P60 . . –D13.00R is available as P6003 in grade WMP 35 (ISO P, ISO M and ISO S) → **P6003–D13.00R WMP 35**
or as P6001 in grade WXP 45 (ISO P) → **P6001–D13.00R WXP 45**

○ ○ ○ New addition to range

Drill inserts
P6001, P6002, P6003, P6004
for Xtra·tec® Point Drill

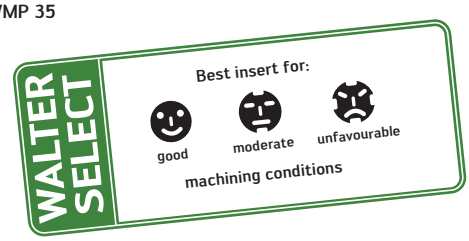




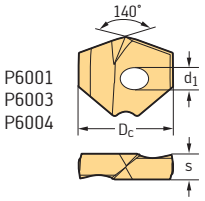
Drill inserts

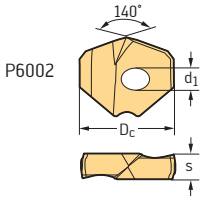
	Designation	Cutting edges	D_c mm	D_c Inches/ No	d_1 mm	s mm	P6001 P HC WXP 45	P6001 P HC WPP45C	P6003 P HC WMP 35	P6003 M HC WMP 35	P6002 K HC WXK 25	P6004 N HC WNN 25	P6003 S HC WMP 35
P6001 	P60 . . –D16,66R	2	16,66	21/32"	4	4,5	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D16,70R	2	16,70		4	4,5	☹		☹	☹	☹		☹
	P60 . . –D17,00R	2	17,00		4	4,5	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D17,07R	2	17,07	43/64"	4	4,5	☺	☹	☹	☹	☹		☹
	P60 . . –D17,45R	2	17,45	11/16"	4	4,5	☺	☹	☹	☺	☹		☺
	P60 . . –D17,50R	2	17,50		4	4,5	☺	☹	☹	☺	☹	☺	☺
P6002 	P60 . . –D17,70R	2	17,70		4	4,5	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D17,86R*	2	17,86	45/64"	4	4,5	☺		☹	☹	☹		☹
	P60 . . –D18,00R	2	18,00		4	5,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D18,24R	2	18,24	23/32"	4	5,0	☺		☹	☺	☹		☺
	P60 . . –D18,50R	2	18,50		4	5,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D18,65R	2	18,65	47/64IN	4	5,0	☺	☹	☹	☹	☹	☺	☹
	P60 . . –D18,70R	2	18,70		4	5,0	☹		☹	☹	☹		☹
P6003 	P60 . . –D18,80R	2	18,80		4	5,0	☹		☹	☹			☹
	P60 . . –D19,00R	2	19,00		4	5,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D19,05R	2	19,05	3/4"	4	5,0	☺		☹	☺	☹		☺
	P60 . . –D19,20R	2	19,20		4	5,0	☹		☹	☹			☹
	P60 . . –D19,25R	2	19,25		4	5,0	☺	☹	☹	☺			☺
	P60 . . –D19,30R	2	19,30		4	5,0	☹		☹	☹			☹
P6004 	P60 . . –D19,43R	2	19,43	49/64"	4	5,0	☺	☹	☹	☺	☹		☺
	P60 . . –D19,50R	2	19,50		4	5,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D19,60R	2	19,60		4	5,0	☹		☹	☹			☹
	P60 . . –D19,70R	2	19,70		4	5,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D19,84R	2	19,84	25/32"	4	5,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D20,00R	2	20,00		5	5,5	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D20,20R	2	20,20		5	5,5	☺		☹	☹			☹
	P60 . . –D20,24R	2	20,24	51/64"	5	5,5	☺		☹	☺	☹		☺
	P60 . . –D20,50R	2	20,50		5	5,5	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D20,62R	2	20,62	13/16"	5	5,5	☺		☹	☺	☹		☺
	P60 . . –D20,70R	2	20,70		5	5,5	☺	☹	☹	☹	☹		☹
	P60 . . –D21,00R	2	21,00		5	5,5	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D21,41R	2	21,41	27/32"	5	5,5	☺		☹	☹	☹		☹
	P60 . . –D21,50R	2	21,50		5	5,5	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D21,70R	2	21,70		5	5,5	☺		☹	☹	☹	☺	☹
	P60 . . –D21,83R	2	21,83		5	5,5	☺		☹	☺	☹		☺
	P60 . . –D22,00R	2	22,00		5	6,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D22,22R	2	22,22	7/8"	5	6,0	☺	☹	☹	☺	☹		☺
	P60 . . –D22,42R	2	22,42		5	6,0	☹		☹	☹			☹
	P60 . . –D22,47R	2	22,47		5	6,0	☹		☹	☹			☹
	P60 . . –D22,50R	2	22,50		5	6,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D22,62R	2	22,62		5	6,0	☺		☹	☹	☹		☹
	P60 . . –D22,70R	2	22,70		5	6,0	☺		☹	☹	☹		☹
	P60 . . –D22,77R	2	22,77		5	6,0	☹		☹	☹			☹
	P60 . . –D23,00R	2	23,00	29/32"	5	6,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D23,39R	2	23,39		5	6,0	☺		☹	☺	☹		☺
	P60 . . –D23,50R	2	23,50		5	6,0	☺	☹	☹	☺	☹	☺	☺
	P60 . . –D23,70R	2	23,70		5	6,0	☺		☹	☹	☹		☹

***Order example:**
P60 . . –D13.00R is available as P6003 in grade WMP 35 (ISO P, ISO M and ISO S) → **P6003–D13.00R WMP 35**
or as P6001 in grade WXP 45 (ISO P) → **P6001–D13.00R WXP 45**



Drill inserts
P6001, P6002, P6003, P6004
for **Xtra·tec® Point Drill**



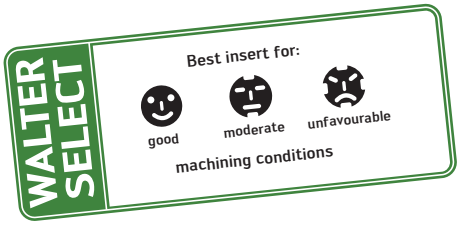


Drill inserts

	Designation	Cutting edges	D_c mm	D_c Inches/ No	d_1 mm	s mm	P6001 P HC WXP 45	P6001 P HC WPP45C	P6003 P HC WMP 35	P6003 M HC WMP 35	P6002 K HC WXK 25	P6004 N HC WNN 25	P6003 S HC WMP 35
P6001 	P60 . . –D23,80R	2	23,80	15/16"	5	6,0	☺	☹	☠	☺	☠		☺
	P60 . . –D24,00R	2	24,00		5	6,5	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D24,21R	2	24,21		5	6,5	☺		☠	☹	☠		☹
	P60 . . –D24,50R	2	24,50		5	6,5	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D24,59R	2	24,59	31/32"	5	6,5	☺		☠	☹	☠		☹
	P60 . . –D24,70R	2	24,70		5	6,5	☺		☠	☹	☠		☹
P6002 	P60 . . –D25,00R	2	25,00		5	6,5	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D25,25R	2	25,25		5	6,5	☺	☹	☠	☺			☺
	P60 . . –D25,40R	2	25,40	1"	5	6,5	☺	☹	☠	☺	☠		☺
	P60 . . –D25,50R	2	25,50		5	6,5	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D25,65R	2	25,65		5	6,5	☺		☠	☺			☺
	P60 . . –D25,70R	2	25,70		5	6,5	☹		☹	☹			☹
	P60 . . –D25,80R	2	25,80		5	6,5	☺		☹	☹	☠		☹
P6003 	P60 . . –D26,00R	2	26,00		6	7,1	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D26,25R	2	26,25		6	7,1	☺	☹	☠	☹	☠		☹
	P60 . . –D26,50R	2	26,50		6	7,1	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D26,59R	2	26,59		6	7,1	☺		☠	☹	☠		☹
	P60 . . –D27,00R	2	27,00		6	7,1	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D27,38R	2	27,38		6	7,1	☺		☠	☹	☠		☹
P6004 	P60 . . –D27,50R	2	27,50		6	7,1	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D27,78R	2	27,78		6	7,1	☺		☠	☹	☠		☹
	P60 . . –D28,00R	2	28,00		6	7,7	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D28,17R	2	28,17		6	7,7	☺		☠	☹	☠		☹
	P60 . . –D28,50R	2	28,50		6	7,7	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D28,57R	2	28,57		6	7,7	☺		☠	☺	☠		☺
	P60 . . –D29,00R	2	29,00		6	7,7	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D29,37R	2	29,37		6	7,7	☺		☠	☹	☠		☹
	P60 . . –D29,50R	2	29,50		6	7,7	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D29,77R	2	29,77		6	7,7	☺		☠	☹	☠		☹
	P60 . . –D30,00R	2	30,00		6	8,0	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D30,15R	2	30,15		6	8,0	☺		☠	☹	☠		☹
	P60 . . –D30,50R	2	30,50		6	8,0	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D31,00R	2	31,00		6	8,0	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D31,50R	2	31,50		6	8,0	☺	☹	☠	☺	☠	☺	☺
	P60 . . –D31,75R	2	31,75		6	8,0	☺	☹	☠	☺	☠		☺
	P60 . . –D31,99R	2	31,99		6	8,0	☺	☹	☹	☹	☠		☹
	P60 . . –D32,00R	2	32,00		6,2	8,29	☹		☠	☺			☺
	P60 . . –D32,10R	2	32,10		6,2	8,29	☹		☹	☹			☹
	P60 . . –D33,00R	2	33,00		6,2	8,29	☹		☠	☺			☺
	P60 . . –D34,00R	2	34,00		6,2	8,29	☹		☠	☺			☺
	P60 . . –D35,00R	2	35,00		6,2	8,29	☹		☠	☺			☺
	P60 . . –D36,00R	2	36,00		6,2	8,29	☹		☠	☺			☺
	P60 . . –D37,00R	2	37,00		6,2	8,29	☹		☠	☺			☺
	P60 . . –D37,99R	2	37,99		6,2	8,29	☹		☠	☺			☺

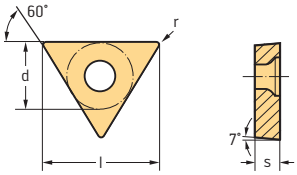
***Order example:**
P60 . . –D13.00R is available as P6003 in grade WMP 35 (ISO P, ISO M and ISO S) → **P6003–D13.00R WMP 35**
or as P6001 in grade WXP 45 (ISO P) → **P6001–D13.00R WXP 45**

☹ ☹ ☠ New addition to range



Positive basic shape
TCGT/TCMT/TCMW

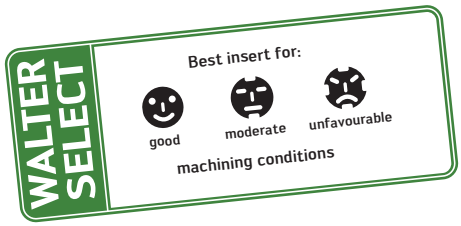
Tiger·tec®



Indexable inserts

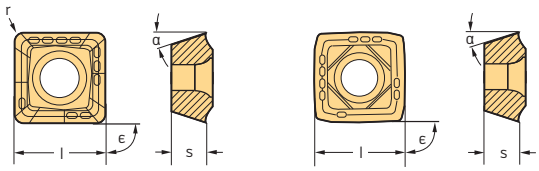
	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	TCMT06T102-PF4	3,97	6,9	1,98	0,2			☹				☹									
	TCMT06T104-PF4	3,97	6,9	1,98	0,4			☹				☹									
	TCMT090202-PF4	5,56	9	2,38	0,2	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT090204-PF4	5,56	9	2,38	0,4	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT090208-PF4	5,56	9	2,38	0,8	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT110202-PF4	6,35	11	2,38	0,2	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT110204-PF4	6,35	11	2,38	0,4	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT110208-PF4	6,35	11	2,38	0,8	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT16T302-PF4	9,525	16,5	3,97	0,2	☺	😐	☹			😐		☹							😐	☹
	TCMT16T304-PF4	9,525	16,5	3,97	0,4	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT16T308-PF4	9,525	16,5	3,97	0,8	☺	😐	☹		☺	😐		☹						☺	😐	☹
	TCMT110204-PS5	6,35	11	2,38	0,4			😐			😐		☹	☺	😐					😐	☹
	TCMT110208-PS5	6,35	11	2,38	0,8			😐			😐		☹	☺	😐					😐	☹
	TCMT16T304-PS5	9,525	16,5	3,97	0,4			😐			😐		☹	☺	😐					😐	☹
	TCMT16T308-PS5	9,525	16,5	3,97	0,8			😐			😐		☹	☺	😐					😐	☹
	TCGT110201-PM2	6,35	11	2,38	0,1												☺	☺			
	TCGT110202-PM2	6,35	11	2,38	0,2												☺	☺			
	TCGT110204-PM2	6,35	11	2,38	0,4												☺	☺			
	TCGT16T302-PM2	9,525	16,5	3,97	0,2												☺	☺			
	TCGT16T304-PM2	9,525	16,5	3,97	0,4												☺	☺			
	TCGT16T308-PM2	9,525	16,5	3,97	0,8												☺	☺			
	TCMT090204-PM5	5,56	9	2,38	0,4		☺	😐	☹		😐		☹	☺	😐	☹				😐	☹
	TCMT090208-PM5	5,56	9	2,38	0,8		☺	😐	☹		😐		☹	☺	😐	☹				😐	☹
	TCMT110204-PM5	6,35	11	2,38	0,4		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT110208-PM5	6,35	11	2,38	0,8		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT16T304-PM5	9,525	16,5	3,97	0,4		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT16T308-PM5	9,525	16,5	3,97	0,8		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMT16T312-PM5	9,525	16,5	3,97	1,2		☺	😐	☹	☺	😐		☹	☺	😐	☹			☺	😐	☹
	TCMW110202	6,35	11	2,38	0,2									☺	😐						
	TCMW110204	6,35	11	2,38	0,4									☺	😐						
	TCMW110208	6,35	11	2,38	0,8									☺	😐						
	TCMW16T304	9,525	16,5	3,97	0,4									☺	😐						
	TCMW16T308	9,525	16,5	3,97	0,8									☺	😐						
	TCMW16T312	9,525	16,5	3,97	1,2									☺	😐						

HC = Coated carbide
HW = Uncoated carbide

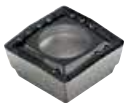
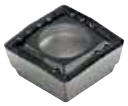
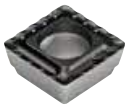
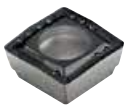
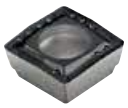


Square insert
P 484 .

Tiger·tec®



Indexable inserts

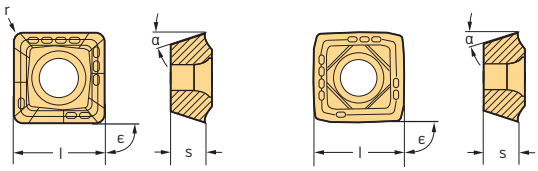
	Designation	Number of cutting edges	l mm	s mm	r mm	α	ε	P HC WKP25S	P HC WKP35S	P WSP45	M HC WSP45	K HC WKP25S	K HC WKP35S	S HC WSP45	HC WXP40
Outer insert	P4840P-1R-A57	4	4,55	1,96	0,29	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4840P-2R-A57	4	5,52	2,38	0,34	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4840P-3R-A57	4	6,5	2,8	0,4	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4840P-4R-A57	4	7,8	3,36	0,48	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4840P-5R-A57	4	9,56	4,12	0,59	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4840P-6R-A57	4	11,75	4,87	0,7	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4840P-7R-A57	4	14,03	5,53	0,8	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4840P-8R-A57	4	16,5	5,53	1	11°	90°	☺	☹	☠	☠	☹	☹	☠	
Outer insert	P4840P-1R-E57	4	4,55	1,96	0,29	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-2R-E57	4	5,52	2,38	0,34	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-3R-E57	4	6,5	2,8	0,4	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-4R-E57	4	7,8	3,36	0,48	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-5R-E57	4	9,56	4,12	0,59	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-6R-E57	4	11,75	4,87	0,7	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-7R-E57	4	14,03	5,53	0,8	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-8R-E57	4	16,5	5,53	1	11°	90°	☺	☺	☠	☠	☹	☹	☠	
Outer insert	P4840P-1R-E67	4	4,55	1,96	0,29	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-2R-E67	4	5,52	2,38	0,34	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-3R-E67	4	6,5	2,8	0,4	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-4R-E67	4	7,8	3,36	0,48	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-5R-E67	4	9,56	4,12	0,59	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-6R-E67	4	11,75	4,87	0,7	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-7R-E67	4	14,03	5,53	0,8	11°	90°	☺	☺	☠	☠	☹	☹	☠	
	P4840P-8R-E67	4	16,5	5,53	1	11°	90°	☺	☺	☠	☠	☹	☹	☠	
Outer insert	P4841P-1R-A57	4	4,55	1,96	0,29	11°	90°	☹	☹	☠	☠	☹	☹	☠	
	P4841P-2R-A57	4	5,52	2,38	0,34	11°	90°	☹	☹	☠	☠	☹	☹	☠	
	P4841P-3R-A57	4	6,5	2,8	0,4	11°	90°	☹	☹	☠	☠	☹	☹	☠	
	P4841P-4R-A57	4	7,8	3,36	0,48	11°	90°	☹	☹	☠	☠	☹	☹	☠	
	P4841P-5R-A57	4	9,56	4,12	0,59	11°	90°	☹	☹	☠	☠	☹	☹	☠	
	P4841P-6R-A57	4	11,75	4,87	0,7	11°	90°	☹	☹	☠	☠	☹	☹	☠	
	P4841P-7R-A57	4	14,03	5,53	0,8	11°	90°	☹	☹	☠	☠	☹	☹	☠	
	P4841P-8R-A57	4	16,5	5,53	1	11°	90°	☹	☹	☠	☠	☹	☹	☠	
Outer insert	P4841P-1R-E57	4	4,55	1,96	0,29	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4841P-2R-E57	4	5,52	2,38	0,34	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4841P-3R-E57	4	6,5	2,8	0,4	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4841P-4R-E57	4	7,8	3,36	0,48	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4841P-5R-E57	4	9,56	4,12	0,59	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4841P-6R-E57	4	11,75	4,87	0,7	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4841P-7R-E57	4	14,03	5,53	0,8	11°	90°	☺	☹	☠	☠	☹	☹	☠	
	P4841P-8R-E57	4	16,5	5,53	1	11°	90°	☺	☹	☠	☠	☹	☹	☠	

HC = Coated carbide

☺☹☠ New addition to range

Square insert
P 484 .

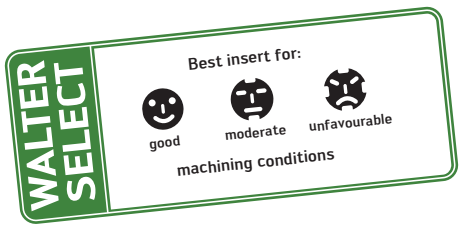
Tiger·tec®



Indexable inserts

	Designation	Number of cutting edges	l mm	s mm	r mm	α	ε	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSP45	K HC WKP25S	K HC WKP35S	S HC WSP45	HC WXP40
Centre insert 	P4841C-1R-A57	4	4,9	1,96	0,29	11°	90°		●				●		●
	P4841C-2R-A57	4	5,95	2,38	0,34	11°	90°		●				●		●
	P4841C-3R-A57	4	7	2,8	0,4	11°	90°		●				●		●
	P4841C-4R-A57	4	8,4	3,36	0,48	11°	90°		●				●		●
	P4841C-5R-A57	4	10,29	4,12	0,59	11°	90°		●				●		●
	P4841C-6R-A57	4	12,24	4,87	0,7	11°	90°		●				●		●
	P4841C-7R-A57	4	14,69	5,53	0,8	11°	90°		●				●		●
	P4841C-8R-A57	4	17,49	5,53	1	11°	90°		●				●		●
Centre insert 	P4841C-1R-E57	4	4,9	1,96	0,29	11°	90°		●				●		●
	P4841C-2R-E57	4	5,95	2,38	0,34	11°	90°		●				●		●
	P4841C-3R-E57	4	7	2,8	0,4	11°	90°		●				●		●
	P4841C-4R-E57	4	8,4	3,36	0,48	11°	90°		●				●		●
	P4841C-5R-E57	4	10,29	4,12	0,59	11°	90°		●				●		●
	P4841C-6R-E57	4	12,24	4,87	0,7	11°	90°		●				●		●
	P4841C-7R-E57	4	14,69	5,53	0,8	11°	90°		●				●		●
	P4841C-8R-E57	4	17,49	5,53	1	11°	90°		●				●		●
Centre insert 	P4840C-1R-E67	4	4,9	1,96	0,29	11°	90°		●				●		●
	P4840C-2R-E67	4	5,95	2,38	0,34	11°	90°		●				●		●
	P4840C-3R-E67	4	7	2,8	0,4	11°	90°		●				●		●
	P4840C-4R-E67	4	8,4	3,36	0,48	11°	90°		●				●		●
	P4840C-5R-E67	4	10,29	4,12	0,59	11°	90°		●				●		●
	P4840C-6R-E67	4	12,24	4,87	0,7	11°	90°		●				●		●
	P4840C-7R-E67	4	14,69	5,53	0,8	11°	90°		●				●		●
	P4840C-8R-E67	4	17,49	5,53	1	11°	90°		●				●		●

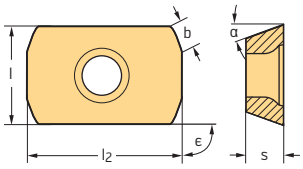
HC = Coated carbide



● ● ● New addition to range

Rectangular insert
LCMX

Tiger·tec®



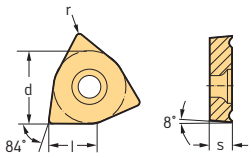
Indexable inserts

	Designation	Number of cutting edges	l mm	l_2 mm	s mm	r mm	α	b mm	ε	P HC WAP20	P HC WKP25	P HC WKP35	P HC WTP35	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSP45	K HC WKP25	K HC WKP35	K HC WKP25S	K HC WKP35S	S HC WSP45	HC WXP40
	LCMX050203-B57	2	4	5,2	2,38	0,2	7°	0,6	90°			☻	☻						☻				☒
	LCMX06T204-B57	2	5,2	6,6	2,78	0,2	7°	0,8	90°			☻	☻						☻				☒
	LCMX050203-D57	2	4	5,2	2,38	0,2	7°	0,6	90°	☺	☺	☻	☻			☒	☒	☻	☒			☒	☒
	LCMX06T204-D57	2	5,2	6,6	2,78	0,2	7°	0,8	90°	☺	☺	☻	☻			☒	☒	☻	☒			☒	☒
	LCMX050203-E57	2	4	5,2	2,38	0,2	7°	0,6	90°	☺						☒	☒					☒	☒
	LCMX06T204-E57	2	5,2	6,6	2,78	0,2	7°	0,8	90°	☺						☒	☒					☒	☒

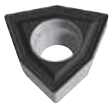
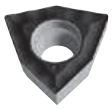
HC = Coated carbide

Trigon indexable inserts
WOMX/WOEX

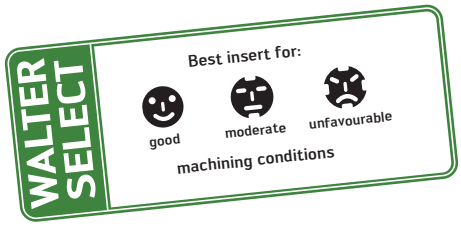
Tiger·tec®



Indexable inserts

	Designation	Number of cutting edges	l mm	s mm	r mm	d mm	P HC WKP25S	P HC WKP35S	P WSP45	M HC WSP45	K HC WAK15	K HC WKP25S	K HC WKP35S	S HC WSP45	HC WXP40
	WOMX030204-B57	3	3,31	2,3	0,4	5		😐					😐		
	WOMX040304-B57	3	4,2	3,18	0,4	6,35		😐					😐		
	WOMX05T304-B57	3	5,29	3,8	0,4	8		😐					😐		
	WOMX06T304-B57	3	6,62	3,8	0,4	10		😐					😐		
	WOMX080408-B57	3	7,94	4,8	0,8	12		😐					😐		
	WOMX100508-B57	3	9,92	5,3	0,8	15		😐					😐		
	WOMX120608-B57	3	11,64	6	0,8	17,6		😐					😐		
	WOMX030204-D57	3	3,31	2,3	0,4	5		😐					😣		☒
	WOMX040304-D57	3	4,2	3,18	0,4	6,35		😐					😣		☒
	WOMX05T304-D57	3	5,29	3,8	0,4	8		😐			☺		😣		☒
	WOMX06T304-D57	3	6,62	3,8	0,4	10	☺	😐			☺	😐	😣		☒
	WOMX080408-D57	3	7,94	4,8	0,8	12	☺	😐			☺	😐	😣		☒
	WOMX100508-D57	3	9,92	5,3	0,8	15	☺	😐			☺	😐	😣		☒
	WOMX120608-D57	3	11,64	6	0,8	17,6	☺	😐			☺	😐	😣		☒
	WOEX030204-E57	3	3,31	2,3	0,4	5		😐					😣		
	WOEX040304-E57	3	4,2	3,18	0,4	6,35	☺	😐				😐	😣		
	WOEX05T304-E57	3	5,29	3,8	0,4	8	☺	😐				😐	😣		
	WOEX06T304-E57	3	6,62	3,8	0,4	10	☺	😐			☺	😐	😣		
	WOEX080408-E57	3	7,94	4,8	0,8	12	☺	😐				😐	😣		
	WOEX100508-E57	3	9,92	5,3	0,8	15		😐					😣		
	WOEX120608-E57	3	11,64	6	0,8	17,6		😐					😣		

HC = Coated carbide



C-80

☺ 😐 ☒ New addition to range

Walter Select for indexable inserts for counterboring

Step by step to the right indexable insert

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	**P1–P15**	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	**M1–M3**	**Stainless steel**	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	**K1–K7**	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	**N1–N10**	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	**S1–S10**	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	**H1–H4**	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	**O1–O6**	**Other**	Plastics, glass- and carbon fibre reinforced plastics, graphite

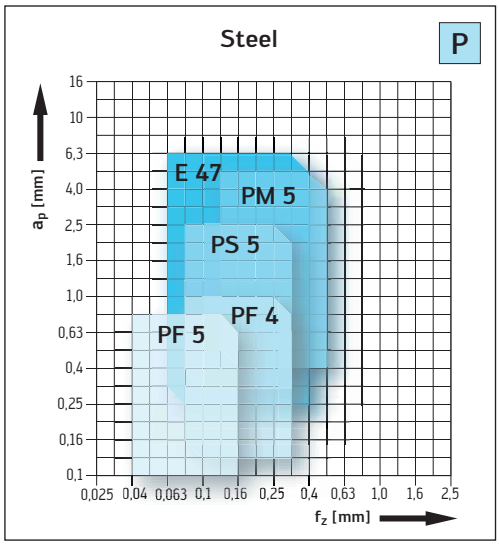
STEP 2

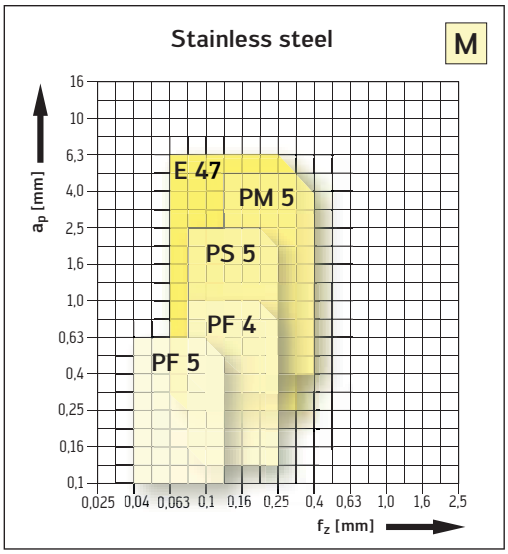
Select the **machining conditions:**

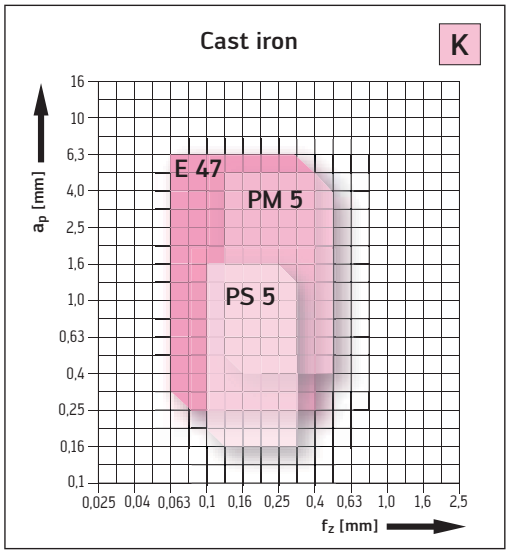
Type of cutting action	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut, premachined surface			
Cast or forged skin Varying cutting depths Slight interrupted cuts			
Medium interrupted cuts			
Heavily interrupted cuts			

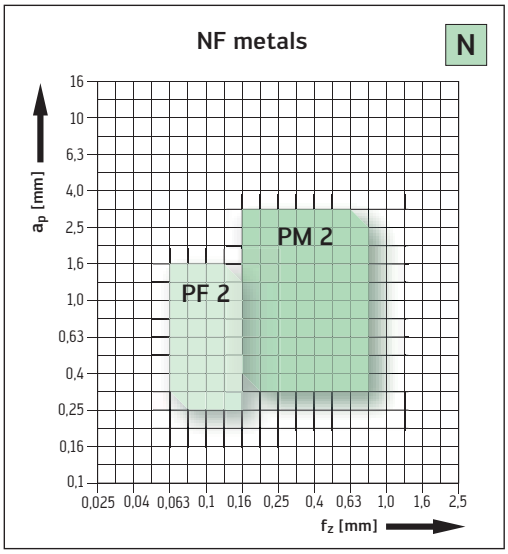
STEP 3

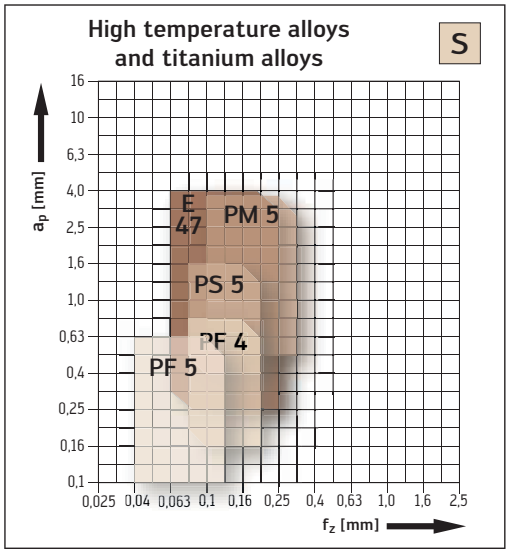
Determine the **insert geometry** via the cutting depth (a_p) and the feed (f_z).









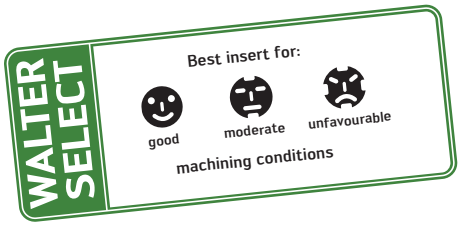


Walter Select for indexable inserts for counterboring

Step by step to the right indexable insert

STEP 4

Determine the **cutting tool material** by means of the indexable insert geometry and the machining conditions:



Code letter	Machining group	Ø accuracy	Walter Indexable insert geometry	Machining conditions		
				☺	😐	☹
P	P1–P15	medium	E 47	WPP 20	WPP 20	WSM 20
			PM 5	WPP 10	WPP 20	WPP30 / WSM 20
			PS 5	WPP 10	WPP 20	WPP 20 / WSM 20
			PF 4	WPP 01	WPP 10 / WPP 20	WPP 20 / WSM 20
		high	PF 5	WPP 20	WPP 20	WPP 30 / WSM 20
			PF 2	WSM 20	WSM 20	WSM 20
M	M1–M3	medium	E 47	WSM 20	WSM 20	WSM 20
			PM 5	WSM 10 / WSM 20	WSM 20	WSM 30
			PS 5	WSM 20	WSM 20	WSM 30
			PF 4	WSM 10 / WSM 20	WSM 20	WSM 30
		high	PF 5	WSM 30	WSM 30	WSM 30
			PF 2	WSM 20	WSM 20	WSM 20
K	K1–K7	medium	PM 5	WAK 10	WAK 20	WAK 30
			E 47	WPP 20	WPP 20	WPP 20
			PS 5	WAK 10	WAK 20	WAK 20
		high	PF 5	WPP 20	WPP 20	WPP 20
N	N1–N10	high	PM 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
			PF 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
S	S1–S10	medium	E 47	WSM 20	WSM 20	—
			PM 5	WSM 20	WSM 20	WSM 30
			PS 5	WSM 20	WSM 20	WSM 30
			PF 4	WSM 20	WSM 20	WSM 30
		high	PF 5	WSM 30	WSM 30	WSM 30
			PF 2	WSM 20	WSM 20	—
O	O1–O6	high	PM 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
			PF 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10

STEP 5

Select the **cutting data** from page C-82 onwards.

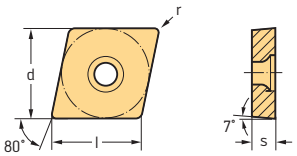
Cutting data for boring

= Cutting data for wet machining
= Dry machining is possible

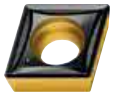
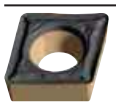
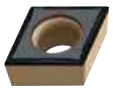
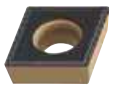
Material group	Structure of main material groups and code letters		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	Insert geometry: Starting values for feed f [mm/U] –E47 D_c [mm] <44	>44-73	>73	–PM5 D_c [mm] <44	>44-73	>73
P	Non-alloyed steel	C ≤ 0.25% annealed	125	428	P1	0,20	0,30	0,40	2,20	0,30	0,40
		C > 0.25 ... ≤ 0.55% annealed	190	639	P2	0,16	0,24	0,40	0,16	0,24	0,40
		C > 0.25 ... ≤ 0.55% tempered	210	708	P3	0,15	0,22	0,35	0,15	0,22	0,35
		C > 0.55% annealed	190	639	P4	0,14	0,20	0,30	0,14	0,20	0,30
		C > 0.55% tempered	300	1013	P5	0,12	0,18	0,25	0,12	0,18	0,25
		machining steel (short-chipping) annealed	220	745	P6	0,15	0,22	0,35	0,15	0,22	0,35
	Low-alloyed steel	annealed	175	591	P7	0,20	0,30	0,40	0,20	0,30	0,40
		tempered	300	1013	P8	0,14	0,20	0,30	0,14	0,20	0,30
		tempered	380	1282	P9	0,12	0,18	0,25	0,12	0,18	0,25
		tempered	430	1477	P10	0,10	0,15	0,20	0,10	0,15	0,20
	High-alloyed steel and high-alloyed tool steel	annealed	200	675	P11	0,14	0,20	0,30	0,14	0,20	0,30
		hardened and tempered	300	1013	P12	0,13	0,18	0,27	0,13	0,18	0,27
		hardened and tempered	400	1361	P13	0,10	0,15	0,20	0,10	0,15	0,20
	Stainless steel	ferritic/martensitic, annealed	200	675	P14	0,12	0,16	0,24	0,12	0,16	0,24
		martensitic, tempered	330	1114	P15	0,12	0,16	0,24	0,12	0,16	0,24
M											

Positive basic shape
CCGT/CCMT

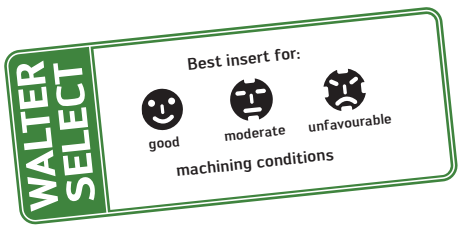
Tiger·tec®



Indexable inserts

	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	CCMT060202-E47	6,35	6,45	2,38	0,2			☹			😐	☹							😐	☹
	CCMT060204-E47	6,35	6,45	2,38	0,4			☹			😐	☹							😐	☹
	CCMT09T302-E47	9,525	9,67	3,97	0,2			☹			😐	☹							😐	☹
	CCMT09T304-E47	9,525	9,67	3,97	0,4			☹			😐	☹							😐	☹
	CCMT09T308-E47	9,525	9,67	3,97	0,8			☹			😐	☹							😐	☹
	CCMT120404-E47	12,7	12,9	4,76	0,4			☹			😐	☹							😐	☹
	CCMT120408-E47	12,7	12,9	4,76	0,8			☹			😐	☹							😐	☹
	CCMT120412-E47	12,7	12,9	4,76	1,2			☹			😐	☹							😐	☹
	CCGT060201-PF2	6,35	6,45	2,38	0,1						😐					☺	☺		😐	
	CCGT060202-PF2	6,35	6,45	2,38	0,2						😐					☺	☺		😐	
	CCGT060204-PF2	6,35	6,45	2,38	0,4						😐					☺	☺		😐	
	CCGT09T301-PF2	9,525	9,67	3,97	0,1						😐					☺	☺		😐	
	CCGT09T302-PF2	9,525	9,67	3,97	0,2						😐					☺	☺		😐	
	CCGT09T304-PF2	9,525	9,67	3,97	0,4					☺	😐					☺	☺	☺	😐	
	CCGT09T308-PF2	9,525	9,67	3,97	0,8					☺	😐					☺	☺	☺	😐	
	CCGT120404-PF2	12,7	12,9	4,76	0,4						😐					☺	☺		😐	
	CCGT120408-PF2	12,7	12,9	4,76	0,8						😐					☺	☺		😐	
	CCMT060202-PF4	6,35	6,45	2,38	0,2	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT060204-PF4	6,35	6,45	2,38	0,4	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT060208-PF4	6,35	6,45	2,38	0,8	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT09T302-PF4	9,525	9,67	3,97	0,2	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT09T304-PF4	9,525	9,67	3,97	0,4	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT09T308-PF4	9,525	9,67	3,97	0,8	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT120404-PF4	12,7	12,9	4,76	0,4	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCMT120408-PF4	12,7	12,9	4,76	0,8	☺	😐	☹		☺	😐	☹						☺	😐	☹
	CCGT060202-PF5	6,35	6,45	2,38	0,2			😐	☹			☹								☹
	CCGT060204-PF5	6,35	6,45	2,38	0,4			😐	☹			☹								☹
	CCGT09T302-PF5	9,525	9,67	3,97	0,2			😐	☹			☹								☹
	CCGT09T304-PF5	9,525	9,67	3,97	0,4			😐	☹			☹								☹
	CCMT060204-PS5	6,35	6,45	2,38	0,4		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT060208-PS5	6,35	6,45	2,38	0,8		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT09T304-PS5	9,525	9,67	3,97	0,4		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT09T308-PS5	9,525	9,67	3,97	0,8		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT120404-PS5	12,7	12,9	4,76	0,4		☺	😐			😐	☹	☺	😐					😐	☹
	CCMT120408-PS5	12,7	12,9	4,76	0,8		☺	😐			😐	☹	☺	😐					😐	☹

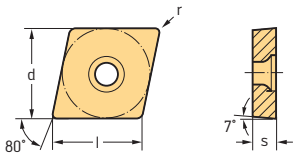
HC = Coated carbide
HW = Uncoated carbide



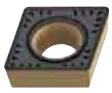
☺ 😐 ☹ New addition to range

Positive basic shape
CCGT/CCMT

Tiger·tec®



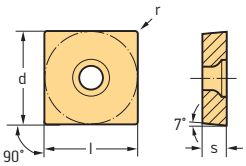
Indexable inserts

	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	K HC WAK30	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	CCGT060201-PM2	6,35	6,45	2,38	0,1											☺	☺			
	CCGT060202-PM2	6,35	6,45	2,38	0,2											☺	☺			
	CCGT060204-PM2	6,35	6,45	2,38	0,4											☺	☺			
	CCGT09T301-PM2	9,525	9,67	3,97	0,1											☺	☺			
	CCGT09T302-PM2	9,525	9,67	3,97	0,2											☺	☺			
	CCGT09T304-PM2	9,525	9,67	3,97	0,4											☺	☺			
	CCGT09T308-PM2	9,525	9,67	3,97	0,8											☺	☺			
	CCGT120402-PM2	12,7	12,9	4,76	0,2											☺	☺			
	CCGT120404-PM2	12,7	12,9	4,76	0,4											☺	☺			
	CCGT120408-PM2	12,7	12,9	4,76	0,8											☺	☺			
	CCMT060204-PM5	6,35	6,45	2,38	0,4		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT060208-PM5	6,35	6,45	2,38	0,8		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT09T304-PM5	9,525	9,67	3,97	0,4		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT09T308-PM5	9,525	9,67	3,97	0,8		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT120404-PM5	12,7	12,9	4,76	0,4		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT120408-PM5	12,7	12,9	4,76	0,8		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹
	CCMT120412-PM5	12,7	12,9	4,76	1,2		☺	😐	☹	☺	😐	☹	☺	😐	☹			☺	😐	☹

HC = Coated carbide
HW = Uncoated carbide

Positive basic shape
SCMT

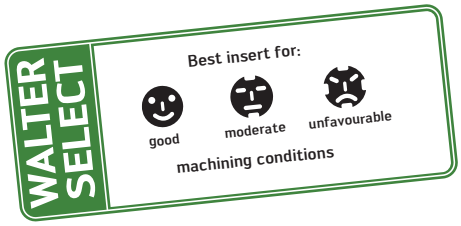
Tiger·tec®



Indexable inserts

	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	SCMT060204-E47	6,35	6,35	2,38	0,4			☹		☺	😐	☹					☺	😐	☹
	SCMT09T304-E47	9,525	9,525	3,97	0,4			☹		☺	😐	☹					☺	😐	☹
	SCMT09T308-E47	9,525	9,525	3,97	0,8			☹		☺	😐	☹					☺	😐	☹
	SCMT120408-E47	12,7	12,7	4,76	0,8			☹		☺	😐	☹					☺	😐	☹

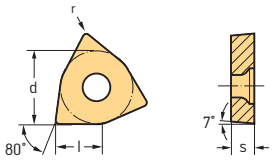
HC = Coated carbide
HW = Uncoated carbide



☺ 😐 ☹ New addition to range

Positive basic shape
WCGT/WCMT

Tiger·tec®



Indexable inserts

	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30
	WCMT030204-E47	5,56	3,5	2,38	0,4			●			●		●						●	●
	WCMT040204-E47	6,35	4,3	2,38	0,4			●			●		●						●	●
	WCMT06T304-E47	9,525	6,5	3,97	0,4			●			●		●						●	●
	WCMT06T308-E47	9,525	6,5	3,97	0,8			●			●		●						●	●
	WCMT080408-E47	12,7	8,7	4,76	0,8			●			●		●						●	●
	WCGT030201-PF2	5,56	3,8	2,38	0,1											●	●			
	WCGT030202-PF2	5,56	3,8	2,38	0,2							●				●	●			
	WCGT030204-PF2	5,56	3,8	2,38	0,4							●				●	●			
	WCGT040201-PF2	6,35	4,3	2,38	0,1											●	●			
	WCGT040202-PF2	6,35	4,3	2,38	0,2							●				●	●			
	WCGT040204-PF2	6,35	4,3	2,38	0,4							●				●	●			
	WCGT06T301-PF2	9,525	6,5	3,97	0,1											●	●			
	WCGT06T302-PF2	9,525	6,5	3,97	0,2											●	●			
	WCGT06T304-PF2	9,525	6,5	3,97	0,4											●	●			
	WCGT06T308-PF2	9,525	6,5	3,97	0,8											●	●			
	WCMT040202-PF4	6,35	4,3	2,38	0,2		●	●			●		●						●	●
	WCMT040204-PF4	6,35	4,3	2,38	0,4		●	●			●		●						●	●
	WCMT040208-PF4	6,35	4,3	2,38	0,8		●	●			●		●						●	●
	WCMT06T302-PF4	9,525	6,5	3,97	0,2		●	●			●		●						●	●
	WCMT06T304-PF4	9,525	6,5	3,97	0,4		●	●			●		●						●	●
	WCMT06T308-PF4	9,525	6,5	3,97	0,8		●	●			●		●						●	●
	WCMT080404-PF4	12,7	8,7	4,76	0,4		●	●			●		●						●	●
	WCMT080408-PF4	12,7	8,7	4,76	0,8		●	●			●		●						●	●
	WCMT040204-PS5	6,35	4,3	2,38	0,4			●						●	●					
	WCMT040208-PS5	6,35	4,3	2,38	0,8			●						●	●					
	WCMT06T304-PS5	9,525	6,5	3,97	0,4			●						●	●					
	WCMT06T308-PS5	9,525	6,5	3,97	0,8			●						●	●					
	WCMT080404-PS5	12,7	8,7	4,76	0,4			●						●	●					
	WCMT080408-PS5	12,7	8,7	4,76	0,8			●						●	●					
	WCGT030202-PM2	5,56	3,8	2,38	0,2											●	●			
	WCGT030204-PM2	5,56	3,8	2,38	0,4											●	●			
	WCGT040202-PM2	6,35	4,3	2,38	0,2											●	●			
	WCGT040204-PM2	6,35	4,3	2,38	0,4											●	●			
	WCGT06T302-PM2	9,525	6,5	3,97	0,2											●	●			
	WCGT06T304-PM2	9,525	6,5	3,97	0,4											●	●			
	WCGT080404-PM2	12,7	8,7	4,76	0,4											●	●			
	WCGT080408-PM2	12,7	8,7	4,76	0,8											●	●			
	WCMT030202-PM5	5,56	3,8	2,38	0,2		●	●	●		●		●		●				●	●
	WCMT040202-PM5	6,35	4,3	2,38	0,2		●	●	●		●		●		●				●	●
	WCMT040204-PM5	6,35	4,3	2,38	0,4		●	●	●		●		●		●				●	●
	WCMT06T304-PM5	9,525	6,5	3,97	0,4		●	●	●		●		●	●	●				●	●
	WCMT06T308-PM5	9,525	6,5	3,97	0,8		●	●	●		●		●	●	●				●	●
	WCMT080404-PM5	12,7	8,7	4,76	0,4		●	●	●		●		●	●	●				●	●
	WCMT080408-PM5	12,7	8,7	4,76	0,8		●	●	●		●		●	●	●				●	●
	WCMT080412-PM5	12,7	8,7	4,76	1,2		●	●	●		●		●	●	●				●	●

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Walter Select for indexable inserts for precision boring

Step by step to the right indexable insert

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	P1–P15	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	M1–M3	**Stainless steel**	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	K1–K7	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	N1–N10	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	S1–S10	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	H1–H4	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	O1–O6	**Other**	Plastics, glass- and carbon fibre reinforced plastics, graphite

STEP 2

Select the **machining conditions:**

Type of cutting action	Machining conditions
Smooth cut level entry or exit surfaces	
Laminate bores Cast and forged inclines < 5°	
Bores with interrupted cuts Cast and forged inclines > 5°	

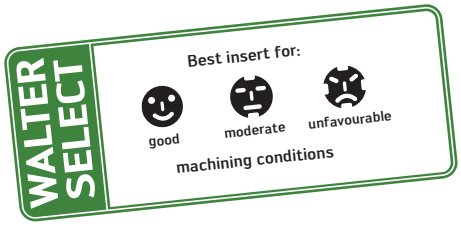
STEP 3

Determine the **indexable insert geometry** via the material and the projection length.

Code letter	Machining group	Projection length		
		< 3 x D_c	< 5 x D_c	< 6 x D_c
P	P1–P15	PF 2 / PF 5 / PF 4	X 5 / X 15	—
M	M1–M3	PF 4 / PF 5	X 5 / X 15	—
K	K1–K7	PF 4 / CCMW / WCMW	X 5 / CCMW / WCMW	X 15
N	N1–N6	PM 2 / PF 2 / WCMW	X 25 / PF 2 / WCMW	X 25 / PF 2
	N7–N10	PM 2 / PF 2	X 15 / X 25	X 25
S	S1–S10	PM 2 / PF 2 / PF 5	X 5 / X 15	—
H	H1–H4	CCMW / WCMW	CCMW / WCMW	—
O	O1–O6	PM 2 / PF 2 / WCMW	X 25 / WCMW	—

STEP 4

Determine the **cutting tool material** by means of the indexable insert geometry and the machining conditions:



Code letter	Machining group	Walter Indexable insert geometry	Machining conditions		
			☺	😐	☹
P	P1–P15	X 5 / X15	WAK 15	WXM 15	WTP 35
		PF 2	WSM 20	WSM 20	WSM 20
		PF 5	WPP 20	WPP 20	WPP 20
		PF 4*	WPP 10	WPP 20	WPP 20
M	M1–M3	X 5 / X15	WTP 35 / WXM 15	WTP 35 / WXM 15	WTP 35 / WXM 15
		PF 2	WSM 20	WSM 20	—
		PF 5	—	WSM 30	WSM 30
K	K1–K7	X 5 / X15	WAK 15	WXM 15	WTP 35
		CCMW / WCMW	WCB 80	WCB 50	—
		PF 4*	WPP 10	WPP 20	WPP 20
N	N1–N6	X 25	WK 1	WK 1	WK 1
		PM 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
		PF 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
		WCMW	WCD 10	WCD 10	—
	N7–N10	X 17 / X 25	WK 1	WK 1	WK 1
		PM 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
		PF 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
S	S1–S10	X5 / X 15	WK 1	WK 1	WK 1
		PM 2	WXN 10	—	—
		PF 2	WSM 20	WSM 20	—
		PF 5	WSM 30	WSM 30	WSM 30
H	H1–H4	CCMW	WCB 30	WCB 50	WCB 50
		WCMW	WCB 50	WCB 50	WCB 50
O	O1–O6	X 25	WK 1	WK 1	WK 1
		PM 2	WK 1	WK 1	WK 1
		PF 2	WK 1	WK 1	WK 1
		WCMW	WCD 10	WCD 10	—

*Insert fully sintered

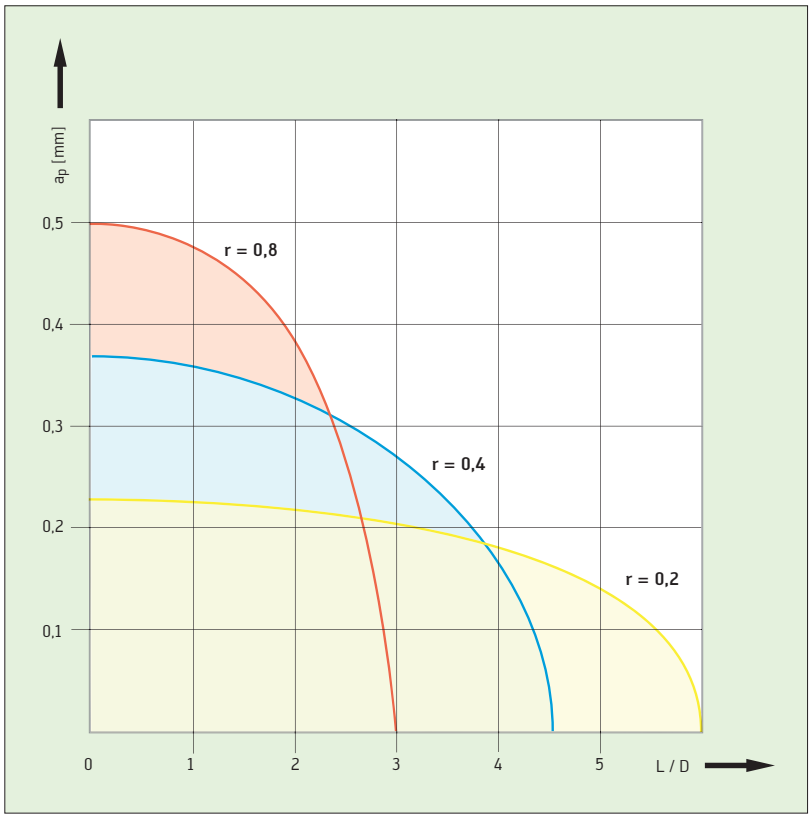
Walter Select for indexable inserts for precision boring

Step by step to the right indexable insert

STEP 5

Now select the **corner radius r and the cutting depth a_p** by means of the adjacent graphs.

Choose the maximum possible corner radius with reference to the relevant length-to-diameter ratio (L/D).
The optimal cutting depths ap are around 2/3 of the specified maximum a_p values.



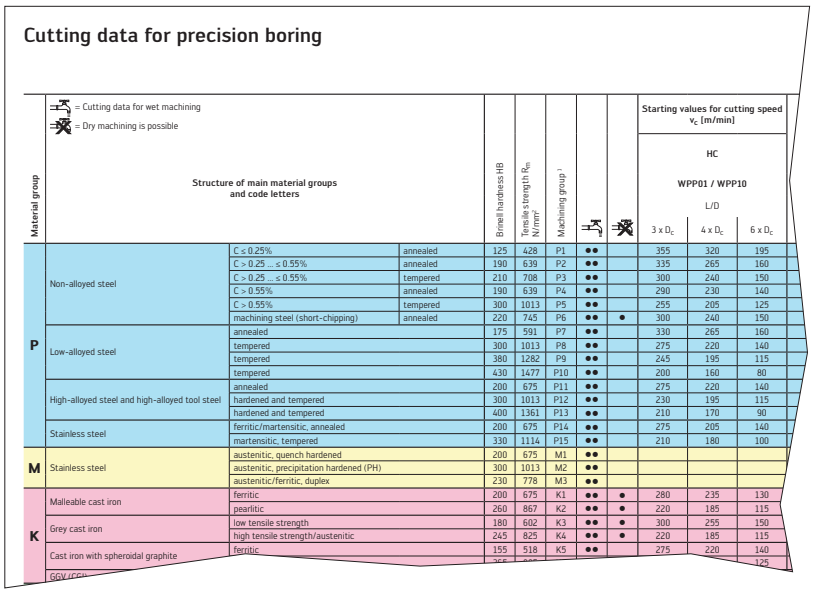
STEP 6

Now select the maximum feed rate depending on the specified surface quality of the workpiece and the corner radius of the insert selected in step 5.

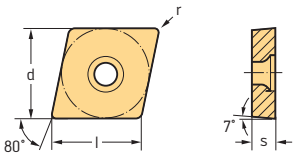
Corner radius Indexable insert r [mm]	Roughness [µm] max. feed rate f [mm/rev]									
	0,03		0,06		0,09		0,12		0,15	
	R_{max}	R_a	R_{max}	R_a	R_{max}	R_a	R_{max}	R_a	R_{max}	R_a
0,2	0,56	0,14	2,26	0,58	5,13	1,32	9,21	3,38	14,60	3,79
0,4	0,28	0,07	1,13	0,29	2,54	0,65	4,53	1,16	7,09	1,83

STEP 7

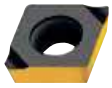
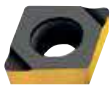
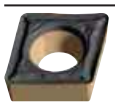
Select the **cutting data** from page C-86 onwards.



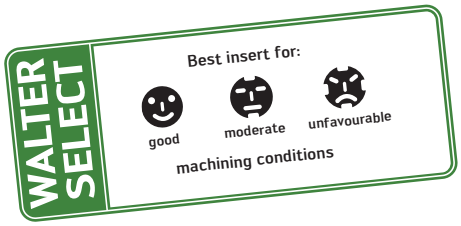
Positive basic shape
CCGT/CCMT/CCMW



Indexable inserts

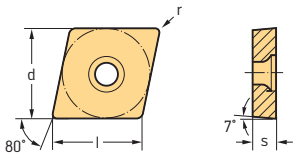
	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	P HC WTP35	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK15	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30	H BL WCB30	H BH WCB50	HC WXM15
	CCGT060202-X5	6,35	6,45	2,38	0,2					☺					☺									
	CCGT060204-X5	6,35	6,45	2,38	0,4					☺					☺									
	CCGT060202-X15	6,35	6,45	2,38	0,2					☺					☺									
	CCGT060204-X15	6,35	6,45	2,38	0,4					☺					☺									
	CCGT060201-PF2	6,35	6,45	2,38	0,1						☺						☺	☺		☺				
	CCGT060202-PF2	6,35	6,45	2,38	0,2						☺						☺	☺		☺				
	CCGT060204-PF2	6,35	6,45	2,38	0,4						☺						☺	☺		☺				
	CCGT09T301-PF2	9,525	9,67	3,97	0,1						☺						☺	☺		☺				
	CCGT09T302-PF2	9,525	9,67	3,97	0,2						☺						☺	☺		☺				
	CCGT09T304-PF2	9,525	9,67	3,97	0,4						☺	☺					☺	☺	☺	☺				
	CCGT09T308-PF2	9,525	9,67	3,97	0,8						☺	☺					☺	☺	☺	☺				
	CCGT120404-PF2	12,7	12,9	4,76	0,4							☺					☺	☺		☺				
	CCGT120408-PF2	12,7	12,9	4,76	0,8							☺					☺	☺		☺				
	CCGT060202-PF5	6,35	6,45	2,38	0,2			☺	☺				☺								☺			
	CCGT060204-PF5	6,35	6,45	2,38	0,4			☺	☺				☺								☺			
	CCGT09T302-PF5	9,525	9,67	3,97	0,2			☺	☺				☺								☺			
	CCGT09T304-PF5	9,525	9,67	3,97	0,4			☺	☺				☺								☺			
	CCMT060202-PF4	6,35	6,45	2,38	0,2	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCMT060204-PF4	6,35	6,45	2,38	0,4	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCMT060208-PF4	6,35	6,45	2,38	0,8	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCMT09T302-PF4	9,525	9,67	3,97	0,2	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCMT09T304-PF4	9,525	9,67	3,97	0,4	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCMT09T308-PF4	9,525	9,67	3,97	0,8	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCMT120404-PF4	12,7	12,9	4,76	0,4	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCMT120408-PF4	12,7	12,9	4,76	0,8	☺	☺	☺			☺	☺	☺						☺	☺	☺			
	CCGT060201-PM2	6,35	6,45	2,38	0,1												☺	☺						
	CCGT060202-PM2	6,35	6,45	2,38	0,2												☺	☺						
	CCGT060204-PM2	6,35	6,45	2,38	0,4												☺	☺						
	CCGT09T301-PM2	9,525	9,67	3,97	0,1												☺	☺						
	CCGT09T302-PM2	9,525	9,67	3,97	0,2												☺	☺						
	CCGT09T304-PM2	9,525	9,67	3,97	0,4												☺	☺						
	CCGT09T308-PM2	9,525	9,67	3,97	0,8												☺	☺						
	CCGT120402-PM2	12,7	12,9	4,76	0,2												☺	☺						
	CCGT120404-PM2	12,7	12,9	4,76	0,4												☺	☺						
	CCGT120408-PM2	12,7	12,9	4,76	0,8												☺	☺						

HC = Coated carbide
HW = Uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content



☺ ☺ ☺ New addition to range

Positive basic shape
CCGT/CCMT/CCMW



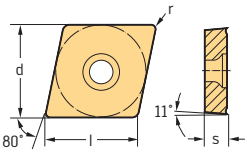
Indexable inserts

	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	P HC WTP35	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK15	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30	H BL WCB30	H BH WCB50	HC WXM15
	CCMT060204-PF	6,35	6,45	2,38	0,4	☺	😐	☹				😐	☹							😐	☹			
	CCMT060208-PF	6,35	6,45	2,38	0,8	☺	😐	☹				😐	☹							😐	☹			
	CCMT09T304-PF	9,525	9,67	3,97	0,4	☺	😐	☹				😐	☹							😐	☹			
Wiper	CCMT09T308-PF	9,525	9,67	3,97	0,8	☺	😐	☹				😐	☹							😐	☹			
	CCMW060204	6,35	6,45	2,38	0,4																	☺	😐	
	CCMW060208	6,35	6,45	2,38	0,8																	☺	😐	
	CCMW09T304	9,525	9,67	3,97	0,4																	☺	😐	
	CCMW09T308	9,525	9,67	3,97	0,8																	☺	😐	
	CCMW060204-2	6,35	6,45	2,38	0,4																	☺	😐	
	CCMW060208-2	6,35	6,45	2,38	0,8																	☺	😐	
	CCMW09T304-2	9,525	9,67	3,97	0,4																	☺	😐	
	CCMW09T308-2	9,525	9,67	3,97	0,8																	☺	😐	

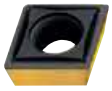
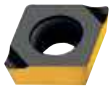
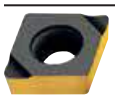
HC = Coated carbide
HW = Uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

Positive basic shape
CPGT

Tiger·tec®



Indexable inserts

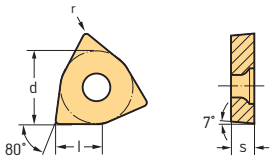
	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	P HC WTP35	M HC WSM10	M HC WSM20	M HC WSM30	K HC WAK10	K HC WAK15	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30	HC WXM15
	CPGT050202-PF5	5,56	5,65	2,38	0,2									☺								
	CPGT050202-X5	5,56	5,65	2,38	0,2					😐					☺							
	CPGT050204-X5	5,56	5,65	2,38	0,4					😐					☺							
	CPGT050202-X15	5,56	5,65	2,38	0,2					😐					☺							
	CPGT050204-X15	5,56	5,65	2,38	0,4					😐					☺			☺				

HC = Coated carbide
HW = Uncoated carbide

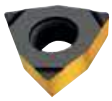
☺😐☹ New addition to range

Positive basic shape
WCMT/WCGT/WCMW

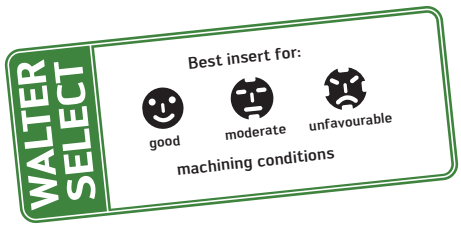
Tiger·tec®



Indexable inserts

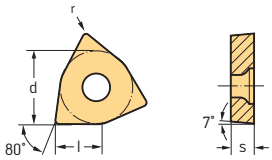
	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	P HC WTP35	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK15	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30	H BH WCB50	HC WXM15
	WCGT020102-X5	3,97	2,7	1,59	0,2					☺						☺			☺					
	WCGT020104-X5	3,97	2,7	1,59	0,4					☺						☺								
	WCGT030202-X5	5,56	3,8	2,38	0,2					☺						☺								
	WCGT030204-X5	5,56	3,8	2,38	0,4					☺						☺								
	WCGT040202-X5	6,35	4,3	2,38	0,2					☺						☺			☺					
	WCGT040204-X5	6,35	4,3	2,38	0,4					☺						☺								
	WCGT050304-X5	7,94	5,43	3,18	0,4					☺						☺			☺					
	WCGT020102-X15	3,97	2,7	1,59	0,2					☺						☺			☺					
	WCGT020104-X15	3,97	2,7	1,59	0,4					☺						☺								
	WCGT030202-X15	5,56	3,8	2,38	0,2					☺						☺			☺					
	WCGT030204-X15	5,56	3,8	2,38	0,4					☺						☺								
	WCGT040202-X15	6,35	4,3	2,38	0,2					☺						☺								
	WCGT040204-X15	6,35	4,3	2,38	0,4					☺						☺								
	WCGT050304-X15	7,94	5,43	3,18	0,4					☺						☺								
	WCGT020102-X25	3,97	2,7	1,59	0,2														☺					
	WCGT030202-X25	5,56	3,8	2,38	0,2														☺					
	WCGT030204-X25	5,56	3,8	2,38	0,4														☺					
	WCGT040204-X25	6,35	4,3	2,38	0,4														☺					
	WCGT050304-X25	7,94	5,43	3,18	0,4														☺					
	WCGT030201-PF2	5,56	3,8	2,38	0,1													☺	☺					
	WCGT030202-PF2	5,56	3,8	2,38	0,2								☹					☺	☺					
	WCGT030204-PF2	5,56	3,8	2,38	0,4								☹					☺	☺					
	WCGT040201-PF2	6,35	4,3	2,38	0,1													☺	☺					
	WCGT040202-PF2	6,35	4,3	2,38	0,2								☹					☺	☺					
	WCGT040204-PF2	6,35	4,3	2,38	0,4								☹					☺	☺					
	WCGT06T301-PF2	9,525	6,5	3,97	0,1													☺	☺					
	WCGT06T302-PF2	9,525	6,5	3,97	0,2													☺	☺					
	WCGT06T304-PF2	9,525	6,5	3,97	0,4													☺	☺					
	WCGT06T308-PF2	9,525	6,5	3,97	0,8													☺	☺					

HC = Coated carbide
HW = Uncoated carbide
BH = CBN with high CBN content



Positive basic shape
WCMT/WCGT/WCMW

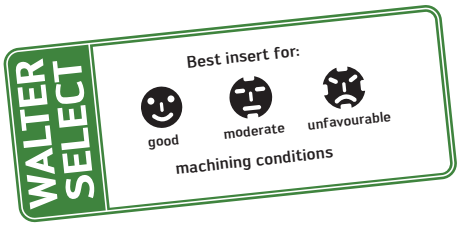
Tiger·tec®



Indexable inserts

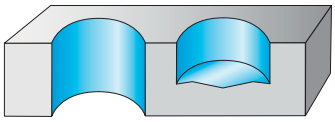
	Designation	d mm	l mm	s mm	r mm	P HC WPP01	P HC WPP10	P HC WPP20	P HC WPP30	P HC WTP35	M HC WSM10	M HC WSM20	M HC WSM21	M HC WSM30	K HC WAK10	K HC WAK15	K HC WAK20	N HC WXN10	N HW WK1	S HC WSM10	S HC WSM20	S HC WSM30	H BH WCB50	H HC WXM15
	WCMT040202-PF4	6,35	4,3	2,38	0,2		☺	☹				☺		☹							☺	☹		
	WCMT040204-PF4	6,35	4,3	2,38	0,4		☺	☹				☺		☹							☺	☹		
	WCMT040208-PF4	6,35	4,3	2,38	0,8		☺	☹				☺		☹							☺	☹		
	WCMT06T302-PF4	9,525	6,5	3,97	0,2		☺	☹				☺		☹							☺	☹		
	WCMT06T304-PF4	9,525	6,5	3,97	0,4		☺	☹				☺		☹							☺	☹		
	WCMT06T308-PF4	9,525	6,5	3,97	0,8		☺	☹				☺		☹							☺	☹		
	WCMT080404-PF4	12,7	8,7	4,76	0,4		☺	☹				☺		☹							☺	☹		
	WCMT080408-PF4	12,7	8,7	4,76	0,8		☺	☹				☺		☹							☺	☹		
	WCGT030202-PM2	5,56	3,8	2,38	0,2													☺	☺					
	WCGT030204-PM2	5,56	3,8	2,38	0,4													☺	☺					
	WCGT040202-PM2	6,35	4,3	2,38	0,2													☺	☺					
	WCGT040204-PM2	6,35	4,3	2,38	0,4													☺	☺					
	WCGT06T302-PM2	9,525	6,5	3,97	0,2													☺	☺					
	WCGT06T304-PM2	9,525	6,5	3,97	0,4													☺	☺					
	WCGT080404-PM2	12,7	8,7	4,76	0,4													☺	☺					
	WCGT080408-PM2	12,7	8,7	4,76	0,8													☺	☺					
	WCMW020102	3,97	2,7	1,59	0,2																		☺	
	WCMW020104	3,97	2,7	1,59	0,4																		☺	
	WCMW030202	5,56	3,8	2,38	0,2																		☺	
	WCMW030204	5,56	3,8	2,38	0,4																		☺	
	WCMW040202	6,35	4,3	2,38	0,2																		☺	
	WCMW040204	6,35	4,3	2,38	0,4																		☺	
	WCMW050304	7,94	5,43	3,18	0,4																		☺	

HC = Coated carbide
HW = Uncoated carbide
BH = CBN with high CBN content

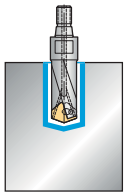
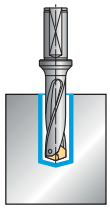
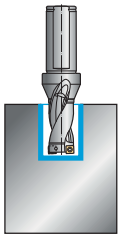
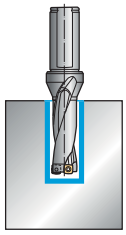
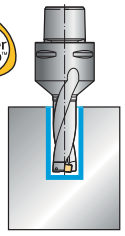
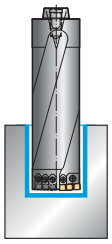
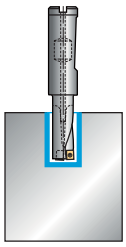
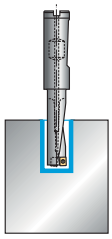


Product range overview of drilling and boring tools with indexable inserts

Drilling

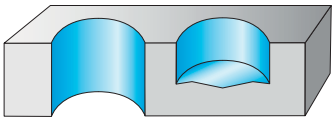


For Walter Select, see page C-34

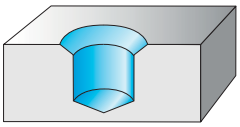
L_c = 1,3 x D_c	L_c = 2 x D_c	L_c = 3 x D_c			
B 4011 *Page C 50** Dc = 12–25,99 mm Xtra·tec® 		**B 4013** *Page C 62** Dc = 12–37,99 mm Xtra·tec® 			
	B 4212 *Page C 52** D_c = 13,5–59 mm Xtra·tec® 	**B 4213** *Page C 64** D_c = 13,5–59 mm Xtra·tec® 	**B 4213.C** **Page C-38** NEW D_c = 16–45 mm Xtra·tec® Walter Capto™ 	**B 4213.N** *Page C 68** D_c = 65–80 mm Xtra·tec® 	
	B 3212 *Page C 56** D_c = 10–18 mm 	**B 3213** *Page C 70** D_c = 10–18 mm 			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

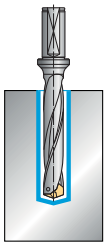
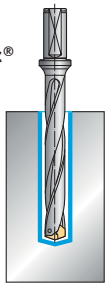
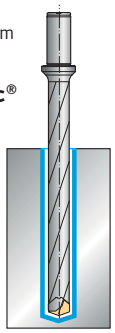
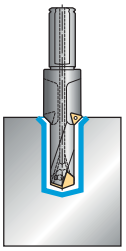
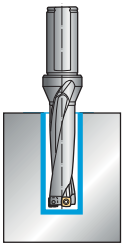
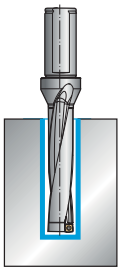
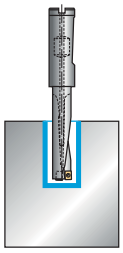
Drilling



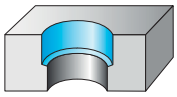
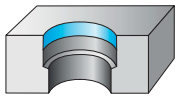
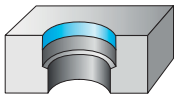
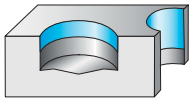
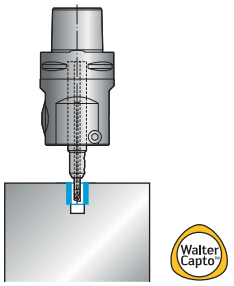
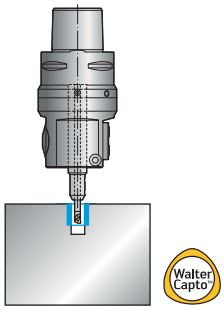
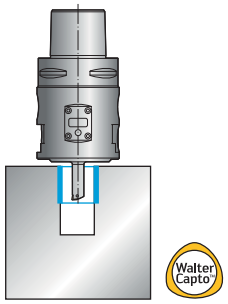
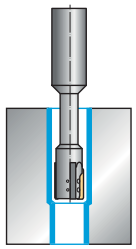
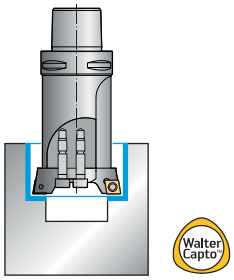
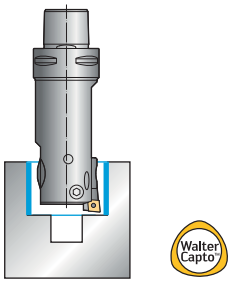
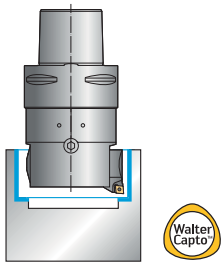
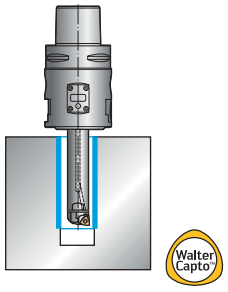
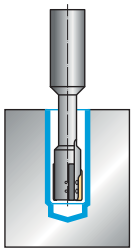
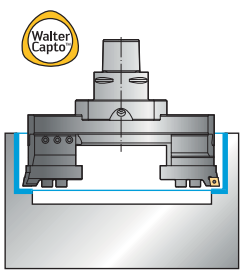
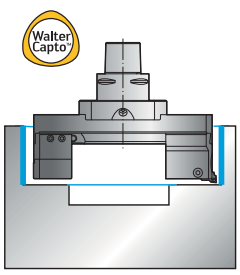
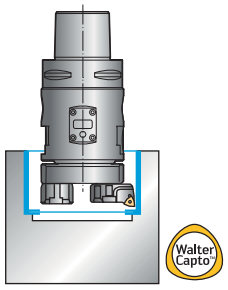
For Walter Select, see page C-34



For Walter Select see page C-34

	L_c = 4 x D_c	L_c = 5 x D_c	L_c = 7 x D_c	L_c = 10 x D_c	L_c = 2 x D_c
		B 4015 *Page C 80** D_c = 12–37,99 mm **Xtra·tec®** 	**B 4017** **Page C-40** NEW D_c = 12–37,99 mm **Xtra·tec®** 	**B 4010** *Page C 88** D_c = 18–24,99 mm **Xtra·tec®** 	**B 4012C** *Page C 60** D_c = 12–29,99 mm **Xtra·tec®** 
	B 4214 *Page C 74** D_c = 17–59 mm **Xtra·tec®** 	**B 4215** *Page C 82** D_c = 17–59 mm **Xtra·tec®** 			
	B 3214 *Page C 78** D_c = 10–18 mm 				

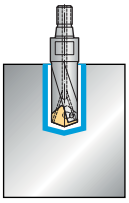
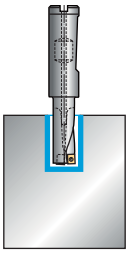
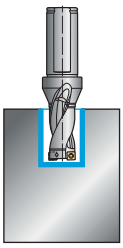
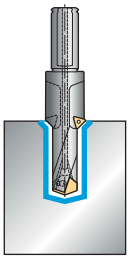
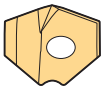
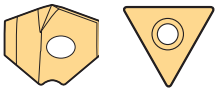
Product range overview of counterboring tools, precision boring tools and reaming tools

Counterboring	Precision boring, analogue		Precision boring, digital	Reaming
				
Walter Boring twin lip boring tools For Walter Select, see page C-42	**Walter Precision boring tools** Walter Select See page C-42		**Walter Precision^{DIGITAL} precision boring tools** For Walter Select, see page C-43	**Walter reaming tools** For Walter Select, see page C 43
	Walter Precision^{MINI} **B 3230** Page C-52 NEW D_C = 2–45 mm 	Walter Precision^{MINI} **B 4030** Page C-52 NEW D_C = 5,8–45,5 mm 	Walter Precision^{DIGITAL} **B 4035** Page C-52 NEW D_C = 3–20 mm 	**R 4060** *Page C 122** D_C = 6–25 mm 
Walter Boring^{MEDIUM} **B 3220 / B 3221** Page C-44 NEW D_C = 20–153 mm 	Walter Precision^{MEDIUM} **B 3230** Page C-62 NEW D_C = 15–203 mm 	Walter Precision^{MEDIUM} **B 4030** Page C-64 NEW D_C = 33–153 mm 	Walter Precision^{DIGITAL} **B 4035** Page C-74 NEW D_C = 20–68 mm 	**R 4061** *Page C 124** D_C = 8–25 mm 
Walter Boring^{MAXI} **B 3220** Page C-48 **B 3224** Page C-50 D_C = 150–640 mm NEW 	Walter Precision^{MAXI} **B 3230** Page C-66 **B 3234** Page C-68 D_C = 150–640 mm NEW 		Walter Precision^{DIGITAL} **B 4035** Page C-74 NEW D_C = 68–124 mm 	

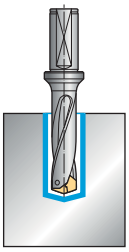
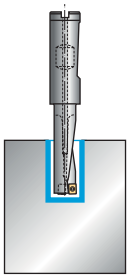
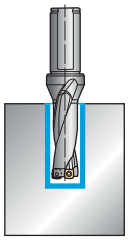
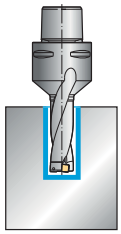
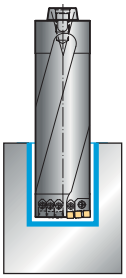
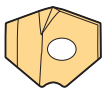
** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Drilling

Tool type

L_c ca.	1,3 x D_c	2 x D_c		2,5 x D_c	
	B 4011 (R)	B 3212 (R)	B 4212 (R)	B 4012C (R)	
Drills (R) = right handed	 Xtra·tec®		 Xtra·tec®	 Xtra·tec®	
Ø range [mm]	12–25,99	10–18	13,5–59	12–29,99	
Page	*C 50**	*C 56**	*C 52**	*C 60**	
P Steel	●●	●●	●●	●●	
M Stainless steel	●●	●●	●●	●●	
K Cast iron	●●	●●	●●	●●	
N NF metals	●●	●	●	●●	
S Difficult-to-machine materials	●●	●●	●●	●●	
H Hard materials					
O Other					
Basic insert shape					
Insert types	P 600 . .	LCMX . .	P 484 . .	P 600 . . TC . .	
Drilling depth [mm]	≤ 1,3 x D_c	≤ 2 x D_c	≤ 2 x D_c	≤ 2,5 x D_c	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	3 x D_c				
	B 4013 (R)	B 3213 (R)	B 4213 (R)	B 4213.C	B 4213.N
				NEW 	
	Xtra·tec®		Xtra·tec®	Xtra·tec®	Xtra·tec®
	12–37,99	10–18	13,5–59	16–45	65–80
	*C 62**	*C 70**	*C 64**	**C-38**	*C 68**
	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●
	●●	●●	●●	●●	●●
	●●	●	●	●	●
	●●	●●	●●	●●	●
					
	P 600 . .	LCMX . .	P 484 . .	P 484 . .	P 484 . .
	≤ 3 x D_c	≤ 3 x D_c	≤ 3 x D_c	≤ 3 x D_c	≤ 3 x D_c

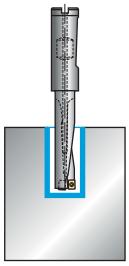
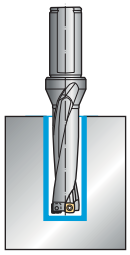
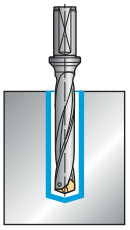
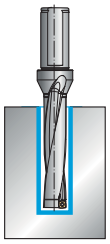
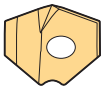
WALTER SELECT

●● Primary application

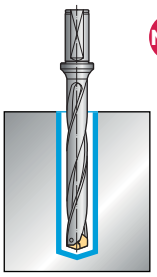
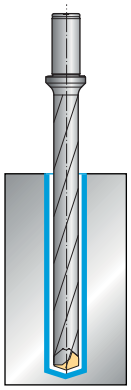
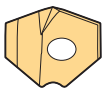
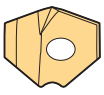
● Other application

Walter Select – Drilling

Tool type

L_c ca.	4 x D_c		5 x D_c		
	B 3214 (R)	**B 4214 (R)**	**B 4015 (R)**	**B 4215 (R)**	
Drills (R) = right handed			 **Xtra·tec®**	 **Xtra·tec®**	
Ø range [mm]	10–18	17–59	12–37,99	17–59	
Page	*C 78**	*C 74**	*C 80**	*C 82**	
P Steel		●●	●●	●●	
M Stainless steel		●	●●		
K Cast iron	●●	●●	●●	●●	
N NF metals	●	●	●●	●	
S Difficult-to-machine materials		●	●●		
H Hard materials					
O Other					
Basic insert shape					
Insert types	LCMX . .	P 484 . .	P 600 . .	P 484 . .	
Drilling depth [mm]	≤ 4 x D_c	≤ 4 x D_c	≤ 5 x D_c	≤ 5 x D_c	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	7 x D_c	10 x D_c
	B 4017 (R)	B 4010 (R)
	 NEW Xtra·tec®	 Xtra·tec®
	12–37,99	18–24,99
	C-40	*C 88**
	●●	●●
	●●	●●
	●●	●●
	●	●
	●	●
		
	P 600 . .	P 600 . .
	≤ 7 x D_c	≤ 10 x D_c

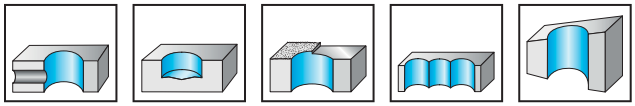
WALTER SELECT

●● Primary application

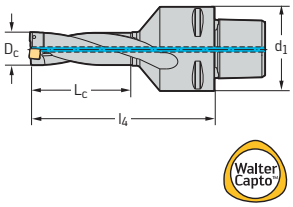
● Other application

Drill
B 4213.C

Xtra·tec® Insert Drill



- Diameter range 16-45 mm
- Right-hand cutting
- Drilling depth 3 x D_c

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	kg	No. of indexable inserts	Type
	★ B4213.C4.16.Z1.048R-1	16	C4	88	48	0,37	1 1	P484.P-1R P484.C-1R
	★ B4213.C4.20.Z1.060R-2	20	C4	100	60	0,43	1 1	P484.P-2R P484.C-2R
	★ B4213.C4.25.Z1.075R-4	25	C4	115	75	0,5	1 1	P484.P-4R P484.C-4R
	★ B4213.C4.32.Z1.096R-5	32	C4	140	96	0,7	1 1	P484.P-5R P484.C-5R
	★ B4213.C5.16.Z1.048R-1	16	C5	92	48	0,7	1 1	P484.P-1R P484.C-1R
	★ B4213.C5.20.Z1.060R-2	20	C5	105	60	0,7	1 1	P484.P-2R P484.C-2R
	★ B4213.C5.25.Z1.075R-4	25	C5	120	75	0,8	1 1	P484.P-4R P484.C-4R
	★ B4213.C5.32.Z1.096R-5	32	C5	140	96	0,9	1 1	P484.P-5R P484.C-5R
	★ B4213.C5.40.Z1.120R-6	40	C5	165	120	1,3	1 1	P484.P-6R P484.C-6R
	★ B4213.C6.25.Z1.075R-4	25	C6	125	75	1,3	1 1	P484.P-4R P484.C-4R
	★ B4213.C6.32.Z1.096R-5	32	C6	145	96	1,4	1 1	P484.P-5R P484.C-5R
	★ B4213.C6.40.Z1.120R-6	40	C6	170	120	1,7	1 1	P484.P-6R P484.C-6R
	★ B4213.C6.45.Z1.135R-7	45	C6	185	135	2	1 1	P484.P-7R P484.C-7R

For possible X adjustment for drilling into solid material, see page C 176 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.
Important: Where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

★ New addition to range

Assembly parts

D_c mm		16	20	25	32	40	45
	Clamping screw for insert	FS2120 (Torx 6IP)	FS2111 (Torx 7IP)	FS1457 (Torx 9IP)	FS2080 (Torx 15IP)	FS1453 (Torx 15IP)	FS1495 (Torx 20IP)
	Tightening torque	0,4 Nm	0,9 Nm	2,0 Nm	2,5 Nm	3,5 Nm	5,0 Nm

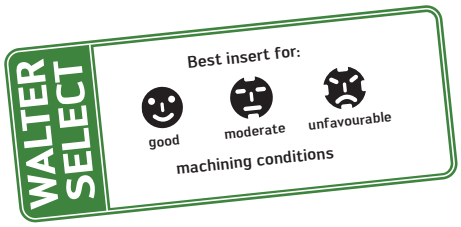
Accessories

D_c mm		16	20	25	32-40	45
	Torque screwdriver	FS2001	FS2001	FS2003	FS2003	FS2003
	Interchangeable blade	FS2085 (Torx 6IP)	FS2011 (Torx 7IP)	FS2013 (Torx 9IP)	FS2014 (Torx 15IP)	FS2015 (Torx 20IP)

Indexable inserts

		Size	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSP45	K HC WKP25S	K HC WKP35S	S HC WSP45	HC WXP40
Outer insert	P4840P– . R–A57	1–7	☺	😐	☹	☹	😐	☹	☹	
	P4840P– . R–E57	1–7	☺	😐	☹	☹	😐	☹	☹	
	P4840P– . R–E67	1–7	☺	😐	☹	☹	😐	☹	☹	
	P4841P– . R–A57	1–7	😐	☹	☹	☹	😐	☹	☹	
	P4841P– . R–E57	1–7	☺	😐	☹	☹	😐	☹	☹	
Centre insert	P4841C– . R–A57	1–7		☹				☹		☹
	P4841C– . R–E57	1–7		😐				☹		☹
	P4840C– . R–E67	1–7		😐				☹		☹

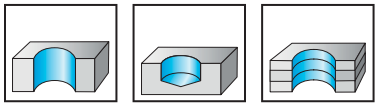
HC = Coated carbide



C-12 G-2 C-18

Drill
B 4017

Xtra·tec® Point Drill



- Diameter range 12-37.99 mm
- Right-hand cutting
- Drilling depth 7 x D_c

Tool	Designation	D_c mm	d_1 mm	d_4 mm	l_4 mm	l_5 mm	L_c mm	Z	kg	No. of index-able inserts	Type
Parallel shank with flat in acc. with ISO 9767	B4017.F20.12,0.Z02.84R	12	20	30	116	50	86	2	0,23	1	P 600 . - D12 . . R
	B4017.F20.13,0.Z02.91R	13	20	30	124	50	93	2	0,25	1	P 600 . - D13 . . R
	B4017.F20.14,0.Z02.98R	14	20	30	132	50	101	2	0,27	1	P 600 . - D14 . . R
	B4017.F20.15,0.Z02.105R	15	20	30	140	50	108	2	0,29	1	P 600 . - D15 . . R
	B4017.F20.16,0.Z02.112R	16	20	30	148	50	115	2	0,31	1	P 600 . - D16 . . R
	B4017.F20.17,0.Z02.119R	17	20	30	156	50	122	2	0,35	1	P 600 . - D17 . . R
	B4017.F20.18,0.Z02.126R	18	20	30	164	50	126	2	0,34	1	P 600 . - D18 . . R
	B4017.F20.19,0.Z02.133R	19	20	30	172	50	136	2	0,37	1	P 600 . - D19 . . R
	B4017.F20.20,0.Z02.140R	20	20	30	180	50	144	2	0,41	1	P 600 . - D20 . . R
	B4017.F20.21,0.Z02.147R	21	20	30	188	50	151	2	0,45	1	P 600 . - D21 . . R
	B4017.F25.22,0.Z02.154R	22	25	35	197	56	158	2	0,6	1	P 600 . - D22 . . R
	B4017.F25.23,0.Z02.161R	23	25	35	205	56	165	2	0,7	1	P 600 . - D23 . . R
	B4017.F25.24,0.Z02.168R	24	25	35	213	56	172	2	0,7	1	P 600 . - D24 . . R
	B4017.F25.25,0.Z02.175R	25	25	35	221	56	180	2	0,8	1	P 600 . - D25 . . R
	B4017.F25.26,0.Z02.182R	26	25	35	229	56	187	2	0,8	1	P 600 . - D26 . . R
	B4017.F25.27,0.Z02.189R	27	25	35	237	56	194	2	0,9	1	P 600 . - D27 . . R
	B4017.F32.28,0.Z02.196R	28	32	42	246	60	201	2	1,2	1	P 600 . - D28 . . R
	B4017.F32.29,0.Z02.203R	29	32	42	254	60	208	2	1,2	1	P 600 . - D29 . . R
	B4017.F32.30,0.Z02.210R	30	32	42	262	60	215	2	1,2	1	P 600 . - D30 . . R
	B4017.F32.31,0.Z02.217R	31	32	42	270	60	223	2	1,4	1	P 600 . - D31 . . R
	★ B4017.F40.32,0.Z02.224R	32	40	50	278	70	230	2	1,7	1	P 600 . - D32 . . R
	★ B4017.F40.33,0.Z02.231R	33	40	50	286	70	237	2	1,8	1	P 600 . - D33 . . R
	★ B4017.F40.34,0.Z02.238R	34	40	50	294	70	244	2	1,9	1	P 600 . - D34 . . R
	★ B4017.F40.35,0.Z02.245R	35	40	50	302	70	251	2	2,1	1	P 600 . - D35 . . R
	★ B4017.F40.36,0.Z02.252R	36	40	50	310	70	259	2	2,1	1	P 600 . - D36 . . R
	★ B4017.F40.37,0.Z02.259R	37	40	50	318	70	259	2	2,3	1	P 600 . - D37 . . R
Parallel shank with collar	B4017.ZB20.12,0.Z02.84R	12	20	30	116	50	84	2	0,24	1	P 600 . - D12 . . R
	B4017.ZB20.13,0.Z02.91R	13	20	30	124	50	91	2	0,26	1	P 600 . - D13 . . R
	B4017.ZB20.14,0.Z02.98R	14	20	30	132	50	98	2	0,27	1	P 600 . - D14 . . R
	B4017.ZB20.15,0.Z02.105R	15	20	30	140	50	105	2	0,31	1	P 600 . - D15 . . R
	B4017.ZB20.16,0.Z02.112R	16	20	30	148	50	112	2	0,31	1	P 600 . - D16 . . R
	B4017.ZB20.17,0.Z02.119R	17	20	30	156	50	119	2	0,34	1	P 600 . - D17 . . R
	B4017.ZB20.18,0.Z02.126R	18	20	30	164	50	126	2	0,34	1	P 600 . - D18 . . R
	B4017.ZB20.19,0.Z02.133R	19	20	30	172	50	136	2	0,37	1	P 600 . - D19 . . R
	B4017.ZB20.20,0.Z02.140R	20	20	30	180	50	144	2	0,41	1	P 600 . - D20 . . R
	B4017.ZB20.21,0.Z02.147R	21	20	30	188	50	151	2	0,45	1	P 600 . - D21 . . R
	B4017.ZB25.22,0.Z02.154R	22	25	35	197	56	158	2	0,6	1	P 600 . - D22 . . R
	B4017.ZB25.23,0.Z02.161R	23	25	35	205	56	165	2	0,7	1	P 600 . - D23 . . R
	B4017.ZB25.24,0.Z02.168R	24	25	35	213	56	172	2	0,7	1	P 600 . - D24 . . R
	B4017.ZB25.25,0.Z02.175R	25	25	35	221	56	180	2	0,8	1	P 600 . - D25 . . R
	B4017.ZB25.26,0.Z02.182R	26	25	35	229	56	187	2	0,8	1	P 600 . - D26 . . R
	B4017.ZB25.27,0.Z02.189R	27	25	35	237	56	194	2	0,9	1	P 600 . - D27 . . R
	B4017.ZB32.28,0.Z02.196R	28	32	42	246	60	201	2	1,2	1	P 600 . - D28 . . R
	B4017.ZB32.29,0.Z02.203R	29	32	42	254	60	208	2	1,3	1	P 600 . - D29 . . R
	B4017.ZB32.30,0.Z02.210R	30	32	42	262	60	215	2	1,3	1	P 600 . - D30 . . R
	B4017.ZB32.31,0.Z02.217R	31	32	42	270	60	223	2	1,4	1	P 600 . - D31 . . R

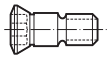
When using this drill, a centre hole produced by a B 4013 or NC centring drill is recommended.

Bodies and assembly parts are included in the scope of delivery.

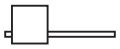
* Example: Inserts with D_c = 12.00 mm up to and incl. 12.99 mm can fitted into this tool.

★ New addition to range

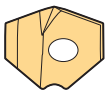
Assembly parts

	D_c mm	12-13	14-15	16-17	18-19	20-21	22-23	24-25	26-27	28-33	34-37
	Clamping screw for insert	FS1396 (Torx 7IP)	FS1397 (Torx 8IP)	FS1398 (Torx 8IP)	FS1399 (Torx 15IP)	FS1400 (Torx 20IP)	FS1401 (Torx 20IP)	FS1402 (Torx 20IP)	FS1403 (Torx 25IP)	FS1404 (Torx 25IP)	FS2159 (Torx 25IP)
	Tightening torque	1,2 Nm	2,0 Nm	2,0 Nm	4,0 Nm	5,0 Nm	5,0 Nm	5,0 Nm	5,5 Nm	5,5 Nm	5,5 Nm

Accessories

	D_c mm	12-13	14-17	18-19	20-25	26-37
	Torque screwdriver	FS2001	FS2003	FS2003	FS2003	
	Interchangeable blade	FS2011 (Torx 7IP)	FS2012 (Torx 8IP)	FS2014 (Torx 15IP)	FS2015 (Torx 20IP)	FS2049 (Torx 25IP)
	Screwdriver	FS1490 (Torx 7IP)	FS1483 (Torx 8IP)	FS1485 (Torx 15IP)	FS1486 (Torx 20IP)	FS1487 (Torx 25IP)
	T-handle torque wrench					FS2041

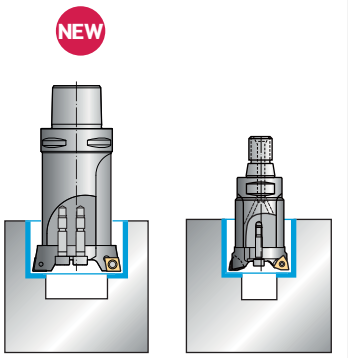
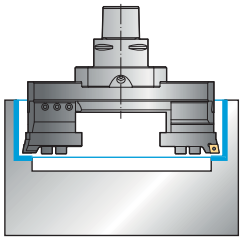
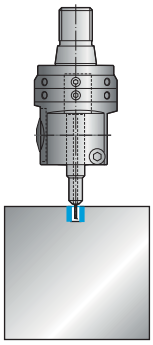
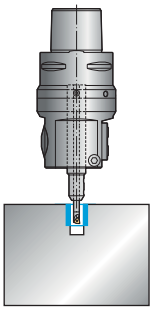
Indexable inserts

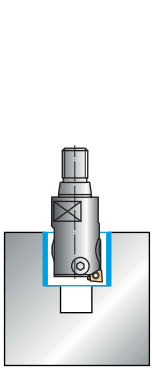
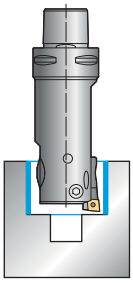
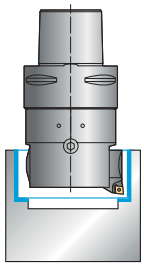
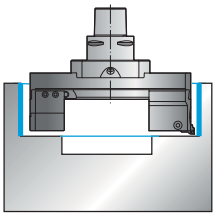
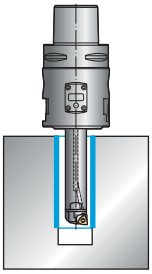
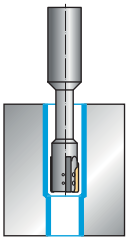
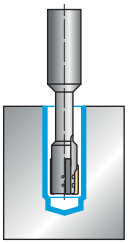
	Designation	Diameter range	P HC WMP35	P HC WXP45	P HC WPP45C	M HC WMP35	M HC	K HC WXK25	K HC	N HC WNN25	N HC	S HC WMP35	S HC	H
	P6001–D . .	12–37,99		●	●									
	P6002–D . .	12–31,99						●						
	P6003–D . .	12–37,99	●			●						●		
	P6004–D . .	12–31,50								●				

HC = Coated carbide

C-8 G-2 C-76

Walter Select – Counterboring/precision boring and reaming

Tool type	Boring tools				Precision boring tools	
	Walter Boring^{MEDIUM}			Walter Boring^{MAXI}	Walter Precision^{MINI}	
	B 3220 B 3221			B 3220 B 3224	B 3230	B 3230 B 4030
						
Ø range [mm]	20–153			150–640	2–6	5,8–45,5
Page	C-44			C-48	C-52	C-52
P Steel	●●			●●	●●	●●
M Stainless steel	●●			●●	●●	●●
K Cast iron	●●			●●	●●	●●
N NF metals	●			●	●	●●
S Difficult-to-machine materials	●●			●●	●	●●
H Hard materials						●
O Other						●
Basic insert shape					—	
Insert types	CC . . 0602 . . CC . . 09T3 . . CC . . 1204 . .	SC . . 0602 . . SC . . 09T3 . . SC . . 1204 . .	WC . . 0302 . . WC . . 0402 . . WC . . 06T3 . . WC . . 0804 . .	CC . . 1204 . .	—	WC . . 0201 . . WC . . 0302 . . WC . . 0402 . .
Cutting depth a_p [mm]	max. 12	max. 12	max. 8	max. 12	max. 0.5	max. 0.5

	Precision boring tools					Reaming tools	
	Walter Precision^{MEDIUM}			Walter Precision^{MAXI}			
	B 3230	B 3230 NEW	B 4030 NEW	B 3230 B 3234 NEW	B 4035 NEW	R 4060	R 4061
							
	15–70	20–203	33–153	150–640	3–124	6–25	8–25
	C-60	**C-62**	**C-64**	**C-66**	**C-70**	*C 122**	*C 124**
	●●	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●		
	●●	●●	●●	●●	●●		
	●	●		●	●		
	●	●	●	●	●		
	Wiper 		Wiper 	Wiper 			
	CP . . 0502 . . CC . . 0602 . .	WC . . 0302 . . WC . . 0402 . . WC . . 0503 . .	WC . . 0302 . . WC . . 0402 . . CP . . 0502 . . CC . . 0602 . .	CC . . 0602 . . / WC . . 0503 . .	WC . . 0302 WC . . 0402	P 6500 . .	P 6500 . .
	max. 1	max. 1	max. 1	max. 1	max. 1		

** The pages indicated in italics refer to the Walter General catalogue 2012.*

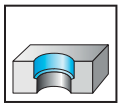
WALTER SELECT

●● Primary application

● Other application

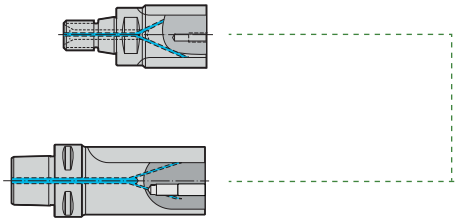
Two flute boring tool
B 3220 / B 3221

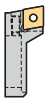
Walter Boring[MEDIUM]

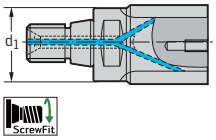
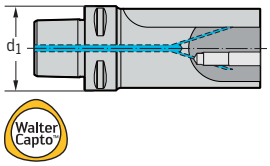


- Ø 20–41 mm
- κ = 90°
- Z = 2

Basic body | **Cartridge with C insert**





Tool	Basic body Designation	d_1 mm	D_c mm	Cartridge Designation	Type
NCT ScrewFit 	B3221G.T18.20–27.Z2	T18	20–24	EB401.CC06	CC . . 0602 . .
			23–27	EB402.CC06	
	B3221G.T22.26–33.Z2	T22	26–33	EB403.CC06	
	B3220G.T28.33–41.Z2	T28	33–41	EB205–206.CC06	
Walter Capto™ 	★ B3221G.C3.020-027.Z2	C3	20–24	EB401.CC06	CC . . 0602 . .
			23–27	EB402.CC06	
	★ B3221G.C3.026-035.Z2	C3	26–33	EB403.CC06	
	★ B3220G.C3.033-044.Z2	C3	33–41	EB205–206.CC06	

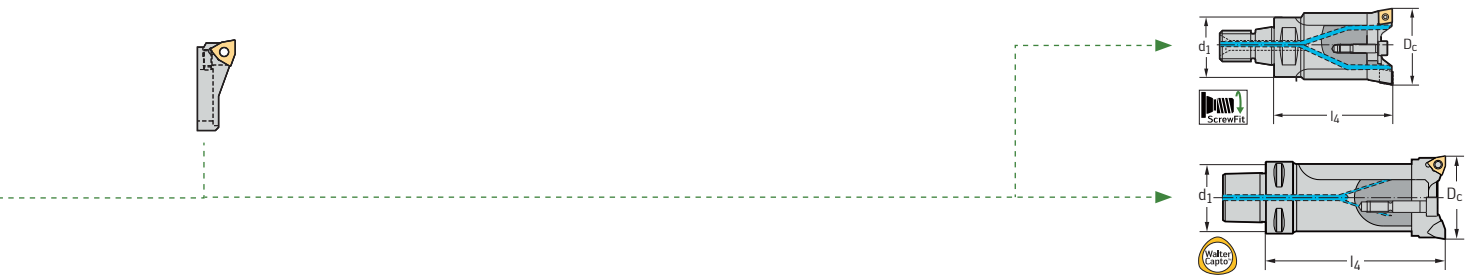
For assembly aids, see page G 28 and G 105 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

		$D_{c\ min–max}$ [mm] 20–27	26–33	33–41
	Adjusting screw	FS 1103 (SW 1,3)	FS 1104 (SW 1,3)	FS 1105 (SW 1,5)
	Spring washer	FS 1098		FS 1099
	Clamping screw for cartridge	FS 1093 (SW 3)		FS 1094 (SW 4)
	Tightening torque	4 Nm		7 Nm
	Clamping screw for indexable insert CC . . 0602 + WC . . 0402	FS 1454 (Torx 8IP)		
	Tightening torque	0,8 Nm		
	Clamping screw for indexable insert WC . . 0302	FS 2084 (Torx 7IP)		
	Tightening torque	0,9 Nm		

★ New addition to range

Cartridge with W insert | **Complete tool**



Cartridge Designation	Type	d_1 mm	l_4 mm	kg	Complete tool Designation with C insert	Complete tool Designation with W insert
EB421.WC03	WC . . 0302 . .	19	35	0,1	B3221.T18.20-24.Z2.CC06	B3221.T18.20-24.Z2.WC03*
EB422.WC03		19	35	0,1	B3221.T18.23-27.Z2.CC06	B3221.T18.23-27.Z2.WC03*
EB423.WC03		22	40	0,1	B3221.T22.26-33.Z2.CC06	B3221.T22.26-33.Z2.WC03*
EB225–226.WC04	WC . . 0402 . .	28	55	0,3	B3220.T28.33-41.Z2.CC06	B3220.T28.33-41.Z2.WC04*
EB421.WC03	WC . . 0302 . .	32	80	0,3	★ B3221.C3.020-024.Z2.CC06	★ B3221.C3.020-024.Z2.WC03
EB422.WC03		32	80	0,3	★ B3221.C3.023-027.Z2.CC06	★ B3221.C3.023-027.Z2.WC03
EB423.WC03		32	80	0,4	★ B3221.C3.026-033.Z2.CC06	★ B3221.C3.026-033.Z2.WC03
EB225–226.WC04	WC . . 0402 . .	32	80	0,6	★ B3220.C3.033-041.Z2.CC06	★ B3220.C3.033-041.Z2.WC04

* NB: The projection of the cartridges must be sufficient for chip removal where used with extension in blind bores.

Accessories

		$D_{c\ min–max}$ [mm] 20–33 (CC . . 0602 + WC . . 0402)	$D_{c\ min–max}$ [mm] 33–41 (WC . . 0302)
	Screwdriver for clamping screw FS 1454	FS 1483 (Torx 8IP)	FS 1490 (Torx 7IP)
	Screwdriver for clamping screw FS 2084	FS 1490 (Torx 7IP)	FS 1490 (Torx 7IP)
	Allen key DIN 911	SW 1,3 / SW 3	SW 1,5 / SW 4

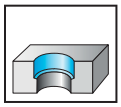
Torque screwdriver with interchangeable blades, see page H-2.

C-19/C-21G G-2 C 188* C-82

★ New addition to range

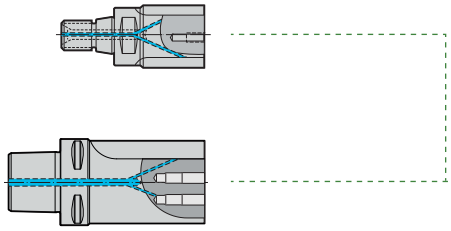
Two flute boring tool
B 3220 / B 3221

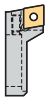
Walter Boring[MEDIUM]

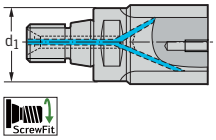
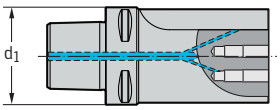


- Ø 41–153 mm
- κ = 90°
- Z = 2

Basic body | **Cartridge with C insert**





Tool	Basic body Designation	d_1 mm	D_c mm	Cartridge Designation	Type
NCT ScrewFit 	B3220G.T36.41–55.Z2	T36	41–55	EB207–208.CC09	CC . . 09T3 . .
	B3220G.T45.55–70.Z2	T45	55–70	EB209–210.CC09	
Walter Capto™ 	★ B3220G.C4.041-056.Z2	C4	41–55	EB207–208.CC09	CC . . 09T3 . .
	★ B3220G.C5.055-073.Z2	C5	55–70	EB209–210.CC09	
	★ B3220G.C6.070-93.Z2	C6	70–90	EB211–212.CC12	CC . . 1204 . .
	★ B3220G.C8.090-113.Z2	C8	90–110	EB213–214.CC12	
	★ B3220G.C8.110-153.Z2	C8	110–133	EB215.CC12	
			130–153	EB216.CC12	

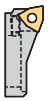
For assembly aids, see page G 28 and G 105 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

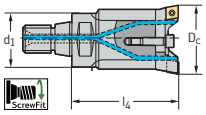
		$D_{c\ min–max}$ [mm] 41–70	70–90	90–110	110–153
	Adjusting screw	FS 1106 (SW 2)	FS 1107 (SW 2,5)		FS 1108 (SW 2,5)
	Spring washer	FS 1100	FS 1101	FS 1102	
	Clamping screw for cartridge	FS 1095 (SW 5)	FS 1096 (SW 6)	FS 1097 (SW 8)	
	Tightening torque	12 Nm	30 Nm	50 Nm	
	Clamping screw for insert	FS 2062 (Torx 15IP)	FS 1495 (Torx 20IP)		
	Tightening torque	3,0 Nm	5,0 Nm		

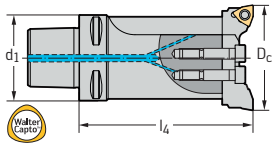
★ New addition to range

Cartridge with W insert



Complete tool





Cartridge Designation	Type	d_1 mm	l_4 mm	kg	Complete tool designation with C insert	Complete tool designation with W insert
EB227–228.WC06	WC . . 06T3 . .	36	65	0,5	B3220.T36.41-55.Z2.CC09	B3220.T36.41-55.Z2.WC06*
EB229–230.WC06		45	80	0,9	B3220.T45.55-70.Z2.CC09	B3220.T45.55-70.Z2.WC06*
EB227–228.WC06	WC . . 06T3 . .	40	80	1,0	★ B3220.C4.041-055.Z2.CC09	★ B3220.C4.041-055.Z2.WC06
EB229–230.WC06		50	100	1,8	★ B3220.C5.055-070.Z2.CC09	★ B3220.C5.055-070.Z2.WC06
EB231–232.WC08	WC . . 0804 . .	63	110	2,7	★ B3220.C6.070-090.Z2.CC12	★ B3220.C6.070-090.Z2.WC08
EB233–234.WC08		80	110	4,2	★ B3220.C8.090-110.Z2.CC12	★ B3220.C8.090-110.Z2.WC08
EB235.WC08		80	110	5,2	★ B3220.C8.110-133.Z2.CC12	★ B3220.C8.110-133.Z2.WC08
EB236.WC08		80	110	5,3	★ B3220.C8.130-153.Z2.CC12	★ B3220.C8.130-153.Z2.WC08

* NB: The projection of the cartridges must be sufficient for chip removal where used with extension in blind bores.

Accessories

		$D_{c\ min–max}$ [mm] 41–70	70–153	
	Screwdriver for clamping screw	FS 1485 (Torx 15IP)	FS 1486 (Torx 20IP)	
	Allen key DIN 911	SW 2 / SW 5	SW 2,5 / SW 6 / SW 8	

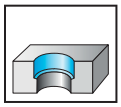
Torque screwdriver with interchangeable blades, see page H-2.

C-19/C-21 G-2 C 188* C-82

★ New addition to range

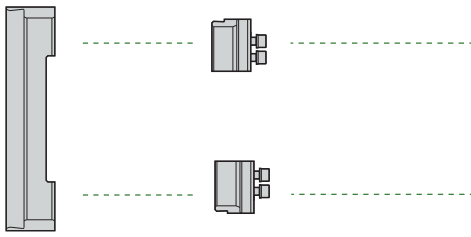
Two flute boring tool with bridge
B 3220

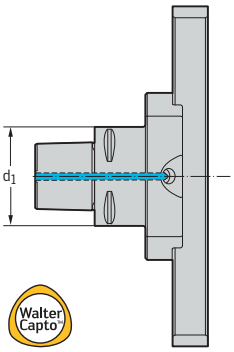
Walter Boring^{MAXI}



- Ø 150–640 mm
- κ = 90°
- Z = 2
- Aluminium bridge

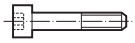
Basic body



Tool	Basic body Designation	d_1 mm	D_c mm	Bridge designation	Cartridge holder designation
Walter Capto™ 	★ B3223G.C8.150–640	C8	150–220	★ EB134AL	EB122
			220–290	★ EB135AL	
			290–360	★ EB136AL	
			360–430	★ EB137AL	
			430–500	★ EB138AL	
			500–570	★ EB139AL	
			570–640	★ EB140AL	

For assembly aids, see page G 28 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

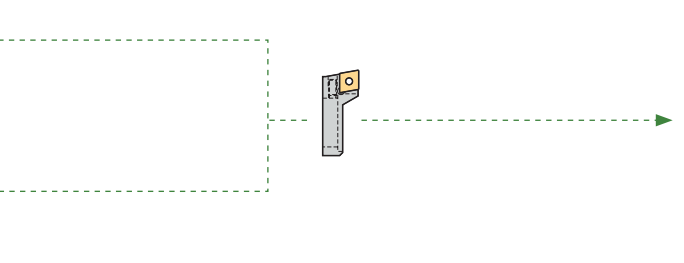
Assembly parts

	Designation	Tightening torque
 Clamping screw for bridge	FS 1114 (SW 10)	120 Nm
 Clamping screw for cartridge holder	FS 1113 (SW 6)	25 Nm
 Fitting screw	FS 1097 (SW 8)	50 Nm
 Spring washer	FS 1102	
 Adjusting screw	FS 1109 (SW 2,5)	
 Clamping screw for insert	FS 1495 (Torx 20IP)	5 Nm

★ New addition to range

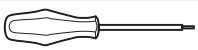
Cartridge with C insert

Complete tool



Cartridge designation	Type	kg	Complete tool Designation with C insert
EB217.CC12	CCMT 12 . .	6,3	★ B3220.C8.150-220.Z2.CC12
		6,8	★ B3220.C8.220-290.Z2.CC12
		7,2	★ B3220.C8.290-360.Z2.CC12
		7,5	★ B3220.C8.360-430.Z2.CC12
		7,9	★ B3220.C8.430-500.Z2.CC12
		8,2	★ B3220.C8.500-570.Z2.CC12
		8,4	★ B3220.C8.570-640.Z2.CC12

Accessories

	Screwdriver for clamping screw	FS 1486 (Torx 20IP)
	Allen key DIN 911	SW 2,5 / SW 6 / SW 8 / SW 10

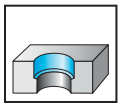
Torque screwdriver with interchangeable blades, see page H-2.

C-19 G-2 C 188* C-82

★ New addition to range

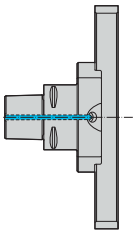
Two flute boring tool with bridge
B 3224

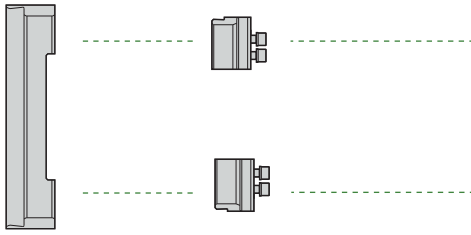
Walter Boring^{MAXI}

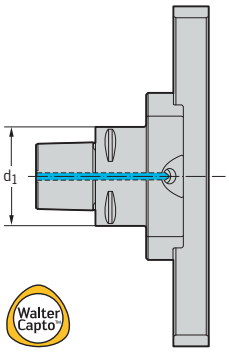


- Ø 150–640 mm
- κ = 90°
- Z = 2
- NCT flute orientation rotated by 90° in relation to B3220
- Aluminium bridge

Basic body

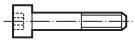




Tool	Basic body Designation	d_1 mm	D_c mm	Bridge designation	Cartridge holder designation	
Walter Capto™ 	★ B3224G.C8.150–640	C8	150–220	★ EB134AL	EB122	
			220–290	★ EB135AL		
			290–360	★ EB136AL		
			360–430	★ EB137AL		
			430–500	★ EB138AL		
			500–570	★ EB139AL		
			570–640	★ EB140AL		

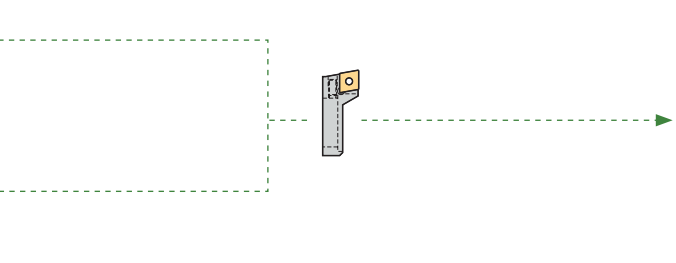
For assembly aids, see page G 28 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Designation	Tightening torque
 Clamping screw for bridge	FS 1114 (SW 10)	120 Nm
 Clamping screw for cartridge holder	FS 1113 (SW 6)	25 Nm
 Fitting screw	FS 1097 (SW 8)	50 Nm
 Spring washer	FS 1102	
 Adjusting screw	FS 1109 (SW 2,5)	
 Clamping screw for insert	FS 1495 (Torx 20IP)	5 Nm

★ New addition to range

Cartridge with C insert | Complete tool



Cartridge designation	Type	kg	Complete tool Designation with C insert	
EB217.CC12	CCMT 12 . .	6,3	★ B3224.C8.150-220.Z2.CC12	
		6,8	★ B3224.C8.220-290.Z2.CC12	
		7,2	★ B3224.C8.290-360.Z2.CC12	
		7,5	★ B3224.C8.360-430.Z2.CC12	
		7,9	★ B3224.C8.430-500.Z2.CC12	
		8,2	★ B3224.C8.500-570.Z2.CC12	
		8,4	★ B3224.C8.570-640.Z2.CC12	

Accessories

	Screwdriver for clamping screw	FS 1486 (Torx 20IP)
	Allen key DIN 911	SW 2,5 / SW 6 / SW 8 / SW 10

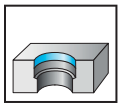
Torque screwdriver with interchangeable blades, see page H-2.

C-19 G-2 C 188* C-82

★ New addition to range

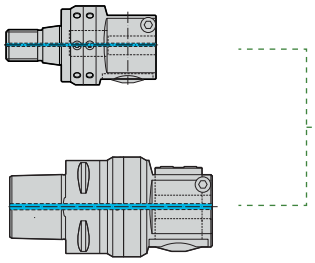
Precision boring tool
B 3230 / B 4030

Walter Precision^{MINI}

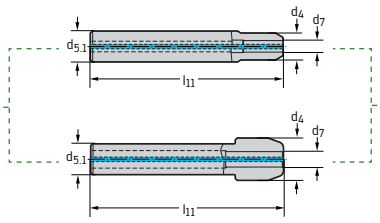


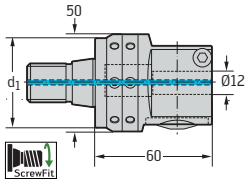
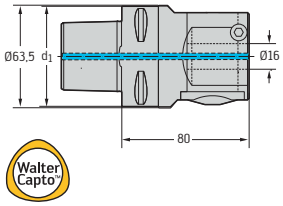
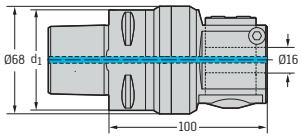
- Ø 2.0–9.5 mm
- κ = 93°
- Z = 1

Basic body



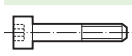
Reduction



Tool	Basic body Designation	d_1 mm	D_c mm	Designation	d_7 mm	d_4 mm	$d_{5.1}$ mm	l_{11} mm
NCT ScrewFit 	B4030G.T45.02-20.Z1 Balanceable	T45	2,0–3,5	EB501	4	12	12	85
			3,0–6,0					
			5,8–7,5	EB502	5	12	12	85
			7,3–9,5	EB503	6	22	12	85
Walter Capto™ 	★ B3230G.C6.02-45.Z1 Standard	C6	2,0–3,5	EB101	4	12	16	100
			3,0–6,0					
			5,8–7,5	EB102	5	13	16	100
	★ B4030G. C6.02-45.Z1 balanceable		7,3–9,5	EB103	6	14	16	100

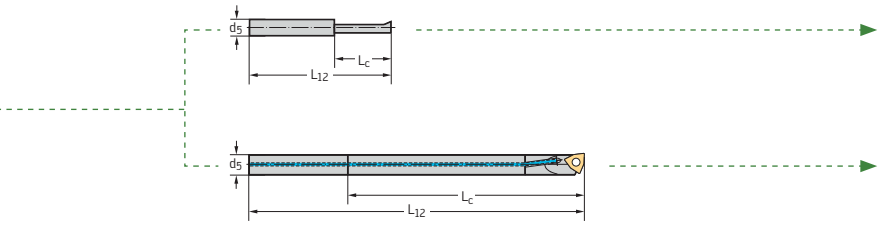
For assembly aids, see page G 28 and G 105 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

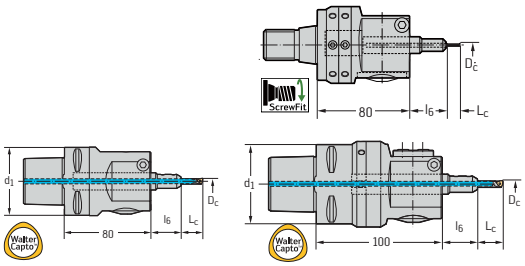
		d_1 = T45		d_1 = C6	
		Designation	Tightening torque	Designation	Tightening torque
	Clamping screw	FS 1084 (SW 4)	4,0 Nm	FS 1085 (SW 5)	10 Nm
	Clamping screw for reduction	FS 2039 (SW 4)	7,0 Nm	FS 1112 (SW 5)	14 Nm
	Clamping screw for insert holder	FS 1110 (SW 2)	1,9 Nm	FS 1110 (SW 2)	1,9 Nm
	Clamping screw for indexable insert with D_c = 5.8–9.5 mm	FS 2245 (Torx 6IP)	0,6 Nm	FS 2245 (Torx 6IP)	0,6 Nm
	Clamping screw for balancing rings	FS 2037 (SW 2)		FS 2038 (SW 2)	

★ New addition to range

Insert holder



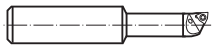
Complete tool



Designation	d_5 mm	L_{12} mm	Type	$L_{c\ min}$ mm	$L_{c\ max}$ mm	l_6 mm	kg	Complete tool Designation	Complete tool balanceable Designation
EB301 WK10*	4	30	—	9	—	30–53	0,8		B4030.T45.02-03.Z1.WK10
EB302 WK10*	4	35	—	14	—	30–53	0,8		B4030.T45.03-06.Z1.WK10
EB303.WC02.CS	5	85	WC . . 0201 . .	20	60	30–53	0,8		B4030.T45.06-07.Z1.WC02
EB304.WC02.CS	6	95	WC . . 0201 . .	20	65	30–53	0,8		B4030.T45.07-09.Z1.WC02
EB301 WK10*	4	30	—	9	—	28–60	1,8	★ B3230.C6.02-03.Z1.WK10	★ B4030.C6.02-03.Z1.WK10
EB302 WK10*	4	35	—	14	—	28–60	1,8	★ B3230.C6.03-06.Z1.WK10	★ B4030.C6.03-06.Z1.WK10
EB303.WC02.CS	5	85	WC . . 0201 . .	20	60	28–60	1,8	★ B3230.C6.06-07.Z1.WC02	★ B4030.C6.06-07.Z1.WC02
EB304.WC02.CS	6	95	WC . . 0201 . .	20	65	28–60	1,8	★ B3230.C6.07-09.Z1.WC02	★ B4030.C6.07-09.Z1.WC02

* Boring bar made from solid carbide EB . . . CS = Solid carbide shank
Advantages: Increased rigidity, reduced deflection, neutralised vibration

Accessories

	Screwdriver for clamping screw	FS 2086 (Torx 6IP)
	Allen key DIN 911	SW 2 / SW 4 / SW 5
	One-piece boring bar	For D_c 5.8–9.5, see page C-58

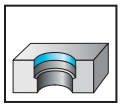
Torque screwdriver with interchangeable blades, see page H-2.

C-27 G-2 C 188* C-86

★ New addition to range

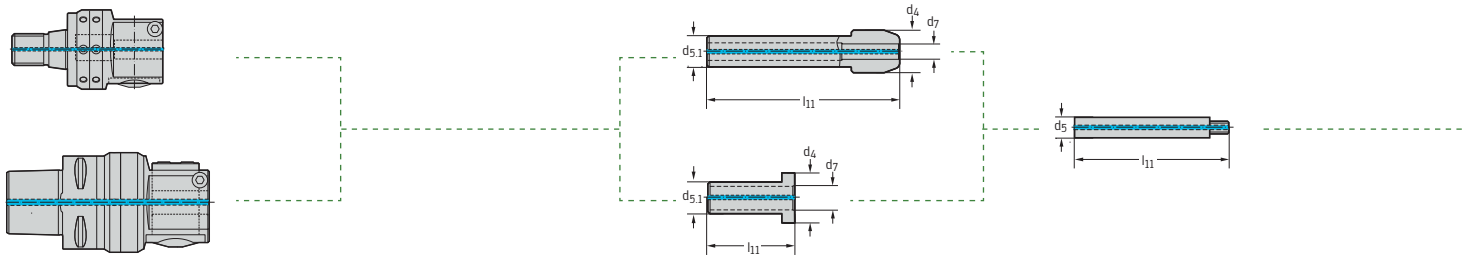
Precision boring tool
B 3230 / B 4030

Walter Precision[MINI]



- Ø 8.8–20 mm
- κ = 93°
- Z = 1

Basic body | **Reduction** | **Extension**



Tool	Basic body Designation	d_1 mm	D_c mm	Designation	d_7 mm	d_4 mm	$d_{5.1}$ mm	l_{11} mm	Designation	d_5 mm	l_{11} mm
NCT ScrewFit	B4030G.T45.02-20.Z1 Balanceable	T45	8,8–12,5	EB504	8	14	12	30	EB106	8	47
									EB107.CS	8	87
			11,8–14,5	EB505	10	14	12	30	EB108	10	52
									EB109.CS	10	77
			13,8–16,5	—					EB508	12	77
									EB509.CS	12	97
			15,8–20,0	—					EB508	12	77
									EB509.CS	12	97
Walter Capto™	★ B3230G.C6.002-045.Z1 Standard	C6	8,8–12,5	EB104	8	22	16	100	EB106	8	47
									EB107.CS	8	87
			11,8–14,5	EB105	10	24	16	100	EB108	10	52
									EB109.CS	10	77
	★ B4030G.C6.02-45.Z1 balanceable		13,8–16,5	EB506	12	17	16	36	EB508	12	77
									EB509.CS	12	97
			15,8–20,0	EB507	14	17	16	36	EB510	14	87
									EB511.CS	14	117

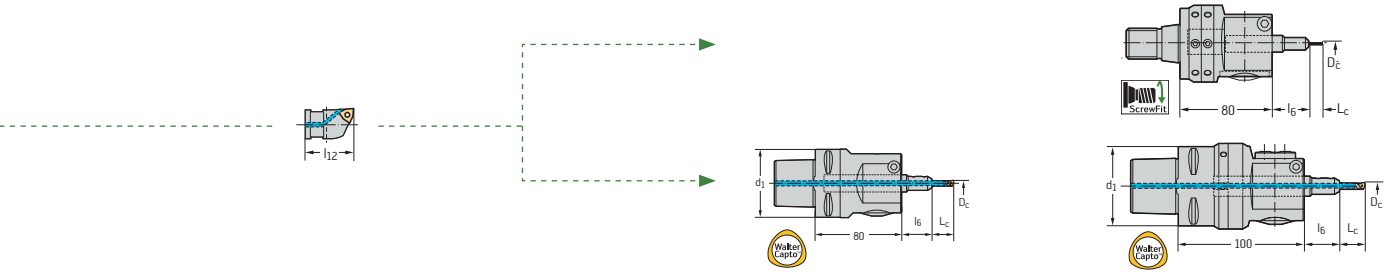
EB . . . CS = Solid carbide shank
Advantages: Increased rigidity, reduced deflection, neutralised vibration

Assembly parts

		d_1 = T45		d_1 = C6	
		Designation	Tightening torque	Designation	Tightening torque
	Clamping screw	FS 1084 (SW 4)	4,0 Nm	FS 1085 (SW 5)	10 Nm
	Clamping screw for reduction	FS 2039 (SW 4)	7,0 Nm	FS 1112 (SW 5)	14 Nm
	Clamping screw for extension	FS 1110 (SW 2)	1,9 Nm	FS 1111 (SW 3)	5,5 Nm
	Clamping screw for insert	FS 2084 (Torx 7IP)	0,9 Nm	FS 2084 (Torx 7IP)	0,9 Nm
	Clamping screw for balancing rings	FS 2037 (SW 2)		FS 2038 (SW 2)	

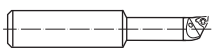
★ New addition to range

Insert holder | **Complete tool**



Designation	l_{12} mm	Type	$L_{c\,min}$ mm	$L_{c\,max}$ mm	l_6 mm	kg	Complete tool Designation	Complete tool balanceable Designation
EB305.WC03	18	WC . . 0302 . .	18	33	2	0,8		B4030.T45.09-12.Z1.WC03.S
			35	73	2	0,8		B4030.T45.09-12.Z1.WC03.L
EB306.WC03	23	WC . . 0302 . .	23	43	2	0,8		B4030.T45.12-14.Z1.WC03.S
			45	68	2	0,8		B4030.T45.12-14.Z1.WC03.L
EB307.WC03	23	WC . . 0302 . .	45	68	—	0,8		B4030.T45.14-16.Z1.WC03.S
			65	88	—	0,9		B4030.T45.14-16.Z1.WC03.L
EB512.WC03	23	WC . . 0302 . .	45	68	—	0,8		B4030.T45.16-20.Z1.WC03.S
			65	88	—	0,9		B4030.T45.16-20.Z1.WC03.L
EB305.WC03	18	WC . . 0302 . .	20	35	34–60	1,9	★ B3230.C6.09-12.Z1.WC03.S	★ B4030.C6.09-12.Z1.WC03.S
			20	73	34–60	1,9	★ B3230.C6.09-12.Z1.WC03.L	★ B4030.C6.09-12.Z1.WC03.L
EB306.WC03	23	WC . . 0302 . .	25	45	34–60	1,9	★ B3230.C6.12-14.Z1.WC03.S	★ B4030.C6.12-14.Z1.WC03.S
			25	70	34–60	1,9	★ B3230.C6.12-14.Z1.WC03.L	★ B4030.C6.12-14.Z1.WC03.L
EB307 . WC03	23	WC . . 0302 . .	34	60	2	1,9	★ B3230.C6.14-16.Z1.WC03.S	★ B4030.C6.14-16.Z1.WC03.S
			54	80	2	1,9	★ B3230.C6.14-16.Z1.WC03.L	★ B4030.C6.14-16.Z1.WC03.L
EB512 . WC03	23	WC . . 0302 . .	44	70	2	1,9	★ B3230.C6.16-20.Z1.WC03.S	★ B4030.C6.16-20.Z1.WC03.S
			74	100	2	1,9	★ B3230.C6.16-20.Z1.WC03.L	★ B4030.C6.16-20.Z1.WC03.L

Accessories

	Screwdriver for clamping screw	FS 2088 (Torx 7IP)
	Allen key DIN 911	SW 2 / SW 4 / SW 5
	One-piece boring bar	For D_C 8.8-15.8, see page C-58

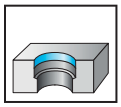
Torque screwdriver with interchangeable blades, see page H-2.

C 27 G-2 C 188* C-86

★ New addition to range

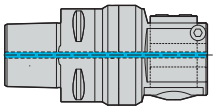
Precision boring tool
B 3230 / B 4030

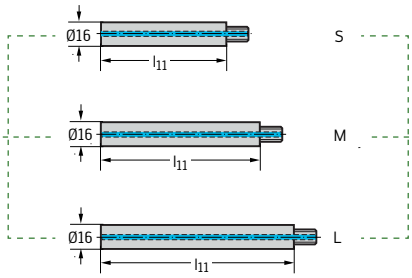
Walter Precision[MINI]

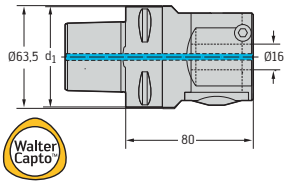
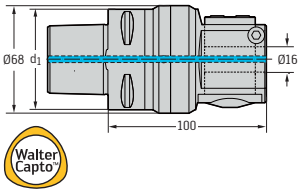


- Ø 17.8–45.5 mm
- κ = 93°
- Z = 1

Basic body | **Extension**





Tool	Basic body Designation	d_1 mm	D_c mm	Designation	l_{11} mm	
Walter Capto™						
	★ B3230G.C6.002-045.Z1 Standard	C6	17,8–22,5	EB110	88	(S)
				EB111.CS	108	(M)
				EB112.CS	168	(L)
			21,8–25,5	EB110	88	(S)
				EB111.CS	108	(M)
				EB112.CS	168	(L)
			24,8–28,5	EB110	88	(S)
				EB111.CS	108	(M)
				EB112.CS	168	(L)
	★ B4030G.C6.02-45.Z1 balanceable		27,8–32,5	EB110	88	(S)
				EB111.CS	108	(M)
				EB112.CS	168	(L)
			31,8–36,5	EB110	88	(S)
				EB111.CS	108	(M)
				EB112.CS	168	(L)
			35,8–40,5	EB110	88	(S)
				EB111.CS	108	(M)
				EB112.CS	168	(L)
			39,8–45,5	EB110	88	(S)
				EB111.CS	108	(M)
				EB112.CS	168	(L)

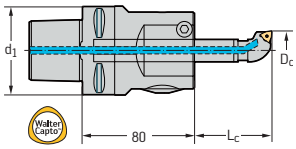
EB . . . CS = Solid carbide shank
Advantages: Increased rigidity, reduced deflection, neutralised vibration

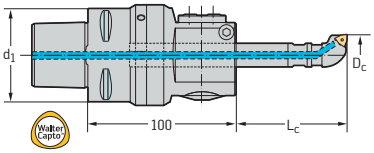
Assembly parts

	Designation	Tightening torque
 Clamping screw	FS 1085 (SW 5)	10 Nm
 Clamping screw for extension	FS 1112 (SW 5)	14 Nm
 Clamping screw for insert	FS 1454 (Torx 8IP)	1,2 Nm
 Clamping screw for balancing rings	FS 2038 (SW 2)	

★ New addition to range

Insert holder | Complete tool





Designation	l_{12} mm	Type	$L_{c\ min}$ mm	$L_{c\ max}$ mm	kg	Complete tool Designation	Complete tool balanceable Designation
EB308.WC04	27	WC . . 0402 . .	55	80	1,8	★ B3230.C6.18-22.Z1.WC04.S	★ B4030.C6.18-22.Z1.WC04.S
			75	100	2,0	★ B3230.C6.18-22.Z1.WC04.M	★ B4030.C6.18-22.Z1.WC04.M
			135	160	2,2	★ B3230.C6.18-22.Z1.WC04.L	★ B4030.C6.18-22.Z1.WC04.L
EB309.WC04	27	WC . . 0402 . .	55	80	2,3	★ B3230.C6.22-25.Z1.WC04.S	★ B4030.C6.22-25.Z1.WC04.S
			75	100	2,5	★ B3230.C6.22-25.Z1.WC04.M	★ B4030.C6.22-25.Z1.WC04.M
			135	160	2,7	★ B3230.C6.22-25.Z1.WC04.L	★ B4030.C6.22-25.Z1.WC04.L
EB310.WC04	27	WC . . 0402 . .	55	80	2,3	★ B3230.C6.25-28.Z1.WC04.S	★ B4030.C6.25-28.Z1.WC04.S
			75	100	2,5	★ B3230.C6.25-28.Z1.WC04.M	★ B4030.C6.25-28.Z1.WC04.M
			135	160	2,7	★ B3230.C6.25-28.Z1.WC04.L	★ B4030.C6.25-28.Z1.WC04.L
EB311.WC04	27	WC . . 0402 . .	55	80	2,3	★ B3230.C6.28-32.Z1.WC 04.S	★ B4030.C6.28-32.Z1.WC04.S
			75	100	2,5	★ B3230.C6.28-32.Z1.WC04.M	★ B4030.C6.28-32.Z1.WC04.M
			135	160	2,7	★ B3230.C6.28-32.Z1.WC04.L	★ B4030.C6.28-32.Z1.WC04.L
EB312.WC04	27	WC . . 0402 . .	55	80	2,3	★ B3230.C6.32-36.Z1.WC04.S	★ B4030.C6.32-36.Z1.WC04.S
			75	100	2,5	★ B3230.C6.32-36.Z1.WC04.M	★ B4030.C6.32-36.Z1.WC04.M
			135	160	2,7	★ B3230.C6.32-36.Z1.WC04.L	★ B4030.C6.32-36.Z1.WC04.L
EB313.WC04	27	WC . . 0402 . .	55	80	2,3	★ B3230.C6.36-40.Z1.WC04.S	★ B4030.C6.36-40.Z1.WC04.S
			75	100	2,5	★ B3230.C6.36-40.Z1.WC04.M	★ B4030.C6.36-40.Z1.WC04.M
			135	160	2,7	★ B3230.C6.36-40.Z1.WC04.L	★ B4030.C6.36-40.Z1.WC04.L
EB314.WC04	27	WC . . 0402 . .	55	80	2,3	★ B3230.C6.40-45.Z1.WC04.S	★ B4030.C6.40-45.Z1.WC04.S
			75	100	2,5	★ B3230.C6.40-45.Z1.WC04.M	★ B4030.C6.40-45.Z1.WC04.M
			135	160	2,7	★ B3230.C6.40-45.Z1.WC04.L	★ B4030.C6.40-45.Z1.WC04.L

For assembly aids, see page G 105 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Accessories

	Screwdriver	FS 1483 (Torx 8IP)
	Allen key DIN 911	SW 5

Torque screwdriver with interchangeable blades, see page H-2.

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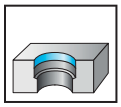
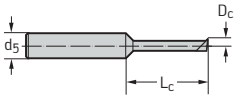
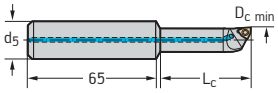
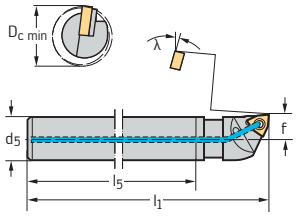
★ New addition to range

Boring bar EB . . .



- κ = 93°

Tool

	Designation	$D_{c\ min}$ mm	d_5 mm	f mm	l_1 mm	l_5 mm	L_c mm	λ	Type
One-piece 	EB301 WK10	2,0	4	1,0	30	21			VHM WK 10
	EB302 WK10	3,0	4	1,5	35	21			
One-piece 	EB513	5,8	16				17		WC . . 0201 . .
	EB514.CS	5,8	16				30		
	EB515	7,3	16				21		
	EB516.CS	7,3	16				36		
	EB517	8,8	16				28		WC . . 0302 . .
	EB518.CS	8,8	16				47		
	EB519	11,8	16				35		
	EB520.CS	11,8	16				60		
	EB521	13,8	16				42		
	EB522.CS	13,8	16				72		
with insert holder 	EB303.WC02.CS	5,8	5	2,9	85	70			WC . . 0201 . .
	EB304.WC02.CS	7,3	6	3,65	95	75			
	EB353.WC03	8,8	8	4,5	65	47		−10°	WC . . 0302 . .
	EB354.WC03.CS	8,8	8	4,5	105	87		−10°	
	EB355.WC03	11,8	10	6,0	75	52		−7°	
	EB356.WC03.CS	11,8	10	6,0	120	97		−7°	
	EB357.WC03	13,8	10	6,9	75	52		−5°	
	EB358.WC03.CS	13,8	10	6,9	120	97		−5°	
	EB359.WC04	17,8	16	8,9	115	88		−3°	WC . . 0402 . .
	EB360.WC04.CS	17,8	16	8,9	135	108		−3°	
	EB361.WC04.CS	17,8	16	8,9	195	168		−3°	
	EB362.WC04	21,8	16	10,9	115	88		−2,5°	
	EB363.WC04.CS	21,8	16	10,9	135	108		−2,5°	
	EB364.WC04.CS	21,8	16	10,9	195	168		−2,5°	
	EB365.WC04	24,8	16	12,4	115	88		0°	
	EB366.WC04.CS	24,8	16	12,4	135	108		0°	
	EB367.WC04.CS	24,8	16	12,4	195	168		0°	
	EB368.WC04	27,8	16	13,9	115	88		0°	
	EB369.WC04.CS	27,8	16	13,9	135	108		0°	
	EB370.WC04.CS	27,8	16	13,9	195	168		0°	
	EB371.WC04	31,8	16	15,9	115	88		0°	
	EB372.WC04.CS	31,8	16	15,9	135	108		0°	
	EB373.WC04.CS	31,8	16	15,9	195	168		0°	
	EB374.WC04	35,8	16	17,9	115	88		0°	
	EB375.WC04.CS	35,8	16	17,9	135	108		0°	
	EB376.WC04.CS	35,8	16	17,9	195	168		0°	
	EB377.WC04	39,8	16	19,9	115	88		0°	
	EB378.WC04.CS	39,8	16	19,9	135	108		0°	
	EB379.WC04.CS	39,8	16	19,9	195	168		0°	

Bodies and assembly parts are included in the scope of delivery.

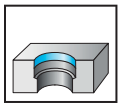
	Assembly parts				Accessories
	Toolholder	Insert holder	Clamping screw for indexable insert	Tightening torque	Screwdriver
			FS 2245 (Torx 6IP)	0,6 Nm	FS 2086 (Torx 6IP)
			FS 2084 (Torx 7IP)	0,9 Nm	FS 2088 (Torx 7IP)
	—	EB303.WC02.CS	FS 2245 (Torx 6IP)	0,6 Nm	FS 2086 (Torx 6IP)
	—	EB304.WC02.CS			
	EB106	EB305.WC03	FS 2084 (Torx 7IP)	0,9 Nm	FS 2088 (Torx 7IP)
	EB107.CS	EB305.WC03			
	EB108	EB306.WC03			
	EB109.CS	EB306.WC03			
	EB108	EB307.WC03			
	EB109.CS	EB307.WC03			
	EB110	EB308.WC04	FS 1454 (Torx 8IP)	1,2 Nm	FS 1483 (Torx 8IP)
	EB111.CS	EB308.WC04			
	EB112.CS	EB308.WC04			
	EB110	EB309.WC04			
	EB111.CS	EB309.WC04			
	EB112.CS	EB309.WC04			
	EB110	EB310.WC04			
	EB111.CS	EB310.WC04			
	EB112.CS	EB310.WC04			
	EB110	EB311.WC04			
	EB111.CS	EB311.WC04			
	EB112.CS	EB311.WC04			
	EB110	EB312.WC04			
	EB111.CS	EB312.WC04			
	EB112.CS	EB312.WC04			
	EB110	EB313.WC04			
	EB111.CS	EB313.WC04			
	EB112.CS	EB313.WC04			
	EB110	EB314.WC04			
	EB111.CS	EB314.WC04			
	EB112.CS	EB314.WC04			

EB . . . CS = Solid carbide shank
Advantages: Increased rigidity, reduced deflection, neutralised vibration

C-27 G-2 C 188* C-86

Precision boring tool
B 3230

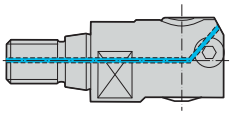
Walter Precision[MEDIUM]

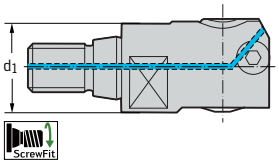


- Ø 15–33 mm
- κ = 95° / κ = 93°
- Z = 1

* Reverse machining possible

Basic body | **Cartridge with C insert**



Tool	Basic body Designation	d_1 mm	D_c mm	Cartridge No.	Designation	Type
NCT ScrewFit 	B3230G.T14.15–21.Z1	T14	15–18,5	1		
			18–21,5	2		
	B3230G.T18.20–26.Z1	T18	20–26	1	EB321.CP05	CP . . 0502 . .
	B3230G.T22.26–33.Z1	T22	26–33	1	EB323.CP05	CP . . 0502 . .

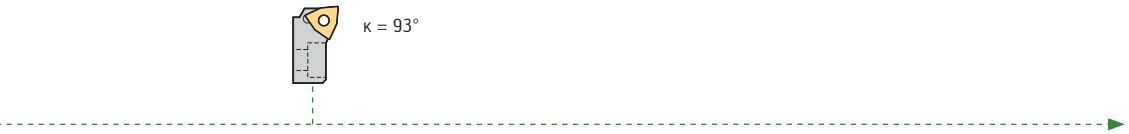
For assembly aids, see page G 105 of the Walter General catalogue.
Bodies and assembly parts are included in the scope of delivery.

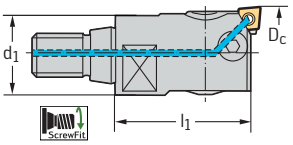
Assembly parts

		T14	T18	T22
		for $D_{c\ min–max}$ [mm]		
		15–21,5	20–26	26–33
	Clamping screw	FS 2244 (SW 1,5)	FS 2251 (Torx 9IP)	FS 1082 (SW 2,5)
	Tightening torque			2,0 Nm
	Clamping screw for cartridge	FS 1457 (Torx 9IP)	FS 2080 (Torx 15IP)	FS 1495 (Torx 20IP)
	Tightening torque	0,9 Nm	2,0 Nm	2,5 Nm
	Clamping screw for insert	FS 2245 (Torx 6IP)	FS 2084 (Torx 7IP)	
	Tightening torque	0,6 Nm	0,8 Nm	

Cartridge with W insert

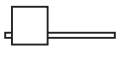
Complete tool





Designation	Type	d_1 mm	l_1 mm	kg	Complete tool Designation with C insert	Complete tool Designation with W insert
EB549.WC02	WC . . 0201 . .	14	30	0,10		B3230.T14.15-18.Z1.WC02
EB550.WC02	WC . . 0201 . .	18	30	0,10		B3230.T14.18-21.Z1.WC02
EB341.WC03	WC . . 0302 . .	22	35	0,10	B3230.T18.20-26.Z1.CP05	B3230.T18.20-26.Z1.WC03
EB343.WC03	WC . . 0302 . .	26	40	0,15	B3230.T22.26-33.Z1.CP05	B3230.T22.26-33.Z1.WC03

Accessories

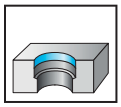
		T14	T18	T22
		for $D_{c\ min-max}$ [mm]		
		15–21,5	20–26	26–33
	Screwdriver for clamping screw	FS 2086 (Torx 6IP)	FS 2088 (Torx 7IP)	
	Torx key for clamping screw	FS 1484 (Torx 9IP)		
	Wrench DIN 911 for clamping screw	SW 1,5		SW 2,5
	Wrench for cartridge clamping	FS 1484 (Torx 9IP)	FS 1486 (Torx 20IP)	FS 1485 (Torx 15IP)

Torque screwdriver with interchangeable blades, see page H-2.

C-25/C-27 G-2 C 188* C-86

Precision boring tool
B 3230

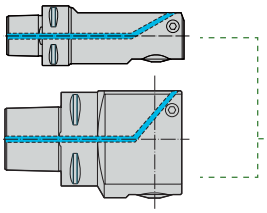
Walter Precision^{MEDIUM}



- Ø 20–203 mm
- κ = 95° / κ = 93°
- Z = 1

* Reverse machining possible

Basic body

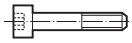


Cartridge with C and W insert

Tool	Basic body Designation	d_1 mm	D_c mm	Cartridge No.	Designation	Type	Designation	Type
Walter Capto™	★ B3230G.C3.20–38.Z1	C3	20–26,5	1	EB321.CP05	CP . . 0502 . .	EB341.WC03	WC . . 0302 . .
			(28)[1] 26–32,5*	2	EB523.CP05		EB536.WC03	
			32–38,5*	3	EB524.CP05		EB537.WC03	
	★ B3230G.C3.26–47.Z1	C3	26–33,5	1	EB323.CP05	CP . . 0502 . .	EB343.WC03	WC . . 0302 . .
			(34)[1] 33–40,5*	2	EB525.CP05		EB538.WC03	
			40–47,5*	3	EB526.CP05		EB539.WC03	
	★ B3230G.C3.33–57.Z1	C3	33–41,5	1	EB325.CP05	CP . . 0502 . .	EB345.WC03	WC . . 0302 . .
			41–49,5*	2	EB527.CP05		EB540.WC03	
			49–57,5*	3	EB528.CP05		EB541.WC03	
	★ B3230G.C4.41–83.Z1	C4	41–55,5	1	EB327.CC06	CC . . 0602 . .	EB347.WC04	WC . . 0402 . .
			55–69,5*	2	EB532.CC06		EB545.WC05	WC . . 0503 . .
			69–83,5*	3	EB533.CC06		EB546.WC05	
	★ B3230G.C5.55–100.Z1	C5	55–70,5	1	EB329.CC06	CC . . 0602 . .	EB349.WC05	WC . . 0503 . .
			70–85,5*	2	EB534.CC06		EB547.WC05	
			85–100,5*	3	EB535.CC06		EB548.WC05	
	★ B3230G.C6.070–120.Z1	C6	70–90,5	1	EB329.CC06	CC . . 0602 . .	EB349.WC05	WC . . 0503 . .
			85–105,5*	2	EB534.CC06		EB547.WC05	
			100–120,5*	3	EB535.CC06		EB548.WC05	
	★ B3230G.C6.090–166.Z1	C6	90–116*	1	EB529.CC06	CC . . 0602 . .	EB542.WC05	WC . . 0503 . .
			115–141*	2	EB530.CC06		EB543.WC05	
			140–166*	3	EB531.CC06		EB544.WC05	
	★ B3230G.C8.090–166.Z1	C8	90–116*	1	EB529.CC06	CC . . 0602 . .	EB542.WC05	WC . . 0503 . .
			115–141*	2	EB530.CC06		EB543.WC05	
			140–166*	3	EB531.CC06		EB544.WC05	
	★ B3230G.C6.110–203.Z1	C6	110–153*	1	EB529.CC06	CC . . 0602 . .	EB542.WC05	WC . . 0503 . .
			135–178*	2	EB530.CC06		EB543.WC05	
			160–203*	3	EB531.CC06		EB544.WC05	
	★ B3230G.C8.110–203.Z1	C8	110–153*	1	EB529.CC06	CC . . 0602 . .	EB542.WC05	WC . . 0503 . .
			135–178*	2	EB530.CC06		EB543.WC05	
			160–203*	3	EB531.CC06		EB544.WC05	

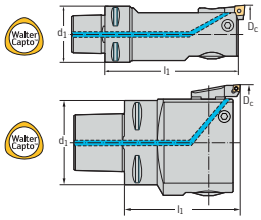
[1] D_{min} for reverse machining.
* Reverse machining possible.
For assembly aids, see page G 28 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

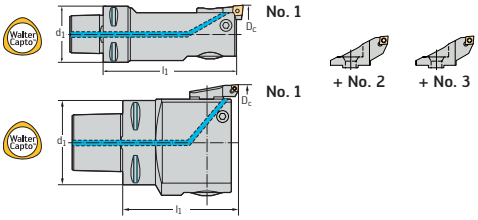
		C3		C4	C5	C6	C6 / C8
		for $D_{c\ min–max}$ [mm]					
		20–38,5	26–47,5	33–57,5	41–83,5	55–100,5	70–120,5	90–203
	Clamping screw	FS 2251 (Torx 9IP)	FS 1082 (SW 3)	FS 1082 (SW 2,5)	FS 1083 (SW 3)	FS 1085 (SW 5)	FS 1086 (SW 6)	FS 1087 (SW 6)
	Tightening torque		2,5 Nm	2,0 Nm	2,5 Nm	10,0 Nm	25,0 Nm	25,0 Nm
	Clamping screw for cartridge	FS 1457 (Torx 9IP)	FS 2080 (Torx 15IP)	FS 1495 (Torx 20IP)	FS 1091 (SW 3)	FS 1092 (SW 5)	FS 1092 (SW 5)	FS 2150 (Torx 30IP)
	Tightening torque	1,5 Nm	2,5 Nm	5,0 Nm	2,5 Nm	12,0 Nm	12,0 Nm	10,0 Nm
	Clamping screw for insert	for CP . . 05 / WC . . 03 = FS 2084 (Torx 7IP)			for CC . . 06 / WC . . 04 = FS 1454 (Torx 8IP) for WC . .05 = FS 1457 (Torx 9IP)			
	Tightening torque	0.8 Nm			FS 1454 = 0.8 Nm / FS 1457 = 1.5 Nm			

★ New addition to range

Complete tool

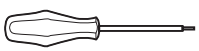


Precision set



d_1 mm	l_1 mm	kg	Complete tool Designation with C insert	Complete tool Designation with W insert	Precision set Designation with C insert	Precision set Designation with W insert
32	80	0,23	★ B3230.C3.020-026.Z1.CP05	★ B3230.C3.020-026.Z1.WC03	★ B3230.C3.020-038.Z1.CP05	★ B3230.C3.020-038.Z1.WC03
		0,23	★ B3230.C3.026-032.Z1.CP05	★ B3230.C3.026-032.Z1.WC03		
		0,24	★ B3230.C3.032-038.Z1.CP05	★ B3230.C3.032-038.Z1.WC03		
32	80	0,29	★ B3230.C3.026-033.Z1.CP05	★ B3230.C3.026-033.Z1.WC03	★ B3230.C3.026-047.Z1.CP05	★ B3230.C3.026-047.Z1.WC03
		0,30	★ B3230.C3.033-040.Z1.CP05	★ B3230.C3.033-040.Z1.WC03		
		0,30	★ B3230.C3.040-047.Z1.CP05	★ B3230.C3.040-047.Z1.WC03		
32	80	0,42	★ B3230.C3.033-041.Z1.CP05	★ B3230.C3.033-041.Z1.WC03	★ B3230.C3.033-057.Z1.CP05	★ B3230.C3.033-057.Z1.WC03
		0,42	★ B3230.C3.041-049.Z1.CP05	★ B3230.C3.041-049.Z1.WC03		
		0,42	★ B3230.C3.049-057.Z1.CP05	★ B3230.C3.049-057.Z1.WC03		
40	80	0,7	★ B3230.C4.041-055.Z1.CC06	★ B3230.C4.041-055.Z1.WC04	★ B3230.C4.041-083.Z1.CC06	★ B3230.C4.041-083.Z1.WC04
		0,7	★ B3230.C4.055-069.Z1.CC06	★ B3230.C4.055-069.Z1.WC05		
		0,7	★ B3230.C4.069-083.Z1.CC06	★ B3230.C4.069-083.Z1.WC05		
50	100	1,4	★ B3230.C5.055-070.Z1.CC06	★ B3230.C5.055-070.Z1.WC05	★ B3230.C5.055-100.Z1.CC06	★ B3230.C5.055-100.Z1.WC05
		1,4	★ B3230.C5.070-085.Z1.CC06	★ B3230.C5.070-085.Z1.WC05		
		1,4	★ B3230.C5.085-100.Z1.CC06	★ B3230.C5.085-100.Z1.WC05		
63	100	2,1	★ B3230.C6.070-090.Z1.CC06	★ B3230.C6.070-090.Z1.WC05	★ B3230.C6.070-120.Z1.CC06	★ B3230.C6.070-120.Z1.WC05
		2,2	★ B3230.C6.085-105.Z1.CC06	★ B3230.C6.085-105.Z1.WC05		
		2,1	★ B3230.C6.100-120.Z1.CC06	★ B3230.C6.100-120.Z1.WC05		
63	110	3,2	★ B3230.C6.090-116.Z1.CC06	★ B3230.C6.090-116.Z1.WC05	★ B3230.C6.090-166.Z1.CC06	★ B3230.C6.090-166.Z1.WC05
		3,2	★ B3230.C6.115-141.Z1.CC06	★ B3230.C6.115-141.Z1.WC05		
		3,2	★ B3230.C6.140-166.Z1.CC06	★ B3230.C6.140-166.Z1.WC05		
80	110	4,0	★ B3230.C8.090-116.Z1.CC06	★ B3230.C8.090-116.Z1.WC05	★ B3230.C8.090-166.Z1.CC06	★ B3230.C8.090-166.Z1.WC05
		4,0	★ B3230.C8.115-141.Z1.CC06	★ B3230.C8.115-141.Z1.WC05		
		4,0	★ B3230.C8.140-166.Z1.CC06	★ B3230.C8.140-166.Z1.WC05		
63	110	4,1	★ B3230.C6.110-153.Z1.CC06	★ B3230.C6.110-153.Z1.WC05	★ B3230.C6.110-203.Z1.CC06	★ B3230.C6.110-203.Z1.WC05
		4,1	★ B3230.C6.135-178.Z1.CC06	★ B3230.C6.135-178.Z1.WC05		
		4,1	★ B3230.C6.160-203.Z1.CC06	★ B3230.C6.160-203.Z1.WC05		
63	110	4,8	★ B3230.C8.110-153.Z1.CC06	★ B3230.C8.110-153.Z1.WC05	★ B3230.C8.110-203.Z1.CC06	★ B3230.C8.110-203.Z1.WC05
		4,8	★ B3230.C8.135-178.Z1.CC06	★ B3230.C8.135-178.Z1.WC05		
		4,8	★ B3230.C8.160-203.Z1.CC06	★ B3230.C8.160-203.Z1.WC05		

Accessories

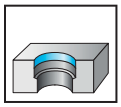
		C3			C4	C5	C6	C6 / C8
		for $D_{c\ min-max}$ [mm]						
		20–38,5	26–47,5	33–57,5	41–83,5	55–100,5	70–120,5	90–203
	Screwdriver for clamping screw	FS 2088 (Torx 7IP)			for CC . . 06 / WC . . 04 = FS 1483 (Torx 8IP) for WC . .05 = FS 1484 (Torx 9IP)			
	Screwdriver for clamping screw	FS 1484 (Torx 9IP)						
	Wrench DIN 911 for clamping screw		SW 2,5	SW 3	SW 4	SW 5	SW 6	SW 6
	Wrench for cartridge clamping	FS 1484 (Torx 9IP)	FS 1485 (Torx 15IP)	FS 1486 (Torx 20IP)				FS 2108 (Torx 30IP)
	Allen key DIN 911 for cartridge clamping				SW 3	SW 5	SW 5	

C-25/C-27 G-2 C 188* C-86

★ New addition to range

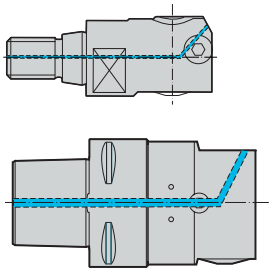
Self-balancing precision boring tool
B 4030

Walter Precision^{MEDIUM}

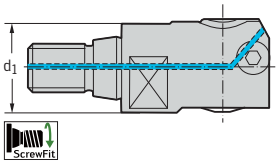
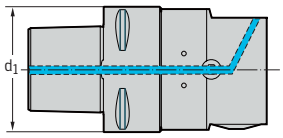


- Ø 33–153 mm
- κ = 95° / κ = 93°
- Z = 1

Basic body | **Cartridge with C insert**



κ = 95°

Tool	Basic body Designation	d_1 mm	D_c mm	Designation	Type	
NCT ScrewFit 	B4030G.T28.33–41.Z1	T 28	33–41	EB323.CP 05	CP . . 0502 . .	
	B4030G.T36.41–55.Z1	T 36	41–55	EB325.CP05	CP . . 0502 . .	
	B4030G.T45.55–70.Z1	T 45	55–70	EB327.CC06	CC . . 0602 . .	
Walter Capto™ 	★ B4030G.C6.070–090.Z1	C6	70–90	EB327.CC06	CC . . 0602 . .	
	★ B4030G.C8.090–110.Z1*	C8	90–110			
	★ B4030G.C8.110–153.Z1*	C8	110–153			

*Aluminium design
For assembly aids, see page G 105 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

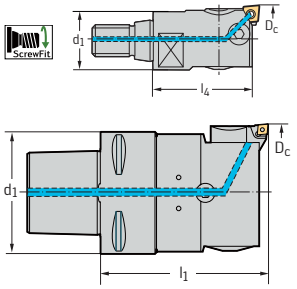
Assembly parts

		$D_{c\ min–max}$ [mm] 33–41	41–55	55–70	70–90	90–110	110–153
	Clamping screw	FS 2031 (SW 2,5)	FS 2032 (SW 3)	FS 2033 (SW 4)	FS 2034 (SW 5)	FS 2035 (SW 6)	FS 2036 (SW 6)
	Tightening torque	2,5 Nm	3,0 Nm	6,0 Nm	12 Nm	15 Nm	15 Nm
	Clamping screw for cartridge	FS 2080 (Torx 15IP)	FS 1495 (Torx 20IP)	FS 1091 (SW 3)			
	Tightening torque	2,5 Nm	2,5 Nm	2,5 Nm			
	Clamping screw for insert	FS 2084 (Torx 7IP)		FS 1454 (Torx 8IP)			
	Tightening torque	0,8 Nm		0,8 Nm			

★ New addition to range

Cartridge with W insert

Complete tool



Designation	Type	d_1 mm	l_1 mm	kg	Complete tool balanceable Designation with C insert	Complete tool balanceable Designation with W insert
EB343.WC03	WC . . 0302 . .	28	55	0,3	B4030.T28.33-41.Z1.CP05	B4030.T28.33-41.Z1.WC03
EB345.WC03	WC . . 0302 . .	36	65	0,6	B4030.T36.41-55.Z1.CP05	B4030.T36.41-55.Z1.WC03
EB347.WC04	WC . . 0402 . .	45	80	1,0	B4030.T45.55-70.Z1.CC06	B4030.T45.55-70.Z1.WC04
EB347.WC04	WC . . 0402 . .	63	100	2,5	★ B4030.C6.070-090.Z1.CC06	★ B4030.C6.070-090.Z1.WC04
		80	110	1,6	★ B4030.C8.090-110.Z1.CC06	★ B4030.C8.090-110.Z1.WC04
		80	110	2,0	★ B4030.C8.110-153.Z1.CC06	★ B4030.C8.110-153.Z1.WC04

Accessories

		for $D_{c\ min-max}$ [mm]				
		33–41	41–55	55–70	70–90	90–153
	Screwdriver for clamping screw	FS 1484 (Torx 7IP)		FS 1483 (Torx 8IP)		
	Wrench DIN 911 for clamping screw	SW 2,5	SW 3	SW 4	SW 5	SW 6
	Wrench for cartridge clamping	FS 1485 (Torx 15IP)	FS 1486 (Torx 20IP)			
	Allen key DIN 911 for cartridge clamping			SW 3		

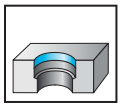
Torque screwdriver with interchangeable blades, see page H-2.

C-25/C-27 G-2 C 188* C-86

★ New addition to range

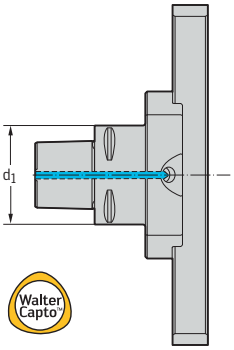
Precision boring tool with bridge
B 3230

Walter Precision^{MAXI}



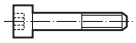
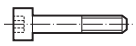
- Ø 150–640 mm
- κ = 95° / κ = 93°
- Z = 1
- Aluminium bridge

Basic body

Tool	Basic body Designation	d_1 mm	D_c mm	Bridge	Balance weight	Cartridge holder
Walter Capto™			150–220	★ EB134AL	—	—
			220–290	★ EB135AL		
			290–360	★ EB136AL		
	★ B3223G.C8.150–640	C8	360–430	★ EB137AL	EB121	EB123
			430–500	★ EB138AL		
			500–570	★ EB139AL		
			570–640	★ EB140AL		

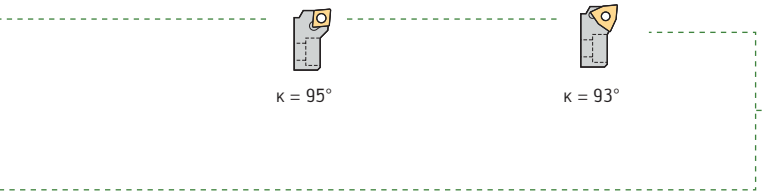
For assembly aids, see page G 105 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

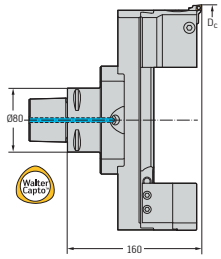
Assembly parts

	Designation	Tightening torque
 Clamping screw for bridge	FS 1114 (SW 10)	120 Nm
 Clamping screw for balance weight slide	FS 1086 (SW 6)	25 Nm
 Clamping screw for cartridge holder and balance weight	FS 1113 (SW 6)	25 Nm
 Clamping screw for cartridge	FS 1092 (SW 5)	12 Nm
 Clamping screw for insert	FS 1457 (Torx 9IP)	2,5 Nm

★ New addition to range

Cartridge with C insert | Cartridge with W insert | Complete tool





Cartridge designation	Type	Cartridge designation	Type	kg	Complete tool Designation with C insert	Complete tool Designation with W insert
EB329.CC06	CCGT 06 . .	EB349.WC05	WCGT 05 . .	6,3	★ B3230.C8.150-220.Z1.CC06	★ B3230.C8.150-220.Z1.WC05
				6,8	★ B3230.C8.220-290.Z1.CC06	★ B3230.C8.220-290.Z1.WC05
				7,2	★ B3230.C8.290-360.Z1.CC06	★ B3230.C8.290-360.Z1.WC05
				7,5	★ B3230.C8.360-430.Z1.CC06	★ B3230.C8.360-430.Z1.WC05
				7,9	★ B3230.C8.430-500.Z1.CC06	★ B3230.C8.430-500.Z1.WC05
				8,2	★ B3230.C8.500-570.Z1.CC06	★ B3230.C8.500-570.Z1.WC05
				8,4	★ B3230.C8.570-640.Z1.CC06	★ B3230.C8.570-640.Z1.WC05

Accessories

	Screwdriver for clamping screw	FS 1484 (Torx 9IP)
	Allen key DIN 911	SW 5 / SW 6 / SW 10

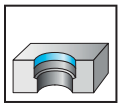
Torque screwdriver with interchangeable blades, see page H-2.

C-25/C-27 | G-2 | C 188* | C-86

★ New addition to range

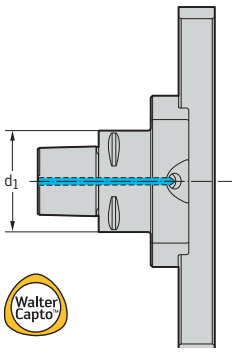
Precision boring tool with bridge
B 3234

Walter Precision^{MAXI}



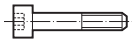
- Ø 150–640 mm
- κ = 95° / κ = 93°
- Z = 1
- Cutting edge orientation rotated by 90° in relation to B3230G.C …
- Aluminium bridge

Basic body

Tool	Basic body Designation	d_1 mm	D_c mm	Bridge	Balance weight	Cartridge holder
Walter Capto™ 	★ B3224G.C8.150–640	C8	150–220	★ EB134AL	—	—
			220–290	★ EB135AL	EB121	EB123
			290–360	★ EB136AL		
			360–430	★ EB137AL		
			430–500	★ EB138AL		
			500–570	★ EB139AL		
			570–640	★ EB140AL		

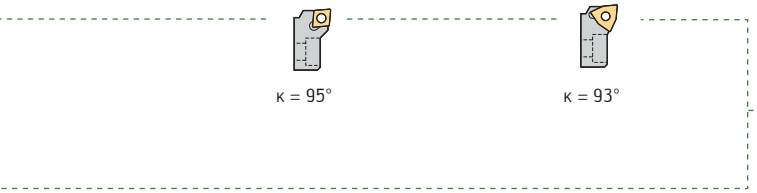
For assembly aids, see page G 105 of the Walter General catalogue.
Bodies and assembly parts are included in the scope of delivery.

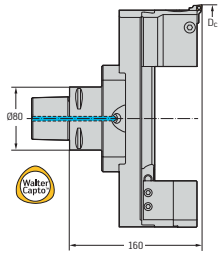
Assembly parts

	Designation	Tightening torque
 Clamping screw for bridge	FS 1114 (SW 10)	120 Nm
 Clamping screw for balance weight slide	FS 1086 (SW 6)	25 Nm
 Clamping screw for cartridge holder and balance weight	FS 1113 (SW 6)	25 Nm
 Clamping screw for cartridge	FS 1092 (SW 5)	12 Nm
 Clamping screw for insert	FS 1457 (Torx 9IP)	2,5 Nm

★ New addition to range

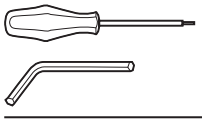
Cartridge with C insert	Cartridge with W insert	Complete tool





Cartridge Designation	Type	Cartridge Designation	Type	kg	Complete tool Designation with C insert	Complete tool Designation with W insert
EB329.CC06	CCGT 06 . .	EB349.WC05	WCGT 05 . .	6,3	★ B3234.C8.150-220.Z1.CC06	★ B3234.C8.150-220.Z1.WC05
				6,8	★ B3234.C8.220-290.Z1.CC06	★ B3234.C8.220-290.Z1.WC05
				7,2	★ B3234.C8.290-360.Z1.CC06	★ B3234.C8.290-360.Z1.WC05
				7,5	★ B3234.C8.360-430.Z1.CC06	★ B3234.C8.360-430.Z1.WC05
				7,9	★ B3234.C8.430-500.Z1.CC06	★ B3234.C8.430-500.Z1.WC05
				8,2	★ B3234.C8.500-570.Z1.CC06	★ B3234.C8.500-570.Z1.WC05
				8,4	★ B3234.C8.570-640.Z1.CC06	★ B3234.C8.570-640.Z1.WC05

Accessories



Screwdriver for clamping screw	FS 1484 (Torx 9IP)
Allen key DIN 911	SW 5 / SW 6 / SW 10

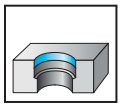
Torque screwdriver with interchangeable blades, see page H-2.

C-25/C-27 G-2 C 188* C-86

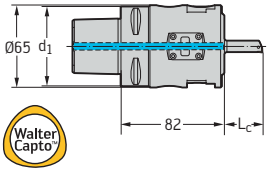
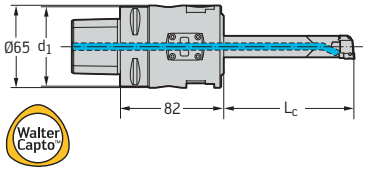
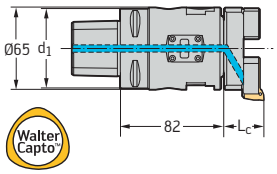
★ New addition to range

Precision boring tool sets
B 4035

Walter Precision[DIGITAL]



- Ø 10–124 mm
- κ = 93°
- Z = 1

Tool	D_c mm	Set Designation	d_1	Set contents Toolholder	Designation	
	10–32	★ B4035 Set 1	C6	Boring bar	EB611.WC03	
					EB615.WC03	
					EB619.WC03	
				Extension	EB642	
				Basic body	B4035 basic body	
	32–68	★ B4035 Set 2	C6	Extension	EB625	
					EB627	
				Basic body	B4035 basic body	
	68–124	★ B4035 Set 3	C6	Bridge	EB631	
					EB632	
				Counterweight	EB635	
				Basic body	B4035 basic body	

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Designation	Tightening torque
 Clamping screw for insert	FS 2084 (IP 7) for WC . . 0302 . . FS 1454 (IP 8) for WC . . 0402 . .	0,9 Nm 0,9 Nm
 Clamping screw for basic body	FS 2101 (SW 4)	8,0 Nm
 Clamping grub screw for boring bar	FS 2102 (SW 4)	8,0 Nm
 Screwdriver	FS 2088 (IP 7) for FS 2084 FS 1483 (IP 8) for FS 1454	
 Coolant supply adaptor	EB636	
Battery	FS 2122	
Battery compartment gasket	FS 2121	
Battery compartment cover	FS 2123	

★ New addition to range


Set 1


Set 2


Set 3

Insert holder	Designation	$D_{c\ opt.}$* mm	D_c mm	L_C mm	Type
		10–11	10–17	27	WC . . 0302 . .
		14–15	14–21	47	
		18–19	18–25	65	
Cartridge	EB644.WC04	20–22	20–24	81	WC . . 0402 . .
	EB621.WC04	24–26	24–28	81	
	EB623.WC04	28–30	28–32	81	
Cartridge	EB629.WC04		32–41	63	WC . . 0402 . .
	EB630.WC04		41–50	63	
Cartridge	EB629.WC04		50–59	72	
	EB630.WC04		59–68	72	
Cartridge	EB634.WC04		68–96	32,5	WC . . 0402 . .
	EB634.WC04		96–124	32,5	

*$D_{c\ opt.}$ = Diameter range with optimum balancing, for maximum speeds.

Accessories

	Allen key DIN 911	SW 1,5 / SW 3
	T-handle	FS 1174 (T 25)

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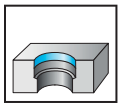
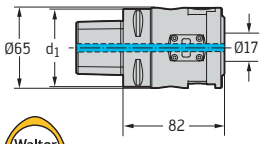
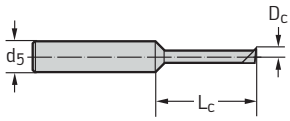
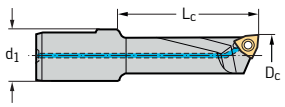
Expansion components and individual parts
B 4035

Walter Precision^{DIGITAL}



– Ø 3–20 mm

Tool	Designation	$D_{c\ opt.}$* mm	d_1 mm	D_c mm	d_5 mm	L_c mm	Type
Basic body  	★ B4035 Basic set metric		C6				
One-piece insert holder 	EB603.WXP15	3–4		3–10	6	10	—
	EB604.WXP15	4–5		4–11	6	10	
	EB605.WXP15	5–6		5–12	6	10	
	EB606.WXP15	5–6		5–12	6	20	
	EB607.WXP15	6–7		6–13	6	20	
	EB608.WXP15	6–7		6–13	6	30	
	EB609.WXP15	8–9		8–15	8	23	
	EB610.WXP15	8–9		8–15	8	48	
Boring bar 	EB611.WC03	10–11		10–17	17	30	WC . . 0302 . .
	EB612.WC03	11–12		11–18	17	30	
	EB613.WC03	12–13		12–19	17	45	
	EB614.WC03	13–14		13–20	17	45	
	EB615.WC03	14–15		14–21	17	50	
	EB616.WC03	15–16		15–22	17	50	
	EB617.WC03	16–17		16–23	17	60	
	EB618.WC03	17–18		17–24	17	60	
	EB619.WC03	18–19		18–25	17	68	
	EB620.WC03	19–20		19–26	17	68	
	EB637.WC03.CS			10–12	17	55	
	EB638.WC03.CS			12–14	17	65	
	EB639.WC03.CS			14–16	17	75	
	EB640.WC03.CS			16–18	17	85	
	EB641.WC03.CS			18–20	17	95	

*$D_{c\ opt.}$ = Tool has optimum balance → suitable for maximum speeds.

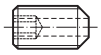
Bodies and assembly parts are included in the scope of delivery.

EB . . . CS = Solid carbide shank:
Advantages: Increased rigidity, reduced deflection, neutralised vibration

★ New addition to range

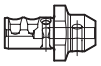
Set 1

Assembly parts

		d_1 = 6 mm	d_1 = 8 mm	d_1 = 17 mm
	Threaded plug	FS 2093 (SW 3)	FS 2093 (SW3)	
	Tightening torque	4 Nm	4 Nm	
	Clamping screw for insert			FS 2084 (Torx 7IP)
	Tightening torque			0,9 Nm

For basic bodies for assembly parts, see page C-70.

Accessories

		d_1 = 6 mm	d_1 = 8 mm	d_1 = 17 mm
	Adaptors	EB601	EB602	–
	Screwdriver	DIN 911 (SW 3)	DIN 911 (SW 3)	FS 2088 (Torx 7IP)

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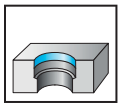
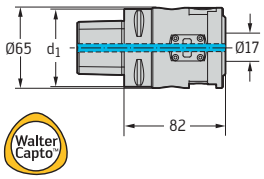
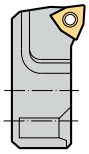
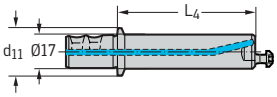
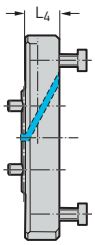
Expansion components and individual parts
B 4035

Walter Precision^{DIGITAL}



- Ø 20–124 mm

Tool	Designation	d_1	$D_{c\ opt.}$* mm	for D_c mm	d_{11} mm	L_4 mm	Type
Basic body 	★ B4035 Basic Set metric	C6					
Cartridges 	EB644.WC04		20–22	20–24		12	WC . . 0402 . .
	EB645.WC04		22–24	22–26		12	
	EB621.WC04		24–26	24–28		12	
	EB622.WC04		26–28	26–30		12	
	EB623.WC04		28–30	28–32		12	
	EB624.WC04		30–32	30–34		12	
	EB629.WC04			32–41[1] 50–59[2]		14	
	EB630.WC04			41–50[1] 59–68[2]		14	
	EB634.WC04			68–124		16,5	
Extension 	EB642			20–32	25	72	—
	EB643.CS			20–32	—	108	
	EB625			32–50	28,5	52	
	EB626			32–50	28,5	88	
	EB627			50–68	46	61	
	EB628			50–68	46	106	
Bridge 	EB631			68–96		16	—
	EB632			96–124		16	
	EB635 (counterweight)						

*$D_{c\ opt.}$ = Tool has optimum balance → suitable for maximum speeds.

[1] = In combination with EB625 / EB626
[2] = In combination with EB627 / EB628

Bodies and assembly parts are included in the scope of delivery.

EB . . . CS = Solid carbide shank:
Advantages: Increased rigidity, reduced deflection, neutralised vibration.

★ New addition to range


Set 2

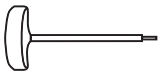
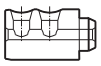

Set 3

Assembly parts

		D_c = 20–32 mm	D_c = 32–68 mm	D_c = 68–124 mm
	Clamping screw for insert	FS 1454 (Torx 8IP)		
	Tightening torque	0,9 Nm		
	Clamping screw for cartridge	FS 2094 (T 25)	FS 2096 (SW 4)	
	Tightening torque	8,0 Nm	8,0 Nm	
	Clamping bolt for extension		FS 2095	
	Clamping screw for bridge			FS 2100 (SW 4)
	Tightening torque			8,0 Nm
	Clamping screw for cartridge/counterweight			FS 2097 (SW 4)
	Tightening torque			8,0 Nm
	Threaded plug for coolant			FS 2098 (SW 1,5)
	Gasket for bridge			FS 2099

For basic bodies for assembly parts, see page C-70.

Accessories

	Screwdriver for indexable insert	FS 1483 (Torx 8IP)
	Screwdriver for extension	FS 1174 (T 25)
	Allen key DIN 911	SW 1,5 / SW 4
	Coolant supply adaptor for bridge	EB636

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Cutting data for drilling with Xtra·tec® Point Drill D_C 12–38 mm

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Insert geometry: Starting values for feed f [mm/U] P6001 D_C [mm] 12,0–15,9	16,0–21,9	22,0–31,99	32,0–37,99
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●		0,2	0,25	0,3	0,4
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●		0,2	0,25	0,3	0,4
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●		0,2	0,25	0,3	0,4
		C > 0.55%	annealed	190	639	P4	●●		0,2	0,25	0,3	0,4
		C > 0.55%	tempered	300	1013	P5	●●		0,15	0,2	0,22	0,25
		machining steel (short-chipping)	annealed	220	745	P6	●●	●	0,18	0,22	0,25	0,3
	Low-alloyed steel	annealed		175	591	P7	●●		0,2	0,25	0,3	0,4
		tempered		300	1013	P8	●●		0,2	0,25	0,3	0,4
		tempered		380	1282	P9	●●		0,18	0,22	0,25	0,3
		tempered		430	1477	P10	●●		0,15	0,2	0,22	0,28
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●		0,15	0,2	0,22	0,28
		hardened and tempered		300	1013	P12	●●		0,12	0,15	0,2	0,25
		hardened and tempered		400	1361	P13	●●		0,1	0,12	0,8	0,22
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●		0,15	0,2	0,22	0,25
		martensitic, tempered		330	1114	P15	●●		0,12	0,15	0,2	0,22
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●					
		austenitic, precipitation hardened (PH)		300	1013	M2						
		austenitic/ferritic, duplex		230	778	M3	●●					
K	Malleable cast iron	ferritic		200	675	K1	●●	●	0,2	0,25	0,3	0,4
		pearlitic		260	867	K2	●●	●	0,2	0,25	0,3	0,4
	Grey cast iron	low tensile strength		180	602	K3	●●	●	0,2	0,25	0,4	0,5
		high tensile strength/austenitic		245	825	K4	●●	●	0,2	0,25	0,4	0,5
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	0,2	0,25	0,35	0,4
		pearlitic		265	885	K6	●●		0,2	0,25	0,35	0,4
	GGV (CGI)			200	675	K7	●●	●	0,18	0,2	0,25	0,3
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●					
		hardenable, hardened		100	343	N2	●●					
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●					
		≤ 12% Si, hardenable, hardened		90	314	N4	●●					
		> 12% Si, cannot be hardened		130	447	N5	●●	●				
	Magnesium alloys			70	250	N6	●●					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●					
		brass, bronze, red brass		90	314	N8	●●					
		Cu-alloys, short-chipping		110	382	N9	●●	●				
		high-strength, Ampco		300	1013	N10						
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●					
			hardened	280	943	S2	●●					
		Ni or Co base	annealed	250	839	S3	●●					
			hardened	350	1177	S4	●●					
			cast	320	1076	S5	●●					
	Titanium alloys	pure titanium		200	675	S6						
		α and β alloys, hardened		375	1262	S7	●●					
		β alloys		410	1396	S8	●●					
	Tungsten alloys			300	1013	S9						
	Molybdenum alloys			300	1013	S10						
H	Hardened steel	hardened and tempered		50 HRC	–	H1						
		hardened and tempered		55 HRC	–	H2						
		hardened and tempered		60 HRC	–	H3						
	Hardened cast iron	hardened and tempered		55 HRC	–	H4						
O	Thermoplasts	without abrasive fillers				O1						
	Thermosetting plastics	without abrasive fillers				O2						
	Plastic, glass fibre reinforced	GFRP				O3						
	Plastic, carbon fibre reinforced	CFRP				O4						
	Plastic, aramid fibre reinforced	AFRP				O5						
	Graphite (technical)			80 Shore		O6						

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application. Limited to 2 x D_C drilling depth. MQL (minimum quantity lubrication) or compressed air is recommended.

Centring with a B4011/B4013 is recommended when using the B4017.
N.B.: A pilot hole approx. 1 x D_C with a B4011/B4013 is strictly necessary when using the B4010.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Insert geometry										Cutting material grades																			
Starting values for feed f [mm/U]										Starting values for cutting speed v_c [m/min]																			
P6002			P6003				P6004			HC																			
D_c [mm]			D_c [mm]				D_c [mm]			WXP45				WPP45C				WXK25				WMP35				WNN25			
12,0–15,9	16,0–21,9	22,0–31,99	12,0–15,99	16,0–21,99	22,0–31,99	32–37,99	12,0–15,9	16,0–21,9	22,0–31,99	3 x D	5 x D	7 x D	10 x D	3 x D	5 x D	7 x D	10 x D	3 x D	5 x D	7 x D	10 x D	3 x D	5 x D	7 x D	10 x D	3 x D	5 x D	7 x D	10 x D
0,2	0,25	0,3	0,2	0,25	0,3	0,4				120	100	80	80	120	100	80	80					120	100	80	60				
0,2	0,25	0,3	0,2	0,25	0,3	0,4				120	100	80	80	120	100	80	80					120	100	80	50				
0,2	0,25	0,3	0,2	0,25	0,3	0,4				110	100	80	80	110	100	80	80					110	100	80	50				
0,2	0,25	0,3	0,2	0,25	0,3	0,4				120	100	80	80	120	100	80	80					120	100	80	50				
0,15	0,2	0,22	0,15	0,2	0,22	0,25				90	80	60	60	90	80	60	60					90	80	60	40				
0,18	0,22	0,25	0,18	0,22	0,25	0,3				100	90	80	80	100	90	80	80					100	90	80	50				
0,2	0,25	0,3	0,2	0,25	0,3	0,4				120	100	80	80	120	100	80	80					120	100	80	50				
0,2	0,25	0,3	0,2	0,25	0,3	0,4				80	70	60	60	80	70	60	60					80	70	60	30				
0,18	0,22	0,25	0,18	0,22	0,25	0,3				60	50	40	40	60	50	40	40					60	50	40	30				
0,15	0,2	0,22	0,15	0,2	0,22	0,28				60	50	40	40	60	50	40	40					60	50	40	30				
0,15	0,2	0,22	0,15	0,2	0,22	0,28				70	60	50	50	70	60	50	50					60	50	40	30				
0,12	0,15	0,2	0,12	0,15	0,2	0,25				70	60	50	50	70	60	50	50					60	50	40	30				
0,1	0,12	0,8	0,1	0,12	0,18	0,22				70	60	50	50	70	60	50	50					60	50	40	30				
0,15	0,2	0,22	0,15	0,2	0,22	0,25				70	60	50	50	70	60	50	50					60	50	40	30				
0,12	0,15	0,2	0,12	0,15	0,2	0,22				70	60	50	50	70	60	50	50					60	50	40	30				
			0,1	0,12	0,15	0,18																70	50	40	30				
			0,08	0,1	0,12	0,15																70	50	40	30				
0,2	0,25	0,3	0,2	0,25	0,3	0,4				120	110	100	100	120	110	100	100	120	110	100	100	100	90	70	60				
0,2	0,25	0,3	0,2	0,25	0,3	0,4				120	110	100	100	120	110	100	100	120	110	100	100	100	90	70	60				
0,2	0,25	0,4	0,2	0,25	0,4	0,5				140	130	120	110	140	130	120	110	160	150	140	120	140	130	120	90				
0,2	0,25	0,4	0,2	0,25	0,4	0,5				130	120	110	110	130	120	110	110	150	140	130	110	120	110	100	80				
0,2	0,25	0,35	0,2	0,25	0,35	0,4				120	110	100	100	120	110	100	100	120	110	100	100	110	100	90	70				
0,2	0,25	0,35	0,2	0,25	0,35	0,4				120	100	100	100	120	100	100	100	110	90	90	90	90	80	70	60				
0,18	0,2	0,25	0,18	0,2	0,25	0,3				110	90	90	90	110	90	90	90	110	90	90	90	90	80	70	60				
							0,4	0,5	0,6																	320	280		
							0,4	0,5	0,6																	320	280		
							0,25	0,3	0,35																	400	400		
							0,25	0,3	0,35																	320	320	280	260
							0,25	0,3	0,35																	220	220	160	150
							0,12	0,18	0,18																	240	200	160	150
							0,12	0,18	0,18																	120	120	80	80
							0,16	0,2	0,24																	160	120	80	80
							0,12	0,18	0,18																	120	120	80	80
			0,08	0,12	0,15	0,18																30	20	20					
			0,08	0,12	0,15	0,18																20	20	15					
			0,08	0,12	0,15	0,15																20	20	15					
			0,05	0,08	0,1	0,12																15	12	10					
			0,08	0,12	0,15	0,18																20	20	15					
			0,12	0,15	0,18	0,18																70	60	50					
			0,12	0,15	0,18	0,18																60	50	40					

HC = Coated carbide

Cutting data for drilling with Xtra·tec® Insert Drill D_c 13.5–59 mm

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Insert geometry: Starting values for feed f [mm/U] A 57 Size -1 D_c 13,5–16,4	Size -2 16,5–20,4	Size -3 20,5–24,4	Size -4 24,5–29,4	Size -5 Size -6 29,5–42,4	Size -7 Size -8 42,5–59,4
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●		0,05	0,06	0,06	0,09	0,12	0,13
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●		0,07	0,09	0,10	0,13	0,18	0,19
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●		0,07	0,09	0,10	0,13	0,18	0,19
		C > 0.55%	annealed	190	639	P4	●●		0,07	0,09	0,10	0,13	0,18	0,19,
		C > 0.55%	tempered	300	1013	P5	●●		0,07	0,09	0,10	0,13	0,18	0,19
		machining steel (short-chipping)	annealed	220	745	P6	●●	●	0,07	0,09	0,10	0,13	0,18	0,19,
	Low-alloyed steel	annealed		175	591	P7	●●		0,08	0,10	0,12	0,15	0,20	0,21
		tempered		300	1013	P8	●●		0,07	0,09	0,10	0,13	0,15	0,16
		tempered		380	1282	P9	●●		0,07	0,09	0,10	0,13	0,15	0,16
		tempered		430	1477	P10	●●		0,05	0,06	0,06	0,09	0,12	0,13
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●		0,08	0,10	0,12	0,15	0,18	0,19
		hardened and tempered		300	1013	P12	●●		0,07	0,09	0,10	0,13	0,15	0,16
		hardened and tempered		400	1361	P13	●●		0,06	0,08	0,09	0,12	0,14	0,15
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●		0,07	0,09	0,10	0,13	0,15	0,16
		martensitic, tempered		330	1114	P15	●●		0,06	0,08	0,09	0,12	0,14	0,15
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●		0,06	0,07	0,08	0,10	0,13	0,14
		austenitic, precipitation hardened (PH)		300	1013	M2	●●		0,06	0,07	0,08	0,10	0,13	0,14
		austenitic/ferritic, duplex		230	778	M3	●●		0,06	0,07	0,08	0,10	0,13	0,14
K	Malleable cast iron	ferritic		200	675	K1	●●	●	0,09	0,12	0,14	0,17	0,22	0,23
		pearlitic		260	867	K2	●●	●	0,07	0,09	0,11	0,14	0,19	0,20
	Grey cast iron	low tensile strength		180	602	K3	●●	●	0,10	0,13	0,15	0,18	0,23	0,24
		high tensile strength/austenitic		245	825	K4	●●	●	0,08	0,10	0,12	0,15	0,20	0,21
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	0,10	0,13	0,15	0,18	0,23	0,24
		pearlitic		265	885	K6	●●		0,08	0,10	0,12	0,18	0,23	0,24
	GGV (CGI)			200	675	K7	●●	●	0,09	0,12	0,14	0,17	0,22	0,23
N	Aluminium wrought alloys	cannot be hardened		30	–	N1								
		hardenable, hardened		100	343	N2	●●							
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●							
		≤ 12% Si, hardenable, hardened		90	314	N4	●●							
		> 12% Si, cannot be hardened		130	447	N5	●●	●						
	Magnesium alloys			70	250	N6	●●							
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7								
		brass, bronze, red brass		90	314	N8	●●							
		Cu-alloys, short-chipping		110	382	N9	●●	●						
		high-strength, Ampco		300	1013	N10	●●	●	0,06	0,07	0,08	0,10	0,13	0,14
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●							
			hardened	280	943	S2	●●							
		Ni or Co base	annealed	250	839	S3	●●							
			hardened	350	1177	S4	●●							
			cast	320	1076	S5	●●							
	Titanium alloys	pure titanium		200	675	S6								
		α and β alloys, hardened		375	1262	S7	●●							
		β alloys		410	1396	S8	●●							
	Tungsten alloys			300	1013	S9	●●		0,05	0,06	0,06	0,09	0,11	0,12
	Molybdenum alloys			300	1013	S10	●●		0,05	0,06	0,06	0,09	0,11	0,12
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●●		0,05	0,06	0,06	0,09	0,10	0,10
		hardened and tempered		55 HRC	–	H2	●●		0,05	0,06	0,06	0,09	0,10	0,10
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●●		0,05	0,06	0,06	0,09	0,10	0,10
O	Thermoplasts	without abrasive fillers				O1	●●	●						
	Thermosetting plastics	without abrasive fillers				O2	●●	●						
	Plastic, glass fibre reinforced	GFRP				O3								
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6	●●	●	0,09	0,12	0,14	0,17	0,22	0,23

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application. Limited to 2 x D_c drilling depth. MQL (minimum quantity lubrication) or compressed air is recommended.

When using drills > 3 x D, the following reductions are recommended:
> 3 x D: Cutting speed v_c –20 %, feed f –30 % when spot drilling, feed f –50 % when spot drilling on inclined surfaces.
> 4 x D: Cutting speed v_c –30 %, feed f –40 % when spot drilling.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Insert geometry													Cutting material grade Outer insert [P484.P..]								
Starting values for feed f [mm/U]													Starting values for cutting speed v_c [m/min]								
E 57							E 67						HC								
Size -1	Size -2	Size -3	Size -4	Size -5 Size -6	Size -7 Size -8		Size -1	Size -2	Size -3	Size -4	Size -5 Size -6	Size -7 Size -8	WKP25S f [mm/U]			WKP35S f [mm/U]			WSP45 f [mm/U]		
D_c [mm]							D_c [mm]														
13,5–16,4	16,5–20,4	20,5–24,4	24,5–29,4	29,5–42,4	42,5–59,4		13,5–16,4	16,5–20,4	20,5–24,4	24,5–29,4	29,5–42,4	42,5–59,4	0,06	0,10	0,16	0,06	0,10	0,16	0,06	0,10	0,16
0,05	0,06	0,06	0,09	0,12	0,13		0,05	0,06	0,06	0,09	0,12	0,13	350	320		300	270		250	220	
0,06	0,07	0,08	0,11	0,17	0,18		0,06	0,07	0,08	0,11	0,17	0,18	260	240	220	220	200	180	170	160	150
0,06	0,07	0,08	0,11	0,17	0,18								240	220	200	200	180	150	150	140	130
0,06	0,07	0,08	0,11	0,17	0,18								220	200	180	180	150	140	140	130	120
0,06	0,07	0,08	0,11	0,17	0,18								190	170	150	150	130	120	130	120	110
0,06	0,07	0,08	0,11	0,17	0,18								220	200	180	180	150	140	140	130	120
0,06	0,08	0,10	0,13	0,19	0,20		0,06	0,08	0,10	0,14	0,20	0,21	260	240	220	220	200	180	170	160	160
0,06	0,07	0,08	0,11	0,14	0,15								230	210	190	190	170	140	140	130	120
0,06	0,07	0,08	0,11	0,14	0,15								210	190	170	180	160	130	140	120	110
0,05	0,06	0,06	0,09	0,11	0,12								190	170	160	170	140	130	140	120	110
0,06	0,08	0,10	0,13	0,17	0,18		0,06	0,08	0,10	0,12	0,16	0,17	220	200	180	200	170	150	140	130	120
0,06	0,07	0,08	0,11	0,14	0,15								200	170	150	180	140	130	130	120	110
0,05	0,06	0,07	0,10	0,13	0,14								190	160	140	170	130	120	120	110	100
0,06	0,07	0,08	0,11	0,14	0,15		0,06	0,07	0,08	0,11	0,14	0,15				190	170	150	140	130	120
0,05	0,06	0,07	0,10	0,13	0,14		0,05	0,06	0,07	0,10	0,13	0,15				150	130	120	120	110	100
0,06	0,07	0,08	0,10	0,13	0,14		0,06	0,07	0,09	0,12	0,14	0,15				220	200	180	180	170	150
0,06	0,07	0,08	0,10	0,13	0,14		0,06	0,07	0,09	0,12	0,14	0,15				150	130	110	130	110	100
0,06	0,07	0,08	0,10	0,13	0,14		0,06	0,07	0,09	0,12	0,14	0,15				120	100	80	100	80	70
0,07	0,09	0,11	0,14	0,21	0,22		0,07	0,09	0,11	0,14	0,21	0,22	210	190	170	190	180	160	170	140	120
0,05	0,07	0,08	0,11	0,18	0,19		0,05	0,07	0,09				190	140	120	130	120	110	130	120	110
0,08	0,10	0,12	0,15	0,22	0,23		0,08	0,10	0,12	0,15	0,22	0,23	220	200	180	200	190	170	180	160	130
0,06	0,08	0,09	0,12	0,19	0,20								180	150	130	150	130	110	150	130	110
0,08	0,10	0,12	0,15	0,22	0,23		0,08	0,10	0,12	0,15	0,22	0,23	150	140	130	140	120	110	150	130	120
0,06	0,08	0,09	0,12	0,22	0,23		0,06	0,08					140	130	120	120	110	100	120	110	110
0,07	0,09	0,11	0,14	0,21	0,22		0,07	0,09	0,11	0,14	0,21	0,22	180	150	130	150	130	110	150	130	110
0,07	0,09	0,10	0,12	0,17	0,18		0,07	0,09	0,11	0,12	0,17	0,18							450	450	450
0,08	0,10	0,12	0,15	0,17	0,18		0,08	0,10	0,12	0,15	0,17	0,18							300	300	300
0,08	0,10	0,12	0,15	0,17	0,18		0,08	0,10	0,12	0,15	0,17	0,18							250	250	250
0,08	0,10	0,12	0,15	0,17	0,18		0,08	0,10	0,12	0,15	0,17	0,18							200	200	200
0,08	0,10	0,12	0,15	0,17	0,18		0,08	0,10	0,12	0,15	0,17	0,18							300	300	300
0,10	0,12	0,14	0,17	0,22	0,23		0,10	0,12	0,14	0,17	0,22	0,23							300	250	200
0,10	0,12	0,14	0,17	0,22	0,23		0,10	0,12	0,14	0,17	0,22	0,23							350	300	250
0,06	0,07	0,08	0,10	0,13	0,14		0,06	0,07	0,09	0,12	0,14	0,15				150	130	110	130	110	100
0,05	0,06	0,07	0,10	0,13	0,14		0,05	0,06	0,07	0,10	0,13	0,14	100	100		100	100		90	90	
0,05	0,06	0,06	0,09	0,11	0,12		0,05	0,06	0,06	0,09	0,11	0,12	80	80		80	80		70	70	
0,05	0,06	0,07	0,10	0,12	0,13		0,05	0,06	0,07	0,10	0,12	0,13	60	60		60	60		50	50	
0,05	0,06	0,06	0,09	0,11	0,12		0,05	0,06	0,06	0,09	0,11	0,12	50	50		50	50		40	40	
0,05	0,06	0,06	0,09	0,11	0,12		0,05	0,06	0,06	0,09	0,11	0,12	50	50		50	50		40	40	
0,05	0,06	0,07	0,10	0,12	0,13		0,05	0,06	0,07	0,10	0,12	0,13				50	50		50	45	
0,05	0,06	0,06	0,09	0,11	0,12		0,05	0,06	0,06	0,09	0,11	0,12				50	50		40	40	
0,05	0,06	0,06	0,09	0,11	0,12		0,05	0,06	0,06	0,09	0,11	0,12	70	60							
0,05	0,06	0,06	0,09	0,11	0,12		0,05	0,06	0,06	0,09	0,11	0,12	70	60							
0,05	0,06	0,06	0,09	0,10	0,10								70	60	50						
0,05	0,06	0,06	0,09	0,10	0,10								60	50	50						
0,05	0,06	0,06	0,09	0,10	0,10								60	50	50						
0,16	0,18	0,20	0,25	0,30	0,30		0,16	0,18	0,20	0,25	0,30	0,30				400	400	400	400	400	400
0.12	0.14	0,18	0,20	0,25	0,25		0.12	0.14	0,18	0,20	0,25	0,25	300	300	300	300	300	300	300	300	300
0,07	0,09	0,11	0,14	0,21	0,22								300	250	200	250	200	150	250	200	150

HC = Coated carbide

Cutting data for drilling with WOMX-/WOEX indexable inserts

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Insert geometry: Starting values for feed f [mm/U] WOMX-B57 D_c [mm] 14–19,9	20–24,9	25–44,9	>45
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●		0,05	0,07	0,08	0,10
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●		0,05	0,07	0,08	0,10
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●		0,05	0,07	0,08	0,10
		C > 0.55%	annealed	190	639	P4	●●		0,05	0,07	0,08	0,10
		C > 0.55%	tempered	300	1013	P5	●●		0,05	0,07	0,08	0,10
		machining steel (short-chipping)	annealed	220	745	P6	●●	●	0,06	0,07	0,08	0,10
	Low-alloyed steel	annealed		175	591	P7	●●		0,06	0,07	0,08	0,10
		tempered		300	1013	P8	●●		0,06	0,07	0,08	0,10
		tempered		380	1282	P9	●●		0,06	0,07	0,08	0,10
		tempered		430	1477	P10	●●		0,04	0,05	0,06	0,09
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●		0,04	0,05	0,06	0,09
		hardened and tempered		300	1013	P12	●●		0,04	0,05	0,06	0,09
		hardened and tempered		400	1361	P13	●●		0,04	0,05	0,06	0,09
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●		0,04	0,05	0,08	0,10
		martensitic, tempered		330	1114	P15	●●		0,04	0,05	0,08	0,10
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●		0,04	0,06	0,07	0,10
		austenitic, precipitation hardened (PH)		300	1013	M2	●●		0,04	0,06	0,07	0,10
		austenitic/ferritic, duplex		230	778	M3	●●		0,04	0,06	0,07	0,10
K	Malleable cast iron	ferritic		200	675	K1	●●	●	0,05	0,07	0,09	0,12
		pearlitic		260	867	K2	●●	●	0,05	0,07	0,09	0,12
	Grey cast iron	low tensile strength		180	602	K3	●●	●	0,05	0,07	0,09	0,12
		high tensile strength/austenitic		245	825	K4	●●	●	0,05	0,07	0,09	0,12
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	0,04	0,05	0,09	0,12
		pearlitic		265	885	K6	●●		0,04	0,05	0,09	0,12
	GGV (CGI)			200	675	K7	●●	●	0,05	0,07	0,09	0,12
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●					
		hardenable, hardened		100	343	N2	●●					
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●					
		≤ 12% Si, hardenable, hardened		90	314	N4	●●					
		> 12% Si, cannot be hardened		130	447	N5	●●					
	Magnesium alloys			70	250	N6	●●					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●					
		brass, bronze, red brass		90	314	N8	●●					
		Cu-alloys, short-chipping		110	382	N9	●●					
		high-strength, Ampco		300	1013	N10	●●					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●		0,04	0,05	0,06	0,06
			hardened	280	943	S2	●●		0,04	0,05	0,06	0,06
		Ni or Co base	annealed	250	839	S3	●●					
			hardened	350	1177	S4	●●					
			cast	320	1076	S5	●●					
	Titanium alloys	pure titanium		200	675	S6	●●					
		α and β alloys, hardened		375	1262	S7	●●					
		β alloys		410	1396	S8	●●					
	Tungsten alloys			300	1013	S9	●●					
	Molybdenum alloys			300	1013	S10	●●					
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●●					
		hardened and tempered		55 HRC	–	H2	●●					
		hardened and tempered		60 HRC	–	H3	●●					
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●●					
O	Thermoplasts	without abrasive fillers				O1	●●	●				
	Thermosetting plastics	without abrasive fillers				O2	●●	●				
	Plastic, glass fibre reinforced	GFRP				O3	●●					
	Plastic, carbon fibre reinforced	CFRP				O4	●●					
	Plastic, aramid fibre reinforced	AFRP				O5	●●					
	Graphite (technical)			80 Shore		O6	●●	●				

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application. Limited to 2 x D_c drilling depth. MQL (minimum quantity lubrication) or compressed air is recommended.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Insert geometry									Cutting material grades											
	Starting values for feed f [mm/U]									Starting values for cutting speed v_c [m/min]											
	WOMX-D57					WOEX-E57				HC											
	D_c [mm]					D_c [mm]				WKP25S f [mm/U]			WKP35S f [mm/U]			WAK15 f [mm/U]			WXP40 f [mm/U]		
	12–13,9	14–19,9	20–24,9	25–44,9	>45	14–19,9	20–24,9	25–44,9	>45	bis 0,04	bis 0,08	bis 0,16	bis 0,04	bis 0,08	bis 0,16	bis 0,04	bis 0,08	bis 0,16	bis 0,04	bis 0,08	bis 0,16
	0,05	0,06	0,08	0,10	0,12	0,06	0,08	0,10	0,12	240	230	200	220	200	180				140	130	120
	0,05	0,06	0,08	0,10	0,12	0,06	0,08	0,10	0,12	240	230	200	220	200	180				140	130	120
	0,05	0,06	0,08	0,10	0,12	0,06	0,08	0,10	0,12	240	230	200	220	200	180				140	130	120
	0,05	0,06	0,08	0,10	0,12	0,06	0,08	0,10	0,12	240	230	200	220	200	180				140	130	120
	0,05	0,06	0,08	0,10	0,12	0,06	0,08	0,10	0,12	240	230	200	220	200	180				140	130	120
	0,06	0,07	0,08	0,10	0,14	0,07	0,08	0,10	0,14	240	230	200	220	200	180				140	130	120
	0,06	0,07	0,08	0,10	0,14	0,07	0,08	0,10	0,14	230	220	190	210	200	170				130	120	110
	0,06	0,07	0,08	0,10	0,14	0,07	0,08	0,10	0,14	230	220	190	210	200	170				130	120	110
	0,06	0,07	0,08	0,10	0,14	0,07	0,08	0,10	0,14	230	220	190	210	200	170				130	120	110
	0,05	0,05	0,06	0,07	0,10	0,05	0,06	0,07	0,10	200	180	170	190	170	150				130	120	110
	0,05	0,05	0,06	0,07	0,10	0,05	0,06	0,07	0,10	200	180	170	190	170	150				130	120	110
	0,05	0,05	0,06	0,07	0,10	0,05	0,06	0,07	0,10	200	180	170	190	170	150				130	120	110
	0,05	0,05	0,06	0,07	0,10	0,05	0,06	0,07	0,10	200	180	170	190	170	150				130	120	110
	0,05	0,06	0,08	0,09	0,12	0,06	0,08	0,09	0,12	180	160	150	160	140	120				130	120	110
	0,05	0,06	0,08	0,09	0,12	0,06	0,08	0,09	0,12	180	160	150	160	140	120				130	120	110
	0,05	0,06	0,08	0,09	0,12	0,06	0,08	0,09	0,12				200	180	160				160	150	140
	0,05	0,06	0,08	0,09	0,12	0,06	0,08	0,09	0,12				150	130	110				130	110	100
	0,05	0,06	0,08	0,09	0,12	0,06	0,08	0,09	0,12				120	100	80				100	100	70
	0,07	0,09	0,10	0,12	0,16	0,09	0,10	0,12	0,16	150	140	130	140	130	120	180	160	150	120	120	110
	0,07	0,09	0,10	0,12	0,16	0,09	0,10	0,12	0,16	150	140	130	140	130	120	180	160	150	120	120	110
	0,07	0,10	0,12	0,14	0,16	0,10	0,12	0,14	0,16	150	140	130	140	130	120	200	180	160	120	120	110
	0,07	0,10	0,12	0,14	0,16	0,10	0,12	0,14	0,16	150	140	130	140	130	120	200	180	160	120	120	110
	0,06	0,08	0,12	0,14	0,16	0,08	0,12	0,14	0,16	130	120	120	120	120	110	160	150	140	110	110	100
	0,06	0,08	0,12	0,14	0,16	0,08	0,12	0,14	0,16	130	120	120	120	120	110	160	150	140	110	110	100
	0,07	0,09	0,10	0,12	0,16	0,09	0,10	0,12	0,16	150	140	130	140	130	120	200	180	160	120	120	110
	0,05	0,06	0,06	0,06	0,08	0,06	0,06	0,06	0,08				80	70	70				60	60	60
	0,05	0,06	0,06	0,06	0,08	0,06	0,06	0,06	0,08				80	70	70				60	60	60
			0,06	0,06	0,08		0,06	0,06	0,08				50	40	40				40	40	40
			0,06	0,06	0,08		0,06	0,06	0,08				50	40	40				40	40	40
			0,06	0,06	0,08		0,06	0,06	0,08				50	40	40				40	40	40
	0,05	0,05	0,06	0,08	0,10											60	50	50			
	0,05	0,05	0,06	0,08	0,10											60	50	50			
	0,05	0,05	0,06	0,08	0,10											60	50	50			
	0,16	0,18	0,20	0,30	0,30								400	400	400				400	400	400
	0,12	0,14	0,18	0,20	0,25								300	300	300				300	300	300
	0,07	0,09	0,11	0,21	0,22								150	150	150				150	150	150

HC = Coated carbide

Cutting data for boring

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Insert geometry: Starting values for feed f [mm/U] –E47 D_c [mm] <44	–E47 D_c [mm] >44-73	–E47 D_c [mm] >73	–PM5 D_c [mm] <44	–PM5 D_c [mm] >44-73	–PM5 D_c [mm] >73
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●		0,20	0,30	0,40	2,20	0,30	0,40
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●		0,16	0,24	0,40	0,16	0,24	0,40
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●		0,15	0,22	0,35	0,15	0,22	0,35
		C > 0.55%	annealed	190	639	P4	●●		0,14	0,20	0,30	0,14	0,20	0,30
		C > 0.55%	tempered	300	1013	P5	●●		0,12	0,18	0,25	0,12	0,18	0,25
		machining steel (short-chipping)	annealed	220	745	P6	●●	●	0,15	0,22	0,35	0,15	0,22	0,35
	Low-alloyed steel	annealed		175	591	P7	●●		0,20	0,30	0,40	0,20	0,30	0,40
		tempered		300	1013	P8	●●		0,14	0,20	0,30	0,14	0,20	0,30
		tempered		380	1282	P9	●●		0,12	0,18	0,25	0,12	0,18	0,25
		tempered		430	1477	P10	●●		0,10	0,15	0,20	0,10	0,15	0,20
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●		0,14	0,20	0,30	0,14	0,20	0,30
		hardened and tempered		300	1013	P12	●●		0,13	0,18	0,27	0,13	0,18	0,27
		hardened and tempered		400	1361	P13	●●		0,10	0,15	0,20	0,10	0,15	0,20
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●		0,12	0,16	0,24	0,12	0,16	0,24
		martensitic, tempered		330	1114	P15	●●		0,12	0,16	0,24	0,12	0,16	0,24
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●		0,12	0,16	0,24	0,12	0,16	0,24
		austenitic, precipitation hardened (PH)		300	1013	M2	●●		0,12	0,16	0,24	0,12	0,16	0,24
		austenitic/ferritic, duplex		230	778	M3	●●		0,12	0,16	0,24	0,12	0,16	0,24
K	Malleable cast iron	ferritic		200	675	K1	●●	●	0,18	0,26	0,34	0,18	0,26	0,34
		pearlitic		260	867	K2	●●	●	0,16	0,24	0,30	0,16	0,24	0,30
	Grey cast iron	low tensile strength		180	602	K3	●●	●	0,20	0,30	0,40	0,20	0,30	0,40
		high tensile strength/austenitic		245	825	K4	●●	●	0,16	0,24	0,30	0,16	0,24	0,30
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	0,20	0,30	0,40	0,20	0,30	0,40
		pearlitic		265	885	K6	●●		0,16	0,24	0,30	0,16	0,24	0,30
	GGV (CGI)			200	675	K7	●●	●	0,18	0,26	0,34	0,18	0,26	0,34
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●							
		hardenable, hardened		100	343	N2	●●							
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●	●						
		≤ 12% Si, hardenable, hardened		90	314	N4	●●	●						
		> 12% Si, cannot be hardened		130	447	N5	●●	●						
	Magnesium alloys			70	250	N6	●●	●						
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●		0,16	0,24	0,40	0,16	0,24	0,40
		brass, bronze, red brass		90	314	N8	●●	●	0,16	0,24	0,40	0,16	0,24	0,40
		Cu-alloys, short-chipping		110	382	N9	●●	●	0,16	0,24	0,40	0,16	0,24	0,40
		high-strength, Ampco		300	1013	N10	●●							
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●		0,10	0,15	0,20	0,10	0,15	0,20
			hardened	280	943	S2	●●		0,10	0,15	0,20	0,10	0,15	0,20
		Ni or Co base	annealed	250	839	S3	●●		0,10	0,15	0,20	0,10	0,15	0,20
			hardened	350	1177	S4	●●		0,10	0,15	0,20	0,10	0,15	0,20
			cast	320	1076	S5	●●		0,10	0,15	0,20	0,10	0,15	0,20
	Titanium alloys	pure titanium		200	675	S6								
		α and β alloys, hardened		375	1262	S7	●●		0,14	0,16	0,24	0,14	0,16	0,24
		β alloys		410	1396	S8	●●		0,12	0,14	0,22	0,12	0,14	0,22
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1								
		hardened and tempered		55 HRC	–	H2								
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4								
O	Thermoplasts	without abrasive fillers				O1								
	Thermosetting plastics	without abrasive fillers				O2								
	Plastic, glass fibre reinforced	GFRP				O3								
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application. Cutting speed v_c –30%, with compressed air or MQL (minimum quantity lubrication).

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Insert geometry							Cutting material grade																	
Starting values for feed f [mm/U]							Starting values for cutting speed v_c [m/min]																	
							HC																	
–PF2 /–PM2			–PF4 /–PS5				WPP01 / WPP10			WPP20			WPP30			WSM10			WSM20			WSM30		
D_c [mm]			D_c [mm]				f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]		
<44	>44-73	>73	<44	>44-73	>73		0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4
			0,16	0,24	0,32		300	280		280	260	240	260	240	220				240	220		220	20	
			0,13	0,19	0,32		280	260		260	240	220	220	200	180				180	160		160	140	
			0,12	0,18	0,28		260	240		240	220	200	200	180	160				140	120		120	100	
			0,11	0,16	0,24		250	220		220	200	180	180	160	140				160	140		140	120	
			0,10	0,14	0,20		220	200		200	180	160	140	130	120									
			0,12	0,18	0,28		260	240		240	220	200	200	180	160				160	140		140	120	
			0,16	0,24	0,32		280	260		260	240	220	220	200	180									
			0,11	0,16	0,24		240	220		220	200	180	180	160	150									
			0,10	0,14	0,20		210	190		190	170	150	130	120	110									
			0,08	0,12	0,16		180	160		160	120	100	120	100	80									
			0,11	0,16	0,24		220	200		220	200		180	160	150									
			0,11	0,16	0,24		180	160		180	160		160	150	140									
			0,08	0,12	0,16		180	160		160	120	100	120	100	80									
			0,10	0,13	0,19					220	200		160	130										
			0,10	0,13	0,19					170	150		130	110										
			0,10	0,13	0,19								220	200		220	170		200	180		140	100	70
			0,10	0,13	0,19								180	160		160	120		150	120		110	100	50
			0,10	0,13	0,19								200	180		180	140		170	140		130	120	60
			0,14	0,22	0,30		220	200	160	200	180	140	180	160	120									
			0,13	0,19	0,24		170	150	140	160	150	130	160	140	120									
			0,16	0,24	0,32		240	220	180	220	200	160	200	180	140									
			0,13	0,19	0,24		170	150	140	160	150	130	160	140	120									
			0,16	0,24	0,32		200	180	160	180	160	140	150	140	120									
			0,13	0,19	0,24		180	160	140	160	140	130	160	130	110									
			0,14	0,22	0,30		165	150	130															
0,24	0,30	0,40																						
0,24	0,30	0,40																						
0,24	0,30	0,40																						
0,24	0,30	0,40																						
0,24	0,30	0,40																						
0,24	0,30	0,40																						
0,24	0,30	0,40	0,13	0,19	0,32		300	250	220	300	250	200												
0,24	0,30	0,40	0,13	0,19	0,32		350	300	250	330	300	250												
0,24	0,30	0,40	0,13	0,19	0,32		400	360	300	350	330	300												
			0,08	0,12	0,16											90	90		80	80		60	35	
			0,08	0,12	0,16											70	70		60	60		40	30	
			0,08	0,12	0,16											60	60		50	50		40	20	
			0,08	0,12	0,16											50	50		40	40		35	20	
			0,08	0,12	0,16											50	50		40	40		30	10	
			0,11	0,13	0,19											60	60		50	50				
			0,09	0,11	0,16											50	50		40	40				

HC = Coated carbide

Cutting data for counterboring

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Insert geometry – Starting values for feed f [mm/U] – E47 D_c [mm] <44	>44-73	>73	– PM5 D_c [mm] <44	>44-73	>73
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●		0,20	0,30	0,40	2,20	0,30	0,40
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●		0,16	0,24	0,40	0,16	0,24	0,40
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●		0,15	0,22	0,35	0,15	0,22	0,35
		C > 0.55%	annealed	190	639	P4	●●		0,14	0,20	0,30	0,14	0,20	0,30
		C > 0.55%	tempered	300	1013	P5	●●		0,12	0,18	0,25	0,12	0,18	0,25
		machining steel (short-chipping)	annealed	220	745	P6	●●	●	0,15	0,22	0,35	0,15	0,22	0,35
	Low-alloyed steel	annealed		175	591	P7	●●		0,20	0,30	0,40	0,20	0,30	0,40
		tempered		300	1013	P8	●●		0,14	0,20	0,30	0,14	0,20	0,30
		tempered		380	1282	P9	●●		0,12	0,18	0,25	0,12	0,18	0,25
		tempered		430	1477	P10	●●		0,10	0,15	0,20	0,10	0,15	0,20
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●		0,14	0,20	0,30	0,14	0,20	0,30
		hardened and tempered		300	1013	P12	●●		0,13	0,18	0,27	0,13	0,18	0,27
		hardened and tempered		400	1361	P13	●●		0,10	0,15	0,20	0,10	0,15	0,20
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●		0,12	0,16	0,24	0,12	0,16	0,24
		martensitic, tempered		330	1114	P15	●●		0,12	0,16	0,24	0,12	0,16	0,24
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●		0,12	0,16	0,24	0,12	0,16	0,24
		austenitic, precipitation hardened (PH)		300	1013	M2	●●		0,12	0,16	0,24	0,12	0,16	0,24
		austenitic/ferritic, duplex		230	778	M3	●●		0,12	0,16	0,24	0,12	0,16	0,24
K	Malleable cast iron	ferritic		200	675	K1	●●	●	0,18	0,26	0,34	0,18	0,26	0,34
		pearlitic		260	867	K2	●●	●	0,16	0,24	0,30	0,16	0,24	0,30
	Grey cast iron	low tensile strength		180	602	K3	●●	●	0,20	0,30	0,40	0,20	0,30	0,40
		high tensile strength/austenitic		245	825	K4	●●	●	0,16	0,24	0,30	0,16	0,24	0,30
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●	●	0,20	0,30	0,40	0,20	0,30	0,40
		pearlitic		265	885	K6	●●		0,16	0,24	0,30	0,16	0,24	0,30
	GGV (CGI)			200	675	K7	●●	●	0,18	0,26	0,34	0,18	0,26	0,34
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●							
		hardenable, hardened		100	343	N2	●●							
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●	●						
		≤ 12% Si, hardenable, hardened		90	314	N4	●●	●						
		> 12% Si, cannot be hardened		130	447	N5	●●	●						
	Magnesium alloys			70	250	N6	●●	●						
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●		0,16	0,24	0,40	0,16	0,24	0,40
		brass, bronze, red brass		90	314	N8	●●	●	0,16	0,24	0,40	0,16	0,24	0,40
		Cu-alloys, short-chipping		110	382	N9	●●	●	0,16	0,24	0,40	0,16	0,24	0,40
		high-strength, Ampco		300	1013	N10	●●							
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●		0,10	0,15	0,20	0,10	0,15	0,20
			hardened	280	943	S2	●●		0,10	0,15	0,20	0,10	0,15	0,20
		Ni or Co base	annealed	250	839	S3	●●		0,10	0,15	0,20	0,10	0,15	0,20
			hardened	350	1177	S4	●●		0,10	0,15	0,20	0,10	0,15	0,20
			cast	320	1076	S5	●●		0,10	0,15	0,20	0,10	0,15	0,20
	Titanium alloys	pure titanium		200	675	S6								
		α and β alloys, hardened		375	1262	S7	●●		0,14	0,16	0,24	0,14	0,16	0,24
		β alloys		410	1396	S8	●●		0,12	0,14	0,22	0,12	0,14	0,22
	Tungsten alloys			300	1013	S9								
	Molybdenum alloys			300	1013	S10								
H	Hardened steel	hardened and tempered		50 HRC	–	H1								
		hardened and tempered		55 HRC	–	H2								
		hardened and tempered		60 HRC	–	H3								
	Hardened cast iron	hardened and tempered		55 HRC	–	H4								
O	Thermoplasts	without abrasive fillers				O1								
	Thermosetting plastics	without abrasive fillers				O2								
	Plastic, glass fibre reinforced	GFRP				O3								
	Plastic, carbon fibre reinforced	CFRP				O4								
	Plastic, aramid fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6								

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application. Cutting speed v_c –30%, with compressed air or MQL (minimum quantity lubrication).

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Insert geometry							Cutting material grade														
Starting values for feed f [mm/U]							Starting values for cutting speed v_c [m/min]														
							HC												HW		
– PF2 /– PM2			– PF4 / – PS5				WAK10			WAK20			WAK30			WXN10			WK1		
D_c [mm]			D_c [mm]				f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]			f [mm/U]		
<44	>44-73	>73	<44	>44-73	>73		0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4	0,1	0,2	0,4
			0,16	0,24	0,32																
			0,13	0,19	0,32																
			0,12	0,18	0,28																
			0,11	0,16	0,24																
			0,10	0,14	0,20																
			0,12	0,18	0,28																
			0,16	0,24	0,32																
			0,11	0,16	0,24																
			0,10	0,14	0,20																
			0,08	0,12	0,16																
			0,11	0,16	0,24																
			0,11	0,16	0,24																
			0,08	0,12	0,16																
			0,10	0,13	0,19																
			0,10	0,13	0,19																
			0,10	0,13	0,19																
			0,10	0,13	0,19																
			0,10	0,13	0,19																
			0,10	0,13	0,19																
			0,14	0,22	0,30	280	250	210	210	190	180	140	125	110							
			0,13	0,19	0,24	220	200	150	170	150	110	120	100	70							
			0,16	0,24	0,32	390	350	260	350	320	200	310	290	140							
			0,13	0,19	0,24	250	220	170	190	170	130	130	120	90							
			0,16	0,24	0,32	260	230	190	200	180	150	140	130	110							
			0,13	0,19	0,24	190	170	150	150	130	110	110	90	70							
			0,14	0,22	0,30	190	160	120	160	140	120	120	100	80							
0,24	0,30	0,40														1000*	1000*	1000*	1000*	1000*	
0,24	0,30	0,40														900	900	900	800	800	
0,24	0,30	0,40														500	500	500	500	500	500
0,24	0,30	0,40														400	400	400	400	400	400
0,24	0,30	0,40														300	300	300	300	300	300
0,24	0,30	0,40														500	500	500	500	500	500
0,24	0,30	0,40	0,13	0,19	0,32											450	400	350	450	400	350
0,24	0,30	0,40	0,13	0,19	0,32											400	350	300	400	350	300
0,24	0,30	0,40	0,13	0,19	0,32											350	300	250	350	300	250
			0,08	0,12	0,16																
			0,08	0,12	0,16																
			0,08	0,12	0,16																
			0,08	0,12	0,16																
			0,08	0,12	0,16																
			0,11	0,13	0,19														45	45	
			0,09	0,11	0,16														40	40	

HC = Coated carbide
HW = Uncoated carbide

* Observe limit speeds.

Cutting data for precision boring

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Starting values for cutting speed v_c [m/min] HC WPP01 / WPP10 L/D 3 x D_c	4 x D_c	6 x D_c
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●		355	320	195
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●		335	265	160
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●		300	240	150
		C > 0.55%	annealed	190	639	P4	●●		290	230	140
		C > 0.55%	tempered	300	1013	P5	●●		255	205	125
		machining steel (short-chipping)	annealed	220	745	P6	●●	●	300	240	150
	Low-alloyed steel	annealed		175	591	P7	●●		330	265	160
		tempered		300	1013	P8	●●		275	220	140
		tempered		380	1282	P9	●●		245	195	115
		tempered		430	1477	P10	●●		200	160	80
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●		275	220	140
		hardened and tempered		300	1013	P12	●●		230	195	115
		hardened and tempered		400	1361	P13	●●		210	170	90
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●		275	205	140
		martensitic, tempered		330	1114	P15	●●		210	180	100
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●				
		austenitic, precipitation hardened (PH)		300	1013	M2	●●				
		austenitic/ferritic, duplex		230	778	M3	●●				
K	Malleable cast iron	ferritic		200	675	K1	●●	●	280	235	130
		pearlitic		260	867	K2	●●	●	220	185	115
	Grey cast iron	low tensile strength		180	602	K3	●●	●	300	255	150
		high tensile strength/austenitic		245	825	K4	●●	●	220	185	115
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●		275	220	140
		pearlitic		265	885	K6	●●		255	195	125
	GGV (CGI)			200	675	K7	●●		235	175	105
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●				
		hardenable, hardened		100	343	N2	●●				
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●				
		≤ 12% Si, hardenable, hardened		90	314	N4	●●				
		> 12% Si, cannot be hardened		130	447	N5	●●				
	Magnesium alloys			70	250	N6	●●				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●		285	230	
		brass, bronze, red brass		90	314	N8	●●		345	275	
		Cu-alloys, short-chipping		110	382	N9	●●				
		high-strength, Ampco		300	1013	N10					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●				
			hardened	280	943	S2	●●				
		Ni or Co base	annealed	250	839	S3	●●				
			hardened	350	1177	S4	●●				
			cast	320	1076	S5	●●				
	Titanium alloys	pure titanium		200	675	S6					
		α and β alloys, hardened		375	1262	S7	●●				
		β alloys		410	1396	S8	●●				
	Tungsten alloys			300	1013	S9					
	Molybdenum alloys			300	1013	S10					
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●●	●			
		hardened and tempered		55 HRC	–	H2	●●	●			
		hardened and tempered		60 HRC	–	H3	●●	●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●●				
O	Thermoplasts	without abrasive fillers				O1					
	Thermosetting plastics	without abrasive fillers				O2					
	Plastic, glass fibre reinforced	GFRP				O3					
	Plastic, carbon fibre reinforced	CFRP				O4					
	Plastic, aramid fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6					

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application. MQL (minimum quantity lubrication) or compressed air is recommended.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Starting values for cutting speed v_c [m/min]

HC

WPP20 / WPP30			WTP35			WSM10			WSM20 / WSM30			WAK10 / WAK15			WXN10			WXM15		
L/D			L/D			L/D			L/D			L/D			L/D			L/D		
3 x D_c	4 x D_c	6 x D_c	3 x D_c	4 x D_c	6 x D_c	3 x D_c	4 x D_c	6 x D_c	3 x D_c	4 x D_c	6 x D_c	3 x D_c	4 x D_c	6 x D_c	3 x D_c	4 x D_c	6 x D_c	3 x D_c	4 x D_c	6 x D_c
310	280	170	260	210	130							310	280	170				260	210	130
290	230	140	220	180	110							290	230	140				220	180	110
260	210	130	200	160	100							260	210	130				200	160	100
250	200	120	190	150	90							250	200	120				190	150	90
220	180	110	140	110	70							220	180	110				140	110	70
260	210	130	200	160	100							260	210	130				200	160	100
290	230	140	220	170	110							290	230	140				220	170	110
240	190	120	180	150	90							240	190	120				180	150	90
210	170	100	130	100	60							210	170	100				130	100	60
180	140	70	100	75	50							180	140	70				100	75	50
240	180	120	180	150	90							240	180	120				180	150	90
200	170	100	160	130	80							200	170	100				160	130	80
190	150	80	110	85	60							190	150	80				110	85	60
240	190	120	160	130	80							240	190	120				160	130	80
180	160	90	150	120	70							180	160	80				150	120	70
220	170	110	200	160	100	220	170	110	200	160	100	240	190					200	160	100
160	120	100	150	110	80	160	120	100	150	110	90	190	140					150	110	60
180	140	80	180	140	100	180	140	90	170	130	80	220	170					180	140	80
240	200	110	180	140	80							240	200	110				180	140	80
190	160	100	160	130	80							190	160	100				160	130	80
260	220	130	220	160	100							260	220	130				200	160	100
190	160	100	160	130	80							190	160	100				160	130	80
240	190	120	180	140	90							240	190	120				180	140	90
220	170	110	160	130	80							220	170	110				160	130	80
												200	150	100						
			600	480	330										940	750	500	600	480	330
			500	400	280										750	600	410	500	400	280
			500	400	280										750	600	410	500	400	280
			400	320	220										560	450	310	400	320	220
			300	250	200										440	440	250	300	250	200
			450	350	250										700	550	350	450	350	250
			350	280	180										380	300	210	350	280	180
250	200								250	200		250	200		310	230	160			
300	240								300	240		300	240		380	280	210			
80	60	40				90	70	50	80	60	40	80	60	40						
70	50	35				80	60	45	70	50	35	70	50	35						
70	50	35				80	60	45	70	50	35	70	50	35						
50	40	25				60	50	35	50	40	25	50	40	25						
50	40	25				60	50	35	50	40	25	50	40	25						
						60	50	40	50	40	30									

HC = Coated carbide

Cutting data for precision boring

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]			Starting values for cutting speed v_c [m/min] HW WK1 L/D 3 x D_c	4 x D_c	6 x D_c
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	●●				
		C > 0.25 ... ≤ 0.55%	annealed	190	639	P2	●●				
		C > 0.25 ... ≤ 0.55%	tempered	210	708	P3	●●				
		C > 0.55%	annealed	190	639	P4	●●				
		C > 0.55%	tempered	300	1013	P5	●●				
		machining steel (short-chipping)	annealed	220	745	P6	●●	●			
	Low-alloyed steel	annealed		175	591	P7	●●				
		tempered		300	1013	P8	●●				
		tempered		380	1282	P9	●●				
		tempered		430	1477	P10	●●				
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●●				
		hardened and tempered		300	1013	P12	●●				
		hardened and tempered		400	1361	P13	●●				
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●●				
		martensitic, tempered		330	1114	P15	●●				
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●				
		austenitic, precipitation hardened (PH)		300	1013	M2	●●				
		austenitic/ferritic, duplex		230	778	M3	●●				
K	Malleable cast iron	ferritic		200	675	K1	●●	●	160	120	90
		pearlitic		260	867	K2	●●	●	150	120	90
	Grey cast iron	low tensile strength		180	602	K3	●●	●	210	170	120
		high tensile strength/austenitic		245	825	K4	●●	●	150	120	90
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●●		170	140	100
		pearlitic		265	885	K6	●●		140	110	70
	GGV (CGI)			200	675	K7	●●				
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●		750	600	400
		hardenable, hardened		100	343	N2	●●		600	480	330
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	●●		600	480	330
		≤ 12% Si, hardenable, hardened		90	314	N4	●●		450	360	250
		> 12% Si, cannot be hardened		130	447	N5	●●		350	350	200
	Magnesium alloys			70	250	N6	●●		550	450	300
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●		300	240	170
		brass, bronze, red brass		90	314	N8	●●		250	180	130
		Cu-alloys, short-chipping		110	382	N9	●●		300	240	170
		high-strength, Ampco		300	1013	N10					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●				
			hardened	280	943	S2	●●				
		Ni or Co base	annealed	250	839	S3	●●				
			hardened	350	1177	S4	●●				
			cast	320	1076	S5	●●				
	Titanium alloys	pure titanium		200	675	S6					
		α and β alloys, hardened		375	1262	S7	●●				
		β alloys		410	1396	S8	●●				
	Tungsten alloys			300	1013	S9					
	Molybdenum alloys			300	1013	S10					
H	Hardened steel	hardened and tempered		50 HRC	–	H1	●●	●			
		hardened and tempered		55 HRC	–	H2	●●	●			
		hardened and tempered		60 HRC	–	H3	●●	●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	●●				
O	Thermoplasts	without abrasive fillers				O1					
	Thermosetting plastics	without abrasive fillers				O2					
	Plastic, glass fibre reinforced	GFRP				O3					
	Plastic, carbon fibre reinforced	CFRP				O4					
	Plastic, aramid fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6					

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application. MQL (minimum quantity lubrication) or compressed air is recommended.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

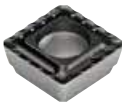
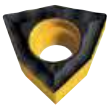
	Starting values for cutting speed v_c [m/min]						
	BH WCB30 WCB50 WCB80			DP WCD10			
	L/D			L/D			
	3 x D_c	4 x D_c	6 x D_c	3 x D_c	4 x D_c	6 x D_c	
	600*	700*					
	700*	600*					
	2000*	1800*					
	900*	800*					
	800*	700*					
	700*	600*					
				2000*	1800*	1600*	
				2000*	1800*	1600*	
				1000*	900*	800*	
				800*	700*	600*	
				700*	600*	500*	
				800*	700*	600*	
				700*	600*	500*	
				800*	700*	600*	
	300	250					
	200	150					
	100	60					
	250	200					

HW = Uncoated carbide
BH = CBN with high CBN content
DP = Polycrystalline diamond

* Observe limit speeds.

Cutting tool material application tables – Drilling

Grades for drilling

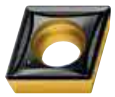
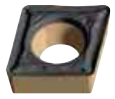
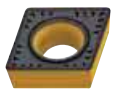
Walter grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Application range: 01 05 10 15 20 25 30 35 40 45	Coating process	Coating composition	Indexable insert example
WAP20	HC – P 20	●●								CVD	TiCN + Al_2O_3 +TiN	
	HC – K 30			●								
WKP25S	HC – P 25	●●								CVD	TiCN + Al_2O_3 (+TiN)	
	HC – K 25			●●								
WKP35S	HC – P 35	●●								CVD	TiCN + Al_2O_3 (+TiN)	
	HC – K 35			●●								
WMP35	HC – P 35	●●								PVD	TiAlN	
	HC – M 35		●●									
	HC – S 35					●●						
WSP45	HC - P 45	●●								PVD	TiAlN + Al_2O_3 (+ZrN)	
	HC - M 45		●●									
	HC - S 45					●●						
WTP35	HC – P 35	●●								PVD	TiCN + TiN	
	HC – M 35		●									
	HC – S 35					●						
WXP45	HC – P 45	●●								PVD	Multilayer TiAlN / TiN	
	HC – K 45			●								
WAK15	HC – K 15			●●						CVD	TiCN + Al_2O_3 + (+TiN)	
WXK25	HC – K 25			●●						PVD	Multilayer TiAlN / TiN	
	HC – P 15	●										
WXP40	HC – P 40	●●								PVD	TiCN	
	HC – M 30		●●									
	HC – S 30					●						
WNN25	HC – N 25				●●					PVD	ta-C (DLC)	
	HC – O 25							●				
WPP45C	HC – P 45	●●								PVD	TiAlN / TiAl	
	HC – K 45			●								

HC = Coated carbide
HW = Uncoated carbide

●● Primary application
● Other application

Cutting tool material application tables – Boring

Grades for counterboring and precision boring

Walter grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Application range 01 05 10 15 20 25 30 35 40 45	Coating process	Coating composition	Indexable insert example
WPP01	HC – P 01	●●								CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – K 10			●								
WPP10	HC – P 10	●●								CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – K 20			●								
WPP20	HC – P 20	●●								CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – K 30			●								
WPP30	HC – P 30	●●								CVD	$TiCN + Al_2O_3$ (+TiN)	
WXM15	HC – P 15	●●								PVD	Multilayer TiAlN / TiN	
	HC – M 15		●									
	HC – K 15			●								
WTP35	HC – P 35	●●								CVD	TiCN + TiN	
	HC – M 35		●									
	HC – S 35					●						
WSM10	HC – M 10		●●							PVD	$TiAlN + Al_2O_3$ (ZrCN)	
	HC – S 10					●●						
	HC – P 10	●										
WSM20	HC – M 20		●●							PVD	$TiAlN + Al_2O_3$ (ZrCN)	
	HC – S 20					●●						
	HC – P 20	●										
WSM30	HC – M 30		●●							PVD	$TiAlN + Al_2O_3$ (ZrCN)	
	HC – S 30					●●						
	HC – P 30	●										
WAK10	HC – K 10			●●						CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – H 30						●					
WAK15	HC – K 15			●●						CVD	$TiCN + Al_2O_3$ (+TiN)	
WAK20	HC – K 20			●●						CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – P 10	●										
WAK30	HC – K 30			●●						CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – P 40	●										

BL = CBN with low CBN content
BH = CBN with high CBN content
DP = Polycrystalline Diamond
HC = Coated carbide
HW = Uncoated carbide
HT = Cermet

●● Primary application
● Other application

Cutting tool material application tables – Boring and reaming

Grades for counterboring and precision boring (continued)

Walter grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Application range 01 05 10 15 20 25 30 35 40 45	Coating composition	Indexable insert example
WXN10	HC – N 10				●●					TiCN^{plus}	
	HC – M 01		●								
WK1	HW – N 10				●●					—	
WCB30	BL – H 05						●●			—	
WCB50	BH – H 10						●●			—	
	BH – K 10			●							
WCB80	BH – K 05			●●						—	
	BH – H 15						●				
WCD10	DP – N 10				●●					—	

BL = CBN with low CBN content
BH = CBN with high CBN content
DP = Polycrystalline Diamond
HC = Coated carbide
HW = Uncoated carbide
HT = Cermet

●● Primary application
● Other application

Grades for reaming

Walter grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Application range 01 05 10 15 20 25 30 35 40 45	Coating process	Coating composition	Indexable insert example
WXP15	HC – P 15	●●								PVD	TiN	
	HC – M 15		●●									
	HC – K 15			●●								
WK10	HW – N 10	●		●	●●					–	–	
WCE10	HT – P 15	●●								–	–	
WXK05	HC – K 05	●	●	●●			●			–	–	

BL = CBN with low CBN content
BH = CBN with high CBN content
DP = Polycrystalline Diamond
HC = Coated carbide
HW = Uncoated carbide
HT = Cermet

●● Primary application
● Other application

Geometry overview of indexable inserts for drilling

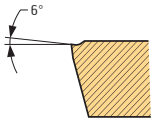
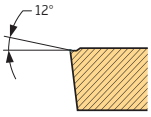
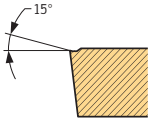
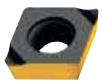
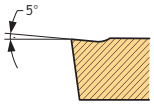
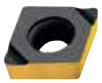
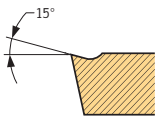
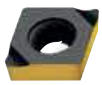
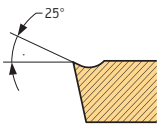
Drilling

Geometry	Remarks on field of applications	Workpiece material group								
		P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other		
	**A57 – The stable one** – 0° rake angle – For unfavourable machining conditions mainly for cast iron and steel materials	●●	●	●●		●				
	**E57 – The universal one** – 13° rake angle – For medium machining conditions – For cast iron and steel, but also for stainless and difficult-to-cut materials	●●	●●	●●	●	●				
	**E67 – The special one** – 13° rake angle – Special geometry for optimum chip formation – For long-chipping materials, e.g. St37, stainless and also difficult-to-cut materials and aluminium	●●	●●		●	●●				
	**P6001 – The universal one** – Universal use on ISO P, steels with low to medium tensile strength (up to R_m = 900 N/mm²) – Universal geometry for high chip removal and long tool life	●●		●						
	**P6002 – The stable one** – Designed for ISO K – With stable facet			●●						
	**P6003 – The special one** – For best results in ISO M and ISO S – Sharp cutting edge – Rounded cutting edges near to the centre	●	●●			●●				
	**P6004 – The sharp one** – For best results in ISO N (aluminium) – Extremely smooth surface – Sharp cutting edge				●●					

●● Primary application
● Other application

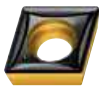
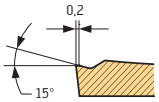
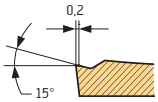
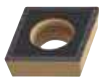
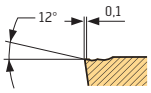
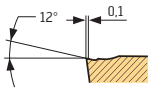
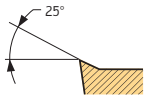
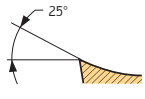
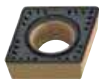
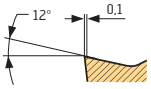
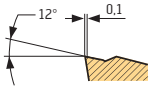
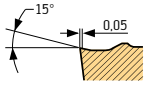
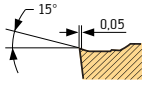
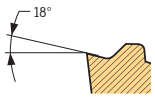
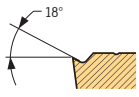
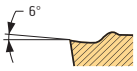
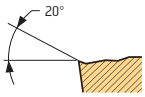
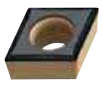
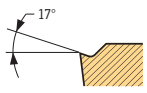
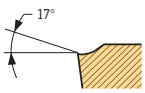
Geometry overview of indexable inserts for drilling

Drilling (continued)

Geometry	Remarks/field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Section Main cutting edge	a_p [mm]	f [mm]
	**LCMX–B57 – The stable one** – 6° rake angle – For unfavourable machining conditions – For long-chipping materials	●●		●●							
	**LCMX–D57 – The universal one** – 12° rake angle – For medium machining conditions	●●	●●	●●	●	●					
	**LCMX–E57 – The easy-cutting one** – 15° rake angle – For good machining conditions – Short-chipping materials	●●	●●		●●	●●					
Precision boring											
	**X5 – The stable one** – 5° rake angle – For cast iron and steel materials – For unfavourable machining conditions	●●		●●						0,1–0,3	0,03–0,15
	**X15 – The universal one** – 15° rake angle – For steel, stainless materials and difficult-to-cut materials – Long projection lengths	●●	●●	●	●	●				0,1–0,3	0,03–0,15
	**X25 – The soft one** – 25° rake angle – Aluminium, soft steels, long-chipping materials	●●	●		●●	●				0,1–0,3	0,03–0,15

●● Primary application
● Other application

Counterboring/precision boring

Geometry	Remarks on field of applications	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Section Main cutting edge	Section Radius	a_p [mm]	f [mm]
	**E47 – The universal one** – 15° rake angle – Flexible universal geometry for almost all cutting depths – For materials of ISO machining groups P, M, K and S	●●	●●	●●	●	●●					0,3–6,3	0,07–0,45
	**PS5 – Semifinishing** – Universal insert for semi-machining to medium machining – Can also be used for counterboring	●●	●●	●●		●					0,16–2,5	0,08–0,32
	**PM2** – Universal insert for non-ferrous materials – Sharp cutting edge with fully ground circumference – Polished rake face	●	●		●●	●					0,4–3,0	0,02–0,80
	**PM5** – Universal insert geometry, medium/roughing operations – Extremely large chip breaking area	●●	●●	●●		●					0,4–5,0	0,1–0,50
 Wiper	**PF** – Finishing with wiper technology – High surface quality – High feed rates	●●	●●	●●		●					0,30–3,0	0,12–0,60
	**PF2** – Finishing insert with fully ground circumference – Long, small diameter shafts with vibration tendency – Low cutting forces	●●	●●	●	●●	●●					0,25–1,6	0,02–0,25
	**PF4** – Finishing insert – Outstanding chip control – Can also be used for precision boring	●●	●●			●●					0,15–1,0	0,08–0,30
	**PF5** – Finishing insert with fully ground circumference – Can also be used for precision boring – Extremely narrow chip breaker groove	●●	●●			●					0,1–0,8	0,04–0,16

●● Primary application
● Other application

Application information

Reverse machining for precision boring

For reverse machining, the preset tool must be fed into the drilled hole on an offset axis. Therefore, the boring diameter “D”, the diameter of the hole entry “d” and the diameter of the tool body “d1”, have a specific ratio to each other.

In order to evaluate the feasibility of reverse machining and select the appropriate tools, these values can be calculated as follows:

Min. diameter of the hole entry “d”

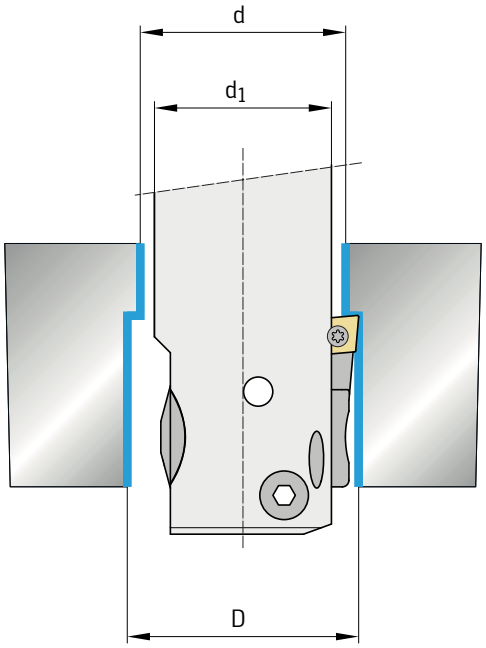
$$d = \frac{D + d_1}{2}$$

Max. boring diameter “D”

$$D = 2d - d_1$$

Max. diameter of the tool body “d1”

$$d_1 = 2d - D$$



Example:

Calculating the minimum diameter of the hole entry “d”

Given:

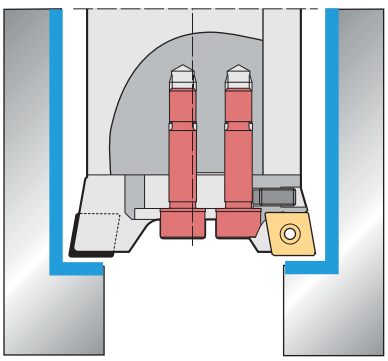
– Boring diameter D = 93 mm
– Tool combination: B3230.C5.55-100.Z1
– Insert holder no. 3, A = 50 mm

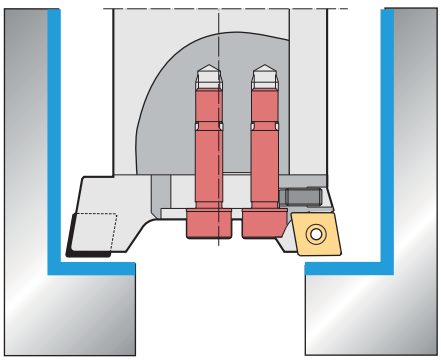
$$d = \frac{D + d_1}{2} = \frac{93 + 50}{2} = 71{,}5 \text{ mm}$$

Important:

The anticlockwise spindle must be used for reverse machining.
The cutting edge is set back relative to the boring head. Note the overall length of the tool.
Note the space restrictions on the exit side of the workpiece.

Adjustment range of Walter Boring two flute boring tool B 3220





Notes on high-speed cutting

1. Maximum permissible RPM:
   The limiting values shown in the tables should not be exceeded. Otherwise correct operation and/or reliability is not guaranteed.
2. Only use original Walter inserts and assembly parts (screws etc.). Recommendation: New screws should be fitted after having replaced the inserts five times at the latest.
3. Adhere to the torques specified in the catalogue.
4. Balancing:
   Balancing is required in two steps when milling at high RPM (> 6,000):

   a. Basic balancing of tool body including inserts (carried out by Walter on request). N.B.: The tool adaptor must also be balanced.

   b. Fine balancing of the tool when fully mounted on the adaptor. The fine balancing operation is strongly recommended because even the smallest concentricity errors can seriously alter the balance status.
5. Short projection lengths reduce concentricity faults or an imbalance as well as increase spindle life. The specified speeds apply to the use of tools without additional extensions.
6. Safety guards:
   Appropriate safety guards or machine encapsulations must be used to securely collect particles which spin off, such as chips or cutting edges that are broken as a result of collisions.
7. Damaged tools:
   The operating speed must be specified for the repair of HSC Tools. Only Walter may carry out repairs on Walter tools for HSC machining operations.
8. Technical progress:
   As research and standardisation on HSC machining operations is ongoing, we reserve the right to make technical changes. The discussion on balancing specifications is still in progress. The results of the "Balancing" study group of the Technical University in Darmstadt show that the quality category G16 is usually sufficient.

1. Walter Boring
Counterboring tools
B 3220 / B 3221

Diameter range D_C [mm]	n_{max} [1/min]
20–24	16.000
26–33	12.000
33–41	10.000
41–55	7.800
55–70	5.800
70–90	4.600
90–110	3.700
110–153	2.900
150–220	2.100
220–290	1.450
290–360	1.100
360–430	900
430–500	750
500–570	650
570–640	550

The specified limiting speeds refer to symmetrically set tools (Z = 2).
For non-symmetrically set tools (Z = 1), the values are reduced by 50%.

2. Walter Precision
Precision boring tools
B 3230

Diameter range D_C [mm]	n_{max} [rpm]
2–45,5*	6.000
20–26	12.000
26–33	10.000
33–41	8.100
41–55	6.450
55–70	4.850
70–90	3.835
90–110	3.090
110–153	2.390
150–220	1.440
220–290	1.090
290–360	880
360–430	740
430–500	630
500–570	550
570–640	490

*The boring bar should be positioned as centrally as possible. Use the largest boring bar size possible.

3. Walter Precision
Precision boring tools
B 4030

Diameter range D_C [mm]	n_{max} [rpm]
2–10*	14.000
10–20*	12.000
20–45*	8.000
33–41	15.000
41–55	11.500
55–70	9.000
70–90	7.000
90–110	5.500
110–153	4.000

4. Walter Precision^{DIGITAL}
Precision boring tools
B 4035

Diameter range D_C [mm]	n_{max} [rpm]
3–20	16.000
20–32	12.000
32–80	10.000
50–68	8.000
68–96	6.000
96–124	5.000

*The boring bar should be positioned as centrally as possible. Use the largest boring bar size possible.

CONTENTS

Threading

D

Walter Select for threading applications

Step by step to the correct tool

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012

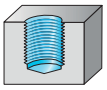
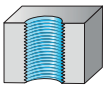
Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	**P1–P15**	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	**M1–M3**	**Stainless steel**	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	**K1–K7**	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	**N1–N10**	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	**S1–S10**	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	**H1–H4**	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	**O1–O6**	**Other**	Plastics, glass- and carbon-fibre reinforced plastics, graphite

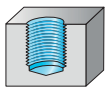
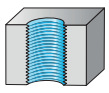
STEP 2

Select your **intended application** from the table.

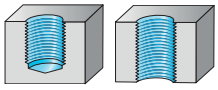
Thread cutting / tapping
Solid carbide / HSS

	Blind hole					Through hole					
											
Depth	1,5 ×D_N	2,0 ×D_N	2,5 ×D_N	3,0 ×D_N	3,5 ×D_N	1,0 ×D_N	1,5 ×D_N	2,0 ×D_N	2,5 ×D_N	3,0 ×D_N	3,5 ×D_N
Solid carbide / page	D-4	D-5	D-5	D-5	D-5	-	D-4	D-5	D-5	D-5	D-5
HSS / page	D-6	D-7	D-9	D-9	D-11	D-12	D-12	D-13	-	D-14	D-15

Thread forming

	Blind hole		Through hole
			
Depth	2,0 ×D_N	3,0 ×D_N	> 3,5 ×D_N
Page	D-128	D-128	D-129

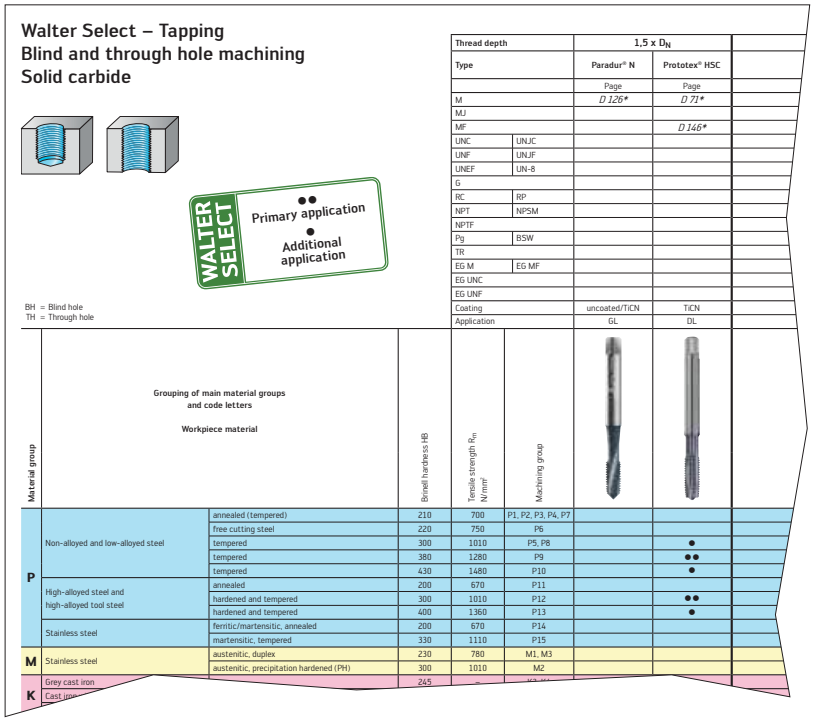
Thread milling

	Inside Blind hole / through hole			Outside
				
Depth	1,5 ×D_N	2,0 ×D_N	3,0 ×D_N	< 2,0 ×D_N
Page	D-134	D-135	D-135	D-135

STEP 3

Select the tool according to the following criteria:

- **Material group**
- **Thread type**
- **Thread depth**



Walter Select – Tapping
Blind and through hole machining
Solid carbide

WALTER SELECT
●● Primary application
● Additional application

BH = Blind hole
TH = Through hole

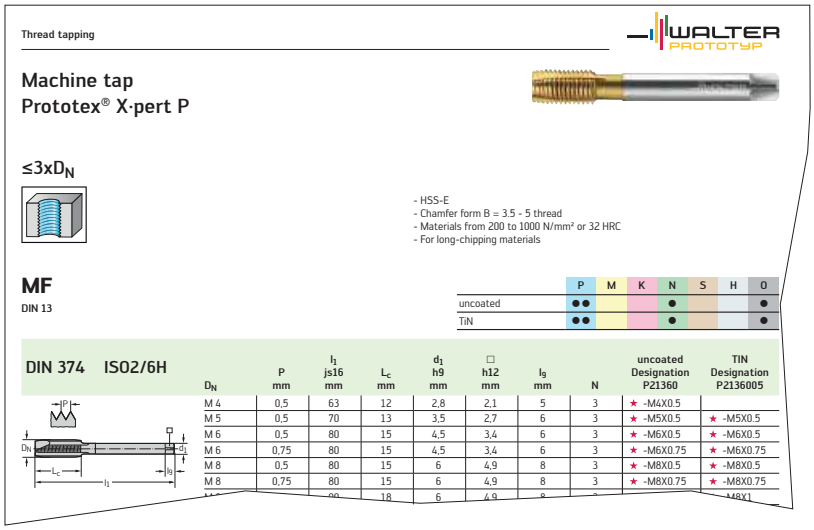
Thread depth		1,5 x D_N	
Type		Paradur® N	Prototex® HSC
		Page	Page
M		*D 126**	*D 71**
MJ			
MF			*D 146**
UNC	UNJC		
UNF	UNJF		
UNEF	UN-8		
G			
RC	RP		
NPT	NPSM		
NPTF			
Pg	BSW		
TR			
EG M	EG MF		
EG UNC			
EG UNF			
Coating		uncoated/TiCN	TiCN
Application		GL	DL

Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group		
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		
		free cutting steel	220	750	P6		
		tempered	300	1010	P5, P8		●
		tempered	380	1280	P9		●●
		tempered	430	1480	P10		●
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		
		hardened and tempered	300	1010	P12		●●
		hardened and tempered	400	1360	P13		●
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		
		martensitic, tempered	330	1110	P15		
M	Stainless steel	austenitic, duplex	230	780	M1, M3		
		austenitic, precipitation hardened (PH)	300	1010	M2		
K	Grey cast iron		245				
	Cast iron						

STEP 4

The corresponding page in the catalogue is specified following tool selection.

On the bottom right of the catalogue page, you will find a reference to the cutting data table.



Thread tapping

Machine tap
Prototex® X·pert P

≤3xD$_N$

- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

MF
DIN 13

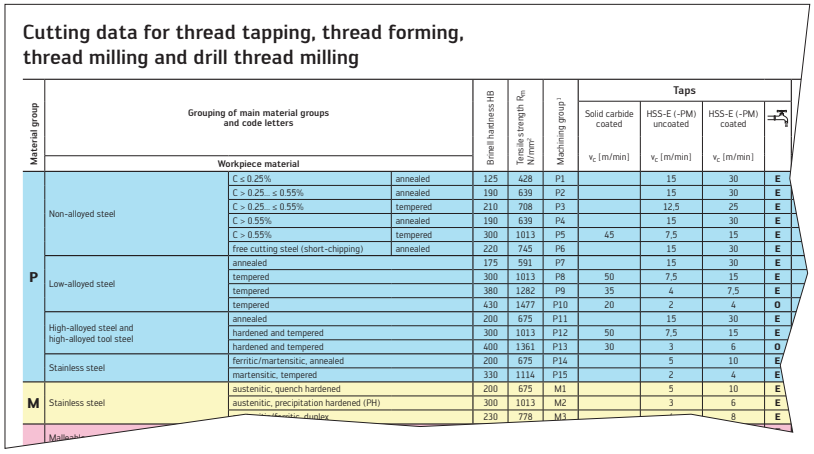
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 374 ISO2/6H

D_N	P mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P21360	TIN Designation P2136005
M 4	0,5	63	12	2,8	2,1	5	3	★ -M4X0.5	
M 5	0,5	70	13	3,5	2,7	6	3	★ -M5X0.5	★ -M5X0.5
M 6	0,5	80	15	4,5	3,4	6	3	★ -M6X0.5	★ -M6X0.5
M 6	0,75	80	15	4,5	3,4	6	3	★ -M6X0.75	★ -M6X0.75
M 8	0,5	80	15	6	4,9	8	3	★ -M8X0.5	★ -M8X0.5
M 8	0,75	80	15	6	4,9	8	3	★ -M8X0.75	★ -M8X0.75
			18	6	4,9	8			M8X1

STEP 5

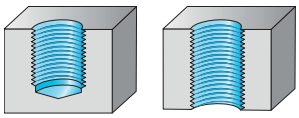
Select the cutting data for the tool type from page D-140 onwards.



Cutting data for thread tapping, thread forming, thread milling and drill thread milling

Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]	Taps: Solid carbide coated v_c [m/min]	Taps: HSS-E (-PM) uncoated v_c [m/min]	Taps: HSS-E (-PM) coated v_c [m/min]	Taps: f_z
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		15	30	E
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		15	30	E
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		12.5	25	E
		C > 0.55%	annealed	190	639	P4		15	30	E
		C > 0.55%	tempered	300	1013	P5	45	7.5	15	E
		free cutting steel (short-chipping)	annealed	220	745	P6		15	30	E
	Low-alloyed steel	annealed		175	591	P7		15	30	E
		tempered		300	1013	P8	50	7.5	15	E
		tempered		380	1282	P9	35	4	7.5	E
		tempered		430	1477	P10	20	2	4	O
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		15	30	E
		hardened and tempered		300	1013	P12	50	7.5	15	E
		hardened and tempered		400	1361	P13	30	3	6	O
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		5	10	E
		martensitic, tempered		330	1114	P15		2	4	E
M	Stainless steel	austenitic, quench hardened		200	675	M1		5	10	E
		austenitic, precipitation hardened (PH)		300	1013	M2		3	6	E
				230	778	M3			8	E

Walter Select – Tapping
Blind and through hole machining
Solid carbide



WALTER SELECT

●● Primary application

● Additional application

BH = Blind hole
TH = Through hole

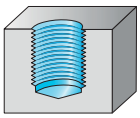
Thread depth		1,5 x D_N	
Type		Paradur® N	Prototex® HSC
		Page	Page
M		*D 126**	*D 71**
MJ			
MF			*D 146**
UNC	UNJC		
UNF	UNJF		
UNEF	UN-8		
G			
RC	RP		
NPT	NPSM		
NPTF			
Pg	BSW		
TR			
EG M	EG MF		
EG UNC			
EG UNF			
Coating		uncoated/TiCN	TiCN
Application		GL	DL

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7			
		free cutting steel	220	750	P6			
		tempered	300	1010	P5, P8		●	
		tempered	380	1280	P9		●●	
		tempered	430	1480	P10		●	
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11			
		hardened and tempered	300	1010	P12		●●	
		hardened and tempered	400	1360	P13		●	
	Stainless steel	ferritic/martensitic, annealed	200	670	P14			
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4	●	●	
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●	●●	
	GGV (CGI)		200	–	K7	●	●	
N	Aluminium wrought alloys	cannot be hardened	30	–	N1			
		hardenable, hardened	100	340	N2			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●		
		> 12% Si	130	450	N5	●		
	Magnesium alloys		70	250	N6	●●		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7			
		brass, bronze, red brass	90	310	N8			
		Cu-alloys, short-chipping	110	380	N9			
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1			
	Thermosetting plastics	without abrasive fillers			O2	●		
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	●		
		CFRP			O4	●		
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	2,0 x D_N				3,0 x D_N		3,5 x D_N
	Paradur® HSC	**Paradur® Hard**	**Paradur® Hard Plus**	**Paradur® Hard Scraper**	**Paradur® Engine**	**Paradur® HS**	**Paradur® GG**
	Page	Page	Page	Page	Page	Page	Page
	*D 125**	*D 132**	*D 133**		*D 129**	*D 130**	*D 128**
	*D 175**				*D 177**	*D 178**	*D 176**
						*D 201**	
						*D 231**	
				*D 248**			
	TiCN	TiCN	TiCN	TiCN	uncoated	uncoated/TiCN	uncoated/TAFT
	GL	GL+DL	GL+DL	GL+DL	GL	GL+DL	GL+DL
							
	●●						
	●●						
	●●						
	●●						
	●●						
	●				●●	●	●●
	●●					●	
	●				●●	●	●●
	●				●●	●	●
	●●				●●	●●	●
	●				●	●●	●
						●	
						●	
						●●	
		●	●	●		●	
		●	●	●		●	
		●	●	●			
		●	●	●			
	●●					●	
	●●	●●	●●	●●			
		●●	●●	●●			
						●●	
						●●	
						●●	
							●●

Walter Select – Tapping
Blind hole machining
HSS-E (-PM)



WALTER SELECT
●● Primary application
● Additional application

BH = Blind hole
TH = Through hole

Thread depth		1,5 x D_N	
Type		Paradur® H	Paradur® N
		Page	Page
M		*D 78**	*D 83**
MJ			
MF		*D 150**	*D 156**
UNC	UNJC		*D 189**
UNF	UNJF		*D 215**
UNEF	UN-8		
G		*D 238**	*D 239**
RC	RP	*D 249* / D 250**	
NPT	NPSM	*D 251**	*D 252**
NPTF		*D 256**	*D 257**
Pg	BSW		
TR			
EG M	EG MF		
EG UNC			
EG UNF			
Coating		uncoated/ TiN	uncoated/ TiN/TiCN
Application		GL/DL	GL

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		●●	
		free cutting steel	220	750	P6		●●	
		tempered	300	1010	P5, P8			
		tempered	380	1280	P9			
		tempered	430	1480	P10			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11			
		hardened and tempered	300	1010	P12			
		hardened and tempered	400	1360	P13			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14			
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●	●●	
	GGV (CGI)		200	–	K7			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1		●●	
		hardenable, hardened	100	340	N2	●	●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●	●●	
		> 12% Si	130	450	N5	●	●	
	Magnesium alloys		70	250	N6	●	●●	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7			
		brass, bronze, red brass	90	310	N8	●	●	
		Cu-alloys, short-chipping	110	380	N9	●	●	
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1			
	Thermosetting plastics	without abrasive fillers			O2	●		
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	●		
		CFRP			O4	●		
	Graphite (technical)			65	O6	●		

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	1,5 x D_N				2,0 x D_N				
	Paradur Inox® 25	**Paradur Inox® 40**	**Paradur® Ni**	**Paradur® Ni 10**	**Paradur® AP**	**Paradur® Ti**	**Paradur® Ti plus**	**Paradur® FT**	**HGB**
	Page	Page	Page	Page	Page	Page	Page	Page	Page
	*D 103**		*D 117**	*D 119**	*D 116**	*D 121**	*D 123**	*D 124**	*D 60**
				*D 120**		*D 122**			
	*D 166**			*D 172**		*D 173**	*D 174**		
			*D 196**	*D 198**		*D 199**			
			*D 222**	*D 223**		*D 224**	*D 226**		
	*D 243**								
		*D 254**	*D 253**						
			*D 270**						
			*D 285**						
	TiN	uncoated	uncoated	uncoated / TiN	nit	uncoated/ TiCN	ACN	uncoated	uncoated
	GL	GL/DL	GL	GL	GL/DL	GL	GL	GL/DL	GL/DL
									
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		●							●
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		●		●		●●			
				●●		●			
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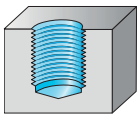
Walter Select – Tapping
Blind hole machining
HSS-E (-PM)



WALTER SELECT

●● Primary application

● Additional application

BH = Blind hole
TH = Through hole

i = only for synchronous machining

Thread depth		2,0 x D_N	
Type		HGB Inox	HGB Ti
		Page	Page
M		*D 61**	*D 62**
MJ			
MF			
UNC	UNJC		
UNF	UNJF		
UNEF	UN-8		
G			
RC	RP		
NPT	NPSM		
NPTF			
Pg	BSW		
TR			
EG M	EG MF		
EG UNC			
EG UNF			
Coating		vap	nid
Application		GL/DL	GL/DL

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7			
		free cutting steel	220	750	P6			
		tempered	300	1010	P5, P8			
		tempered	380	1280	P9			
		tempered	430	1480	P10			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11			
		hardened and tempered	300	1010	P12			
		hardened and tempered	400	1360	P13			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●		
		martensitic, tempered	330	1110	P15	●		
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●		
		austenitic, precipitation hardened (PH)	300	1010	M2	●		
K	Grey cast iron		245	–	K3, K4			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6			
	GGV (CGI)		200	–	K7			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1			
		hardenable, hardened	100	340	N2			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4			
		> 12% Si	130	450	N5			
	Magnesium alloys		70	250	N6			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7			
		brass, bronze, red brass	90	310	N8			
		Cu-alloys, short-chipping	110	380	N9			
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3		●	
		Ni or Co base	350	1080	S4, S5		●	
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7		●	
		β alloys	410	1400	S8		●	
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1			
	Thermosetting plastics	without abrasive fillers			O2			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	2,5 x D_N				3,0 x D_N			
	Paradur® H 24	Paradur® STE	Paradur® X-pert M	Paradur® Synchrospeed	Paradur® Eco Plus	Paradur® X-pert P	Paradur® Secur	Paradur® X-pert K
	Page	Page	Page	Page	Page	Page	Page	Page
	*D 86**	*D 98**	**D-49**	*D 104**	**D-33**	**D-39**	*D 97**	**D-52**
		*D 163**	**D-73**	*D 167**	**D-65**	**D-68**		
			D-87		**D-81**	**D-85**		
			D-100		**D-95**	**D-99**		
			D-103			**D-101 / D-102**		
		*D 241**	**D-110**	*D 247**	**D-108**	**D-109**		
						D-113		
			D-117			**D-116 / D-119**		
						D-121		
			D-126			**D-125**		
	uncoated	uncoated/THL	vap/TiCN/TiN/THL	vap/THL/TiN	TiN/THL	uncoated/TiN/THL	TiN	TAFT
	GL	GL	GL	GL	GL	GL	GL	GL/DL
			 NEW		 NEW	 NEW		 NEW
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		●	●	●●	●●	●●	●●	
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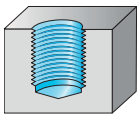
Walter Select – Tapping
Blind hole machining
HSS-E (-PM)



WALTER SELECT

●● Primary application

● Additional application

BH = Blind hole
TH = Through hole

Thread depth		3,0 x D_N		
Type		Paradur® Eco CI	Paradur® X-pert N	
		Page	Page	
M		*D 106**	**D-53**	
MJ				
MF		*D 168**	**D-75**	
UNC	UNJC	*D 194**	**D-88**	
UNF	UNJF	*D 221**		
UNEF	UN-8			
G		*D 245**	**D-111**	
RC	RP			
NPT	NPSM			
NPTF				
Pg	BSW			
TR				
EG M	EG MF		**D-118**	
EG UNC			**D-122**	
EG UNF			**D-127**	
Coating		nid /TiCN	uncoated	
Application		GL/DL	GL	

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7			
		free cutting steel	220	750	P6			
		tempered	300	1010	P5, P8			
		tempered	380	1280	P9			
		tempered	430	1480	P10			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11			
		hardened and tempered	300	1010	P12			
		hardened and tempered	400	1360	P13			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14			
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4	●●		
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●		
	GGV (CGI)		200	–	K7	●●		
N	Aluminium wrought alloys	cannot be hardened	30	–	N1		●●	
		hardenable, hardened	100	340	N2		●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●	
		> 12% Si	130	450	N5	●●		
	Magnesium alloys		70	250	N6	●●		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7		●●	
		brass, bronze, red brass	90	310	N8			
		Cu-alloys, short-chipping	110	380	N9			
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6		●●	
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1		●●	
	Thermosetting plastics	without abrasive fillers			O2	●		
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	●●		
		CFRP			O4	●●		
	Graphite (technical)			65	O6	●		

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	3,0 x D_N			3,5 x D_N					
	Paradur® WLM Synchrospeed	**KMB WST**	**KMB MS**	**Paradur® HT**	**Paradur® NH**	**Paradur® Short Chip soft**	**Paradur® WTH Inox 50**	**Paradur® MS**	**Paradur® Short Chip HT**
	Page	Page	Page	Page	Page	Page	Page	Page	Page
	*D 114**	*D 63**	*D 64**	*D 81** / **D-47**	*D 85**	*D 97**	*D 102**	*D 115**	**D-48**
				*D 155** / **D-71**		*D 162**			**D-72**
			*D 236**				*D 244**		
	uncoated/CRN	uncoated	uncoated	uncoated/TiN	uncoated/TiN	vap/TiN	vap/TiN	uncoated	THL
	GL	GL	GL /DL	GL	GL	GL	GL	GL/DL	GL
									
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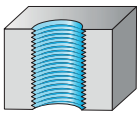
Walter Select – Tapping
Through hole machining
HSS-E (-PM)



WALTER SELECT

●● Primary application

● Additional application

BH = Blind hole
TH = Through hole

Thread depth		1,0 x D_N	1,5 x D_N	
Type		Prototex® OS	Paradur® H	
		Page	Page	
M		*D 40**		
MJ				
MF			*D 150**	
UNC	UNJC			
UNF	UNJF			
UNEF	UN-8			
G			*D 238**	
RC	RP		*D 249* / D 250**	
NPT	NPSM		*D 251**	
NPTF			*D 256**	
Pg	BSW			
TR				
EG M	EG MF			
EG UNC				
EG UNF				
Coating		uncoated	uncoated/TiN	
Application		DL	GL/DL	

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●		
		free cutting steel	220	750	P6	●●		
		tempered	300	1010	P5, P8			
		tempered	380	1280	P9			
		tempered	430	1480	P10			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11			
		hardened and tempered	300	1010	P12			
		hardened and tempered	400	1360	P13			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14			
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6		●	
	GGV (CGI)		200	–	K7			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●		
		hardenable, hardened	100	340	N2	●	●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4		●	
		> 12% Si	130	450	N5		●	
	Magnesium alloys		70	250	N6		●	
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7			
		brass, bronze, red brass	90	310	N8		●	
		Cu-alloys, short-chipping	110	380	N9		●	
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6			
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1			
	Thermosetting plastics	without abrasive fillers			O2		●	
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5		●	
		CFRP			O4		●	
	Graphite (technical)			65	O6		●	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	1,5 x D_N		2,0 x D_N				
	Paradur Inox® 40	**Paradur® Combi**	**Prototex® TiNi**	**Prototex® TiNi plus**	**TMB Trapezoidal**	**Paradur® FT**	**Paradur® AP**
	Page	Page	Page	Page	Page	Page	Page
		*D 59**	*D 56**	*D 58**		*D 124**	*D 116**
			*D 144**	*D 145**			
			*D 185**				
			*D 209**	*D 211**			
	*D 254**						
					*D 262**		
			*D 266**				
			*D 278**				
			*D 281**				
	uncoated	uncoated	uncoated/TiCN	ACN	uncoated	uncoated	nit
	GL/DL	DL	DL	DL	DL	GL/DL	GL/DL
							
		●●			●		
	●	●●			●●		
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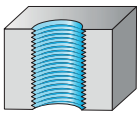
Walter Select – Tapping
Through hole machining
HSS-E (-PM)



WALTER SELECT
●● Primary application
● Additional application

BH = Blind hole
TH = Through hole

Thread depth		3,0 x D_N		
Type		Prototex® X-pert P	Prototex® X-pert N	
		Page	Page	
M		D-20	D-32	
MJ				
MF		D-58		
UNC	UNJC	D-77		
UNF	UNJF	D-90		
UNEF	UN-8	D-94		
G		D-106		
RC	RP			
NPT	NPSM			
NPTF				
Pg	BSW	D-112		
TR				
EG M	EG MF	D-114		
EG UNC		D-120		
EG UNF		D-123		
Coating		uncoated/ TiN/TiCN	uncoated	
Application		DL	DL	

Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	NEW	NEW	
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●		
		free cutting steel	220	750	P6	●●		
		tempered	300	1010	P5, P8	●		
		tempered	380	1280	P9			
		tempered	430	1480	P10			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●		
		hardened and tempered	300	1010	P12	●		
		hardened and tempered	400	1360	P13			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14			
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6			
	GGV (CGI)		200	–	K7			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●	●●	
		hardenable, hardened	100	340	N2	●	●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●	
		> 12% Si	130	450	N5	●		
	Magnesium alloys		70	250	N6	●		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7		●●	
		brass, bronze, red brass	90	310	N8			
		Cu-alloys, short-chipping	110	380	N9			
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3			
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6		●●	
		α and β alloys, hardened	375	1260	S7			
		β alloys	410	1400	S8			
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1		●●	
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1	●		
	Thermosetting plastics	without abrasive fillers			O2			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	3,0 x D_N				3,5 x D_N	
	Prototex® X-pert M	Prototex® Synchrospeed	Paradur® X-pert K	Paradur® Eco CI	Prototex® Eco Plus	Paradur® MS
	Page	Page	Page	Page	Page	Page
	D-30	*D 55**	D-52	*D 106**	D-16	*D 115**
	D-63	*D 143**		*D 168**	D-56	
	D-80			*D 194**	D-76	
	D-93			*D 221**	D-89	
	D-107	*D 235**		*D 245**	D-105	
	D-115					
	D-124					
	vap/TiN/TiCN	THL/TiN	TAFT	nid/TiCN	TiN/THL	uncoated
	DL	DL	GL/DL	GL/DL	DL	GL/DL
						
	●	●●			●●	
	●	●●			●●	
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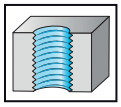
Machine tap
Prototex® Eco Plus

≤3,5xD_N



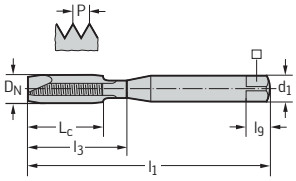
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials

M

DIN 13

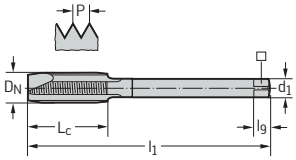
	P	M	K	N	S	H	O
TiN	●●	●●	●●	●●			
THL	●●	●●	●●	●●			

DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2021305	THL Designation EP2021302
M 2	0,4	45	6	9	2,8	2,1	5	3	★ -M2	★ -M2
M 2,5	0,45	50	8	12,5	2,8	2,1	5	3	★ -M2.5	★ -M2.5
M 3	0,5	56	9	18	3,5	2,7	6	3	★ -M3	★ -M3
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10	★ -M10

DIN 376 6HX



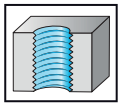
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2026305	THL Designation EP2026302
M 12	1,75	110	23	-	9	7	10	4	★ -M12	★ -M12
M 14	2	110	25	-	11	9	12	4	★ -M14	★ -M14
M 16	2	110	25	-	12	9	12	4	★ -M16	★ -M16
M 18	2,5	125	30	-	14	11	14	4	★ -M18	★ -M18
M 20	2,5	140	30	-	16	12	15	4	★ -M20	★ -M20
M 24	3	160	36	-	18	14,5	17	4	★ -M24	★ -M24
M 27	3	160	36	-	20	16	19	4		★ -M27
M 30	3,5	180	42	-	22	18	21	4		★ -M30

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD_N



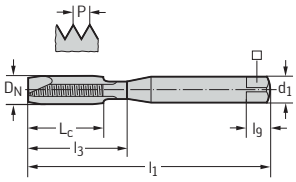
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials

M

DIN 13

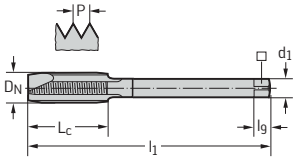
	P	M	K	N	S	H	O
TiN	●●	●●	●●	●●			
THL	●●	●●	●●	●●			

DIN 371 6GX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2023305	THL Designation EP2023302
M 2	0,4	45	6	9	2,8	2,1	5	3	★ -M2	★ -M2
M 2,5	0,45	50	8	12,5	2,8	2,1	5	3	★ -M2.5	★ -M2.5
M 3	0,5	56	9	18	3,5	2,7	6	3	★ -M3	★ -M3
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10	★ -M10

DIN 376 6GX



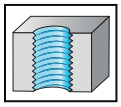
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2028305	THL Designation EP2028302
M 12	1,75	110	23	-	9	7	10	4	★ -M12	★ -M12
M 14	2	110	25	-	11	9	12	4	★ -M14	★ -M14
M 16	2	110	25	-	12	9	12	4	★ -M16	★ -M16

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD_N



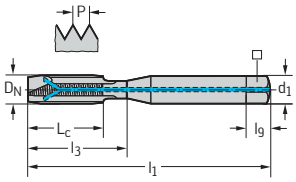
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials
- Suitable for minimum quantity lubrication

M

DIN 13

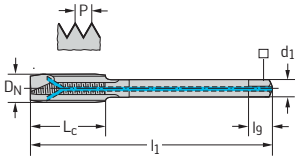
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2021342
M 6	1	80	15	30	6	4,9	8	3	★ -M6
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10

DIN 376 6HX



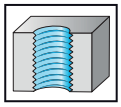
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2026342
M 12	1,75	110	23	-	9	7	10	4	★ -M12
M 16	2	110	25	-	12	9	12	4	★ -M16

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD_N



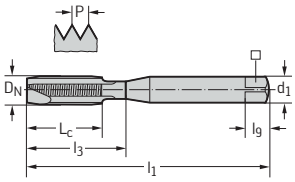
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Left-hand thread
- Higher positioned core
- Long-chipping materials from 500 to 1350 N/mm² or 42 HRC

M

DIN 13

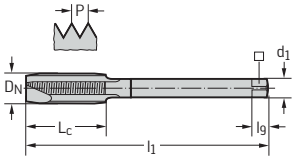
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2021382
M 3 LH	0,5	56	9	18	3,5	2,7	6	3	★ -M3
M 4 LH	0,7	63	12	21	4,5	3,4	6	3	★ -M4
M 5 LH	0,8	70	13	25	6	4,9	8	3	★ -M5
M 6 LH	1	80	15	30	6	4,9	8	3	★ -M6
M 8 LH	1,25	90	18	35	8	6,2	9	3	★ -M8
M 10 LH	1,5	100	20	39	10	8	11	3	★ -M10

DIN 376 6HX



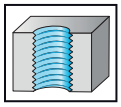
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2026382
M 12 LH	1,75	110	23	-	9	7	10	4	★ -M12
M 16 LH	2	110	25	-	12	9	12	4	★ -M16
M 20 LH	2,5	140	30	-	16	12	15	4	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



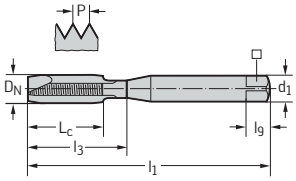
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 371 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20210	TIN Designation P2021005
M 1	0,25	40	5	-	2,5	2,1	5	2	★ -M1[1]	
M 1,2	0,25	40	5	-	2,5	2,1	5	2	★ -M1.2[1]	★ -M1.2[1]
M 1,4	0,3	40	6,5	-	2,5	2,1	5	2	★ -M1.4[1]	★ -M1.4[1]
M 1,6	0,35	40	7	-	2,5	2,1	5	2	★ -M1.6[1]	★ -M1.6[1]
M 1,8	0,35	40	7	-	2,5	2,1	5	2	★ -M1.8[1]	
M 2	0,4	45	6	9	2,8	2,1	5	2	★ -M2	★ -M2
M 2,3	0,4	45	7	12	2,8	2,1	5	2	★ -M2.3	
M 2,2	0,45	45	7	12	2,8	2,1	5	2	★ -M2.2	
M 2,5	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.5	★ -M2.5
M 2,6	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.6	
M 3	0,5	56	9	18	3,5	2,7	6	2	★ -M3	★ -M3
M 3,5	0,6	56	11	20	4	3	6	2	★ -M3.5	★ -M3.5
M 4	0,7	63	12	21	4,5	3,4	6	2	★ -M4	★ -M4
M 4,5	0,75	70	13	25	6	4,9	8	2	★ -M4.5	
M 5	0,8	70	13	25	6	4,9	8	2	★ -M5	★ -M5
M 6	1	80	15	30	6	4,9	8	2	★ -M6	★ -M6

≤M 1.4: 5H, ≥ M1.6: ISO 2/6H

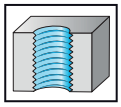
[1] without reduced neck after the thread

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



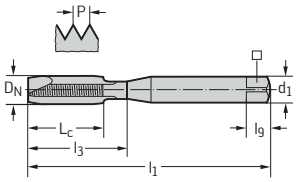
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 371 ISO3/6G



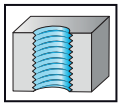
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20230	TIN Designation P2023005
M 2	0,4	45	6	9	2,8	2,1	5	2	★ -M2	★ -M2
M 2,3	0,4	45	7	12	2,8	2,1	5	2	★ -M2.3	
M 2,5	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.5	★ -M2.5
M 2,6	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.6	
M 3	0,5	56	9	18	3,5	2,7	6	2	★ -M3	★ -M3
M 3,5	0,6	56	11	20	4	3	6	2	★ -M3.5	★ -M3.5
M 4	0,7	63	12	21	4,5	3,4	6	2	★ -M4	★ -M4
M 5	0,8	70	13	25	6	4,9	8	2	★ -M5	★ -M5

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



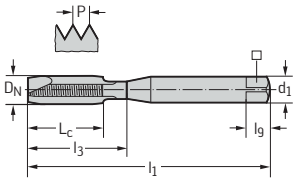
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 371 ISO1/4H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20200
M 1,6	0,35	40	7	-	2,5	2,1	5	2	★ -M1.6
M 2	0,4	45	6	9	2,8	2,1	5	2	★ -M2
M 2,2	0,45	45	7	12	2,8	2,1	5	2	★ -M2.2
M 2,5	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.5
M 3	0,5	56	9	18	3,5	2,7	6	2	★ -M3
M 3,5	0,6	56	11	20	4	3	6	2	★ -M3.5
M 4	0,7	63	12	21	4,5	3,4	6	2	★ -M4
M 5	0,8	70	13	25	6	4,9	8	2	★ -M5
M 6	1	80	15	30	6	4,9	8	2	★ -M6
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10

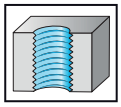
[1] without reduced neck after the thread

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



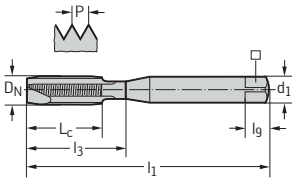
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Left-hand thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

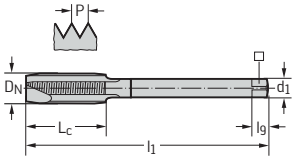
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 371 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P202108
M 2 LH	0,4	45	6	9	2,8	2,1	5	2	★ -M2
M 3 LH	0,5	56	9	18	3,5	2,7	6	2	★ -M3
M 4 LH	0,7	63	12	21	4,5	3,4	6	2	★ -M4
M 5 LH	0,8	70	13	25	6	4,9	8	2	★ -M5
M 6 LH	1	80	15	30	6	4,9	8	3	★ -M6
M 8 LH	1,25	90	18	35	8	6,2	9	3	★ -M8
M 10 LH	1,5	100	20	39	10	8	11	3	★ -M10

DIN 376 ISO2/6H



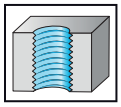
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P202608
M 12 LH	1,75	110	23	-	9	7	10	3	★ -M12
M 16 LH	2	110	25	-	12	9	12	3	★ -M16
M 20 LH	2,5	140	30	-	16	12	15	3	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



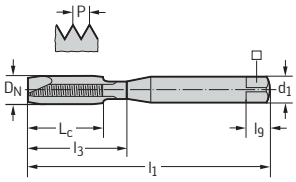
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

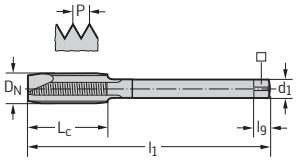
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●
TiCN	●●			●			●

DIN 371 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20310	TIN Designation P2031005	TICN Designation P2031006
M 2	0,4	45	6	9	2,8	2,1	5	3	★ -M2	★ -M2	★ -M2
M 2,2	0,45	45	7	12	2,8	2,1	5	3	★ -M2.2	★ -M2.2	
M 2,5	0,45	50	8	12,5	2,8	2,1	5	3	★ -M2.5	★ -M2.5	★ -M2.5
M 3	0,5	56	9	18	3,5	2,7	6	3	★ -M3	★ -M3	★ -M3
M 3,5	0,6	56	11	20	4	3	6	3	★ -M3.5		
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4	★ -M4	★ -M4
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5	★ -M5	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6	★ -M6	★ -M6
M 7	1	80	15	30	7	5,5	8	3	★ -M7	★ -M7	
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8	★ -M8	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10	★ -M10	★ -M10

DIN 376 ISO2/6H



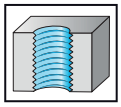
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20360	TIN Designation P2036005	TICN Designation P2036006
M 2	0,4	45	6	-	1,4	1,12	4	3	★ -M2		
M 2,5	0,45	50	8	-	1,8	1,4	4	3	★ -M2.5		
M 3	0,5	56	9	-	2,2	1,8	4	3	★ -M3		
M 4	0,7	63	12	-	2,8	2,1	5	3	★ -M4		
M 5	0,8	70	13	-	3,5	2,7	6	3	★ -M5		
M 6	1	80	15	-	4,5	3,4	6	3	★ -M6	★ -M6	★ -M6
M 7	1	80	15	-	5,5	4,3	7	3	★ -M7		
M 8	1,25	90	18	-	6	4,9	8	3	★ -M8	★ -M8	★ -M8
M 9	1,25	90	18	-	7	5,5	8	3	★ -M9		
M 10	1,5	100	20	-	7	5,5	8	3	★ -M10	★ -M10	★ -M10
M 12	1,75	110	23	-	9	7	10	3	★ -M12	★ -M12	★ -M12
M 14	2	110	25	-	11	9	12	3	★ -M14	★ -M14	
M 16	2	110	25	-	12	9	12	3	★ -M16	★ -M16	★ -M16
M 18	2,5	125	30	-	14	11	14	4	★ -M18	★ -M18	
M 20	2,5	140	30	-	16	12	15	4	★ -M20	★ -M20	★ -M20
M 22	2,5	140	30	-	18	14,5	17	4	★ -M22		
M 24	3	160	36	-	18	14,5	17	4	★ -M24	★ -M24	★ -M24
M 27	3	160	36	-	20	16	19	4	★ -M27	★ -M27	
M 30	3,5	180	42	-	22	18	21	4	★ -M30	★ -M30	★ -M30
M 33	3,5	180	42	-	25	20	23	4	★ -M33		
M 36	4	200	48	-	28	22	25	4	★ -M36	★ -M36	
M 39	4	200	48	-	32	24	27	4	★ -M39		
M 42	4,5	200	54	-	32	24	27	4	★ -M42		
M 45	4,5	220	54	-	36	29	32	4	★ -M45		
M 48	5	250	60	-	36	29	32	4	★ -M48		
M 52	5	250	60	-	40	32	35	4	★ -M52		
M 56	5,5	250	66	-	40	32	35	4	★ -M56		

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



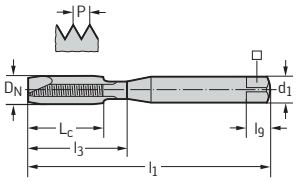
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

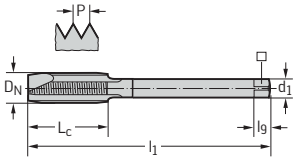
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 371 ISO3/6G



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20330	TIN Designation P2033005
M 2,5	0,45	50	8	12,5	2,8	2,1	5	3	★ -M2.5	
M 3	0,5	56	9	18	3,5	2,7	6	3	★ -M3	
M 3,5	0,6	56	11	20	4	3	6	3	★ -M3.5	
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4	
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5	
M 6	1	80	15	30	6	4,9	8	3	★ -M6	★ -M6
M 7	1	80	15	30	7	5,5	8	3	★ -M7	
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10	★ -M10

DIN 376 ISO3/6G



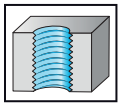
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20380	
M 5	0,8	70	13	-	3,5	2,7	6	3	★ -M5	
M 6	1	80	15	-	4,5	3,4	6	3	★ -M6	
M 8	1,25	90	18	-	6	4,9	8	3	★ -M8	
M 10	1,5	100	20	-	7	5,5	8	3	★ -M10	
M 12	1,75	110	23	-	9	7	10	3	★ -M12	
M 14	2	110	25	-	11	9	12	3	★ -M14	
M 16	2	110	25	-	12	9	12	3	★ -M16	
M 18	2,5	125	30	-	14	11	14	4	★ -M18	
M 20	2,5	140	30	-	16	12	15	4	★ -M20	
M 24	3	160	36	-	18	14,5	17	4	★ -M24	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD_N



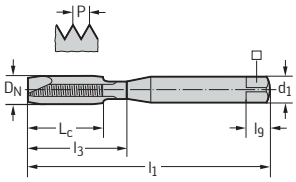
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

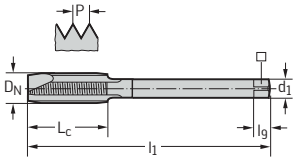
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 371 7G



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P20340	TIN Designation P2034005
M 2	0,4	45	6	11	2,8	2,1	5	3	★ -M2	★ -M2
M 2,5	0,45	50	8	12,5	2,8	2,1	5	3	★ -M2.5	★ -M2.5
M 2,6	0,45	50	8	14	2,8	2,1	5	3	★ -M2.6	
M 3	0,5	56	9	18	3,5	2,7	6	3	★ -M3	★ -M3
M 3,5	0,6	56	11	20	4	3	6	3	★ -M3.5	★ -M3.5
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10	★ -M10

DIN 376 7G



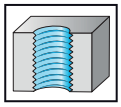
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P20390	TIN Designation P2039005
M 12	1,75	110	23	-	9	7	10	3	★ -M12	★ -M12
M 16	2	110	25	-	12	9	12	3	★ -M16	★ -M16
M 20	2,5	140	30	-	16	12	15	4	★ -M20	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



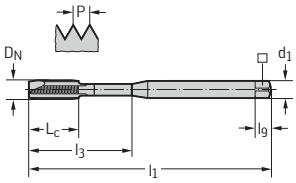
- HSS-E
- Overall length L = long
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

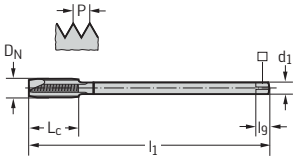
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

~DIN 371 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P203103	TIN Designation P2031035
M 3	0.5	112	9	18	3.5	2.7	6	3	★ -M3	★ -M3
M 4	0.7	112	12	21	4.5	3.4	6	3	★ -M4	★ -M4
M 5	0.8	125	13	25	6	4.9	8	3	★ -M5	★ -M5
M 6	1	125	15	30	6	4.9	8	3	★ -M6	★ -M6
M 8	1.25	140	18	40	8	6.2	9	3	★ -M8	★ -M8
M 10	1.5	160	20	50	10	8	11	3	★ -M10	★ -M10

~DIN 376 ISO2/6H



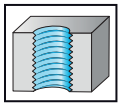
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P203603	TIN Designation P2036035
M 3	0,5	112	9	-	2,2	1,8	4	3	★ -M3	
M 4	0,7	112	12	-	2,8	2,1	5	3	★ -M4	
M 5	0,8	125	13	-	3,5	2,7	6	3	★ -M5	★ -M5
M 6	1	125	15	-	4,5	3,4	6	3	★ -M6	★ -M6
M 8	1,25	140	18	-	6	4,9	8	3	★ -M8	★ -M8
M 10	1,5	160	20	-	7	5,5	8	3	★ -M10	★ -M10
M 12	1,75	180	23	-	9	7	10	3	★ -M12	★ -M12
M 14	2	180	25	-	11	9	12	3	★ -M14	★ -M14
M 16	2	200	25	-	12	9	12	3	★ -M16	★ -M16
M 20	2,5	224	30	-	16	12	15	4	★ -M20	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



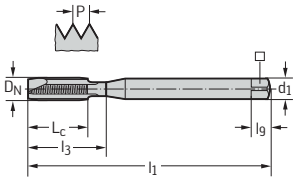
- HSS-E
- Overall length XL = extra long
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

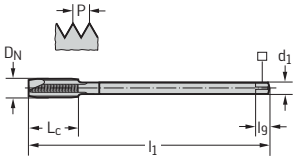
	P	M	K	N	S	H	O
uncoated	●●			●			●

~DIN 371 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P202103
M 4	0,7	125	12	21	4,5	3,4	6	3	★ -M4
M 5	0,8	140	13	25	6	4,9	8	3	★ -M5
M 6	1	160	15	30	6	4,9	8	3	★ -M6

~DIN 376 ISO2/6H



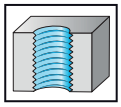
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P202603
M 8	1,25	180	18	-	6	4,9	8	3	★ -M8
M 10	1,5	200	20	-	7	5,5	8	3	★ -M10
M 12	1,75	220	23	-	9	7	10	3	★ -M12
M 14	2	220	25	-	11	9	12	3	★ -M14
M 16	2	220	25	-	12	9	12	3	★ -M16
M 20	2,5	280	30	-	16	12	15	4	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P AZ

≤3xD_N



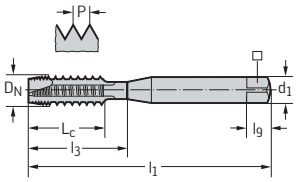
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials
- For thin-walled workpieces
- Interrupted teeth

M

DIN 13

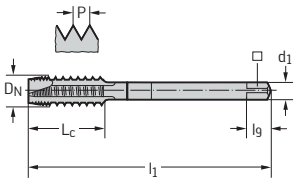
	P	M	K	N	S	H	O
uncoated	●●		●●	●●			●

DIN 371 ISO2/6H



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P40310
M 3	0,5	56	9	18	3,5	2,7	6	3	★ -M3
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10

DIN 376 ISO2/6H



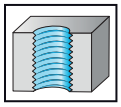
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P40360
M 12	1,75	110	23	-	9	7	10	3	★ -M12
M 14	2	110	25	-	11	9	12	3	★ -M14
M 16	2	110	25	-	12	9	12	3	★ -M16
M 20	2,5	140	30	-	16	12	15	4	★ -M20
M 24	3	160	36	-	18	14,5	17	4	★ -M24

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M

≤3xD$_N$



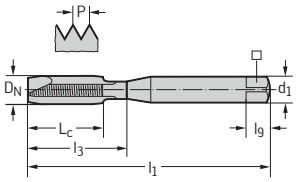
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					
TiCN	●	●●					

DIN 371 6HX

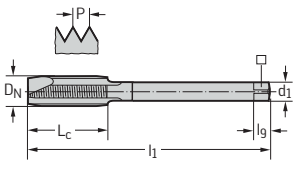


D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M20213	TIN Designation M2021305	TICN Designation M2021306
M 1	0,25	40	5	-	2,5	2,1	5	2	★ -M1[1]		
M 1,2	0,25	40	5	-	2,5	2,1	5	2	★ -M1.2[1]		
M 1,4	0,3	40	6,5	-	2,5	2,1	5	2	★ -M1.4[1]		
M 1,6	0,35	40	7	-	2,5	2,1	5	2	★ -M1.6[1]		
M 1,7	0,35	40	7	-	2,5	2,1	5	2	★ -M1.7[1]		
M 1,8	0,35	40	7	-	2,5	2,1	5	2	★ -M1.8[1]		
M 2	0,4	45	6	9	2,8	2,1	5	2	★ -M2	★ -M2	★ -M2
M 2,3	0,4	45	7	12	2,8	2,1	5	2	★ -M2.3		
M 2,2	0,45	45	7	12	2,8	2,1	5	2	★ -M2.2		
M 2,5	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.5	★ -M2.5	★ -M2.5
M 2,6	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.6		
M 3	0,5	56	9	18	3,5	2,7	6	2	★ -M3	★ -M3	★ -M3
M 3,5	0,6	56	11	20	4	3	6	2	★ -M3.5	★ -M3.5	★ -M3.5
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4	★ -M4	★ -M4
M 4,5	0,75	70	13	25	6	4,9	8	3	★ -M4.5		
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5	★ -M5	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6	★ -M6	★ -M6
M 7	1	80	15	30	7	5,5	8	3	★ -M7		
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8	★ -M8	★ -M8
M 9	1,25	90	18	35	9	7	10	3	★ -M9		
M 10	1,5	100	20	39	10	8	11	3	★ -M10	★ -M10	★ -M10

≤M 1.4: 5HX

[1] without reduced neck after the thread

DIN 376 6HX



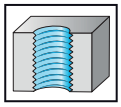
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M20263	TIN Designation M2026305	TICN Designation M2026306
M 5	0,8	70	13	-	3,5	2,7	6	3	★ -M5		★ -M5
M 6	1	80	15	-	4,5	3,4	6	3	★ -M6		★ -M6
M 8	1,25	90	18	-	6	4,9	8	3	★ -M8		★ -M8
M 10	1,5	100	20	-	7	5,5	8	3	★ -M10		★ -M10
M 12	1,75	110	23	-	9	7	10	4	★ -M12	★ -M12	★ -M12
M 14	2	110	25	-	11	9	12	4	★ -M14	★ -M14	★ -M14
M 16	2	110	25	-	12	9	12	4	★ -M16	★ -M16	★ -M16
M 18	2,5	125	30	-	14	11	14	4	★ -M18		
M 20	2,5	140	30	-	16	12	15	4	★ -M20	★ -M20	★ -M20
M 22	2,5	140	30	-	18	14,5	17	4	★ -M22		
M 24	3	160	36	-	18	14,5	17	4	★ -M24		★ -M24
M 27	3	160	36	-	20	16	19	4	★ -M27		
M 30	3,5	180	42	-	22	18	21	4	★ -M30		
M 33	3,5	180	42	-	25	20	23	5	★ -M33		
M 36	4	200	48	-	28	22	25	5	★ -M36		

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M

≤3xD$_N$



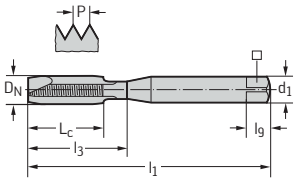
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
vap	●	●●					
TiCN	●	●●					

DIN 371 6GX



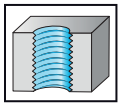
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M20233	TICN Designation M2023306
M 3	0,5	56	9	18	3,5	2,7	6	2	★ -M3	★ -M3
M 4	0,7	63	12	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6	★ -M6
M 7	1	80	15	30	7	5,5	8	3	★ -M7	★ -M7
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10	★ -M10

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert N

≤3xD$_N$



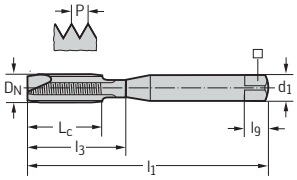
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated	●			●●	●		●

DIN 371 ISO2/6H



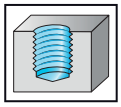
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_g$ mm	N	uncoated Designation N20219
M 2	0,4	45	6	9	2,8	2,1	5	2	★ -M2
M 2,5	0,45	50	8	12,5	2,8	2,1	5	2	★ -M2.5
M 3	0,5	56	9	18	3,5	2,7	6	2	★ -M3
M 4	0,7	63	12	21	4,5	3,4	6	2	★ -M4
M 5	0,8	70	13	25	6	4,9	8	2	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6
M 8	1,25	90	18	35	8	6,2	9	3	★ -M8
M 10	1,5	100	20	39	10	8	11	3	★ -M10

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



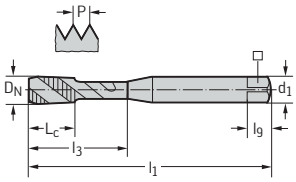
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

M

DIN 13

	P	M	K	N	S	H	O
TiN	●●	●●	●●	●●			
THL	●●	●●	●●	●●			

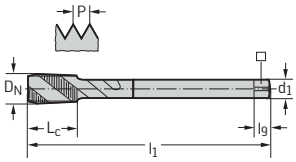
~DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2051305	THL Designation EP2051302
M 2	0,4	45	4	7,6	2,8	2,1	5	3	★ -M2[4]	★ -M2[4]
M 2,5	0,45	50	4	9,3	2,8	2,1	5	3	★ -M2.5[4]	★ -M2.5[4]
M 3	0,5	56	6	11	3,5	2,7	6	3	★ -M3	★ -M3
M 4	0,7	63	7	14,8	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	8	20,7	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	10	25	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10	★ -M10

[4] without thread taper

DIN 376 6HX



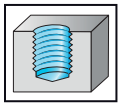
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2056305	THL Designation EP2056302
M 12	1,75	110	16	-	9	7	10	4	★ -M12	★ -M12
M 14	2	110	20	-	11	9	12	4	★ -M14	★ -M14
M 16	2	110	20	-	12	9	12	4	★ -M16	★ -M16
M 18	2,5	125	25	-	14	11	14	4	★ -M18	★ -M18
M 20	2,5	140	25	-	16	12	15	4	★ -M20	★ -M20
M 24	3	160	30	-	18	14,5	17	4	★ -M24	★ -M24
M 27	3	160	30	-	20	16	19	4		★ -M27
M 30	3,5	180	35	-	22	18	21	4		★ -M30
M 36	4	200	40	-	28	22	25	4		★ -M36
M 42	4,5	200	45	-	32	24	27	5		★ -M42
M 48	5	250	50	-	36	29	32	5		★ -M48
M 56	5,5	250	55	-	40	32	35	5		★ -M56
M 64	6	315	60	-	50	39	42	6		★ -M64

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



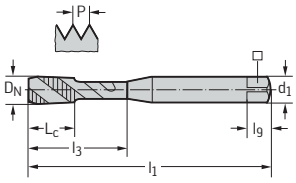
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

M

DIN 13

	P	M	K	N	S	H	O
TiN	●●	●●	●●	●●			
THL	●●	●●	●●	●●			

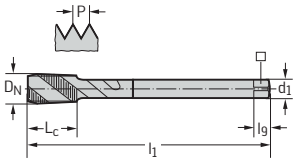
~DIN 371 6GX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2053305	THL Designation EP2053302
M 2	0,4	45	4	7,6	2,8	2,1	5	3	★ -M2[4]	★ -M2[4]
M 2,5	0,45	50	4	9,3	2,8	2,1	5	3	★ -M2.5[4]	★ -M2.5[4]
M 3	0,5	56	6	11	3,5	2,7	6	3	★ -M3	★ -M3
M 4	0,7	63	7	14,8	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	8	20,7	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	10	25	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10	★ -M10

[4] without thread taper

DIN 376 6GX



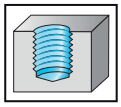
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation EP2058305	THL Designation EP2058302
M 12	1,75	110	16	-	9	7	10	4	★ -M12	★ -M12
M 14	2	110	20	-	11	9	12	4	★ -M14	★ -M14
M 16	2	110	20	-	12	9	12	4	★ -M16	★ -M16

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



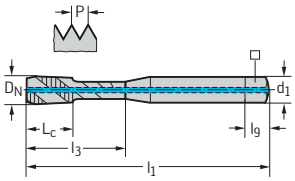
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

M

DIN 13

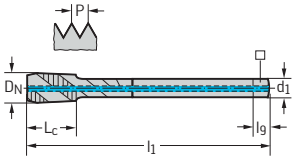
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

~DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2051312
M 4	0,7	63	7	14,8	4,5	3,4	6	3	★ -M4
M 5	0,8	70	8	20,7	6	4,9	8	3	★ -M5
M 6	1	80	10	25	6	4,9	8	3	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10

DIN 376 6HX



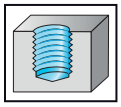
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2056312
M 12	1,75	110	16	-	9	7	10	4	★ -M12
M 16	2	110	20	-	12	9	12	4	★ -M16
M 20	2,5	140	25	-	16	12	15	4	★ -M20
M 24	3	160	30	-	18	14,5	17	4	★ -M24

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



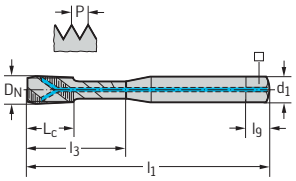
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC
- Suitable for minimum quantity lubrication

M

DIN 13

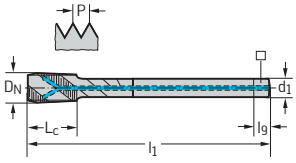
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2051342
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10

DIN 376 6HX



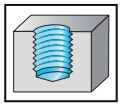
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2056342
M 12	1,75	110	16	-	9	7	10	4	★ -M12
M 16	2	110	20	-	12	9	12	4	★ -M16

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



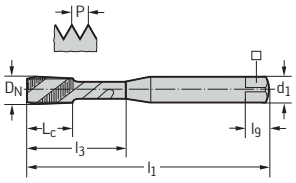
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Left-hand thread
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

M

DIN 13

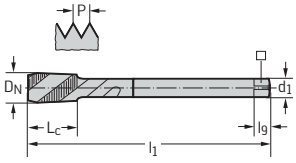
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

~DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2051382
M 3 LH	0,5	56	6	11	3,5	2,7	6	3	★ -M3
M 4 LH	0,7	63	7	14,8	4,5	3,4	6	3	★ -M4
M 5 LH	0,8	70	8	20,7	6	4,9	8	3	★ -M5
M 6 LH	1	80	10	25	6	4,9	8	3	★ -M6
M 8 LH	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10 LH	1,5	100	15	39	10	8	11	3	★ -M10

DIN 376 6HX



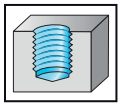
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2056382
M 12 LH	1,75	110	16	-	9	7	10	4	★ -M12
M 14 LH	2	110	20	-	11	9	12	4	★ -M14
M 16 LH	2	110	20	-	12	9	12	4	★ -M16
M 18 LH	2,5	125	25	-	14	11	14	4	★ -M18
M 20 LH	2,5	140	25	-	16	12	15	4	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD$_N$



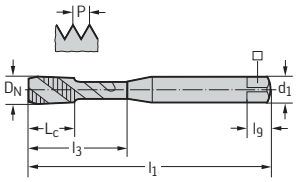
- HSS-E-PM
- Chamfer form E = 1.5 - 2 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

M

DIN 13

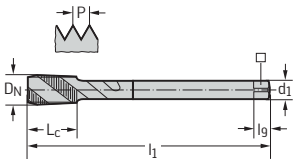
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

~DIN 371 6HX



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	THL Designation EP2051362
M 4	0,7	63	7	14,8	4,5	3,4	6	3	★ -M4
M 5	0,8	70	8	20,7	6	4,9	8	3	★ -M5
M 6	1	80	10	25	6	4,9	8	3	★ -M6
M 8	1,25	90	12	35	8	6,2	9	4	★ -M8
M 10	1,5	100	15	39	10	8	11	4	★ -M10

DIN 376 6HX



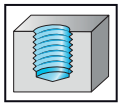
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	THL Designation EP2056362
M 12	1,75	110	16	-	9	7	10	4	★ -M12
M 16	2	110	20	-	12	9	12	4	★ -M16
M 20	2,5	140	25	-	16	12	15	4	★ -M20
M 24	3	160	30	-	18	14,5	17	5	★ -M24

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD$_N$



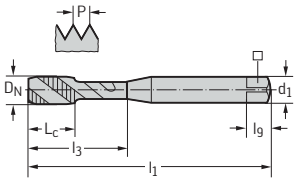
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

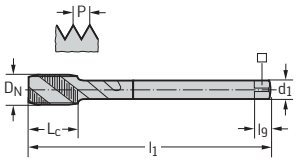
DIN 371 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20519	TIN Designation P2051905
M 1,6	0,35	40	6	-	2,5	2,1	5	2	★ -M1.6[1]	
M 2	0,4	45	4	9	2,8	2,1	5	3	★ -M2	★ -M2
M 2,2	0,45	45	4	12	2,8	2,1	5	3	★ -M2.2	
M 2,5	0,45	50	4	12,5	2,8	2,1	5	3	★ -M2.5	★ -M2.5
M 2,6	0,45	50	4	12,5	2,8	2,1	5	3	★ -M2.6	
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3	★ -M3
M 3,5	0,6	56	6,5	20	4	3	6	3	★ -M3.5	★ -M3.5
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4	★ -M4
M 4,5	0,75	70	8	25	6	4,9	8	3	★ -M4.5	
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6	★ -M6
M 7	1	80	10	30	7	5,5	8	3	★ -M7	
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10	★ -M10

[1] without reduced neck after the thread

DIN 376 ISO2/6H



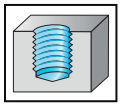
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20569	TIN Designation P2056905
M 4	0,7	63	7	-	2,8	2,1	5	3	★ -M4	
M 5	0,8	70	8	-	3,5	2,7	6	3	★ -M5	
M 6	1	80	10	-	4,5	3,4	6	3	★ -M6	
M 8	1,25	90	12	-	6	4,9	8	3	★ -M8	
M 9	1,25	90	13	-	7	5,5	8	3	★ -M9	
M 10	1,5	100	15	-	7	5,5	8	3	★ -M10	
M 11	1,5	100	15	-	8	6,2	9	3	★ -M11	
M 12	1,75	110	16	-	9	7	10	3	★ -M12	★ -M12
M 14	2	110	20	-	11	9	12	3	★ -M14	★ -M14
M 16	2	110	20	-	12	9	12	3	★ -M16	★ -M16
M 18	2,5	125	25	-	14	11	14	4	★ -M18	★ -M18
M 20	2,5	140	25	-	16	12	15	4	★ -M20	★ -M20
M 22	2,5	140	25	-	18	14,5	17	4	★ -M22	
M 24	3	160	30	-	18	14,5	17	4	★ -M24	★ -M24
M 27	3	160	30	-	20	16	19	4	★ -M27	
M 30	3,5	180	35	-	22	18	21	4	★ -M30	★ -M30
M 33	3,5	180	35	-	25	20	23	4	★ -M33	
M 36	4	200	40	-	28	22	25	4	★ -M36	
M 39	4	200	40	-	32	24	27	4	★ -M39	
M 42	4,5	200	45	-	32	24	27	4	★ -M42	
M 45	4,5	220	45	-	36	29	32	4	★ -M45	
M 48	5	250	50	-	36	29	32	4	★ -M48	
M 52	5	250	50	-	40	32	35	5	★ -M52	
M 56	5,5	250	55	-	40	32	35	5	★ -M56	
M 60	5,5	280	55	-	45	35	38	5	★ -M60	
M 64	6	315	60	-	50	39	42	6	★ -M64	

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD$_N$



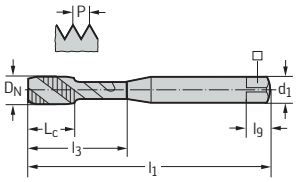
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

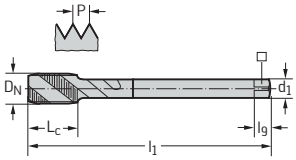
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 371 ISO3/6G



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20539	TIN Designation P2053905
M 2	0,4	45	4	9	2,8	2,1	5	3	★ -M2	
M 2,3	0,4	45	4	12	2,8	2,1	5	3	★ -M2.3	
M 2,5	0,45	50	4	12,5	2,8	2,1	5	3	★ -M2.5	★ -M2.5
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3	★ -M3
M 3,5	0,6	56	6,5	20	4	3	6	3	★ -M3.5	
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10	★ -M10

DIN 376 ISO3/6G



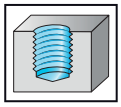
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20589	TIN Designation P2058905
M 5	0,8	70	8	-	3,5	2,7	6	3	★ -M5	
M 6	1	80	10	-	4,5	3,4	6	3	★ -M6	
M 8	1,25	90	12	-	6	4,9	8	3	★ -M8	
M 10	1,5	100	15	-	7	5,5	8	3	★ -M10	
M 12	1,75	110	16	-	9	7	10	3	★ -M12	★ -M12
M 14	2	110	20	-	11	9	12	3	★ -M14	
M 16	2	110	20	-	12	9	12	3	★ -M16	★ -M16

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N



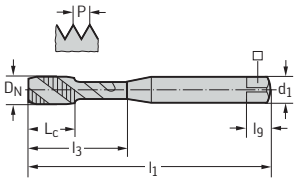
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

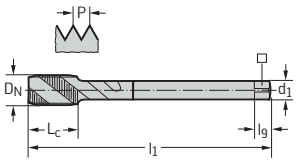
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 371 7G



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P20549	TIN Designation P2054905
M 2	0,4	45	4	9	2,8	2,1	5	3	★ -M2	
M 2,5	0,45	50	4	12,5	2,8	2,1	5	3	★ -M2.5	
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3	★ -M3
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10	★ -M10

DIN 376 7G



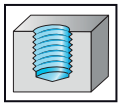
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P20599	TIN Designation P2059905
M 8	1,25	90	12	-	6	4,9	8	3	★ -M8	
M 10	1,5	100	15	-	7	5,5	8	3	★ -M10	
M 12	1,75	110	16	-	9	7	10	3	★ -M12	★ -M12
M 16	2	110	20	-	12	9	12	3	★ -M16	★ -M16
M 20	2,5	140	25	-	16	12	15	4	★ -M20	★ -M20
M 24	3	160	30	-	18	14,5	17	4	★ -M24	★ -M24

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD$_N$



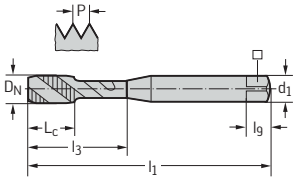
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 371 ISO1/4H

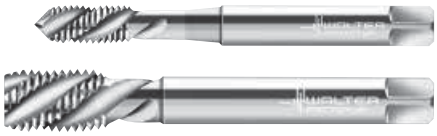


D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P20509
M 2	0,4	45	4	9	2,8	2,1	5	3	★ -M2
M 2,5	0,45	50	4	12,5	2,8	2,1	5	3	★ -M2.5
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6
M 7	1	80	10	30	7	5,5	8	3	★ -M7
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10

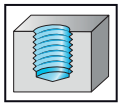
★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P



≤3xD_N



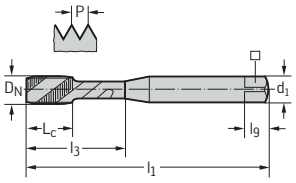
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Left-hand thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

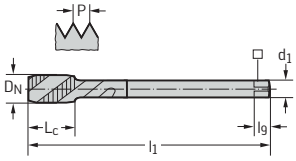
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 371 ISO2/6H



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P205198
M 3 LH	0,5	56	6	18	3,5	2,7	6	3	★ -M3
M 4 LH	0,7	63	7	21	4,5	3,4	6	3	★ -M4
M 5 LH	0,8	70	8	25	6	4,9	8	3	★ -M5
M 6 LH	1	80	10	30	6	4,9	8	3	★ -M6
M 8 LH	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10 LH	1,5	100	15	39	10	8	11	3	★ -M10

DIN 376 ISO2/6H



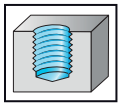
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P205698
M 12 LH	1,75	110	16	-	9	7	10	3	★ -M12
M 14 LH	2	110	20	-	11	9	12	3	★ -M14
M 16 LH	2	110	20	-	12	9	12	3	★ -M16
M 20 LH	2,5	140	25	-	16	12	15	4	★ -M20
M 24 LH	3	160	30	-	18	14,5	17	4	★ -M24
M 30 LH	3,5	180	35	-	22	18	21	4	★ -M30

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3,5xD_N



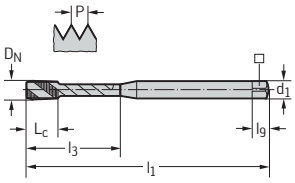
- HSS-E
- Overall length L = long
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

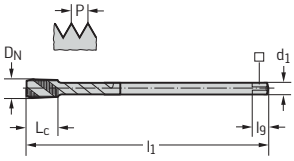
	P	M	K	N	S	H	O
uncoated	●●			●			●
THL	●●			●			●

~DIN 371 ISO2/6H



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P205183	THL Designation P2051832
M 3	0,5	112	6	18	3,5	2,7	6	3	★ -M3	★ -M3
M 4	0,7	112	7	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	125	8	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	125	10	30	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	140	13	40	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	160	15	50	10	8	11	3	★ -M10	★ -M10

~DIN 376 ISO2/6H



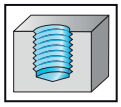
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P205683	THL Designation P2056832
M 8	1,25	140	12	-	6	4,9	8	3	★ -M8	★ -M8
M 10	1,5	160	15	-	7	5,5	8	3	★ -M10	★ -M10
M 12	1,75	180	16	-	9	7	10	3	★ -M12	★ -M12
M 14	2	180	20	-	11	9	12	3	★ -M14	★ -M14
M 16	2	200	20	-	12	9	12	3	★ -M16	★ -M16
M 20	2,5	224	25	-	16	12	15	4	★ -M20	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N



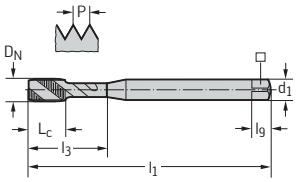
- HSS-E
- Overall length XL = extra long
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

M

DIN 13

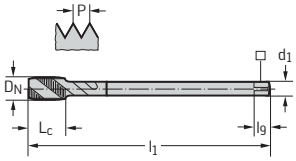
	P	M	K	N	S	H	O
uncoated	●●			●			●

~DIN 371 ISO2/6H



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P2051935
M 3	0,5	125	6	18	3,5	2,7	6	3	★ -M3
M 4	0,7	125	7	21	4,5	3,4	6	3	★ -M4
M 5	0,8	140	8	25	6	4,9	8	3	★ -M5
M 6	1	160	10	30	6	4,9	8	3	★ -M6
M 8	1,25	180	13	35	8	6,2	9	3	★ -M8
M 10	1,5	200	15	39	10	8	11	3	★ -M10

~DIN 376 ISO2/6H



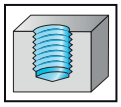
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P2056935
M 8	1,25	180	12	-	6	4,9	8	3	★ -M8
M 10	1,5	200	15	-	7	5,5	8	3	★ -M10
M 12	1,75	220	16	-	9	7	10	3	★ -M12
M 14	2	220	20	-	11	9	12	3	★ -M14
M 16	2	220	20	-	12	9	12	3	★ -M16
M 18	2,5	250	25	-	14	11	14	4	★ -M18
M 20	2,5	280	25	-	16	12	15	4	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P AZ

≤3xD_N



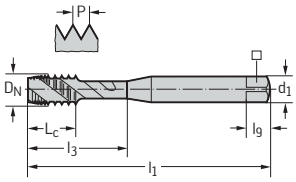
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials
- For thin-walled workpieces

M

DIN 13

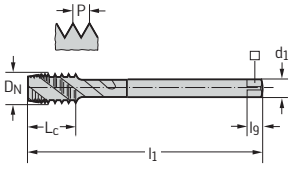
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 371 ISO2/6H



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P40519
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10

DIN 376 ISO2/6H



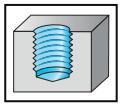
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P40569
M 12	1,75	110	16	-	9	7	10	3	★ -M12

★ New addition to range

G-2 D-140

Machine tap
Paradur® HT

≤3,5xD_N



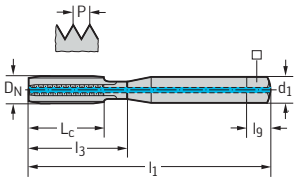
- HSS-E
- Chamfer form C = 2 - 3 thread
- Materials from 500 to 1400 N/mm² or 44 HRC
- For long- and short-chipping materials

M

DIN 13

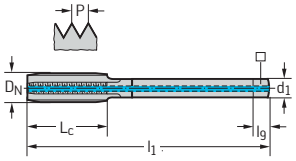
	P	M	K	N	S	H	O
uncoated	●●		●●	●			●
TiN	●●		●●	●			●

DIN 371 ISO2/6H



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation 203111	TIN Designation 2031115
M 4	0,7	63	12	21	4,5	3,4	6	3		-M4
M 5	0,8	70	13	25	6	4,9	8	3	-M5	-M5
M 6	1	80	15	30	6	4,9	8	3	-M6	-M6
M 8	1,25	90	18	35	8	6,2	9	3	-M8	-M8
M 10	1,5	100	20	39	10	8	11	3	-M10	-M10

DIN 376 ISO2/6H



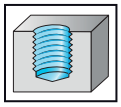
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation 203611	TIN Designation 2036115
M 12	1,75	110	23	-	9	7	10	3	-M12	-M12
M 14	2	110	25	-	11	9	12	3		-M14
M 16	2	110	25	-	12	9	12	3		-M16
M 20	2,5	140	30	-	16	12	15	3		-M20
M 22	2,5	140	30	-	18	14,5	17	3		-M22
M 24	3	160	36	-	18	14,5	17	4		-M24
M 27	3	160	36	-	20	16	19	4		★ -M27
M 30	3,5	180	42	-	22	18	21	4		★ -M30
M 36	4	200	48	-	28	22	25	5		★ -M36

★ New addition to range

G-2 D-140

Machine tap
Paradur® Short Chip HT

≤3,5xD_N



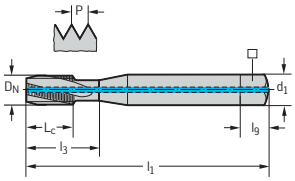
- HSS-E
- Chamfer form C = 2 - 3 thread
- 15° helix angle
- Reduced helix to 9° (uncoated)
- Materials from 800 to 1250 N/mm² or 38 HRC
- For long-chipping materials

M

DIN 13

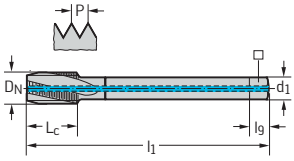
	P	M	K	N	S	H	O
THL	●●		●	●			

DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation 20410TR
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10

DIN 376 6HX



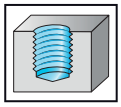
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation 20460TR
M 12	1,75	110	16	-	9	7	10	3	★ -M12

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD$_N$



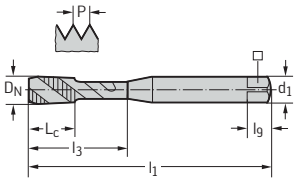
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					
TiCN	●	●●					

DIN 371 6HX

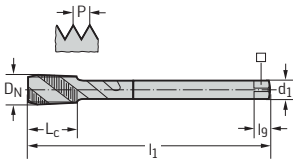


D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M20513	TIN Designation M2051305	TICN Designation M2051306
M 1,6	0,35	40	6	-	2,5	2,1	5	3	★ -M1.6[1 4]		
M 1,7	0,35	40	6	-	2,5	2,1	5	3	★ -M1.7[1 4]		
M 1,8	0,35	40	6	-	2,5	2,1	5	3	★ -M1.8[1 4]		
M 2	0,4	45	4	9	2,8	2,1	5	3	★ -M2[4]	★ -M2[4]	★ -M2[4]
M 2,5	0,45	50	4	12,5	2,8	2,1	5	3	★ -M2.5[4]	★ -M2.5[4]	★ -M2.5[4]
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3	★ -M3	★ -M3
M 3,5	0,6	56	6,5	20	4	3	6	3	★ -M3.5		
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4	★ -M4	★ -M4
M 4,5	0,75	70	8	25	6	4,9	8	3	★ -M4.5		
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5	★ -M5	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6	★ -M6	★ -M6
M 7	1	80	10	30	7	5,5	8	3	★ -M7		
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8	★ -M8	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10	★ -M10	★ -M10

[1] without reduced neck after the thread

[4] without thread taper

DIN 376 6HX



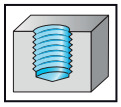
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M20563	TIN Designation M2056305	TICN Designation M2056306
M 6	1	80	10	-	4,5	3,4	6	3	★ -M6		★ -M6
M 8	1,25	90	12	-	6	4,9	8	3	★ -M8		★ -M8
M 10	1,5	100	15	-	7	5,5	8	3	★ -M10		★ -M10
M 12	1,75	110	16	-	9	7	10	4	★ -M12	★ -M12	★ -M12
M 14	2	110	20	-	11	9	12	4	★ -M14		
M 16	2	110	20	-	12	9	12	4	★ -M16	★ -M16	★ -M16
M 18	2,5	125	25	-	14	11	14	4	★ -M18		
M 20	2,5	140	25	-	16	12	15	4	★ -M20	★ -M20	★ -M20
M 22	2,5	140	25	-	18	14,5	17	4	★ -M22		
M 24	3	160	30	-	18	14,5	17	4	★ -M24		★ -M24
M 27	3	160	30	-	20	16	19	5	★ -M27		
M 30	3,5	180	35	-	22	18	21	5	★ -M30		★ -M30
M 33	3,5	180	35	-	25	20	23	5	★ -M33		
M 36	4	200	40	-	28	22	25	5	★ -M36		
M 42	4,5	200	45	-	32	24	27	5	★ -M42		

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD$_N$



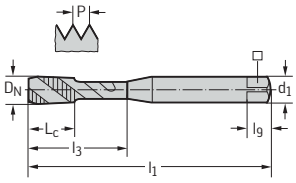
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
vap	●	●●					
TiCN	●	●●					

DIN 371 6GX



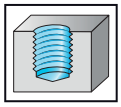
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M20533	TICN Designation M2053306
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3	★ -M3
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4	★ -M4
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6	★ -M6
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10	★ -M10

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD_N



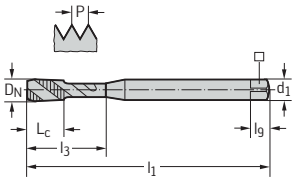
- HSS-E
- Overall length XL = extra long
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

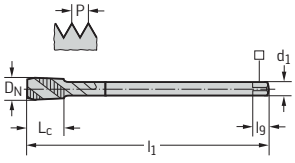
	P	M	K	N	S	H	O
THL	●	●●					

~DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation M2051332
M 4	0,7	125	7	21	4,5	3,4	6	3	★ -M4
M 5	0,8	140	8	25	6	4,9	8	3	★ -M5
M 6	1	160	10	30	6	4,9	8	3	★ -M6

~DIN 376 6HX



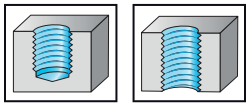
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation M2056332
M 8	1,25	180	12	-	6	4,9	8	3	★ -M8
M 10	1,5	200	15	-	7	5,5	8	3	★ -M10
M 12	1,75	220	16	-	9	7	10	4	★ -M12
M 16	2	220	20	-	12	9	12	4	★ -M16
M 20	2,5	280	25	-	16	12	15	4	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert K

≤3xD$_N$



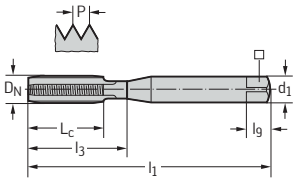
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- Materials from 100 to 1000 N/mm² or 32 HRC
- For short-chipping materials

M

DIN 13

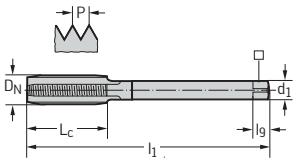
	P	M	K	N	S	H	O
TAFT			●●	●			

DIN 371 6HX



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	TAFT Designation K2031407
M 3	0,5	56	9	18	3,5	2,7	6	3	★ -M3
M 4	0,7	63	11	21	4,5	3,4	6	3	★ -M4
M 5	0,8	70	13	25	6	4,9	8	3	★ -M5
M 6	1	80	15	30	6	4,9	8	3	★ -M6
M 8	1,25	90	18	35	8	6,2	9	4	★ -M8
M 10	1,5	100	20	39	10	8	11	4	★ -M10

DIN 376 6HX



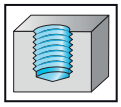
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	TAFT Designation K2036407
M 12	1,75	110	23	-	9	7	10	4	★ -M12
M 14	2	110	25	-	11	9	12	4	★ -M14
M 16	2	110	25	-	12	9	12	4	★ -M16
M 20	2,5	140	30	-	16	12	15	4	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N

≤3xD_N



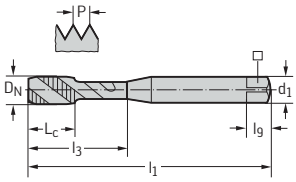
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated				●●	●		●

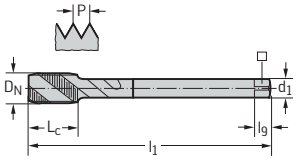
DIN 371 ISO2/6H



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N20516
M 1,6	0,35	40	6	-	2,5	2,1	5	2	★ -M1.6[1]
M 2	0,4	45	4	9	2,8	2,1	5	2	★ -M2
M 2,3	0,4	45	4	12	2,8	2,1	5	2	★ -M2.3
M 2,5	0,45	50	4	12,5	2,8	2,1	5	2	★ -M2.5
M 3	0,5	56	6	18	3,5	2,7	6	2	★ -M3
M 3,5	0,6	56	6,5	20	4	3	6	2	★ -M3.5
M 4	0,7	63	7	21	4,5	3,4	6	2	★ -M4
M 5	0,8	70	8	25	6	4,9	8	2	★ -M5
M 6	1	80	10	30	6	4,9	8	2	★ -M6
M 8	1,25	90	12	35	8	6,2	9	2	★ -M8
M 10	1,5	100	15	39	10	8	11	2	★ -M10

[1] without reduced neck after the thread

DIN 376 ISO2/6H



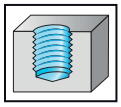
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N20566
M 6	1	80	10	-	4,5	3,4	6	2	★ -M6
M 8	1,25	90	12	-	6	4,9	8	2	★ -M8
M 10	1,5	100	15	-	7	5,5	8	2	★ -M10
M 12	1,75	110	16	-	9	7	10	3	★ -M12
M 14	2	110	20	-	11	9	12	3	★ -M14
M 16	2	110	20	-	12	9	12	3	★ -M16
M 20	2,5	140	25	-	16	12	15	3	★ -M20

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N

≤3xD_N



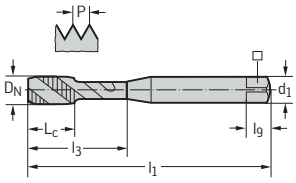
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 371 ISO2/6H



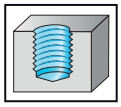
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N205166
M 3	0,5	56	6	18	3,5	2,7	6	3	★ -M3
M 4	0,7	63	7	21	4,5	3,4	6	3	★ -M4
M 5	0,8	70	8	25	6	4,9	8	3	★ -M5
M 6	1	80	10	30	6	4,9	8	3	★ -M6
M 7	1	80	10	30	7	5,5	8	3	★ -M7
M 8	1,25	90	12	35	8	6,2	9	3	★ -M8
M 10	1,5	100	15	39	10	8	11	3	★ -M10

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N

≤3xD$_N$



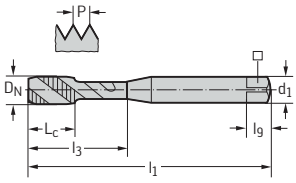
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 371 ISO3/6G



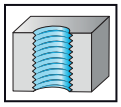
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation N20536
M 2	0,4	45	4	9	2,8	2,1	5	2	★ -M2
M 2,5	0,45	50	4	12,5	2,8	2,1	5	2	★ -M2.5
M 3	0,5	56	6	18	3,5	2,7	6	2	★ -M3
M 4	0,7	63	7	21	4,5	3,4	6	2	★ -M4
M 5	0,8	70	8	25	6	4,9	8	2	★ -M5
M 6	1	80	10	30	6	4,9	8	2	★ -M6
M 8	1,25	90	12	35	8	6,2	9	2	★ -M8

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD_N



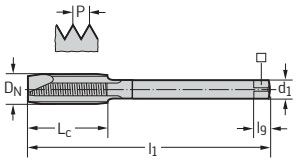
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 374 6HX



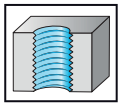
D_N	P mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2126302
M 6	0,75	80	15	4,5	3,4	6	3	★ -M6X0.75
M 8	1	90	18	6	4,9	8	3	★ -M8X1
M 10	1	90	20	7	5,5	8	3	★ -M10X1
M 10	1,25	100	20	7	5,5	8	3	★ -M10X1.25
M 12	1	100	21	9	7	10	4	★ -M12X1
M 12	1,25	100	21	9	7	10	4	★ -M12X1.25
M 12	1,5	100	21	9	7	10	4	★ -M12X1.5
M 14	1,5	100	21	11	9	12	4	★ -M14X1.5
M 16	1,5	100	21	12	9	12	4	★ -M16X1.5
M 18	1,5	110	24	14	11	14	4	★ -M18X1.5
M 20	1,5	125	24	16	12	15	4	★ -M20X1.5
M 22	1,5	125	24	18	14,5	17	4	★ -M22X1.5

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD_N



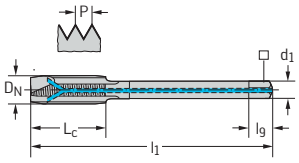
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials
- Suitable for minimum quantity lubrication

MF

DIN 13

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 374 6HX



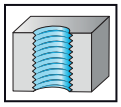
D_N	P mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2126342
M 8	1	90	18	6	4,9	8	3	★ -M8X1
M 10	1	90	20	7	5,5	8	3	★ -M10X1
M 10	1,25	100	20	7	5,5	8	3	★ -M10X1.25
M 12	1	100	21	9	7	10	4	★ -M12X1
M 12	1,25	100	21	9	7	10	4	★ -M12X1.25
M 12	1,5	100	21	9	7	10	4	★ -M12X1.5
M 14	1,5	100	21	11	9	12	4	★ -M14X1.5
M 16	1,5	100	21	12	9	12	4	★ -M16X1.5
M 18	1,5	110	24	14	11	14	4	★ -M18X1.5
M 20	1,5	125	24	16	12	15	4	★ -M20X1.5

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



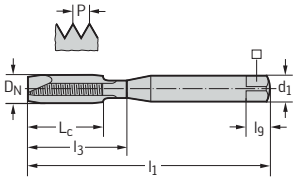
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 371 ISO2/6H



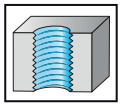
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P21210
M 2	0,25	45	6	9	2,8	2,1	5	2	★ -M2X0.25
M 2,2	0,25	45	7	12	2,8	2,1	5	2	★ -M2.2X0.25
M 2,3	0,25	45	7	12	2,8	2,1	5	2	★ -M2.3X0.25
M 2,5	0,35	50	8	12,5	2,8	2,1	5	2	★ -M2.5X0.35
M 3	0,25	56	6	18	3,5	2,7	6	2	★ -M3X0.25
M 3	0,35	56	9	18	3,5	2,7	6	2	★ -M3X0.35
M 3,5	0,35	56	11	20	4	3	6	2	★ -M3.5X0.35
M 4	0,35	63	12	21	4,5	3,4	6	2	★ -M4X0.35
M 4	0,5	63	12	21	4,5	3,4	6	2	★ -M4X0.5
M 4,5	0,5	70	13	25	6	4,9	8	2	★ -M4.5X0.5
M 5	0,5	70	13	25	6	4,9	8	3	★ -M5X0.5
M 5	0,75	70	13	25	6	4,9	8	3	★ -M5X0.75
M 6	0,5	80	15	30	6	4,9	8	3	★ -M6X0.5
M 6	0,75	80	15	30	6	4,9	8	3	★ -M6X0.75
M 7	0,75	80	15	30	7	5,5	8	3	★ -M7X0.75
M 8	1	90	18	35	8	6,2	9	3	★ -M8X1
M 10	1	90	20	39	10	8	11	3	★ -M10X1

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



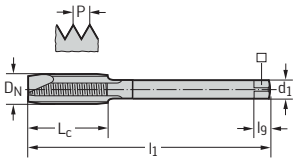
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 374 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P21360	TIN Designation P2136005
M 4	0,5	63	12	2,8	2,1	5	3	★ -M4X0.5	
M 5	0,5	70	13	3,5	2,7	6	3	★ -M5X0.5	★ -M5X0.5
M 6	0,5	80	15	4,5	3,4	6	3	★ -M6X0.5	★ -M6X0.5
M 6	0,75	80	15	4,5	3,4	6	3	★ -M6X0.75	★ -M6X0.75
M 8	0,5	80	15	6	4,9	8	3	★ -M8X0.5	★ -M8X0.5
M 8	0,75	80	15	6	4,9	8	3	★ -M8X0.75	★ -M8X0.75
M 8	1	90	18	6	4,9	8	3	★ -M8X1	★ -M8X1
M 9	1	90	18	7	5,5	8	3	★ -M9X1	
M 10	0,5	90	20	7	5,5	8	3	★ -M10X0.5	
M 10	0,75	90	20	7	5,5	8	3	★ -M10X0.75	
M 10	1	90	20	7	5,5	8	3	★ -M10X1	★ -M10X1
M 10	1,25	100	20	7	5,5	8	3	★ -M10X1.25	★ -M10X1.25
M 12	0,5	100	21	9	7	10	4	★ -M12X0.5	
M 12	1	100	21	9	7	10	4	★ -M12X1	★ -M12X1
M 12	1,25	100	21	9	7	10	4	★ -M12X1.25	
M 12	1,5	100	21	9	7	10	4	★ -M12X1.5	★ -M12X1.5
M 14	1	100	21	11	9	12	4	★ -M14X1	
M 14	1,25	100	21	11	9	12	4	★ -M14X1.25	
M 14	1,5	100	21	11	9	12	4	★ -M14X1.5	★ -M14X1.5
M 16	1	100	21	12	9	12	4	★ -M16X1	
M 16	1,5	100	21	12	9	12	4	★ -M16X1.5	★ -M16X1.5
M 18	1	110	24	14	11	14	4	★ -M18X1	
M 18	1,5	110	24	14	11	14	4	★ -M18X1.5	★ -M18X1.5
M 18	2	125	30	14	11	14	4	★ -M18X2	
M 20	1	125	24	16	12	15	4	★ -M20X1	
M 20	1,5	125	24	16	12	15	4	★ -M20X1.5	★ -M20X1.5
M 20	2	140	30	16	12	15	4	★ -M20X2	
M 22	1	125	24	18	14,5	17	4	★ -M22X1	
M 22	1,5	125	24	18	14,5	17	4	★ -M22X1.5	★ -M22X1.5
M 22	2	140	26	18	14,5	17	4	★ -M22X2	
M 24	1	140	26	18	14,5	17	4	★ -M24X1	
M 24	1,5	140	26	18	14,5	17	4	★ -M24X1.5	★ -M24X1.5
M 24	2	140	26	18	14,5	17	4	★ -M24X2	★ -M24X2
M 25	1,5	140	26	18	14,5	17	4	★ -M25X1.5	
M 26	1,5	140	26	18	14,5	17	4	★ -M26X1.5	
M 27	1	140	26	20	16	19	4	★ -M27X1	
M 27	1,5	140	26	20	16	19	4	★ -M27X1.5	
M 27	2	140	26	20	16	19	4	★ -M27X2	★ -M27X2
M 28	1,5	140	26	20	16	19	4	★ -M28X1.5	
M 30	1	150	26	22	18	21	4	★ -M30X1	
M 30	1,5	150	26	22	18	21	4	★ -M30X1.5	★ -M30X1.5
M 30	2	150	26	22	18	21	4	★ -M30X2	★ -M30X2
M 32	1,5	150	26	22	18	21	4	★ -M32X1.5	
M 32	2	150	26	22	18	21	4	★ -M32X2	
M 33	1,5	160	28	25	20	23	4	★ -M33X1.5	
M 33	2	160	28	25	20	23	4	★ -M33X2	
M 35	1,5	170	28	28	22	25	4	★ -M35X1.5	

Continued

★ New addition to range

G-2 D-140

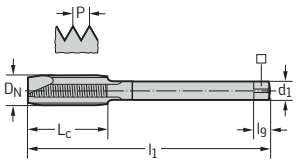
Machine tap
Prototex® X·pert P

≤3xD$_N$

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

Continued

DIN 374 ISO2/6H



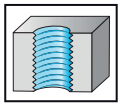
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P21360	TIN Designation P2136005
M 36	1,5	170	28	28	22	25	4	★ -M36X1.5	
M 36	2	170	28	28	22	25	4	★ -M36X2	
M 36	3	200	39	28	22	25	4	★ -M36X3	
M 38	1,5	170	28	28	22	25	5	★ -M38X1.5	
M 39	2	170	28	32	24	27	4	★ -M39X2	
M 40	1,5	170	28	32	24	27	5	★ -M40X1.5	
M 40	2	170	28	32	24	27	4	★ -M40X2	
M 42	1,5	170	28	32	24	27	5	★ -M42X1.5	
M 42	2	170	28	32	24	27	4	★ -M42X2	
M 42	3	200	42	32	24	27	4	★ -M42X3	
M 45	1,5	180	28	36	29	32	5	★ -M45X1.5	
M 48	1,5	190	28	36	29	32	5	★ -M48X1.5	
M 48	3	225	45	36	29	32	4	★ -M48X3	
M 50	1,5	190	28	36	29	32	5	★ -M50X1.5	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



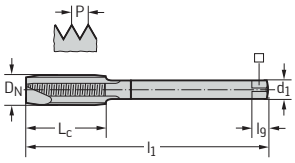
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Left-hand thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 374 ISO2/6H



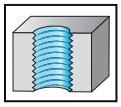
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P212608
M 8 LH	1	90	18	6	4,9	8	3	★ -M8X1
M 10 LH	1	90	20	7	5,5	8	3	★ -M10X1
M 12 LH	1	100	21	9	7	10	4	★ -M12X1
M 12 LH	1,5	100	21	9	7	10	4	★ -M12X1.5
M 14 LH	1,5	100	21	11	9	12	4	★ -M14X1.5
M 16 LH	1	100	21	12	9	12	4	★ -M16X1
M 16 LH	1,5	100	21	12	9	12	4	★ -M16X1.5
M 18 LH	1,5	110	24	14	11	14	4	★ -M18X1.5
M 20 LH	1,5	125	24	16	12	15	4	★ -M20X1.5

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



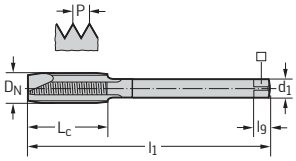
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 374 ISO3/6G



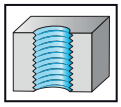
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P21380	TIN Designation P2138005
M 4	0,5	63	12	2,8	2,1	5	3	★ -M4X0.5	
M 5	0,5	70	13	3,5	2,7	6	3	★ -M5X0.5	
M 6	0,5	80	15	4,5	3,4	6	3	★ -M6X0.5	
M 6	0,75	80	15	4,5	3,4	6	3	★ -M6X0.75	
M 8	0,75	80	15	6	4,9	8	3	★ -M8X0.75	
M 8	1	90	18	6	4,9	8	3	★ -M8X1	★ -M8X1
M 10	1	90	20	7	5,5	8	3	★ -M10X1	★ -M10X1
M 10	1,25	100	20	7	5,5	8	3	★ -M10X1.25	
M 12	1	100	21	9	7	10	4	★ -M12X1	★ -M12X1
M 12	1,25	100	21	9	7	10	4	★ -M12X1.25	
M 12	1,5	100	21	9	7	10	4	★ -M12X1.5	★ -M12X1.5
M 14	1,5	100	21	11	9	12	4	★ -M14X1.5	★ -M14X1.5
M 16	1,5	100	21	12	9	12	4	★ -M16X1.5	★ -M16X1.5
M 18	1,5	110	24	14	11	14	4	★ -M18X1.5	
M 20	1,5	125	24	16	12	15	4	★ -M20X1.5	
M 22	1,5	125	24	18	14,5	17	4	★ -M22X1.5	
M 24	1,5	140	26	18	14,5	17	4	★ -M24X1.5	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M

≤3xD$_N$



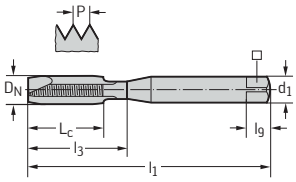
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

MF

DIN 13

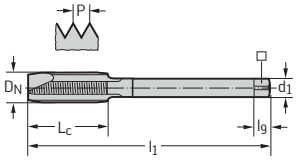
	P	M	K	N	S	H	O
TiN	●	●●					
vap	●	●●					

DIN 371 6HX



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N		TIN Designation M2121305
M 5	0,5	70	13	25	6	4,9	8	3		★ -M5X0.5
M 6	0,5	80	15	30	6	4,9	8	3		★ -M6X0.5
M 6	0,75	80	15	30	6	4,9	8	3		★ -M6X0.75

DIN 374 6HX



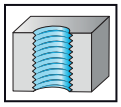
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M21263	TIN Designation M2126305
M 8	0,5	80	15	-	6	4,9	8	3	★ -M8X0.5	★ -M8X0.5
M 8	0,75	80	15	-	6	4,9	8	3	★ -M8X0.75	★ -M8X0.75
M 8	1	90	18	-	6	4,9	8	3	★ -M8X1	★ -M8X1
M 10	0,75	90	20	-	7	5,5	8	3	★ -M10X0.75	
M 10	1	90	20	-	7	5,5	8	3	★ -M10X1	★ -M10X1
M 10	1,25	100	20	-	7	5,5	8	3	★ -M10X1.25	★ -M10X1.25
M 12	1	100	21	-	9	7	10	4	★ -M12X1	
M 12	1,25	100	21	-	9	7	10	4	★ -M12X1.25	
M 12	1,5	100	21	-	9	7	10	4	★ -M12X1.5	★ -M12X1.5
M 14	1	100	21	-	11	9	12	4	★ -M14X1	
M 14	1,5	100	21	-	11	9	12	4	★ -M14X1.5	★ -M14X1.5
M 16	1	100	21	-	12	9	12	4	★ -M16X1	
M 16	1,5	100	21	-	12	9	12	4	★ -M16X1.5	★ -M16X1.5
M 18	1,5	110	24	-	14	11	14	4	★ -M18X1.5	★ -M18X1.5
M 20	1,5	125	24	-	16	12	15	4	★ -M20X1.5	★ -M20X1.5
M 22	1,5	125	24	-	18	14,5	17	4	★ -M22X1.5	
M 24	1,5	140	26	-	18	14,5	17	4	★ -M24X1.5	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M

≤3xD$_N$



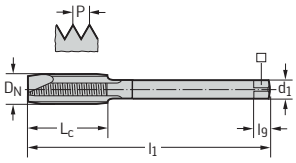
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
TiN	●	●●					

DIN 374 6GX



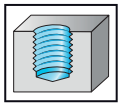
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	TIN Designation M2128305
M 12	1,5	100	21	9	7	10	4	★ -M12X1.5
M 14	1,5	100	21	11	9	12	4	★ -M14X1.5
M 16	1,5	100	21	12	9	12	4	★ -M16X1.5
M 20	1,5	125	24	16	12	15	4	★ -M20X1.5
M 24	1,5	140	26	18	14,5	17	4	★ -M24X1.5

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



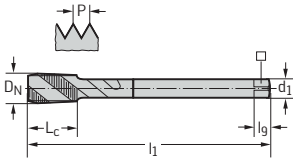
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

MF

DIN 13

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 374 6HX



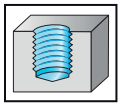
D_N	P mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2156302
M 6	0,75	80	10	4,5	3,4	6	3	★ -M6X0.75
M 8	1	90	12	6	4,9	8	3	★ -M8X1
M 10	1	90	12	7	5,5	8	3	★ -M10X1
M 10	1,25	100	15	7	5,5	8	3	★ -M10X1.25
M 12	1	100	13	9	7	10	4	★ -M12X1
M 12	1,25	100	13	9	7	10	4	★ -M12X1.25
M 12	1,5	100	13	9	7	10	4	★ -M12X1.5
M 14	1,5	100	15	11	9	12	4	★ -M14X1.5
M 16	1,5	100	15	12	9	12	4	★ -M16X1.5
M 18	1,5	110	17	14	11	14	4	★ -M18X1.5
M 20	1,5	125	17	16	12	15	4	★ -M20X1.5
M 22	1,5	125	18	18	14,5	17	4	★ -M22X1.5

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD$_N$



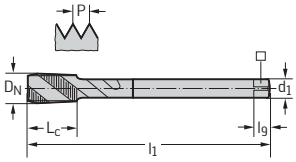
- HSS-E-PM
- Chamfer form E = 1.5 - 2 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

MF

DIN 13

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 374 6HX



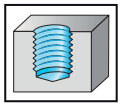
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	THL Designation EP2156362
M 8	1	90	12	6	4,9	8	4	★ -M8X1
M 10	1	90	12	7	5,5	8	4	★ -M10X1
M 12	1,5	100	13	9	7	10	4	★ -M12X1.5
M 14	1,5	100	15	11	9	12	4	★ -M14X1.5

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD$_N$



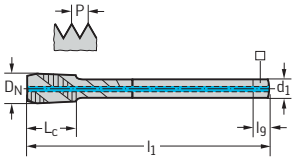
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

MF

DIN 13

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 374 6HX



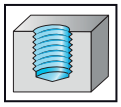
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	THL Designation EP2156312
M 8	1	90	12	6	4,9	8	3	★ -M8X1
M 10	1	90	12	7	5,5	8	3	★ -M10X1
M 10	1,25	100	15	7	5,5	8	3	★ -M10X1.25
M 12	1	100	13	9	7	10	4	★ -M12X1
M 12	1,25	100	13	9	7	10	4	★ -M12X1.25
M 12	1,5	100	13	9	7	10	4	★ -M12X1.5
M 14	1,5	100	15	11	9	12	4	★ -M14X1.5
M 16	1,5	100	15	12	9	12	4	★ -M16X1.5
M 18	1,5	110	17	14	11	14	4	★ -M18X1.5
M 20	1,5	125	17	16	12	15	4	★ -M20X1.5

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD$_N$



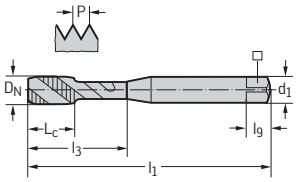
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

MF

DIN 13

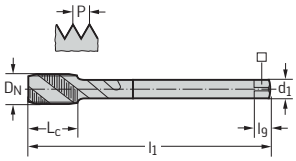
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 371 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P21519	
M 2,5	0,35	50	4	12,5	2,8	2,1	5	3	★ -M2.5X0.35	
M 3	0,25	56	6	18	3,5	2,7	6	3	★ -M3X0.25	
M 3	0,35	56	6	18	3,5	2,7	6	3	★ -M3X0.35	
M 4	0,35	63	7	21	4,5	3,4	6	3	★ -M4X0.35	
M 4	0,5	63	7	21	4,5	3,4	6	3	★ -M4X0.5	
M 4,5	0,5	70	8	25	6	4,9	8	3	★ -M4.5X0.5	
M 5	0,5	70	8	25	6	4,9	8	3	★ -M5X0.5	
M 6	0,5	80	10	30	6	4,9	8	3	★ -M6X0.5	
M 6	0,75	80	10	30	6	4,9	8	3	★ -M6X0.75	
M 7	0,75	80	10	30	7	5,5	8	3	★ -M7X0.75	
M 8	1	90	12	35	8	6,2	9	3	★ -M8X1	
M 10	1	90	12	39	10	8	11	3	★ -M10X1	

DIN 374 ISO2/6H



D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P21569	TIN Designation P2156905
M 8	0,75	80	10	-	6	4,9	8	3	★ -M8X0.75	
M 8	1	90	12	-	6	4,9	8	3	★ -M8X1	★ -M8X1
M 9	1	90	13	-	7	5,5	8	3	★ -M9X1	
M 10	0,75	90	12	-	7	5,5	8	3	★ -M10X0.75	
M 10	1	90	12	-	7	5,5	8	3	★ -M10X1	★ -M10X1
M 10	1,25	100	15	-	7	5,5	8	3	★ -M10X1.25	★ -M10X1.25
M 12	1	100	13	-	9	7	10	4	★ -M12X1	★ -M12X1
M 12	1,25	100	13	-	9	7	10	4	★ -M12X1.25	★ -M12X1.25
M 12	1,5	100	13	-	9	7	10	4	★ -M12X1.5	★ -M12X1.5
M 14	1	100	15	-	11	9	12	4	★ -M14X1	
M 14	1,25	100	15	-	11	9	12	4	★ -M14X1.25	
M 14	1,5	100	15	-	11	9	12	4	★ -M14X1.5	★ -M14X1.5
M 16	1	100	15	-	12	9	12	4	★ -M16X1	
M 16	1,5	100	15	-	12	9	12	4	★ -M16X1.5	★ -M16X1.5
M 18	1	110	17	-	14	11	14	4	★ -M18X1	
M 18	1,5	110	17	-	14	11	14	4	★ -M18X1.5	★ -M18X1.5
M 20	1	125	17	-	16	12	15	4	★ -M20X1	
M 20	1,5	125	17	-	16	12	15	4	★ -M20X1.5	★ -M20X1.5
M 20	2	140	25	-	16	12	15	4	★ -M20X2	
M 22	1	125	18	-	18	14,5	17	4	★ -M22X1	
M 22	1,5	125	18	-	18	14,5	17	4	★ -M22X1.5	★ -M22X1.5
M 22	2	140	20	-	18	14,5	17	4	★ -M22X2	
M 24	1	140	20	-	18	14,5	17	5	★ -M24X1	
M 24	1,5	140	20	-	18	14,5	17	5	★ -M24X1.5	
M 24	2	140	20	-	18	14,5	17	5	★ -M24X2	
M 26	1,5	140	20	-	18	14,5	17	5	★ -M26X1.5	
M 27	1,5	140	20	-	20	16	19	5	★ -M27X1.5	
M 27	2	140	20	-	20	16	19	5	★ -M27X2	

Continued

★ New addition to range

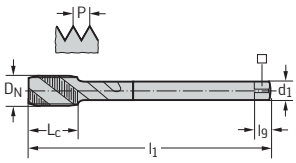
G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N

Continued

DIN 374 ISO2/6H



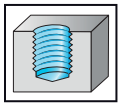
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P21569	TIN Designation P2156905
M 30	1,5	150	20	-	22	18	21	5	★ -M30X1.5	
M 30	2	150	20	-	22	18	21	5	★ -M30X2	
M 32	1,5	150	20	-	22	18	21	5	★ -M32X1.5	
M 33	1,5	160	22	-	25	20	23	5	★ -M33X1.5	
M 33	2	160	22	-	25	20	23	5	★ -M33X2	
M 36	1,5	170	22	-	28	22	25	5	★ -M36X1.5	
M 36	2	170	22	-	28	22	25	5	★ -M36X2	
M 36	3	200	30	-	28	22	25	5	★ -M36X3	
M 38	1,5	170	22	-	28	22	25	5	★ -M38X1.5	
M 39	2	170	22	-	32	24	27	5	★ -M39X2	
M 39	3	200	33	-	32	24	27	5	★ -M39X3	
M 40	1,5	170	22	-	32	24	27	5	★ -M40X1.5	
M 42	1,5	170	22	-	32	24	27	6	★ -M42X1.5	
M 42	2	170	22	-	32	24	27	6	★ -M42X2	
M 42	3	200	33	-	32	24	27	6	★ -M42X3	
M 45	1,5	180	22	-	36	29	32	6	★ -M45X1.5	
M 48	1,5	190	22	-	36	29	32	6	★ -M48X1.5	
M 48	2	190	24	-	36	29	32	6	★ -M48X2	
M 48	3	225	36	-	36	29	32	6	★ -M48X3	
M 52	2	190	26	-	40	32	35	6	★ -M52X2	
M 52	3	225	36	-	40	32	35	6	★ -M52X3	

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD$_N$



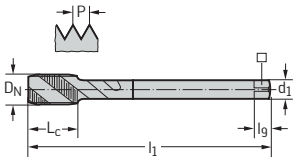
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 374 ISO3/6G



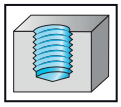
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P21589	TIN Designation P2158905
M 8	1	90	12	6	4,9	8	3	★ -M8X1	★ -M8X1
M 10	1	90	12	7	5,5	8	3	★ -M10X1	★ -M10X1
M 12	1	100	13	9	7	10	4	★ -M12X1	★ -M12X1
M 12	1,5	100	13	9	7	10	4	★ -M12X1.5	★ -M12X1.5
M 14	1,5	100	15	11	9	12	4	★ -M14X1.5	★ -M14X1.5
M 16	1,5	100	15	12	9	12	4	★ -M16X1.5	★ -M16X1.5
M 18	1,5	110	17	14	11	14	4	★ -M18X1.5	★ -M18X1.5
M 20	1,5	125	17	16	12	15	4	★ -M20X1.5	

★ New addition to range

G-2 D-140

Machine tap
Paradur® HT

≤3,5xD_N



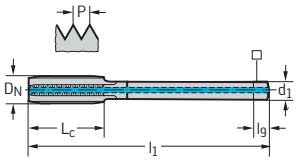
- HSS-E
- Chamfer form C = 2 - 3 thread
- Materials from 500 to 1400 N/mm² or 44 HRC
- For long- and short-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
TiN	●●		●●	●			●

DIN 374 ISO2/6H



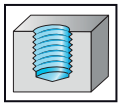
D_N	P mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation 2136115
M 8	1	90	18	6	4,9	8	3	★ -M8X1
M 10	1	90	20	7	5,5	8	3	★ -M10X1
M 12	1,5	100	21	9	7	10	3	-M12X1.5
M 14	1,5	100	21	11	9	12	3	-M14X1.5
M 16	1,5	100	21	12	9	12	3	-M16X1.5
M 18	1,5	110	24	14	11	14	3	-M18X1.5
M 20	1,5	125	24	16	12	15	3	-M20X1.5
M 22	1,5	125	24	18	14,5	17	3	-M22X1.5
M 24	1,5	140	26	18	14,5	17	4	-M24X1.5
M 30	2	150	26	22	18	21	4	-M30X2
M 33	2	160	28	25	20	23	4	-M33X2

★ New addition to range

G-2 D-140

Machine tap
Paradur® Short Chip HT

≤3,5xD_N



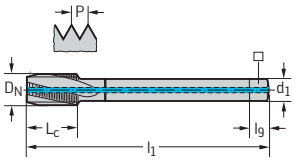
- HSS-E
- Chamfer form C = 2 - 3 thread
- 15° helix angle
- Reduced helix to 9° (uncoated)
- Materials from 800 to 1250 N/mm² or 38 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
THL	●●		●	●			

DIN 374 6HX



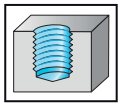
D_N	P mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation 21460TR
M 12X1,5	1,5	100	13	9	7	10	3	★ -M12X1.5
M14X1.5	1,5	100	15	11	9	12	4	★ -M14X1.5
M16X1.5	1,5	100	15	12	9	12	4	★ -M16X1.5

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD_N



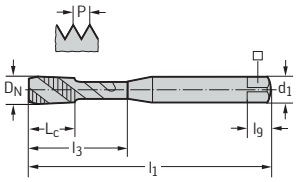
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

MF

DIN 13

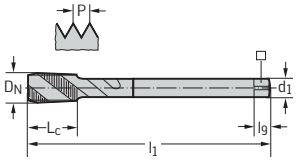
	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					

DIN 371 6HX



D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M21513	TIN Designation M2151305
M 4	0,5	63	7	21	4,5	3,4	6	3	★ -M4X0.5	★ -M4X0.5
M 5	0,5	70	8	25	6	4,9	8	3	★ -M5X0.5	★ -M5X0.5
M 6	0,5	80	10	30	6	4,9	8	3	★ -M6X0.5	★ -M6X0.5
M 6	0,75	80	10	30	6	4,9	8	3	★ -M6X0.75	

DIN 374 6HX



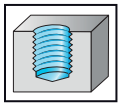
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M21563	TIN Designation M2156305
M 8	0,5	80	10	-	6	4,9	8	3	★ -M8X0.5	★ -M8X0.5
M 8	0,75	80	10	-	6	4,9	8	3	★ -M8X0.75	★ -M8X0.75
M 8	1	90	12	-	6	4,9	8	3	★ -M8X1	★ -M8X1
M 10	0,75	90	12	-	7	5,5	8	3	★ -M10X0.75	★ -M10X0.75
M 10	1	90	12	-	7	5,5	8	3	★ -M10X1	★ -M10X1
M 10	1,25	100	15	-	7	5,5	8	3	★ -M10X1.25	★ -M10X1.25
M 12	1	100	13	-	9	7	10	4	★ -M12X1	★ -M12X1
M 12	1,25	100	13	-	9	7	10	4	★ -M12X1.25	★ -M12X1.25
M 12	1,5	100	13	-	9	7	10	4	★ -M12X1.5	★ -M12X1.5
M 14	1	100	15	-	11	9	12	4	★ -M14X1	
M 14	1,5	100	15	-	11	9	12	4	★ -M14X1.5	★ -M14X1.5
M 16	1,5	100	15	-	12	9	12	4	★ -M16X1.5	★ -M16X1.5
M 18	1,5	110	17	-	14	11	14	4	★ -M18X1.5	★ -M18X1.5
M 20	1,5	125	17	-	16	12	15	4	★ -M20X1.5	★ -M20X1.5
M 20	2	140	25	-	16	12	15	4	★ -M20X2	
M 22	1,5	125	18	-	18	14,5	17	5	★ -M22X1.5	
M 24	1,5	140	20	-	18	14,5	17	5	★ -M24X1.5	
M 24	2	140	20	-	18	14,5	17	5	★ -M24X2	
M 27	1,5	140	20	-	20	16	19	5	★ -M27X1.5	
M 27	2	140	20	-	20	16	19	5	★ -M27X2	
M 30	2	150	20	-	22	18	21	5	★ -M30X2	

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD_N



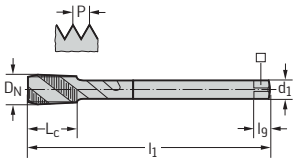
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Higher positioned core
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
TiN	●	●●					

DIN 374 6GX



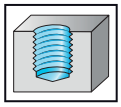
D_N	P mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	TIN Designation M2158305
M 8	1	90	12	6	4,9	8	3	★ -M8X1
M 10	1	90	12	7	5,5	8	3	★ -M10X1
M 12	1	100	13	9	7	10	4	★ -M12X1
M 12	1,5	100	13	9	7	10	4	★ -M12X1.5
M 14	1	100	15	11	9	12	4	★ -M14X1
M 14	1,5	100	15	11	9	12	4	★ -M14X1.5
M 16	1	100	15	12	9	12	4	★ -M16X1
M 16	1,5	100	15	12	9	12	4	★ -M16X1.5

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N

≤3xD$_N$



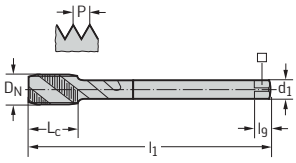
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 374 ISO2/6H



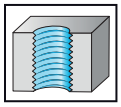
D$_N$	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation N21566
M 8	1	90	12	6	4,9	8	2	★ -M8X1
M 10	1	90	12	7	5,5	8	3	★ -M10X1
M 12	1	100	13	9	7	10	3	★ -M12X1
M 12	1,5	100	13	9	7	10	3	★ -M12X1.5
M 14	1,5	100	15	11	9	12	3	★ -M14X1.5
M 16	1	100	15	12	9	12	4	★ -M16X1
M 16	1,5	100	15	12	9	12	3	★ -M16X1.5
M 18	1,5	110	17	14	11	14	4	★ -M18X1.5
M 20	1,5	125	17	16	12	15	4	★ -M20X1.5

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD_N



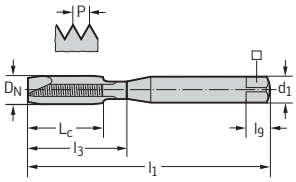
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials

UNC

ASME B1.1

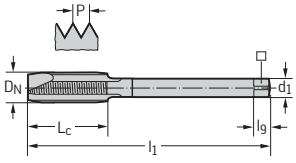
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2221302
Nr. 2-56	2,184	45	7	12	2,8	2,1	5	3	★ -UNC2
Nr. 4-40	2,845	56	9	18	3,5	2,7	6	3	★ -UNC4
Nr. 6-32	3,505	56	11	20	4	3	6	3	★ -UNC6
Nr. 8-32	4,166	63	12	21	4,5	3,4	6	3	★ -UNC8
Nr.10-24	4,826	70	13	25	6	4,9	8	3	★ -UNC10
1/4-20	6,35	80	15	30	7	5,5	8	3	★ -UNC1/4

DIN 2184-1 2B



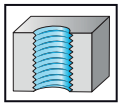
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2226302
5/16-18	7,938	90	18	-	6	4,9	8	3	★ -UNC5/16
3/8-16	9,525	100	20	-	7	5,5	8	3	★ -UNC3/8
1/2-13	12,7	110	23	-	9	7	10	4	★ -UNC1/2
5/8-11	15,875	110	25	-	12	9	12	4	★ -UNC5/8

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



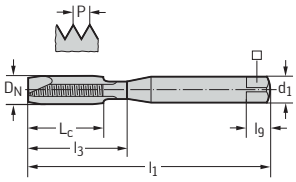
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNC

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 2B



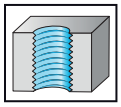
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P22210
Nr. 2-56	2,184	45	7	12	2,8	2,1	5	2	★ -UNC2
Nr. 4-40	2,845	56	9	18	3,5	2,7	6	2	★ -UNC4
Nr. 6-32	3,505	56	11	20	4	3	6	2	★ -UNC6
Nr. 8-32	4,166	63	12	21	4,5	3,4	6	2	★ -UNC8

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



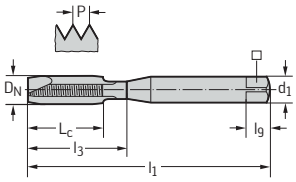
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNC

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 3B



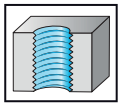
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P22200
Nr. 2-56	2,184	45	12	2,8	2,1	5	2	★ -UNC2
Nr. 4-40	2,845	56	18	3,5	2,7	6	2	★ -UNC4
Nr. 6-32	3,505	56	20	4	3	6	2	★ -UNC6
Nr. 8-32	4,166	63	21	4,5	3,4	6	2	★ -UNC8

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



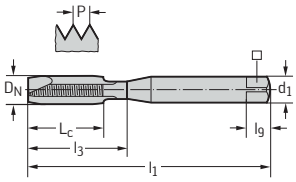
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNC

ASME B1.1

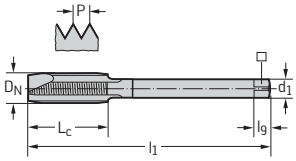
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 2184-1 2B



D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P22310	TIN Designation P2231005
Nr. 2-56	2,184	45	7	12	2,8	2,1	5	3	★ -UNC2	
Nr. 4-40	2,845	56	9	18	3,5	2,7	6	3	★ -UNC4	
Nr. 5-40	3,175	56	10	18	3,5	2,7	6	3	★ -UNC5	
Nr. 6-32	3,505	56	11	20	4	3	6	3	★ -UNC6	★ -UNC6
Nr. 8-32	4,166	63	12	21	4,5	3,4	6	3	★ -UNC8	
Nr.10-24	4,826	70	13	25	6	4,9	8	3	★ -UNC10	
Nr.12-24	5,486	80	15	30	6	4,9	8	3	★ -UNC12	
1/4-20	6,35	80	15	30	7	5,5	8	3	★ -UNC1/4	
5/16-18	7,938	90	18	35	8	6,2	9	3	★ -UNC5/16	
3/8-16	9,525	100	20	39	10	8	11	3	★ -UNC3/8	

DIN 2184-1 2B



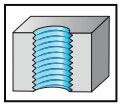
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P22360	TIN Designation P2236005
7/16-14	11,113	100	20	-	8	6,2	9	3	★ -UNC7/16	
1/2-13	12,7	110	23	-	9	7	10	3	★ -UNC1/2	★ -UNC1/2
9/16-12	14,288	110	25	-	11	9	12	3	★ -UNC9/16	
5/8-11	15,875	110	25	-	12	9	12	3	★ -UNC5/8	★ -UNC5/8
3/4-10	19,05	125	30	-	14	11	14	3	★ -UNC3/4	★ -UNC3/4
7/8-9	22,225	140	30	-	18	14,5	17	3	★ -UNC7/8	
1-8	25,4	160	36	-	18	14,5	17	3	★ -UNC1	
1 1/8-7	28,575	180	42	-	22	18	21	4	★ -UNC1.1/8	
1 1/4-7	31,75	180	42	-	22	18	21	4	★ -UNC1.1/4	
1 1/2-6	38,1	200	48	-	28	22	25	4	★ -UNC1.1/2	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M

≤3xD$_N$



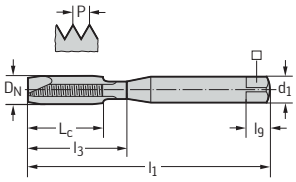
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

UNC

ASME B1.1

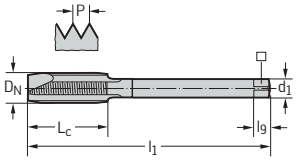
	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					

DIN 2184-1 2B



D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M22213	TIN Designation M2221305
Nr. 2-56	2,184	45	7	12	2,8	2,1	5	2	★ -UNC2	★ -UNC2
Nr. 3-48	2,515	50	8	12,5	2,8	2,1	5	2	★ -UNC3	★ -UNC3
Nr. 4-40	2,845	56	9	18	3,5	2,7	6	2	★ -UNC4	★ -UNC4
Nr. 5-40	3,175	56	10	18	3,5	2,7	6	2	★ -UNC5	★ -UNC5
Nr. 6-32	3,505	56	11	20	4	3	6	2	★ -UNC6	★ -UNC6
Nr. 8-32	4,166	63	12	21	4,5	3,4	6	3	★ -UNC8	★ -UNC8
Nr.10-24	4,826	70	13	25	6	4,9	8	3	★ -UNC10	★ -UNC10
Nr.12-24	5,486	80	15	30	6	4,9	8	3	★ -UNC12	★ -UNC12
1/4-20	6,35	80	15	30	7	5,5	8	3	★ -UNC1/4	★ -UNC1/4

DIN 2184-1 2B



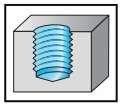
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M22263	TIN Designation M2226305
5/16-18	7,938	90	18	-	6	4,9	8	3	★ -UNC5/16	
3/8-16	9,525	100	20	-	7	5,5	8	3	★ -UNC3/8	★ -UNC3/8
7/16-14	11,113	100	20	-	8	6,2	9	3	★ -UNC7/16	
1/2-13	12,7	110	23	-	9	7	10	4	★ -UNC1/2	★ -UNC1/2
9/16-12	14,288	110	25	-	11	9	12	4	★ -UNC9/16	
5/8-11	15,875	110	25	-	12	9	12	4	★ -UNC5/8	
3/4-10	19,05	125	30	-	14	11	14	4	★ -UNC3/4	
7/8-9	22,225	140	30	-	18	14,5	17	4	★ -UNC7/8	
1-8	25,4	160	36	-	18	14,5	17	4	★ -UNC1	

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



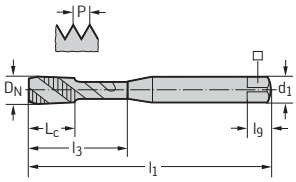
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC
- For long-chipping materials

UNC

ASME B1.1

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

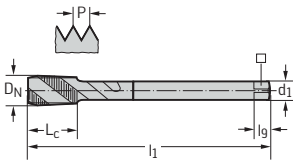
~DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2251302
Nr. 2-56	2,184	45	4	8,4	2,8	2,1	5	3	★ -UNC2[4]
Nr. 4-40	2,845	56	6	11	3,5	2,7	6	3	★ -UNC4
Nr. 6-32	3,505	56	6,5	13,7	4	3	6	3	★ -UNC6
Nr. 8-32	4,166	63	7	17,8	4,5	3,4	6	3	★ -UNC8
Nr.10-24	4,826	70	8	20,7	6	4,9	8	3	★ -UNC10
1/4-20	6,35	80	10	27,3	7	5,5	8	3	★ -UNC1/4

[4] without thread taper

DIN 2184-1 2B



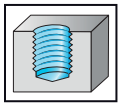
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2256302
5/16-18	7,938	90	12	-	6	4,9	8	3	★ -UNC5/16
3/8-16	9,525	100	15	-	7	5,5	8	3	★ -UNC3/8
1/2-13	12,7	110	18	-	9	7	10	4	★ -UNC1/2
5/8-11	15,875	110	20	-	12	9	12	4	★ -UNC5/8

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



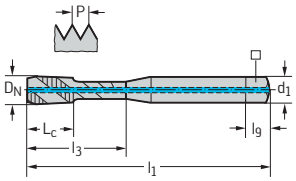
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC
- For long-chipping materials

UNC

ASME B1.1

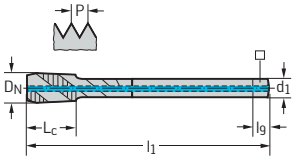
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

~DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2251312
1/4-20	6,35	80	10	27,3	7	5,5	8	3	★ -UNC1/4

DIN 2184-1 2B



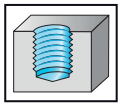
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2256312
5/16-18	7,938	90	12	-	6	4,9	8	3	★ -UNC5/16
3/8-16	9,525	100	15	-	7	5,5	8	3	★ -UNC3/8
1/2-13	12,7	110	18	-	9	7	10	4	★ -UNC1/2
5/8-11	15,875	110	20	-	12	9	12	4	★ -UNC5/8
3/4-10	19,05	125	25	-	14	11	14	4	★ -UNC3/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



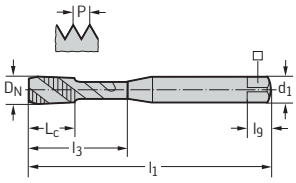
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

UNC

ASME B1.1

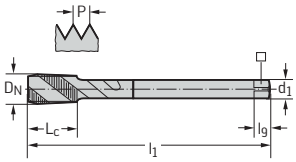
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN/ANSI 2B



D_N-TPI Nom	D_N inch	l_1 inch	L_c js16 inch	l_3 inch	d_1 h9 inch	□ h12 inch	l_9 inch	N	THL Designation AEP2251302
No. 4-40	0.112	2.205	0.236	0.437	0.141	0.110	3/16	3	★ -UNC4
No. 6-32	0.138	2.205	0.256	0.539	0.141	0.110	3/16	3	★ -UNC6
No. 8-32	0.164	2.480	0.276	0.701	0.168	0.131	1/4	3	★ -UNC8
No.10-24	0.190	2.756	0.315	0.831	0.194	0.152	1/4	3	★ -UNC10
1/4-20	0.250	3.150	0.394	1.075	0.255	0.191	5/16	3	★ -UNC1/4
5/16-18	0.313	3.543	0.472	1.378	0.318	0.238	3/8	3	★ -UNC5/16
3/8-16	0.375	3.937	0.591	1.535	0.381	0.286	7/16	3	★ -UNC3/8

DIN/ANSI 2B



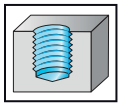
D_N-TPI Nom	D_N inch	l_1 inch	L_c js16 inch	l_3 inch	d_1 h9 inch	□ h12 inch	l_9 inch	N	THL Designation AEP2256302
1/2-13	0.500	4.331	0.709	-	0.367	0.275	7/16	4	★ -UNC1/2
5/8-11	0.625	4.331	0.787	-	0.480	0.360	9/16	4	★ -UNC5/8
3/4-10	0.750	4.921	0.984	-	0.590	0.442	11/16	4	★ -UNC3/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



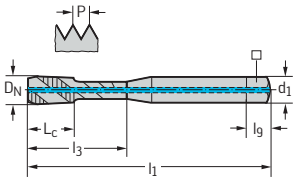
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

UNC

ASME B1.1

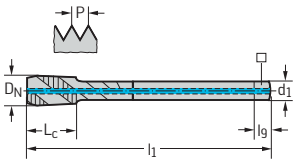
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN/ANSI 2B



D_N-TPI Nom	D_N inch	l_1 inch	L_c js16 inch	l_3 inch	d_1 h9 inch	□ h12 inch	l_9 inch	N	THL Designation AEP2251312
1/4-20	0.250	3.150	0.394	1.075	0.255	0.191	5/16	3	★ -UNC1/4
5/16-18	0.313	3.543	0.472	1.378	0.318	0.238	3/8	3	★ -UNC5/16
3/8-16	0.375	3.937	0.591	1.535	0.381	0.286	7/16	3	★ -UNC3/8

DIN/ANSI 2B



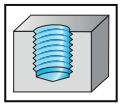
D_N-TPI Nom	D_N inch	l_1 inch	L_c js16 inch	l_3 inch	d_1 h9 inch	□ h12 inch	l_9 inch	N	THL Designation AEP2256312
1/2-13	0.500	4.331	0.709	-	0.367	0.275	7/16	4	★ -UNC1/2
5/8-11	0.625	4.331	0.787	-	0.480	0.360	9/16	4	★ -UNC5/8
3/4-10	0.750	4.921	0.984	-	0.590	0.442	11/16	4	★ -UNC3/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N



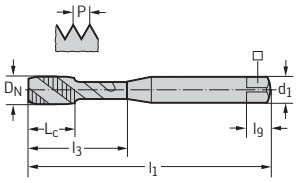
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNC

ASME B1.1

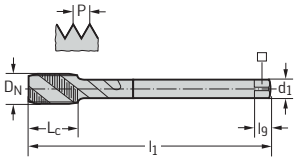
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P22519
Nr. 2-56	2,184	45	4	12	2,8	2,1	5	3	★ -UNC2
Nr. 3-48	2,515	50	4	12,5	2,8	2,1	5	3	★ -UNC3
Nr. 4-40	2,845	56	6	18	3,5	2,7	6	3	★ -UNC4
Nr. 5-40	3,175	56	6	18	3,5	2,7	6	3	★ -UNC5
Nr. 6-32	3,505	56	6,5	20	4	3	6	3	★ -UNC6
Nr. 8-32	4,166	63	7	21	4,5	3,4	6	3	★ -UNC8
Nr.10-24	4,826	70	8	25	6	4,9	8	3	★ -UNC10
Nr.12-24	5,486	80	10	30	6	4,9	8	3	★ -UNC12
1/4-20	6,35	80	10	30	7	5,5	8	3	★ -UNC1/4
5/16-18	7,938	90	12	35	8	6,2	9	3	★ -UNC5/16
3/8-16	9,525	100	15	39	10	8	11	3	★ -UNC3/8

DIN 2184-1 2B

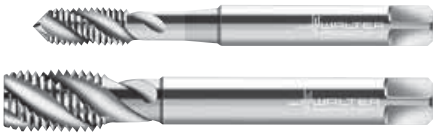


D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P22569
7/16-14	11,113	100	15	-	8	6,2	9	3	★ -UNC7/16
1/2-13	12,7	110	18	-	9	7	10	4	★ -UNC1/2
9/16-12	14,288	110	20	-	11	9	12	4	★ -UNC9/16
5/8-11	15,875	110	20	-	12	9	12	4	★ -UNC5/8
3/4-10	19,05	125	25	-	14	11	14	4	★ -UNC3/4
7/8-9	22,225	140	25	-	18	14,5	17	4	★ -UNC7/8
1-8	25,4	160	30	-	18	14,5	17	4	★ -UNC1
1 1/8-7	28,575	180	35	-	22	18	21	4	★ -UNC1.1/8
1 1/4-7	31,75	180	35	-	22	18	21	4	★ -UNC1.1/4
1 1/2-6	38,1	200	40	-	28	22	25	4	★ -UNC1.1/2

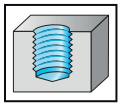
★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P



≤3xD_N



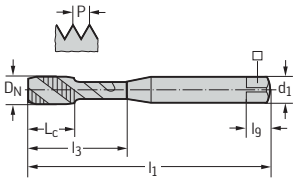
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNC

ASME B1.1

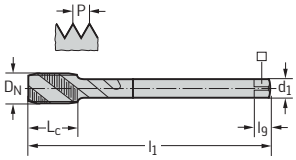
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 3B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P22509
Nr. 2-56	2,184	45	4	12	2,8	2,1	5	3	★ -UNC2
Nr. 3-48	2,515	50	4	12,5	2,8	2,1	5	3	★ -UNC3
Nr. 4-40	2,845	56	6	18	3,5	2,7	6	3	★ -UNC4
Nr. 6-32	3,505	56	6,5	20	4	3	6	3	★ -UNC6
Nr. 8-32	4,166	63	7	21	4,5	3,4	6	3	★ -UNC8
Nr.10-24	4,826	70	8	25	6	4,9	8	3	★ -UNC10
1/4-20	6,35	80	10	30	7	5,5	8	3	★ -UNC1/4
5/16-18	7,938	90	12	35	8	6,2	9	3	★ -UNC5/16
3/8-16	9,525	100	15	39	10	8	11	3	★ -UNC3/8

DIN 2184-1 3B



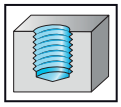
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P22559
5/16-18	7,938	90	12	-	6	4,9	8	3	★ -UNC5/16
3/8-16	9,525	100	15	-	7	5,5	8	3	★ -UNC3/8
7/16-14	11,113	100	15	-	8	6,2	9	3	★ -UNC7/16
1/2-13	12,7	110	18	-	9	7	10	4	★ -UNC1/2
9/16-12	14,288	110	20	-	11	9	12	4	★ -UNC9/16
5/8-11	15,875	110	20	-	12	9	12	4	★ -UNC5/8
3/4-10	19,05	125	25	-	14	11	14	4	★ -UNC3/4
7/8-9	22,225	140	25	-	18	14,5	17	4	★ -UNC7/8
1-8	25,4	160	30	-	18	14,5	17	4	★ -UNC1
1 1/4-7	31,75	180	35	-	22	18	21	4	★ -UNC1.1/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD_N



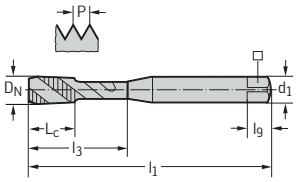
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

UNC

ASME B1.1

	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					

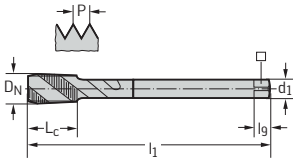
DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M22513	TIN Designation M2251305
Nr. 2-56	2,184	45	4	12	2,8	2,1	5	3	★ -UNC2[4]	★ -UNC2[4]
Nr. 3-48	2,515	50	4	12,5	2,8	2,1	5	3	★ -UNC3	★ -UNC3
Nr. 4-40	2,845	56	6	18	3,5	2,7	6	3	★ -UNC4	★ -UNC4
Nr. 5-40	3,175	56	6	18	3,5	2,7	6	3	★ -UNC5	★ -UNC5
Nr. 6-32	3,505	56	6,5	20	4	3	6	3	★ -UNC6	★ -UNC6
Nr. 8-32	4,166	63	7	21	4,5	3,4	6	3	★ -UNC8	★ -UNC8
Nr.10-24	4,826	70	8	25	6	4,9	8	3	★ -UNC10	★ -UNC10
Nr.12-24	5,486	80	10	30	6	4,9	8	3	★ -UNC12	★ -UNC12
1/4-20	6,35	80	10	30	7	5,5	8	3	★ -UNC1/4	★ -UNC1/4

[4] without thread taper

DIN 2184-1 2B



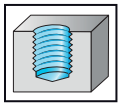
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M22563	TIN Designation M2256305
5/16-18	7,938	90	12	-	6	4,9	8	3	★ -UNC5/16	★ -UNC5/16
3/8-16	9,525	100	15	-	7	5,5	8	3	★ -UNC3/8	★ -UNC3/8
7/16-14	11,113	100	15	-	8	6,2	9	3	★ -UNC7/16	★ -UNC7/16
1/2-13	12,7	110	18	-	9	7	10	4	★ -UNC1/2	★ -UNC1/2
9/16-12	14,288	110	20	-	11	9	12	4	★ -UNC9/16	★ -UNC9/16
5/8-11	15,875	110	20	-	12	9	12	4	★ -UNC5/8	★ -UNC5/8
3/4-10	19,05	125	25	-	14	11	14	4	★ -UNC3/4	★ -UNC3/4
7/8-9	22,225	140	25	-	18	14,5	17	4	★ -UNC7/8	★ -UNC7/8
1-8	25,4	160	30	-	18	14,5	17	4	★ -UNC1	★ -UNC1
1 1/8-7	28,575	180	35	-	22	18	21	5	★ -UNC1.1/8	
1 1/4-7	31,75	180	35	-	22	18	21	5	★ -UNC1.1/4	
1 1/2-6	38,1	200	40	-	28	22	25	5	★ -UNC1.1/2	

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N

≤3xD_N



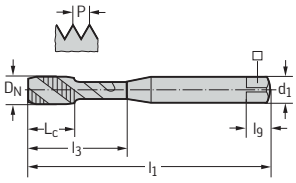
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

UNC

ASME B1.1

	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 2184-1 2B



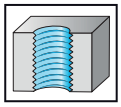
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N22516
Nr. 2-56	2,184	45	4	12	2,8	2,1	5	2	★ -UNC2
Nr. 4-40	2,845	56	6	18	3,5	2,7	6	2	★ -UNC4
Nr. 6-32	3,505	56	6,5	20	4	3	6	2	★ -UNC6
Nr. 8-32	4,166	63	7	21	4,5	3,4	6	2	★ -UNC8
Nr.10-24	4,826	70	8	25	6	4,9	8	2	★ -UNC10
1/4-20	6,35	80	10	30	7	5,5	8	2	★ -UNC1/4
5/16-18	7,938	90	12	35	8	6,2	9	2	★ -UNC5/16
3/8-16	9,525	100	15	39	10	8	11	2	★ -UNC3/8

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD$_N$



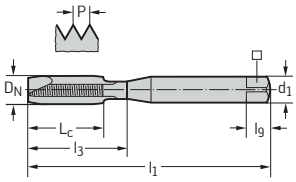
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials

UNF

ASME B1.1

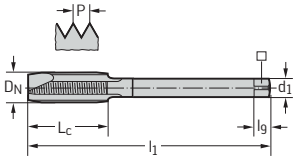
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 2184-1 2B



D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	THL Designation EP2321302
Nr. 4-48	2,845	56	9	18	3,5	2,7	6	3	★ -UNF4
Nr. 6-40	3,505	56	11	20	4	3	6	3	★ -UNF6
Nr. 8-36	4,166	63	12	21	4,5	3,4	6	3	★ -UNF8
Nr.10-32	4,826	70	13	25	6	4,9	8	3	★ -UNF10
1/4-28	6,35	80	15	30	7	5,5	8	3	★ -UNF1/4

DIN 2184-1 2B



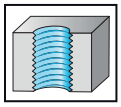
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	THL Designation EP2326302
5/16-24	7,938	90	18	-	6	4,9	8	3	★ -UNF5/16
3/8-24	9,525	100	20	-	7	5,5	8	3	★ -UNF3/8
1/2-20	12,7	100	21	-	9	7	10	4	★ -UNF1/2
5/8-18	15,875	100	21	-	12	9	12	4	★ -UNF5/8

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



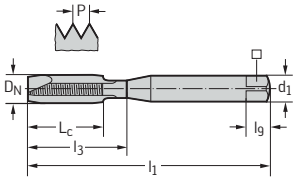
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNF

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 2184-1 2B



D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P23210	TIN Designation P2321005
Nr. 0-80	1,524	40	8	-	2,5	2,1	5	2	★ -UNF0[1]	
Nr. 1-72	1,854	45	6	9	2,8	2,1	5	2	★ -UNF1	
Nr. 2-64	2,184	45	7	12	2,8	2,1	5	2	★ -UNF2	
Nr. 3-56	2,515	50	8	12,5	2,8	2,1	5	2	★ -UNF3	
Nr. 4-48	2,845	56	9	18	3,5	2,7	6	2	★ -UNF4	
Nr. 6-40	3,505	56	11	20	4	3	6	2	★ -UNF6	
Nr. 8-36	4,166	63	12	21	4,5	3,4	6	2	★ -UNF8	
Nr.10-32	4,826	70	13	25	6	4,9	8	2	★ -UNF10	
Nr.12-28	5,486	80	15	30	6	4,9	8	3	★ -UNF12	★ -UNF12
1/4-28	6,35	80	15	30	7	5,5	8	3	★ -UNF1/4	★ -UNF1/4

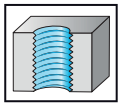
[1] without reduced neck after the thread

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



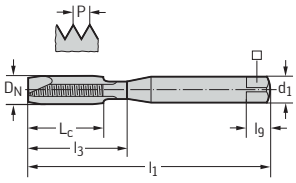
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNF

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 3B



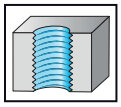
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P23200
Nr. 2-64	2,184	45	12	2,8	2,1	5	2	★ -UNF2
Nr. 4-48	2,845	56	18	3,5	2,7	6	2	★ -UNF4
Nr. 6-40	3,505	56	20	4	3	6	2	★ -UNF6
Nr. 8-36	4,166	63	21	4,5	3,4	6	2	★ -UNF8
Nr. 10-32	4,826	70	25	6	4,9	8	2	★ -UNF10
Nr. 12-28	5,486	80	30	6	4,9	8	3	★ -UNF12
1/4-28	6,35	80	30	7	5,5	8	3	★ -UNF1/4

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



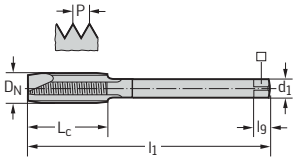
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNF

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 2184-1 2B



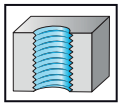
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P23360	TIN Designation P2336005
5/16-24	7,938	90	18	6	4,9	8	3	★ -UNF5/16	★ -UNF5/16
3/8-24	9,525	100	20	7	5,5	8	3	★ -UNF3/8	★ -UNF3/8
7/16-20	11,113	100	20	8	6,2	9	3	★ -UNF7/16	★ -UNF7/16
1/2-20	12,7	100	21	9	7	10	4	★ -UNF1/2	★ -UNF1/2
9/16-18	14,288	100	21	11	9	12	4	★ -UNF9/16	
5/8-18	15,875	100	21	12	9	12	4	★ -UNF5/8	★ -UNF5/8
3/4-16	19,05	110	24	14	11	14	4	★ -UNF3/4	★ -UNF3/4
7/8-14	22,225	125	24	18	14,5	17	4	★ -UNF7/8	
1-12	25,4	140	26	18	14,5	17	4	★ -UNF1	
1 1/8-12	28,575	150	26	22	18	21	4	★ -UNF1.1/8	
1 1/4-12	31,75	150	26	22	18	21	4	★ -UNF1.1/4	
1 3/8-12	34,925	170	28	28	22	25	4	★ -UNF1.3/8	
1 1/2-12	38,1	170	28	28	22	25	4	★ -UNF1.1/2	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M

≤3xD$_N$



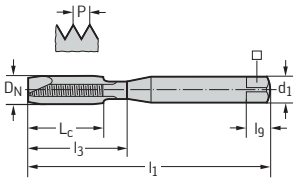
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

UNF

ASME B1.1

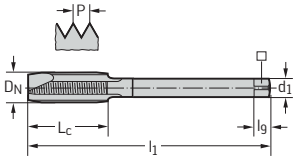
	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					

DIN 2184-1 2B



D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M23213	TIN Designation M2321305
Nr. 5-44	3,175	56	10	18	3,5	2,7	6	2	★ -UNF5	
Nr. 6-40	3,505	56	11	20	4	3	6	2	★ -UNF6	
Nr. 8-36	4,166	63	12	21	4,5	3,4	6	2	★ -UNF8	
Nr.10-32	4,826	70	13	25	6	4,9	8	3	★ -UNF10	★ -UNF10
Nr.12-28	5,486	80	15	30	6	4,9	8	3	★ -UNF12	
1/4-28	6,35	80	15	30	7	5,5	8	3	★ -UNF1/4	★ -UNF1/4

DIN 2184-1 2B



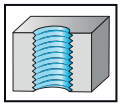
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M23263	TIN Designation M2326305
5/16-24	7,938	90	18	-	6	4,9	8	3	★ -UNF5/16	★ -UNF5/16
3/8-24	9,525	100	20	-	7	5,5	8	3	★ -UNF3/8	★ -UNF3/8
7/16-20	11,113	100	20	-	8	6,2	9	3	★ -UNF7/16	★ -UNF7/16
1/2-20	12,7	100	21	-	9	7	10	4	★ -UNF1/2	★ -UNF1/2
9/16-18	14,288	100	21	-	11	9	12	4	★ -UNF9/16	
5/8-18	15,875	100	21	-	12	9	12	4	★ -UNF5/8	
3/4-16	19,05	110	24	-	14	11	14	4	★ -UNF3/4	
7/8-14	22,225	125	24	-	18	14,5	17	4	★ -UNF7/8	
1-12	25,4	140	26	-	18	14,5	17	4	★ -UNF1	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



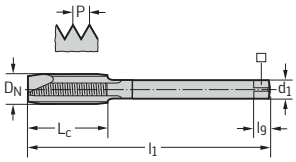
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNEF

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 2B



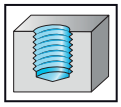
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P233602
1/4-32	6,35	80	15	4,5	3,4	6	3	★ -UNEF1/4
5/16-32	7,938	90	18	6	4,9	8	3	★ -UNEF5/16
3/8-32	9,525	90	20	7	5,5	8	3	★ -UNEF3/8
7/16-28	11,113	90	20	8	6,2	9	3	★ -UNEF7/16
1/2-28	12,7	100	21	9	7	10	4	★ -UNEF1/2
9/16-24	14,288	100	21	11	9	12	4	★ -UNEF9/16
5/8-24	15,875	100	21	12	9	12	4	★ -UNEF5/8
11/16-24	17,463	110	24	14	11	14	4	★ -UNEF11/16
3/4-20	19,05	110	24	14	11	14	4	★ -UNEF3/4
7/8-20	22,225	125	24	18	14,5	17	4	★ -UNEF7/8

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



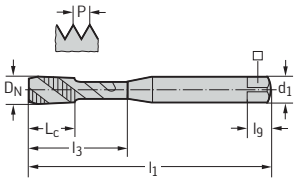
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC
- For long-chipping materials

UNF

ASME B1.1

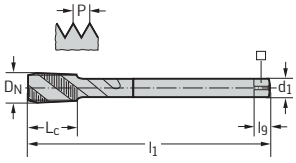
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

~DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2351302
Nr. 4-48	2,845	56	6	11	3,5	2,7	6	3	★ -UNF4
Nr. 6-40	3,505	56	6,5	13,1	4	3	6	3	★ -UNF6
Nr. 8-36	4,166	63	7	17,4	4,5	3,4	6	3	★ -UNF8
Nr.10-32	4,826	70	8	20,7	6	4,9	8	3	★ -UNF10
1/4-28	6,35	80	10	25,9	7	5,5	8	3	★ -UNF1/4

DIN 2184-1 2B



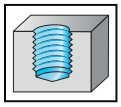
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2356302
5/16-24	7,938	90	12	-	6	4,9	8	3	★ -UNF5/16
3/8-24	9,525	100	15	-	7	5,5	8	3	★ -UNF3/8
1/2-20	12,7	100	13	-	9	7	10	4	★ -UNF1/2
5/8-18	15,875	100	15	-	12	9	12	4	★ -UNF5/8

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



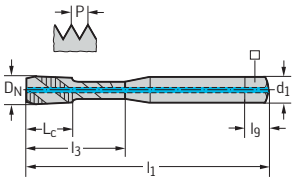
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC
- For long-chipping materials

UNF

ASME B1.1

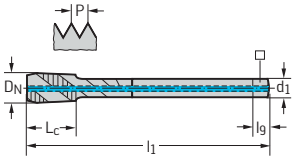
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

~DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2351312
1/4-28	6,35	80	10	25,9	7	5,5	8	3	★ -UNF1/4

DIN 2184-1 2B



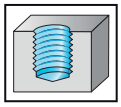
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2356312
5/16-24	7,938	90	12	-	6	4,9	8	3	★ -UNF5/16
3/8-24	9,525	100	15	-	7	5,5	8	3	★ -UNF3/8
1/2-20	12,7	100	13	-	9	7	10	4	★ -UNF1/2
5/8-18	15,875	100	15	-	12	9	12	4	★ -UNF5/8

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD$_N$



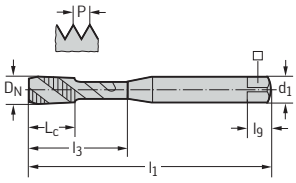
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

UNF

ASME B1.1

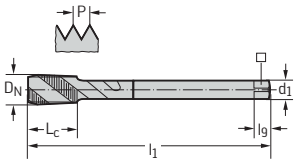
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN/ANSI 2B



D$_N$-TPI Nom	D$_N$ inch	l$_1$ inch	L$_c$ js16 inch	l$_3$ inch	d$_1$ h9 inch	□ h12 inch	l$_9$ inch	N	THL Designation AEP2351302
No. 6-40	0.138	2.205	0.256	0.516	0.141	0.110	3/16	3	★ -UNF6
No. 10-32	0.190	2.756	0.315	0.791	0.194	0.152	1/4	3	★ -UNF10
1/4-28	0.250	3.150	0.394	1.020	0.255	0.191	5/16	3	★ -UNF1/4
5/16-24	0.313	3.543	0.472	1.378	0.318	0.238	3/8	3	★ -UNF5/16
3/8-24	0.375	3.937	0.472	1.535	0.381	0.286	7/16	3	★ -UNF3/8

DIN/ANSI 2B



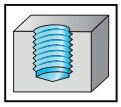
D$_N$-TPI Nom	D$_N$ inch	l$_1$ inch	L$_c$ js16 inch	l$_3$ inch	d$_1$ h9 inch	□ h12 inch	l$_9$ inch	N	THL Designation AEP2356302
7/16-20	0.438	3.937	0.591	-	0.323	0.242	13/32	3	★ -UNF7/16
1/2-20	0.500	3.937	0.512	-	0.367	0.275	7/16	4	★ -UNF1/2
5/8-18	0.625	3.937	0.591	-	0.480	0.360	9/16	4	★ -UNF5/8

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



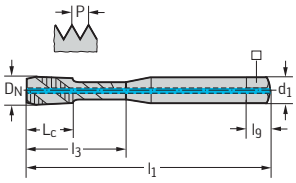
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC

UNF

ASME B1.1

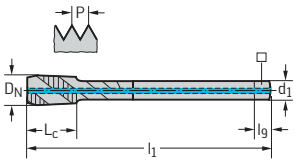
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN/ANSI 2B



D_N-TPI Nom	D_N inch	l_1 inch	L_c js16 inch	l_3 inch	d_1 h9 inch	□ h12 inch	l_9 inch	N	THL Designation AE2351312
1/4-28	0.250	3.150	0.394	1.020	0.255	0.191	5/16	3	★ -UNF1/4
5/16-24	0.313	3.543	0.472	1.378	0.318	0.238	3/8	3	★ -UNF5/16
3/8-24	0.375	3.937	0.472	1.535	0.381	0.286	7/16	3	★ -UNF3/8

DIN/ANSI 2B



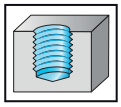
D_N-TPI Nom	D_N inch	l_1 inch	L_c js16 inch	l_3 inch	d_1 h9 inch	□ h12 inch	l_9 inch	N	THL Designation AE2356312
7/16-20	0.438	3.937	0.591	-	0.323	0.242	13/32	3	★ -UNF7/16
1/2-20	0.500	3.937	0.512	-	0.367	0.275	7/16	4	★ -UNF1/2
5/8-18	0.625	3.937	0.591	-	0.480	0.360	9/16	4	★ -UNF5/8
3/4-16	0.750	4.331	0.669	-	0.590	0.442	11/16	4	★ -UNF3/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N



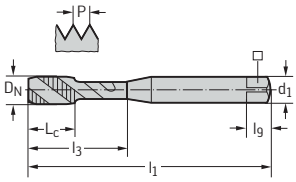
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNF

ASME B1.1

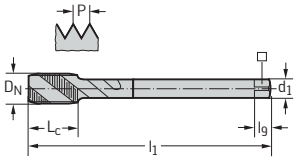
	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P23519	TIN Designation P2351905
Nr. 1-72	1,854	45	4	9	2,8	2,1	5	3	★ -UNF1	
Nr. 2-64	2,184	45	4	12	2,8	2,1	5	3	★ -UNF2	
Nr. 3-56	2,515	50	4	12,5	2,8	2,1	5	3	★ -UNF3	
Nr. 4-48	2,845	56	6	18	3,5	2,7	6	3	★ -UNF4	
Nr. 5-44	3,175	56	6	18	3,5	2,7	6	3	★ -UNF5	
Nr. 6-40	3,505	56	6,5	20	4	3	6	3	★ -UNF6	
Nr. 8-36	4,166	63	7	21	4,5	3,4	6	3	★ -UNF8	
Nr.10-32	4,826	70	8	25	6	4,9	8	3	★ -UNF10	★ -UNF10
Nr.12-28	5,486	80	10	30	6	4,9	8	3	★ -UNF12	
1/4-28	6,35	80	10	30	7	5,5	8	3	★ -UNF1/4	★ -UNF1/4

DIN 2184-1 2B



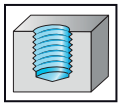
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P23569	TIN Designation P2356905
5/16-24	7,938	90	12	-	6	4,9	8	3	★ -UNF5/16	★ -UNF5/16
3/8-24	9,525	100	15	-	7	5,5	8	3	★ -UNF3/8	★ -UNF3/8
7/16-20	11,113	100	15	-	8	6,2	9	3	★ -UNF7/16	★ -UNF7/16
1/2-20	12,7	100	13	-	9	7	10	4	★ -UNF1/2	★ -UNF1/2
9/16-18	14,288	100	15	-	11	9	12	4	★ -UNF9/16	★ -UNF9/16
5/8-18	15,875	100	15	-	12	9	12	4	★ -UNF5/8	★ -UNF5/8
3/4-16	19,05	110	17	-	14	11	14	4	★ -UNF3/4	★ -UNF3/4
7/8-14	22,225	125	18	-	18	14,5	17	4	★ -UNF7/8	★ -UNF7/8
1-12	25,4	140	20	-	18	14,5	17	5	★ -UNF1	
1 1/8-12	28,575	150	20	-	22	18	21	5	★ -UNF1.1/8	
1 1/4-12	31,75	150	20	-	22	18	21	5	★ -UNF1.1/4	
1 3/8-12	34,925	170	22	-	28	22	25	5	★ -UNF1.3/8	
1 1/2-12	38,1	170	22	-	28	22	25	5	★ -UNF1.1/2	

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD_N



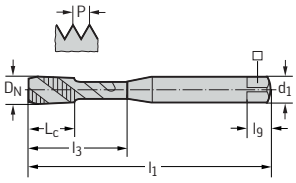
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

UNF

ASME B1.1

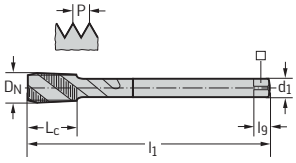
	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					

DIN 2184-1 2B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M23513	TIN Designation M2351305
Nr. 6-40	3,505	56	6,5	20	4	3	6	3	★ -UNF6	★ -UNF6
Nr. 8-36	4,166	63	7	21	4,5	3,4	6	3	★ -UNF8	★ -UNF8
Nr.10-32	4,826	70	8	25	6	4,9	8	3	★ -UNF10	★ -UNF10
Nr.12-28	5,486	80	10	30	6	4,9	8	3	★ -UNF12	★ -UNF12
1/4-28	6,35	80	10	30	7	5,5	8	3	★ -UNF1/4	★ -UNF1/4

DIN 2184-1 2B



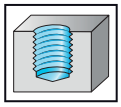
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M23563	TIN Designation M2356305
5/16-24	7,938	90	12	-	6	4,9	8	3	★ -UNF5/16	★ -UNF5/16
3/8-24	9,525	100	15	-	7	5,5	8	3	★ -UNF3/8	★ -UNF3/8
7/16-20	11,113	100	15	-	8	6,2	9	3	★ -UNF7/16	★ -UNF7/16
1/2-20	12,7	100	13	-	9	7	10	4	★ -UNF1/2	★ -UNF1/2
9/16-18	14,288	100	15	-	11	9	12	4	★ -UNF9/16	★ -UNF9/16
5/8-18	15,875	100	15	-	12	9	12	4	★ -UNF5/8	★ -UNF5/8
3/4-16	19,05	110	17	-	14	11	14	4	★ -UNF3/4	★ -UNF3/4
7/8-14	22,225	125	18	-	18	14,5	17	4	★ -UNF7/8	★ -UNF7/8
1-12	25,4	140	20	-	18	14,5	17	5	★ -UNF1	★ -UNF1

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N



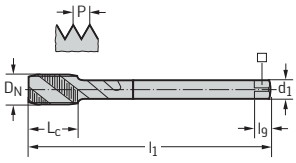
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UNEF

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 2B



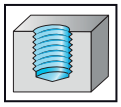
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P235692
1/4-32	6,35	80	10	4,5	3,4	6	3	★ -UNEF1/4
5/16-32	7,938	90	12	6	4,9	8	3	★ -UNEF5/16
3/8-32	9,525	90	12	7	5,5	8	3	★ -UNEF3/8
7/16-28	11,113	90	15	8	6,2	9	3	★ -UNEF7/16
1/2-28	12,7	100	13	9	7	10	4	★ -UNEF1/2
9/16-24	14,288	100	15	11	9	12	4	★ -UNEF9/16
5/8-24	15,875	100	15	12	9	12	4	★ -UNEF5/8
11/16-24	17,463	110	17	14	11	14	4	★ -UNEF11/16
3/4-20	19,05	110	17	14	11	14	4	★ -UNEF3/4
7/8-20	22,225	125	18	18	14,5	17	4	★ -UNEF7/8
1-20	25,4	140	20	18	14,5	17	5	★ -UNEF1

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N



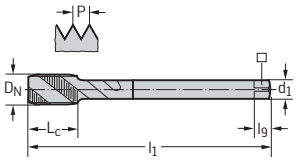
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

UN - 8

ASME B1.1

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 2B



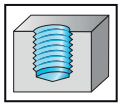
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P265676
1 1/8-8	28,575	180	30	22	18	21	5	★ -UN1.1/8
1 1/4-8	31,75	180	30	22	18	21	5	★ -UN1.1/4
1 3/8-8	34,925	200	30	28	22	25	5	★ -UN1.3/8
1 1/2-8	38,1	200	30	28	22	25	5	★ -UN1.1/2
1 5/8-8	41,275	200	33	32	24	27	6	★ -UN1.5/8
1 3/4-8	44,45	200	33	36	29	32	6	★ -UN1.3/4
1 7/8-8	47,625	225	36	36	29	32	6	★ -UN1.7/8
2-8	50,8	225	36	40	32	35	6	★ -UN2
2 1/4-8	57,15	250	36	45	35	38	6	★ -UN2.1/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD_N



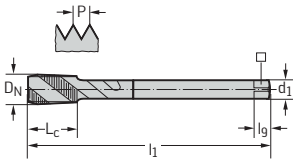
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

UN - 8

ASME B1.1

	P	M	K	N	S	H	O
vap	●	●●					

DIN 2184-1 2B



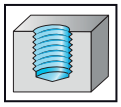
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M225632
1-8	25,4	160	30	18	14,5	17	4	★ -UN1
1 1/8-8	28,575	180	30	22	18	21	4	★ -UN1.1/8
1 1/4-8	31,75	180	30	22	18	21	4	★ -UN1.1/4
1 3/8-8	34,925	200	30	28	22	25	5	★ -UN1.3/8
1 1/2-8	38,1	200	30	28	22	25	5	★ -UN1.1/2
1 5/8-8	41,275	200	33	32	24	27	5	★ -UN1.5/8
1 3/4-8	44,45	200	33	36	29	32	6	★ -UN1.3/4
1 7/8-8	47,625	225	36	36	29	32	6	★ -UN1.7/8
2-8	50,8	225	36	40	32	35	6	★ -UN2

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD_N



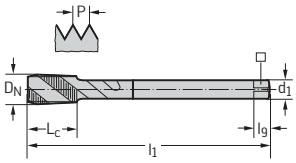
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

UN - 8

ASME B1.1

	P	M	K	N	S	H	O
vap	●	●●					

DIN 2184-1 3B



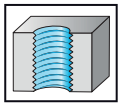
D_N-P Nom	D_N mm	l_1 js16 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M225532
UN1	25,4	160	18	14,5	17	4	★ -UN1
UN1.1/8	28,575	180	22	18	21	4	★ -UN1.1/8
UN1.1/4	31,75	180	22	18	21	4	★ -UN1.1/4
UN1.3/8	34,925	200	28	22	25	5	★ -UN1.3/8

★ New addition to range

G-2 D-140

Machine tap
Prototex® Eco Plus

≤3,5xD_N



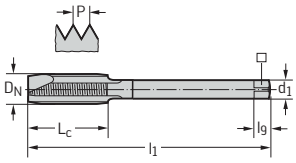
- HSS-E-PM
- Chamfer form B = 3.5 - 5 thread
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials

G

DIN EN ISO 228

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 5156 G-X



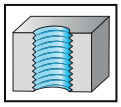
D_N Nom	D_N mm	Threads per inch	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2426302
G 1/8	9,728	28	90	20	7	5,5	8	3	★ -G1/8
G 1/4	13,157	19	100	21	11	9	12	4	★ -G1/4
G 3/8	16,662	19	100	21	12	9	12	4	★ -G3/8
G 1/2	20,955	14	125	24	16	12	15	4	★ -G1/2
G 5/8	22,911	14	125	24	18	14,5	17	4	★ -G5/8
G 3/4	26,441	14	140	26	20	16	19	5	★ -G3/4
G 1	33,249	11	160	28	25	20	23	5	★ -G1

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD$_N$



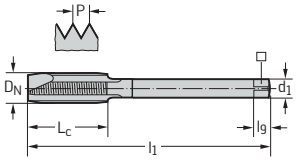
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

G

DIN EN ISO 228

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 5156



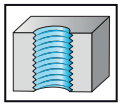
D$_N$ Nom	D$_N$ mm	Threads per inch	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P24360	TIN Designation P2436005
G 1/8	9,728	28	90	20	7	5,5	8	3	★ -G1/8	★ -G1/8
G 1/4	13,157	19	100	21	11	9	12	3	★ -G1/4	★ -G1/4
G 3/8	16,662	19	100	21	12	9	12	4	★ -G3/8	★ -G3/8
G 1/2	20,955	14	125	24	16	12	15	4	★ -G1/2	★ -G1/2
G 5/8	22,911	14	125	24	18	14,5	17	4	★ -G5/8	
G 3/4	26,441	14	140	26	20	16	19	4	★ -G3/4	★ -G3/4
G 7/8	30,201	14	150	26	22	18	21	4	★ -G7/8	
G 1	33,249	11	160	28	25	20	23	4	★ -G1	★ -G1
G 1 1/4	41,91	11	170	28	32	24	27	4	★ -G1.1/4	
G 1 1/2	47,803	11	190	30	36	29	32	5	★ -G1.1/2	
G 1 3/4	53,746	11	190	32	40	32	35	5	★ -G1.3/4	
G 2	59,614	11	220	34	45	35	38	5	★ -G2	

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M

≤3xD$_N$



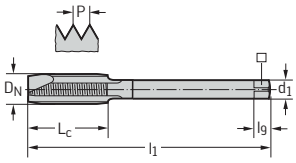
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

G

DIN EN ISO 228

	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					

DIN 5156



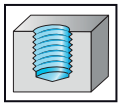
D$_N$ Nom	D$_N$ mm	Threads per inch	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M24263	TIN Designation M2426305
G 1/8	9,728	28	90	20	7	5,5	8	3	★ -G1/8	★ -G1/8
G 1/4	13,157	19	100	21	11	9	12	4	★ -G1/4	★ -G1/4
G 3/8	16,662	19	100	21	12	9	12	4	★ -G3/8	★ -G3/8
G 1/2	20,955	14	125	24	16	12	15	4	★ -G1/2	★ -G1/2
G 5/8	22,911	14	125	24	18	14,5	17	4	★ -G5/8	
G 3/4	26,441	14	140	26	20	16	19	4	★ -G3/4	★ -G3/4
G 1	33,249	11	160	28	25	20	23	5	★ -G1	★ -G1

★ New addition to range

G-2 D-140

Machine tap
Paradur® Eco Plus

≤3xD_N



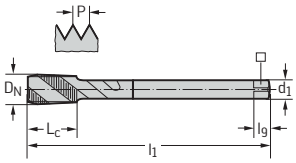
- HSS-E-PM
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Long-chipping materials from 500 to 1250 N/mm² or 38 HRC
- For long-chipping materials

G

DIN EN ISO 228

	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN 5156 G-X



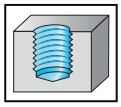
D_N Nom	D_N mm	Threads per inch	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	THL Designation EP2456302
G 1/8	9,728	28	90	12	7	5,5	8	3	★ -G1/8
G 1/4	13,157	19	100	15	11	9	12	4	★ -G1/4
G 3/8	16,662	19	100	15	12	9	12	4	★ -G3/8
G 1/2	20,955	14	125	18	16	12	15	4	★ -G1/2
G 5/8	22,911	14	125	18	18	14,5	17	4	★ -G5/8
G 3/4	26,441	14	140	20	20	16	19	5	★ -G3/4
G 1	33,249	11	160	22	25	20	23	5	★ -G1

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P

≤3xD_N



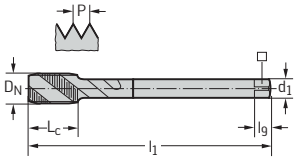
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

G

DIN EN ISO 228

	P	M	K	N	S	H	O
uncoated	●●			●			●
TiN	●●			●			●

DIN 5156



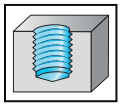
D_N Nom	D_N mm	Threads per inch	l_1 js16 mm	L_c mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P24569	TIN Designation P2456905
G 1/8	9,728	28	90	12	7	5,5	8	3	★ -G1/8	★ -G1/8
G 1/4	13,157	19	100	15	11	9	12	4	★ -G1/4	★ -G1/4
G 3/8	16,662	19	100	15	12	9	12	4	★ -G3/8	★ -G3/8
G 1/2	20,955	14	125	18	16	12	15	4	★ -G1/2	★ -G1/2
G 5/8	22,911	14	125	18	18	14,5	17	4	★ -G5/8	
G 3/4	26,441	14	140	20	20	16	19	5	★ -G3/4	★ -G3/4
G 7/8	30,201	14	150	20	22	18	21	5	★ -G7/8	
G 1	33,249	11	160	22	25	20	23	5	★ -G1	★ -G1
G 1 1/8	37,897	11	170	22	28	22	25	5	★ -G1.1/8	
G 1 1/4	41,91	11	170	22	32	24	27	6	★ -G1.1/4	
G 1 1/2	47,803	11	190	24	36	29	32	6	★ -G1.1/2	
G 1 3/4	53,746	11	190	26	40	32	35	6	★ -G1.3/4	
G 2	59,614	11	220	28	45	35	38	6	★ -G2	

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M

≤2,5xD$_N$



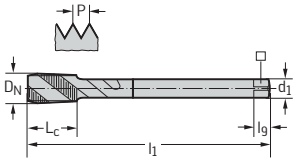
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

G

DIN EN ISO 228

	P	M	K	N	S	H	O
vap	●	●●					
TiN	●	●●					

DIN 5156



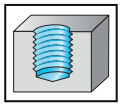
D$_N$ Nom	D$_N$ mm	Threads per inch	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M24563	TIN Designation M2456305
G 1/8	9,728	28	90	12	7	5,5	8	3	★ -G1/8	★ -G1/8
G 1/4	13,157	19	100	15	11	9	12	4	★ -G1/4	★ -G1/4
G 3/8	16,662	19	100	15	12	9	12	4	★ -G3/8	★ -G3/8
G 1/2	20,955	14	125	18	16	12	15	4	★ -G1/2	★ -G1/2
G 5/8	22,911	14	125	18	18	14,5	17	4	★ -G5/8	
G 3/4	26,441	14	140	20	20	16	19	5	★ -G3/4	★ -G3/4
G 7/8	30,201	14	150	20	22	18	21	5	★ -G7/8	
G 1	33,249	11	160	22	25	20	23	5	★ -G1	★ -G1

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N

≤3xD$_N$



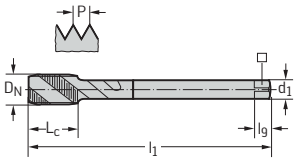
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

G

DIN EN ISO 228

	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 5156



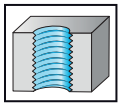
D$_N$ Nom	D$_N$ mm	Threads per inch	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation N24566
G 1/8	9,728	28	90	12	7	5,5	8	3	★ -G1/8

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P

≤3xD_N



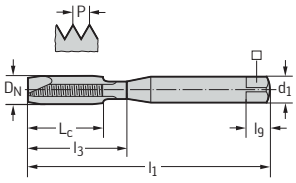
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

BSW

BS84

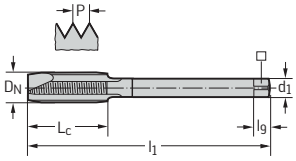
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 mc



D_N Nom	D_N mm	Threads per inch	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P28210
1/8-40	3,175	40	56	10	18	3,5	2,7	6	2	★ -BSW1/8
3/16-24	4,763	24	70	13	25	6	4,9	8	2	★ -BSW3/16
1/4-20	6,35	20	80	15	30	7	5,5	8	3	★ -BSW1/4
5/16-18	7,938	18	90	18	35	8	6,2	9	3	★ -BSW5/16
3/8-16	9,525	16	100	20	39	10	8	11	3	★ -BSW3/8

DIN 2184-1 mc

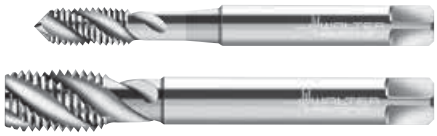


D_N Nom	D_N mm	Threads per inch	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P28360
7/16-14	11,113	14	100	20	-	8	6,2	9	3	★ -BSW7/16
1/2-12	12,7	12	110	23	-	9	7	10	3	★ -BSW1/2
5/8-11	15,875	11	110	25	-	12	9	12	3	★ -BSW5/8
3/4-10	19,05	10	125	30	-	14	11	14	4	★ -BSW3/4
7/8-9	22,225	9	140	30	-	18	14,5	17	4	★ -BSW7/8
1-8	25,4	8	160	36	-	18	14,5	17	4	★ -BSW1

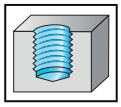
★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P



≤3xD$_N$



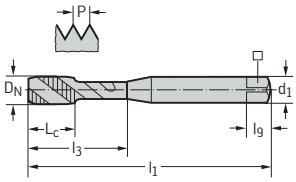
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

BSW

BS84

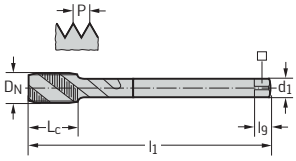
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 mc



D$_N$ Nom	D$_N$ mm	Threads per inch	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P28519
1/8-40	3,175	40	56	6	18	3,5	2,7	6	3	★ -BSW1/8
3/16-24	4,763	24	70	8	25	6	4,9	8	3	★ -BSW3/16
1/4-20	6,35	20	80	10	30	7	5,5	8	3	★ -BSW1/4
5/16-18	7,938	18	90	12	35	8	6,2	9	3	★ -BSW5/16
3/8-16	9,525	16	100	15	39	10	8	11	3	★ -BSW3/8

DIN 2184-1 mc



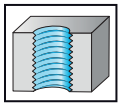
D$_N$ Nom	D$_N$ mm	Threads per inch	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P28569
7/16-14	11,113	14	100	15	-	8	6,2	9	3	★ -BSW7/16
1/2-12	12,7	12	110	18	-	9	7	10	3	★ -BSW1/2
5/8-11	15,875	11	110	20	-	12	9	12	4	★ -BSW5/8
3/4-10	19,05	10	125	25	-	14	11	14	4	★ -BSW3/4
7/8-9	22,225	9	140	25	-	18	14,5	17	4	★ -BSW7/8
1-8	25,4	8	160	30	-	18	14,5	17	4	★ -BSW1

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P insert

≤3xD_N



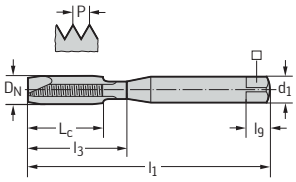
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

EgM

DIN 8140

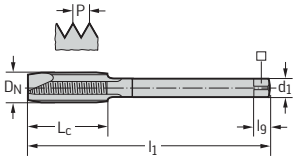
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 40 435 6H mod



D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P203009
EG M 2,5	0,45	56	9	18	3,5	2,7	6	3	★ -EGM2.5
EG M 3	0,5	63	12	21	4,5	3,4	6	3	★ -EGM3
EG M 4	0,7	70	13	25	6	4,9	8	3	★ -EGM4
EG M 5	0,8	80	15	30	6	4,9	8	3	★ -EGM5
EG M 6	1	90	18	35	8	6,2	9	3	★ -EGM6
EG M 8	1,25	100	20	39	10	8	11	3	★ -EGM8

DIN 40 435 6H mod



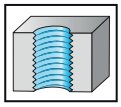
D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P203509
EG M 10	1,5	100	21	-	9	7	10	3	★ -EGM10
EG M 12	1,75	110	25	-	11	9	12	3	★ -EGM12
EG M 16	2	125	30	-	14	11	14	4	★ -EGM16

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M insert

≤3xD_N



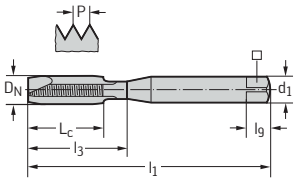
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

EgM

DIN 8140

	P	M	K	N	S	H	O
vap	●	●●					

DIN 40 435 6H mod



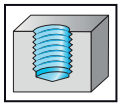
D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M203009
EG M 2,5	0,45	56	9	18	3,5	2,7	6	2	★ -EGM2.5
EG M 3	0,5	63	12	21	4,5	3,4	6	2	★ -EGM3
EG M 4	0,7	70	13	25	6	4,9	8	3	★ -EGM4
EG M 5	0,8	80	15	30	6	4,9	8	3	★ -EGM5
EG M 6	1	90	18	35	8	6,2	9	3	★ -EGM6
EG M 8	1,25	100	20	39	10	8	11	3	★ -EGM8

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P insert

≤3xD_N



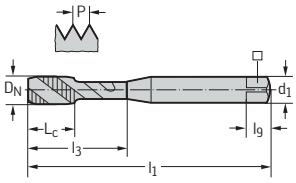
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

EgM

DIN 8140

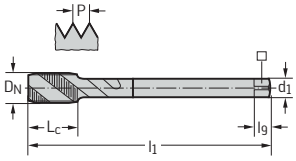
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 40 435 6H mod



D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P205099
EG M 2,5	0,45	56	6	18	3,5	2,7	6	3	★ -EGM2.5
EG M 3	0,5	63	7	21	4,5	3,4	6	3	★ -EGM3
EG M 4	0,7	70	8	25	6	4,9	8	3	★ -EGM4
EG M 5	0,8	80	10	30	6	4,9	8	3	★ -EGM5
EG M 6	1	90	12	35	8	6,2	9	3	★ -EGM6
EG M 8	1,25	100	15	39	10	8	11	3	★ -EGM8

DIN 40 435 6H mod



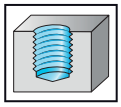
D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P205599
EG M 10	1,5	100	13	-	9	7	10	4	★ -EGM10
EG M 12	1,75	110	20	-	11	9	12	4	★ -EGM12
EG M 14	2	110	20	-	12	9	12	4	★ -EGM14
EG M 16	2	125	25	-	14	11	14	4	★ -EGM16
EG M 20	2,5	160	25	-	18	14,5	17	4	★ -EGM20
EG M 24	3	160	30	-	20	16	19	4	★ -EGM24

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M insert

≤3xD_N



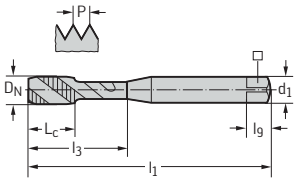
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

EgM

DIN 8140

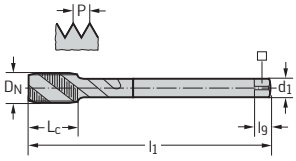
	P	M	K	N	S	H	O
vap	●	●●					

DIN 40 435 6H mod



D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M205049
EG M 2,5	0,45	56	6	18	3,5	2,7	6	3	★ -EGM2.5
EG M 3	0,5	63	7	21	4,5	3,4	6	3	★ -EGM3
EG M 4	0,7	70	8	25	6	4,9	8	3	★ -EGM4
EG M 5	0,8	80	10	30	6	4,9	8	3	★ -EGM5
EG M 6	1	90	12	35	8	6,2	9	3	★ -EGM6
EG M 8	1,25	100	15	39	10	8	11	3	★ -EGM8

DIN 40 435 6H mod



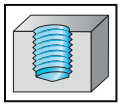
D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M205549
EG M 10	1,5	100	13	-	9	7	10	4	★ -EGM10
EG M 12	1,75	110	20	-	11	9	12	4	★ -EGM12
EG M 14	2	110	20	-	12	9	12	4	★ -EGM14
EG M 16	2	125	25	-	14	11	14	4	★ -EGM16

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N insert

≤3xD_N



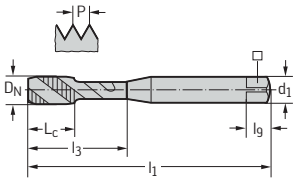
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

EgM

DIN 8140

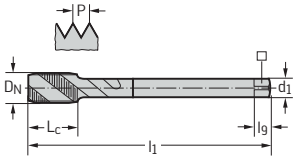
	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 40 435 6H mod



D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N205069
EG M 2,5	0,45	56	6	18	3,5	2,7	6	2	-EGM2.5
EG M 3	0,5	63	7	21	4,5	3,4	6	2	-EGM3
EG M 4	0,7	70	8	25	6	4,9	8	2	-EGM4
EG M 5	0,8	80	10	30	6	4,9	8	3	-EGM5
EG M 6	1	90	12	35	8	6,2	9	3	-EGM6
EG M 8	1,25	100	15	39	10	8	11	3	-EGM8

DIN 40 435 6H mod

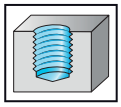


D_N Nom	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N205569
EG M 10	1,5	100	13	-	9	7	10	3	-EGM10
EG M 12	1,75	110	20	-	11	9	12	3	-EGM12
EG M 16	2	125	25	-	14	11	14	4	-EGM16

G-2 D-140

Machine tap
Paradur® X·pert P insert

≤3xD$_N$



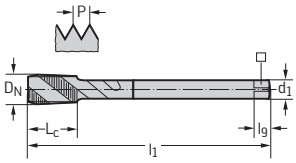
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

EgMF

DIN 8140

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 40 435 6H mod



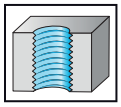
D$_N$ Nom	P mm	l$_1$ js16 mm	L$_c$ mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P215599
EG M 8	1	90	12	7	5,5	8	3	★ -EGM8X1
EG M 10	1	100	13	9	7	10	3	★ -EGM10X1
EG M 12	1,5	100	15	11	9	12	4	★ -EGM12X1.5
EG M 14	1,5	100	15	12	9	12	4	★ -EGM14X1.5
EG M 16	1,5	110	17	14	11	14	4	★ -EGM16X1.5

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P insert

≤3xD$_N$



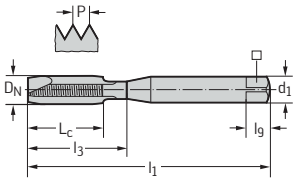
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

EgUNC

NASM 33537

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 3B



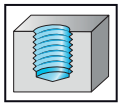
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	uncoated Designation P223009
EG no. 6-32	4,536	70	13	25	6	4,9	8	3	★ -EGUNC6
EG no. 8-32	5,197	80	15	30	6	4,9	8	3	★ -EGUNC8
EG no. 10-24	6,201	80	15	30	7	5,5	8	3	★ -EGUNC10
EG 1/4-20	8	90	18	35	8	6,2	9	3	★ -EGUNC1/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P insert

≤3xD_N



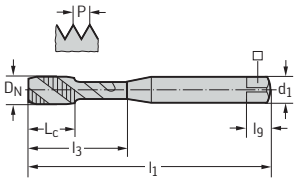
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

EgUNC

NASM 33537

	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 3B



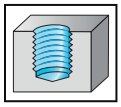
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P225099
EG no. 6-32	4,536	70	8	25	6	4,9	8	3	★ -EGUNC6
EG no. 8-32	5,197	80	10	30	6	4,9	8	3	★ -EGUNC8
EG no. 10-24	6,201	80	10	30	7	5,5	8	3	★ -EGUNC10
EG 1/4-20	8	90	12	35	8	6,2	9	3	★ -EGUNC1/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N insert

≤3xD_N



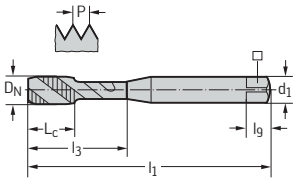
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

EgUNC

NASM 33537

	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 2184-1 3B



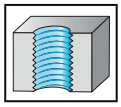
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N225069
EG no. 6-32	4,536	70	8	25	6	4,9	8	2	-EGUNC6
EG no. 8-32	5,197	80	10	30	6	4,9	8	2	-EGUNC8
EG no. 10-24	6,201	80	10	30	7	5,5	8	2	-EGUNC10
EG 1/4-20	8	90	12	35	8	6,2	9	2	-EGUNC1/4

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert P insert

≤3xD_N



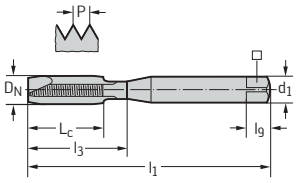
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

EgUNF

NASM 33537

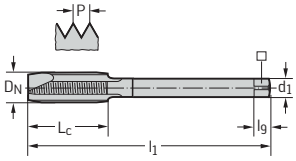
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 3B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P233009
EG no. 6-40	4,33	70	13	25	6	4,9	8	3	★ -EGUNF6
EG no. 8-36	5,083	80	15	30	6	4,9	8	3	★ -EGUNF8
EG no. 10-32	5,857	80	15	30	6	4,9	8	3	★ -EGUNF10
EG 1/4-28	7,528	90	18	35	8	6,2	9	3	★ -EGUNF1/4

DIN 2184-1 3B



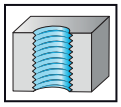
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P233509
EG 5/16-24	9,313	90	20	-	7	5,5	8	3	★ -EGUNF5/16
EG 3/8-24	10,9	90	20	-	8	6,2	9	3	★ -EGUNF3/8
EG 7/16-20	12,763	100	21	-	9	7	10	4	★ -EGUNF7/16
EG 1/2-20	14,35	100	21	-	11	9	12	4	★ -EGUNF1/2

★ New addition to range

G-2 D-140

Machine tap
Prototex® X·pert M insert

≤3xD$_N$



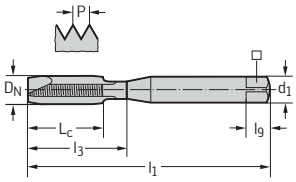
- HSS-E
- Chamfer form B = 3.5 - 5 thread
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

EgUNF

NASM 33537

	P	M	K	N	S	H	O
vap	●	●●					

DIN 2184-1 3B



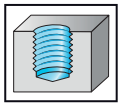
D$_N$-P Nom	D$_N$ mm	l$_1$ js16 mm	L$_c$ mm	l$_3$ ±1 mm	d$_1$ h9 mm	□ h12 mm	l$_9$ mm	N	VAP Designation M233009
EG no. 8-36	5,083	80	15	30	6	4,9	8	3	★ -EGUNF8
EG no. 10-32	5,857	80	15	30	6	4,9	8	3	★ -EGUNF10
EG 1/4-28	7,528	90	18	35	8	6,2	9	3	★ -EGUNF1/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert P insert

≤3xD_N



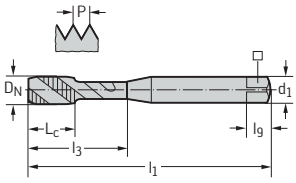
- HSS-E
- Chamfer form C = 2 - 3 thread
- 45° helix angle
- Materials from 200 to 1000 N/mm² or 32 HRC
- For long-chipping materials

EgUNF

NASM 33537

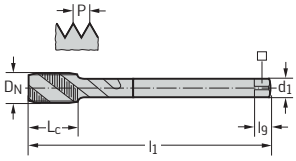
	P	M	K	N	S	H	O
uncoated	●●			●			●

DIN 2184-1 3B



D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P235099
EG no. 6-40	4,33	70	8	25	6	4,9	8	3	★ -EGUNF6
EG no. 8-36	5,083	80	10	30	6	4,9	8	3	★ -EGUNF8
EG no. 10-32	5,857	80	10	30	6	4,9	8	3	★ -EGUNF10
EG 1/4-28	7,528	90	12	35	8	6,2	9	3	★ -EGUNF1/4

DIN 2184-1 3B



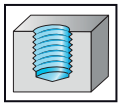
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation P235599
EG 5/16-24	9,313	90	12	-	7	5,5	8	3	★ -EGUNF5/16
EG 3/8-24	10,9	90	15	-	8	6,2	9	3	★ -EGUNF3/8
EG 7/16-20	12,763	100	13	-	9	7	10	4	★ -EGUNF7/16
EG 1/2-20	14,35	100	15	-	11	9	12	4	★ -EGUNF1/2

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert M insert

≤3xD_N



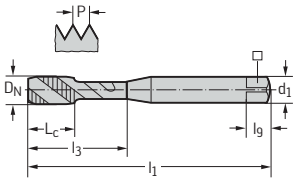
- HSS-E
- Chamfer form C = 2 - 3 thread
- 40° helix angle
- Materials from 350 to 1200 N/mm² or 36 HRC
- For long-chipping materials

EgUNF

NASM 33537

	P	M	K	N	S	H	O
vap	●	●●					

DIN 2184-1 3B



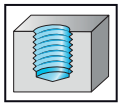
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	VAP Designation M235049
EG no. 10-32	5,857	80	10	30	6	4,9	8	3	★ -EGUNF10
EG 1/4-28	7,528	90	12	35	8	6,2	9	3	★ -EGUNF1/4

★ New addition to range

G-2 D-140

Machine tap
Paradur® X·pert N insert

≤3xD_N



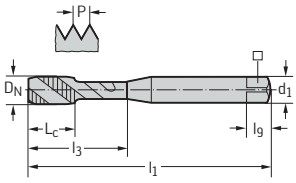
- HSS-E
- Chamfer form C = 2 - 3 thread
- 35° helix angle
- Materials from 200 to 700 N/mm² or 14 HRC
- For long-chipping materials

EgUNF

NASM 33537

	P	M	K	N	S	H	O
uncoated				●●	●		●

DIN 2184-1 3B

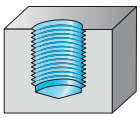


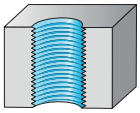
D_N-P Nom	D_N mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h9 mm	□ h12 mm	l_9 mm	N	uncoated Designation N235069
EG no. 10-32	5,857	80	10	30	6	4,9	8	2	-EGUNF10
EG 1/4-28	7,528	90	12	35	8	6,2	9	3	-EGUNF1/4

★ New addition to range

G-2 D-140

Walter Select – Thread forming
Blind and through hole machining
Solid carbide and HSS-E





WALTER SELECT

●● Primary application

● Additional application

BH = Blind hole
TH = Through hole

i = only for synchronous machining

Thread depth		2,0 x D_N	3,0 x D_N	
Type		Protodyn® Eco LM	Protodyn®	
Cutting tool material		HSS-E	Solid carbide	
		Page	Page	
M		*D 339**	*D 349**	
MJ				
MF			*D 358**	
UNC	UNJC			
UNF	UNJF			
UNEF				
G				
RC	RP			
NPT	NPSM			
NPTF				
Pg	BSW			
TR				
EG M	EG MF			
EG UNC				
EG UNF				
Coating		CRN	TiCN	
Application		GL/DL	GL/DL	

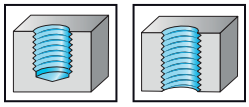
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●	●●	
		free cutting steel	220	750	P6	●●	●●	
		tempered	300	1010	P5, P8		●●	
		tempered	380	1280	P9		●	
		tempered	430	1480	P10			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		●●	
		hardened and tempered	300	1010	P12		●●	
		hardened and tempered	400	1360	P13			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14			
		martensitic, tempered	330	1110	P15			
M	Stainless steel	austenitic, duplex	230	780	M1, M3			
		austenitic, precipitation hardened (PH)	300	1010	M2			
K	Grey cast iron		245	–	K3, K4			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6			
	GGV (CGI)		200	–	K7			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●	●●	
		hardenable, hardened	100	340	N2	●●	●●	
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●	●●	
		> 12% Si	130	450	N5			
	Magnesium alloys		70	250	N6			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●	●	
		brass, bronze, red brass	90	310	N8			
		Cu-alloys, short-chipping	110	380	N9			
		high-strength, Ampco	300	1010	N10			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2			
		Ni or Co base	250	840	S3		●●	
		Ni or Co base	350	1080	S4, S5			
	Titanium alloys	pure titanium	200	670	S6	●●		
		α and β alloys, hardened	375	1260	S7	●●		
		β alloys	410	1400	S8	●●		
	Tungsten alloys		300	1010	S9			
	Molybdenum alloys		300	1010	S10			
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1			
	Thermosetting plastics	without abrasive fillers			O2			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	3,0 x D_N			3,5 x D_N							
	Protodyn® Plus	**Protodyn® Eco Plus**	**Protodyn® C**	**Protodyn® S HSC**	**Protodyn® S**	**Protodyn® S Plus**	**Protodyn® S Eco Plus**	**Protodyn® SC**	**Protodyn® SF**	**Protodyn® S Eco Inox**	**Protodyn® S Synchrospeed**
	HSS-E	HSS-E	HSS-E	Solid carbide	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page
	*D 342**	*D 330**	*D 319**	**D-130**		*D 345**	*D 333**	*D 321**	*D 323**	*D 338**	*D 340**
		*D 351**		**D-133**	*D 357**	*D 356**	*D 352**		*D 324**		*D 355**
						*D 359**					
						*D 360**					
						*D 361**			*D 325**		
	TiN	TiN/TiCN	uncoated/nid	TiCN	TiN	TiN	TiN/TiCN	uncoated/nid	TiCN	TiN	TiN/TiCN
	GL/DL	GL/DL	GL/DL	GL/DL	GL/DL	GL/DL	GL/DL	GL/DL	GL/DL	GL/DL	GL/DL
											
	●●	●●	●●	●●	●●	●●	●●	●	●●	●●	●●
	●●	●●		●●	●●	●●	●●	●	●●	●●	●●
	●●	●●		●●	●●	●●	●●		●●	●●	●●
	●	●		●	●	●	●		●	●	●
	●●	●●		●●	●●	●●	●●	●	●●	●●	●●
	●●	●●		●●	●●	●●	●●		●●	●●	●●
	●	●		●	●	●●	●●		●●	●●	●●
	●	●		●	●	●●	●●		●●	●●	●●
	●	●		●	●	●●	●●		●●	●●	●●
	●	●		●	●	●	●		●	●	●
	●●	●●		●●	●●	●●	●●	●	●●	●●	●●
	●●	●●		●●	●●	●●	●●	●	●●	●●	●●
	●●	●●		●●	●●	●●	●●	●	●●	●●	●●
	●	●		●	●	●	●	●	●	●	●
	●●	●●		●●	●●	●●	●●		●●	●●	●●

Machine thread former
Protodyn® HSC

≤3,5xD_N



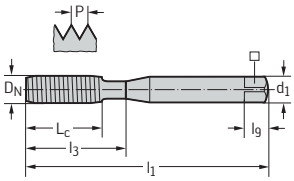
- VHM
- Chamfer form C = 2 - 3.5 thread
- Materials from 200 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
TiCN	●●	●		●●	●		

DIN 2174 6HX



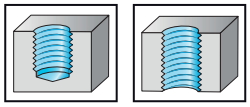
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h6 mm	□ h12 mm	l_g mm	TICN Designation HP8061106
M 3	0,5	56	10	-	3,5	2,7	6	★ -M3
M 4	0,7	63	13	-	4,5	3,4	6	★ -M4
M 5	0,8	70	16	-	6	4,9	8	★ -M5
M 6	1	80	15	30	6	4,9	8	★ -M6
M 8	1,25	90	18	35	8	6,2	9	★ -M8
M 10	1,5	100	20	39	10	8	11	★ -M10

★ New addition to range

G-2 D-140

Machine thread former
Protodyn® S HSC

≤3,5xD_N



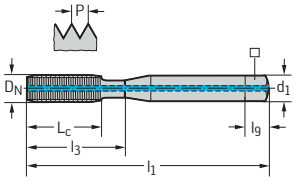
- VHM
- Chamfer form C = 2 - 3.5 thread
- Materials from 200 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
TiCN	●●	●		●●	●		

DIN 2174 6HX



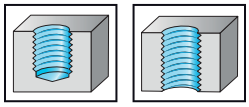
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h6 mm	□ h12 mm	l_9 mm	TICN Designation HP8061716
M 6	1	80	15	30	6	4,9	8	★ -M6
M 8	1,25	90	18	35	8	6,2	9	★ -M8
M 10	1,5	100	20	39	10	8	11	★ -M10

★ New addition to range

G-2 D-140

Machine thread former
Protodyn® S HSC

≤3,5xD_N



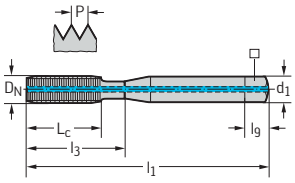
- VHM
- Chamfer form E = 1.5 - 2 thread
- Materials from 200 to 1200 N/mm² or 36 HRC
- For long-chipping materials

M

DIN 13

	P	M	K	N	S	H	O
TiCN	●●	●		●●	●		

DIN 2174 6HX



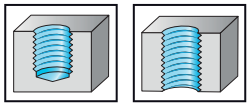
D_N	P mm	l_1 js16 mm	L_c mm	l_3 ±1 mm	d_1 h6 mm	□ h12 mm	l_g mm	TICN Designation HP8061816
M 6	1	80	15	30	6	4,9	8	★ -M6
M 8	1,25	90	18	35	8	6,2	9	★ -M8
M 10	1,5	100	20	39	10	8	11	★ -M10

★ New addition to range

G-2 D-140

Machine thread former
Protodyn® S HSC

≤3,5xD_N



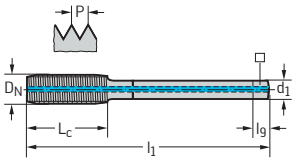
- VHM
- Chamfer form C = 2 - 3.5 thread
- Materials from 200 to 1200 N/mm² or 36 HRC
- For long-chipping materials

MF

DIN 13

	P	M	K	N	S	H	O
TiCN	●●	●		●●	●		

DIN 2174 6HX

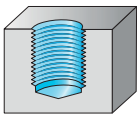


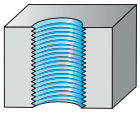
D_N	P mm	l_1 js16 mm	L_c mm	d_1 h6 mm	□ h12 mm	l_9 mm	TICN Designation HP8166716
M 8	1	90	12	6	4,9	8	★ -M8X1
M 10	1	90	14	7	5,5	8	★ -M10X1
M 12	1,5	100	21	9	7	10	★ -M12X1.5
M 14	1,5	100	21	11	9	12	★ -M14X1.5
M 16	1,5	100	21	12	9	12	★ -M16X1.5

★ New addition to range

G-2 D-140

Walter Select – Thread milling
Blind and through hole machining
Solid carbide





WALTER SELECT

●● Primary application

● Additional application

BH = Blind hole
TH = Through hole

Thread depth		1,5 x D_N		
Type		Thread milling cutter - hard 10	Thread milling cutter 27	Thread milling cutter Ni 27
Helix angle		10°	27°	27°
		Page	Page	Page
M		*D 370**	*D 371**	
MJ				*D 372**
MF		*D 370**	*D 377**	
UNC	UNJC			
UNF	UNJF			*D 381**
UNEF				
G				
RC	RP			
NPT	NPSM			
NPTF				
Pg	BSW			
TR				
EG M	EG MF			
EG UNC				
EG UNF				
Coolant		MQL/air blast	Emulsion/MQL	Emulsion/MQL
Coating		TAX	TiCN	TiCN
Shank		HA/HB	HA	HA

Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		●●	●
		free cutting steel	220	750	P6		●●	●
		tempered	300	1010	P5, P8		●●	●
		tempered	380	1280	P9		●●	●
		tempered	430	1480	P10	●●	●●	●
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		●●	●
		hardened and tempered	300	1010	P12		●●	●
		hardened and tempered	400	1360	P13	●●	●●	●
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		●●	●
		martensitic, tempered	330	1110	P15	●	●●	●
M	Stainless steel	austenitic, duplex	230	780	M1, M3		●●	●
		austenitic, precipitation hardened (PH)	300	1010	M2		●●	●
K	Grey cast iron		245	–	K3, K4		●●	●
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6		●●	●
	GGV (CGI)		200	–	K7		●●	●
N	Aluminium wrought alloys	cannot be hardened	30	–	N1		●●	●
		hardenable, hardened	100	340	N2		●●	●
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4		●●	●
		> 12% Si	130	450	N5		●●	●
	Magnesium alloys		70	250	N6		●●	●
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7		●●	●
		brass, bronze, red brass	90	310	N8		●●	●
		Cu-alloys, short-chipping	110	380	N9		●●	●
		high-strength, Ampco	300	1010	N10		●●	●
S	Heat-resistant alloys	Fe-based	280	940	S1, S2		●●	●●
		Ni or Co base	250	840	S3		●●	●●
		Ni or Co base	350	1080	S4, S5		●●	●●
	Titanium alloys	pure titanium	200	670	S6		●●	●●
		α and β alloys, hardened	375	1260	S7		●●	●●
		β alloys	410	1400	S8		●●	●●
	Tungsten alloys		300	1010	S9	●	●●	●
	Molybdenum alloys		300	1010	S10	●	●●	●
H	Hardened steel		50 HRC	–	H1	●●		
			55 HRC	–	H2, H4	●●		
			60 HRC	–	H3	●●		
O	Thermoplasts	without abrasive fillers			O1		●●	●
	Thermosetting plastics	without abrasive fillers			O2		●●	●
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5	●	●	●
		CFRP			O4	●	●	●
	Graphite (technical)			65	O6	●	●	●

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	2,0 x D_N							3,0 x D_N	–
	Thread milling cutter 10	Thread milling cutter for external thread	Drill thread milling cutter	Thread milling cutter	Thread milling cutter TMC with countersink	Orbital thread milling cutter TMO	Orbital thread milling cutter TMO HRC	Orbital thread milling cutter TMO	Thread milling cutter GFR
	10°	20°	TMD	27°	27°	15°	15°	15°	
	Page	Page	Page	Page	Page	Page	Page	Page	Page
		*D 376**	*D 391**	*D 380**	*D 378**	*D 387** / **D-136**	*D 386**	*D 388* / **D-137***	*D 393**
		*D 376**		*D 377**		*D 387** / **D-136**		*D 389**	*D 393**
						D-138		*D 390**	
	*D 384**								*D 393**
	*D 385**								
	*D 385**								
	Emulsion/MQL	Emulsion/MQL	Emulsion	Emulsion/MQL	Emulsion/MQL	Emulsion/MQL	Emulsion/MQL	Emulsion/MQL	Emulsion
	TiCN	TiCN	TAX/NHC	TiCN	uncoated/TiCN	TiCN	TAX	uncoated/TiCN	TiCN
	HA/HB	HB	HA	HA	HA/HB	HA	HA	HA	HB
									
	●●	●●		●●	●●	●●		●●	●●
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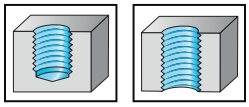
	●	●	●	●	●	●	●	●	
	●	●	●	●	●	●	●	●	
	●	●	●	●	●	●	●	●	

Orbital thread mill
TMO

≤2xD$_N$



- VHM
- 3 to 5 cutting edges
- 15° helix angle
- Materials to 48 HRC

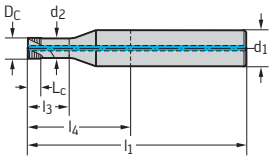
M-MF

DIN 13

	P	M	K	N	S	H	O
TiCN	●●	●●	●●	●●	●●		●

Tool

		P mm	D$_c$ mm	L$_c$ mm	l$_3$ ±1 mm	d$_2$ mm	l$_1$ mm	l$_4$ mm	d$_1$ h6 mm	Z	TICN Designation H5087016
Shank DIN 6535HA	M 5	0,8	4	2,4	11,2	2,9	57	21	6	3	★ -M5
	M 6	1	4,8	3	13,5	3,4	57	21	6	3	★ -M6
	M 8	1,25	6,4	3,75	17,9	4,7	63	27	8	3	★ -M8
	M 10	1,5	8,2	4,5	22,3	6,16	72	32	10	4	★ -M10
	M 12	1,75	9,5	5,25	26,7	7,13	72	27	10	5	★ -M12

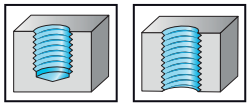


★ New addition to range

D-140

Orbital thread mill
TMO

≤3xD_N



- VHM
- 3 cutting edges
- 15° helix angle
- Materials to 48 HRC

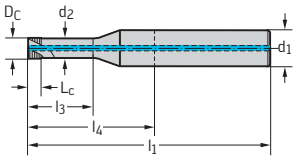
M-MF

DIN 13

	P	M	K	N	S	H	O
TiCN	●●	●●	●●	●●	●●		●

Tool

		P mm	D_c mm	L_c mm	l_3 ±1 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TICN Designation H5088016
Shank DIN 6535HA	M 5	0,8	4	2,4	16,2	2,9	57	21	6	3	★ -M5
	M 6	1	4,8	3	19,5	3,4	60	24	6	3	★ -M6
	M 8	1,25	6,4	3,75	25,875	4,7	68	27	8	3	★ -M8

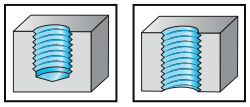


★ New addition to range

D-140

Orbital thread mill
TMO

≤2xD$_N$



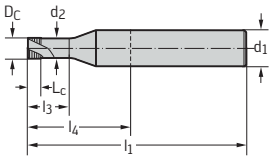
- VHM
- 3 cutting edges
- 15° helix angle
- Materials to 48 HRC

UNC

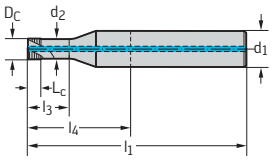
ASME B1.1

	P	M	K	N	S	H	O
TiCN	●●	●●	●●	●●	●●		●

Tool		P Threads per inch	D_c mm	L_c mm	l_3 ±1 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TICN Designation H5287006
Shank DIN 6535HA	4-40 UNC	40	2,1	1,905	6,7	1,21	57	21	6	3	★ -UNC4
	6-32 UNC	32	2,6	2,382	8,3	1,5	57	21	6	3	★ -UNC6
	10-24 UNC	24	3,55	3,175	11,3	2,1	57	21	6	3	★ -UNC10



Tool		P Threads per inch	D_c mm	L_c mm	l_3 ±1 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TICN Designation H5287016
Shank DIN 6535HA	1/4-UNC	20	4,85	3,81	14,7	3,11	57	21	6	3	★ -UNC1/4
	5/16-UNC	18	6,2	4,233	18,1	4,28	63	27	8	3	★ -UNC5/16



★ New addition to range

D-140

Cutting data for thread tapping, thread forming, thread milling and drill thread milling

Material group	Grouping of main material groups and code letters	Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Taps: Solid carbide coated v_c [m/min]	Taps: HSS-E (-PM) uncoated v_c [m/min]	Taps: HSS-E (-PM) coated v_c [m/min]	
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		15	30	E
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		15	30	E
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		12,5	25	E
		C > 0.55%	annealed	190	639	P4		15	30	E
		C > 0.55%	tempered	300	1013	P5	45	7,5	15	E
		free cutting steel (short-chipping)	annealed	220	745	P6		15	30	E
	Low-alloyed steel	annealed		175	591	P7		15	30	E
		tempered		300	1013	P8	50	7,5	15	E
		tempered		380	1282	P9	35	4	7,5	E
		tempered		430	1477	P10	20	2	4	O
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		15	30	E
		hardened and tempered		300	1013	P12	50	7,5	15	E
		hardened and tempered		400	1361	P13	30	3	6	O
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		5	10	E
		martensitic, tempered		330	1114	P15		2	4	E
M	Stainless steel	austenitic, quench hardened		200	675	M1		5	10	E
		austenitic, precipitation hardened (PH)		300	1013	M2		3	6	E
		austenitic/ferritic, duplex		230	778	M3		4	8	E
K	Malleable cast iron	ferritic		200	675	K1	40	15	30	E
		pearlitic		260	867	K2	30	10	20	E
	Grey cast iron	low tensile strength		180	602	K3	45	20	30	E
		high tensile strength/austenitic		245	825	K4	30	7,5	15	E
	Cast iron with spheroidal graphite	ferritic		155	518	K5	40	15	30	E
		pearlitic		265	885	K6	30	10	20	E
	GGV (CGI)			200	675	K7	30	10	20	E
N	Aluminium wrought alloys	cannot be hardened		30	–	N1		10	15	E
		hardenable, hardened		100	343	N2		15	25	E
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	50	15	20	E
		≤ 12% Si, hardenable, hardened		90	314	N4	40	15	30	E
		> 12% Si, cannot be hardened		130	447	N5	30	10	15	E
	Magnesium alloys			70	250	N6	55	20	30	O
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7		5	12,5	E
		brass, bronze, red brass		90	314	N8	50	25	40	E
		Cu-alloys, short-chipping		110	382	N9	40	20	35	E
		high-strength, Ampco		300	1013	N10	12,5	2,5	5	E
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1		5	7,5	E
			hardened	280	943	S2		2,5	5	E
		Ni or Co base	annealed	250	839	S3		2,5	4	E
			hardened	350	1177	S4		1,5	2	O
			cast	320	1076	S5		2	3	O
	Titanium alloys	pure titanium		200	675	S6		7,5	7,5	E
		α and β alloys, hardened		375	1262	S7		5	7,5	O
		β alloys		410	1396	S8		2	3	O
	Tungsten alloys			300	1013	S9	7,5	2,5	5	O
	Molybdenum alloys			300	1013	S10	15	5	7,5	O
H	Hardened steel	hardened and tempered		50 HRC	–	H1	15			O
		hardened and tempered		55 HRC	–	H2	7,5			O
		hardened and tempered		60 HRC	–	H3	5			O
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	7,5			O
O	Thermoplasts	without abrasive fillers				O1		20	20	E
	Thermosetting plastics	without abrasive fillers				O2	25	10	10	E
	Plastic, glass-fibre reinforced	GFRP				O3	15	2,5	5	E
	Plastic, carbon-fibre reinforced	CFRP				O4	15	2,5	5	E
	Plastic, aramid-fibre reinforced	AFRP				O5	15	2,5	5	E
	Graphite (technical)			80 Shore		O6	20	15	15	E

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

Depending on application conditions, the optimum cutting data may differ from the table values by up to ± 25%.

= Cutting data for wet machining.

E = Emulsion
O = Oil

v_c = Cutting speed

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Thread formers				Thread milling cutter			Drill thread milling cutter
	Solid carbide coated	HSS-E (-PM) uncoated	HSS-E (-PM) coated		uncoated	coated	tooth feed matrix	drilling feed
	v_c [m/min]	v_c [m/min]	v_c [m/min]		v_c [m/min]	v_c [m/min]	f_z [mm]	f [mm/U]
		15	30	**E**		140	Table A	
		15	30	**E**		130	Table A	
		12,5	25	**E**		120	Table A	
		15	30	**E**		110	Table A	
	45	7,5	15	**E**		90	Table A	
		15	30	**E**		120	Table A	
		15	30	**E**		130	Table A	
	50	7,5	15	**E**		80	Table A	
						60	Table A	
						50	Table A	
		15	30	**E**		100	Table A	
	50	7,5	15	**E**		70	Table A	
						50	Table A	
		5	10	**E O**		45	Table A	
		2	4	**O**		30	Table A	
		5	10	**E O**		45	Table B	
		3	6	**O**		30	Table B	
		4	8	**E O**		35	Table B	
	40	15	30	**E**		100	Table A	Table D/row 3
						80	Table A	Table D/row 3
						120	Table A	Table D/row 3
						100	Table A	Table D/row 3
	40	15	30	**E**		100	Table A	Table D/row 3
						80	Table A	Table D/row 3
						70	Table A	Table D/row 1
		10	15	**E**	1000	1000	Table C	
		15	25	**E**	600	700	Table C	
	50	15	20	**E**	300	400	Table C	Table D/row 4
	40	15	30	**E**	200	250	Table C	Table D/row 4
					110	140	Table C	Table D/row 2
					250	400	Table C	
		5	12,5	**E**	180	280	Table C	Table D/row 4
	50	25	40	**E**	180	280	Table C	Table D/row 4
					180	280	Table C	Table D/row 4
					180	280	Table C	Table D/row 3
		5	7,5	**E**			Table B	
		2,5	5	**E**			Table B	
		2,5	4	**O**		40	Table B	
		1,5	2	**O**		20	Table B	
		2	3	**O**		30	Table B	
		7,5	7,5	**E**	70	90	Table A	
		5	7,5	**O**	40	50	Table A	
		2	3	**O**	30	35	Table A	
						40	Table B	
						40	Table B	
						50	Table B x 0.5	
						40	Table B x 0.5	
						30	Table B x 0.5	
						40	Table B x 0.5	
					120	220	Table C	Table D/row 4
					90	110	Table C	Table D/row 4
					30	45	Table C	Table D/row 3
					30	45	Table C	Table D/row 3
					30	45	Table C	Table D/row 3
						170	Table C	

Feed tables

A Material groups ISO P and ISO K, titanium alloys

	Feed per tooth f_z [mm]									
a_e [mm]*	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm
0,01	0,06	0,09	0,12	0,15	0,15	0,20				
0,05	0,04	0,07	0,10	0,12	0,15	0,20				
0,1	0,035	0,05	0,08	0,10	0,15	0,20	0,20	0,20	0,20	
0,2	0,03	0,04	0,06	0,08	0,15	0,18	0,20	0,20	0,20	0,20
0,5	0,025	0,03	0,05	0,07	0,12	0,15	0,15	0,15	0,15	0,20
1	0,025	0,03	0,04	0,06	0,09	0,12	0,12	0,12	0,12	0,15
2	0,020	0,030	0,030	0,050	0,080	0,110	0,120	0,12	0,12	0,15

B Material groups ISO M and ISO H, heat-resistant alloys, tungsten alloys and molybdenum alloys

	Feed per tooth f_z [mm]									
a_e [mm]*	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm
0,01	0,05	0,07	0,10	0,12	0,12	0,16				
0,05	0,03	0,06	0,08	0,10	0,12	0,16				
0,1	0,028	0,04	0,06	0,08	0,12	0,16	0,16	0,16	0,16	
0,2	0,02	0,03	0,05	0,06	0,12	0,14	0,16	0,16	0,16	0,16
0,5	0,020	0,02	0,04	0,06	0,10	0,12	0,12	0,12	0,12	0,16
1	0,020	0,02	0,03	0,05	0,07	0,10	0,10	0,10	0,10	0,12
2	0,016	0,024	0,024	0,040	0,064	0,088	0,096	0,10	0,10	0,12

C Material groups ISO N and ISO O

	Feed per tooth f_z [mm]									
a_e [mm]*	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm
0,01	0,13	0,20	0,26	0,33	0,33	0,44				
0,05	0,09	0,15	0,22	0,26	0,33	0,44				
0,1	0,077	0,11	0,18	0,22	0,33	0,44	0,44	0,44	0,44	
0,2	0,07	0,09	0,13	0,18	0,33	0,40	0,44	0,44	0,44	0,44
0,5	0,055	0,07	0,11	0,15	0,26	0,33	0,33	0,33	0,33	0,44
1	0,055	0,07	0,09	0,13	0,20	0,26	0,26	0,26	0,26	0,33
2	0,044	0,066	0,066	0,110	0,176	0,242	0,264	0,26	0,26	0,33

D f / rev table

	Feed per revolution f [mm]				
Line	M6 Ø 5,0 mm	M8 Ø 6,75 mm	M10 Ø 8,5 mm	M12 Ø 10,25 mm	M16 Ø 14,0 mm
1	0,06	0,085	0,11	0,135	0,16
2	0,08	0,09	0,1	0,11	0,12
3	0,15	0,175	0,2	0,225	0,25
4	0,2	0,225	0,25	0,275	0,3

* Radial feed in mm.
The specified feed rates are average recommended values.
For specific applications, adjustment is recommended.

Coatings and surface treatments

nit	**Nitriding ...** **...** improves wear resistance by increasing surface hardness.
vap	**Vaporisation/steam treatment ...** **...** improves the adhesion of the cooling lubricant to prevent cold welding. Application especially in stainless steels.
nid	**Nitriding + steam treatment ...** **...** extends tool life in the machining of grey cast iron.
TiN	**Titanium nitride ...** **...** is currently the most widely used and its application is practically universal. By comparison with other thin layers, does not always deliver the longest tool life. Due to its chemical affinity, TiN usually offers no benefits in the machining of titanium.
TiN/ vap	**Titanium nitride + vaporised ...** **...** flutes significantly improve chip formation in comparison with fully TiN-coated tools, which, particularly in conjunction with high spiral blind hole taps, is important in the production of relatively deep threads not only in steels, but also in aluminium. The TiN/vap combination is used for Paradur® Synchrospeed and Paradur® Short Chip products as standard, as well as for a variety of special tools.
TiCN	**Titanium carbon nitride ...** **...** is harder than TiN (approximately 3,000 HV to 2,300 HV), but has slightly less temperature resistance (approximately 400 to 600 °C). It is beneficial in the machining of abrasive materials. TiCN is particularly suitable for grey cast iron and AlSi alloys with an Si content higher than 5 %. Highly universal layer for thread milling.
CRN	**Chromium nitride ...** **...** reduces weld formation in the case of Cu alloys and Al alloys in a similar way to hard chromium. However, it is approximately 650 HV harder and therefore has a higher wear resistance to more abrasive materials.
TAFT	**Titanium aluminium nitride ...** **...** is used as part of a TAFT multilayer system on taps or, in the THL layer, as the base layer underneath the soft material layer of tungsten carbide/carbon (WC/C).
ACN	**Aluminium chromium nitride ...** **...** is a titanium-free hard layer suitable not only for the machining of titanium alloys, but also for thread cutting and forming in cold extrusion steels.
TAX	**Titanium aluminium nitride ...** **...** is used exclusively for thread milling. The TAX layer is used where a high degree of temperature resistance is required, e.g. in the machining of hardened steels.
THL	**Hardlube ...** **...** is a tried-and-tested solution for dry machining or minimum quantity lubrication. It also delivers outstanding performance in the machining of stainless steels with emulsion. THL is generally compatible with almost any kind of steel material. Chip formation is improved in comparison with TiN and TiCN, which is an important advantage particularly in the machining of relatively deep blind holes in long-chipping materials.
NHC	**New Hard Carbon ...** **...** is a carbon coating. It has a hardness of over 5,000 HV, which makes it comparable to diamond. This coating is used primarily for composite materials and non-ferrous metals and reduces both adhesion and abrasion.

CONTENTS

Milling

E

Walter Select for milling

Step by step to the correct tool

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	P1–P15	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	M1–M3	**Stainless steel**	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	K1–K7	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	N1–N10	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	S1–S10	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	H1–H4	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	O1–O6	**Other**	Plastics, glass- and carbon-fibre reinforced plastics, graphite

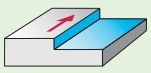
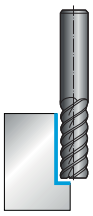
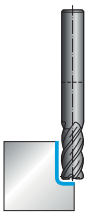
STEP 2

Select the **machining conditions:**

Machine stability, clamping system and workpiece		
very good	**good**	**moderate**
		

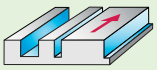
STEP 3

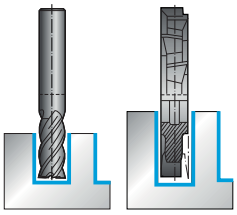
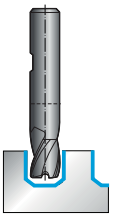
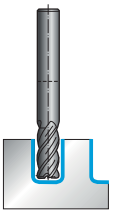
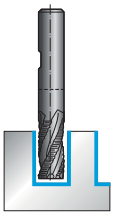
Select your **machining method** based on the main categories and subcategories and then go to the relevant tool overview page.

Shoulder milling	
	
Shoulder milling without corner radius	**Shoulder milling with corner radius**
	
E-6	**E-10**

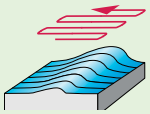
STEP 3
(continued)

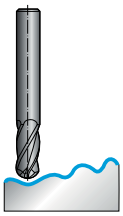
Shoulder/slot milling



Shoulder/slot milling without corner radius	Shoulder/slot milling with chamfer	Shoulder/slot milling with corner radius	Shoulder/slot milling with roughing profile
			
E-14	E-22	E-25	E-33

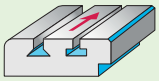
Copy milling

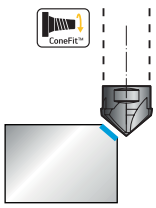
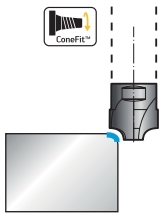
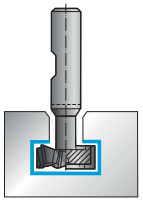
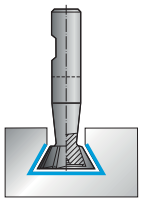




E-60

Profile milling



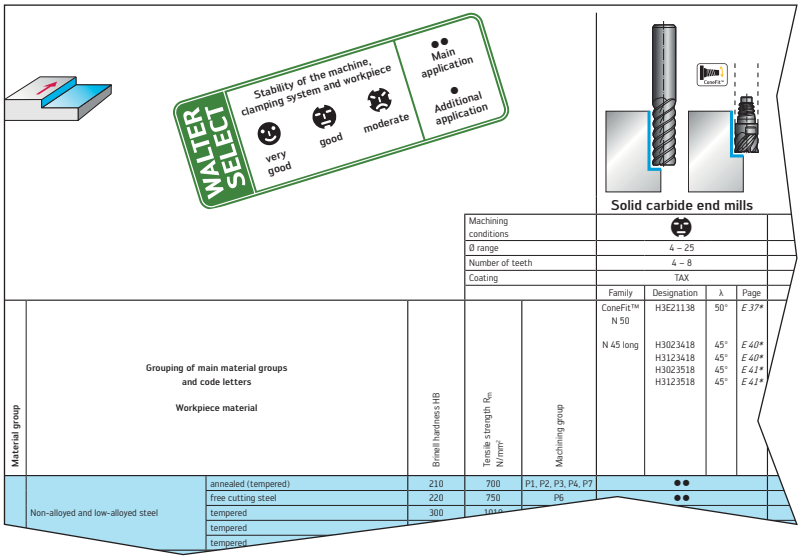
Chamfering and deburring	Corner rounding	T-slot milling	Dovetail milling
			
E-74	E-75	E-76	E-79

Walter Select for milling

Step by step to the correct tool

STEP 4

Select the appropriate tool for your **machining conditions** and then go to the ordering page.



Machining conditions							
Ø range	4 – 25						
Number of teeth	4 – 8						
Coating	TAX						
					Family	Designation	λ	Page
					CoreFit™ N 50	H3E21138	50°	*E 37**
					N 45 long	H3023418	45°	*E 40**
						H3123418	45°	*E 40**
						H3023518	45°	*E 41**
						H3123518	45°	*E 41**

Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group
	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7
		free cutting steel	220	750	P6
		tempered	300	1010	
		tempered			
		tempered			

STEP 5

Based on the **material group** to be machined, look for the appropriate **cutting speed** by referring to **a_e to D_c from page E-84 onwards** and also the **feed group**.

Material group	Grouping of main material groups and code letters / Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Ø 6 – 25 / Z = 6 – 8 / TAX a_e / D_c 1/2	1/4	1/10	VT
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		240	290	A
		C > 0.25...≤ 0.55%	annealed	190	639	P2		230	280	A
		C > 0.25...≤ 0.55%	tempered	210	708	P3		200	240	A
		C > 0.55%	annealed	190	639	P4		200	240	A
		C > 0.55%	tempered	300	1013	P5		140	170	A
		free cutting steel (short-chipping)	annealed	220	745	P6		200	240	A
	Low-alloyed steel	annealed		175	591	P7		200	240	A
		tempered		300	1013	P8		140	170	A
		tempered		380	1282	P9		120	140	A
		tempered		430	1477	P10		100	120	A
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		200	240	A
		hardened and tempered		300	1013	P12		140	170	A
		hardened and tempered		400	1361	P13		100	120	A
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		70	80	A
		martensitic, tempered		330	1114	P15		50	60	A
M	Stainless steel	austenitic, quench hardened		200	675	M1		80	100	B
		austenitic, precipitation hardened (PH)		300	1013	M2		50	60	B
		austenitic/ferritic, duplex		230	778	M3		70	80	B
K	Malleable cast iron	ferritic		200	675	K1				
		pearlitic		260	867	K2				
	Grey cast iron	Low tensile strength		180	602	K3				
		high tensile strength/austenitic		245	825	K4				
	Cast iron with spheroidal graphite	ferritic		155	518	K5				
		pearlitic		265	885	K6				
	GGV (CGI)			200	675	K7				
N	Aluminium wrought alloys	cannot be hardened		30	–	N1				
		hardenable, hardened		100	343	N2				
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3				
		≤ 12% Si, hardenable, hardened		90	314	N4				
		> 12% Si, cannot be hardened		130	447	N5				
	Magnesium alloys			70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7				
		brass, bronze, red brass		90	314	N8				
		Cu-alloys, short-chipping		110	382	N9				
		high-strength, Ampco		300	1013	N10				

STEP 6

Based on the feed group, determine the correct **feed value (page E-92)** for your **operation conditions**.

D Protostar® Flash ISO-P, M, K, N, S, O

Feed per tooth f_z [mm]

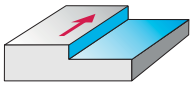
a_e [mm]*	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm
0,8	0,07	0,10									
1,5	0,07	0,10	0,16	0,25							
3	0,07	0,10	0,16	0,25	0,30						
5		0,10	0,16	0,25	0,30	0,35					
6			0,16	0,25	0,30	0,35	0,40	0,50	0,60		
8				0,25	0,30	0,35	0,40	0,50	0,60	0,70	0,70
10					0,30	0,35	0,40	0,50	0,60	0,70	0,70
12							0,40	0,50	0,60	0,70	0,70
14							0,40	0,50	0,60	0,70	0,70
16								0,50	0,60	0,70	0,70
18									0,60	0,70	0,70
20										0,70	0,70
25											0,70

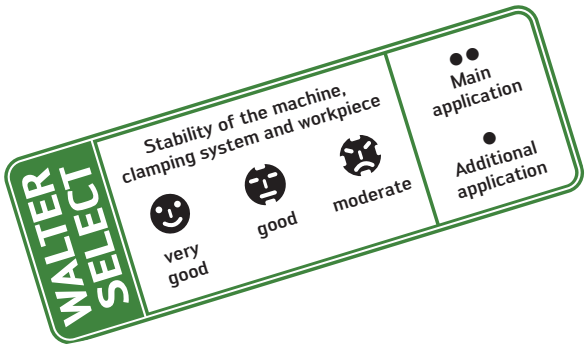
E Protostar® Flash ISO-H

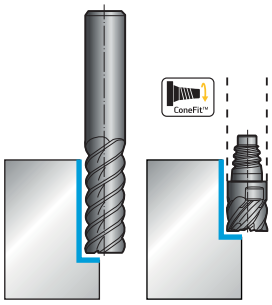
Feed per tooth f_z [mm]

a_e [mm]*	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm
0,8	0,05	0,08									
1,5	0,05	0,08	0,13	0,20							
	0,05	0,08	0,13								

Walter Select – Shoulder milling without corner radius
Solid carbide shank cutters



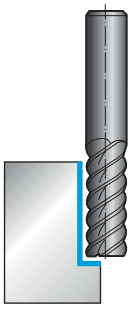




Solid carbide end mills

					Machining conditions		●●		
					Ø range		4 – 25		
					Number of teeth		4 – 8		
					Coating		TAX		
						Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	ConeFit™ N 50	H3E21138	50°	*E 37**
						N 45 long	H3023418	45°	*E 40**
							H3123418	45°	*E 40**
							H3023518	45°	*E 41**
							H3123518	45°	*E 41**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●			
		free cutting steel	220	750	P6	●●			
		tempered	300	1010	P5, P8	●●			
		tempered	380	1280	P9	●●			
		tempered	430	1480	P10	●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●			
		hardened and tempered	300	1010	P12	●●			
		hardened and tempered	400	1360	P13	●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●			
		martensitic, tempered	330	1110	P15	●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●			
		austenitic, precipitation hardened (PH)	300	1010	M2	●			
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	3 – 25				3 – 25				2 – 25				2 – 20			
	4 – 6				4 – 16				4 – 6				4			
	TAX				TAX				TAX				uncoated			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	N 50	H3021138	50°	*E 37**	Ultra H 50	H8083128	50°	*E 38**	N 60	H3024148	60°	*E 36**	N 30	H302211	30°	*E 43**
					Ultra H 30 (48–63 HRC)	H3178128	30°	*E 46**	N 45	H3023118	45°	*E 39**				
										H3123118	45°	*E 39**				
									HSC 30	H3093418	30°	*E 45**				
									N 30	H3022018	30°	*E 42**				
										H3122018	30°	*E 42**				
										H3022118	30°	*E 43**				
										H3122118	30°	*E 43**				
										H3058917	30°	*E 44**				
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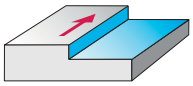
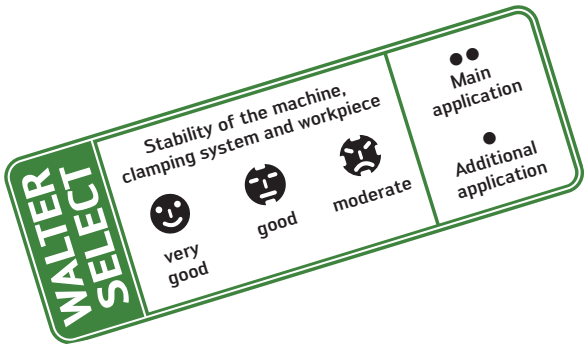
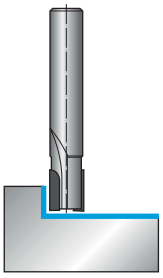
Walter Select – Shoulder milling without corner radius
PCD end mill





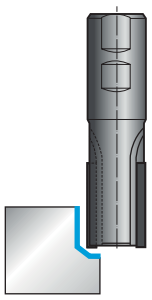


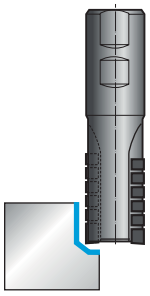
PCD end mill

					Machining conditions				
					Ø range		6 – 20		
					Number of teeth		2		
					Coating		PCD		
						Family	Designation	λ	Page
						PCD shoulder mills	F4722	0°	*E 52**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7				
		free cutting steel	220	750	P6				
		tempered	300	1010	P5, P8				
		tempered	380	1280	P9				
		tempered	430	1480	P10				
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11				
		hardened and tempered	300	1010	P12				
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14				
		martensitic, tempered	330	1110	P15				
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●			
		hardenable, hardened	100	340	N2	●●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●			
		> 12% Si	130	450	N5	●●			
	Magnesium alloys		70	250	N6	●●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●			
		brass, bronze, red brass	90	310	N8	●●			
		Cu-alloys, short-chipping	110	380	N9	●●			
		high-strength, Ampco	300	1010	N10	●●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

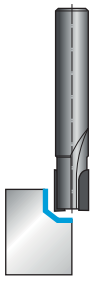
** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Shoulder milling with facet
Helical milling cutters, porcupine cutters, PCD end mills





Brazed end mills



PCD end mill

	16 – 100				16 – 100				20 – 40				50 – 125			
	3 – 8				1 – 4				4 + 5				5 – 8			
	uncoated				uncoated				PCD				PCD			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Helical milling cutters	F1675 F1676 F1677 F1678 F1682		*E 53** *E 55** *E 54** *E 54** *E 54**	Porcupine cutter	F1375 F1605 F1616	0°	*E 53** *E 53** *E 53**	PCD shoulder mills	F4722	0°	*E 52**	PCD face milling cutters	F4723	0°	*E 56**
	●●				●●											
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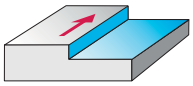
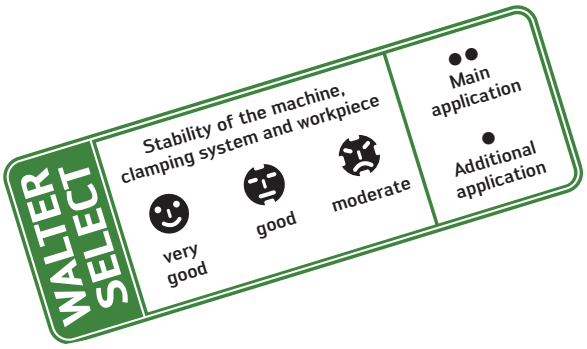
Walter Select – Shoulder milling with corner radius
Solid carbide shank cutters

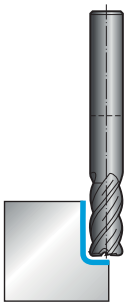




Solid carbide end mills

			Machining conditions						
			Ø range				10 – 25 NEW		
			Number of teeth				6 – 8		
			Coating				TAX		
						Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	ConeFit™ N 50	H3E23138	50°	E-12
						N 50	H3023138	50°	E-13
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●			
		free cutting steel	220	750	P6	●●			
		tempered	300	1010	P5, P8	●●			
		tempered	380	1280	P9	●●			
		tempered	430	1480	P10	●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●			
		hardened and tempered	300	1010	P12	●●			
		hardened and tempered	400	1360	P13	●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●			
		martensitic, tempered	330	1110	P15	●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●			
		austenitic, precipitation hardened (PH)	300	1010	M2	●			
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	3 – 20				16 – 25				4 – 16				0,4 – 3			
	4 – 8				4 – 5				4				2			
	TAX				ACN				TAX				uncoated			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Ultra H 50 (48–63 HRC)	H8082228	50°	*E 48**	Ti 45	H7073417	45°	*E 49**	HSC 30	H8018718	30°	*E 50**	Mini HSC 30	H404491	30°	*E 51**
									Mini HSC 30	H4044918	30°	*E 51**				
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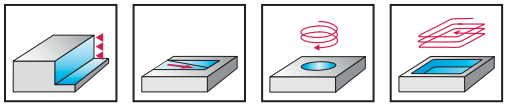
End mills with corner radius
Protostar® N 50

Materials to 48 HRC



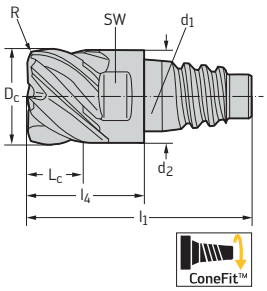
- VHM
- 6 to 8 cutting edges
- Without centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.1 \times D_c$
Shoulder milling: $a_e \leq 0.1 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●					

P standard

ConeFit™



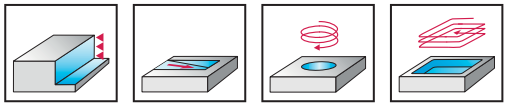
D_c h9 mm	R mm	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1	Z	TAX Designation H3E23138
10	0,5	5,5	9,7	23,6	12,4	8	E10	6	-E10-10-0.5
10	1	5,5	9,7	23,6	12,4	8	E10	6	-E10-10-1
12	0,5	6,5	11,7	28,3	14,5	10	E12	6	-E12-12-0.5
12	1	6,5	11,7	28,3	14,5	10	E12	6	-E12-12-1
12	1,5	6,5	11,7	28,3	14,5	10	E12	6	-E12-12-1.5
12	2	6,5	11,7	28,3	14,5	10	E12	6	★ -E12-12-2
16	0,5	8,5	15,5	35,7	18,7	12	E16	6	-E16-16-0.5
16	1	8,5	15,5	35,7	18,7	12	E16	6	-E16-16-1
16	1,5	8,5	15,5	35,7	18,7	12	E16	6	-E16-16-1.5
16	2	8,5	15,5	35,7	18,7	12	E16	6	-E16-16-2
20	1	11	19,3	40,8	21,3	16	E20	8	-E20-20-1
20	1,5	11	19,3	40,8	21,3	16	E20	8	-E20-20-1.5
20	2	11	19,3	40,8	21,3	16	E20	8	-E20-20-2
20	4	11	19,3	40,8	21,3	16	E20	8	-E20-20-4
25	1	13,5	24,2	49,6	25,6	20	E25	8	-E25-25-1
25	2	13,5	24,2	49,6	25,6	20	E25	8	-E25-25-2
25	4	13,5	24,2	49,6	25,6	20	E25	8	-E25-25-4

★ New addition to range

G-2 D 11 C 285 E-84

End mills with corner radius
Protostar® N 50

Materials to 48 HRC



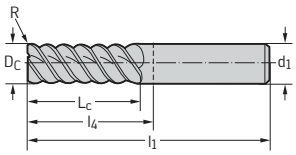
- VHM
- 6 to 8 cutting edges
- Without centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.1 \times D_c$
Shoulder milling: $a_e \leq 0.1 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●					

DIN 6527 L

Shank DIN 6535 HA

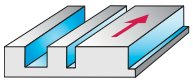


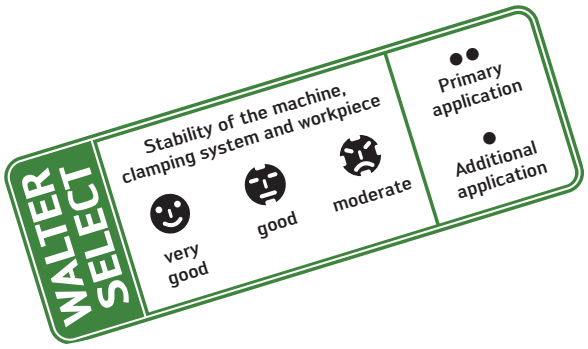
D_c h9 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 mm	Z	TAX Designation H3023138
6	0,5	13	57	21	6	6	★ -6-0.5
8	0,5	19	63	27	8	6	★ -8-0.5
8	1	19	63	27	8	6	★ -8-1
10	0,5	22	72	32	10	6	★ -10-0.5
10	1	22	72	32	10	6	★ -10-1
10	1,5	22	72	32	10	6	★ -10-1.5
10	2	22	72	32	10	6	★ -10-2
12	0,5	26	83	38	12	6	★ -12-0.5
12	1	26	83	38	12	6	★ -12-1
12	1,5	26	83	38	12	6	★ -12-1.5
12	2	26	83	38	12	6	★ -12-2
12	3	26	83	38	12	6	★ -12-3
16	0,5	32	92	44	16	6	★ -16-0.5
16	1	32	92	44	16	6	★ -16-1
16	2	32	92	44	16	6	★ -16-2
16	3	32	92	44	16	6	★ -16-3
16	4	32	92	44	16	6	★ -16-4
20	1	38	104	54	20	8	★ -20-1
20	2	38	104	54	20	8	★ -20-2
20	3	38	104	54	20	8	★ -20-3
20	4	38	104	54	20	8	★ -20-4
25	1	45	121	65	25	8	★ -25-1
25	2	45	121	65	25	8	★ -25-2
25	4	45	121	65	25	8	★ -25-4

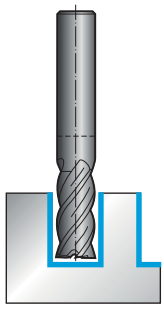
★ New addition to range

G-2 D 11 C 285 E-84

Walter Select – Shoulder/slot milling without corner radius
Solid carbide shank cutters



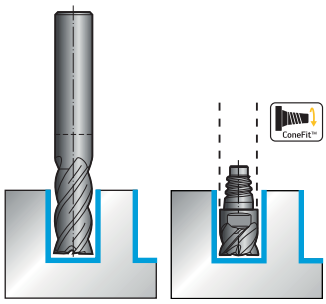




Solid carbide end mills

					Machining conditions		●●		
					Ø range		2 – 20	NEW	
					Number of teeth		3 + 4		
					Coating		TAZ		
							Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group		ConeFit™ Proto·max™$_{ST}$	H4E34217	50°	**E-38**
							Proto·max™$_{ST}$	H4034217	50°	**E-39**
								H4134217		**E-39**
								H4033217	45°	**E-40**
								H4133217		**E-40**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		●●			
		free cutting steel	220	750	P6		●●			
		tempered	300	1010	P5, P8		●●			
		tempered	380	1280	P9		●●			
		tempered	430	1480	P10		●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		●●			
		hardened and tempered	300	1010	P12		●●			
		hardened and tempered	400	1360	P13		●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		●●			
		martensitic, tempered	330	1110	P15		●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3		●			
		austenitic, precipitation hardened (PH)	300	1010	M2		●			
K	Grey cast iron		245	–	K3, K4					
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6					
	GGV (CGI)		200	–	K7					
N	Aluminium wrought alloys	cannot be hardened	30	–	N1					
		hardenable, hardened	100	340	N2					
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4					
		> 12% Si	130	450	N5					
	Magnesium alloys		70	250	N6					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7					
		brass, bronze, red brass	90	310	N8					
		Cu-alloys, short-chipping	110	380	N9					
		high-strength, Ampco	300	1010	N10					
S	Heat-resistant alloys	Fe-based	280	940	S1, S2					
		Ni or Co base	250	840	S3					
		Ni or Co base	350	1080	S4, S5					
	Titanium alloys	pure titanium	200	670	S6					
		α and β alloys, hardened	375	1260	S7					
		β alloys	410	1400	S8					
	Tungsten alloys		300	1010	S9					
	Molybdenum alloys		300	1010	S10					
H	Hardened steel		50 HRC	–	H1					
			55 HRC	–	H2, H4					
			60 HRC	–	H3					
O	Thermoplasts	without abrasive fillers			O1					
	Thermosetting plastics	without abrasive fillers			O2					
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5					
		CFRP			O4					
	Graphite (technical)			65	O6					

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	6 – 25 NEW				2 – 25				2 – 25 NEW				2 – 20			
	4 – 5				3 – 5				3 – 5				3 – 4			
	TAA				TAX				TAT				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	ConeFit™ Proto·max™ Inox	H2EC34217	50°	**E-41**	ConeFit™ Tough Guys N 50	H3E21317	50°	*E 85**	Proto·max™$_{TG}$	H3021178	50°	**E-43**	Tough Guys H 50 (48–63 HRC)	H3071118	50°	*E 90**
										H3021378	50°	**E-44**		H3071318	50°	*E 90**
										H3121378	50°	**E-44**		H3171318	50°	*E 90**
										H4121078	50°	**E-45**				
	Proto·max™	H2034217	35°/38°	**E-42**	Tough	H3021117	50°	*E 84**		H4121178	50°	**E-46**				
	Inox	H2134217		**E-42**	Guys N 50	H3021317	50°	*E 86**		H4121278	50°	**E-47**				
						H3121317	50°	*E 86**								
						H4021017	50°	*E 87**								
						H4121017	50°	*E 87**								
						H4021117	50°	*E 88**								
						H4121117	50°	*E 88**								
						H4021217	50°	*E 89**								
						H4121217	50°	*E 89**								
					●●				●●				●			
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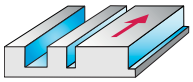
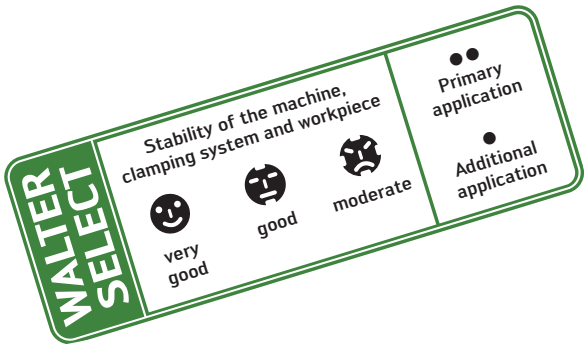
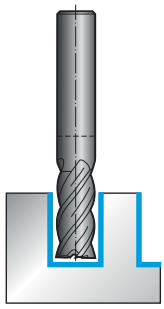
Walter Select – Shoulder/slot milling without corner radius
Solid carbide shank cutters



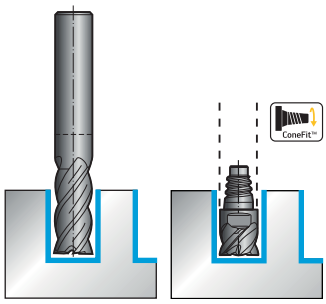




Solid carbide end mills

			Machining conditions			●●			
			Ø range			1 – 25			
			Number of teeth			2 – 3			
			Coating			TAX			
						Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	ConeFit™ N 45	H3E29148	45°	*E 94**
						45	H3029148	45°	*E 94**
							H3129148	45°	*E 95**
						30	H3026118	30°	*E 100**
							H3027118	30°	*E 101**
							H3027318	30°	*E 102**
							H3027418	30°	*E 103**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●			
		free cutting steel	220	750	P6	●●			
		tempered	300	1010	P5, P8	●●			
		tempered	380	1280	P9	●●			
		tempered	430	1480	P10	●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●			
		hardened and tempered	300	1010	P12	●●			
		hardened and tempered	400	1360	P13	●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●			
		martensitic, tempered	330	1110	P15	●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4	●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●			
	GGV (CGI)		200	–	K7	●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	1 – 20				6,3 – 16,5				1 – 20				1 – 25			
	3 – 5				2				1 – 3				2 – 3			
	TAX				TAX				uncoated				uncoated			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	N 45	H3013018	45°	*E 91**	HSC 30	H3090418	30°	*E 105**	AL 45	H602411	45°	*E 97**	ConeFit™	H6E2511	45°	*E 96**
		H3013118	45°	*E 91**						H602511	45°	*E 97**	AL 45	H6E2211		*E 98**
	45	H3014018	45°	*E 92**						H602551	45°	*E 99**				
		H3014118	45°	*E 92**									45	H302914	45°	*E 94**
		H3023018	45°	*E 93**					AL 30	H901411	30°	*E 106**		H312914	45°	*E 95**
										H901451	30°	*E 106**				
													N 30	H302611	30°	*E 100**
														H302711	30°	*E 101**
														H302731	30°	*E 102**
	●●				●●											
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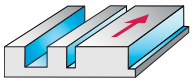
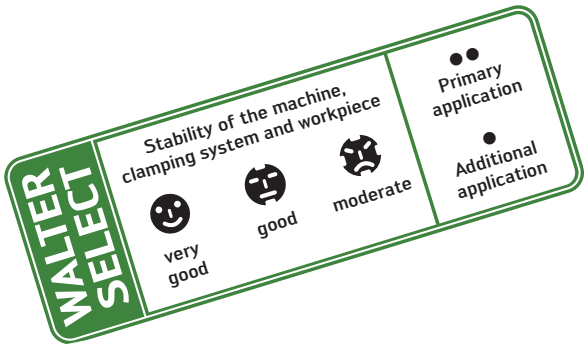
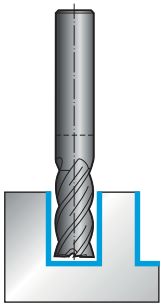
Walter Select – Shoulder/slot milling without corner radius
Solid carbide shank cutters





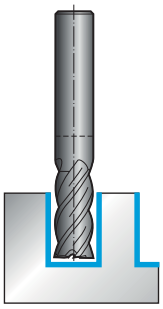


Solid carbide end mills

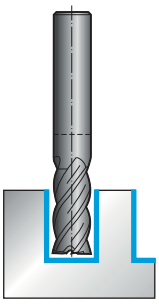
			Machining conditions						
			Ø range				1 – 16		
			Number of teeth				3		
			Coating				DIA		
						Family	Designation	λ	Page
						30	H3027419	30°	*E 104**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7				
		free cutting steel	220	750	P6				
		tempered	300	1010	P5, P8				
		tempered	380	1280	P9				
		tempered	430	1480	P10				
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11				
		hardened and tempered	300	1010	P12				
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14				
		martensitic, tempered	330	1110	P15				
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6	●●			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Shoulder/slot milling without corner radius
HSS end mills



Solid carbide end mills



HSS end mills

	2 – 20				3 – 25				2 – 50				1 – 32				
	2				3 – 8				2 – 8				2 – 8				
	uncoated				ACN				uncoated				ACN				
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	
	AL 25	H602641 H602681	25° 25°	*E 107** *E 107**	N 45 N 30	P3123117 P3122117 P3122317	45° 30° 30°	*E 108** *E 118** *E 120**	W 40 AL 40 AL 25	P312411 P312401 P602612 P612612 P602602 P612602 P632612	40° 40° 40° 40° 40° 40° 25°	*E 109** *E 109** *E 112** *E 112** *E 111** *E 111** *E 125**	N 45 N 30 30	P3123017 P3122017 P3106117 P3116127 P3117127	45° 30° 30° 30° 30°	*E 108** *E 116** *E 113** *E 115** *E 122**	
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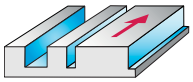
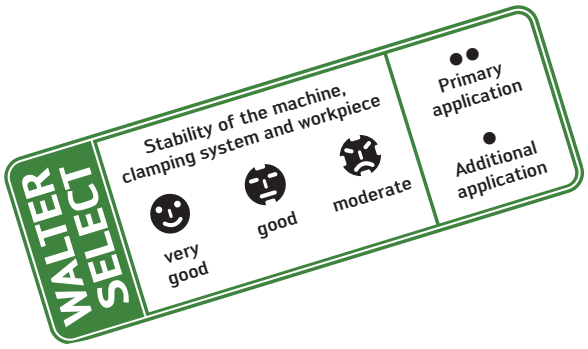
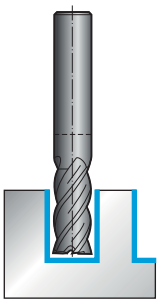
Walter Select – Shoulder/slot milling without corner radius
HSS end mills





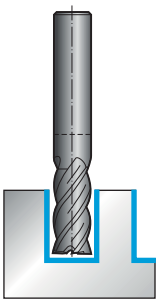


HSS end mills

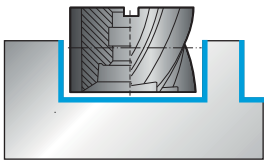
Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	Family	Designation	λ	Page
	Machining conditions						●		
	Ø range						1 – 50		
	Number of teeth						2 – 8		
	Coating						uncoated		
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	N 45 N 30	P312301 P302211	45° 30°	*E 108** *E 118**
		free cutting steel	220	750	P6		P312211	30°	*E 118**
		tempered	300	1010	P5, P8		P312221	30°	*E 120**
		tempered	380	1280	P9		P302201	30°	*E 116**
		tempered	430	1480	P10		P312201	30°	*E 116**
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	30	P302621	30°	*E 121**
		hardened and tempered	300	1010	P12		P311722	30°	*E 123**
		hardened and tempered	400	1360	P13		P300611	30°	*E 113**
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		P310611	30°	*E 113**
		martensitic, tempered	330	1110	P15		P301612	30°	*E 114**
M	Stainless steel	austenitic, duplex	230	780	M1, M3		P311712	30°	*E 122**
		austenitic, precipitation hardened (PH)	300	1010	M2		P312673	30°	*E 124**
K	Grey cast iron		245	–	K3, K4		P312771	30°	*E 124**
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1		●●		
		hardenable, hardened	100	340	N2		●●		
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4		●●		
		> 12% Si	130	450	N5		●●		
	Magnesium alloys		70	250	N6		●●		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7		●●		
		brass, bronze, red brass	90	310	N8		●●		
		Cu-alloys, short-chipping	110	380	N9		●●		
		high-strength, Ampco	300	1010	N10		●●		
S	Heat-resistant alloys	Fe-based	280	940	S1, S2		●●		
		Ni or Co base	250	840	S3		●●		
		Ni or Co base	350	1080	S4, S5		●●		
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7		●●		
		β alloys	410	1400	S8		●●		
	Tungsten alloys		300	1010	S9		●●		
	Molybdenum alloys		300	1010	S10		●●		
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Shoulder/slot milling without corner radius
HSS shell end mill



HSS end mills



Shell end mills

	2 – 20				40 – 100			
	3				8 – 12			
	ACN				uncoated			
	Family	Designation	λ	Page	Family	Designation	λ	Page
	Inox V 40	P4117027	40°	*E 110**	N 30	P020401	30°	*E 126**
					●●			
					●●			
					●●			
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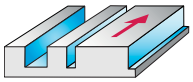
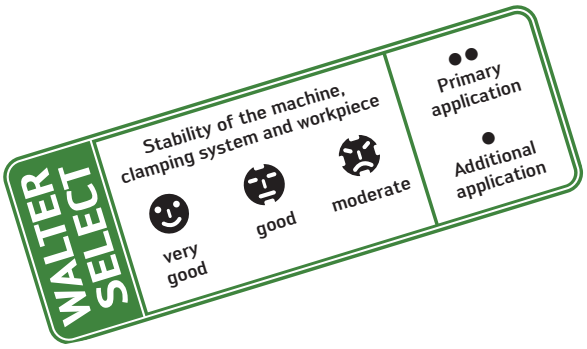
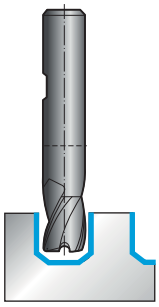
Walter Select – Shoulder/slot milling with facet
Solid carbide routing cutters





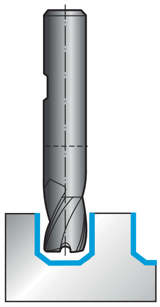


Solid carbide routing cutters

			Machining conditions			●			
			Ø range			2,8 – 16			
			Number of teeth			3 – 4			
			Coating			TAX			
						Family	Designation	λ	Page
						Tough Guys N 50	H3021217 H3121217	50° 50°	*E 128** *E 128**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●			
		free cutting steel	220	750	P6	●●			
		tempered	300	1010	P5, P8	●●			
		tempered	380	1280	P9	●●			
		tempered	430	1480	P10	●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●			
		hardened and tempered	300	1010	P12	●●			
		hardened and tempered	400	1360	P13	●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●			
		martensitic, tempered	330	1110	P15	●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●			
		austenitic, precipitation hardened (PH)	300	1010	M2	●			
K	Grey cast iron		245	–	K3, K4	●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●			
	GGV (CGI)		200	–	K7	●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6	●			
		α and β alloys, hardened	375	1260	S7	●			
		β alloys	410	1400	S8	●			
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Shoulder/slot milling with facet
Solid carbide and HSS routing cutters



Solid carbide routing cutters								HSS routing cutters							
1,8 – 20				1,8 – 20				1,8 – 30				1,8 – 40			
2 – 3				2 – 3				2 + 3				2 + 3			
TAX				uncoated				ACN				uncoated			
Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
30	H3115018	30°	*E 129**	30	H311501	30°	*E 129**	V 30	P3116027	30°	*E 133**	V 30	P311602	30°	*E 133**
	H3116018	30°	*E 129**		H311801	30°	*E 130**								
	H3117018	30°	*E 130**					U 30	P3116017	30°	*E 134**	U 30	P311601	30°	*E 134**
	H3118018	30°	*E 130**					30	P3117017	30°	*E 132**	30	P311701	30°	*E 132**
									P3117027	30°	*E 131**		P301702	30°	*E 131**
													P311702	30°	*E 131**

	Solid carbide TAX	Solid carbide uncoated	HSS ACN	HSS uncoated
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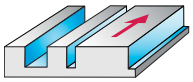
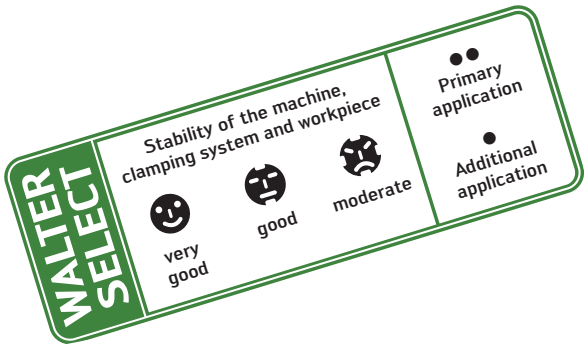
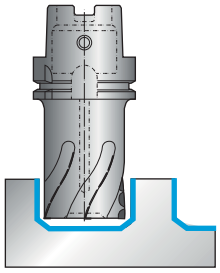
Walter Select – Shoulder/slot milling with facet PCD milling cutter





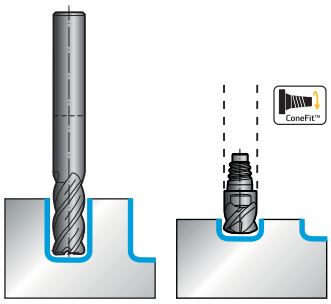


PCD milling cutter

					Machining conditions				
					Ø range		32 – 63		
					Number of teeth		2 + 2		
					Coating		PCD		
						Family	Designation	λ	Page
						PCD porcupine cutters	F4726	10°	*E 184**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7				
		free cutting steel	220	750	P6				
		tempered	300	1010	P5, P8				
		tempered	380	1280	P9				
		tempered	430	1480	P10				
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11				
		hardened and tempered	300	1010	P12				
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14				
		martensitic, tempered	330	1110	P15				
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●			
		hardenable, hardened	100	340	N2	●●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●			
		> 12% Si	130	450	N5	●●			
	Magnesium alloys		70	250	N6	●●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●			
		brass, bronze, red brass	90	310	N8	●●			
		Cu-alloys, short-chipping	110	380	N9	●●			
		high-strength, Ampco	300	1010	N10	●●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Shoulder/slot milling with corner radius
Solid carbide shank cutters



Solid carbide end mills

	2 – 20 NEW				6 – 20 NEW				4 – 20 NEW				4 – 20			
	3 + 4				4				3 + 4				3 + 4			
	TAZ				TAA				TAX				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	ConeFit™ Proto-max™ ST	H4E38217	50°	**E-48**	ConeFit™ Proto-max™ Inox	H2EC38217	50°	**E-51**	ConeFit™ Proto-max™ Inox with Flash geometry	H2EC94717	50°	**E-53**	Flash	H3094718	50°	*E 138**
	Proto-max™ ST	H4038217	45°	**E-49**												
		H4138217		**E-49**	Proto-max™ Inox	H2038217	35°/38°	**E-52**								
		H4036217		**E-50**		H2138217		**E-52**								
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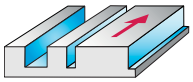
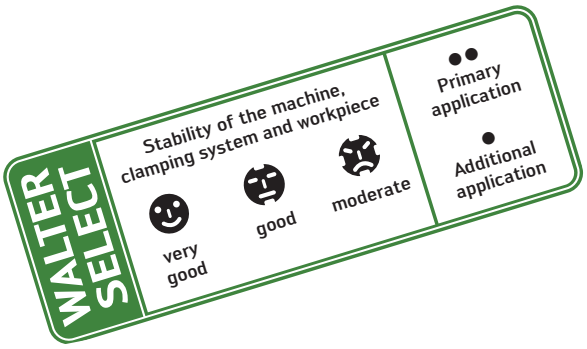
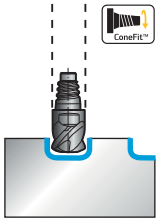
Walter Select – Shoulder/slot milling with corner radius
Solid carbide shank cutters



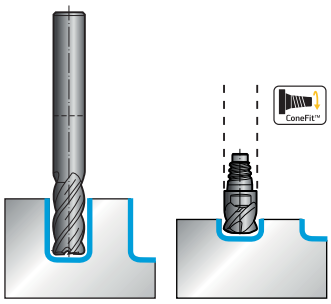




Solid carbide end mills

					Machining conditions				
					Ø range		10 – 25		
					Number of teeth		2 – 4		
					Coating		TAX		
							Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group		ConeFit™ Flash	H3E93718 H3E94718	50° 50°	*E 137**
							ConeFit™ Spade Flash	H1E92718	10°	**E-54**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		●●			
		free cutting steel	220	750	P6		●●			
		tempered	300	1010	P5, P8		●●			
		tempered	380	1280	P9		●●			
		tempered	430	1480	P10		●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		●●			
		hardened and tempered	300	1010	P12		●●			
		hardened and tempered	400	1360	P13		●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		●●			
		martensitic, tempered	330	1110	P15		●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3		●			
		austenitic, precipitation hardened (PH)	300	1010	M2		●			
K	Grey cast iron		245	–	K3, K4		●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6		●			
	GGV (CGI)		200	–	K7		●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1					
		hardenable, hardened	100	340	N2					
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4					
		> 12% Si	130	450	N5					
	Magnesium alloys		70	250	N6					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7					
		brass, bronze, red brass	90	310	N8					
		Cu-alloys, short-chipping	110	380	N9					
		high-strength, Ampco	300	1010	N10					
S	Heat-resistant alloys	Fe-based	280	940	S1, S2					
		Ni or Co base	250	840	S3					
		Ni or Co base	350	1080	S4, S5					
	Titanium alloys	pure titanium	200	670	S6					
		α and β alloys, hardened	375	1260	S7					
		β alloys	410	1400	S8					
	Tungsten alloys		300	1010	S9					
	Molybdenum alloys		300	1010	S10					
H	Hardened steel		50 HRC	–	H1		●			
			55 HRC	–	H2, H4		●			
			60 HRC	–	H3					
O	Thermoplasts	without abrasive fillers			O1					
	Thermosetting plastics	without abrasive fillers			O2					
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5					
		CFRP			O4					
	Graphite (technical)			65	O6					

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	4 – 20				6 – 25				10 – 16 NEW				10 – 25			
	4				2 + 3				2				3 + 4			
	TAX				uncoated				TAX				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Flash (48–63 HRC)	H3094728	50°	*E 139**	Sky·tec™ AL 30	H602091	30°	*E 158**	ConeFit™ Spade N 10	H1E12018	10°	**E-56**	ConeFit™ Tough Guys N 50	H3E20317	50°	*E 141**
					Sky·tec™ AL 25	H602691	25°	*E 159**								
					AL 25	H6028818	25°	*E 160**								
										●●				●●		
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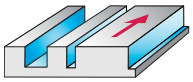
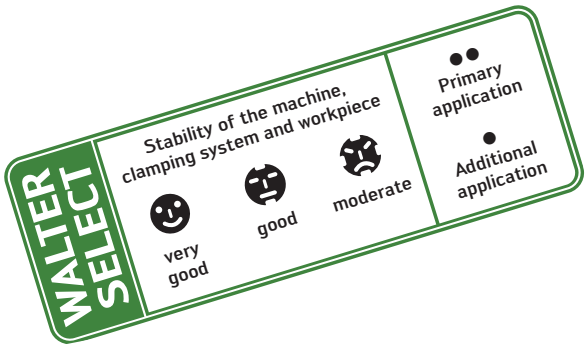
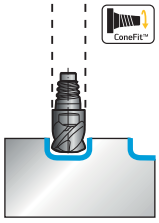
Walter Select – Shoulder/slot milling with corner radius
Solid carbide shank cutters



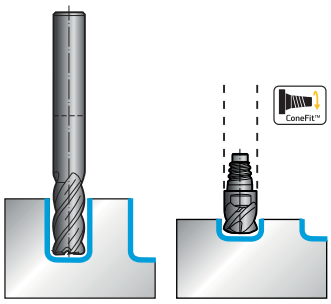




Solid carbide end mills

					Machining conditions				
					Ø range		10 – 12	NEW	
					Number of teeth		4		
					Coating		DIA		
							Family	Designation	λ	Page
							ConeFit™ N 50	H3E20419	50°	**E-55**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group					
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7					
		free cutting steel	220	750	P6					
		tempered	300	1010	P5, P8					
		tempered	380	1280	P9					
		tempered	430	1480	P10					
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11					
		hardened and tempered	300	1010	P12					
		hardened and tempered	400	1360	P13					
	Stainless steel	ferritic/martensitic, annealed	200	670	P14					
		martensitic, tempered	330	1110	P15					
M	Stainless steel	austenitic, duplex	230	780	M1, M3					
		austenitic, precipitation hardened (PH)	300	1010	M2					
K	Grey cast iron		245	–	K3, K4					
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6					
	GGV (CGI)		200	–	K7					
N	Aluminium wrought alloys	cannot be hardened	30	–	N1					
		hardenable, hardened	100	340	N2					
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4					
		> 12% Si	130	450	N5					
	Magnesium alloys		70	250	N6					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7					
		brass, bronze, red brass	90	310	N8					
		Cu-alloys, short-chipping	110	380	N9					
		high-strength, Ampco	300	1010	N10					
S	Heat-resistant alloys	Fe-based	280	940	S1, S2					
		Ni or Co base	250	840	S3					
		Ni or Co base	350	1080	S4, S5					
	Titanium alloys	pure titanium	200	670	S6					
		α and β alloys, hardened	375	1260	S7					
		β alloys	410	1400	S8					
	Tungsten alloys		300	1010	S9					
	Molybdenum alloys		300	1010	S10					
H	Hardened steel		50 HRC	–	H1					
			55 HRC	–	H2, H4					
			60 HRC	–	H3					
O	Thermoplasts	without abrasive fillers			O1					
	Thermosetting plastics	without abrasive fillers			O2					
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5					
		CFRP			O4					
	Graphite (technical)			65	O6		●●			

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	2 – 20				0,6 – 12				1 – 25				12 – 25			
	3 + 4				2 + 4				2 + 3				4			
	TAX				TAX				uncoated + CRN				ACN			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Tough Guys	H3020117	50°	*E 140**	HSC 30	H8008818	30°	*E 153**	ConeFit™	H6E2311	45°	*E 150**	Ti 40	H7073717	40°	*E 160**
	N 50	H3020317	50°	*E 142**		H8008918	30°	*E 154**	AL 45							
		H3120317	50°	*E 142**		H8095918	30°	*E 156**				*E 150**				
		H4020017	50°	*E 143**					AL 45	H602311	45°	*E 150**				
		H4120017	50°	*E 144**						H6023114						
		H4020117	50°	*E 145**								*E 160**				
		H4120117	50°	*E 146**					AL 25	H602881	25°					
	45	H4129318	45°	*E 149**												
	●●				●●											
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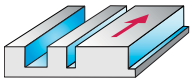
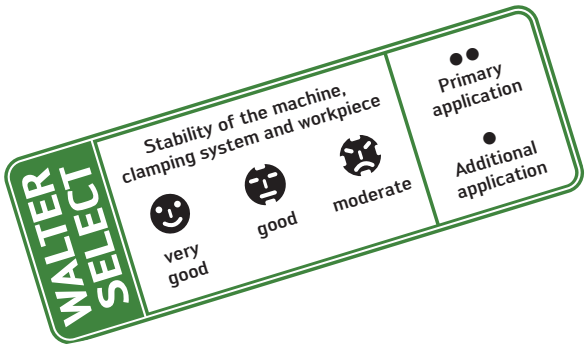
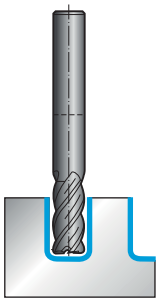
Walter Select – Shoulder/slot milling with corner radius
Solid carbide shank cutters



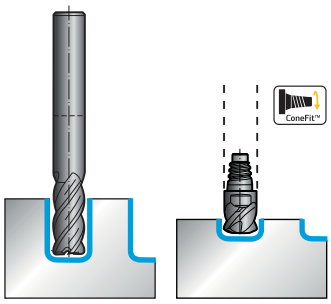




Solid carbide end mills

			Machining conditions			☹			
			Ø range			0,6 – 12			
			Number of teeth			2			
			Coating			uncoated			
						Family	Designation	λ	Page
						HSC 30	H800881 H800891	30° 30°	*E 153** *E 154**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7				
		free cutting steel	220	750	P6				
		tempered	300	1010	P5, P8				
		tempered	380	1280	P9				
		tempered	430	1480	P10				
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11				
		hardened and tempered	300	1010	P12				
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14				
		martensitic, tempered	330	1110	P15				
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●			
		hardenable, hardened	100	340	N2	●●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●			
		> 12% Si	130	450	N5	●●			
	Magnesium alloys		70	250	N6	●●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●			
		brass, bronze, red brass	90	310	N8	●●			
		Cu-alloys, short-chipping	110	380	N9	●●			
		high-strength, Ampco	300	1010	N10	●●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

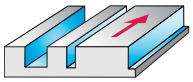
** The pages indicated in italics refer to the Walter General catalogue 2012.*

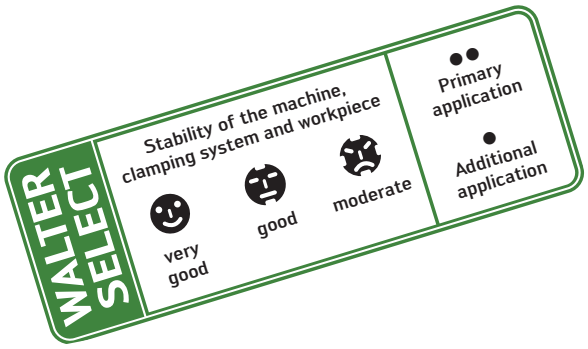


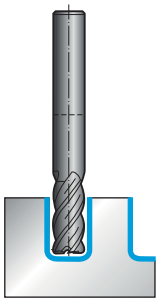
Solid carbide end mills

	2 – 20				2 – 16				4 – 12				0,4 – 3			
	4				2 – 4				2 – 4				2			
	TAX				TAX				DIA				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Tough Guys H 50 (48–63 HRC)	H3070118 H3070318 H3170318	50° 50° 50°	*E 147** *E 147** *E 148**	HSC 30 (48–63 HRC)	H8005728 H8005928 H8015728 H8015828	30°	*E 152** *E 152** *E 155** *E 155**	HSC 30	H8095919	30°	*E 157**	Mini HSC 30	H4044928 H8005828	30°	*E 163** *E 163**
					●●									●●		
		●														
		●●				●●								●●		
		●●				●●								●●		
		●●				●●								●●		
										●						
										●						
										●●						

Walter Select – Shoulder/slot milling with corner radius
Solid carbide shank cutters





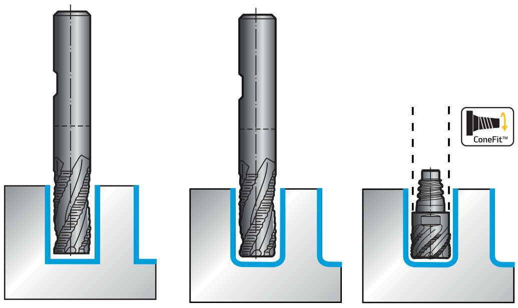


Solid carbide end mills

					Machining conditions				
					Ø range	0,4 – 3			
					Number of teeth	2			
					Coating	DIA			
						Family	Designation	λ	Page
						Mini HSC 30	H4044919	30°	*E 162**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7				
		free cutting steel	220	750	P6				
		tempered	300	1010	P5, P8				
		tempered	380	1280	P9				
		tempered	430	1480	P10				
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11				
		hardened and tempered	300	1010	P12				
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14				
		martensitic, tempered	330	1110	P15				
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6	●●			

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Shoulder/slot milling with roughing profile
Solid carbide roughing milling cutters



Solid carbide roughing milling cutters

	Group 1				Group 2				Group 3				Group 4			
	2 – 25 NEW				5 – 25 NEW				6 – 25				6 – 25			
	5 – 8				3 + 4				3				4			
	TAX				TAX				uncoated				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	ConeFit™ HR Kordel F 45	H3E85378	45°	E 164*	ConeFit™ HR Kordel F 40	H3E82378	40°	**E-57**	AL Kordel G 40	H608411	40°	E 168*	HNR Kordel F 30	H3180278	30°	E 170*
										H608771	40°	E 168*		H4180378		E 170*
										H608871	40°	E 169*				
	HR Kordel F 45	H3185378	45°	**E-58**						H618911	40°	E 169*				
		H3186378			HR Kordel F 40	H3182378	40°	E 167*								
						H3183378	40°	**E-59**								
						H4189278	40°	E 167*								
						H4189378	40°	E 167*								
					HR Kordel F 30	H3187278	30°	E 171*								

	Group 1	Group 2	Group 3	Group 4
	●●	●		●●
	●●	●		●●
	●●	●		●●
	●●	●		●●
	●●	●		●●
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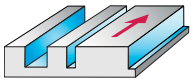
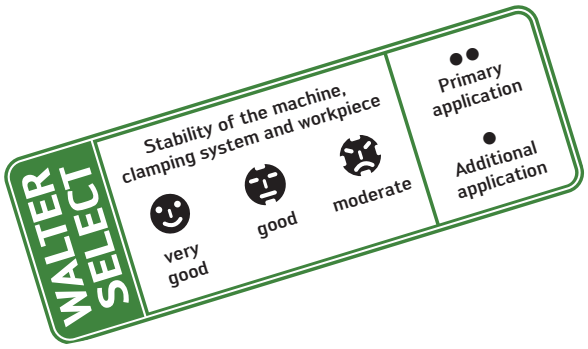
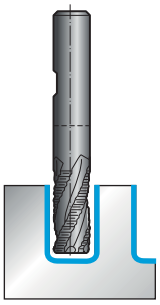
			●	

Walter Select – Shoulder/slot milling with roughing profile
Solid carbide roughing milling cutters





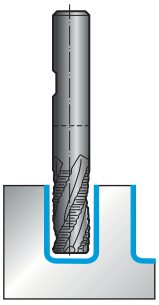


Solid carbide roughing milling cutters

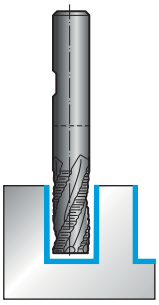
					Machining conditions	☺				
					Ø range	16 – 25				
					Number of teeth	3				
					Coating	uncoated + CRN				
						Family	Designation	λ	Page	
						Sky·tec™ AL Rapax G 30	H608391 H6083914	30° 30°	*E 173** *E 173**	
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group					
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7					
		free cutting steel	220	750	P6					
		tempered	300	1010	P5, P8					
		tempered	380	1280	P9					
		tempered	430	1480	P10					
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11					
		hardened and tempered	300	1010	P12					
		hardened and tempered	400	1360	P13					
	Stainless steel	ferritic/martensitic, annealed	200	670	P14					
		martensitic, tempered	330	1110	P15					
M	Stainless steel	austenitic, duplex	230	780	M1, M3					
		austenitic, precipitation hardened (PH)	300	1010	M2					
K	Grey cast iron		245	–	K3, K4					
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6					
	GGV (CGI)		200	–	K7					
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●				
		hardenable, hardened	100	340	N2	●●				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●				
		> 12% Si	130	450	N5	●●				
	Magnesium alloys		70	250	N6	●●				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●				
		brass, bronze, red brass	90	310	N8	●●				
		Cu-alloys, short-chipping	110	380	N9	●●				
		high-strength, Ampco	300	1010	N10	●●				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2					
		Ni or Co base	250	840	S3					
		Ni or Co base	350	1080	S4, S5					
	Titanium alloys	pure titanium	200	670	S6					
		α and β alloys, hardened	375	1260	S7					
		β alloys	410	1400	S8					
	Tungsten alloys		300	1010	S9					
	Molybdenum alloys		300	1010	S10					
H	Hardened steel		50 HRC	–	H1					
			55 HRC	–	H2, H4					
			60 HRC	–	H3					
O	Thermoplasts	without abrasive fillers			O1	●				
	Thermosetting plastics	without abrasive fillers			O2	●				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5					
		CFRP			O4					
	Graphite (technical)			65	O6					

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Shoulder/slot milling with roughing profile
HSS roughing milling cutters



Solid carbide roughing milling cutters



HSS roughing milling cutters

	6 – 25				6 – 32				6 – 32				6 – 50			
	4				3 – 6				4 – 6				3 – 6			
	ACN				ACN				ACN				uncoated			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Ti NS 30	H3083017	30°	*E 172**	FS 45	P3123087	45°	*E 174**	NF Rapax G 30	P3121017	30°	*E 180**	NRA Kordel G 35	P312001	35°	*E 177**
		H3183017	30°	*E 172**										P312011	35°	*E 177**
					NRA Kordel G 35	P3120017	35°	*E 177**	HR Kordel F 30	P3120387	30°	*E 179**				
						P3120117	35°	*E 177**		P3128417	30°	*E 179**	HRA Kordel F 35	P312021	35°	*E 175**
														P312028	35°	*E 175**
					HRA Kordel F 35	P3120217	35°	*E 175**	HNR Kordel F 30	P3120537	30°	*E 178**				
						P3120287	35°	*E 175**		P3120937	30°	*E 178**	NR Kordel G 30	P352011	30°	*E 182**
						P4110217	35°	*E 175**								
													NF Rapax G 30	P312111	30°	*E 180**
					NR Kordel G 30	P3120717	30°	*E 181**								
					●●				●●				●			
					●●				●●				●			
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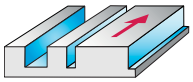
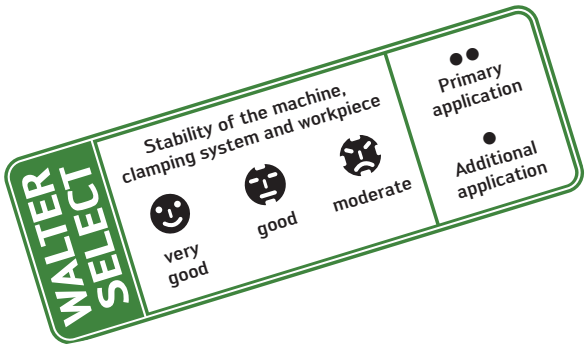
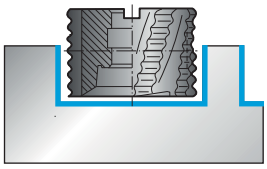
Walter Select – Shoulder/slot milling with roughing profile
HSS shell end mill



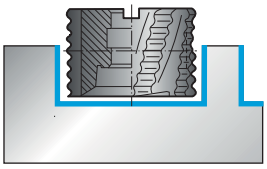




HSS shell end mill

					Machining conditions				
					Ø range		40 – 100		
					Number of teeth		6 – 12		
					Coating		TiCN		
						Family	Designation	λ	Page
						HR Kordel F 25	P0201016	25°	*E 183**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●			
		free cutting steel	220	750	P6	●●			
		tempered	300	1010	P5, P8	●●			
		tempered	380	1280	P9	●●			
		tempered	430	1480	P10	●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●			
		hardened and tempered	300	1010	P12	●●			
		hardened and tempered	400	1360	P13	●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●			
		martensitic, tempered	330	1110	P15	●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●			
		austenitic, precipitation hardened (PH)	300	1010	M2	●			
K	Grey cast iron		245	–	K3, K4	●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●			
	GGV (CGI)		200	–	K7	●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●			
		hardenable, hardened	100	340	N2	●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●			
		> 12% Si	130	450	N5	●			
	Magnesium alloys		70	250	N6	●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●			
		brass, bronze, red brass	90	310	N8	●			
		Cu-alloys, short-chipping	110	380	N9	●			
		high-strength, Ampco	300	1010	N10	●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*



HSS shell end mill

	40 – 100
	6 – 12
	uncoated

Family	Designation	λ	Page
HR Kordel F 25	P020101	25°	*E 183**

	●
	●
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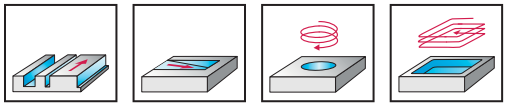
	●

End mills
Proto·max™ST

Materials to 52 HRC



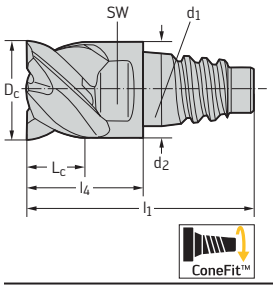
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.47 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAZ	●●	●					

P standard

ConeFit™



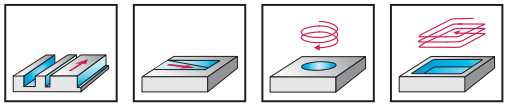
D_c h_{10} mm	L_c mm	l_4 mm	d_2 mm	l_1 mm	SW mm	d_1	Z	TAZ Designation H4E34217
10	4,75	12,4	9,7	23,6	8	E10	4	★ -E10-10
12	5,75	14,5	11,7	28,3	10	E12	4	★ -E12-12
16	7,5	18,7	15,5	35,7	12	E16	4	★ -E16-16
20	9,85	21,3	19,3	40,8	16	E20	4	★ -E20-20

★ New addition to range

G-2 D 11 C 285 E-85

End mills
Proto·max™ST

Materials to 52 HRC



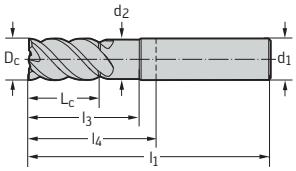
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 1.5 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAZ	●●	●					

P standard

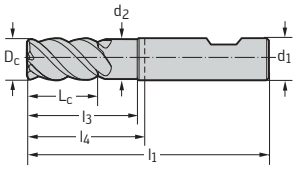
Shank DIN 6535 HA



D_c h9 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAZ Designation H4034217
3	5	8,5	2,9	57	21	6	4	-3
4	7	11	3,8	57	21	6	4	-4
5	8	14	4,75	57	21	6	4	-5
6	10	16	5,7	57	21	6	4	-6
8	13	22	7,6	63	27	8	4	-8
10	16	28	9,5	72	32	10	4	-10
12	19	33	11,4	83	38	12	4	-12
14	22	36	13,3	83	38	14	4	-14
16	26	42	15,2	92	44	16	4	-16
18	29	42	17,1	92	44	18	4	-18
20	32	52	19	104	54	20	4	-20

P standard

Shank DIN 6535 HB



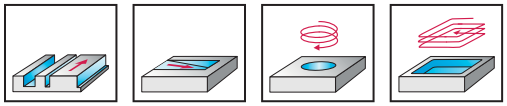
D_c h9 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAZ Designation H4134217
10	16	28	9,5	72	32	10	4	★ -10
12	19	33	11,4	83	38	12	4	★ -12
14	22	36	13,3	83	38	14	4	★ -14
16	26	42	15,2	92	44	16	4	★ -16
18	29	42	17,1	92	44	18	4	★ -18
20	32	52	19	104	54	20	4	★ -20

★ New addition to range

B-137 E-85

End mills
Proto·max™ ST

Materials to 52 HRC



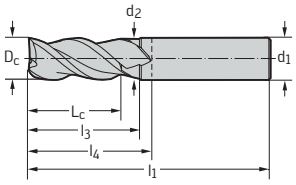
- VHM
- Long reach
- 3 cutting edges
- With centre cut
- 45° helix angle

Special features:
Slot milling: $a_p \leq 2.0 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
TAZ	●●	●					

P standard

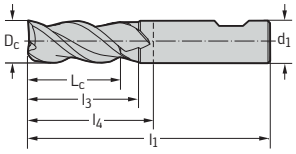
Shank DIN 6535 HA



D_c h9 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAZ Designation H4033217
2	5	7,5	1,92	57	21	6	3	-2
3	7	10,5	2,9	57	21	6	3	-3
4	9	15	3,8	57	21	6	3	-4
5	11	16	4,75	57	21	6	3	-5
6	13	19	5,7	57	21	6	3	-6
8	18	25	7,6	63	27	8	3	-8
10	22	30	9,5	72	32	10	3	-10
12	26	36	11,4	83	38	12	3	-12
16	34	42	15,2	92	44	16	3	-16
20	42	52	19	104	54	20	3	-20

P standard

Shank DIN 6535 HB

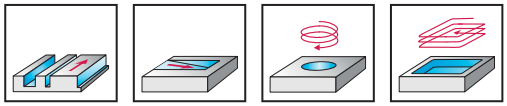


D_c h9 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAZ Designation H4133217
10	22	30	9,5	72	32	10	3	★ -10
12	26	36	11,4	83	38	12	3	★ -12
16	34	42	15,2	92	44	16	3	★ -16
20	42	52	19	104	54	20	3	★ -20

★ New addition to range

B-137 E-85

End mills
Proto·max™ Inox



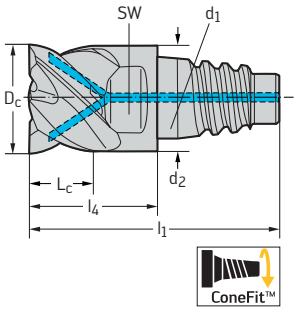
- VHM
- 4 to 5 cutting edges
- With centre cut
- 50° helix angle
- With internal cooling

Special features:
Slot milling: $a_p \leq 0.4 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAA		●●			●		

P standard

ConeFit™

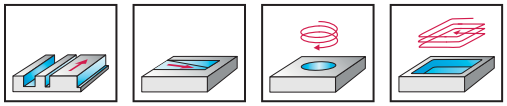


D_c h10 mm	L_c mm	l_4 mm	d_2 mm	l_1 mm	SW mm	d_1	Z	TAA Designation H2EC34217
10	6	12,4	9,7	23,8	8	E10	4	★ -E10-10
12	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12
16	10	18,7	15,5	35,7	12	E16	4	★ -E16-16
20	12	21,3	19,3	40,8	16	E20	4	★ -E20-20
25	15	25,6	24,2	49,6	20	E25	5	★ -E25-25

★ New addition to range

G-2 D 11 C 285 E-85

End mills
Proto·max™ Inox



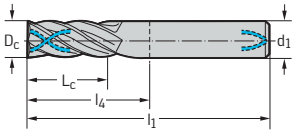
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 35°/38° helix angle
- With helical coolant channels

Special features:
Slot milling: $a_p \leq 1.0 \times D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
TAA		●●			●		

DIN 6527 L

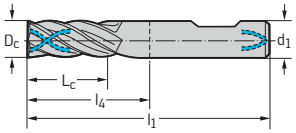
Shank DIN 6535 HA



D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAA Designation H2034217
6	13	57	21	6	4	★ -6
8	19	63	27	8	4	★ -8
10	22	72	32	10	4	★ -10
12	26	83	38	12	4	★ -12
14	26	83	38	14	4	★ -14
16	32	92	44	16	4	★ -16
18	32	92	44	18	4	★ -18
20	38	104	54	20	4	★ -20

DIN 6527 L

Shank DIN 6535 HB



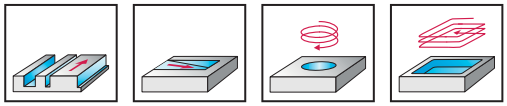
D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAA Designation H2134217
10	22	72	32	10	4	★ -10
12	26	83	38	12	4	★ -12
14	26	83	38	14	4	★ -14
16	32	92	44	16	4	★ -16
18	32	92	44	18	4	★ -18
20	38	104	54	20	4	★ -20

★ New addition to range

B-137 E-86

End mills
Proto·max™ TG

Materials to 48 HRC



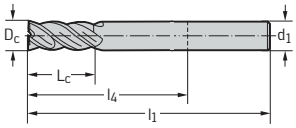
- VHM
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.9 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
TAT	●●	●	●				

P norm L

Shank DIN 6535 HA



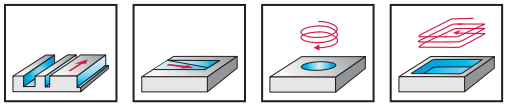
D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAT Designation H3021178
2	7	57	21	6	3	★ -2
2,5	8	57	21	6	3	★ -2.5
3	8	57	21	6	3	★ -3
3,5	10	57	21	6	3	★ -3.5
4	11	57	21	6	3	★ -4
4,5	11	57	21	6	3	★ -4.5
5	13	57	21	6	3	★ -5
6	13	65	29	6	4	★ -6
7	16	80	44	8	4	★ -7
8	19	80	44	8	4	★ -8
9	19	100	60	10	4	★ -9
10	22	100	60	10	4	★ -10
11	26	100	55	12	4	★ -11
12	26	100	55	12	4	★ -12
14	26	104	59	14	4	★ -14
16	32	115	67	16	4	★ -16
20	38	125	75	20	4	★ -20

★ New addition to range

B-137 E-87

End mills
Proto·max™ TG

Materials to 48 HRC



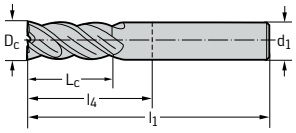
- VHM
- 4 to 5 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.9 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
TAT	●●	●	●				

DIN 6527 L

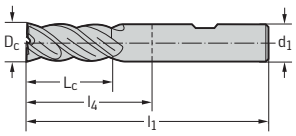
Shank DIN 6535 HA



D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAT Designation H3021378
6	13	57	21	6	4	★ -6
8	19	63	27	8	4	★ -8
10	22	72	32	10	4	★ -10
12	26	83	38	12	4	★ -12
14	26	83	38	14	4	★ -14
16	32	92	44	16	4	★ -16
18	32	92	44	18	4	★ -18
20	38	104	54	20	4	★ -20
25	45	121	65	25	5	★ -25

DIN 6527 L

Shank DIN 6535 HB



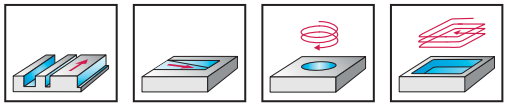
D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAT Designation H3121378
6	13	57	21	6	4	★ -6
8	19	63	27	8	4	★ -8
10	22	72	32	10	4	★ -10
12	26	83	38	12	4	★ -12
14	26	83	38	14	4	★ -14
16	32	92	44	16	4	★ -16
18	32	92	44	18	4	★ -18
20	38	104	54	20	4	★ -20
25	45	121	65	25	5	★ -25

★ New addition to range

B-137 E-87

End mills
Proto·max™ TG

Materials to 48 HRC



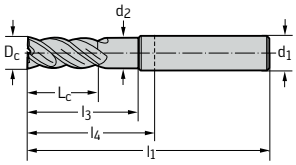
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.9 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
TAT	●●	●	●				

DIN 6527 L

Shank DIN 6535 HB



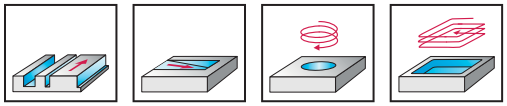
D_c h10 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAT Designation H4121078
6	13	19	5,7	57	21	6	4	★ -6
8	19	25	7,6	63	27	8	4	★ -8
10	22	30	9,5	72	32	10	4	★ -10
12	26	36	11,4	83	38	12	4	★ -12
14	26	36	13,3	83	38	14	4	★ -14
16	32	42	15,2	92	44	16	4	★ -16
20	38	52	19	104	54	20	4	★ -20

★ New addition to range

B-137 E-87

End mills
Proto·max™ TG

Materials to 48 HRC



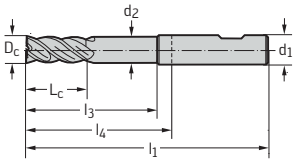
- VHM
- Long reach
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.9 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
TAT	●●	●	●				

P norm L

Shank DIN 6535 HB



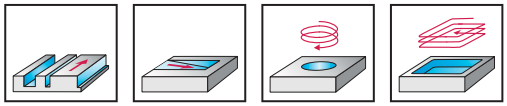
D_c h10 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAT Designation H4121178
4	11	15	3,8	57	21	6	3	★ -4
5	13	16	4,75	57	21	6	3	★ -5
6	13	27	5,7	65	29	6	4	★ -6
8	19	42	7,6	80	44	8	4	★ -8
10	22	58	9,5	100	60	10	4	★ -10
12	26	53	11,4	100	55	12	4	★ -12
14	26	57	13,3	104	59	14	4	★ -14
16	32	65	15,2	115	67	16	4	★ -16
20	38	73	19	125	75	20	4	★ -20

★ New addition to range

B-137 E-87

End mills
Proto·max™ TG

Materials to 48 HRC



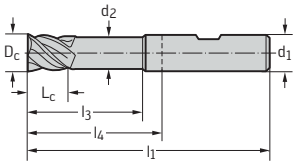
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.9 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
TAT	●●	●	●				

DIN 6527 L

Shank DIN 6535 HB



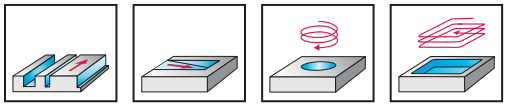
D_c h10 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAT Designation H4121278
6	6	19	5,7	57	21	6	4	★ -6
8	8	25	7,6	63	27	8	4	★ -8
10	10	30	9,5	72	32	10	4	★ -10
12	12	36	11,4	83	38	12	4	★ -12
14	14	36	13,3	83	38	14	4	★ -14
16	16	42	15,2	92	44	16	4	★ -16

★ New addition to range

B-137 E-87

End mills with corner radius
Proto·max™ ST

Materials to 52 HRC



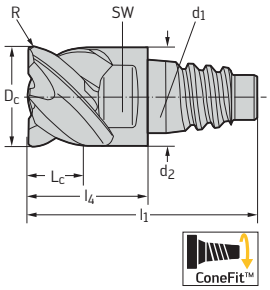
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.47 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAZ	●●	●					

P standard

ConeFit™



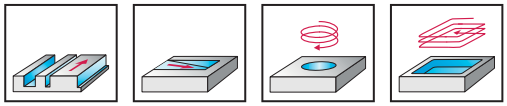
D_c h_9 mm	R mm	L_c mm	l_4 mm	d_2 mm	l_1 mm	SW mm	d_1	Z	TAZ Designation H4E38217
10	0,5	4,75	12,4	9,7	23,6	8	E10	4	★ -E10-10-0.5
10	1	4,75	12,4	9,7	23,6	8	E10	4	★ -E10-10-1
10	1,5	4,75	12,4	9,7	23,6	8	E10	4	★ -E10-10-1.5
10	2	4,75	12,4	9,7	23,6	8	E10	4	★ -E10-10-2
10	3	4,75	12,4	9,7	23,6	8	E10	4	★ -E10-10-3
12	0,5	5,75	14,5	11,7	28,3	10	E12	4	★ -E12-12-0.5
12	1	5,75	14,5	11,7	28,3	10	E12	4	★ -E12-12-1
12	1,5	5,75	14,5	11,7	28,3	10	E12	4	★ -E12-12-1.5
12	2	5,75	14,5	11,7	28,3	10	E12	4	★ -E12-12-2
12	3	5,75	14,5	11,7	28,3	10	E12	4	★ -E12-12-3
12	4	5,75	14,5	11,7	28,3	10	E12	4	★ -E12-12-4
16	0,5	7,5	18,7	15,5	35,7	12	E16	4	★ -E16-16-0.5
16	1	7,5	18,7	15,5	35,7	12	E16	4	★ -E16-16-1
16	1,5	7,5	18,7	15,5	35,7	12	E16	4	★ -E16-16-1.5
16	2	7,5	18,7	15,5	35,7	12	E16	4	★ -E16-16-2
16	3	7,5	18,7	15,5	35,7	12	E16	4	★ -E16-16-3
16	4	7,5	18,7	15,5	35,7	12	E16	4	★ -E16-16-4
20	0,5	9,85	21,3	19,3	40,8	16	E20	4	★ -E20-20-0.5
20	1	9,85	21,3	19,3	40,8	16	E20	4	★ -E20-20-1
20	2	9,85	21,3	19,3	40,8	16	E20	4	★ -E20-20-2
20	3	9,85	21,3	19,3	40,8	16	E20	4	★ -E20-20-3
20	4	9,85	21,3	19,3	40,8	16	E20	4	★ -E20-20-4

★ New addition to range

G-2 D 11 C 285 E-85

End mills with corner radius
Proto·max™ST

Materials to 52 HRC



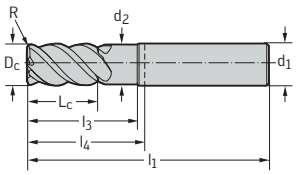
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 1.5 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAZ	●●	●					

P standard

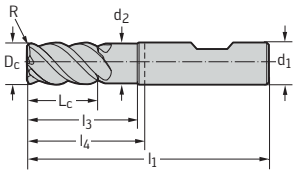
Shank DIN 6535 HA



D_c h9 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAZ Designation H4038217
3	0,2	5	8,5	2,9	57	21	6	4	-3-0.2
3	0,5	5	8,5	2,9	57	21	6	4	-3-0.5
4	0,2	7	11	3,8	57	21	6	4	-4-0.2
4	0,5	7	11	3,8	57	21	6	4	-4-0.5
5	0,5	8	14	4,75	57	21	6	4	-5-0.5
5	1	8	14	4,75	57	21	6	4	-5-1
6	0,5	10	16	5,7	57	21	6	4	-6-0.5
6	1	10	16	5,7	57	21	6	4	-6-1
8	0,5	13	22	7,6	63	27	8	4	-8-0.5
8	1	13	22	7,6	63	27	8	4	-8-1
8	2	13	22	7,6	63	27	8	4	-8-2
10	0,5	16	28	9,5	72	32	10	4	-10-0.5
10	1	16	28	9,5	72	32	10	4	-10-1
10	2	16	28	9,5	72	32	10	4	-10-2
12	0,5	19	33	11,4	83	38	12	4	-12-0.5
12	1	19	33	11,4	83	38	12	4	-12-1
12	2	19	33	11,4	83	38	12	4	-12-2
16	0,5	26	42	15,2	92	44	16	4	-16-0.5
16	1	26	42	15,2	92	44	16	4	-16-1
16	2	26	42	15,2	92	44	16	4	-16-2
20	1	32	52	19	104	54	20	4	-20-1
20	2	32	52	19	104	54	20	4	-20-2
20	4	32	52	19	104	54	20	4	-20-4

P standard

Shank DIN 6535 HB



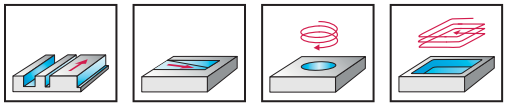
D_c h9 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAZ Designation H4138217
10	0,5	16	28	9,5	72	32	10	4	★ -10-0.5
10	1	16	28	9,5	72	32	10	4	★ -10-1
10	2	16	28	9,5	72	32	10	4	★ -10-2
12	0,5	19	33	11,4	83	38	12	4	★ -12-0.5
12	1	19	33	11,4	83	38	12	4	★ -12-1
12	2	19	33	11,4	83	38	12	4	★ -12-2
16	0,5	26	42	15,2	92	44	16	4	★ -16-0.5
16	1	26	42	15,2	92	44	16	4	★ -16-1
16	2	26	42	15,2	92	44	16	4	★ -16-2
20	1	32	52	19	104	54	20	4	★ -20-1
20	2	32	52	19	104	54	20	4	★ -20-2
20	4	32	52	19	104	54	20	4	★ -20-4

★ New addition to range

B-137 E-85

End mills with corner radius
Proto·max™ST

Materials to 52 HRC



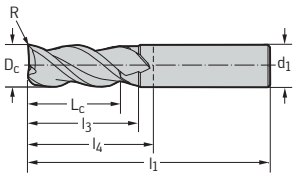
- VHM
- Long reach
- 3 cutting edges
- With centre cut
- 45° helix angle

Special features:
Slot milling: $a_p \leq 2.0 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
TAZ	●●	●					

P standard

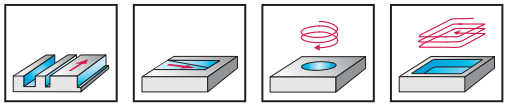
Shank DIN 6535 HA



D_c h9 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAZ Designation H4036217
2	0,08	5	7,5	1,92	57	21	6	3	-2
3	0,08	7	10,5	2,9	57	21	6	3	-3
4	0,08	9	15	3,8	57	21	6	3	-4
5	0,16	11	16	4,75	57	21	6	3	-5
6	0,16	13	19	5,7	57	21	6	3	-6
8	0,16	18	25	7,6	63	27	8	3	-8
10	0,25	22	30	9,5	72	32	10	3	-10
12	0,25	26	36	11,4	83	38	12	3	-12
16	0,25	34	42	15,2	92	44	16	3	-16
20	0,4	42	52	19	104	54	20	3	-20

B-137 E-85

End mills with corner radius
Proto·max™ Inox



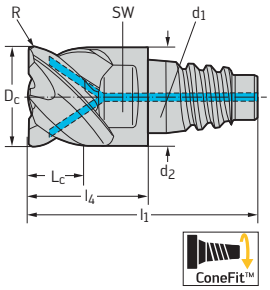
- VHM
- 4 to 5 cutting edges
- With centre cut
- 50° helix angle
- With internal cooling

Special features:
Slot milling: $a_p \leq 0.4 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAA		●●			●		

P standard

ConeFit™

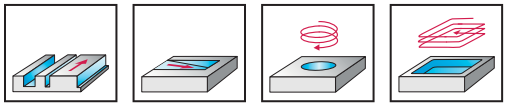


D_c h_9 mm	R mm	L_c mm	l_4 mm	d_2 mm	l_1 mm	SW mm	d_1	Z	TAA Designation H2EC38217
10	0,5	6	12,4	9,7	23,6	8	E10	4	★ -E10-10-0.5
10	1	6	12,4	9,7	23,6	8	E10	4	★ -E10-10-1
10	1,5	6	12,4	9,7	23,6	8	E10	4	★ -E10-10-1.5
10	2	6	12,4	9,7	23,6	8	E10	4	★ -E10-10-2
10	3	6	12,4	9,7	23,6	8	E10	4	★ -E10-10-3
12	0,5	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-0.5
12	1	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-1
12	1,5	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-1.5
12	2	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-2
12	3	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-3
12	4	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-4
16	1	10	18,7	15,5	35,7	12	E16	4	★ -E16-16-1
16	1,5	10	18,7	15,5	35,7	12	E16	4	★ -E16-16-1.5
16	2	10	18,7	15,5	35,7	12	E16	4	★ -E16-16-2
16	3	10	18,7	15,5	35,7	12	E16	4	★ -E16-16-3
16	4	10	18,7	15,5	35,7	12	E16	4	★ -E16-16-4
20	1	12	21,3	19,3	40,8	16	E20	4	★ -E20-20-1
20	1,5	12	21,3	19,3	40,8	16	E20	4	★ -E20-20-1.5
20	2	12	21,3	19,3	40,8	16	E20	4	★ -E20-20-2
20	3	12	21,3	19,3	40,8	16	E20	4	★ -E20-20-3
20	4	12	21,3	19,3	40,8	16	E20	4	★ -E20-20-4
25	1	15	25,6	24,2	49,6	20	E25	5	★ -E25-25-1
25	1,5	15	25,6	24,2	49,6	20	E25	5	★ -E25-25-1.5
25	2	15	25,6	24,2	49,6	20	E25	5	★ -E25-25-2
25	3	15	25,6	24,2	49,6	20	E25	5	★ -E25-25-3
25	4	15	25,6	24,2	49,6	20	E25	5	★ -E25-25-4

★ New addition to range

G-2 D 11 C 285 E-85

End mills with corner radius
Proto·max™ Inox



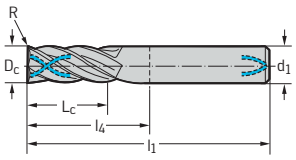
- VHM
- Long reach
- 4 cutting edges
- With centre cut
- 35°/38° helix angle
- With helical coolant channels

Special features:
Slot milling: $a_p \leq 1.0 \times D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
TAA		●●			●		

DIN 6527 L

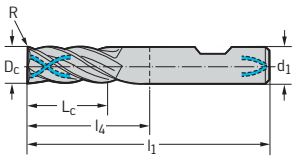
Shank DIN 6535 HA



D_c h9 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAA Designation H2038217
6	0,5	13	57	21	6	4	★ -6-0.5
6	1	13	57	21	6	4	★ -6-1
8	0,5	19	63	27	8	4	★ -8-0.5
8	1	19	63	27	8	4	★ -8-1
8	2	19	63	27	8	4	★ -8-2
10	0,5	22	72	32	10	4	★ -10-0.5
10	1	22	72	32	10	4	★ -10-1
10	2	22	72	32	10	4	★ -10-2
10	3	22	72	32	10	4	★ -10-3
12	0,5	26	83	38	12	4	★ -12-0.5
12	1	26	83	38	12	4	★ -12-1
12	2	26	83	38	12	4	★ -12-2
12	3	26	83	38	12	4	★ -12-3
16	0,5	32	92	44	16	4	★ -16-0.5
16	1	32	92	44	16	4	★ -16-1
16	2	32	92	44	16	4	★ -16-2
16	3	32	92	44	16	4	★ -16-3
20	1	38	104	54	20	4	★ -20-1
20	2	38	104	54	20	4	★ -20-2
20	3	38	104	54	20	4	★ -20-3
20	4	38	104	54	20	4	★ -20-4

DIN 6527 L

Shank DIN 6535 HB



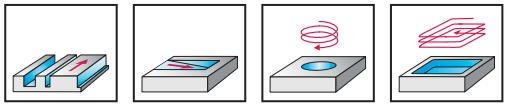
D_c h9 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAA Designation H2138217
10	0,5	22	72	32	10	4	★ -10-0.5
10	1	22	72	32	10	4	★ -10-1
10	2	22	72	32	10	4	★ -10-2
10	3	22	72	32	10	4	★ -10-3
12	0,5	26	83	38	12	4	★ -12-0.5
12	1	26	83	38	12	4	★ -12-1
12	2	26	83	38	12	4	★ -12-2
12	3	26	83	38	12	4	★ -12-3
16	0,5	32	92	44	16	4	★ -16-0.5
16	1	32	92	44	16	4	★ -16-1
16	2	32	92	44	16	4	★ -16-2
16	3	32	92	44	16	4	★ -16-3
20	1	38	104	54	20	4	★ -20-1
20	2	38	104	54	20	4	★ -20-2
20	3	38	104	54	20	4	★ -20-3
20	4	38	104	54	20	4	★ -20-4

★ New addition to range

B-137 E-86

End mills with corner radius
Proto·max™ Inox
with Flash geometry

Materials to 55 HRC



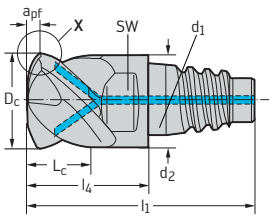
- VHM
- 4 cutting edges
- Without centre cut
- 50° helix angle
- With internal cooling

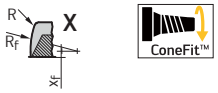
Special features:
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAA		●●			●		

P standard

ConeFit™





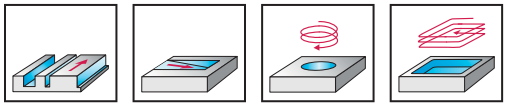
D_c h9 mm	a_{pf}	x_f mm	R_f	R_{ers}	R mm	L_c mm	l_4 mm	d_2 mm	l_1 mm	SW mm	d_1	Z	TAA Designation H2EC94717
10	0,7	1,7	5	1,99	1,5	6	12,4	9,7	23,6	8	E10	4	★ -E10-10
12	0,8	2,25	6	2,1	1,5	7,5	14,5	11,7	28,3	10	E12	4	★ -E12-12
16	1	3,1	8	2,747	2	10	18,7	15,5	35,7	12	E16	4	★ -E16-16
20	1,3	4	10	3,072	2	12	21,3	19,3	40,8	16	E20	4	★ -E20-20

★ New addition to range

G-2 D 11 C 285 E-85

End mills with corner radius
Protostar® Flash

Materials to 55 HRC



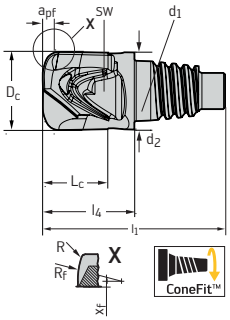
- Solid carbide/spade
- Long reach
- 2 cutting edges
- Without centre cut
- 10° helix angle

Special features:
Slot milling: $a_p \leq 0.6 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●	●				

P standard

ConeFit™

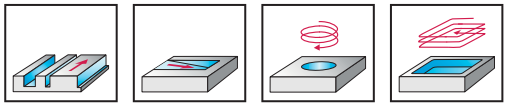


D_c h12 mm	a_{pf}	x_f mm	R_f	R_{ers}	R mm	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1	Z	TAX Designation H1E92718
10	0,3	1,7	5	1,99	1,5	8	9,7	23	11,8	6	E10	2	★ -E10-10
12	0,8	2,25	6	2,1	1,5	10	11,7	27,8	14	8	E12	2	★ -E12-12
16	1	3,1	8	2,747	2	13	15,5	35,1	18,1	10	E16	2	★ -E16-16

★ New addition to range

G-2 D 11 C 285 E-87

End mills with corner radius
Protostar® N 50



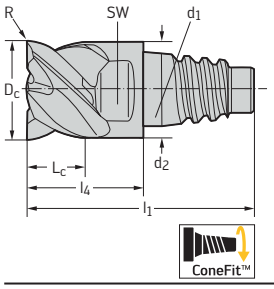
- VHM
- 4 cutting edges
- With centre cut
- 50° helix angle

Special features:
Slot milling: $a_p \leq 0.5x\ D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
DIA							●●

P standard

ConeFit™



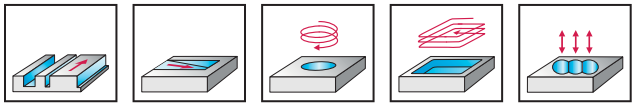
D_c h10 mm	R mm	L_c mm	L_4 mm	d_2 mm	l_1 mm	SW mm	d_1 mm	Z	DIA Designation H3E20419
10	0,5	5,5	12,4	9,7	23,6	8	E10	4	★ -E10-10-0.5
10	1	5,5	12,4	9,7	23,6	8	E10	4	★ -E10-10-1
10	1,5	5,5	12,4	9,7	23,6	8	E10	4	★ -E10-10-1.5
10	2	5,5	12,4	9,7	23,6	8	E10	4	★ -E10-10-2
12	0,5	6,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-0.5
12	1	6,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-1
12	1,5	6,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-1.5
12	2	6,5	14,5	11,7	28,3	10	E12	4	★ -E12-12-2

★ New addition to range

G-2 D 11 C 285 E-88

End mills with corner radius
Protostar® N 10
N 10

Materials to 48 HRC



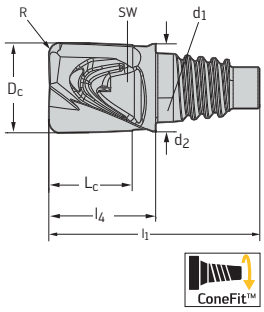
- Solid carbide/spade
- 2 cutting edges
- With centre cut
- 10° helix angle

Special features:
Slot milling: $a_p \leq 0.8 \times D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●	●				

P standard

ConeFit™



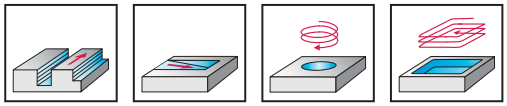
D_c h10 mm	R mm	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1	Z	TAX Designation H1E12018
10	0,2	8	9,7	23	11,8	6	E10	2	★ -E10-10-0.2
10	0,5	8	9,7	23	11,8	6	E10	2	★ -E10-10-0.5
10	0,8	8	9,7	23	11,8	6	E10	2	★ -E10-10-0.8
10	1	8	9,7	23	11,8	6	E10	2	★ -E10-10-1.0
10	1,2	8	9,7	23	11,8	6	E10	2	★ -E10-10-1.2
10	1,5	8	9,7	23	11,8	6	E10	2	★ -E10-10-1.5
10	2	8	9,7	23	11,8	6	E10	2	★ -E10-10-2.0
10	2,5	8	9,7	23	11,8	6	E10	2	★ -E10-10-2.5
10	3	8	9,7	23	11,8	6	E10	2	★ -E10-10-3.0
12	3	10	11,7	27,8	14	8	E12	2	★ -E12-12-3.0
12	2,5	10	11,7	27,8	14	8	E12	2	★ -E12-12-2.5
12	2	10	11,7	27,8	14	8	E12	2	★ -E12-12-2.0
12	1,6	10	11,7	27,8	14	8	E12	2	★ -E12-12-1.6
12	1,5	10	11,7	27,8	14	8	E12	2	★ -E12-12-1.5
12	1,2	10	11,7	27,8	14	8	E12	2	★ -E12-12-1.2
12	1	10	11,7	27,8	14	8	E12	2	★ -E12-12-1.0
12	0,8	10	11,7	27,8	14	8	E12	2	★ -E12-12-0.8
12	0,5	10	11,7	27,8	14	8	E12	2	★ -E12-12-0.5
12	0,2	10	11,7	27,8	14	8	E12	2	★ -E12-12-0.2
16	0,2	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-0.2
16	0,5	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-0.5
16	0,8	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-0.8
16	1	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-1.0
16	1,2	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-1.2
16	1,5	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-1.5
16	2	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-2.0
16	3	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-3.0
16	4	13	15,5	35,1	18,1	10	E16	2	★ -E16-16-4.0

★ New addition to range

G-2 D 11 C 285 E-89

Roughing milling cutters
Protostar® HR Kordel F 40
Qmax

Materials to 48 HRC



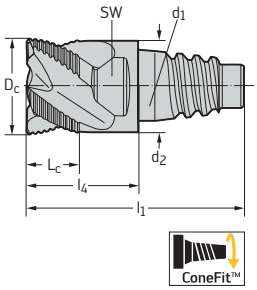
- VHM
- 4 to 8 cutting edges
- With centre cut
- 40° helix angle

Special features:
Slot milling: $a_p \leq 0.5x\ D_c$
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAX	●	●●					

P standard

ConeFit™



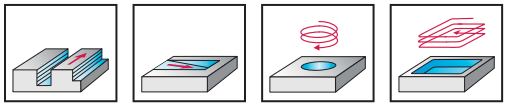
D_c h10 mm	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1 mm	Z	TAX Designation H3E82378
10	5,5	9,7	23	12	8	E10	4	-E10-10
12	6,5	11,7	28	15	10	E12	4	-E12-12
16	8,5	15,5	36	19	12	E16	4	-E16-16
20	11	19,3	41	21	16	E20	6	★ -E20-20
25	13,5	24,2	50	26	20	E25	8	★ -E25-25

★ New addition to range

G-2 D 11 C 285 E-89

Roughing milling cutters with corner radius
Protostar® HR Kordel F 45
Qmax

Materials to 48 HRC



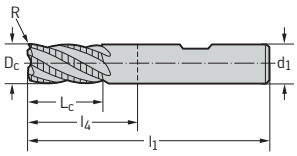
- VHM
- 5 to 6 cutting edges
- With centre cut
- 45° helix angle

Special features:
Slot milling: $a_p \leq 1.5 \times D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●	●				

DIN 6527 L

Shank DIN 6535 HB



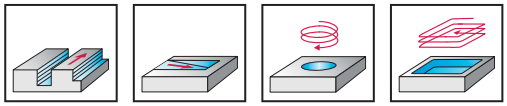
D_c h12 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAX Designation H3186378
12	1	26	83	38	12	5	★ -12-1
12	1,5	26	83	38	12	5	★ -12-1.5
12	2	26	83	38	12	5	★ -12-2
12	3	26	83	38	12	5	★ -12-3
16	1	32	92	44	16	6	★ -16-1
16	2	32	92	44	16	6	★ -16-2
16	3	32	92	44	16	6	★ -16-3
16	4	32	92	44	16	6	★ -16-4
20	2	38	104	54	20	6	★ -20-2
20	3	38	104	54	20	6	★ -20-3
20	4	38	104	54	20	6	★ -20-4

★ New addition to range

B-137 E-89

Roughing milling cutters with corner radius
Protostar® HR Kordel F 40
Qmax

Materials to 48 HRC



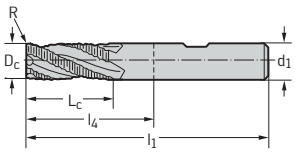
- VHM
- 4 cutting edges
- With centre cut
- 40° helix angle

Special features:
Slot milling: $a_p \leq 1.5 \times D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
TAX	●	●●					

DIN 6527 L

Shank DIN 6535 HB

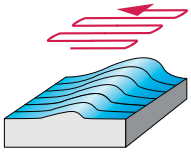


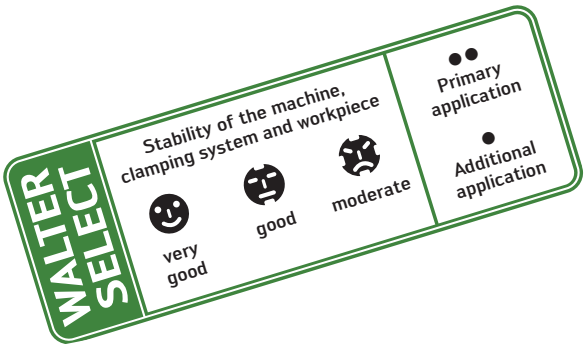
D_c h12 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TAX Designation H3183378
6	1	13	57	21	6	4	★ -6-1
8	1	19	63	27	8	4	★ -8-1
10	1	22	72	32	10	4	★ -10-1
10	1,5	22	72	32	10	4	★ -10-1.5
10	2	22	72	32	10	4	★ -10-2
12	1	26	83	38	12	4	★ -12-1
12	1,5	26	83	38	12	4	★ -12-1.5
12	2	26	83	38	12	4	★ -12-2
12	3	26	83	38	12	4	★ -12-3
16	1	32	92	44	16	4	★ -16-1
16	2	32	92	44	16	4	★ -16-2
16	3	32	92	44	16	4	★ -16-3
16	4	32	92	44	16	4	★ -16-4
20	2	38	104	54	20	4	★ -20-2
20	3	38	104	54	20	4	★ -20-3
20	4	38	104	54	20	4	★ -20-4

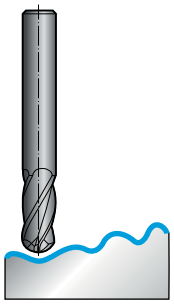
★ New addition to range

B-137 E-89

Walter Select – Copy milling
Solid carbide shank cutters



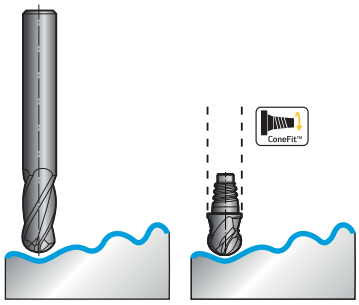




Solid carbide end mills

					Machining conditions				
					Ø range			1 – 25 NEW	
					Number of teeth			2 + 4	
					Coating			TAX	
							Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group		ConeFit™ N 40	H8E11118 H8E01118	40° 40°	*E 192**
							N 30	H8001118 H8011118 H8111118	30° 30° 30°	*E 194** *E 193** *E 193**
							ConeFit™ N 10 Spade	H1E01118	10°	**E-71**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		●●			
		free cutting steel	220	750	P6		●●			
		tempered	300	1010	P5, P8		●●			
		tempered	380	1280	P9		●●			
		tempered	430	1480	P10		●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		●●			
		hardened and tempered	300	1010	P12		●●			
		hardened and tempered	400	1360	P13		●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		●●			
		martensitic, tempered	330	1110	P15		●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3		●			
		austenitic, precipitation hardened (PH)	300	1010	M2		●			
K	Grey cast iron		245	–	K3, K4		●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6		●			
	GGV (CGI)		200	–	K7		●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1		●			
		hardenable, hardened	100	340	N2		●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4		●			
		> 12% Si	130	450	N5		●			
	Magnesium alloys		70	250	N6		●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7		●			
		brass, bronze, red brass	90	310	N8		●			
		Cu-alloys, short-chipping	110	380	N9		●			
		high-strength, Ampco	300	1010	N10		●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2		●			
		Ni or Co base	250	840	S3		●			
		Ni or Co base	350	1080	S4, S5		●			
	Titanium alloys	pure titanium	200	670	S6		●			
		α and β alloys, hardened	375	1260	S7		●			
		β alloys	410	1400	S8		●			
	Tungsten alloys		300	1010	S9		●			
	Molybdenum alloys		300	1010	S10		●			
H	Hardened steel		50 HRC	–	H1		●			
			55 HRC	–	H2, H4					
			60 HRC	–	H3					
O	Thermoplasts	without abrasive fillers			O1		●			
	Thermosetting plastics	without abrasive fillers			O2		●			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5					
		CFRP			O4					
	Graphite (technical)			65	O6					

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	10 – 16			NEW	10 – 16			NEW	1 – 16			
	2				2				2 + 4			
	uncoated				DIA				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	ConeFit™ N 10 Spade	H1E0111	10°	**E-71**	ConeFit™ N 10 Spade	H1E01219	10°	**E-71**	HSC 30	H8001918 H8006418 H8016418	30° 30° 30°	*E 196** *E 197** *E 197**
										●●		
										●●		
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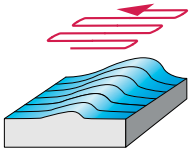
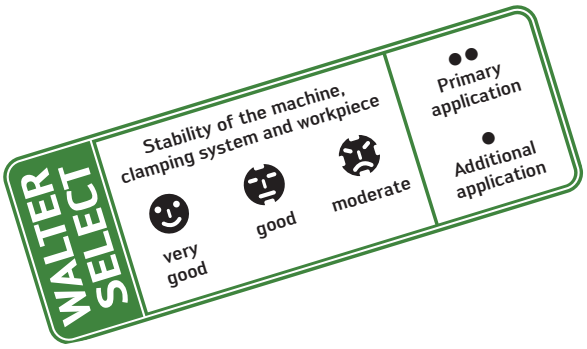
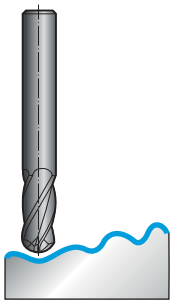
Walter Select – Copy milling
Solid carbide shank cutters



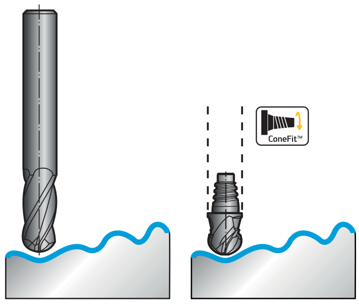




Solid carbide end mills

					Machining conditions				
					Ø range	1 – 16			
					Number of teeth	2 + 4			
					Coating	TAX			
						Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	Ultra HSC 30 (48–63 HRC)	H8004028	30°	*E 200**
							H8004128	30°	*E 200**
							H8004728	30°	*E 201**
							H8006428	30°	*E 202**
							H8014028	30°	*E 203**
							H8014128	30°	*E 204**
							H8016428	30°	*E 202**
							H8074128	30°	*E 203**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7				
		free cutting steel	220	750	P6				
		tempered	300	1010	P5, P8				
		tempered	380	1280	P9				
		tempered	430	1480	P10				
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11				
		hardened and tempered	300	1010	P12				
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14				
		martensitic, tempered	330	1110	P15				
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1		●●		
			55 HRC	–	H2, H4		●●		
			60 HRC	–	H3		●●		
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills

	3 – 12 NEW				1 – 12				0,3 – 3			
	2				2 + 4				2			
	TAS				DIA				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Proto·max™ Ultra	H8004788	30°	**E-68**	HSC 30	H8001919 H8006419 H8016419	30° 30° 30°	*E 198** *E 199** *E 199**	Mini HSC 30	H4046918	30°	*E 206**
					30	H8001119	30°	*E 195**				
									••			
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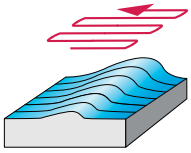
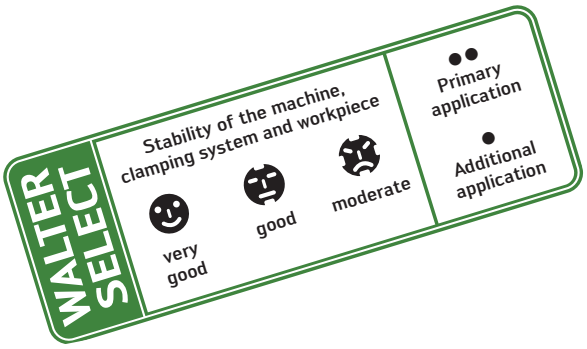
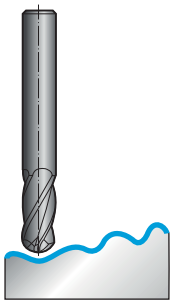
Walter Select – Copy milling
Solid carbide shank cutters



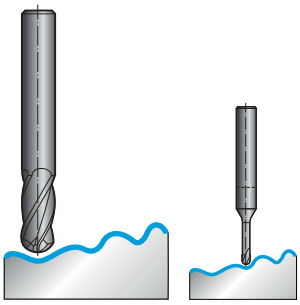




Solid carbide end mills

					Machining conditions				
					Ø range	0,3 – 3			
					Number of teeth	2			
					Coating	TAX			
						Family	Designation	λ	Page
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	Ultra mini HSC 30 (48–63 HRC)	H4046928	30°	*E 208**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7				
		free cutting steel	220	750	P6				
		tempered	300	1010	P5, P8				
		tempered	380	1280	P9				
		tempered	430	1480	P10		●●		
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11				
		hardened and tempered	300	1010	P12				
		hardened and tempered	400	1360	P13				
	Stainless steel	ferritic/martensitic, annealed	200	670	P14				
		martensitic, tempered	330	1110	P15				
M	Stainless steel	austenitic, duplex	230	780	M1, M3				
		austenitic, precipitation hardened (PH)	300	1010	M2				
K	Grey cast iron		245	–	K3, K4				
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6				
	GGV (CGI)		200	–	K7				
N	Aluminium wrought alloys	cannot be hardened	30	–	N1				
		hardenable, hardened	100	340	N2				
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4				
		> 12% Si	130	450	N5				
	Magnesium alloys		70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7				
		brass, bronze, red brass	90	310	N8				
		Cu-alloys, short-chipping	110	380	N9				
		high-strength, Ampco	300	1010	N10				
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1		●●		
			55 HRC	–	H2, H4		●●		
			60 HRC	–	H3		●●		
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

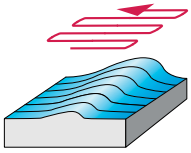
** The pages indicated in italics refer to the Walter General catalogue 2012.*

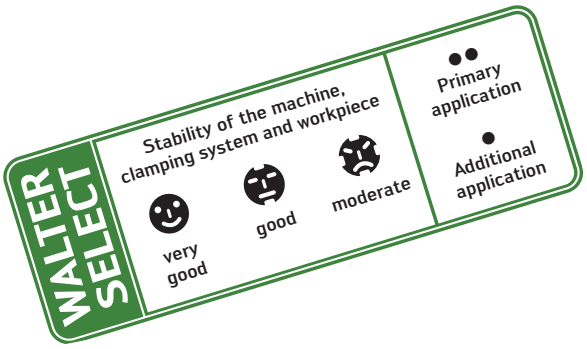


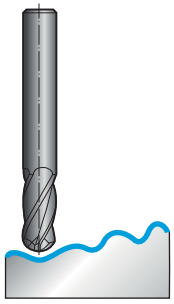
Solid carbide end mills

	0,1 – 2,5 NEW				0,3 – 3				0,3 – 3			
	2				2				2			
	TAS				DIA				uncoated			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Proto·max™ Ultra mini	H4046988	30°	**E-69**	Mini HSC 30	H4046919	30°	*E 207**	Mini HSC 30	H404691	30°	*E 207**
										●●		
										●●		
										●●		
										●●		
										●●		
										●●		
										●●		
										●●		
										●●		
		●●										
		●●										
										●		
										●		
						●●						

Walter Select – Copy milling
HSS end mills



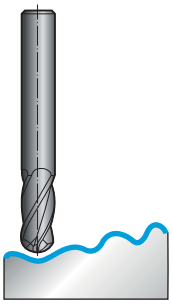




HSS end mills

					Machining conditions				
					Ø range		2 – 20		
					Number of teeth		2 + 4		
					Coating		ACN		
						Family	Designation	λ	Page
						30	P3166017 P3166117 P8112017	30° 30° 30°	*E 210** *E 211** *E 212**
Material group	**Grouping of main material groups and code letters** **Workpiece material**		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●			
		free cutting steel	220	750	P6	●●			
		tempered	300	1010	P5, P8	●●			
		tempered	380	1280	P9	●●			
		tempered	430	1480	P10	●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●			
		hardened and tempered	300	1010	P12	●●			
		hardened and tempered	400	1360	P13	●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●			
		martensitic, tempered	330	1110	P15	●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●●			
		austenitic, precipitation hardened (PH)	300	1010	M2	●●			
K	Grey cast iron		245	–	K3, K4	●●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●			
	GGV (CGI)		200	–	K7	●●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●			
		hardenable, hardened	100	340	N2	●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●			
		> 12% Si	130	450	N5	●			
	Magnesium alloys		70	250	N6	●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●			
		brass, bronze, red brass	90	310	N8	●			
		Cu-alloys, short-chipping	110	380	N9	●			
		high-strength, Ampco	300	1010	N10	●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●●			
		Ni or Co base	250	840	S3	●●			
		Ni or Co base	350	1080	S4, S5	●●			
	Titanium alloys	pure titanium	200	670	S6	●●			
		α and β alloys, hardened	375	1260	S7	●●			
		β alloys	410	1400	S8	●●			
	Tungsten alloys		300	1010	S9	●●			
	Molybdenum alloys		300	1010	S10	●●			
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*



HSS end mills

2 – 32

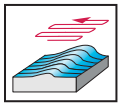
2 – 6

uncoated

Family	Designation	λ	Page
30	P312674	30°	*E 209**
	P316601	30°	*E 210**
	P316611	30°	*E 211**
	P811211	30°	*E 212**

Ball-nose end mill
Proto·max™ Ultra

Materials to 70 HRC

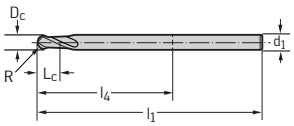


- VHM
- Long reach
- 2 cutting edges
- With centre cut
- 30° helix angle

	P	M	K	N	S	H	O
TAS						●●	

P norm L

Shank DIN 6535 HA



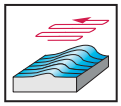
D_c h7 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	TAS Designation H8004788
3	1,5	4,5	57	21	6	2	★ -3-57
3	1,5	4,5	70	34	6	2	★ -3-70
4	2	6	57	21	6	2	★ -4-57
4	2	6	70	34	6	2	★ -4-70
5	2,5	7,5	57	21	6	2	★ -5-57
5	2,5	7,5	80	44	6	2	★ -5-80
6	3	9	57	21	6	2	★ -6-57
6	3	9	90	54	6	2	★ -6-90
8	4	12	63	27	8	2	★ -8-63
8	4	12	100	64	8	2	★ -8-100
10	5	15	72	32	10	2	★ -10-72
10	5	15	100	60	10	2	★ -10-100
12	6	18	83	38	12	2	★ -12-83
12	6	18	110	65	12	2	★ -12-110

★ New addition to range

B-137 E-91

Mini ball-nose end mill
Proto·max™ Ultra

Materials to 70 HRC

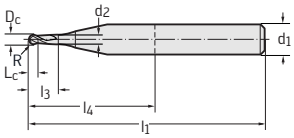


- VHM
- Long reach
- 2 cutting edges
- With centre cut
- 30° helix angle

	P	M	K	N	S	H	O
TAS						●●	

P standard mini

Shank DIN 6535 HA



D_c h7 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h4 mm	Z	TAS Designation H4046988
0,1	0,05	0,08	0,15	0,08	45	17	4	2	★ -0.1-0.15
0,1	0,05	0,08	0,3	0,08	45	17	4	2	★ -0.1-0.3
0,1	0,05	0,08	0,75	0,08	45	17	4	2	★ -0.1-0.75
0,2	0,1	0,15	0,3	0,17	45	17	4	2	★ -0.2-0.3
0,2	0,1	0,15	0,6	0,17	45	17	4	2	★ -0.2-0.6
0,2	0,1	0,15	1	0,17	45	17	4	2	★ -0.2-1
0,2	0,1	0,15	1,5	0,17	45	17	4	2	★ -0.2-1.5
0,2	0,1	0,15	2	0,17	45	17	4	2	★ -0.2-2
0,3	0,15	0,25	0,45	0,27	45	17	4	2	★ -0.3-0.45
0,3	0,15	0,25	0,9	0,27	45	17	4	2	★ -0.3-0.9
0,3	0,15	0,25	1,5	0,27	45	17	4	2	★ -0.3-1.5
0,3	0,15	0,25	2	0,27	45	17	4	2	★ -0.3-2
0,3	0,15	0,25	3	0,27	45	17	4	2	★ -0.3-3
0,4	0,2	0,3	0,6	0,37	45	17	4	2	★ -0.4-0.6
0,4	0,2	0,3	1,2	0,37	45	17	4	2	★ -0.4-1.2
0,4	0,2	0,3	2	0,37	45	17	4	2	★ -0.4-2
0,4	0,2	0,3	3	0,37	45	17	4	2	★ -0.4-3
0,4	0,2	0,3	3,5	0,37	45	17	4	2	★ -0.4-3.5
0,4	0,2	0,3	4	0,37	45	17	4	2	★ -0.4-4
0,5	0,25	0,35	0,75	0,47	45	17	4	2	★ -0.5-0.75
0,5	0,25	0,35	1,5	0,47	45	17	4	2	★ -0.5-1.5
0,5	0,25	0,35	3	0,47	45	17	4	2	★ -0.5-3
0,5	0,25	0,35	5	0,47	45	17	4	2	★ -0.5-5
0,6	0,3	0,4	0,9	0,57	45	17	4	2	★ -0.6-0.9
0,6	0,3	0,4	1,8	0,57	45	17	4	2	★ -0.6-1.8
0,6	0,3	0,4	3	0,57	45	17	4	2	★ -0.6-3
0,6	0,3	0,4	5	0,57	45	17	4	2	★ -0.6-5
0,6	0,3	0,4	6	0,57	45	17	4	2	★ -0.6-6
0,8	0,4	0,5	1,2	0,77	45	17	4	2	★ -0.8-1.2
0,8	0,4	0,5	2,4	0,77	45	17	4	2	★ -0.8-2.4
0,8	0,4	0,5	4	0,77	45	17	4	2	★ -0.8-4
0,8	0,4	0,5	6	0,77	45	17	4	2	★ -0.8-6
1	0,5	0,8	1,5	0,96	45	17	6	2	★ -1-1.5
1	0,5	0,8	3	0,96	45	17	6	2	★ -1-3
1	0,5	0,8	6	0,96	45	17	6	2	★ -1-6
1	0,5	0,8	8	0,96	45	17	6	2	★ -1-8
1	0,5	0,8	10	0,96	45	17	6	2	★ -1-10
1,2	0,6	1,1	1,8	1,15	45	17	6	2	★ -1.2-1.8
1,2	0,6	1,1	3,6	1,15	45	17	6	2	★ -1.2-3.6
1,5	0,75	1,35	2,25	1,44	45	17	6	2	★ -1.5-2.25
1,5	0,75	1,35	4,5	1,44	45	17	6	2	★ -1.5-4.5
1,5	0,75	1,35	8	1,44	45	17	6	2	★ -1.5-8
1,5	0,75	1,35	12	1,44	45	17	6	2	★ -1.5-12
2	1	1,7	3	1,92	45	17	6	2	★ -2-3
2	1	1,7	6	1,92	45	17	6	2	★ -2-6
2	1	1,7	8	1,92	45	17	6	2	★ -2-8
2	1	1,7	12	1,92	50	22	6	2	★ -2-12

Continued

★ New addition to range

E-91

Mini ball-nose end mill
Proto·max™ Ultra

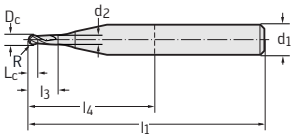
Materials to 70 HRC

	P	M	K	N	S	H	O
TAS						●●	

Continued

P standard mini

D_c h7 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h4 mm	Z	TAS Designation H4046988
Shank DIN 6535 HA									
2	1	1,7	16	1,92	50	22	6	2	★ -2-16
2	1	1,7	20	1,92	55	27	6	2	★ -2-20
2,5	1,25	2,2	3,75	2,42	45	17	6	2	★ -2.5-3.75
2,5	1,25	2,2	7,5	2,42	45	17	6	2	★ -2.5-7.5
2,5	1,25	2,2	12,5	2,42	50	22	6	2	★ -2.5-12.5
2,5	1,25	2,2	15	2,42	50	22	6	2	★ -2.5-15
2,5	1,25	2,2	20	2,42	55	27	6	2	★ -2.5-20

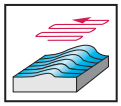


★ New addition to range

E-91

Ball-nose end mill
Protostar® N 10

Materials to 48 HRC

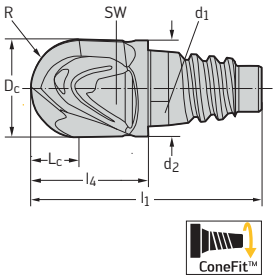


- Solid carbide/spade
- 2 cutting edges
- With centre cut
- 10° helix angle

	P	M	K	N	S	H	O
uncoated				●●			
TAX	●●	●●	●	●			
DIA							●●

P standard

ConeFit™

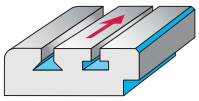


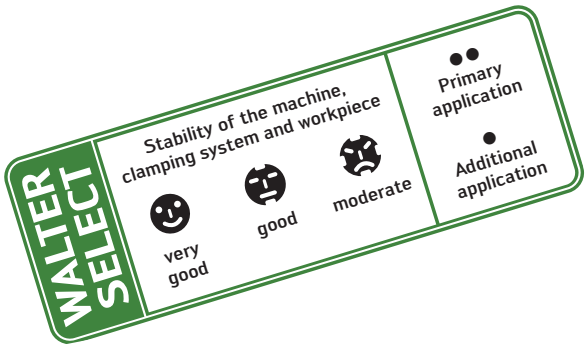
D_c mm	R mm	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1	Z	uncoated Designation H1E0111	TAX Designation H1E01118	DIA Designation H1E01219
10	5	8	9,7	23	11,8	6	E10	2	★ -E10-10	★ -E10-10	★ -E10-10
12	6	10	11,7	27,8	14	8	E12	2	★ -E12-12	★ -E12-12	★ -E12-12
16	8	13	15,5	35,1	18,1	10	E16	2	★ -E16-16	★ -E16-16	

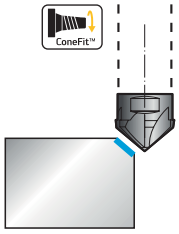
★ New addition to range

G-2 D 11 C 285 E-89

Walter Select – Profile milling
Solid carbide shank cutters



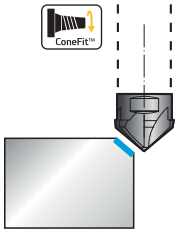




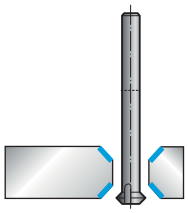
Solid carbide end mills

Material group	Grouping of main material groups and code letters / Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group	Machining conditions	Family	Designation	λ	Page
						Ø range		10 – 16		
						Number of teeth		4 – 8		
						Coating		TAX		
							ConeFit™ Chamfer milling cutters			
							60°	H3E58518	0°	*E 220**
							90°	H3E58318	0°	*E 219**
							120°	H3E58118	0°	*E 218**
							ConeFit™ Chamfer milling cutter N 10 Spade			
							60°	H1E58518	10°	**E-81**
							90°	H1E58318	10°	**E-80**
							120°	H1E58118	10°	**E-79**
							150°	H1E58018	10°	**E-78**
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7		●●			
		free cutting steel	220	750	P6		●●			
		tempered	300	1010	P5, P8		●●			
		tempered	380	1280	P9		●●			
		tempered	430	1480	P10		●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11		●●			
		hardened and tempered	300	1010	P12		●●			
		hardened and tempered	400	1360	P13		●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14		●●			
		martensitic, tempered	330	1110	P15		●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3		●●			
		austenitic, precipitation hardened (PH)	300	1010	M2		●●			
K	Grey cast iron		245	–	K3, K4		●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6		●			
	GGV (CGI)		200	–	K7		●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1		●			
		hardenable, hardened	100	340	N2		●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4		●			
		> 12% Si	130	450	N5		●			
	Magnesium alloys		70	250	N6		●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7		●			
		brass, bronze, red brass	90	310	N8		●			
		Cu-alloys, short-chipping	110	380	N9		●			
		high-strength, Ampco	300	1010	N10		●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2		●			
		Ni or Co base	250	840	S3		●			
		Ni or Co base	350	1080	S4, S5		●			
	Titanium alloys	pure titanium	200	670	S6		●			
		α and β alloys, hardened	375	1260	S7		●			
		β alloys	410	1400	S8		●			
	Tungsten alloys		300	1010	S9		●			
	Molybdenum alloys		300	1010	S10		●			
H	Hardened steel		50 HRC	–	H1		●			
			55 HRC	–	H2, H4					
			60 HRC	–	H3					
O	Thermoplasts	without abrasive fillers			O1		●			
	Thermosetting plastics	without abrasive fillers			O2		●			
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5					
		CFRP			O4					
	Graphite (technical)			65	O6					

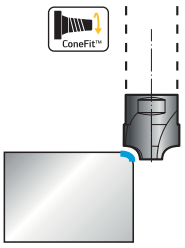
** The pages indicated in italics refer to the Walter General catalogue 2012.*



Solid carbide end mills



Solid carbide end mills



Solid carbide end mills

	6 – 12				6 – 12				6 – 12				6 – 20			
	3 – 6				4 – 6				3 – 6				4			
	TAX				uncoated				TAX				TAX			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	Chamfer milling cutters 60°	H3058518 H3158518	0° 0°	*E 220**	Chamfer milling cutters 60°	H305851	0°	*E 220**	Forward/ backward deburrer	H3053918	0°	*E 221**	ConeFit™ Quarter-round milling cutter	H3E68118	0°	*E 222**
	90°	H3058318 H3058318	0° 0°	*E 219**	90°	H305831	0°	*E 219**					Quarter-round milling cutter	H3068118	0°	*E 222**
					120°	H305811	0°	*E 218**								
	120°	H3058118	0°	*E 218**												
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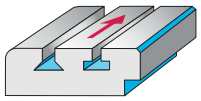
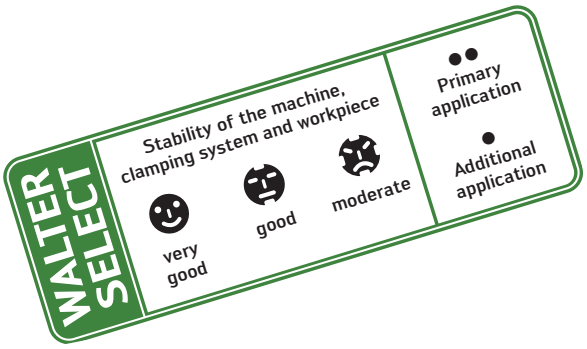
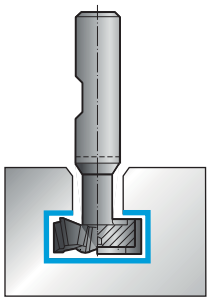
Walter Select – Profile milling
HSS T-slot milling cutters





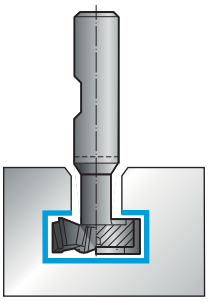
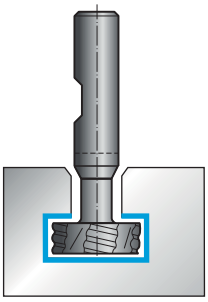
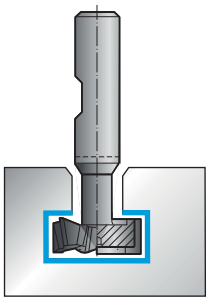


T-slot milling cutter

					Machining conditions				
					Ø range		11 – 40		
					Number of teeth		6 – 10		
					Coating		TiCN		
						Family	Designation	λ	Page
						N 12	P3148016	12°	*E 223**
Material group	Grouping of main material groups and code letters Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group				
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●●			
		free cutting steel	220	750	P6	●●			
		tempered	300	1010	P5, P8	●●			
		tempered	380	1280	P9	●●			
		tempered	430	1480	P10	●●			
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●●			
		hardened and tempered	300	1010	P12	●●			
		hardened and tempered	400	1360	P13	●●			
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●●			
		martensitic, tempered	330	1110	P15	●●			
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●			
		austenitic, precipitation hardened (PH)	300	1010	M2	●			
K	Grey cast iron		245	–	K3, K4	●●			
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●●			
	GGV (CGI)		200	–	K7	●●			
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●			
		hardenable, hardened	100	340	N2	●			
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●			
		> 12% Si	130	450	N5	●			
	Magnesium alloys		70	250	N6	●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●			
		brass, bronze, red brass	90	310	N8	●			
		Cu-alloys, short-chipping	110	380	N9	●			
		high-strength, Ampco	300	1010	N10	●			
S	Heat-resistant alloys	Fe-based	280	940	S1, S2				
		Ni or Co base	250	840	S3				
		Ni or Co base	350	1080	S4, S5				
	Titanium alloys	pure titanium	200	670	S6				
		α and β alloys, hardened	375	1260	S7				
		β alloys	410	1400	S8				
	Tungsten alloys		300	1010	S9				
	Molybdenum alloys		300	1010	S10				
H	Hardened steel		50 HRC	–	H1				
			55 HRC	–	H2, H4				
			60 HRC	–	H3				
O	Thermoplasts	without abrasive fillers			O1				
	Thermosetting plastics	without abrasive fillers			O2				
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5				
		CFRP			O4				
	Graphite (technical)			65	O6				

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Walter Select – Profile milling
HSS, T-slot, quarter-round, dovetail milling cutters

	 T-slot milling cutter				 T-slot milling cutter				 T-slot milling cutter			
	11 – 56				16 – 50				4,5 – 45,5			
	6 – 10				6 – 10				6 – 14			
	uncoated				uncoated				uncoated			
	Family	Designation	λ	Page	Family	Designation	λ	Page	Family	Designation	λ	Page
	N 12	P314801	12°	*E 223**	Kordel F 12	P314101	12°	*E 224**	N 10	P313231 P313211	10°	*E 225** *E 225**
					●				●			
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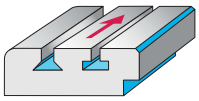
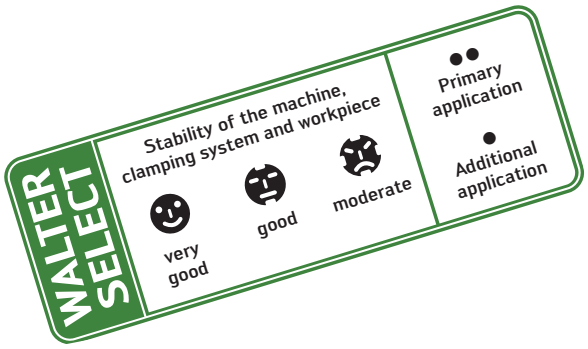
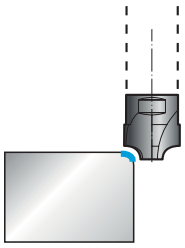
Walter Select – Profile milling
HSS, T-slot, quarter-round, dovetail milling cutters



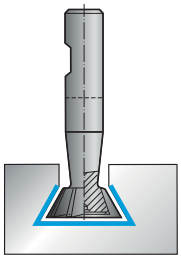




Quarter-round milling cutter

					Machining conditions			
					Ø range		8 – 20	
					Number of teeth		4 – 6	
					Coating		uncoated	
						Designation	λ	Page
						P316881	0°	*E 226**
Material group	**Grouping of main material groups and code letters** **Workpiece material**		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group			
P	Non-alloyed and low-alloyed steel	annealed (tempered)	210	700	P1, P2, P3, P4, P7	●		
		free cutting steel	220	750	P6	●		
		tempered	300	1010	P5, P8	●		
		tempered	380	1280	P9	●		
		tempered	430	1480	P10	●		
	High-alloyed steel and high-alloyed tool steel	annealed	200	670	P11	●		
		hardened and tempered	300	1010	P12	●		
		hardened and tempered	400	1360	P13	●		
	Stainless steel	ferritic/martensitic, annealed	200	670	P14	●		
		martensitic, tempered	330	1110	P15	●		
M	Stainless steel	austenitic, duplex	230	780	M1, M3	●		
		austenitic, precipitation hardened (PH)	300	1010	M2	●		
K	Grey cast iron		245	–	K3, K4	●		
	Cast iron with spheroidal graphite	ferritic, pearlitic	365	–	K1, K2, K5, K6	●		
	GGV (CGI)		200	–	K7	●		
N	Aluminium wrought alloys	cannot be hardened	30	–	N1	●●		
		hardenable, hardened	100	340	N2	●●		
	Cast aluminium alloys	≤ 12% Si	90	310	N3, N4	●●		
		> 12% Si	130	450	N5	●●		
	Magnesium alloys		70	250	N6	●●		
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper	100	340	N7	●●		
		brass, bronze, red brass	90	310	N8	●●		
		Cu-alloys, short-chipping	110	380	N9	●●		
		high-strength, Ampco	300	1010	N10	●●		
S	Heat-resistant alloys	Fe-based	280	940	S1, S2	●		
		Ni or Co base	250	840	S3	●		
		Ni or Co base	350	1080	S4, S5	●		
	Titanium alloys	pure titanium	200	670	S6	●		
		α and β alloys, hardened	375	1260	S7	●		
		β alloys	410	1400	S8	●		
	Tungsten alloys		300	1010	S9	●		
	Molybdenum alloys		300	1010	S10	●		
H	Hardened steel		50 HRC	–	H1			
			55 HRC	–	H2, H4			
			60 HRC	–	H3			
O	Thermoplasts	without abrasive fillers			O1	●		
	Thermosetting plastics	without abrasive fillers			O2	●		
	Plastic, fibre-reinforced	GFRP, AFRP			O3, O5			
		CFRP			O4			
	Graphite (technical)			65	O6			

** The pages indicated in italics refer to the Walter General catalogue 2012.*



Dovetail milling cutter

	12 – 32
	10 – 12
	uncoated

Designation	λ	Page
P315801	0°	*E 227**
P315821		*E 227**
P315831		*E 228**
P315851		*E 228**

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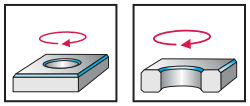
Chamfer milling cutter 150°
Protostar® N 10

Materials to 48 HRC



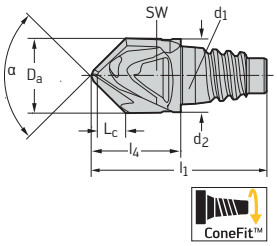
- Solid carbide/spade
- 2 cutting edges
- With centre cut
- 10° helix angle

Special features:
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●	●	●	●		

P standard

	D_a mm	α	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1	Z	TAX Designation H1E58018
ConeFit™	12	150°	1,6	11,7	27,8	14	8	E12	2	★ -E12-12

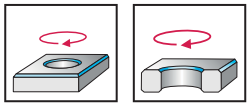


★ New addition to range

G-2 D 11 C 285 E-91

Chamfer milling cutter 120°
Protostar® N 10

Materials to 48 HRC

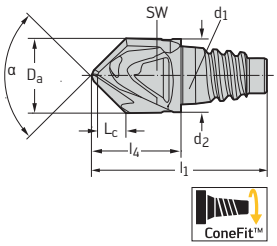


- Solid carbide/spade
- 2 cutting edges
- With centre cut
- 10° helix angle

Special features:
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●	●	●	●		

P standard



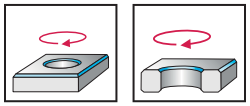
	D_a mm	α	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1 mm	Z	TAX Designation H1E58118
ConeFit™	10	120°	2,7	9,7	23	11,8	6	E10	2	★ -E10-10
	12	120°	3,3	11,7	27,8	14	8	E12	2	★ -E12-12

★ New addition to range

G-2 D 11 C 285 E-91

Chamfer milling cutter 90°
Protostar® N 10

Materials to 48 HRC



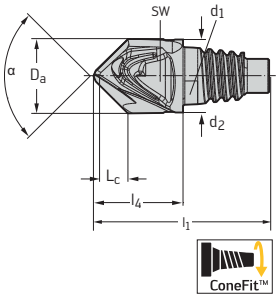
- Solid carbide/spade
- 2 cutting edges
- With centre cut
- 10° helix angle

Special features:
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●	●	●	●		

P standard

ConeFit™



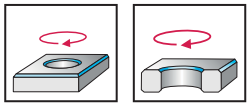
D_a mm	α	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1 mm	Z	TAX Designation H1E58318
10	90	4,5	9,7	23	11,8	6	E10	2	★ -E10-10
12	90	5,5	11,7	27,8	14	8	E12	2	★ -E12-12
16	90	7,5	15,5	35,1	18,1	10	E16	2	★ -E16-16

★ New addition to range

G-2 D 11 C 285 E-91

Chamfer milling cutter 60°
Protostar® N 10

Materials to 48 HRC



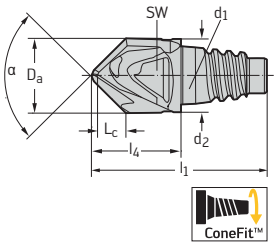
- Solid carbide/spade
- 2 cutting edges
- With centre cut
- 10° helix angle

Special features:
Shoulder milling: $a_e \leq 0.5 \times D_c$

	P	M	K	N	S	H	O
TAX	●●	●	●	●	●		

P standard

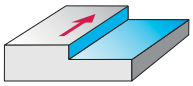
	D_a mm	α	L_c mm	d_2 mm	l_1 mm	l_4 mm	SW mm	d_1 mm	Z	TAX Designation H1E58518
ConeFit™	10	60°	7,5	9,7	23	11,8	6	E10	2	★ -E10-10
	12	60°	8	11,7	27,8	14	8	E12	2	★ -E12-12



★ New addition to range

G-2 D 11 C 285 E-91

Cutting data for shoulder milling

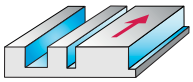


The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Cutting tool material	VHM			
	Family	Des.	λ	Page
	N 50	H3023138	50°	E-13

Material group	Grouping of main material groups and code letters	Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Ø 6 – 25 / Z = 6 – 8 / TAX a_e / D_c 1/2	1/4	1/10	VT
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1		240	290	A
		C > 0.25... ≤ 0.55%	annealed	190	639	P2		230	280	A
		C > 0.25... ≤ 0.55%	tempered	210	708	P3		200	240	A
		C > 0.55%	annealed	190	639	P4		200	240	A
		C > 0.55%	tempered	300	1013	P5		140	170	A
		free cutting steel (short-chipping)	annealed	220	745	P6		200	240	A
	Low-alloyed steel	annealed		175	591	P7		200	240	A
		tempered		300	1013	P8		140	170	A
		tempered		380	1282	P9		120	140	A
		tempered		430	1477	P10		100	120	A
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11		200	240	A
		hardened and tempered		300	1013	P12		140	170	A
		hardened and tempered		400	1361	P13		100	120	A
	Stainless steel	ferritic/martensitic, annealed		200	675	P14		70	80	A
		martensitic, tempered		330	1114	P15		50	60	A
M	Stainless steel	austenitic, quench hardened		200	675	M1		80	100	B
		austenitic, precipitation hardened (PH)		300	1013	M2		50	60	B
		austenitic/ferritic, duplex		230	778	M3		70	80	B
K	Malleable cast iron	ferritic		200	675	K1				
		pearlitic		260	867	K2				
	Grey cast iron	Low tensile strength		180	602	K3				
		high tensile strength/austenitic		245	825	K4				
	Cast iron with spheroidal graphite	ferritic		155	518	K5				
		pearlitic		265	885	K6				
	GGV (CGI)			200	675	K7				
N	Aluminium wrought alloys	cannot be hardened		30	–	N1				
		hardenable, hardened		100	343	N2				
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3				
		≤ 12% Si, hardenable, hardened		90	314	N4				
		> 12% Si, cannot be hardened		130	447	N5				
	Magnesium alloys			70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7				
		brass, bronze, red brass		90	314	N8				
		Cu-alloys, short-chipping		110	382	N9				
		high-strength, Ampco		300	1013	N10				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1		60	80	B
			hardened	280	943	S2		40	50	B
		Ni or Co base	annealed	250	839	S3		60	80	B
			hardened	350	1177	S4		40	50	B
			cast	320	1076	S5		40	50	B
	Titanium alloys	pure titanium		200	675	S6				
		α and β alloys, hardened		375	1262	S7		60	80	B
		β alloys		410	1396	S8		60	80	B
	Tungsten alloys			300	1013	S9		70	90	B
	Molybdenum alloys			300	1013	S10				
H	Hardened steel	hardened and tempered		50 HRC	–	H1				
		hardened and tempered		55 HRC	–	H2				
		hardened and tempered		60 HRC	–	H3				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4				
O	Thermoplasts	without abrasive fillers				O1				
	Thermosetting plastics	without abrasive fillers				O2				
	Plastic, glass-fibre reinforced	GFRP				O3				
	Plastic, carbon-fibre reinforced	CFRP				O4				
	Plastic, aramid-fibre reinforced	AFRP				O5				
	Graphite (technical)			80 Shore		O6				

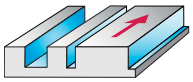
[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*



Cutting data for shoulder/slot milling

	VHM															
	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page
	ConeFit™	H4E34217	50°	E-38	**Proto·max™ ST**	H4033217	45°	E-40	**ConeFit™**	H2EC34217	50°	E-41	**ConeFit™**	H2EC94717	50°	E-53
	Proto·max™ ST					H4133217		E-40	**Proto·max™ Inox**	H2EC38217		E-51	**Proto·max™ Inox**			
		H4E38217		E-48		H4036217		E-50					**with**			
	Proto·max™ ST	H4034217	50°	E-39									**Flash profile**			
		H4134217		E-39												
		H4038217		E-49												
		H4138217		E-49												
	Ø 3 – 20				Ø 2 – 20				Ø 10 – 25				Ø 10 – 20			
	Z = 4				Z = 3				Z = 4 – 5				Z = 4			
	TAZ				TAZ				TAA				TAA			
	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT
	1/1	1/2	1/10		1/1	1/2	1/10		1/1	1/2	1/10		1/1	1/2	1/10	
	220	230	320	F	220	230	320	F								
	140	190	230	F	140	190	230	F								
	110	130	190	F	110	130	190	F								
	90	110	150	F	90	110	150	F								
	200	230	320	F	200	230	320	F								
	140	190	230	F	140	190	230	F								
									90	130	180	M	80	110	160	D
									70	100	140	M	65	90	130	D
									50	80	100	M	40	60	90	D
									40	50	65	M	40	50	65	B
									40	50	65	M	40	50	65	B
									40	50	65	M	40	50	65	B
									25	35	55	M	25	35	55	B
									25	35	55	M	25	35	55	B
									25	35	55	M	25	35	55	B
									25	35	55	M	25	35	55	B

Cutting data for shoulder/slot milling



The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

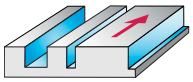
Cutting tool material	VHM			
	Family	Des.	λ	Page
	Proto-max™ Inox	H2034217	35°/38°	E-42
		H2134217		E-42
		H2038217		E-52
		H2138217		E-52

Material group	Grouping of main material groups and code letters: Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Ø 6 – 25 / Z = 4 – 5 / TAA: a_e / D_c 1/1	a_e / D_c 1/2	a_e / D_c 1/10	VT
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1				
		C > 0.25... ≤ 0.55%	annealed	190	639	P2				
		C > 0.25... ≤ 0.55%	tempered	210	708	P3				
		C > 0.55%	annealed	190	639	P4				
		C > 0.55%	tempered	300	1013	P5				
		free cutting steel (short-chipping)	annealed	220	745	P6				
	Low-alloyed steel	annealed		175	591	P7				
		tempered		300	1013	P8				
		tempered		380	1282	P9				
		tempered		430	1477	P10				
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11				
		hardened and tempered		300	1013	P12				
		hardened and tempered		400	1361	P13				
	Stainless steel	ferritic/martensitic, annealed		200	675	P14				
		martensitic, tempered		330	1114	P15				
M	Stainless steel	austenitic, quench hardened		200	675	M1	80	110	160	M
		austenitic, precipitation hardened (PH)		300	1013	M2	70	100	140	M
		austenitic/ferritic, duplex		230	778	M3	50	80	100	M
K	Malleable cast iron	ferritic		200	675	K1				
		pearlitic		260	867	K2				
	Grey cast iron	Low tensile strength		180	602	K3				
		high tensile strength/austenitic		245	825	K4				
	Cast iron with spheroidal graphite	ferritic		155	518	K5				
		pearlitic		265	885	K6				
	GGV (CGI)			200	675	K7				
N	Aluminium wrought alloys	cannot be hardened		30	–	N1				
		hardenable, hardened		100	343	N2				
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3				
		≤ 12% Si, hardenable, hardened		90	314	N4				
		> 12% Si, cannot be hardened		130	447	N5				
	Magnesium alloys			70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7				
		brass, bronze, red brass		90	314	N8				
		Cu-alloys, short-chipping		110	382	N9				
		high-strength, Ampco		300	1013	N10				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	25	35	55	M
			hardened	280	943	S2	25	35	55	M
		Ni or Co base	annealed	250	839	S3	25	35	55	M
			hardened	350	1177	S4	25	35	55	M
			cast	320	1076	S5	25	35	55	M
	Titanium alloys	pure titanium		200	675	S6				
		α and β alloys, hardened		375	1262	S7				
		β alloys		410	1396	S8				
	Tungsten alloys			300	1013	S9	25	35	55	M
	Molybdenum alloys			300	1013	S10	25	35	55	M
H	Hardened steel	hardened and tempered		50 HRC	–	H1				
		hardened and tempered		55 HRC	–	H2				
		hardened and tempered		60 HRC	–	H3				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4				
O	Thermoplasts	without abrasive fillers				O1				
	Thermosetting plastics	without abrasive fillers				O2				
	Plastic, glass-fibre reinforced	GFRP				O3				
	Plastic, carbon-fibre reinforced	CFRP				O4				
	Plastic, aramid-fibre reinforced	AFRP				O5				
	Graphite (technical)			80 Shore		O6				

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

	VHM															
	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page
	Proto·max™$_{TG}$ long	H3021178	50°	E-43	**Proto·max™$_{TG}$**	H3021378 H3121378	50°	E-44 E-44	**Proto·max™$_{TG}$**	H4121078	50°	E-45	**ConeFit™ Spade Flash**	H1E92718	10°	E-54
		H4121278	50°	E-47		H4121278	50°	E-47								
	Ø 2 – 20				Ø 6 – 25				Ø 6 – 20				Ø 10 – 16			
	Z = 3 + 4				Z = 4 + 5				Z = 4				Z = 2			
	TAT				TAT				TAT				TAX			
	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT
	1/1	1/2	1/10		1/1	1/2	1/10		1/1	1/2	1/10		1/1	1/2	1/10	
	150	190	270	A	180	240	340	A	190	240	340	A	100	140	150	D
	150	190	260	A	170	230	330	A	180	230	320	A	80	110	120	D
	120	160	220	A	150	200	280	A	160	190	280	A	80	110	120	D
	120	160	220	A	150	200	280	A	160	190	280	A	80	110	120	D
	90	120	150	A	110	140	200	A	110	140	200	A	70	90	100	D
	120	160	220	A	150	200	280	A	160	190	280	A	80	110	120	D
	120	160	220	A	150	200	280	A	160	190	280	A	80	110	120	D
	90	120	150	A	110	140	200	A	110	140	200	A	70	90	100	D
	80	100	130	A	90	110	160	A	90	110	160	A	60	80	80	D
	60	80	110	A	80	100	140	A	80	100	140	A	50	60	70	D
	120	160	220	A	150	200	280	A	160	190	280	A	80	110	120	D
	90	120	150	A	110	140	200	A	110	140	200	A	70	90	100	D
	60	80	110	A	80	100	140	A	80	100	140	A	50	60	70	D
	40	60	70	A	50	70	100	A	50	70	90	A	40	50	50	D
	30	40	50	A	40	50	70	A	40	50	70	A	30	30	40	D
	50	70	90	B	60	80	120	B	70	80	120	B	40	60	60	D
	30	40	50	B	40	50	70	B	40	50	70	B	30	30	40	D
	40	60	70	B	50	70	100	B	50	70	90	B	40	50	50	D
	120	150	200	A	140	180	260	A	150	180	260	A	90	120	130	D
	90	120	160	A	120	140	200	A	120	140	200	A	70	100	100	D
	120	140	200	A	140	180	260	A	140	180	260	A	90	120	130	D
	100	130	170	A	120	150	220	A	120	150	220	A	80	100	110	D
	120	150	200	A	140	180	260	A	150	180	260	A	90	120	130	D
	90	120	160	A	120	140	200	A	120	140	200	A	70	100	100	D
	80	100	140	A	100	120	180	A	100	130	170	A	60	80	90	D
			250	B			320	B								
	40	50	80	B	40	60	110	B								
	40	50	80	B	40	60	110	B								

Cutting data for shoulder/slot milling



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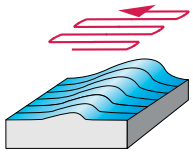
For special applications, adjustment is recommended.

Cutting tool material	VHM			
	Family	Des.	λ	Page
	ConeFit™ N 50 for graphite	H3E20419	50°	E-57

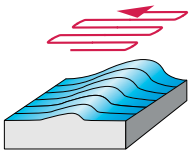
Material group	Grouping of main material groups and code letters – Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Ø 10 - 12, Z = 4, DIA – a_e/D_c 1/1	a_e/D_c 1/2	a_e/D_c 1/10	VT
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1				
		C > 0.25... ≤ 0.55%	annealed	190	639	P2				
		C > 0.25... ≤ 0.55%	tempered	210	708	P3				
		C > 0.55%	annealed	190	639	P4				
		C > 0.55%	tempered	300	1013	P5				
		free cutting steel (short-chipping)	annealed	220	745	P6				
	Low-alloyed steel	annealed		175	591	P7				
		tempered		300	1013	P8				
		tempered		380	1282	P9				
		tempered		430	1477	P10				
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11				
		hardened and tempered		300	1013	P12				
		hardened and tempered		400	1361	P13				
	Stainless steel	ferritic/martensitic, annealed		200	675	P14				
		martensitic, tempered		330	1114	P15				
M	Stainless steel	austenitic, quench hardened		200	675	M1				
		austenitic, precipitation hardened (PH)		300	1013	M2				
		austenitic/ferritic, duplex		230	778	M3				
K	Malleable cast iron	ferritic		200	675	K1				
		pearlitic		260	867	K2				
	Grey cast iron	Low tensile strength		180	602	K3				
		high tensile strength/austenitic		245	825	K4				
	Cast iron with spheroidal graphite	ferritic		155	518	K5				
		pearlitic		265	885	K6				
	GGV (CGI)			200	675	K7				
N	Aluminium wrought alloys	cannot be hardened		30	–	N1				
		hardenable, hardened		100	343	N2				
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3				
		≤ 12% Si, hardenable, hardened		90	314	N4				
		> 12% Si, cannot be hardened		130	447	N5				
	Magnesium alloys			70	250	N6				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7				
		brass, bronze, red brass		90	314	N8				
		Cu-alloys, short-chipping		110	382	N9				
		high-strength, Ampco		300	1013	N10				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1				
			hardened	280	943	S2				
		Ni or Co base	annealed	250	839	S3				
			hardened	350	1177	S4				
			cast	320	1076	S5				
	Titanium alloys	pure titanium		200	675	S6				
		α and β alloys, hardened		375	1262	S7				
		β alloys		410	1396	S8				
	Tungsten alloys			300	1013	S9				
	Molybdenum alloys			300	1013	S10				
H	Hardened steel	hardened and tempered		50 HRC	–	H1				
		hardened and tempered		55 HRC	–	H2				
		hardened and tempered		60 HRC	–	H3				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4				
O	Thermoplasts	without abrasive fillers				O1				
	Thermosetting plastics	without abrasive fillers				O2				
	Plastic, glass-fibre reinforced	GFRP				O3				
	Plastic, carbon-fibre reinforced	CFRP				O4				
	Plastic, aramid-fibre reinforced	AFRP				O5				
	Graphite (technical)			80 Shore		O6	900	900	1300	C

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

Cutting data for copy milling

	VHM															
	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page
	ConeFit™ Spade N 10	H1E12018	10°	E-56	**Qmax HR Kordel F 45**	H3186378	45°	E-59	**Qmax HR Kordel F 40**	H3183378	40°	E-60	**ConeFit™ Spade N 10**	H1E0111	10°	E-71
																
	Ø 10 – 16				Ø 12 – 20				Ø 6 – 20				Ø 10 – 16			
	Z = 2				Z = 5 + 6				Z = 4				Z = 2			
	TAX				TAX				TAX				uncoated			
	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT
	1/1	1/2	1/10		1/1	1/2	1/10		1/1	1/2	1/10		1/5	1/20	1/50	
		350	490	D	160	210	310	A	160	210	300	A	430	500	700	A
		320	460	D	160	210	290	A	160	200	290	A	410	560	680	A
		380	540	D	130	180	250	A	130	170	250	A	410	560	680	A
		250	360	D	130	180	250	A	130	170	250	A	410	560	680	A
		250	360	D	90	120	180	A	90	120	180	A	330	450	540	A
		310	450	D	130	180	250	A	130	170	250	A	430	580	700	A
		230	330	D	130	180	250	A	130	170	250	A	410	560	680	A
		250	350	D	90	120	180	A	90	120	180	A	370	510	610	A
		220	320	D									265	360	440	A
		230	330	D									370	510	610	A
		260	370	D	130	180	250	A	130	170	250	A	300	400	490	A
		250	360	D	90	120	180	A	90	120	180	A	330	450	540	A
		220	320	D									140	190	230	A
		150	210	D	50	60	90	A	50	60	90	A	130	170	210	A
		60	80	D				A				A	155	210	260	A
		95	145	D	60	70	110	B	60	70	100	B	180	250	300	B
		85	120	D									155	170	200	B
		60	80	D	35	60	80	B	35	60	80	B	125	170	200	B
		250	360	D	120	160	230	A	120	160	230	A	330	450	540	A
		200	290	D	100	130	180	A	100	130	180	A	330	450	540	A
		300	430	D	120	160	230	A	120	160	230	A	350	475	570	A
		230	320	D	100	140	200	A	100	140	200	A	350	475	570	A
		260	360	D	120	160	230	A	120	160	230	A	330	450	540	A
		200	290	D	100	130	180	A	100	130	180	A	330	450	540	A
		180	250	D	80	110	160	A	90	110	160	A	330	450	540	A
													1040	880	880	C
													1040	880	880	C
													530	720	870	C
													530	720	870	C
																C
													1040	880	880	C
													970	1140	880	C
													970	1140	880	C
													970	1140	880	C
													140	185	220	C
													390	570	720	B
													65	95	120	B
													68	100	125	B
													69	100	125	B
													69	100	125	B
													390	570	720	B
													140	230	300	B
													69	100	300	B
													69	100	300	B
													69	100	300	B
													140	190	230	B
													130	180	210	B
													370	510	610	B

Cutting data for copy milling



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For special applications, adjustment is recommended.

Cutting tool material	VHM			
	Family	Des.	λ	Page
	ConeFit™ Spade N 10	H1E01118	10°	E-71

Material group	Grouping of main material groups and code letters: Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Ø 10 – 16; Z = 2; TAX; a_e / D_c 1/5	a_e / D_c 1/20	a_e / D_c 1/50	VT
P	Non-alloyed steel	C ≤ 0.25%	annealed	125	428	P1	430	500	700	A
		C > 0.25... ≤ 0.55%	annealed	190	639	P2	410	560	680	A
		C > 0.25... ≤ 0.55%	tempered	210	708	P3	410	560	680	A
		C > 0.55%	annealed	190	639	P4	410	560	680	A
		C > 0.55%	tempered	300	1013	P5	330	450	540	A
		free cutting steel (short-chipping)	annealed	220	745	P6	430	580	700	A
	Low-alloyed steel	annealed		175	591	P7	410	560	680	A
		tempered		300	1013	P8	370	510	610	A
		tempered		380	1282	P9	265	360	440	A
		tempered		430	1477	P10	370	510	610	A
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	300	400	490	A
		hardened and tempered		300	1013	P12	330	450	540	A
		hardened and tempered		400	1361	P13	140	190	230	A
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	130	170	210	A
		martensitic, tempered		330	1114	P15	155	210	260	A
M	Stainless steel	austenitic, quench hardened		200	675	M1	180	250	300	B
		austenitic, precipitation hardened (PH)		300	1013	M2	155	170	200	B
		austenitic/ferritic, duplex		230	778	M3	125	170	200	B
K	Malleable cast iron	ferritic		200	675	K1	330	450	540	A
		pearlitic		260	867	K2	330	450	540	A
	Grey cast iron	Low tensile strength		180	602	K3	350	475	570	A
		high tensile strength/austenitic		245	825	K4	350	475	570	A
	Cast iron with spheroidal graphite	ferritic		155	518	K5	330	450	540	A
		pearlitic		265	885	K6	330	450	540	A
	GGV (CGI)			200	675	K7	330	450	540	A
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	1040	880	880	C
		hardenable, hardened		100	343	N2	1040	880	880	C
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3	530	720	870	C
		≤ 12% Si, hardenable, hardened		90	314	N4	530	720	870	C
		> 12% Si, cannot be hardened		130	447	N5				C
	Magnesium alloys			70	250	N6	1040	880	880	C
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	970	1140	880	C
		brass, bronze, red brass		90	314	N8	970	1140	880	C
		Cu-alloys, short-chipping		110	382	N9	970	1140	880	C
		high-strength, Ampco		300	1013	N10	140	185	220	C
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	390	570	720	B
			hardened	280	943	S2	65	95	120	B
		Ni or Co base	annealed	250	839	S3	68	100	125	B
			hardened	350	1177	S4	69	100	125	B
			cast	320	1076	S5	69	100	125	B
	Titanium alloys	pure titanium		200	675	S6	390	570	720	B
		α and β alloys, hardened		375	1262	S7	140	230	300	B
		β alloys		410	1396	S8	69	100	300	B
	Tungsten alloys			300	1013	S9	69	100	300	B
	Molybdenum alloys			300	1013	S10	69	100	300	B
H	Hardened steel	hardened and tempered		50 HRC	–	H1	140	190	230	B
		hardened and tempered		55 HRC	–	H2	130	180	210	B
		hardened and tempered		60 HRC	–	H3				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4	370	510	610	B
O	Thermoplasts	without abrasive fillers				O1				
	Thermosetting plastics	without abrasive fillers				O2				
	Plastic, glass-fibre reinforced	GFRP				O3				
	Plastic, carbon-fibre reinforced	CFRP				O4				
	Plastic, aramid-fibre reinforced	AFRP				O5				
	Graphite (technical)			80 Shore		O6				

[1] *The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.*

Cutting data for profile milling

	VHM															
	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page	Family	Des.	λ	Page
	ConeFit™ Spade N 10	H1E01219	10°	E-71	**Proto·max™ Ultra standard**	H8004788	30°	E-68	**Proto·max™ Ultra mini**	H4046988	30°	E-69	**ConeFit™ Spade Chamfer milling cutters**			
													150°	H1E58018	10°	E-78
													120°	H1E58118	10°	E-79
													90°	H1E58318	10°	E-80
													60°	H1E58518	10°	E-81
	Ø 10 + 12				Ø 3 – 12				Ø 0,1 – 2,5				Ø 10 – 16			
	Z = 2				Z = 2				Z = 2				Z = 2			
	DIA				TAS				TAS				TAX			
	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT	a_e / D_c			VT
	1/5	1/20	1/50		1/5	1/20	1/50		1/5	1/20	1/50		1/3	1/10	1/20	
													220	320	380	A
													220	320	380	A
													180	260	320	A
													180	260	320	A
													130	180	230	A
													180	260	320	A
													180	260	320	A
													130	180	230	A
													110	150	170	A
													90	130	160	A
													180	260	320	A
													130	180	230	A
													90	130	160	A
													60	90	110	A
													50	70	80	A
													80	110	130	B
													50	70	80	B
													60	90	110	B
													170	240	300	A
													130	190	230	A
													170	240	300	A
													170	240	300	A
													170	240	300	A
													130	190	230	A
													110	160	200	A
													1600	2300	2900	C
													1600	2300	2900	C
													260	370	450	C
													260	370	450	C
													170	240	300	C
													750	1100	1300	C
													480	680	840	C
													480	680	840	C
													480	680	840	C
													70	100	120	C
													60	90	110	B
													40	50	70	B
													60	90	110	B
													40	50	70	B
													40	50	70	B
													200	290	370	B
													60	90	120	B
													60	90	120	B
													70	100	120	B
													70	100	120	B
					160	220	260		160	220	260		70	100	120	B
					160	220	260		160	220	260					
					160	220	260		160	220	260					
													380	550	670	C
	1.000	1.000	1.400	C												

Feed matrices – f_z table

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

A Material groups ISO P, ISO K and titanium alloys

	Feed per tooth f_z [mm]										
a_e [mm]*	Ø 0.3 mm	Ø 0.5 mm	Ø 1 mm	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm
0,01	0,02	0,02	0,03	0,06	0,09	0,12	0,15	0,15	0,20		
0,05	0,01	0,01	0,02	0,04	0,07	0,10	0,12	0,15	0,20		
0,1	0,01	0,01	0,02	0,03	0,05	0,08	0,10	0,15	0,20	0,20	0,20
0,2	0,01	0,01	0,01	0,03	0,04	0,06	0,08	0,15	0,18	0,20	0,20
0,5		0,01	0,01	0,02	0,03	0,05	0,07	0,12	0,15	0,15	0,15
1			0,01	0,02	0,03	0,04	0,06	0,09	0,12	0,12	0,12
2				0,02	0,03	0,03	0,05	0,08	0,11	0,12	0,12
3					0,02	0,02	0,04	0,07	0,10	0,12	0,12
5						0,02	0,04	0,07	0,10	0,12	0,12
6							0,03	0,06	0,08	0,10	0,10
8								0,05	0,07	0,09	0,10
10									0,06	0,08	0,10
12										0,07	0,09
14											0,08
16											
18											
20											
25											
32											
40											
50											
63											
80											
100											
160											
200											

A Material groups ISO P, ISO K and titanium alloys

	Feed per tooth f_z [mm]										
a_e [mm]*	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm	Ø 160 mm	Ø 200 mm
0,01												
0,05												
0,1	0,20											
0,2	0,20	0,20	0,25									
0,5	0,15	0,20	0,25	0,25								
1	0,12	0,15	0,20	0,25	0,25	0,30	0,30	0,30	0,40	0,40	0,50	0,50
2	0,12	0,15	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,40	0,40	0,40
3	0,12	0,14	0,18	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,40	0,40
5	0,12	0,12	0,15	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30
6	0,12	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30
8	0,12	0,12	0,15	0,20	0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,25
10	0,12	0,12	0,14	0,16	0,20	0,20	0,20	0,20	0,20	0,25	0,25	0,25
12	0,11	0,12	0,14	0,16	0,16	0,20	0,20	0,20	0,20	0,20	0,25	0,25
14	0,10	0,12	0,13	0,15	0,16	0,16	0,20	0,20	0,20	0,20	0,20	0,25
16	0,09	0,10	0,12	0,15	0,15	0,16	0,16	0,20	0,20	0,20	0,20	0,20
18		0,10	0,11	0,13	0,15	0,15	0,16	0,16	0,20	0,20	0,20	0,20
20			0,10	0,12	0,13	0,15	0,15	0,16	0,16	0,20	0,20	0,20
25				0,10	0,12	0,13	0,15	0,15	0,16	0,16	0,20	0,20
32					0,10	0,12	0,13	0,15	0,15	0,16	0,16	0,20
40						0,10	0,12	0,13	0,15	0,15	0,16	0,16
50							0,10	0,12	0,13	0,15	0,15	0,16
63								0,10	0,12	0,13	0,15	0,15
80									0,10	0,12	0,13	0,15
100										0,10	0,12	0,13
160											0,10	0,12
200												0,10

*Radial feed in mm.

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

B Material groups ISO M, ISO H, heat-resistant alloys, tungsten alloys and molybdenum alloys

	Feed per tooth f_z [mm]										
a_e [mm]*	Ø 0.3 mm	Ø 0.5 mm	Ø 1 mm	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm
0,01	0,02	0,02	0,02	0,05	0,07	0,10	0,12	0,12	0,16		
0,05	0,01	0,01	0,02	0,03	0,06	0,08	0,10	0,12	0,16		
0,1	0,01	0,01	0,02	0,03	0,04	0,06	0,08	0,12	0,16	0,16	0,16
0,2	0,01	0,01	0,01	0,02	0,03	0,05	0,06	0,12	0,14	0,16	0,16
0,5		0,01	0,01	0,02	0,02	0,04	0,06	0,10	0,12	0,12	0,12
1			0,01	0,02	0,02	0,03	0,05	0,07	0,10	0,10	0,10
2				0,02	0,02	0,02	0,04	0,06	0,09	0,10	0,10
3					0,02	0,02	0,04	0,06	0,08	0,10	0,10
5						0,02	0,03	0,06	0,08	0,10	0,10
6							0,02	0,05	0,06	0,08	0,08
8								0,04	0,06	0,07	0,08
10									0,05	0,06	0,08
12										0,06	0,07
14											0,06
16											
18											
20											
25											
32											
40											
50											
63											
80											
100											
160											
200											

B Material groups ISO M, ISO H, heat-resistant alloys, tungsten alloys and molybdenum alloys

	Feed per tooth f_z [mm]											
a_e [mm]*	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm	Ø 160 mm	Ø 200 mm
0,01												
0,05												
0,1	0,16											
0,2	0,16	0,16	0,20									
0,5	0,12	0,16	0,20	0,20								
1	0,10	0,12	0,16	0,20	0,20	0,24	0,24	0,24	0,32	0,32	0,40	0,40
2	0,10	0,12	0,16	0,16	0,20	0,20	0,20	0,24	0,24	0,32	0,32	0,32
3	0,10	0,11	0,14	0,16	0,16	0,20	0,20	0,20	0,24	0,24	0,32	0,32
5	0,10	0,10	0,12	0,16	0,16	0,16	0,20	0,20	0,20	0,24	0,24	0,24
6	0,10	0,10	0,12	0,16	0,16	0,16	0,16	0,20	0,20	0,20	0,24	0,24
8	0,10	0,10	0,12	0,16	0,16	0,16	0,16	0,16	0,20	0,20	0,20	0,20
10	0,10	0,10	0,11	0,13	0,16	0,16	0,16	0,16	0,16	0,20	0,20	0,20
12	0,09	0,10	0,11	0,13	0,13	0,16	0,16	0,16	0,16	0,16	0,20	0,20
14	0,08	0,10	0,10	0,12	0,13	0,13	0,16	0,16	0,16	0,16	0,16	0,20
16	0,07	0,08	0,10	0,12	0,12	0,13	0,13	0,16	0,16	0,16	0,16	0,16
18		0,08	0,09	0,10	0,12	0,12	0,13	0,13	0,16	0,16	0,16	0,16
20			0,08	0,10	0,10	0,12	0,12	0,13	0,13	0,16	0,16	0,16
25				0,08	0,10	0,10	0,12	0,12	0,13	0,13	0,16	0,16
32					0,08	0,10	0,10	0,12	0,12	0,13	0,13	0,16
40						0,08	0,10	0,10	0,12	0,12	0,13	0,13
50							0,08	0,10	0,10	0,12	0,12	0,13
63								0,08	0,10	0,10	0,12	0,12
80									0,08	0,10	0,10	0,12
100										0,08	0,10	0,10
160											0,08	0,10
200												0,08

*Radial feed in mm.

Feed matrices – f_z table

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

C Material groups ISO N and ISO O

	Feed per tooth f_z [mm]										
a_e [mm]*	Ø 0.3 mm	Ø 0.5 mm	Ø 1 mm	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm
0,01	0,04	0,04	0,07	0,13	0,20	0,26	0,33	0,33	0,44		
0,05	0,03	0,03	0,06	0,09	0,15	0,22	0,26	0,33	0,44		
0,1	0,02	0,03	0,04	0,08	0,11	0,18	0,22	0,33	0,44	0,44	0,44
0,2	0,02	0,02	0,03	0,07	0,09	0,13	0,18	0,33	0,40	0,44	0,44
0,5		0,02	0,03	0,06	0,07	0,11	0,15	0,26	0,33	0,33	0,33
1			0,02	0,06	0,07	0,09	0,13	0,20	0,26	0,26	0,26
2				0,04	0,07	0,07	0,11	0,18	0,24	0,26	0,26
3					0,04	0,06	0,10	0,17	0,23	0,26	0,26
5						0,04	0,09	0,15	0,22	0,26	0,26
6							0,07	0,13	0,18	0,22	0,22
8								0,11	0,15	0,20	0,22
10									0,13	0,18	0,22
12										0,15	0,20
14											0,18
16											
18											
20											
25											
32											
40											
50											
63											
80											
100											
160											
200											

C Material groups ISO N and ISO O

	Feed per tooth f_z [mm]											
a_e [mm]*	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm	Ø 160 mm	Ø 200 mm
0,01												
0,05												
0,1	0,44											
0,2	0,44	0,44	0,50									
0,5	0,33	0,44	0,50	0,50								
1	0,26	0,33	0,44	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
2	0,26	0,33	0,44	0,44	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
3	0,26	0,30	0,39	0,44	0,44	0,50	0,50	0,50	0,50	0,50	0,50	0,50
5	0,26	0,26	0,33	0,44	0,44	0,44	0,50	0,50	0,50	0,50	0,50	0,50
6	0,26	0,26	0,33	0,44	0,44	0,44	0,44	0,50	0,50	0,50	0,50	0,50
8	0,26	0,26	0,33	0,44	0,44	0,44	0,44	0,44	0,55	0,55	0,55	0,55
10	0,26	0,26	0,31	0,35	0,44	0,44	0,44	0,44	0,44	0,50	0,55	0,55
12	0,24	0,26	0,31	0,35	0,35	0,44	0,44	0,44	0,44	0,44	0,50	0,50
14	0,22	0,26	0,29	0,33	0,35	0,35	0,44	0,44	0,44	0,44	0,44	0,50
16	0,20	0,22	0,26	0,33	0,33	0,35	0,35	0,44	0,44	0,44	0,44	0,44
18		0,22	0,24	0,29	0,33	0,33	0,35	0,35	0,44	0,44	0,44	0,44
20			0,22	0,26	0,29	0,33	0,33	0,35	0,35	0,44	0,44	0,44
25				0,22	0,26	0,29	0,33	0,33	0,35	0,35	0,44	0,44
32					0,22	0,26	0,29	0,33	0,33	0,35	0,35	0,44
40						0,22	0,26	0,29	0,33	0,33	0,35	0,35
50							0,22	0,26	0,29	0,33	0,33	0,35
63								0,22	0,26	0,29	0,33	0,33
80									0,22	0,26	0,29	0,33
100										0,22	0,26	0,29
160											0,22	0,26
200												0,22

*Radial feed in mm.

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

D Protostar® Flash ISO-P, M, K, N, S, O

	Feed per tooth f_z [mm]										
a_e [mm]*	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm
0,8	0,07	0,10									
1,5	0,07	0,10	0,16	0,25							
3	0,07	0,10	0,16	0,25	0,30						
5		0,10	0,16	0,25	0,30	0,35					
6			0,16	0,25	0,30	0,35	0,40	0,50	0,60		
8				0,25	0,30	0,35	0,40	0,50	0,60	0,70	0,70
10					0,30	0,35	0,40	0,50	0,60	0,70	0,70
12							0,40	0,50	0,60	0,70	0,70
14							0,40	0,50	0,60	0,70	0,70
16								0,50	0,60	0,70	0,70
18									0,60	0,70	0,70
20										0,70	0,70
25											0,70

E Protostar® Flash ISO-H

	Feed per tooth f_z [mm]										
a_e [mm]*	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm
0,8	0,06	0,08									
1,5	0,06	0,08	0,13	0,20							
3	0,06	0,08	0,13	0,20	0,24						
5		0,08	0,13	0,20	0,24	0,28					
6			0,13	0,20	0,24	0,28	0,32	0,40	0,48		
8				0,20	0,24	0,28	0,32	0,40	0,48	0,56	0,56
10					0,24	0,28	0,32	0,40	0,48	0,56	0,56
12							0,32	0,40	0,48	0,56	0,56
14							0,32	0,40	0,48	0,56	0,56
16								0,40	0,48	0,56	0,56
18									0,48	0,56	0,56
20										0,56	0,56
25											0,56

F Proto·max™ST

	Feed per tooth f_z [mm]												
a_e [mm]*	Ø 1 mm	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 14 mm	Ø 16 mm	Ø 18 mm	Ø 20 mm	Ø 25 mm
0,01	0,04	0,08	0,11	0,14	0,18	0,18	0,24						
0,05	0,03	0,05	0,09	0,12	0,14	0,18	0,24						
0,1	0,02	0,04	0,06	0,10	0,12	0,18	0,24	0,24	0,24	0,24			
0,2	0,02	0,04	0,05	0,07	0,10	0,18	0,22	0,24	0,24	0,24	0,24	0,3	
0,5	0,01	0,03	0,04	0,06	0,08	0,14	0,18	0,18	0,18	0,18	0,24	0,3	0,30
1	0,01	0,03	0,04	0,05	0,07	0,11	0,14	0,14	0,14	0,14	0,18	0,24	0,30
2		0,02	0,04	0,04	0,06	0,10	0,13	0,14	0,14	0,14	0,18	0,24	0,24
3			0,02	0,03	0,05	0,09	0,13	0,14	0,14	0,14	0,16	0,21	0,24
5				0,02	0,05	0,08	0,12	0,14	0,14	0,14	0,14	0,18	0,24
6					0,04	0,07	0,10	0,12	0,12	0,14	0,14	0,18	0,24
8						0,06	0,08	0,11	0,12	0,14	0,14	0,18	0,24
10							0,07	0,10	0,12	0,14	0,14	0,17	0,19
12								0,08	0,11	0,13	0,14	0,17	0,19
14									0,10	0,12	0,14	0,16	0,18
16										0,11	0,12	0,14	0,18
18											0,12	0,13	0,16
20												0,12	0,14
25													0,12

*Radial feed in mm.

Feed matrices – f_z table for brazed tools

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

G Aluminium wrought alloys

Feed per tooth f_z [mm]

a_e/D_c	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 16 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm	Ø 125 mm
1/50	0,08	0,07	0,09	0,09	0,12	0,12	0,12	0,15	0,15					
1/20	0,07	0,06	0,08	0,08	0,10	0,10	0,10	0,13	0,13					
1/10	0,06	0,06	0,07	0,07	0,10	0,07	0,10	0,12	0,12	0,12	0,12	0,12	0,12	0,12
1/5	0,06	0,06	0,07	0,07	0,09	0,09	0,09	0,11	0,11	0,11	0,11	0,11	0,11	0,11
1/2	0,05	0,05	0,06	0,06	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10
1/1	0,05	0,05	0,06	0,06	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10

H Magnesium alloys/copper and copper alloys

Feed per tooth f_z [mm]

a_e/D_c	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 16 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm	Ø 125 mm
1/50	0,04	0,04	0,06	0,06	0,09	0,09	0,09	0,11	0,11					
1/20	0,04	0,04	0,05	0,05	0,08	0,08	0,08	0,10	0,10					
1/10	0,04	0,04	0,05	0,05	0,07	0,07	0,07	0,09	0,09	0,09	0,09	0,09	0,09	0,09
1/5	0,03	0,03	0,04	0,04	0,07	0,07	0,07	0,08	0,08	0,08	0,08	0,08	0,08	0,08
1/2	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07
1/1	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07

I Thermoplasts, thermosetting plastics, plastic, graphite

Feed per tooth f_z [mm]

a_e/D_c	Ø 6 mm	Ø 8 mm	Ø 10 mm	Ø 12 mm	Ø 16 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm	Ø 125 mm
1/50	0,05	0,05	0,07	0,07	0,10	0,10	0,10	0,13	0,13					
1/20	0,05	0,05	0,06	0,06	0,09	0,09	0,09	0,11	0,11					
1/10	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10
1/5	0,04	0,04	0,05	0,05	0,08	0,08	0,08	0,09	0,09	0,09	0,09	0,09	0,09	0,09
1/2	0,03	0,03	0,05	0,05	0,07	0,07	0,07	0,08	0,08	0,08	0,08	0,08	0,08	0,08
1/1	0,03	0,03	0,05	0,05	0,07	0,07	0,07	0,08	0,08	0,08	0,08	0,08	0,08	0,08

J Non-alloyed steel, malleable cast iron, ductile cast iron and CGI

Feed per tooth f_z [mm]

a_e [mm]*	Ø 16 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm
1,0	0,12	0,12	0,12	0,12	0,13				
2,0	0,12	0,12	0,12	0,12	0,12	0,20			
3,0	0,11	0,12	0,12	0,12	0,12	0,19	0,20		
4,0	0,10	0,11	0,12	0,12	0,12	0,18	0,19	0,20	
5,0	0,10	0,10	0,11	0,12	0,12	0,18	0,18	0,19	0,20
6,0	0,10	0,10	0,10	0,11	0,12	0,17	0,18	0,18	0,19
8,0	0,10	0,10	0,10	0,10	0,11	0,17	0,17	0,18	0,18
10,0	0,10	0,10	0,10	0,10	0,10	0,17	0,17	0,17	0,18
12,0	0,10	0,10	0,10	0,10	0,10	0,16	0,17	0,17	0,17
16,0	0,10	0,10	0,10	0,10	0,10	0,15	0,16	0,17	0,17
20,0		0,10	0,10	0,10	0,10	0,15	0,15	0,16	0,17
25,0			0,10	0,10	0,10	0,15	0,15	0,15	0,16
32,0				0,10	0,10	0,15	0,15	0,15	0,15
40,0					0,10	0,15	0,15	0,15	0,15
50,0						0,15	0,15	0,15	0,15
63,0							0,15	0,15	0,15
80,0								0,15	0,15
100,0									0,15

*Radial feed in mm.

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

K Grey cast iron

	Feed per tooth f_z [mm]								
a_e [mm]*	Ø 16 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm
1,0	0,13	0,13	0,13	0,14	0,15				
2,0	0,13	0,13	0,13	0,13	0,14	0,26			
3,0	0,13	0,13	0,13	0,13	0,13	0,25	0,26		
4,0	0,12	0,13	0,13	0,13	0,13	0,24	0,25	0,26	
5,0	0,12	0,12	0,13	0,13	0,13	0,24	0,24	0,25	0,26
6,0	0,12	0,12	0,12	0,13	0,13	0,23	0,24	0,24	0,25
8,0	0,12	0,12	0,12	0,12	0,13	0,22	0,23	0,24	0,24
10,0	0,12	0,12	0,12	0,12	0,12	0,22	0,22	0,23	0,24
12,0	0,12	0,12	0,12	0,12	0,12	0,21	0,22	0,22	0,23
16,0	0,12	0,12	0,12	0,12	0,12	0,20	0,21	0,22	0,22
20,0		0,12	0,12	0,12	0,12	0,20	0,20	0,21	0,22
25,0			0,12	0,12	0,12	0,20	0,20	0,20	0,21
32,0				0,12	0,12	0,20	0,20	0,20	0,20
40,0					0,12	0,20	0,20	0,20	0,20
50,0						0,20	0,20	0,20	0,20
63,0							0,20	0,20	0,20
80,0								0,20	0,20
100,0									0,20

L Low-alloyed steel, high-alloyed steel and high-alloyed tool steel

	Feed per tooth f_z [mm]								
a_e [mm]*	Ø 16 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm
1,0	0,09	0,09	0,09	0,1	0,10				
2,0	0,09	0,09	0,09	0,09	0,10	0,17			
3,0	0,09	0,09	0,09	0,09	0,09	0,16	0,17		
4,0	0,08	0,09	0,09	0,09	0,09	0,15	0,16	0,17	
5,0	0,08	0,08	0,09	0,09	0,09	0,14	0,15	0,16	0,17
6,0	0,08	0,08	0,08	0,09	0,09	0,14	0,14	0,15	0,16
8,0	0,08	0,08	0,08	0,08	0,09	0,14	0,14	0,14	0,15
10,0	0,08	0,08	0,08	0,08	0,08	0,13	0,14	0,14	0,14
12,0	0,08	0,08	0,08	0,08	0,08	0,13	0,13	0,14	0,14
16,0	0,08	0,08	0,08	0,08	0,08	0,13	0,13	0,13	0,14
20,0		0,08	0,08	0,08	0,08	0,13	0,13	0,13	0,13
25,0			0,08	0,08	0,08	0,12	0,13	0,13	0,13
32,0				0,08	0,08	0,12	0,12	0,13	0,13
40,0					0,08	0,12	0,12	0,12	0,13
50,0						0,12	0,12	0,12	0,12
63,0							0,12	0,12	0,12
80,0								0,12	0,12
100,0									0,12

M Stainless steel (ISO P)

	Feed per tooth f_z [mm]								
a_e [mm]*	Ø 16 mm	Ø 20 mm	Ø 25 mm	Ø 32 mm	Ø 40 mm	Ø 50 mm	Ø 63 mm	Ø 80 mm	Ø 100 mm
1,0	0,07	0,07	0,07	0,08	0,08				
2,0	0,07	0,07	0,07	0,07	0,08	0,14			
3,0	0,07	0,07	0,07	0,07	0,07	0,13	0,14		
4,0	0,06	0,07	0,07	0,07	0,07	0,12	0,13	0,14	
5,0	0,06	0,06	0,07	0,07	0,07	0,12	0,12	0,13	0,14
6,0	0,06	0,06	0,06	0,07	0,07	0,12	0,12	0,12	0,13
8,0	0,06	0,06	0,06	0,06	0,07	0,12	0,12	0,12	0,12
10,0	0,06	0,06	0,06	0,06	0,06	0,11	0,12	0,12	0,12
12,0	0,06	0,06	0,06	0,06	0,06	0,11	0,11	0,12	0,12
16,0	0,06	0,06	0,06	0,06	0,06	0,11	0,11	0,11	0,12
20,0		0,06	0,06	0,06	0,06	0,11	0,11	0,11	0,11
25,0			0,06	0,06	0,06	0,10	0,11	0,11	0,11
32,0				0,06	0,06	0,10	0,10	0,11	0,11
40,0					0,06	0,10	0,10	0,10	0,11
50,0						0,10	0,10	0,10	0,10
63,0							0,10	0,10	0,10
80,0								0,10	0,10
100,0									0,10

*Radial feed in mm.

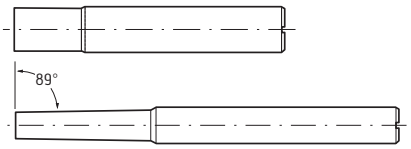
v_c correction factors*

v_c correction factors – toolholder/steel

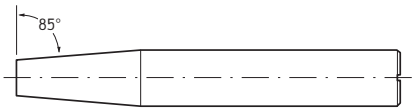
v_c correction factors		Type	Max. speed
AK610.Z16.E10.005	**v_c x 1**	A	40.000
AK610.Z12.E10.005	**v_c x 1**	A	40.000
AK610.Z10.E10.020	**v_c x 0,9**	A	30.000
AK610.Z16.E10.050	**v_c x 0,6**	B	12.000
AK610.Z16.E10.036	**v_c x 0,7**	C	15.000
AK610.Z16.E12.005	**v_c x 1**	A	40.000
AK610.Z12.E12.022	**v_c x 0,9**	A	30.000
AK610.Z16.E12.060	**v_c x 0,6**	B	10.000
AK610.Z16.E12.025	**v_c x 0,7**	C	15.000
AK610.Z20.E16.005	**v_c x 1**	A	40.000
AK610.Z16.E16.025	**v_c x 0,9**	A	30.000
AK610.Z20.E16.025	**v_c x 0,9**	A	30.000
AK610.Z20.E16.075	**v_c x 0,6**	B	10.000
AK610.Z25.E16.054	**v_c x 0,7**	C	15.000
AK610.Z20.E20.030	**v_c x 0,8**	A	20.000
AK610.Z25.E20.005	**v_c x 1**	A	30.000
AK610.Z32.E20.073	**v_c x 0,7**	C	20.000
AK610.Z32.E25.005	**v_c x 1**	A	30.000
AK610.Z25.E25.040	**v_c x 0,7**	A	15.000
AK610.Z32.E25.045	**v_c x 0,7**	C	20.000

Type A

Type B



Type C



v_c correction factors – toolholder/solid carbide

v_c correction factors		Type	Max. speed
AK610.Z10.E10.050C	**v_c x 0,8**	A	20.000
AK610.Z16.E10.100C	**v_c x 0,7**	B	15.000
AK610.Z12.E12.048C	**v_c x 0,9**	A	30.000
AK610.Z16.E12.090C	**v_c x 0,7**	B	15.000
AK610.Z16.E16.080C	**v_c x 0,9**	A	30.000
AK610.Z20.E20.110C	**v_c x 0,9**	A	30.000
AK610.Z20.E16.118C	**v_c x 0,6**	B	10.000
AK610.Z20.E20.038C	**v_c x 1**	A	30.000
AK610.Z25.E25.120C	**v_c x 0,6**	A	10.000

*** Please note:**
With ConeFit™ points, cutting speed should be adjusted based on projection length and shank type.
Observe the maximum rotational speed. For cutting data, see page E-82 onwards.

Cutting tool materials and coatings

HSS cutting tool materials

For Walter Prototyp milling cutters, four groups of high-speed steel are used.

HSS	High-speed steel for general applications (side and face milling cutters)
HSS-E	High-speed steel with 5% Co for increased loading, particularly extreme thermal loading
HSS-E Co8	High-speed steel with 8% Co for maximum thermal loading capability, in accordance with American standard designation M 42 (end mills for general use, available in standard dimensions and with Morse taper shank, shell end mills)
HSS-PM	High-speed steel manufactured using powder metallurgy with extremely high alloy content Advantages: High degree of purity and uniformity of the microstructure, high wear resistance and heat resistance (end mills and shell end mills for more demanding applications)

Cutting tool materials and coatings

Material no.	Short name	Old standard Designation	AISI ASTM	AFNOR	B.S.	UNI	Alloy table C	Cr	W	Mo	V	Co
1.3343	S 6-5-2	DMo5	M2	–	BM2	HS 6-5-2	0,82	4,0	6,5	5,0	2,0	–
1.3243	S 6-5-2-5	EMo5 Co5	M35	6.5.2.5	–	HS 6-5-2-5	0,82	4,5	6,0	5,0	2,0	5,0
1.3247	S 2-10-1-8	–	M42	–	BM42	HS 2-9-1-8	1,08	4,0	1,5	9,5	1,2	8,25
Trade designation ASP												

Coatings

Surface coating has developed into a proven technological process for improving the performance of metal cutting tools. By contrast with surface treatment, the tool surface remains chemically unaltered and a thin layer is applied.
For Walter Prototyp high-speed steel and carbide tools, the coating is produced by the PVD method, which works at process temperatures of below 600 °C and does not, therefore, result in any change to the base material. Hard material layers have a higher hardness and wear resistance than the cutting tool material itself.

Also:
– they help to improve the low-friction quality of the tool surface
– they separate the cutting tool material and the material that is going to be cut from each other
– they act as a thermal insulating layer

Coated tools not only have a longer life, they can also be used with higher cutting speeds and feed rates.

Surface treatment/ coating	Method / coating	Property	Colour	
uncoated	No treatment	–	Uncoated	
TAX	TiAlN coating	Universal coating for solid carbide milling cutters	Black-violet	
TAZ	TiAlN / zirconium nitride coating	High-performance layer specially developed for machining steel: chemical resistance to emulsions and oils; effective against built up edges	Champagne	
CRN	Chromium nitride coating	Very thin layer with high degree of toughness; minimised coating roughness for excellent chip flow, especially with aluminium materials	Rainbow-coloured	
DIA	Diamond coating	For machining graphite and AlSi alloys	Grey	
ACN	Aluminium chromium nitride coating	High-performance coating with particularly low friction for titanium machining tools but also for HSS tools	Blue-violet	
TAS	TiAl-/silicon nitride coating	High-performance coating for hard machining up to 70 HRC	Bronze	
TAA	TiAlN + TiAl coating	Layer specially developed for machining stainless materials	Silver-grey	
TAT	TiAlN coating	Universal high-performance coating	Dark violet	


WALTER

CONTENTS

Milling cutters with indexable inserts

F

Walter BLAXX

Milling insert product range overview





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Walter Select for indexable inserts for milling

Step by step to the right indexable insert

STEP 1

Determine the **material** to be machined from page H 8 in the Walter General catalogue 2012.

Note the machining group that corresponds to your material e.g.: P10.

Code letter	Machining group	Groups of the materials to be machined	
P	**P1–P15**	**Steel**	All types of steel and cast steel, with the exception of steel with an austenitic structure
M	**M1–M3**	**Stainless steel**	Stainless austenitic steel, austenitic-ferritic steel and cast steel
K	**K1–K7**	**Cast iron**	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, cast iron with vermicular graphite
N	**N1–N10**	**NF metals**	Aluminium and other non-ferrous metals, non-ferrous materials
S	**S1–S10**	**High temperature alloys and titanium alloys**	Heat resisting special alloys based on iron, nickel and cobalt, titanium and titanium alloys
H	**H1–H4**	**Hard materials**	Hardened steel, hardened cast iron materials, chilled cast iron
O	**O1–O6**	**Other**	Plastics, glass and carbon fibre reinforced plastics, graphite

STEP 2

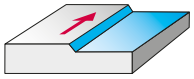
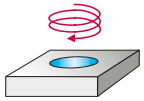
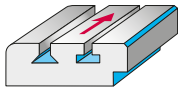
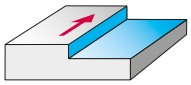
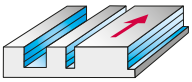
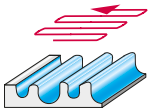
Select the **machining conditions:**

	Machine stability, clamping system and workpiece		
Tool projection	**very good**	**good**	**moderate**
Short projection length			
Extended tool projection			

STEP 3

Select your **tool** according to your application and individual requirements.
Then select your milling cutter from the corresponding tool page.

Machining method

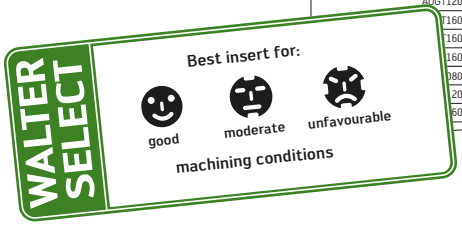
 **Face milling** **See page F-46**	 **Circular interpolation milling** *See General catalogue page F 242*	 **Profile milling** *See General catalogue page F 234*
 **Shoulder milling** **See page F-64**	 **Slot milling** **See page F-80**	 **Copy milling** **See page F-86**

STEP 4

Determine your optimum **indexable insert grade and geometry** on the appropriate tool page.
In so doing, please take into consideration the machining conditions (step 2) and the material to be machined.
For detailed geometry description for the Walter BLAXX and Xtra·tec® tools, see page F-118.

Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P HC WKP25S	P HC WKP35S	P WSP45	M HC WSM35	M HC WSM35S	M WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S WSP45	H HC WHH15
	ADGT0803PER-D51	G	2	6,75	9,52	3,35	15°	20°	0,4	1,2	●●	●●	●●			●●			●●	●●					●●	
	ADGT1204PER-D51	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2	●●	●●	●●			●●			●●	●●					●●	
	ADGT1606PER-D51	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6	●●	●●	●●			●●			●●	●●					●●	
	ADGT1807PER-D51	G	2	14,5	19	7	15°	17°	1,2	1,8	●●	●●	●●			●●			●●	●●					●●	
	ADGT0803PER-D56	G	2	6,75	9,52	3,95	15°	20°	0,4	1,2	●●	●●	●●	●●		●●	●●	●●	●●	●●			●●		●●	
	ADGT1204PER-D56	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2	●●	●●	●●	●●		●●	●●	●●	●●	●●			●●		●●	
	ADGT1606PER-D56	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6	●●	●●	●●	●●		●●	●●	●●	●●	●●			●●		●●	
	ADGT1807PER-D56	G	2	14,5	19	7	15°	17°	1,2	1,8	●●	●●	●●	●●		●●		●●	●●	●●			●●		●●	
	ADGT10T3PER-D67	G	2	7,25	11,3	3,8	15°	15°	0,8	1,2		●●	●●	●●	●●	●●				●●			●●	●●	●●	
	ADGT10T316R-D67	G	2	7,25	11,3	3,8	15°	15°	1,6	1,2		●●	●●	●●		●●				●●			●●		●●	
	ADGT10T325R-D67	G	2	7,25	11,3	3,8	15°	15°	2,5	1		●●	●●	●●		●●				●●			●●		●●	
	ADGT10T330R-D67	G	2	7,25	11,3	3,8	15°	15°	3	0,8		●●	●●	●●		●●				●●			●●		●●	
	ADGT10T332R-D67	G	2	7,25	11,3	3,8	15°	15°	3,2	0,8		●●	●●	●●		●●				●●			●●		●●	
	ADGT1204PER-D67	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2		●●	●●	●●	●●	●●				●●			●●	●●	●●	
	ADGT120416R-D67	G	2	8,4	13,6	4,76	15°	20°	1,6	1		●●	●●	●●		●●				●●			●●		●●	
	ADGT120430R-D67	G	2	8,4	13,6	4,76	15°	20°	3	0,8		●●	●●	●●		●●				●●			●●		●●	
	1606PER-D67	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6		●●	●●	●●	●●	●●				●●			●●	●●	●●	
	160616R-D67	G	2	10,8	17,5	6,15	15°	20°	1,6	1		●●	●●	●●		●●				●●			●●		●●	
	160630R-D67	G	2	10,8	17,5	6,15	15°	20°	3	0,8		●●	●●	●●		●●				●●			●●		●●	
	0803PER-F56	G	2	6,75	9,52	3,35	15°	20°	0,4	1,2			●●	●●	●●	●●							●●	●●	●●	
	1204PER-F56	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2			●●	●●	●●	●●							●●	●●	●●	
	1606PER-F56	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6			●●	●●	●●	●●							●●	●●	●●	



STEP 5

Select the **cutting data** from page F-92.

Cutting data for roughing
Copy milling

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group¹			Cutting material grades		
									Starting values for cutting speed v_c [m/min]		
									HC WKP35S		
									a_e / D_c		
									1/1	1/5	1/10
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	240	300	300
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	200	255	275
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	185	240	240
		C > 0.55 %	annealed	190	639	P4	●	●●	155	195	210
		C > 0.55 %	tempered	300	1013	P5	●	●●	145	180	185
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	200	255	275
	Low-alloyed steel	annealed		175	591	P7	●	●●	165	210	230
		tempered		300	1013	P8	●	●●	155	195	215
		tempered		380	1282	P9	●	●●	145	180	200
		tempered		430	1477	P10	●	●●	120	155	170
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	110	145	160
		hardened and tempered		300	1013	P12	●	●●	75	100	100
		hardened and tempered		400	1361	P13	●	●●	65	80	90
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	120	155	170
		martensitic, tempered		330	1114	P15	●	●●	110	145	155
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●			
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●			
		austenitic/ferritic, duplex		230	778	M3	●●	●			
K	Malleable cast iron	ferritic		200	675	K1	●	●●	250	290	310
		pearlitic		260	867	K2	●	●●	200	240	260
	Grey cast iron			180							300

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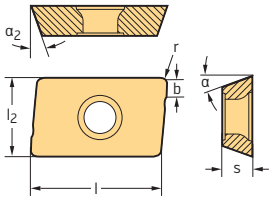
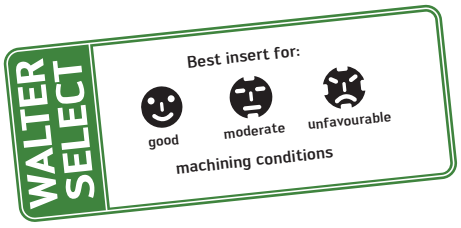


Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	ADGT0803PER-D51	G	2	6,75	9,52	3,35	15°	20°	0,4	1,2	☺	😐	☹			☹			😐	☹					☹	
	ADGT1204PER-D51	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2	☺	😐	☹			☹			😐	☹					☹	
	ADGT1606PER-D51	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6	☺	😐	☹			☹			😐	☹					☹	
	ADGT1807PER-D51	G	2	14,5	19	7	15°	17°	1,2	1,8	☺	😐	☹			☹			😐	☹					☹	
	ADGT0803PER-D56	G	2	6,75	9,52	3,95	15°	20°	0,4	1,2	☺	😐	☹	😐		☹		😐	😐	☹			😐		☹	
	ADGT1204PER-D56	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2	☺	😐	☹	😐		☹		😐	😐	☹			😐		☹	
	ADGT1606PER-D56	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6	☺	😐	☹	😐		☹		😐	😐	☹			😐		☹	
	ADGT1807PER-D56	G	2	14,5	19	7	15°	17°	1,2	1,8	☺	😐	☹	😐		☹			😐	☹			😐		☹	
	ADGT10T3PER-D67	G	2	7,25	11,3	3,8	15°	15°	0,8	1,2		😐	☹	😐	😐	☹				☹			😐	😐	☹	
	ADGT10T316R-D67	G	2	7,25	11,3	3,8	15°	15°	1,6	1,2		😐	☹	😐		☹				☹			😐		☹	
	ADGT10T325R-D67	G	2	7,25	11,3	3,8	15°	15°	2,5	1		😐	☹	😐		☹				☹			😐		☹	
	ADGT10T330R-D67	G	2	7,25	11,3	3,8	15°	15°	3	0,8		😐	☹	😐		☹				☹			😐		☹	
	ADGT10T332R-D67	G	2	7,25	11,3	3,8	15°	15°	3,2	0,8		😐	☹	😐		☹				☹			😐		☹	
	ADGT1204PER-D67	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2		😐	☹	😐	😐	☹				☹			😐	😐	☹	
	ADGT120416R-D67	G	2	8,4	13,6	4,76	15°	20°	1,6	1		😐	☹	😐		☹				☹			😐		☹	
	ADGT120430R-D67	G	2	8,4	13,6	4,76	15°	20°	3	0,8		😐	☹	😐		☹				☹			😐		☹	
	ADGT1606PER-D67	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6		😐	☹	😐	😐	☹				☹			😐	😐	☹	
	ADGT160616R-D67	G	2	10,8	17,5	6,15	15°	20°	1,6	1		😐	☹	😐		☹				☹			😐		☹	
	ADGT160630R-D67	G	2	10,8	17,5	6,15	15°	20°	3	0,8		😐	☹	😐		☹				☹			😐		☹	
	ADGT0803PER-F56	G	2	6,75	9,52	3,35	15°	20°	0,4	1,2			☹	😐	😐	☹							😐	😐	☹	
	ADGT1204PER-F56	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2			☹	😐	😐	☹							😐	😐	☹	
	ADGT1606PER-F56	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6			☹	😐	😐	☹							😐	😐	☹	
	ADGT10T3PER-G77	G	2	7,25	11,3	3,8	15°	15°	0,8	1,2			😐	☺		😐							☺		😐	
	ADGT1204PER-G77	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2			😐	☺		😐							☺		😐	
	ADGT1606PER-G77	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6			😐	☺		😐							☺		😐	

HC = Coated carbide
HW = Uncoated carbide



☺ 😐 ☹ New addition to range

Positive rhombic

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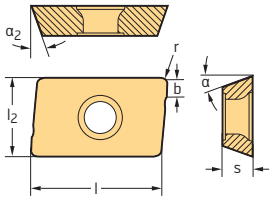

Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	ADHT0803PEL-G88	H	2	6,75	9,52	3,35	15°	20°	0,4	1,2											●					
	ADHT0803PER-G88	H	2	6,75	9,52	3,35	15°	20°	0,4	1,2											●	●				
	ADHT10T3PER-G88	H	2	7,25	11,3	3,8	15°	15°	0,8	1,2											●	●				
	ADHT1204PER-G88	H	2	8,4	13,6	4,76	15°	20°	0,8	1,2											●	●				
	ADHT1204PEL-G88	H	2	8,4	13,6	4,76	15°	20°	0,8	1,2											●	●				
	ADHT120416R-G88	H	2	8,4	13,6	4,76	15°	20°	1,6	1											●	●				
	ADHT120416L-G88	H	2	8,4	13,6	4,76	15°	20°	1,6	1											●					
	ADHT120425L-G88	H	2	8,4	13,6	4,76	15°	20°	2,5	0,8											●					
	ADHT120425R-G88	H	2	8,4	13,6	4,76	15°	20°	2,5	0,8											●	●				
	ADHT120430L-G88	H	2	8,4	13,6	4,76	15°	20°	3	0,8											●					
	ADHT120430R-G88	H	2	8,4	13,6	4,76	15°	20°	3	0,8											●	●				
	ADHT120440L-G88	H	2	8,4	13,6	4,76	15°	20°	4	0,4											●					
	ADHT120440R-G88	H	2	8,4	13,6	4,76	15°	20°	4	0,4											●	●				
	ADHT1606PEL-G88	H	2	10,8	17,5	6,15	15°	20°	0,8	1,6											●					
	ADHT1606PER-G88	H	2	10,8	17,5	6,15	15°	20°	0,8	1,6											●	●				
	ADHT160616L-G88	H	2	10,8	17,5	6,15	15°	20°	1,6	1,4											●					
	ADHT160616R-G88	H	2	10,8	17,5	6,15	15°	20°	1,6	1,4											●	●				
	ADHT160625L-G88	H	2	10,8	17,5	6,15	15°	20°	2,5	1,2											●					
	ADHT160625R-G88	H	2	10,8	17,5	6,15	15°	20°	2,5	1,2											●	●				
	ADHT160630L-G88	H	2	10,8	17,5	6,15	15°	20°	3	1,2											●					
	ADHT160630R-G88	H	2	10,8	17,5	6,15	15°	20°	3	1,2											●	●				
	ADHT160640L-G88	H	2	10,8	17,5	6,15	15°	20°	4	1											●					
	ADHT160640R-G88	H	2	10,8	17,5	6,15	15°	20°	4	1											●	●				
	ADKT0803PEL-F56	K	2	6,75	9,52	3,35	15°	20°	0,4	1,2		●	●			●				●					●	
	ADKT0803PER-F56	K	2	6,75	9,52	3,35	15°	20°	0,4	1,2	●	●	●			●	●		●	●					●	
	ADKT10T3PER-F56	K	2	7,25	11,3	3,8	15°	15°	0,8	1,2	●	●	●	●	●	●	●		●	●			●	●	●	
	ADKT1204PEL-F56	K	2	8,4	13,6	4,76	15°	20°	0,8	1,2		●	●			●				●					●	
	ADKT1204PER-F56	K	2	8,4	13,6	4,76	15°	20°	0,8	1,2	●	●	●			●	●		●	●					●	
	ADKT1606PEL-F56	K	2	10,8	17,5	6,15	15°	20°	0,8	1,6		●	●			●				●					●	
	ADKT1606PER-F56	K	2	10,8	17,5	6,15	15°	20°	0,8	1,6	●	●	●			●	●		●	●					●	
	ADMT080304R-D56	M	2	6,75	9,52	3,35	15°	20°	0,4	1,2	●	●	●			●	●	●	●	●					●	
	ADMT120408R-D56	M	2	8,4	13,6	4,76	15°	20°	0,8	1,2	●	●	●			●	●	●	●	●					●	
	ADMT160608R-D56	M	2	10,8	17,5	6,15	15°	20°	0,8	1,6	●	●	●			●	●	●	●	●					●	
	ADMT180712R-D56	M	2	14,5	19	7	15°	17°	1,2	1,8	●	●	●			●		●	●	●					●	

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Positive rhombic

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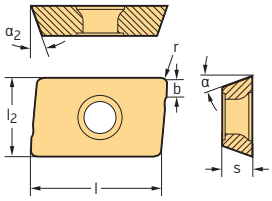
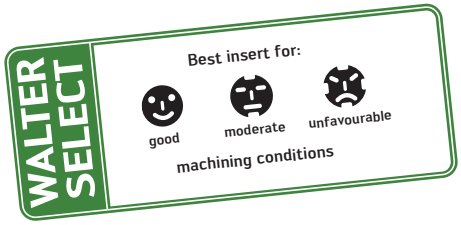


Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	ADMT080302R-F56	M	2	6,75	9,52	3,35	15°	20°	0,2	1,2		●	●	●	●	●				●			●	●	●	
	ADMT080304L-F56	M	2	6,75	9,52	3,35	15°	20°	0,4	1,2		●	●			●				●					●	
	ADMT080304R-F56	M	2	6,75	9,52	3,35	15°	20°	0,4	1,2	●	●	●	●	●	●	●	●	●	●			●	●	●	
	ADMT080308L-F56	M	2	6,75	9,52	3,35	15°	20°	0,8	1,2		●	●			●				●					●	
	ADMT080308R-F56	M	2	6,75	9,52	3,35	15°	20°	0,8	1,2		●	●	●	●	●				●			●	●	●	
	ADMT080312R-F56	M	2	6,75	9,52	3,35	15°	20°	1,2	1		●	●	●	●	●				●			●	●	●	
	ADMT080316R-F56	M	2	6,75	9,52	3,35	15°	20°	1,6	1		●	●	●	●	●				●			●	●	●	
	ADMT080320R-F56	M	2	6,75	9,52	3,35	15°	20°	2	1		●	●	●	●	●				●			●	●	●	
	ADMT10T304R-F56	M	2	7,25	11,3	3,8	15°	15°	0,4	1,2		●	●	●	●	●				●			●	●	●	
	ADMT10T308R-F56	M	2	7,25	11,3	3,8	15°	15°	0,8	1,2	●	●	●	●	●	●	●	●	●	●			●	●	●	
	ADMT10T312R-F56	M	2	7,25	11,3	3,8	15°	15°	1,2	1,2		●	●	●	●	●				●			●	●	●	
	ADMT10T316R-F56	M	2	7,25	11,3	3,8	15°	15°	1,6	1,2		●	●	●	●	●				●			●	●	●	
	ADMT10T320R-F56	M	2	7,25	11,3	3,8	15°	15°	2	1		●	●	●	●	●				●			●	●	●	
	ADMT10T325R-F56	M	2	7,25	11,3	3,8	15°	15°	2,5	1		●	●	●	●	●				●			●	●	●	
	ADMT10T330R-F56	M	2	7,25	11,3	3,8	15°	15°	3	0,8		●	●	●	●	●				●			●	●	●	
	ADMT10T332R-F56	M	2	7,25	11,3	3,8	15°	15°	3,2	0,8		●	●	●	●	●				●			●	●	●	
	ADMT120404R-F56	M	2	8,4	12	3,35	15°	20°	0,4	1,2		●	●	●	●	●				●			●	●	●	
	ADMT120408L-F56	M	2	8,4	13,6	4,76	15°	20°	0,8	1,2		●	●			●				●					●	
	ADMT120408R-F56	M	2	8,4	13,6	4,76	15°	20°	0,8	1,2	●	●	●	●	●	●	●	●	●	●			●	●	●	
	ADMT120412R-F56	M	2	8,4	13,6	4,76	15°	20°	1,2	1,2		●	●	●	●	●				●			●	●	●	
	ADMT120416L-F56	M	2	8,4	13,6	4,76	15°	20°	1,6	1		●	●			●				●					●	
	ADMT120416R-F56	M	2	8,4	13,6	4,76	15°	20°	1,6	1		●	●	●	●	●				●			●	●	●	
	ADMT120420R-F56	M	2	8,4	13,6	4,76	15°	20°	2	1		●	●	●	●	●				●			●	●	●	
	ADMT120425L-F56	M	2	8,4	13,6	4,76	15°	20°	2,5	0,8		●	●			●				●					●	
	ADMT120425R-F56	M	2	8,4	13,6	4,76	15°	20°	2,5	0,8		●	●	●	●	●				●			●	●	●	
	ADMT120430L-F56	M	2	8,4	13,6	4,76	15°	20°	3	0,8		●	●			●				●					●	
	ADMT120430R-F56	M	2	8,4	13,6	4,76	15°	20°	3	0,8		●	●	●	●	●				●			●	●	●	
	ADMT120432R-F56	M	2	8,4	13,6	4,76	15°	20°	3,2	0,8		●	●	●	●	●				●			●	●	●	
	ADMT120440L-F56	M	2	8,4	13,6	4,76	15°	20°	4	0,4		●	●			●				●					●	
	ADMT120440R-F56	M	2	8,4	13,6	4,76	15°	20°	4	0,4		●	●	●	●	●				●			●	●	●	

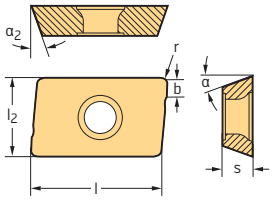
HC = Coated carbide
HW = Uncoated carbide



● ● ● New addition to range

Positive rhombic

Tiger·tec®



Indexable inserts

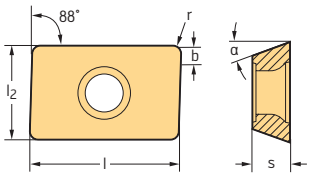
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P			M			K				N		S			H
												HC			HC			HC				HC	HW		HC		HC
											WKP25S	WKP35S	WSP45	WSM35	WSM35S	WSP45	WAK15	WKK25	WKP25S	WKP35S	WXN15	WK10	WSM35	WSM35S	WSP45	WHH15
	ADMT160608L-F56	M	2	10,8	17,5	6,15	15°	20°	0,8	1,6		●	●			●				●					●	
	ADMT160608R-F56	M	2	10,8	17,5	6,15	15°	20°	0,8	1,6	●	●	●	●	●	●	●	●	●	●			●	●	●	
	ADMT160612R-F56	M	2	10,8	17,5	6,15	15°	20°	1,2	1,6		●	●	●	●	●				●			●	●	●	
	ADMT160616R-F56	M	2	10,8	17,5	6,15	15°	20°	1,6	1,4		●	●	●	●	●				●			●	●	●	
	ADMT160616L-F56	M	2	10,8	17,5	6,15	15°	20°	1,6	1,4		●	●			●				●					●	
	ADMT160620R-F56	M	2	10,8	17,5	6,15	15°	20°	2	1,4		●	●	●	●	●				●			●	●	●	
	ADMT160625L-F56	M	2	10,8	17,5	6,15	15°	20°	2,5	1,2		●	●			●				●					●	
	ADMT160625R-F56	M	2	10,8	17,5	6,15	15°	20°	2,5	1,2		●	●	●	●	●				●			●	●	●	
	ADMT160630L-F56	M	2	10,8	17,5	6,15	15°	20°	3	1,2		●	●			●				●					●	
	ADMT160630R-F56	M	2	10,8	17,5	6,15	15°	20°	3	1,2		●	●	●	●	●				●			●	●	●	
	ADMT160632R-F56	M	2	10,8	17,5	6,15	15°	20°	3,2	1,2		●	●	●	●	●				●			●	●	●	
	ADMT160640L-F56	M	2	10,8	17,5	6,15	15°	20°	4	1		●	●			●				●					●	
	ADMT160640R-F56	M	2	10,8	17,5	6,15	15°	20°	4	1		●	●	●	●	●				●			●	●	●	
	ADMT160650R-F56	M	2	10,8	17,5	6,15	15°	20°	5			●	●	●	●	●				●			●	●	●	
	ADMT160660R-F56	M	2	10,8	17,5	6,15	15°	20°	6			●	●	●	●	●				●			●	●	●	
	ADMT180712R-F56	M	2	14,5	19	7	15°	17°	1,2	1,8	●	●	●			●		●	●	●					●	
	ADMT080304R-G56	M	2	6,75	9,52	3,35	15°	20°	0,4	1,2		●	●	●	●	●				●			●	●	●	
	ADMT10T308R-G56	M	2	7,25	11,3	3,8	15°	15°	0,8	1,2		●	●	●	●	●				●			●	●	●	
	ADMT10T316R-G56	M	2	7,25	11,3	3,8	15°	15°	1,6	1,2		●	●	●	●	●				●			●	●	●	
	ADMT10T325R-G56	M	2	7,25	11,3	3,8	15°	15°	2,5	1		●	●	●	●	●				●			●	●	●	
	ADMT10T332R-G56	M	2	7,25	11,3	3,8	15°	15°	3,2	0,8		●	●	●	●	●				●			●	●	●	
	ADMT120408R-G56	M	2	8,4	13,6	4,76	15°	20°	0,8	1,2		●	●	●	●	●				●			●	●	●	
	ADMT160608R-G56	M	2	10,8	17,5	6,15	15°	20°	0,8	1,6		●	●	●	●	●				●			●	●	●	

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Positive rhombic

Tiger·tec®



Indexable inserts

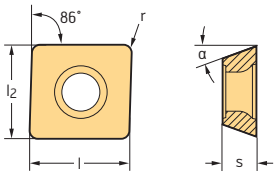
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	LPGT070304R-F55	G	2	6,35	7,94	3,18	11°	0,4	1,2		●	●	●	●	●			●			●	●	
	LPGT15T308R-F55	G	2	9,52	15	3,97	11°	0,8	1,4		●	●	●	●	●			●			●	●	
	LPGT150412R-F55	G	2	12,7	15,88	4,76	11°	1,2	1,6		●	●	●	●	●			●			●	●	
	LPGT1506PPR-F57	G	2	12,7	15,88	6,35	11°	1,2	1,6		●	●	●	●				●			●	●	
	LPGW070304R-A57	G	2	6,35	7,94	3,18	11°	0,4	1,2	●	●				●		●	●					
	LPGW15T308R-A57	G	2	9,52	15	3,97	11°	0,8	1,4	●	●				●		●	●					
	LPGW150412R-A57	G	2	12,7	15,88	4,76	11°	1,2	1,6	●	●				●		●	●					
	LPHW150612R-A51	H	2	15,88	12,7	6,35	11°	1,2			●							●					
	LPMT070304R-D51	M	2	6,35	7,94	3,18	11°	0,4	1,2	●	●	●	●	●			●	●			●	●	
	LPMT15T308R-D51	M	2	9,52	15	3,97	11°	0,8	1,4	●	●	●	●	●			●	●			●	●	
	LPMT150412R-D51	M	2	12,7	15,88	4,76	11°	1,2	1,6	●	●	●	●	●			●	●			●	●	
	LPMT150612R-D51	M	2	12,7	15,88	6,35	11°	1,2			●	●	●	●				●			●	●	
	LPMT150612R-D57	M	2	12,7	15,88	6,35	11°	1,2		●	●	●	●	●	●		●	●			●	●	
	LPMW070304TR-A27	M	2	6,35	7,94	3,18	11°	0,4		●	●						●	●					
	LPMW15T308TR-A27	M	2	9,52	15	3,97	11°	0,8		●	●						●	●					
	LPMW150412TR-A27	M	2	12,7	15,88	4,76	11°	1,2		●	●						●	●					

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Positive rhombic

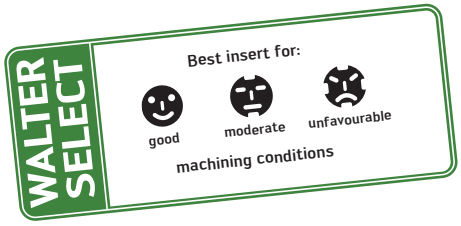
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	MPHT120408-G88	H	2	12,7	12,7	4,76	11°	0,8										☻				
	MPHW120408-A57	H	2	12,7	12,7	4,76	11°	0,8	😐	☹				☻		😐	☹					
	MPHX060304-A57	H	2	6,35	6,35	3,18	11°	0,4	😐	☹				☻		😐	☹					
	MPHX080305-A57	H	2	8,3	8,3	3,18	11°	0,5	😐	☹				☻		😐	☹					
	MPHX060304-G88	H	2	6,35	6,35	3,18	11°	0,4										☻				
	MPHX080305-G88	H	2	8,3	8,3	3,18	11°	0,5										☻				
	MPMT120408-F57	M	2	12,7	12,7	4,76	11°	0,8		😐	☹	😐	☹				☹			😐	☹	
	MPMX060304-F57	M	2	6,35	6,35	3,18	11°	0,4		😐	☹	😐	☹				☹			😐	☹	
	MPMX080305-F57	M	2	8,3	8,3	3,18	11°	0,5		😐	☹	😐	☹	☻			☹			😐	☹	

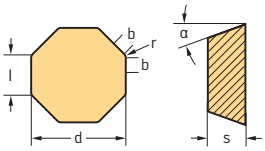
HC = Coated carbide
HW = Uncoated carbide



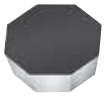
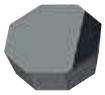
😐 ☹ New addition to range

Positive octagonal

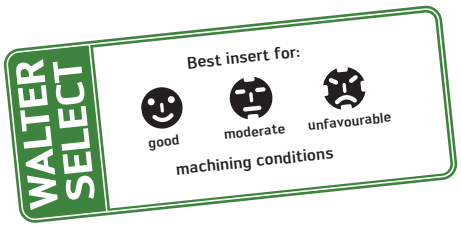
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	d mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	K CN WSN10	K BH WCB80	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	OPHN050412-A57	H	8	5	12,7	4,76	11°	1,2											☻						
	OPHN0504ZZN-A57	H	8	5	12,7	4,76	11°	0,4	1,2	😠					☻		😠		☻						
	OPHN0504ZZN-A27	H	2	5	12,7	4,76	11°	0,4	1,2											☻					

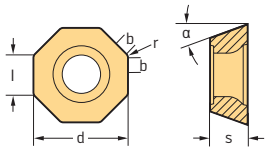
HC = Coated carbide
CN = Silicon nitride Si_3N_4
BH = CBN with high CBN content
HW = Uncoated carbide



😠😠😠 New addition to range

Positive octagonal

Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	d mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	K CN WSN10	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	ODHT050408-F57	H	8	5	12,7	4,76	15°	0,8			●	●	●		●				●				●		●	
	ODHT060512-F57	H	8	6	15,88	5,56	15°	1,2			●	●	●		●				●				●		●	
	ODHT050408-G88	H	8	5	12,7	4,76	15°	0,8													●					
	ODHT060512-G88	H	8	6	15,88	5,56	15°	0,8													●					
	ODHW050408-A57	H	8	5	12,7	4,76	15°	0,8			●									●							
	ODHW060512-A57	H	8	6	15,88	5,56	15°	1,2			●									●							
	ODHW050412-A57	H	8	5	12,7	4,76	15°	1,2													●						
	ODHW060516-A57	H	8	5	15,88	5,56	15°	1,6													●						
	ODHT0504ZZN-F57	H	8	5	12,7	4,76	15°	0,8	1,2		●	●	●	●	●					●				●	●	●	
	ODHT0605ZZN-F57	H	8	6	15,88	5,56	15°	0,8	1,6		●	●	●	●	●					●				●	●	●	
	ODHT0504ZZN-G88	H	8	5	12,7	4,76	15°	0,8	1,2												●	●					
	ODHT0605ZZN-G88	H	8	6	15,88	5,56	15°	0,8	1,6												●	●					
	ODHW0504ZZN-A57	H	8	5	12,7	4,76	15°	0,8	1,2	●	●					●		●	●								
	ODHW0605ZZN-A57	H	8	6	15,88	5,56	15°	0,8	1,6	●	●					●		●	●								
	ODMT050408-D57	M	8	5	12,7	4,76	15°	0,8			●	●	●		●		●		●				●		●	
	ODMT060512-D57	M	8	6	15,88	5,56	15°	1,2			●	●	●		●		●		●				●		●	
	ODMW050408T-A27	M	8	5	12,7	4,76	15°	0,8		●	●						●	●	●								
	ODMW060508T-A27	M	8	6	15,88	5,56	15°	0,8		●	●						●	●	●								
	ODMW050408-A57	M	8	5	12,7	4,76	15°	0,8		●	●					●	●	●	●								
	ODMW060508-A57	M	8	6	15,88	5,56	15°	0,8		●	●					●	●	●	●								
	ODMT0504ZZN-D57	M	8	5	12,7	4,76	15°	0,8	1,2	●	●	●	●	●	●		●	●	●				●	●	●		
	ODMT0605ZZN-D57	M	8	6	15,88	5,56	15°	0,8	1,6	●	●	●	●	●	●		●	●	●				●	●	●		

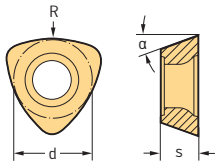
*ZZN for k = 43° only

HC = Coated carbide
CN = Silicon nitride Si_3N_4
HW = Uncoated carbide

● ● ● New addition to range

Positive triangular

Tiger·tec®



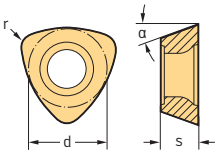
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	R mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	P26315R10	M	3	6,75	2,78	14°	10	●	●	●		●			●	●			●	●	
	P26315R12	M	3	8,5	3,18	14°	12,5	●	●	●		●			●	●			●	●	
	P26315R15	M	3	10,5	3,97	14°	15	●	●	●		●			●	●			●	●	
	P26315R16	M	3	10,5	3,97	14°	16	●	●	●		●			●	●			●	●	
	P26315R20	M	3	12,7	4,76	11°	20	●	●	●		●			●	●			●	●	
	P26315R25	M	3	12,7	4,76	11°	25	●	●	●		●			●	●			●	●	
	P26315R31	M	3	12,7	4,76	11°	31,5	●	●	●		●			●	●			●	●	
	P26325R25	M	3	13	5,56	14°	25	●	●	●		●			●	●			●	●	
	P26325R31	M	3	13	5,56	14°	31,5	●	●	●		●			●	●			●	●	

HC = Coated carbide
HW = Uncoated carbide

Positive triangular

Tiger·tec®



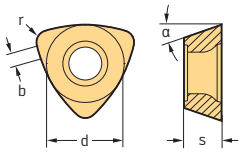
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	P26335R10	M	3	6,75	3,18	14°	0,8	●	●	●	●	●	●			●	●			●	●	●	
	P26335R14	M	3	9,52	3,97	14°	1,2	●	●	●	●	●	●			●	●			●	●	●	
	P26335R25	M	3	13	5,56	14°	2	●	●	●	●	●	●			●	●			●	●	●	
	P26337R10	M	3	6,75	3,18	14°	0,8	●	●	●	●		●			●	●			●		●	
	P26337R14	M	3	9,52	3,97	14°	1,2	●	●	●	●		●			●	●			●		●	
	P26337R25	M	3	13	5,56	14°	2	●	●	●	●		●			●	●			●		●	
	P26339R10	M	3	6,75	3,18	14°	0,8	●	●	●	●	●	●			●	●			●	●	●	
	P26339R14	M	3	9,52	3,97	14°	1,2	●	●	●	●	●	●			●	●			●	●	●	
	P26339R25	M	3	13	5,56	14°	2	●	●	●	●	●	●			●	●			●	●	●	

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Positive triangular

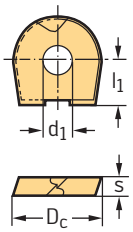


Tiger·tec®

Indexable inserts

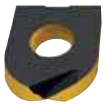
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	P26379-R10	M	3	6,75	3,18	14°	0,8	0,9		☺	☹	☺	☹				☹			☺	☹	
	P26379-R14	M	3	9,52	3,97	14°	1,2	1		☺	☹	☺	☹				☹			☺	☹	
	P26379-R25	M	3	13	5,6	14°	2	1,1		☺	☹	☺	☹				☹			☺	☹	

HC = Coated carbide
HW = Uncoated carbide

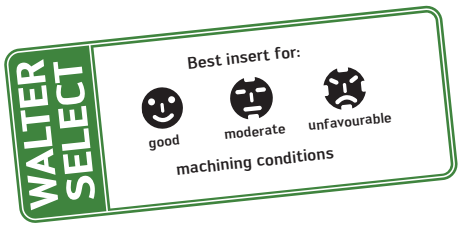


Tiger·tec®

Indexable inserts

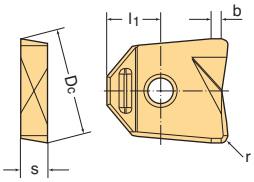
	Designation	Tolerance class	Number of cutting edges	D_c mm	s mm	l_1 mm	d_1 mm	P HC WKP25	P HC WKP35	P HC WSP46	M HC WSM36	M HC WSP46	K HC WAK15	K HC WKK25	K HC WKP25	K HC WKP35	N HC WXN15	N HW WK10	S HC WSM36	S HC WSP46	H HC WHH15
	P3201-D08	H	2	8	2	4	3	☹	☹						☹	☹					☺
	P3201-D10	H	2	10	2,5	5	4	☹	☹						☹	☹					☺
	P3201-D12	H	2	12	2,5	6	5	☹	☹						☹	☹					☺
	P3201-D16	H	2	16	3	6	5	☹	☹						☹	☹					☺
	P3201-D20	H	2	20	3	6	5	☹	☹						☹	☹					☺
	P3201-D25	H	2	25	4	9	6	☹	☹						☹	☹					☺
	P3201-D30	H	2	30	5	10	8	☹	☹						☹	☹					☺
	P3201-D32	H	2	32	5	10	8	☹	☹						☹	☹					☺
	P3204-D08	H	2	8	2	4	3	☺		☹	☺	☹			☹				☹	☹	☺
	P3204-D10	H	2	10	2,5	5	4	☺		☹	☺	☹			☹				☹	☹	☺
	P3204-D12	H	2	12	2,5	6	5	☺		☹	☺	☹			☹				☹	☹	☺
	P3204-D16	H	2	16	3	6	5	☺		☹	☺	☹			☹				☹	☹	☺
	P3204-D20	H	2	20	3	6	5	☺		☹	☺	☹			☹				☹	☹	☺
	P3204-D25	H	2	25	4	9	6	☺		☹	☺	☹			☹				☹	☹	☺
	P3204-D30	H	2	30	5	10	8	☺		☹	☺	☹			☹				☹	☹	☺
	P3204-D32	H	2	32	5	10	8	☺		☹	☺	☹			☹				☹	☹	☺

HC = Coated carbide
HW = Uncoated carbide



Profile mill inserts

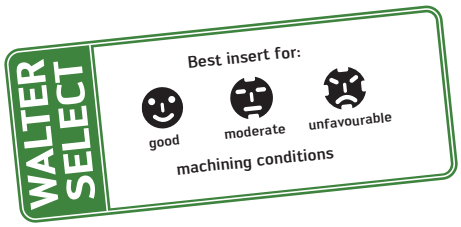
Tiger·tec®



Indexable inserts

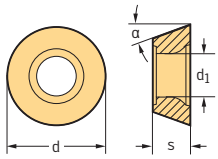
	Designation	Tolerance class	Number of cutting edges	D_c mm	s mm	r mm	b mm	l_1 mm	P HC WKP25	P HC WKP35	P HC WSP46	M HC WSM36	M HC WSP46	K HC WAK15	K HC WKK25	K HC WKP25	K HC WKP35	N HC WXN15	N HW WK10	S HC WSM36	S HC WSP46	H HC WHH15
	P8001-D12R05R-A57	H	2	12	2,5	0,5	1,5	7		☹	☹		☹				☹				☹	
	P8001-D12R10R-A57	H	2	12	2,5	1	1,5	7		☹	☹		☹				☹				☹	☺
	P8001-D16R10R-A57	H	2	16	4	1	1,5	8		☹	☹		☹				☹				☹	☺
	P8001-D20R16R-A57	H	2	20	5	1,6	1,5	10,2		☹	☹		☹				☹				☹	☺
	P8001-D25R20R-A57	H	2	25	6	2	1,5	10,7		☹	☹		☹				☹				☹	☺
	P8001-D32R20R-A57	H	2	32	6	2	1,5	12		☹	☹		☹				☹				☹	☺

HC = Coated carbide
HW = Uncoated carbide



Positive round

Tiger·tec®



Indexable inserts

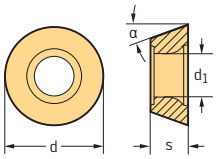
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	d_1 mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	ROGX0803M0-G77	G	4	8	3,18	11°	3,4			●	●		●							●		●	
	ROGX10T3M0-G77	G	4	10	3,97	11°	4,4			●	●		●							●		●	
	ROGX1204M0-G77	G	4	12	4,76	11°	4,4			●	●		●							●		●	
	ROGX1605M0-G77	G	6	16	5,56	15°	5,5			●	●		●							●		●	
	ROHX0803M0T-A27	H	4	8	3,18	11°	3,4		✱								✱						
	ROHX10T3M0T-A27	H	4	10	3,97	11°	4,4		✱								✱						
	ROHX1204M0T-A27	H	4	12	4,76	11°	4,4		✱								✱						
	ROHX1605M0T-A27	H	6	16	5,56	15°	5,5		✱								✱						
	ROHX2006M0T-A27	H	8	20	6,35	15°	6,5		✱								✱						
	ROHX0803M0-D57	H	4	8	3,18	11°	3,4		●	✱	●	★	✱				✱			●	★	✱	
	ROHX10T3M0-D57	H	4	10	3,97	11°	4,4		●	✱	●	★	✱				✱			●	★	✱	
	ROHX1204M0-D57	H	4	12	4,76	11°	4,4		●	✱	●	★	✱				✱			●	★	✱	
	ROHX1605M0-D57	H	6	16	5,56	15°	5,5		●	✱	●	★	✱				✱			●	★	✱	
	ROHX2006M0-D57	H	8	20	6,35	15°	6,5		●	✱	●	★	✱				✱			●	★	✱	
	ROHX0803M0-D67	H	4	8	3,18	11°	3,4		●	✱	●		✱				✱			●		✱	
	ROHX10T3M0-D67	H	4	10	3,97	11°	4,4		●	✱	●		✱				✱			●		✱	
	ROHX1204M0-D67	H	4	11,95	4,76	11°	4,4		●	✱	●		✱				✱			●		✱	
	ROHX1605M0-D67	H	6	16	5,56	15°	5,5		●	✱	●		✱				✱			●		✱	
	ROMX0803M0-D57	M	4	8	3,18	11°	3,4		●	✱	●	★	✱				✱			●	★	✱	
	ROMX10T3M0-D57	M	4	10	3,97	11°	4,4		●	✱	●	★	✱				✱			●	★	✱	
	ROMX1204M0-D57	M	4	12	4,76	11°	4,4		●	✱	●	★	✱				✱			●	★	✱	
	ROMX1605M0-D57	M	6	16	5,56	15°	5,5		●	✱	●	★	✱				✱			●	★	✱	
	ROMX2006M0-D57	M	8	20	6,35	15°	6,5		●	✱	●	★	✱				✱			●	★	✱	
	ROHX10T3M0-F67	H	4	10	3,97	11°	4,4		★	✱	★		✱				✱			★		✱	
	ROHX1204M0-F67	H	4	12	4,76	11°	4,4		★	✱	★		✱				✱			★		✱	

HC = Coated carbide
HW = Uncoated carbide

● ★ ✱ New addition to range

Positive round

Tiger·tec®



Indexable inserts

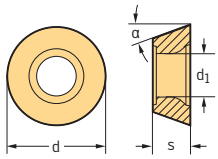
	Designation	Tolerance class	d mm	s mm	α	d_1 mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15	HF WMG40
	RDGT0803M0-G85	G	8	3,18	15°	3,4																	☻
	RDGT10T3M0-G85	G	10	3,97	15°	4,4																	☻
	RDGT1204M0-G85	G	12	4,76	15°	4,4																	☻
	RDGT1605M0-G85	G	16	5,56	15°	5,5																	☻
	RDGT2006M0-G85	G	20	6,35	15°	6,5																	☻
	RDGT0803M0-G88	G	8	3,18	15°	3,4											☻	☻					
	RDGT10T3M0-G88	G	10	3,97	15°	4,4											☻	☻					
	RDGT1204M0-G88	G	12	4,76	15°	4,4											☻	☻					
	RDGT1605M0-G88	G	16	5,56	15°	5,5											☻	☻					
	RDGT2006M0-G88	G	20	6,35	15°	6,5											☻	☻					
	RDHW0803M0T-A27	H	8	3,18	15°	3,4	☹	☠							☹	☠							
	RDHW10T3M0T-A27	H	10	3,97	15°	4,4	☹	☠							☹	☠							
	RDHW1204M0T-A27	H	12	4,76	15°	4,4	☹	☠							☹	☠							
	RDHW1605M0T-A27	H	16	5,56	15°	5,5	☹	☠							☹	☠							
	RDHW2006M0T-A27	H	20	6,35	15°	6,5	☹	☠							☹	☠							
	RDHW0803M0-A57	H	8	3,18	15°	3,4							☻									☻	
	RDHW10T3M0-A57	H	10	3,97	15°	4,4							☻									☻	
	RDHW1204M0-A57	H	12	4,76	15°	4,4							☻									☻	
	RDHW1605M0-A57	H	16	5,56	15°	5,5							☻									☻	
	RDHW2006M0-A57	H	20	6,35	15°	6,5							☻									☻	
	RDMT0803M0-D57	M	8	3,18	15°	3,4	☹	☹	☠	☹	☹	☠			☹	☠			☹	☹	☠		
	RDMT10T3M0-D57	M	10	3,97	15°	4,4	☹	☹	☠	☹	☹	☠			☹	☠			☹	☹	☠		
	RDMT1204M0-D57	M	12	4,76	15°	4,4	☹	☹	☠	☹	☹	☠			☹	☠			☹	☹	☠		
	RDMT1605M0-D57	M	16	5,56	15°	5,5	☹	☹	☠	☹	☹	☠			☹	☠			☹	☹	☠		
	RDMT2006M0-D57	M	20	6,35	15°	6,5	☹	☹	☠	☹	☹	☠			☹	☠			☹	☹	☠		
	RDMW0803M0T-A27	M	8	3,18	15°	3,4	☹	☠							☹	☠							
	RDMW10T3M0T-A27	M	10	3,97	15°	4,4	☹	☠							☹	☠							
	RDMW1204M0T-A27	M	12	4,76	15°	4,4	☹	☠							☹	☠							
	RDMW1605M0T-A27	M	16	5,56	15°	5,5	☹	☠							☹	☠							
	RDMW2006M0T-A27	M	20	6,35	15°	6,5	☹	☠							☹	☠							

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

☹ ☹ ☠ New addition to range

Positive round

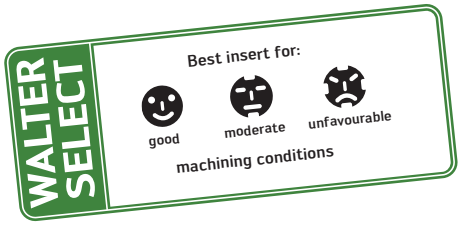
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	d mm	s mm	α	d_1 mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HF WMG40
	RDHX0702M0T-A27	H	7	2,35	15°	2,8	●	●						●	●						
	RDHX07T1M0T-A27	H	7	1,96	15°	2,8	●	●						●	●						
	RDHX1003M0T-A27	H	10	3,15	15°	4,4	●	●						●	●						
	RDHX12T3M0T-A27	H	12	3,94	15°	4,4	●	●						●	●						
	RDHX1604M0T-A27	H	16	4,73	15°	5,5	●	●						●	●						
	RDHX2006M0T-A27	H	20	5,97	15°	5,5	●	●						●	●						
	RDHX0501M0-A57	H	5	1,47	15°	2,15														●	
	RDHX0702M0-A57	H	7	2,35	15°	2,8														●	
	RDHX07T1M0-A57	H	7	1,96	15°	2,8														●	
	RDHX1003M0-A57	H	10	3,15	15°	4,4														●	
	RDHX12T3M0-A57	H	12	3,94	15°	4,4														●	
	RDHX1604M0-A57	H	16	4,73	15°	5,5														●	
	RDGX0501M0-G85	G	5	1,45	15°	2,15															●
	RDGX0702M0-G85	G	7	2,33	15°	2,8															●
	RDGX07T1M0-G85	G	7	1,94	15°	2,8															●
	RDGX1003M0-G85	G	10	3,13	15°	4,4															●
	RDGX12T3M0-G85	G	12	3,92	15°	4,4															●
	RDGX1604M0-G85	G	16	4,71	15°	5,5															●
	RDMX0702M0T-A27	M	7	2,33	15°	2,8	●	●						●	●						
	RDMX1003M0T-A27	M	10	3,15	15°	4,4	●	●						●	●						
	RDMX12T3M0T-A27	M	12	3,92	15°	4,4	●	●						●	●						
	RDMX1604M0T-A27	M	16	4,71	15°	5,5	●	●						●	●						
	RDMX2006M0T-A27	M	20	5,95	15°	5,5	●	●						●	●						

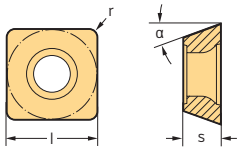
HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide



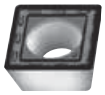
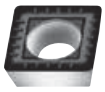
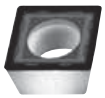
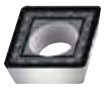
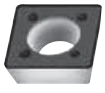
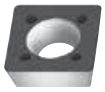
● ● ● New addition to range

Positive square

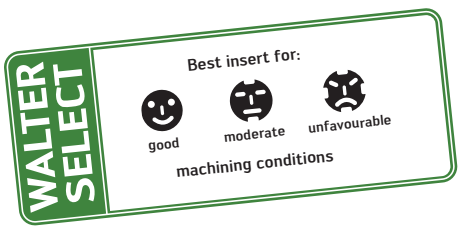
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	r mm	P			M			K					CN	N		S			H
									HC			HC				HC				HC	HW		HC		HC
								WKP25S	WKP35S	WSP45	WSM35	WSM35S	WSP45	WAK15	WKK25	WKP25S	WKP35S	WSN10	WXN15	WK10	WSM35	WSM35S	WSP45	WHH15
	SPGT120606-F57	G	4	12,7	6,35	11°	0,6		☺	☹	☺	☹	☹				☹				☺	☹	☹	
	SDHW09T312-A57	H	4	9,52	3,97	15°	1,2											☺						
	SPHT060304-G88	H	4	6,35	3,18	11°	0,4												☺	☺				
	SPHT09T308-G88	H	4	9,52	3,97	11°	0,8												☺	☺				
	SPHT120408-G88	H	4	12,7	4,76	11°	0,8												☺	☺				
	SPHW120412-A57	H	4	12,7	4,76	11°	1,2											☺						
	SPHW120416-A57	H	4	12,7	4,76	11°	1,6											☺						
	SPMT060304-D51	M	4	6,35	3,18	11°	0,4	☺	☺	☹	☺		☹			☺	☹				☺		☹	
	SPMT09T308-D51	M	4	9,52	3,97	11°	0,8	☺	☺	☹	☺		☹			☺	☹				☺		☹	
	SPMT120408-D51	M	4	12,7	4,76	11°	0,8	☺	☺	☹	☺		☹			☺	☹				☺		☹	
	SPMT120606-D51	M	4	12,7	6,35	11°	0,6		☺	☹	☺		☹				☹				☺		☹	
	SPMT120606-D57	M	4	12,7	6,35	11°	0,6	☺	☺	☹	☺		☹	☺		☺	☹				☺		☹	
	SPMT060304-F55	M	4	6,35	3,18	11°	0,4		☺	☹	☺		☹	☺			☹				☺		☹	
	SPMT09T308-F55	M	4	9,52	3,97	11°	0,8		☺	☹	☺		☹	☺			☹				☺		☹	
	SPMT120408-F55	M	4	12,7	4,76	11°	0,8		☺	☹	☺		☹	☺			☹				☺		☹	
	SPMW060304T-A27	M	4	6,35	3,18	11°	0,4	☹	☹							☹	☹							
	SPMW09T308T-A27	M	4	9,52	3,97	11°	0,8	☹	☹							☹	☹							
	SPMW120408T-A27	M	4	12,7	4,76	11°	0,8	☹	☹							☹	☹							
	SPMW060304-A57	M	4	6,35	3,18	11°	0,4	☹	☹					☺		☹	☹							
	SPMW09T308-A57	M	4	9,52	3,97	11°	0,8	☹	☹					☺		☹	☹							
	SPMW120408-A57	M	4	12,7	4,76	11°	0,8	☹	☹					☺		☹	☹							

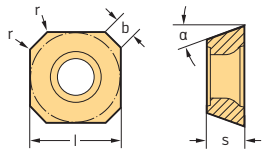
HC = Coated carbide
CN = Silicon nitride Si_3N_4
HW = Uncoated carbide



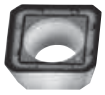
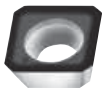
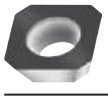
☺☹☹ New addition to range

Positive square

Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	SDGT09T3AEN-F57	G	4	9,52	3,97	15°	0,3	1,2		☻	☻	☻	☻				☻			☻	☻	
	SDGT09T3AEN-G88	G	4	9,52	3,97	15°	0,3	1,2										☻	☻			
	SDHW09T3AEN-A57	H	4	9,52	3,97	15°	0,3	1,2	☻	☻				☻		☻	☻					
	SDMT09T3AEN-D57	M	4	9,52	3,97	15°	0,5	1,2		☻	☻	☻	☻				☻			☻	☻	
	SDMW09T3AETN-A27	M	4	9,52	3,97	15°	0,5	1,2	☻	☻						☻	☻					
	SDMW09T3AEN-A57	M	4	9,52	3,97	15°	0,5	1,2	☻	☻				☻		☻	☻					
	SEHT1204AFN	H	4	12,7	4,76	20°	0,8	2		☻	☻	☻	☻				☻		☻	☻	☻	
	SEHT1204AFN-K88	H	4	12,7	4,76	20°	0,8	1,8											☻			
	SEHW1204AFN	H	4	12,7	4,76	20°	0,8	2		☻				☻			☻					
	SEHW1504AFN	H	4	15,88	4,76	20°	0,8	2,1		☻							☻					
	SPGT1204AEN-K88	G	4	12,7	4,76	11°		1,5										☻	☻			
	SPKT1204AZN	K	4	12,7	4,76	11°		1,4		☻	☻	☻	☻	☻			☻			☻	☻	
	SPKT1504AZN	K	4	15,88	4,76	11°		1,7		☻							☻					

HC = Coated carbide
HW = Uncoated carbide

☻☻☻ New addition to range

Positive square

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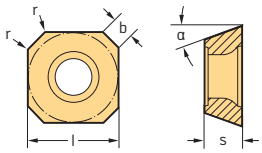
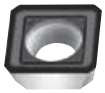
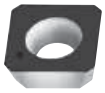
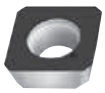


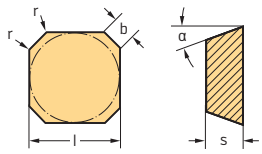
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	SPMT1204AEN	M	4	12,7	4,76	11°	0,5	1,4	☺	😐	☹	😐	☹	☺		😐	☹			😐	☹	
	SPMW1204AEN-A57	M	4	12,7	4,76	11°	0,5	1,4	😐					☺		😐						
	SPMW1204AETN-A27	M	4	12,7	4,76	11°	0,5	1,4	😐							😐						

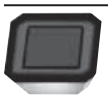
HC = Coated carbide
HW = Uncoated carbide

Positive square

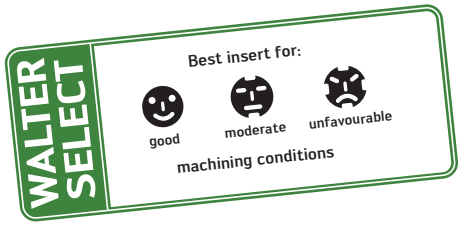
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	SEKR1203AFTN	K	4	12,7	3,18	20°	0,425	1,9		😐							😐					
	SEKR1204AFN	K	4	12,7	4,76	20°	0,34	1,9		😐							😐					
	SEKN1203AFN	K	4	12,7	3,18	20°	0,625	1,9		☹				☺			☹					
	SEKN1504AFN	K	4	15,88	4,76	20°	0,35	2		☹							☹					
	SEMR1203AFTN	M	4	12,7	3,18	20°	0,5	1,9		😐							😐					

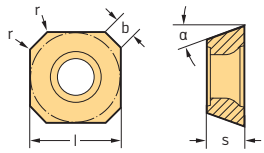
HC = Coated carbide
HW = Uncoated carbide



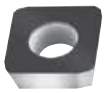
😐 ☹ New addition to range

Positive square

Tiger·tec®



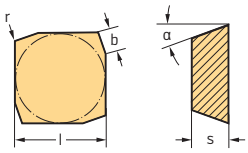
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	SPGT1204EDR-F55	G	4	12,7	4,76	11°	0,5	1,25	☺	☹	☹	☹	☹	☺		☹	☹			☹	☹	
	SPJW1204EDR	J	4	12,7	4,76	11°		1,4		☹				☺			☹					
	SPJW1504EDR	J	4	15,88	4,76	11°		1,5		☹				☺			☹					

HC = Coated carbide
HW = Uncoated carbide

Positive square

Tiger·tec®



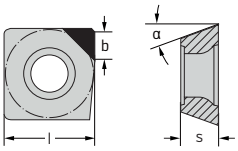
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	SPFN1204EDN	F	4	12,7	4,76	11°	0,5	1,7		☹				☺			☹					
	SPFN1204ZPN	F	4	12,7	4,76	11°	0,8	1,7		☹							☹					
	SPFR1204EDR	F	4	12,7	4,76	11°	0,5	2		☹				☺			☹					
	SPFR1204ZPN	F	4	12,7	4,76	11°	0,8	1,7		☹							☹					
	SPFR1204ZPR	F	4	12,7	4,76	11°	0,8	1,7		☹				☺			☹					
	SPKN1203EDR	K	4	12,7	3,18	11°		1,4		☹							☹					
	SPKN1204EDR	K	4	12,7	4,76	11°		1,4		☹				☺			☹					
	SPKN1504EDR	K	4	15,88	4,76	11°		1,5		☹							☹					
	SPMN1203EDR	M	4	12,7	3,18	11°	0,2	1,4		☹							☹					

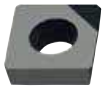
HC = Coated carbide
HW = Uncoated carbide

☺☹☹ New addition to range

Positive square



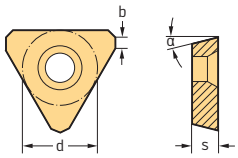
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	N DP WCD10	S HC WSM35	S HC WSP45	H HC WHH15
	SPHW1204EDR-A88	H	1	12,7	4,76	11°	1,5												☻			
	SPHW1204PDR-A88	H	1	12,7	4,76	11°	1,5												☻			

HC = Coated carbide
HW = Uncoated carbide
DP = Polycrystalline diamond

Positive triangular

Tiger·tec®



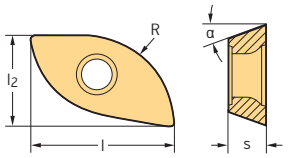
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	TPAW1604PPN	A	3	9,52	4,76	11°	1,2		☹							☹					
	TPAW2204PPN	A	3	12,7	4,76	11°	1,2		☹							☹					
	TPJW1604PPN	J	3	9,52	4,76	11°	1,2		☹				☻			☹					
	TPJW2204PPN	J	3	12,7	4,76	11°	1,2		☹				☻			☹					

HC = Coated carbide
HW = Uncoated carbide

Form inserts, positive

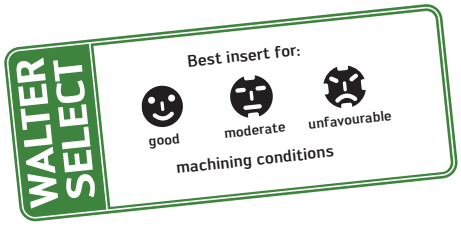
Tiger·tec®



Indexable inserts

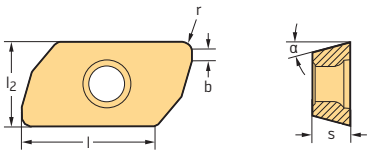
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	R mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	S HC WSP45S	H HC WHH15
	XDMT1303080R-F55	M	2	8,56	13,18	3,99	15°	8	☺	😐	☹		😐	☹				☺	☹			😐	☹		
	XDMT16T3100R-F55	M	2	9	15,93	4,99	15°	10	☺	😐	☹		😐	☹				☺	☹			😐	☹		
	XDMT2004125R-F55	M	2	11,26	19,94	6,24	15°	12,5	☺	😐	☹		😐	☹				☺	☹			😐	☹		
	XDMT2405150R-F55	M	2	13,52	23,94	7,5	15°	15	☺	😐	☹		😐	☹				☺	☹			😐	☹		
	XDMT2506160R-F55	M	2	14,43	25,54	8,03	15°	16	☺	😐	☹		😐	☹				☺	☹			😐	☹		
	XDMT3207200R-F55	M	2	18,05	31,95	10	15°	20	☺	😐	☹		😐	☹				☺	☹			😐	☹		
	XDMT4009250R-F55	M	2	22,57	39,95	12,5	15°	25	☺	😐	☹		😐	☹				☺	☹			😐	☹		
	XDGT16T3100R-D57	G	2	9	15,93	3,74	15°	10		☹		☹			☹				☹					☹	
	XDGT2004125R-D57	G	2	11,26	19,94	4,68	15°	12,5		☹		☹			☹				☹					☹	
	XDGT2405150R-D57	G	2	13,52	23,94	5,62	15°	15		☹		☹			☹				☹					☹	
	XDGT2506160R-D57	G	2	14,43	25,54	6	15°	16		☹		☹			☹				☹					☹	
	XDGT3207200R-D57	G	2	18,05	31,95	7,5	15°	20		☹		☹			☹				☹					☹	
	XDGT4009250R-D57	G	2	22,57	39,95	9,39	15°	25		☹		☹			☹				☹					☹	

HC = Coated carbide
HW = Uncoated carbide



☺ 😐 ☹ New addition to range

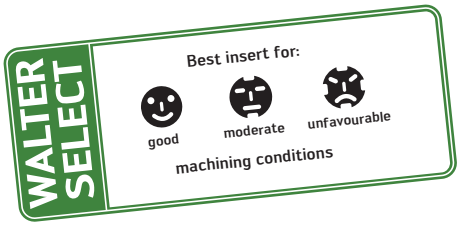
Positive rhombic



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HF WMG40
	ZDGT150404R-K85	G	2	10,5	16,2	4,76	15°	0,4	1,2										☺	☺				☺
	ZDGT150408R-K85	G	2	10,5	16,2	4,76	15°	0,8	1,2										☺	☺				☺
	ZDGT150412R-K85	G	2	10,5	16,2	4,76	15°	1,2	1,2										☺	☺				☺
	ZDGT150416R-K85	G	2	10,5	16,2	4,76	15°	1,6	1,2										☺	☺				☺
	ZDGT150420R-K85	G	2	10,5	16,2	4,76	15°	2	1,2										☺	☺				☺
	ZDGT150425R-K85	G	2	10,5	16,2	4,76	15°	2,5	1,2										☺	☺				☺
	ZDGT150430R-K85	G	2	10,5	16,2	4,76	15°	3	1,2										☺	☺				☺
	ZDGT150440R-K85	G	2	10,5	16,2	4,76	15°	4	1,2										☺	☺				☺
	ZDGT200508R-K85	G	2	14	21,2	5,56	15°	0,8	1,2											☺				☺
	ZDGT200512R-K85	G	2	14	21,2	5,56	15°	1,2	1,2											☺				☺
	ZDGT200516R-K85	G	2	14	21,2	5,56	15°	1,6	1,2											☺				☺
	ZDGT200520R-K85	G	2	14	21,2	5,56	15°	2	1,2											☺				☺
	ZDGT200530R-K85	G	2	14	21,2	5,56	15°	3	1,2											☺				☺
	ZDGT200540R-K85	G	2	14	21,2	5,56	15°	4	1,2											☺				☺
	ZDGT200550R-K85	G	2	14	21,2	5,56	15°	5	1,2											☺				☺
	ZDGT200560R-K85	G	2	14	21,2	5,56	15°	6	1,2											☺				☺
	ZDGT200564R-K85	G	2	14	21,2	5,56	15°	6,4	1,2											☺				☺

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide



☺ ☹ ☹ New addition to range

Finishing inserts

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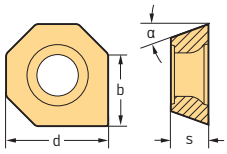
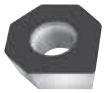
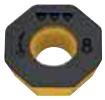
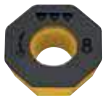


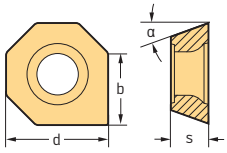
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HC WXM15
	ODHX0504ZZR-A57	H	1	12,7	4,76	15°	7,2		●				●			●					●	●
	ODHX0605ZZR-A57	H	1	15,88	5,56	15°	9,4		●				●			●					●	●
	ODHX0605ZZN-A88	H	8	15,88	5,56	15°	6						●								●	●
	ODHX0605ZZN-A57	H	8	15,88	5,56	15°	6						●								●	●

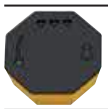
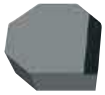
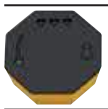
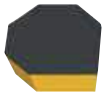
HC = Coated carbide
HW = Uncoated carbide

Finishing inserts

Tiger·tec®



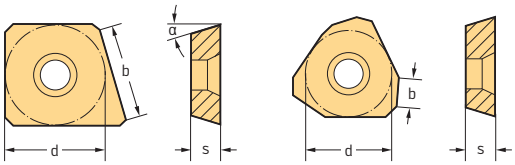
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	BH WCB80	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HC WXM15
	OPHX0504ZZN-A88	H	8	12,7	4,76	11°	5						●									●	●
	OPHX0504ZZR-A27	H	1	12,7	4,76	11°	7,8										●						
	OPHX0504ZZN-A57	H	8	12,7	4,76	11°	5						●									●	●
	OPHX0504ZZR-A57	H	1	12,7	4,76	11°	7,8						●									●	●

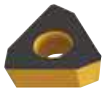
HC = Coated carbide
BH = CBN with high CBN content
HW = Uncoated carbide

Finishing inserts

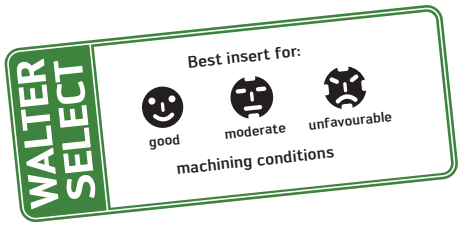
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	N DP WCD10	S HC WSM35	S HC WSP45	H HC WHH15	HC WXM15
	P2901-1R	H	1	12,7	4,76	11°	11						☺					☺				☺	☺
	P2903-2R	A	3	9,52	4,76	11°	3,5						☺					☺				☺	☺
	P2905-1	F	4	12,7	4,76	11°	10						☺					☺				☺	☺
	SPHX1204PDR-A88	H	1	12,7	4,76	11°	3,5												☺				

HC = Coated carbide
HW = Uncoated carbide
DP = Polycrystalline diamond



Negative rhombic

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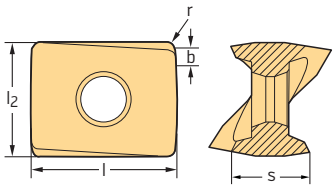


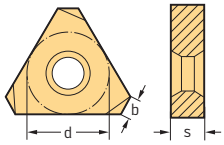
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	LNGX130708R-L55	G	4	11	13,6	7,74	0,8	1,2	☺	☹	☹	☹	☹	☹	☺	☹	☹	☹			☹	☹	☹	
	LNGX130712R-L55	G	4	11	13,6	7,63	1,2	1	☺	☹	☹	☹		☹			☹	☹			☹		☹	
	LNGX130716R-L55	G	4	11	13,6	7,51	1,6	0,9	☺	☹	☹	☹		☹			☹	☹			☹		☹	
	LNGX130720R-L55	G	4	11	13,6	7,41	2	0,7	☺	☹	☹	☹		☹			☹	☹			☹		☹	
	LNGX130725R-L55	G	4	11	13,6	7,27	2,5	0,6	☺	☹	☹	☹		☹			☹	☹			☹		☹	
	LNGX130730R-L55	G	4	11	13,6	7,12	3	0,7	☺	☹	☹	☹		☹			☹	☹			☹		☹	
	LNGX130708R-L88	G	4	11	13,6	7,73	0,8	1,2											☺	☺				
	LNGX130712R-L88	G	4	11	13,6	7,65	1,2	1											☺	☺				
	LNGX130716R-L88	G	4	11	13,6	7,55	1,6	0,9											☺	☺				
	LNGX130720R-L88	G	4	11	13,6	7,46	2	0,7											☺	☺				
	LNGX130725R-L88	G	4	11	13,6	7,36	2,5	0,6											☺	☺				
	LNGX130730R-L88	G	4	11	13,6	7,25	3	0,7											☺	☺				

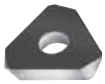
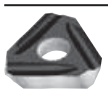
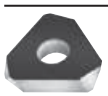
HC = Coated carbide
HW = Uncoated carbide

Wendelnovex ® inserts

Tiger·tec®



Indexable inserts

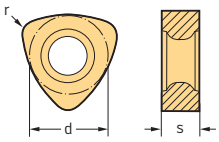
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	P2352-1R	A	6	15	4,5	1,1		☹				☺			☹					
	P2352-2R	A	6	18	4,5	1,1		☹							☹					
	P23522-1R	A	6	15	4,5	1,1		☹							☹					
	P2372-1R	A	6	15	4,5	1,1		☹							☹					

HC = Coated carbide
HW = Uncoated carbide

☺☹☹ New addition to range

Negative triangular

Tiger·tec®



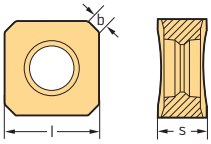
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	P23696-1.0	M	6	9,52	5	1,2	●	●	●	●	●	●			●	●			●	●	●	
	P23696-2.0	M	6	13,5	7	1,6	●	●	●	●	●	●			●	●			●	●	●	

HC = Coated carbide
HW = Uncoated carbide

Negative square

Tiger·tec®



Indexable inserts

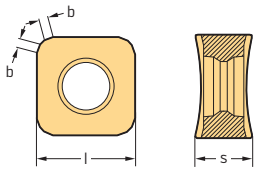
	Designation	Tolerance class	Number of cutting edges	l mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	SNGX1205ANN-D27	G	8	12,7	6,4	1,5	●	●						●	●	●						
	SNGX1205ANN-F27	G	8	12,7	6,4	1,5	●	●							●	●						
	SNGX1205ANN-F57	G	8	12,7	6,4	1,5	●	●	●	●	●	●		●	●	●			●	●	●	
	SNGX1205ANN-F67	G	8	12,7	6,4	1,5	●	●	●	●	●	●	●		●	●			●	●	●	
	SNGX1606ANN-D27	G	8	16	7,7	1,8	●	●						●	●	●						
	SNGX1606ANN-F27	G	8	16	7,7	1,8	●	●							●	●						
	SNGX1606ANN-F57	G	8	16	7,7	1,8	●	●	●	●	●	●		●	●	●			●	●	●	
	SNGX1606ANN-F67	G	8	16	7,7	1,8		●	●	●		●	●			●			●		●	
	SNMX1205ANN-F27	M	8	12,7	6,4	1,5	●	●							●	●						
	SNMX1205ANN-F57	M	8	12,7	6,4	1,5	●	●						●	●	●						
	SNMX1205ANN-F67	M	8	12,7	6,4	1,5	●	●					●		●	●						
	SNHX1205ANN-K88	H	8	12,7	6,4	1,5											●	●				

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Negative square

Tiger·tec®



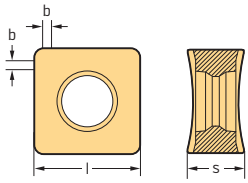
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	SNGX1205ENN-F27	G	8	12,7	6,4	1,2	●	●							●	●						
	SNGX1205ENN-F57	G	8	12,7	6,4	1,2	●	●	●	●	●	●		●	●	●			●	●	●	
	SNGX1205ENN-F67	G	8	12,7	6,4	1,2	●	●	●	●	●	●	●		●	●			●	●	●	

HC = Coated carbide
HW = Uncoated carbide

Negative square

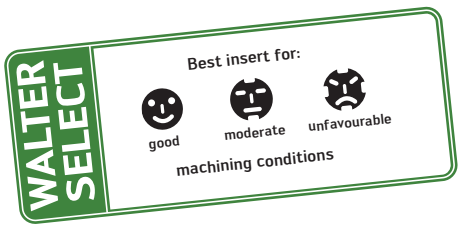
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	SNGX1205ZNN-F27	G	8	12,7	6,4	1,2	●	●							●	●						
	SNGX1205ZNN-F57	G	8	12,7	6,4	1,2	●	●	●	●	●	●		●	●	●			●	●	●	
	SNGX1205ZNN-F67	G	8	12,7	6,4	1,2	●	●	●	●	●	●	●		●	●			●	●	●	

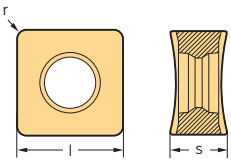
HC = Coated carbide
HW = Uncoated carbide



● ● ● New addition to range

Negative square

Tiger·tec®



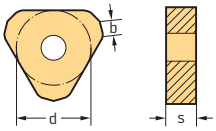
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	SNGX120512-F57	G	8	12,7	6,4	1,2	●	●	●	●	●	●			●	●			●	●	●	
	SNMX120512-D27	M	8	12,7	6,4	1,2	●	●						●	●	●						
	SNMX120512-F27	M	8	12,7	6,4	1,2	●	●							●	●						
	SNMX120512-F57	M	8	12,7	6,4	1,2	●	●	●	●		●		●	●	●			●		●	
	SNMX120512-F67	M	8	12,7	6,4	1,2	●	●	●	●		●	●		●	●			●		●	
	SNMX120520-D27	M	8	12,7	6,4	2	●	●						●	●	●						
	SNMX120520-F57	M	8	12,7	6,4	2	●	●	●	●		●		●	●	●			●		●	
	SNMX160620-D27	M	8	16	7,8	2	●	●						●	●	●						
	SNMX160620-F27	M	8	16	7,8	2	●	●							●	●						
	SNMX160620-F57	M	8	16	7,8	2	●	●	●	●		●		●	●	●			●		●	
	SNMX160620-F67	M	8	16	7,8	2		●	●	●		●	●			●			●		●	
	SNMX160640-D27	M	8	16	7,8	4	●	●						●	●	●						
	SNMX160640-F27	M	8	16	7,8	4	●	●							●	●						
	SNMX160640-F57	M	8	16	7,8	4	●	●							●	●						

HC = Coated carbide
HW = Uncoated carbide

Negative triangular

Tiger·tec®



Indexable inserts

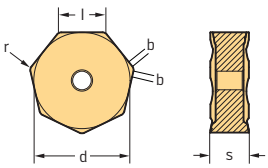
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	TNEF1204AN-D57	E	6	12,7	4,76	1,8	●	●				●	●	●	●					

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Negative heptagonal

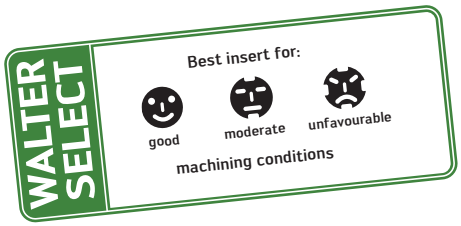
Tiger·tec®



Indexable inserts

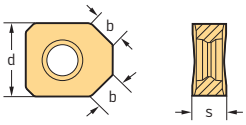
	Designation	Tolerance class	Number of cutting edges	d mm	l mm	s mm	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	XNHF070508-D27	H	14	14,5	7	5,8	0,8		☺	☹					☹	☺	☹					
	XNHF070508-D57	H	14	14,5	7	5,8	0,8		☺	☹					☹	☺	☹					
	XNHF070508-D67	H	14	14,5	7	5,8	0,8		☺	☹				☻		☺	☹					
	XNHF090612-D27	H	14	19,05	9	6,35	1,2		☺	☹					☹	☺	☹					
	XNHF090612-D57	H	14	19,05	9	6,35	1,2		☺	☹					☹	☺	☹					
	XNHF090612-D67	H	14	19,05	9	6,35	1,2		☺	☹				☻		☺	☹					
	XNHF0705ANN-D27	H	14	14,5	7	5,8	0,8	1,1	☺	☹					☹	☺	☹					
	XNHF0705ANN-D57	H	14	14,5	7	5,8	0,8	1,1	☺	☹					☹	☺	☹					
	XNHF0705ANN-D67	H	14	14,5	7	5,8	0,8	1,1	☺	☹				☻		☺	☹					
	XNHF0906ANN-D27	H	14	19,05	9	6,35	0,8	1,4	☺	☹					☹	☺	☹					
	XNHF0906ANN-D57	H	14	19,05	9	6,35	0,8	1,4	☺	☹					☹	☺	☹					
	XNHF0906ANN-D67	H	14	19,05	9	6,35	0,8	1,4	☺	☹				☻		☺	☹					

HC = Coated carbide
HW = Uncoated carbide



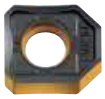
☺☹☹ New addition to range

Finishing inserts



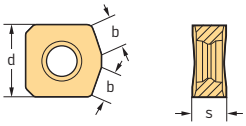
Tiger·tec®

Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HC WXM15
	XNGX1205ANN-F67	G	2	12,7	6,02	4,7						☺								☺	😐

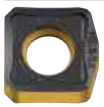
HC = Coated carbide
HW = Uncoated carbide

Finishing inserts

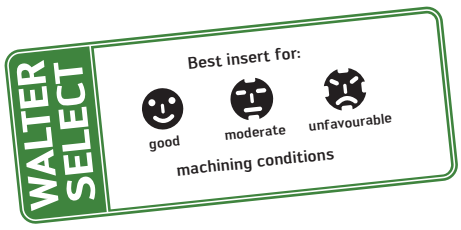


Tiger·tec®

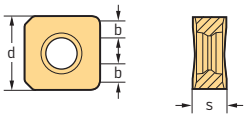
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HC WXM15
	XNGX1205ENN-F67	G	2	12,7	6,08	4,5						☺								☺	😐

HC = Coated carbide
HW = Uncoated carbide



Finishing inserts



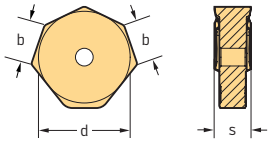
Tiger·tec®

Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HC WXM15
	XNGX1205ZNN-F67	G	2	12,7	6,47	4						☺								☺	☺

HC = Coated carbide
HW = Uncoated carbide

Finishing inserts



Tiger·tec®

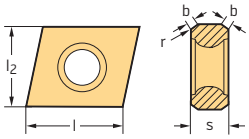
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	XNHX0705ANN-D67	H	2	14,5	4,2	5,78						☺								☺

HC = Coated carbide
HW = Uncoated carbide

☺☺☺ New addition to range

Tangential rhombic



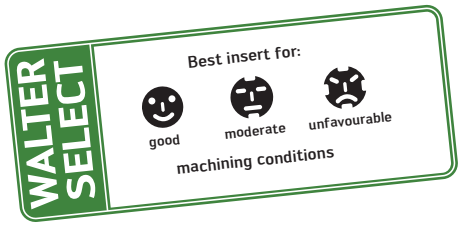
Tiger·tec®

Indexable inserts

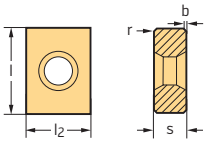
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	CNHQ0805PPN-A57T	H	2	9	8	5	0,8	1,2		☹				☺			☹					
	CNHQ1206PPN-A57T	H	2	13	12	6,5	0,8	1,5		☹				☺			☹					
	CNHQ1608PPN-A57T	H	2	15	16	8	1,2	1,8		☹				☺			☹					
	CNHU0805PPN-D57T	H	2	9	8	5	0,8	1,2		😐	☹	😐	☹				☹			😐	☹	
	CNHU1206PPN-D57T	H	2	13	12	6,5	0,8	1,5		😐	☹	😐	☹				☹			😐	☹	
	CNHU1608PPN-D57T	H	2	15	16	8	1,2	1,8		😐	☹	😐	☹				☹			😐	☹	
	CNMQ080508T-A27T	M	2	9	8	5	0,8			☹							☹					
	CNMQ120608T-A27T	M	2	13	12	6,5	0,8			☹							☹					
	CNMQ160812T-A27T	M	2	15	16	8	1,2			☹							☹					
	CNMQ080508-A57T	M	2	9	8	5	0,8			☹				☺			☹					
	CNMQ120608-A57T	M	2	13	12	6,5	0,8			☹				☺			☹					
	CNMQ160812-A57T	M	2	15	16	8	1,2			☹				☺			☹					
	CNMU080508-D57T	M	2	9	8	5	0,8			😐	☹	😐	☹				☹			😐	☹	
	CNMU120608-D57T	M	2	13	12	6,5	0,8			😐	☹	😐	☹				☹			😐	☹	
	CNMU160812-D57T	M	2	15	16	8	1,2			😐	☹	😐	☹				☹			😐	☹	

Note: l_2 = Cutting width

HC = Coated carbide
HW = Uncoated carbide

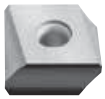
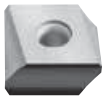


Tangential rhombic



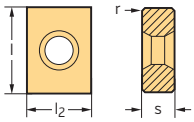
Tiger·tec®

Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	LNKU2010DPTR-F27T	K	4	15	20	10,5	0,6	1,2	●							●						
	LNKU3010DPTR-F27T	K	4	15	30	10,5	0,6	1,2	●							●						
	LNKU2010DPR-F57T	K	4	15	20	10,5	0,6	1,2	●	●						●	●					
	LNKU3010DPR-F57T	K	4	15	30	10,5	0,6	1,2	●	●						●	●					

HC = Coated carbide
HW = Uncoated carbide

Tangential rhombic



Tiger·tec®

Indexable inserts

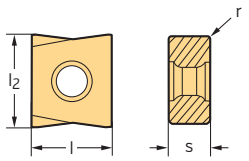
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	LNMU150812T-F27T	M	4	14	15	8	1,2	●	●						●	●					
	LNMU201012T-F27T	M	4	16	20	10	1,2	●	●						●	●					
	LNMU150812-F57T	M	4	14	15	8	1,2	●	●				●		●	●					
	LNMU201012-F57T	M	4	16	20	10	1,2	●	●				●		●	●					

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Tangential rhombic

Tiger·tec®



Indexable inserts

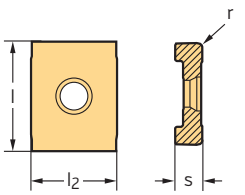
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	LNHU080304-B57T	H	4	9	8	3,5	0,4		●				●	●		●					
	LNHU080404-B57T	H	4	9,4	8	4,5	0,4		●				●	●		●					
	LNHU100508-B57T	H	4	12,3	10	5,5	0,8		●				●	●		●					
	LNHU120608-B57T	H	4	13,9	12	6,5	0,8		●				●	●		●					
	LNHU160812-B57T	H	4	16	17,4	8	1,2		●				●			●					
	LNHU080304-F57T	H	4	9	8	3,5	0,4	●	●	●	●	●			●	●			●	●	
	LNHU080404-F57T	H	4	9,4	8	4,5	0,4	●	●	●	●	●			●	●			●	●	
	LNHU100508-F57T	H	4	12,3	10	5,5	0,8	●	●	●	●	●			●	●			●	●	
	LNHU120608-F57T	H	4	13,9	12	6,5	0,8	●	●	●	●	●			●	●			●	●	
	LNHU160812-F57T	H	4	16	16,9	8	1,2	●	●	●	●	●			●	●			●	●	
	LNMU080304-B57T	M	4	8	9	3,5	0,4		●				●	●		●					
	LNMU080404-B57T	M	4	9,4	8	4,5	0,4		●				●	●		●					
	LNMU100508-B57T	M	4	12,3	10	5,5	0,8		●				●	●		●					
	LNMU120608-B57T	M	4	13,9	12	6,5	0,8		●				●	●		●					
	LNMU160812-B57T	M	4	16	16,9	8	1,2		●				●			●					
	LNMU080304-F57T	M	4	8	9	3,5	0,4	●	●	●	●	●			●	●			●	●	
	LNMU080404-F57T	M	4	9,4	8	4,5	0,4	●	●	●	●	●			●	●			●	●	
	LNMU100508-F57T	M	4	12,3	10	5,5	0,8	●	●	●	●	●			●	●			●	●	
	LNMU120608-F57T	M	4	13,9	12	6,5	0,8	●	●	●	●	●			●	●			●	●	
	LNMU160812-F57T	M	4	16	16,9	8	1,2	●	●	●	●	●			●	●			●	●	

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Tangential rhombic

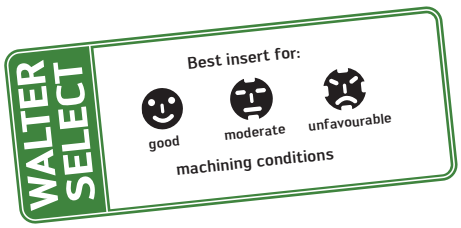
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	LNHX070204-D57T	H	4	7	9	2,4	0,4		😐				🙂	😐		☹					
	LNHX070204-F57T	H	4	7	9	2,4	0,4	🙂	😐	☹	😐	☹			😐	☹			☹	☹	
	LNMX070204-D57T	M	4	7	9	2,4	0,4		😐				🙂	😐		☹					
	LNMX070204-F57T	M	4	7	9	2,4	0,4	🙂	😐	☹	😐	☹			😐	☹			☹	☹	

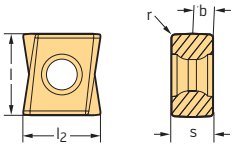
HC = Coated carbide
HW = Uncoated carbide



🙂😐☹ New addition to range

Tangential rhombic

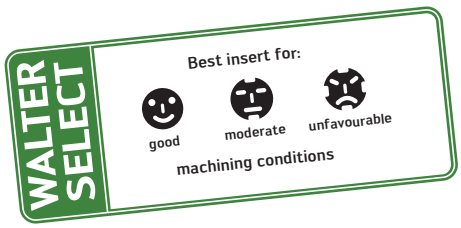
Tiger·tec®



Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45S	M HC WSM35S	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HW WK10	N HC WXN15	S HC WSM35S	S HC WSP45S	H HC WHH15
	LNHU090404R-L55T	H	4	9	8,5	4,5	0,4	1,5	☺	😐	☹	😐	☹	☺	😐	😐	☹			😐	☹	
	LNHU090408R-L55T	H	4	9	8,5	4,5	0,8	1,1		😐	☹	😐	☹				☹			😐	☹	
	LNHU090412R-L55T	H	4	9	8,5	4,5	1,2	0,8		😐	☹	😐	☹				☹			😐	☹	
	LNHU090416R-L55T	H	4	9	8,5	4,5	1,6			😐	☹	😐	☹				☹			😐	☹	
	LNHU090420R-L55T	H	4	9	8,5	4,5	2			😐	☹	😐	☹				☹			😐	☹	
	LNHU130608R-L55T	H	4	13	12	6,8	0,8	2,2	☺	😐	☹	😐	☹	☺	😐	😐	☹			😐	☹	
	LNHU130612R-L55T	H	4	13	12	6,8	1,2	1,85		😐	☹	😐	☹				☹			😐	☹	
	LNHU130616R-L55T	H	4	13	12	6,8	1,6	1,5		😐	☹	😐	☹				☹			😐	☹	
	LNHU130620R-L55T	H	4	13	12	6,8	2	1,15		😐	☹	😐	☹				☹			😐	☹	
	LNHU130625R-L55T	H	4	13	12	6,8	2,5	0,7		😐	☹	😐	☹				☹			😐	☹	
	LNHU130630R-L55T	H	4	13	12	6,8	3			😐	☹	😐	☹				☹			😐	☹	
	LNHU130632R-L55T	H	4	13	12	6,8	3,2			😐	☹	😐	☹				☹			😐	☹	
	LNHU160708R-L55T	H	4	16	15,5	7,2	0,8	2,3	☺	😐	☹	😐	☹	☺	😐	😐	☹			😐	☹	
	LNHU160712R-L55T	H	4	16	15,5	7,2	1,2	1,9		😐	☹	😐	☹				☹			😐	☹	
	LNHU160716R-L55T	H	4	16	15,5	7,2	1,6	1,6		😐	☹	😐	☹				☹			😐	☹	
	LNHU160720R-L55T	H	4	16	15,5	7,2	2	1,2		😐	☹	😐	☹				☹			😐	☹	
	LNHU160725R-L55T	H	4	16	15,5	7,2	2,5			😐	☹	😐	☹				☹			😐	☹	
	LNHU090404R-L85T	H	4	9	8,5	4,5	0,4	1,5										☺	☺			
	LNHU130608R-L85T	H	4	13	12	6,8	0,8	2,2										☺	☺			
	LNHU160708R-L85T	H	4	16	15,5	7,2	0,8	2,3										☺	☺			

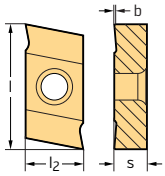
HC = Coated carbide
HW = Uncoated carbide



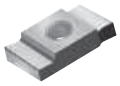
☺ 😐 ☹ New addition to range

Positive rhombic

Tiger·tec®



Indexable inserts

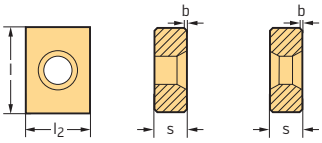
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	b mm	P HC			M HC		K HC				N HC	N HW	S HC		H HC
								WKP25S	WKP35S	WSP45	WSM35	WSP45	WAK15	WKK25	WKP25S	WKP35S	WXN15	WK10	WSM35	WSP45	WHH15
	P20200-1.1	H	2	5,5	9	2,35	0,1		☺							☹					
	P20200-1.2	H	2	5,5	9	2,35	0,15		☺							☹					
	P20200-1.3	H	2	5,5	9	2,35	0,15		☺							☹					
	P20200-1.4	H	2	5,5	9	2,35	0,15		☺							☹					
	P20200-1.5	H	2	5,5	9	2,35	0,15		☺							☹					
	P20200-2.1	H	2	7	12	3,4	0,15		☺							☹					
	P20200-2.2	H	2	7	12	3,4	0,15		☺							☹					
	P20200-2.3	H	2	7	12	3,4	0,15		☺							☹					

For the tolerance of the assembled tool, see page F 236 in the Walter General catalogue 2012.

HC = Coated carbide
HW = Uncoated carbide

Tangential rhombic

Tiger·tec®



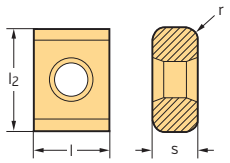
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	b mm	P HC			M HC		K HC				N HC	N HW	S HC		H HC
								WKP25S	WKP35S	WSP45	WSM35	WSP45	WAK15	WKK25	WKP25S	WKP35S	WXN15	WK10	WSM35	WSP45	WHH15
	P4406-1	H	2	9,52	12,7	3,5	0,5		☹				☺			☹					
	P4406-2	H	2	9,52	12,7	4	0,5		☹				☺			☹					
	P4406-3	H	4	9,52	12,7	4,76	0,4		☹				☺			☹					
	P4406-4	H	4	9,52	12,7	5,5	0,4		☹				☺			☹					
	P4406-5	H	4	9,52	12,7	6,35	0,4		☹				☺			☹					
	P44462-1	H	2	9,52	12,7	3,5	0,5		☺							☹					
	P44462-2	H	2	9,52	12,7	4	0,5		☺							☹					
	P44462-3	H	4	9,52	12,7	4,76	0,4		☺							☹					
	P44462-4	H	4	9,52	12,7	5,5	0,4		☺							☹					
	P44462-5	H	4	9,52	12,7	6,35	0,4		☺							☹					

HC = Coated carbide
HW = Uncoated carbide

Tangential rhombic

Tiger·tec®



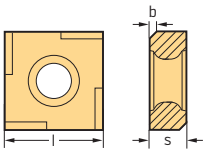
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	P44280-1R08-D57	H	8	12,7	9,52	5,5	0,8				●	●								●	●		
	P44280-1R10-D57	H	8	12,7	9,52	5,5	1				●									●			
	P44280-1R125-D57	H	8	12,7	9,52	5,5	1,25				●									●			
	P44280-1R15-D57	H	8	12,7	9,52	5,5	1,5				●									●			
	P44280-1R20-D57	H	8	12,7	9,52	5,5	2				●	●								●	●		
	P44280-2R25-D57	H	8	12,7	9,52	6,35	2,5				●									●			
	P44280-2R30-D57	H	8	12,7	9,52	6,35	3				●									●			
	P44280-2R40-D57	H	4	12,7	9,52	6,35	4				●	●								●	●		
	P44290-1R08-D57	M	8	12,7	9,52	5,5	0,8				●									●			
	P44290-1R10-D57	M	8	12,7	9,52	5,5	1				●									●			
	P44290-1R125-D57	M	8	12,7	9,52	5,5	1,25				●									●			
	P44290-1R15-D57	M	8	12,7	9,52	5,5	1,5				●									●			
	P44290-1R20-D57	M	8	12,7	9,52	5,5	2				●									●			
	P44290-2R25-D57	M	8	12,7	9,52	6,35	2,5				●									●			
	P44290-2R30-D57	M	8	12,7	9,52	6,35	3				●									●			
	P44290-2R40-D57	M	4	12,7	9,52	6,35	4				●									●			

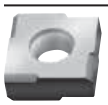
HC = Coated carbide
HW = Uncoated carbide

Negative square

Tiger·tec®



Indexable inserts

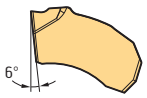
	Designation	Tolerance class	Number of cutting edges	l mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	SNHQ1205ZZR-A57T	H	8	12	5	0,8	●	●				●		●	●					

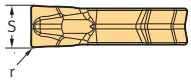
HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Walter Cut SX inserts for slitting and cutting off

Tiger·tec®





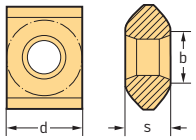
Indexable inserts

	Designation	s mm	r mm	s_{Tol} mm	P HC WSM23S	P HC WSM33S	P HC WSM43S	M HC WSM23S	M HC WSM33S	M HC WSM43S	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM23S	S HC WSM33S	S HC WSM43S	H HC WHH15	HC WXM15
	SX-2E200N02-CE4	2	0,2	± 0,05		☺	😐		☺	😐						☺	😐		
	SX-3E300N02-CE4	3	0,2	± 0,05		☺	😐		☺	😐						☺	😐		
	SX-4E400N02-CE4	4	0,2	± 0,05		☺	😐		☺	😐						☺	😐		
	SX-2E200N02-CF5	2	0,2	± 0,05		☺	😐		☺	😐						☺	😐		
	SX-3E300N02-CF5	3	0,2	± 0,05		☺	😐		☺	😐						☺	😐		
	SX-4E400N02-CF5	4	0,2	± 0,05		☺	😐		☺	😐						☺	😐		
	SX-2E200N02-CF6	2	0,2	± 0,05		☺	😐		☺	😐						☺	😐		
	SX-3E300N02-CF6	3	0,2	± 0,05		☺	😐		☺	😐						☺	😐		

Radius tolerance r_{Tol} = ± 0.05 mm

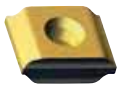
HC = Coated carbide
HW = Uncoated carbide

Finishing inserts



Tiger·tec®

Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15	HC WXM15
	P45420-G67	G	4	9,52	4,76	7						☺								☺	☺

HC = Coated carbide
HW = Uncoated carbide

WALTER SELECT

Best insert for:

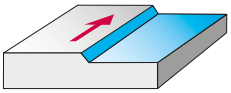
good ☺ moderate 😐 unfavourable ☹

machining conditions

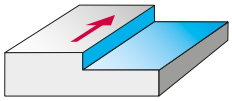
☺ 😐 ☹ New addition to range

Product range overview of milling cutters with indexable inserts

Face/shoulder milling



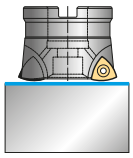
Walter Select, see page F-46



Walter Select, see page F-64

F 2330
*Page F 114**

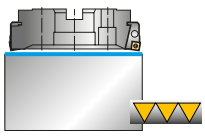
D_a = 20–85 mm
κ = 0–15°



F 2010
Page F-52 + *page F 66**

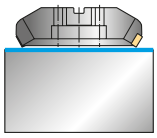
D_c = 80–315 mm
κ = 0–90°

NEW



F 2260
*Page F 110**

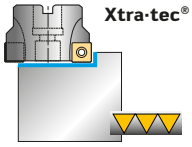
D_c = 100–315 mm
κ = 60°



F 4048
*Page F 128**

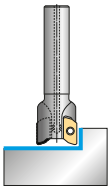
D_c = 40–200 mm
κ = 88°

Xtra·tec®



F 3040
*Page F 140**

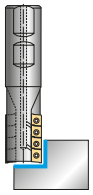
D_c = 25–63 mm
κ = 90°



F 4038
*Page F 162**

D_c = 20–32 mm
κ = 90°

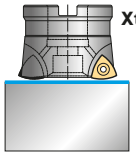
Xtra·tec®



F 4030
*Page F 116**

D_a = 25–100 mm
κ = 0–21°

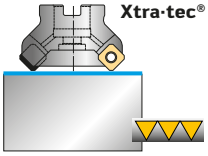
Xtra·tec®



F 4033
*Page F 118**

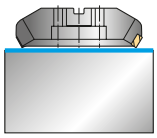
D_c = 40–200 mm
κ = 45°

Xtra·tec®



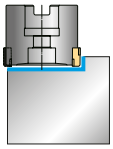
F 2265
*Page F 112**

D_c = 125–315 mm
κ = 60°



F 2254
*Page F 108**

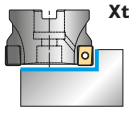
D_c = 50–160 mm
κ = 89°



F 4041
*Page F 142**

D_c = 40–160 mm
κ = 90°

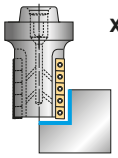
Xtra·tec®



F 4138
*Page F 164**

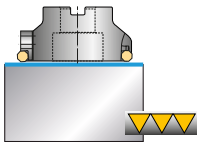
D_c = 32–80 mm
κ = 90°

Xtra·tec®



F 2146
*Page F 96**

D_c = 80–250 mm
κ = 43°

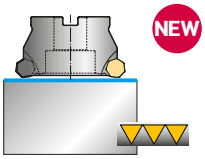


F 4045
Page F-54

D_c = 63–200 mm
κ = 45°

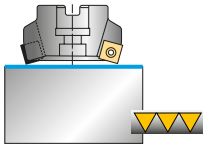
Xtra·tec®

NEW



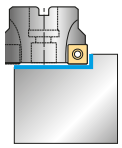
F 2235
*Page F 102**

D_c = 32–100 mm
κ = 75°



F 2241
*Page F 138**

D_c = 16–160 mm
κ = 89°45'

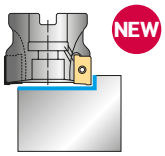


F 4042
Page F-68 + *page F 144**

D_c = 10–160 mm
κ = 90°

Xtra·tec®

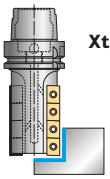
NEW



F 4238
*Page F 166**

D_c = 40–80 mm
κ = 90°

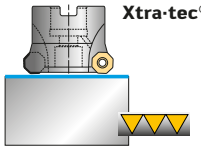
Xtra·tec®



F 4080
*Page F 130**

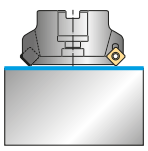
D_a = 32–170 mm
κ = 43°

Xtra·tec®



F 2233
*Page F 98**

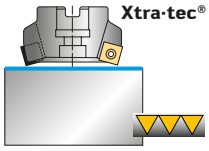
D_c = 20–160 mm
κ = 45°



F 4047
*Page F 126**

D_c = 40–200 mm
κ = 75°

Xtra·tec®

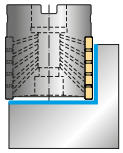


F 5138
Page F-78

D_c = 40–80 mm
κ = 90°

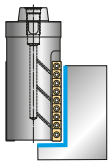
Walter BLAXX

NEW



F 2338F
*Page F 160**

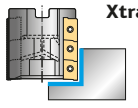
D_c = 63–100 mm
κ = 90°



F 4338
*Page F 168**

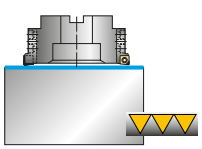
D_c = 63–125 mm
κ = 90°

Xtra·tec®



F 2250
*Page F 104**

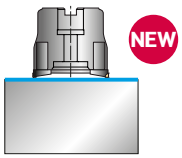
D_c = 63–200 mm
κ = 75° + 90°



F 4050
Page F-58

D_c = 79.4–200 mm
κ = 75° + 90°

NEW

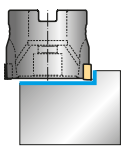


F 5041
Page F-72

D_c = 25–63 mm
κ = 90°

Walter BLAXX

NEW

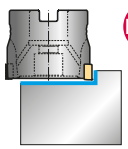


F 5141
Page F-74

D_c = 40–125 mm
κ = 90°

Walter BLAXX

NEW

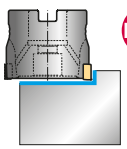


F 5241
Page F-76

D_c = 50–160 mm
κ = 90°

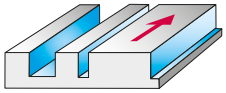
Walter BLAXX

NEW



** The pages indicated in italics refer to the Walter General catalogue 2012.*

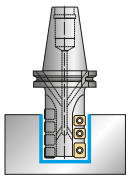
Slot milling



Walter Select, see page F-80

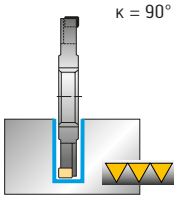
F 2238
*Page F 176**

D_c = 20–125 mm
κ = 90°



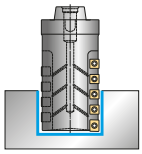
F 2252
*Page F 186**

D_c = 80–315 mm
κ = 90°



F 2338
*Page F 184**

D_c = 63–100 mm
κ = 90°

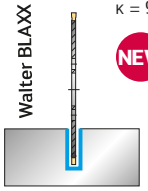


F 5055
Page F-84

D_c = 63–250 mm
κ = 90°

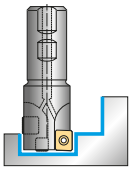
Walter BLAXX

NEW



F 2237
*Page F 174**

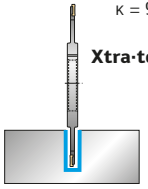
D_c = 18–40 mm
κ = 90°



F 4053
*Page F 200**

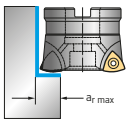
D_c = 80–160 mm
κ = 90°

Xtra·tec®



F 2330
*Page F 114**

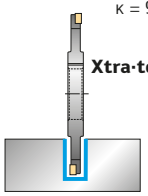
D_a = 20–85 mm
κ = 0°–15°



F 4153
*Page F 204**

D_c = 80–200 mm
κ = 90°

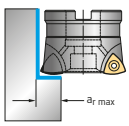
Xtra·tec®



F 4030
*Page F 116**

D_a = 25–100 mm
κ = 0°–21°

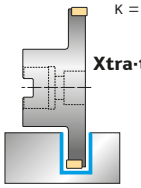
Xtra·tec®



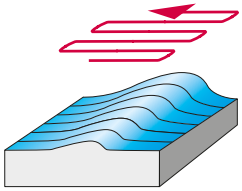
F 4253
*Page F 208**

D_c = 100–315 mm
κ = 90°

Xtra·tec®



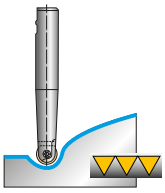
Copy milling



Walter Select, see page F-86

F 2139
*Page F 214**

D_c = 8–32 mm

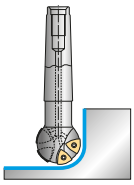


F 2231/A
*Page F 216**

D_a = 10–40 mm

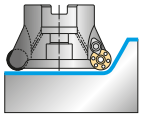
F 2239 B
*Page F 226**

D_c = 20–50 mm



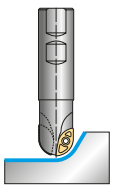
F 2234
*Page F 218**

D_a = 12–160 mm



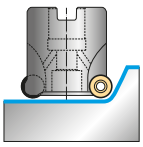
F 2339
*Page F 228**

D_c = 16–50 mm



F 2334
*Page F 222**

D_a = 25–160 mm

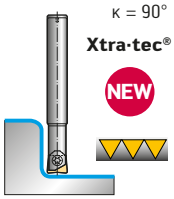


F 4031
Page F-90

D_c = 12–32 mm
κ = 90°

Xtra·tec®

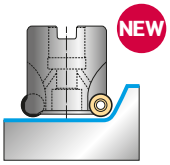
NEW



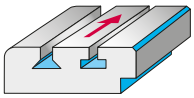
F 2334R
Page F-88

D_a = 25–63 mm

NEW



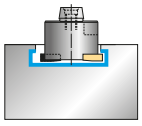
Profile milling



Walter Select see General catalogue page F 234

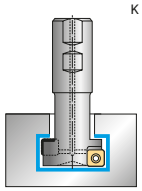
F 2036
*Page F 236**

D_c = 16–63 mm
κ = 90°



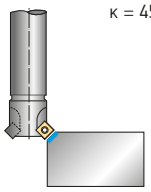
F 2243
*Page F 240**

D_c = 21–50 mm
κ = 90°

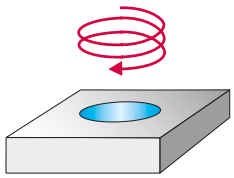


F 2232
*Page F 238**

D_c = 12–40 mm
κ = 45°



Circular interpolation milling

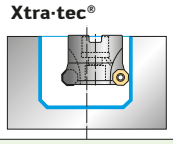


Walter Select, see General catalogue page F 242

F 4081
*Page F 244**

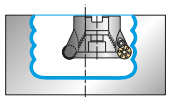
D_a = 36–85 mm
κ = 45°

Xtra·tec®



F 2234
*Page F 218**

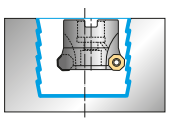
D_a = 12–160 mm



F 4080
*Page F 130**

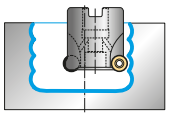
D_a = 32–170 mm
κ = 43°

Xtra·tec®



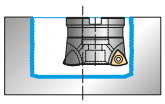
F 2334
*Page F 222**

D_a = 25–160 mm



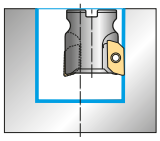
F 2330
*Page F 114**

D_a = 20–85 mm
κ = 0°–15°



F 3040
*Page F 140**

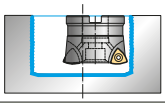
D_c = 25–63 mm
κ = 90°



F 4030
*Page F 116**

D_a = 25–100 mm
κ = 0°–21°

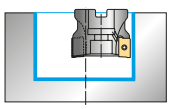
Xtra·tec®



F 4042
*Page F 144**

D_c = 10–160 mm
κ = 90°

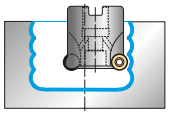
Xtra·tec®



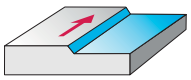
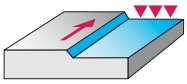
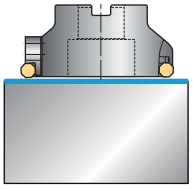
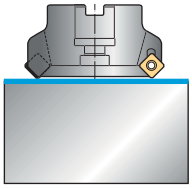
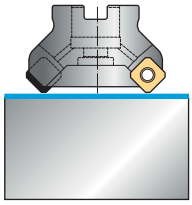
F 2334R
Page F-88

D_a = 25–63 mm

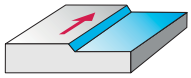
NEW

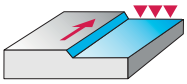


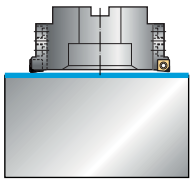
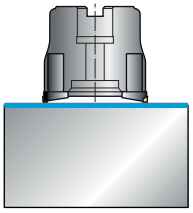
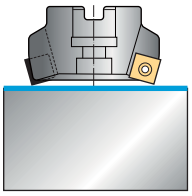
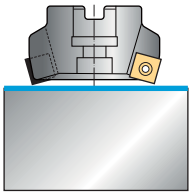
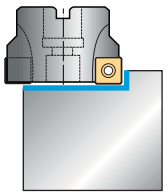
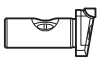
Walter Select – Face milling

Machining				
Lead angle κ	43°	45°	45°	
Face milling cutter	**F 2146** 	**F 2233** 	**F 4033**  **Xtra·tec®**	
Ø range	80–250	20–160	40–200	
Page	*F 96**	*F 98**	*F 118**	
P Steel	●	●●	●●	
M Stainless steel	●	●●	●●	
K Cast iron	●●	●●	●●	
N NF metals		●●	●●	
S Difficult-to-machine materials	●	●●	●●	
H Hard materials	●	●	●	
O Other		●	●	
Basic insert shape				
Insert types	OP . . 0504 . .	SD . . 09T3 . . SP . . 1204 . .	SN . X 1205 . . SN . X 1606 . .	
Max. cutting depths [mm]	3 / 8	5 + 7	6,5 + 9	
Number of cutting edges per indexable insert	8	4	8	

** The pages indicated in italics refer to the Walter General catalogue 2012.*





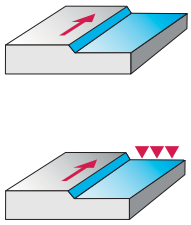
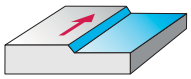
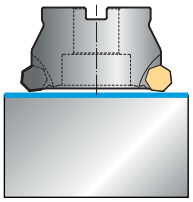
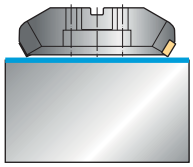
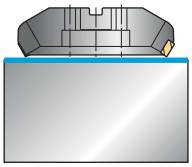
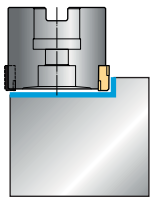
	75° + 90°	75° + 90°	75°	75°	88°
	F 2250	NEW **F 4050**	**F 2235**	**F 4047**	**F 4048**
				 **Xtra·tec®**	 **Xtra·tec®**
	63–200	79,4–200	32–100	40–200	40–200
	*F 104**	**F-58**	*F 102**	*F 126**	*F 128**
			●●	●●	●●
			●●	●●	●●
			●●	●●	●●
	●●	●●	●●	●	●
			●●	●●	●●
			●		
					
	SP . . 1204 . .	FR 733 FR 734	SP . . 1204 . .	SN . X 1205 . .	SN . X 1205 . .
	3 + 4	1,1 + 4	10	8	10
	1	1	4	8	8

WALTER SELECT

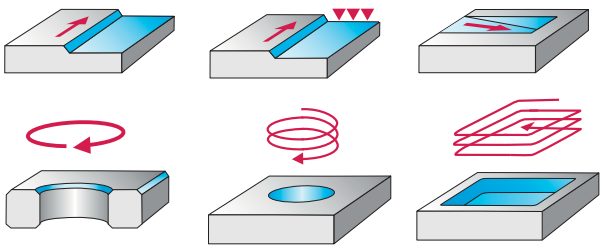
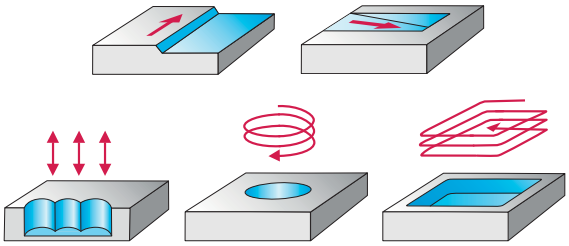
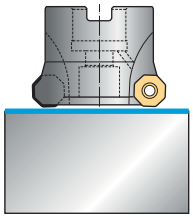
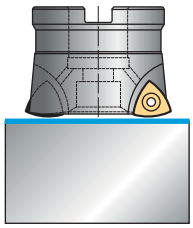
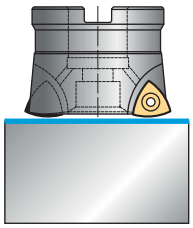
●● Primary application

● Other application

Walter Select – Face milling

Machining					
Lead angle κ	45°	60°	60°	89°	
Face milling cutter	**F 4045** NEW  **Xtra·tec®**	**F 2260** 	**F 2265** 	**F 2254** 	
Ø range [mm]	63–200	100–315	125–315	50–160	
Page	**F-54**	*F 110**	*F 112**	*F 108**	
P Steel	●	●	●●		
M Stainless steel			●		
K Cast iron	●●	●●	●	●●	
N NF metals					
S Difficult-to-machine materials			●		
H Hard materials					
O Other					
Basic insert shape					
Insert types	XNHF 0705 . . XNHF 0906 . .	LNMU 1508 . . LNMU 2010 . .	LNKU 2010 . . LNKU 3010 . .	SNHQ 1205 . .	
Max. cutting depths [mm]	4 + 6	11 + 15	12 + 20	7	
Number of cutting edges per indexable insert	14	4	4	8	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

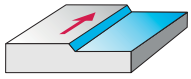
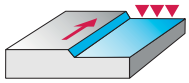
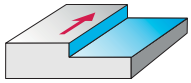
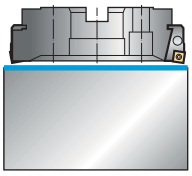
			
	43°	0–15°	0–21°
	F 4080	**F 2330**	**F 4030**
			
	Xtra·tec®		**Xtra·tec®**
	32–170	20–85	25-100
	*F 130**	*F 114**	*F 116**
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
	●●		
	●●	●●	●●
		●	
	●		
			
	OD . . 0504 . . OD . . 0605 . .	P 2633 . P 26379	P 23696 – 1,0 P 23696 – 2.0
	3 / 8 + 4 / 10	1 + 1,5 + 2	1 + 2
	8	3	6

WALTER SELECT

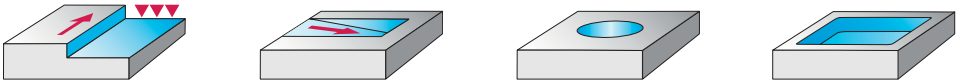
●● Primary application

● Other application

Walter Select – Face milling

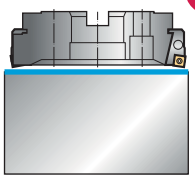
Machining					
Roughing	▲	▲	▲		
Finish end milling	▲	▲	▲		
Shoulder milling				▲	
Shoulder milling (finishing)				▲	
Plunging					
Circular interpolation milling					
Pocket milling					
Lead angle κ	45°	75°	45° / 75° / 88°	89°45'	
Face milling cutter	**F 2010** 				
Ø range [mm]	80–315	80–315	80–315	80–315	
Page	*F 76**	*F 80**	*F 72–75, F 78, F 82**	*F 84**	
P Steel	●●	●●	●●	●●	
M Stainless steel	●●	●●	●●	●●	
K Cast iron	●●	●●	●●	●●	
N NF metals	●●	●●	●●	●●	
S Difficult-to-machine materials	●	●	●●	●	
H Hard materials	●		●	●	
O Other	●	●	●	●	
Basic insert shape					
Insert types	SP . . 1204 . .	SP . . 1204 . .	SN . . 1205 . . SN . . 1606 . .**	SP . . 1204 . .	
Max. cutting depths [mm]	6 + 7	10	6,5 + 8 + 9 + 10	11	
Number of cutting edges per indexable insert	4	4	8	4	

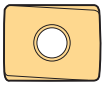
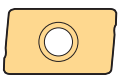
** SN . . 1606 . . for 45° lead only



				▲	▲	▲	▲
						▲	▲
	▲	▲					
	▲	▲	▲				
		▲		▲	▲	▲	▲
		▲		▲	▲	▲	▲
		▲		▲	▲	▲	▲
	90°	90°	90°	0–15°	0–21°	43° / 45°	—

F 2010 NEW



	80–315	80–315	80–315	70–305	70,5–305,6	80–315	74–309
	*F 92**	*F 86–89**	*F 90**	*F 66**	**F-52**	*F 68–71**	*F 94**
	●●	●●	●●	●●	●●	●●	●●
	●●	●●	●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●	●●
	●●	●●				●●	●
	●●	●●		●●	●●	●●	●●
	●	●		●			●
	●	●				●	
							
	LNGX 1307 . .	AD . . 1204 . . AD . . 1606 . .	P 2903 . .	P 2633 .–R25 P 26379–R25	P 23696–2,0	OD . . 0605 . .	RO . X 1605 . .
	13	11,7 + 15	1 / 9	2	2	2 + 4 / 10	8
	4	2	3	3	6	8	6

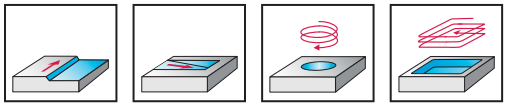
** The pages indicated in italics refer to the Walter General catalogue 2012.*

WALTER SELECT

●● Primary application

● Other application

Face milling cutter F 2010



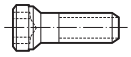
- Approach angle κ = 0 - 21°
- Six cutting edges per indexable insert
- Negative basic insert shapes
- f_z up to 3.5 mm
- Runout adjustable

Tool	Designation	D_c mm	D_a mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 longitudinal key way	★ F2010.B.080.Z06.02.R750M	70,5	90,2	27	50	2	6	1,2	6	
	★ F2010.B.100.Z07.02.R750M	90,1	109,9	32	50	2	7	1,9	7	P 23696 - 2.0
	★ F2010.B.125.Z08.02.R750M	115,2	134,9	40	63	2	8	3,6	8	
Cyl. bore DIN 138 longitudinal key way	★ F2010.B.160.Z10.02.R750M	150,4	170,2	40/40 B	63	2	10	5,6	10	P 23696 - 2.0
Cyl. bore DIN 138 longitudinal key way	★ F2010.B.200.Z12.02.R750M	190,6	210,2	60/50 B	63	2	12	8,3	12	
	★ F2010.B.250.Z12.02.R750M	240,6	260,2	60/50 B	63	2	12	14,8	12	P 23696 - 2.0
	★ F2010.B.250.Z16.02.R750M	240,6	260,2	60/50 B	63	2	16	14,6	16	
Cyl. bore DIN 138 longitudinal key way	★ F2010.B.315.Z14.02.R750M	305,6	325,2	60/50-60 BB	80	2	14	26,3	14	
	★ F2010.B.315.Z18.02.R750M	305,6	325,2	ISO 60/50-60BB	80	2	18	26,2	18	P 23696 - 2.0

Bodies and assembly parts are included in the scope of delivery.

★ New addition to range

Assembly parts

	D_c mm	70,5-305,6
	Cartridge for tool body	FR750M
	Clamping screw for cartridge Tightening torque	FS247 (SW 4) 8,0 Nm
	Clamping screw for indexable insert	FS1031 (Torx 20)
	Adjusting pin	FS303 (Torx 20)

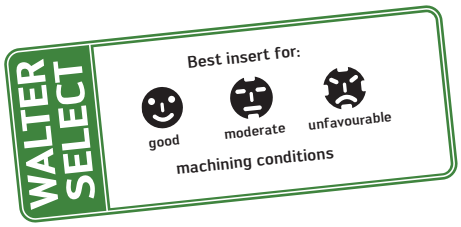
Accessories

	D_c mm	70,5-305,6
	Screwdriver for indexable insert	FS228 (Torx 20)
	Screwdriver for adjusting pin	FS228 (Torx 20)
	Allen key ISO 2936 for cartridge	ISO2936-4 (SW 4)

Indexable inserts

		Radius mm		P HC			M HC			K HC				N HC	N HW	S HC			H HC
				WKP25S	WKP35S	WSP45	WSM35	WSM35S	WSP45	WAK15	WKK25	WKP25S	WKP35S	WXN15	WK10	WSM35	WSM35S	WSP45	WHH15
	P23696-2.0	1,6		☺		😐	😐	😟	😐			😟				😐	😟	😐	

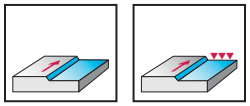
HC = Coated carbide
HW = Uncoated carbide



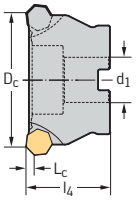
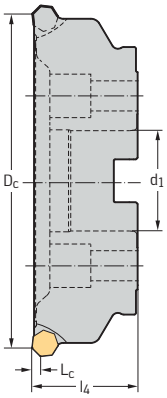
F-30 G-2 F 302* F-92

Heptagon cutter F 4045
XNHF 0705 . .

Xtra·tec®

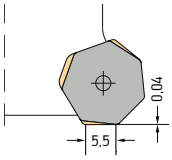


- Approach angle κ = 45°
- Fourteen cutting edges per indexable insert
- Negative basic insert shapes
- Wiper finishing inserts available

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 longitudinal key way 	★ F4045.B27.063.Z06.04	63	27	50	4	6	0,7	6	XNHF 0705 . .
	F4045.B27.063.Z09.04	63	27	50	4	9	0,7	9	
	★ F4045.B27.080.Z08.04	80	27	50	4	8	1,1	8	
	F4045.B27.080.Z11.04	80	27	50	4	11	1,4	11	
	★ F4045.B32.100.Z10.04	100	32	50	4	10	1,8	10	
	F4045.B32.100.Z14.04	100	32	50	4	14	1,8	14	
	★ F4045.B40.125.Z12.04	125	40	63	4	12	3,3	12	
	F4045.B40.125.Z18.04	125	40	63	4	18	3,2	18	
Cyl. bore DIN 138 longitudinal key way 	★ F4045.B40.160.Z16.04	160	40/40B	63	4	16	5,5	16	XNHF 0705 . .
	F4045.B40.160.Z22.04	160	40/40B	63	4	22	5,7	22	
	★ F4045.B60.200.Z20.04	200	6050/B	63	4	20	9,3	20	
	F4045.B60.200.Z28.04	200	6050/B	63	4	28	9,5	28	

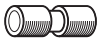
Bodies and assembly parts are included in the scope of delivery.

Roughing/finishing combination

κ = 45°	Roughing	Finishing
	Indexable insert XNHF 070508 . .	Indexable insert XNHX 0705 . .

★ New addition to range

Assembly parts

	D_c mm	63-200
	Clamping wedge	FK374
	Clamping screw for clamping wedge Tightening torque	FS2134 (Torx 15IP) 6,0 Nm

Accessories

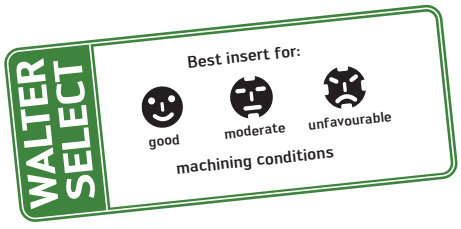
	D_c mm	63-200
	Torque T-handle	FS2041
	Interchangeable blade for clamping wedge	FS2047 (Torx 15IP)
	Screwdriver	FS1485 (Torx 15IP)

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	XNHF070508-D27	0.8		☹	☒					☹	☹	☒					
	XNHF070508-D57	0.8			😐					😐		☒					
	XNHF070508-D67	0.8		☺	😐				☺		☹	☒					
	XNHF0705ANN–D27	0.8	1.1		☒							☒					
	XNHF0705ANN-D57	0.8	1.1	☺	😐						☹	☒					
	XNHF0705ANN-D67	0.8	1.1	☺					☺		☹						
	XNHX0705ANN-D67*	0.8	5.5						☺								☺

* Only in combination with XNHF070508.

HC = Coated carbide
HW = Uncoated carbide



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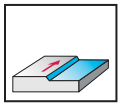
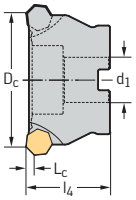
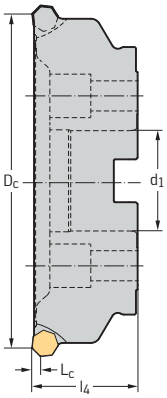
Heptagon cutter F 4045
XNHF 0906 . .

Xtra·tec®



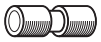
- Approach angle κ = 45°
- Fourteen cutting edges per indexable insert
- Negative basic insert shapes

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 longitudinal key way 	★ F4045.B27.080.Z06.06	80	27	50	6	6	1,2	6	XNHF 0906 . .
	F4045.B27.080.Z09.06	80	27	50	6	9	1,4	9	
	★ F4045.B32.100.Z08.06	100	32	50	6	8	1,8	8	
	F4045.B32.100.Z12.06	100	32	50	6	12	1,9	12	
	★ F4045.B40.125.Z10.06	125	40	50	6	10	3,1	10	
	F4045.B40.125.Z16.06	125	40	50	6	16	3,5	16	
Cyl. bore DIN 138 longitudinal key way 	★ F4045.B40.160.Z12.06	160	40	63	6	12	6,1	12	XNHF 0906 . .
	F4045.B40.160.Z20.06	160	40	63	6	20	6,2	20	
	★ F4045.B60.200.Z16.06	200	ISO 60/50B	63	6	16	9,3	16	
	F4045.B60.200.Z26.06	200	ISO 60/50B	63	6	26	9,9	26	

Bodies and assembly parts are included in the scope of delivery.

★ New addition to range

Assembly parts

	D_c mm	80-200
	Clamping wedge	FK375
	Clamping screw for clamping wedge Tightening torque	FS2157 (Torx 25IP) 6,0 Nm

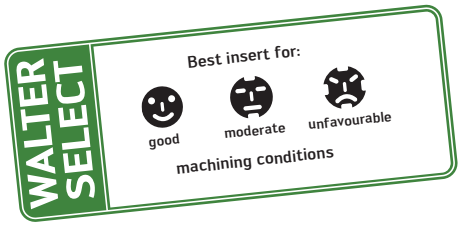
Accessories

	D_c mm	80-200
	Torque T-handle	FS2041
	Interchangeable blade for clamping wedge	FS2049 (Torx 25IP)
	Screwdriver	FS1487 (Torx 25IP)

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	H HC WHH15
	XNHF090612-D27	1,2		☺	☹						☺	☹					
	XNHF090612-D57	1,2		☺	😐					😐	☺	☹					
	XNHF090612-D67	1,2		☺	😐						☺	☹					
	XNHF0906ANN-D27	0,8	1,4	☺	☹						☺	☹					
	XNHF0906ANN-D57	0,8	1,4	☺						😐	☺						
	XNHF0906ANN-D67	0,8	1,4		😐				☺			☹					

HC = Coated carbide
HW = Uncoated carbide



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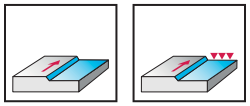
PCD milling cutter F 4050



- Approach angle κ = 75°
- 1 cutting edge per cartridge
- Cartridge with brazed PCD insert
- Runout adjustable
- For aluminium machining

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of cartridges	Type
Cyl. bore DIN 138 longitudinal key way	★ F4050.B27.080.Z06.R734	79,4	27	73	1,1	6	0,9	6	FR734
	★ F4050.B32.100.Z12.R734	99,4	32	63	1,1	12	1,4	12	
	★ F4050.B40.125.Z18.R734	124,4	40	63	1,1	18	2	18	
Cyl. bore DIN 138 longitudinal key way	★ F4050.B40.160.Z24.R734	159,4	ISO 40/40B	63	1,1	24	3,7	24	FR734
	★ F4050.B40.200.Z28.R734	199,4	ISO 40/40B	63	1,1	28	5,4	28	

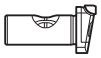
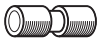
Bodies and assembly parts are included in the scope of delivery.
Pre-balanced to G6.3 where n = 10,000 rpm
For information on high-speed applications, see page F-122.

Roughing/finishing combination

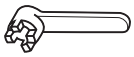
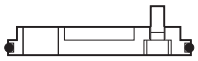
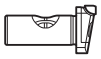
κ = 75°	Roughing	Finishing
	Cartridge FR 734 WCD 10	Cartridge FR 735 WCD 10

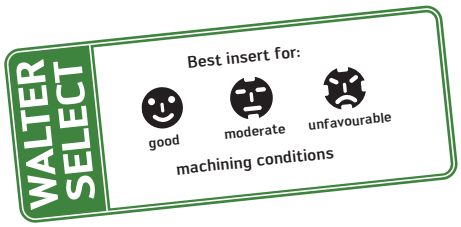
★ New addition to range

Assembly parts

	D_c mm	79,4	99,4	124,4	159,4-199,4
	Cartridge κ = 75°	FR734 WCD10	FR734 WCD10	FR734 WCD10	FR734 WCD10
	Chip deflector	FR749	FR749	FR749	FR749
	Adjusting key	FK376	FK376	FK376	FK376
	Clamping screw for chip deflector Tightening torque	FS379 (Torx 8) 1,0 Nm	FS379 (Torx 8) 1,0 Nm	FS379 (Torx 8) 1,0 Nm	FS379 (Torx 8) 1,0 Nm
	Compound screw for adjusting key	FS746	FS746	FS746	FS746
	Spring washer	FS2171	FS2171	FS2171	FS2171
	Clamping screw for cartridge Tightening torque	FS2170 9,0 Nm	FS2170 9,0 Nm	FS2170 9,0 Nm	FS2170 9,0 Nm
	Balancing screw	FS2169 (Torx 15)	FS2169 (Torx 15)	FS2169 (Torx 15)	FS2169 (Torx 15)
	Milling cutter tightening screw with internal cooling	FS2160	FS2161	FS2162	

Accessories

	D_c mm	79,4	99,4	124,4	159,4-199,4
	Wrench for milling cutter tightening screw	FS438	FS439	FS440	
	Screwdriver for compound screw	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)
	Screwdriver for balancing screw	FS229 (Torx 15)	FS229 (Torx 15)	FS229 (Torx 15)	FS229 (Torx 15)
	Screwdriver for chip deflector	FS230 (Torx 8)	FS230 (Torx 8)	FS230 (Torx 8)	FS230 (Torx 8)
	Torque T-handle for cartridge	FS2041	FS2041	FS2041	FS2041
	Interchangeable blade for cartridge	FS2051 (SW 4)	FS2051 (SW 4)	FS2051 (SW 4)	FS2051 (SW 4)
	Torque screwdriver for chip deflector	FS2001	FS2001	FS2001	FS2001
	Interchangeable blade for chip deflector	FS2007 (Torx 8)	FS2007 (Torx 8)	FS2007 (Torx 8)	FS2007 (Torx 8)
	Sealing disc set				FS2140 COMPLETE SET
	Gasket				O-R 96X4
	Finishing cartridge only for κ = 75°	FR735 WCD10			



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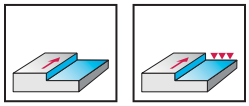
PCD milling cutter F 4050



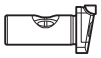
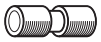
- Approach angle κ = 90°
- 1 cutting edge per cartridge
- Cartridge with brazed PCD insert
- Runout adjustable
- For aluminium machining

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of cartridges	Type
Cyl. bore DIN 138 longitudinal key way	★ F4050.B27.080.Z06.R733	80	27	73	4	6	0,9	6	FR733
	★ F4050.B32.100.Z12.R733	100	32	63	4	12	1,4	12	
	★ F4050.B40.125.Z18.R733	125	40	63	4	18	2	18	
Cyl. bore DIN 138 longitudinal key way	★ F4050.B40.160.Z24.R733	160	ISO 40/40B	63	4	24	3,7	24	FR733
	★ F4050.B40.200.Z28.R733	200	ISO 40/40B	63	4	28	5,4	28	

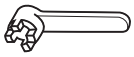
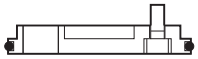
Bodies and assembly parts are included in the scope of delivery.
Pre-balanced to G6.3 where n = 10,000 rpm
For information on high-speed applications, see page F-122.

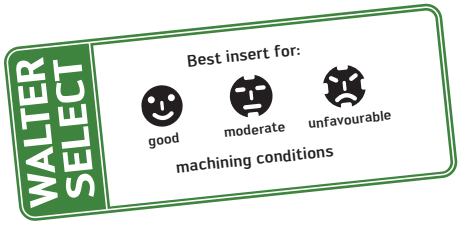
★ New addition to range

Assembly parts

	D_c mm	80	100	125	160-200
	Cartridge κ = 90°	FR733 WCD10	FR733 WCD10	FR733 WCD10	FR733 WCD10
	Chip deflector	FR749	FR749	FR749	FR749
	Adjusting key	FK376	FK376	FK376	FK376
	Clamping screw for chip deflector Tightening torque	FS379 (Torx 8) 1,0 Nm	FS379 (Torx 8) 1,0 Nm	FS379 (Torx 8) 1,0 Nm	FS379 (Torx 8) 1,0 Nm
	Compound screw for adjusting key	FS746	FS746	FS746	FS746
	Spring washer	FS2171	FS2171	FS2171	FS2171
	Clamping screw for cartridge Tightening torque	FS2170 9,0 Nm	FS2170 9,0 Nm	FS2170 9,0 Nm	FS2170 9,0 Nm
	Balancing screw	FS2169 (Torx 15)	FS2169 (Torx 15)	FS2169 (Torx 15)	FS2169 (Torx 15)
	Milling cutter tightening screw with internal cooling	FS2160	FS2161	FS2162	

Accessories

	D_c mm	80	100	125	160-200
	Wrench for milling cutter tightening screw	FS438	FS439	FS440	
	Screwdriver for compound screw	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)
	Screwdriver for balancing screw	FS229 (Torx 15)	FS229 (Torx 15)	FS229 (Torx 15)	FS229 (Torx 15)
	Screwdriver for chip deflector	FS230 (Torx 8)	FS230 (Torx 8)	FS230 (Torx 8)	FS230 (Torx 8)
	Torque T-handle for cartridge	FS2041	FS2041	FS2041	FS2041
	Interchangeable blade for cartridge	FS2051 (SW 4)	FS2051 (SW 4)	FS2051 (SW 4)	FS2051 (SW 4)
	Torque screwdriver for chip deflector	FS2001	FS2001	FS2001	FS2001
	Interchangeable blade for chip deflector	FS2007 (Torx 8)	FS2007 (Torx 8)	FS2007 (Torx 8)	FS2007 (Torx 8)
	Sealing disc set				FS2140 COMPLETE SET
	Gasket				O-R 96X4



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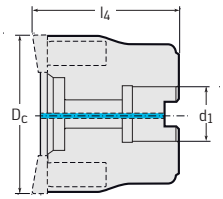
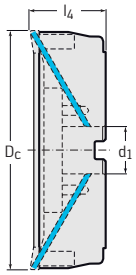
PCD milling cutter F 4050
Basic body without cartridges

- Basic body for aluminium milling cutter F4050
- Without cartridges

Tool	Designation	D_c mm	d_1 mm	l_4 mm	Z	kg	No. of cartridge seats
Cyl. bore DIN 138 longitudinal key way	★ F4050.B27.080.Z06.R001	80	27	73	6	0,8	6
	★ F4050.B32.100.Z12.R001	100	32	63	12	1	12
	★ F4050.B40.125.Z18.R001	125	40	63	18	1,5	18
Cyl. bore DIN 138 longitudinal key way	★ F4050.B40.160.Z24.R001	160	ISO 40/40B	63	24	2,9	24
	★ F4050.B40.200.Z28.R001	200	ISO 40/40B	63	28	4,5	28





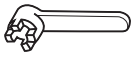
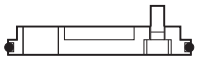
Bodies and assembly parts are included in the scope of delivery.
Pre-balanced to G6.3 where n = 10,000 rpm
For information on high-speed applications, see page F-122.

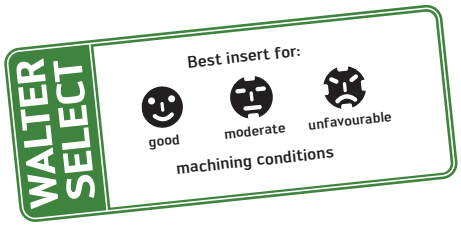
★ New addition to range

Assembly parts

	D_c mm	80	100	125	160-200
	Adjusting key	FK376	FK376	FK376	FK376
	Compound screw for adjusting key	FS746	FS746	FS746	FS746
	Spring washer	FS2171	FS2171	FS2171	FS2171
	Clamping screw for cartridge Tightening torque	FS2170 9,0 Nm	FS2170 9,0 Nm	FS2170 9,0 Nm	FS2170 9,0 Nm
	Balancing screw	FS2169 (Torx 15)	FS2169 (Torx 15)	FS2169 (Torx 15)	FS2169 (Torx 15)
	Milling cutter tightening screw with internal cooling	FS2160	FS2161	FS2162	

Accessories

	D_c mm	80	100	125	160-200
	Wrench for milling cutter tightening screw	FS438	FS439	FS440	
	Screwdriver for compound screw	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)
	Screwdriver for balancing screw	FS229 (Torx 15)	FS229 (Torx 15)	FS229 (Torx 15)	FS229 (Torx 15)
	Torque T-handle for cartridge	FS2041	FS2041	FS2041	FS2041
	Interchangeable blade for cartridge	FS2051 (SW 4)	FS2051 (SW 4)	FS2051 (SW 4)	FS2051 (SW 4)
	Sealing disc set				FS2140 COMPLETE SET
	Gasket				O-R 96X4



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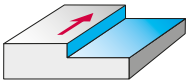
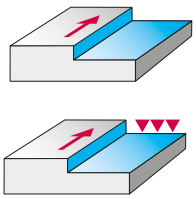
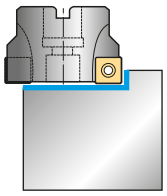
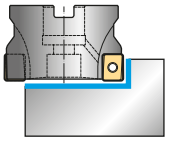
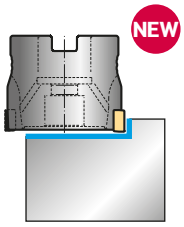
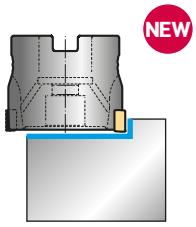
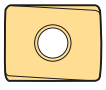
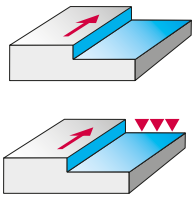
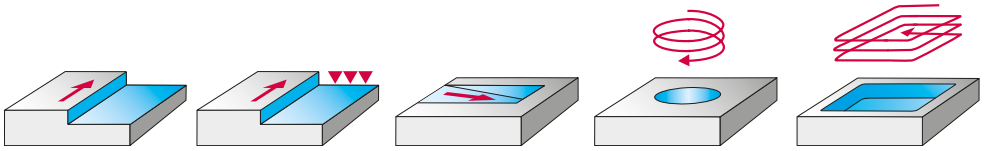
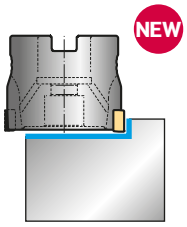
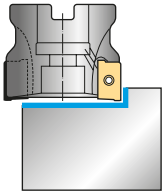
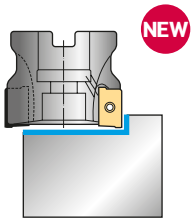
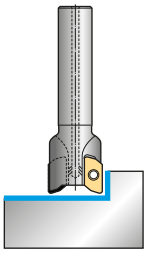
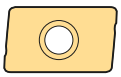
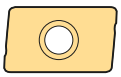
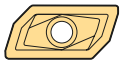
F-121

Walter Select – Shoulder milling

Machining				
Lead angle κ	89°45'	90°		90°
Shoulder milling cutter	F 2241 	F 4041  Xtra·tec®	F 5041 NEW  Walter BLAXX	F 5141 NEW  Walter BLAXX
Ø range [mm]	16–160	40–160	25–63	40–125
Page	*F 138**	*F 142**	F-72	F-74
P Steel	●●	●●	●●	●●
M Stainless steel	●●	●●	●●	●●
K Cast iron	●●	●●	●●	●●
N NF metals	●●	●●	●●	●●
S Difficult-to-machine materials	●●	●●	●●	●●
H Hard materials	●			
O Other	●	●	●	●
Basic insert shape				
Insert types	SP . . 0603 . . SP . . 09T3 . . SP . . 1204 . .	LNGX 1307 . .	LNHU 0904 . .	LNHU 1306 . .
Max. cutting depths [mm]	6 + 9 + 12	13	8	12
Number of cutting edges per indexable insert	4	4	4	4

** The pages indicated in italics refer to the Walter General catalogue 2012.*

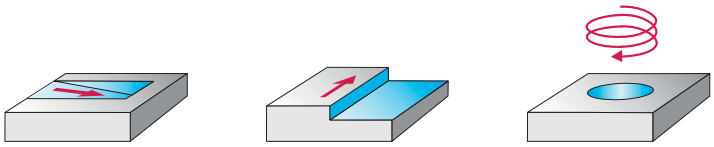
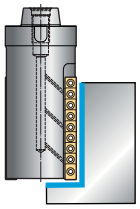
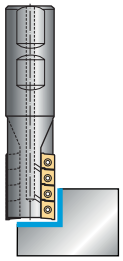
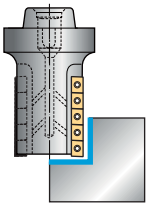
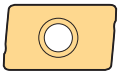
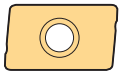
				
	90°	90°	90°	90°
	F 5241	F 4042R	F 4042	F 3040
	 Walter BLAXX	 Xtra·tec®	 Xtra·tec®	
	50–160	16–63	10–160	25–63
	F-76	*F 148**	F-68 + *F 144* / F 152**	*F 140**
	●●	●●	●●	
	●●	●●	●●	
	●●	●●	●●	●
	●●	●●	●●	●●
	●●	●●	●●	●
		●	●	
	●	●	●	●
				
	LNHU 1607 . .	AD . T 10T3 . .	AD . T 0803 . . AD . T 1204 . . AD . T 1606 . . AD . T 1807 . .	ZDGT 1504 . . ZDGT 2005 . .
	15	10	8 + 11,7 + 15 + 16	15 + 20
	4	2	2	2

WALTER SELECT

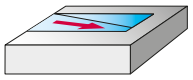
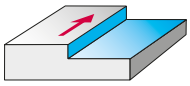
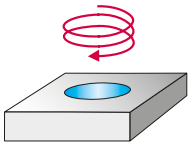
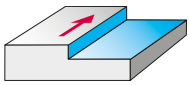
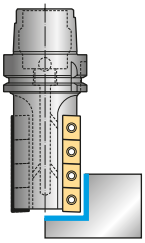
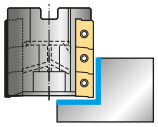
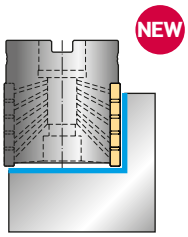
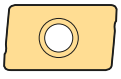
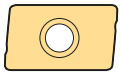
●● Primary application

● Other application

Walter Select – Shoulder milling

Machining			
Lead angle κ	90°	90°	90°
Shoulder milling cutter	**F 2338F** 	**F 4038**  **Xtra·tec®**	**F 4138**  **Xtra·tec®**
Ø range [mm]	63–100	20–32	32–80
Page	*F 160**	*F 162**	*F 164**
P Steel	●●	●●	●●
M Stainless steel	●	●●	●●
K Cast iron	●●	●●	●●
N NF metals	●	●●	●●
S Difficult-to-machine materials	●	●●	●●
H Hard materials			
O Other		●	●
Basic insert shape			
Insert types	LP . . 1506 . . SP . . 1206 . .	AD . . 0803 . .	AD . . 1204 . .
Max. cutting depths [mm]	103	37	76
Number of cutting edges per indexable insert	2 / 4	2	2

** The pages indicated in italics refer to the Walter General catalogue 2012.*

	  		
	90°	90°	90°
	F 4238  Xtra·tec®	F 4338  Xtra·tec®	F 5138  Walter BLAXX
	40–80	63–125	40–80
	*F 166**	*F 168**	**F-78**
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
	●●	●	●●
	●●	●●	●●
	●		●
			
	AD . . 1606 . .	AD . . 1807 . .	LNHU 1306 . .
	112	124	56
	2	2	4

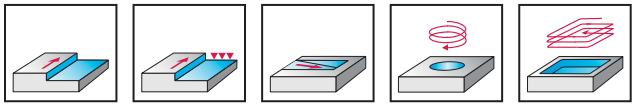
WALTER SELECT

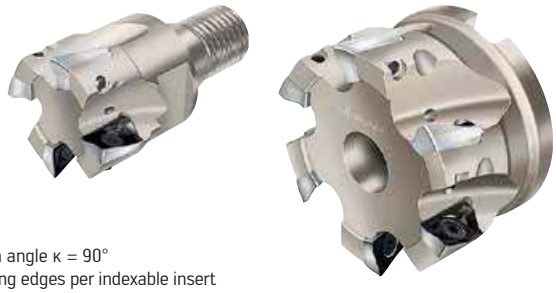
●● Primary application

● Other application

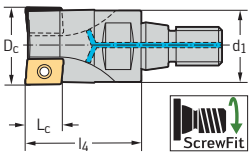
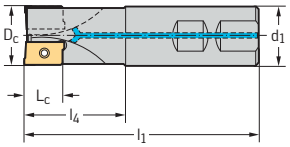
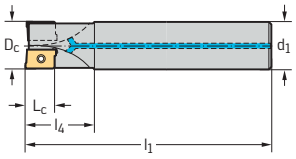
Shoulder milling cutter F 4042
AD . . 1606 . .

Xtra·tec®





- Approach angle κ = 90°
- Two cutting edges per indexable insert
- Positive basic insert shape

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	l_1 mm	Z	kg	No. of indexable inserts	Type
NCT ScrewFit 	★ F4042.T28.032.Z03.15*	32	T28	40	15		3	0,17	3	AD . . 1606 . .
	★ F4042.T28.036.Z03.15*	36	T28	40	15		3	0,2	3	
	F4042.T36.040.Z03.15*	40	T36	40	15		3	0,15	3	
	F4042.T36.040.Z04.15*	40	T36	40	15		4	0,32	4	
	★ F4042.T36.044.Z03.15*	44	T36	40	15		3	0,34	3	
	F4042.T45.050.Z03.15*	50	T45	40	15		3	0,46	3	
	F4042.T45.050.Z05.15*	50	T45	40	15		5	0,46	5	
Shank DIN 1835-B 	★ F4042.W25.025.Z02.15	25	25	43	15	100	2	0,3	2	AD . . 1606 . .
	★ F4042.W32.032.Z03.15	32	32	49	15	110	3	0,6	3	
Parallel shank without flat 	★ F4042.Z25.025.Z02.15	25	25	38	15	200	2	0,7	2	AD . . 1606 . .
	★ F4042.Z32.032.Z03.15	32	32	38	15	250	3	1,4	3	

Bodies and assembly parts are included in the scope of delivery.

For flat wrenches for screw heads, see page G 105 of the Walter General catalogue 2012.

* Balanced construction to G 6.3 at 10,000 rpm.

★ New addition to range

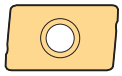
Assembly parts

	D_c mm	25	32-50
	Clamping screw for insert Tightening torque	FS2080 (Torx 15 IP) 3,5 Nm	FS1453 (Torx 15 IP) 3,5 Nm

Accessories

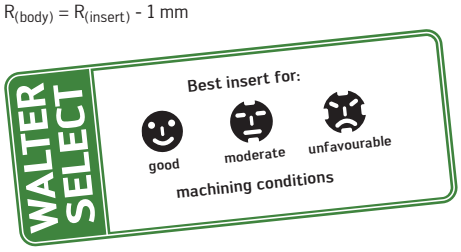
	D_c mm	25-50
	Torque screwdriver	FS2003
	Interchangeable blade	FS2014 (Torx 15IP)
	Screwdriver	FS1485 (Torx 15IP)

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45	M HC WSM35	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	H HC WHH15
	ADGT160616R-D67	1,6	1			☹	😐		☹							😐		☹	
	ADGT160630R-D67	3	0,8			☹	😐		☹							😐		☹	
	ADGT1606PER-D51	0,8	1,6		😐	☹			☹				☹					☹	
	ADGT1606PER-D56	0,8	1,6		😐	☹	😐		☹		😐		☹			😐		☹	
	ADGT1606PER-D67	0,8	1,6			☹	😐	😟	☹							😐	😟	☹	
	ADGT1606PER-F56	0,8	1,6			☹			☹									☹	
	ADGT1606PER-G77	0,8	1,2			😐	🙂		😐							🙂		😐	
	ADHT160616R-G88	1,6	1,4											🙂	🙂				
	ADHT160625R-G88	2,5	1,2											🙂	🙂				
	ADHT160630R-G88	3	1,2											🙂	🙂				
	ADHT160640R-G88	4	1											🙂	🙂				
	ADHT1606PER-G88	0,8	1,6											🙂	🙂				
	ADKT1606PER-F56	0,8	1,6	🙂		☹			☹			😟						☹	
	ADMT160608R-D56	0,8	1,6	🙂	😐						😐	😟	☹						
	ADMT160608R-F56	0,8	1,6	🙂		☹	😐		☹	🙂	😐	😟				😐		☹	
	ADMT160608R-G56	0,8	1,6		🙂	😐	🙂	😟	😐				😐			🙂	😟	😐	
	ADMT160612R-F56	1,2	1,6		😐		😐	😟					☹			😐	😟		
	ADMT160616R-F56	1,6	1,4		😐	☹	😐		☹				☹			😐		☹	
	ADMT160620R-F56	2	1,4		😐	☹		😟	☹				☹				😟	☹	
	ADMT160625R-F56	2,5	1,2		😐	☹	😐		☹				☹			😐		☹	
	ADMT160630R-F56	3	1,2		😐	☹	😐		☹				☹			😐		☹	
	ADMT160632R-F56	3,2	1,2		😐		😐	😟					☹			😐	😟		
	ADMT160640R-F56	4	1		😐	☹	😐		☹				☹			😐		☹	
	ADMT160650R-F56	5			😐	☹	😐	😟	☹				☹			😐	😟	☹	
	ADMT160660R-F56	6			😐	☹	😐		☹				☹			😐		☹	

If the corner radius is R = 2.0 mm or above, the body in the corner area must be reworked.
$R_{(body)} = R_{(insert)}$ - 1 mm

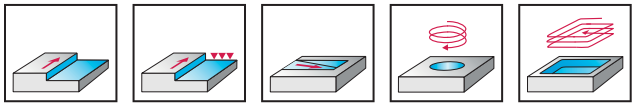
HC = Coated carbide
HW = Uncoated carbide



F-6 G-2 F-92

Shoulder milling cutter F 4042
AD . . 1606 . .

Xtra·tec®



- Approach angle κ = 90°
- Two cutting edges per indexable insert
- Positive basic insert shape

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 longitudinal key way	F4042.B16.040.Z03.15	40	16	40	15	3	0,2	3	
	F4042.B16.040.Z04.15*	40	16	40	15	4	0,19	4	
	★ F4042.B16.044.Z03.15	44	16	40	15	3	0,24	3	
	F4042.B22.050.Z03.15*	50	22	40	15	3	0,3	3	
	F4042.B22.050.Z05.15	50	22	40	15	5	0,31	5	
	★ F4042.B22.054.Z03.15	54	22	40	15	3	0,36	3	
	F4042.B22.063.Z04.15*	63	22	40	15	4	0,6	4	
	F4042.B22.063.Z06.15	63	22	40	15	6	0,6	6	
	F4042.B27.063.Z04.15*	63	27	50	15	4	0,6	4	
	F4042.B27.063.Z06.15	63	27	50	15	6	0,38	6	
	★ F4042.B27.066.Z04.15	66	27	50	15	4	0,8	4	AD . . 1606 . .
	F4042.B27.080.Z04.15	80	27	50	15	4	1,1	4	
	F4042.B27.080.Z05.15*	80	27	50	15	5	1	5	
	F4042.B27.080.Z07.15	80	27	50	15	7	1,1	7	
	★ F4042.B27.084.Z05.15	84	27	50	15	5	1,1	5	
	F4042.B32.100.Z04.15	100	32	50	15	4	1,7	4	
	F4042.B32.100.Z05.15*	100	32	50	15	5	1,6	5	
	F4042.B32.100.Z08.15	100	32	50	15	8	1,8	8	
	F4042.B40.125.Z05.15	125	40	63	15	5	3,3	5	
	F4042.B40.125.Z07.15*	125	40	63	15	7	3,2	7	
	F4042.B40.125.Z10.15	125	40	63	15	10	3,5	10	
Cyl. bore DIN 138 longitudinal key way	F4042.B40.160.Z06.15	160	40/40 B	63	15	6	4,2	6	
	F4042.B40.160.Z08.15*	160	40/40 B	63	15	8	4,2	8	AD . . 1606 . .
	F4042.B40.160.Z12.15	160	40/40 B	63	15	12	4,4	12	

Bodies and assembly parts are included in the scope of delivery.

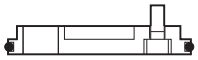
* Balanced construction to G 6.3 at 10,000 rpm.

★ New addition to range

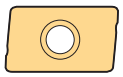
Assembly parts

	D_c mm	40-160
	Clamping screw for insert Tightening torque	FS1453 (Torx 15 IP) 3,5 Nm

Accessories

	D_c mm	40-125	160
	Sealing disc incl. gasket + screws		FS936 COMPLETE SET
	Torque screwdriver	FS2003	FS2003
	Interchangeable blade	FS2014 (Torx 15IP)	FS2014 (Torx 15IP)
	Screwdriver	FS1485 (Torx 15IP)	FS1485 (Torx 15IP)
	Gasket		O-R 96X4

Indexable inserts

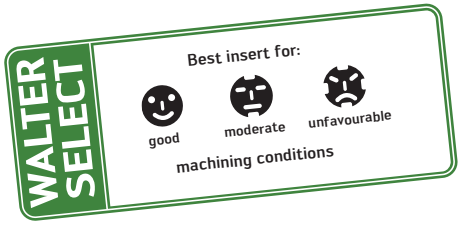
		Radius mm	Face chamfer width mm	P			M			K				N		S			H
					HC			HC			HC			HC	HW	HC			HC
				WKP25S	WKP35S	WSP45	WSM35	WSM35S	WSP45	WAK15	WKK25	WKP25S	WKP35S	WXN15	WK10	WSM35	WSM35S	WSP45	WHH15
	ADGT160616R-D67	1,6	1			☹	😐		☹							😐		☹	
	ADGT160630R-D67	3	0,8			☹	😐		☹							😐		☹	
	ADGT1606PER-D51	0,8	1,6		😐	☹			☹				☹					☹	
	ADGT1606PER-D56	0,8	1,6		😐	☹	😐		☹		😐		☹			😐		☹	
	ADGT1606PER-D67	0,8	1,6			☹	😐	😟	☹							😐	😟	☹	
	ADGT1606PER-F56	0,8	1,6			☹			☹									☹	
	ADGT1606PER-G77	0,8	1,2			😐	🙂		😐							🙂		😐	
	ADHT160616R-G88	1,6	1,4											🙂	🙂				
	ADHT160625R-G88	2,5	1,2											🙂	🙂				
	ADHT160630R-G88	3	1,2											🙂	🙂				
	ADHT160640R-G88	4	1											🙂	🙂				
	ADHT1606PER-G88	0,8	1,6											🙂	🙂				
	ADKT1606PER-F56	0,8	1,6	😟		☹			☹			😟						☹	
	ADMT160608R-D56	0,8	1,6	😟	😐						😐	😟	☹						
	ADMT160608R-F56	0,8	1,6	😟		☹	😐		☹	🙂	😐	😟				😐		☹	
	ADMT160608R-G56	0,8	1,6		🙂	😐	🙂	😟	😐				😐			🙂	😟	😐	
	ADMT160612R-F56	1,2	1,6		😐		😐	😟					☹			😐	😟		
	ADMT160616R-F56	1,6	1,4		😐	☹	😐		☹				☹			😐		☹	
	ADMT160620R-F56	2	1,4		😐	☹		😟	☹				☹				😟	☹	
	ADMT160625R-F56	2,5	1,2		😐	☹	😐		☹				☹			😐		☹	
	ADMT160630R-F56	3	1,2		😐	☹	😐		☹				☹			😐		☹	
	ADMT160632R-F56	3,2	1,2		😐		😐	😟					☹			😐	😟		
	ADMT160640R-F56	4	1		😐	☹	😐		☹				☹			😐		☹	
	ADMT160650R-F56	5			😐	☹	😐	😟	☹				☹			😐	😟	☹	
	ADMT160660R-F56	6			😐	☹	😐		☹				☹			😐		☹	

If the corner radius is R = 2.0 mm or above, the body in the corner area must be reworked.

$R_{(body)} = R_{(insert)}$ - 1 mm

HC = Coated carbide

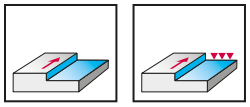
HW = Uncoated carbide



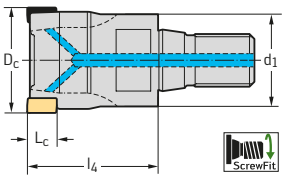
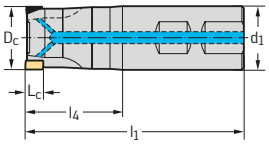
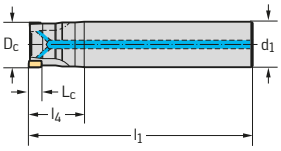
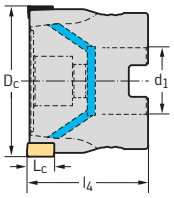
F-6 G-2 F-92

Shoulder milling cutter F 5041
LNHU 0904 . .

Walter BLAXX



- Approach angle κ = 90°
- Four cutting edges per indexable insert
- Negative basic insert shapes
- Tangential indexable insert arrangement

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	l_1 mm	Z	kg	No. of indexable inserts	Type
NCT ScrewFit	★ F5041.T22.025.Z03.08*	25	T22	35	8		3	0,11	3	LN . . 0904 . .
	★ F5041.T22.025.Z04.08	25	T22	35	8		4	0,11	4	
	★ F5041.T28.032.Z04.08*	32	T28	40	8		4	0,21	4	
	★ F5041.T28.032.Z05.08	32	T28	40	8		5	0,21	5	
Shank DIN 1835-B	★ F5041.W25.025.Z03.08*	25	25	43	8	100	3	0,33	3	LN . . 0904 . .
	★ F5041.W25.025.Z04.08	25	25	43	8	100	4	0,32	4	
	★ F5041.W32.032.Z04.08*	32	32	49	8	110	4	0,6	4	
	★ F5041.W32.032.Z05.08	32	32	49	8	110	5	0,6	5	
	★ F5041.W32.040.Z04.08*	40	32	49	8	110	4	0,7	4	
	★ F5041.W32.040.Z06.08	40	32	49	8	110	6	0,7	6	
Parallel shank without flat	★ F5041.Z25.025.Z03.08*	25	25	38	8	200	3	0,7	3	LN . . 0904 . .
	★ F5041.Z25.025.Z04.08	25	25	38	8	200	4	0,7	4	
	★ F5041.Z32.032.Z04.08*	32	32	39	8	250	4	1,5	4	
	★ F5041.Z32.032.Z05.08	32	32	39	8	250	5	1,5	5	
Cyl. bore DIN 138 longitudinal key way	★ F5041.B16.040.Z04.08*	40	16	40	8		4	0,2	4	LN . . 0904 . .
	★ F5041.B16.040.Z06.08	40	16	40	8		6	0,25	6	
	★ F5041.B22.050.Z05.08*	50	22	40	8		5	0,36	5	
	★ F5041.B22.050.Z07.08	50	22	40	8		7	0,37	7	
	★ F5041.B22.063.Z07.08*	63	22	40	8		7	0,6	7	
	★ F5041.B22.063.Z10.08	63	22	40	8		10	0,6	10	

Bodies and assembly parts are included in the scope of delivery.

For flat wrenches for screw heads, see page G 105 of the Walter General catalogue 2012.

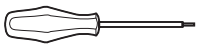
* Balanced construction to G 6.3 at 10,000 rpm.

★ New addition to range

Assembly parts

	D_c mm	25-63
	Clamping screw Tightening torque	FS1457 (Torx 9 IP) 2,0 Nm

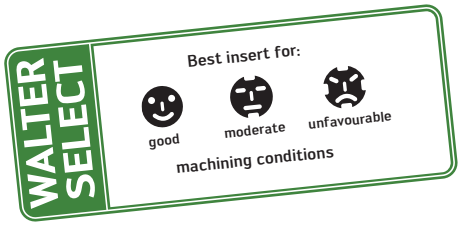
Accessories

	D_c mm	25-63
	Torque screwdriver	FS2003
	Screwdriver	FS1484 (Torx 9IP)
	Interchangeable blade	FS2013 (Torx 9IP)

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45S	M HC WSM35S	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35S	S HC WSP45S	H HC WHH15
	LNHU090404R-L55T	0,4	1,5	☺	😐	☹	😐	☹	☺	😐	😐	☹			😐	☹	
	LNHU090404R-L85T	0,4	1,5										☺	☺			
	LNHU090408R-L55T	0,8	1,1		😐	☹	😐	☹				☹			😐	☹	
	LNHU090412R-L55T	1,2	0,8		😐	☹	😐	☹				☹			😐	☹	
	LNHU090416R-L55T	1,6			😐	☹	😐	☹				☹			😐	☹	
	LNHU090420R-L55T	2			😐	☹	😐	☹				☹			😐	☹	

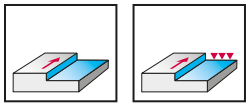
HC = Coated carbide
HW = Uncoated carbide



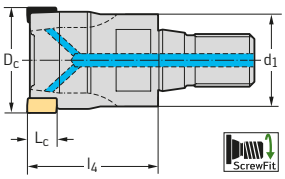
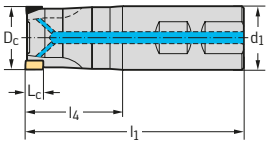
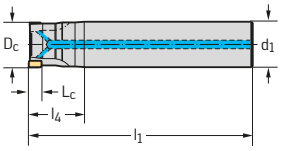
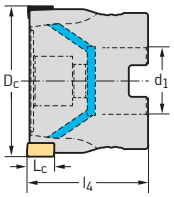
F-40 G-2 F-92

Shoulder milling cutter F 5141
LNHU 1306 . .

Walter BLAXX



- Approach angle κ = 90°
- Four cutting edges per indexable insert
- Negative basic insert shapes
- Tangential indexable insert arrangement

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	l_1 mm	Z	kg	No. of indexable inserts	Type
NCT ScrewFit 	★ F5141.T36.040.Z05.12	40	T36	40	12		5	0,35	5	LN . . 1306 . .
	★ F5141.T45.050.Z06.12	50	T45	40	12		6	0,5	6	
Shank DIN 1835-B 	★ F5141.W32.040.Z03.12*	40	32	49	12	110	3	0,7	3	LN . . 1306 . .
	★ F5141.W32.040.Z05.12	40	32	49	12	110	5	0,7	5	
Parallel shank without flat 	★ F5141.Z32.040.Z03.12*	40	32	44	12	250	3	1,5	3	LN . . 1306 . .
	★ F5141.Z32.040.Z05.12	40	32	44	12	250	5	1,5	5	
Cyl. bore DIN 138 longitudinal key way 	★ F5141.B16.040.Z04.12*	40	16	40	12		4	0,2	4	LN . . 1306 . .
	★ F5141.B16.040.Z05.12	40	16	40	12		5	0,2	5	
	★ F5141.B22.050.Z05.12*	50	22	40	12		5	0,32	5	
	★ F5141.B22.050.Z06.12	50	22	40	12		6	0,5	6	
	★ F5141.B22.063.Z06.12*	63	22	40	12		6	0,6	6	
	★ F5141.B22.063.Z08.12	63	22	40	12		8	0,6	8	
	★ F5141.B27.080.Z07.12*	80	27	50	12		7	1,3	7	
	★ F5141.B27.080.Z10.12	80	27	50	12		10	1,1	10	
	★ F5141.B32.100.Z09.12*	100	32	50	12		9	2,7	9	
	★ F5141.B32.100.Z13.12	100	32	50	12		13	2,7	13	
	★ F5141.B40.125.Z11.12*	125	40	63	12		11	3,8	11	
	★ F5141.B40.125.Z16.12	125	40	63	12		16	4,7	16	

Bodies and assembly parts are included in the scope of delivery.

For flat wrenches for screw heads, see page G 105 of the Walter General catalogue 2012.

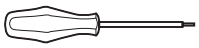
* Balanced construction to G 6.3 at 10,000 rpm.

★ New addition to range

Assembly parts

	D_c mm	40-125
	Clamping screw Tightening torque	FS2081 (Torx 15 IP) 3,0 Nm

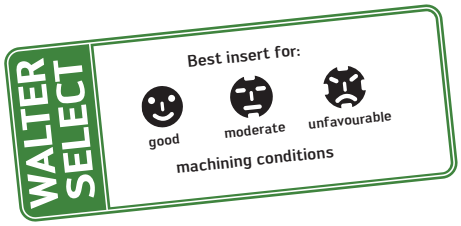
Accessories

	D_c mm	40-125
	Torque screwdriver	FS2003
	Screwdriver	FS1485 (Torx 15IP)
	Interchangeable blade	FS2014 (Torx 15IP)

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45S	M HC WSM35S	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35S	S HC WSP45S	H HC WHH15
	LNHU130608R-L55T	0,8	2,2	☺	😐	☹	😐	☹	☺	😐	😐	☹			😐	☹	
	LNHU130608R-L85T	0,8	2,2										☺	☺			
	LNHU130612R-L55T	1,2	1,85		😐	☹	😐	☹				☹			😐	☹	
	LNHU130616R-L55T	1,6	1,5		😐	☹	😐	☹				☹			😐	☹	
	LNHU130620R-L55T	2	1,15		😐	☹	😐	☹				☹			😐	☹	
	LNHU130625R-L55T	2,5	0,7		😐	☹	😐	☹				☹			😐	☹	
	LNHU130630R-L55T	3			😐	☹	😐	☹				☹			😐	☹	
	LNHU130632R-L55T	3,2			😐	☹	😐	☹				☹			😐	☹	

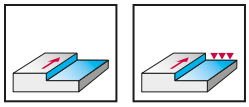
HC = Coated carbide
HW = Uncoated carbide



F-40 G-2 F-92

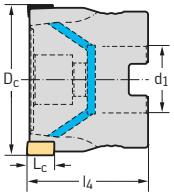
Shoulder milling cutter F 5241
LNHU 1607 . .

Walter BLAXX



- Approach angle κ = 90°
- Four cutting edges per indexable insert
- Negative basic insert shapes
- Tangential indexable insert arrangement

Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 longitudinal key way	★ F5241.B22.050.Z03.15*	50	22	40	15	3	0,3	3	LN . . 1607 . .
	★ F5241.B22.050.Z05.15	50	22	40	15	5	0,31	5	
	★ F5241.B22.063.Z04.15*	63	22	40	15	4	0,5	4	
	★ F5241.B22.063.Z06.15	63	22	40	15	6	0,6	6	
	★ F5241.B27.080.Z05.15*	80	27	50	15	5	1	5	
	★ F5241.B27.080.Z07.15	80	27	50	15	7	1,1	7	
	★ F5241.B32.100.Z06.15*	100	32	50	15	6	1,7	6	
	★ F5241.B32.100.Z08.15	100	32	50	15	8	1,8	8	
	★ F5241.B40.125.Z07.15*	125	40	63	15	7	3,2	7	
	★ F5241.B40.125.Z10.15	125	40	63	15	10	3,3	10	
	★ F5241.B40.160.Z08.15*	160	40	63	15	8	4,4	8	
	★ F5241.B40.160.Z12.15	160	40	63	15	12	4,5	12	



Bodies and assembly parts are included in the scope of delivery.

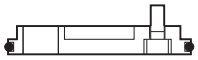
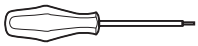
* Balanced construction to G 6.3 at 10,000 rpm.

★ New addition to range

Assembly parts

	D_c mm	50	63-160
	Clamping screw for insert Tightening torque	FS1495 (Torx 20 IP) 5,0 Nm	FS2112 (Torx 20 IP) 5,0 Nm

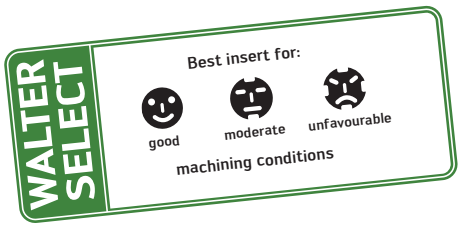
Accessories

	D_c mm	50-125	160
	Sealing disc set, complete		FS936 COMPLETE SET
	Torque screwdriver	FS2003	FS2003
	Screwdriver	FS1486 (Torx 20IP)	FS1486 (Torx 20IP)
	Interchangeable blade	FS2015 (Torx 20IP)	FS2015 (Torx 20IP)
	Gasket		O-R 96X4

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45S	M HC WSM35S	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35S	S HC WSP45S	H HC WHH15
	LNHU160708R-L55T	0,8	2,3	good	moderate	unfavourable	moderate	unfavourable	good	moderate	moderate	unfavourable			moderate	unfavourable	
	LNHU160708R-L85T	0,8	2,3										good	good			
	LNHU160712R-L55T	1,2	1,9		moderate	unfavourable	moderate	unfavourable				unfavourable			moderate	unfavourable	
	LNHU160716R-L55T	1,6	1,6		moderate	unfavourable	moderate	unfavourable				unfavourable			moderate	unfavourable	
	LNHU160720R-L55T	2	1,2		moderate	unfavourable	moderate	unfavourable				unfavourable			moderate	unfavourable	
	LNHU160725R-L55T	2,5			moderate	unfavourable	moderate	unfavourable				unfavourable			moderate	unfavourable	

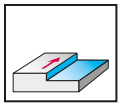
HC = Coated carbide
HW = Uncoated carbide



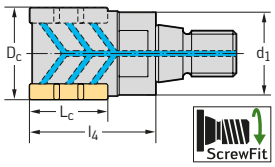
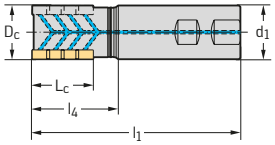
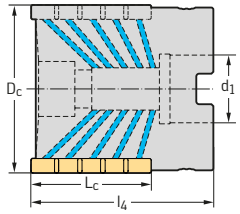
F-40 G-2 F-92

F 5138 porcupine cutter
LNHU 1306 . .

Walter BLAXX



- Approach angle κ = 90°
- Four cutting edges per indexable insert
- Negative basic insert shapes
- Tangential indexable insert arrangement
- Full effective teeth version

Tool	Designation	D_c mm	d_1 mm	l_4 mm	l_1 mm	L_c mm	Z	kg	No. of indexable inserts	Type
NCT ScrewFit 	★ F5138.T36.040.Z02.23	40	T36	45		23	2	0,36	2 2	LN . . 1306 . .
	★ F5138.T36.040.Z02.34	40	T36	55		34	2	0,39	2 4	
Shank DIN 1835-B 	★ F5138.W40.040.Z02.34	40	40	54	120	34	2	1	2 4	LN . . 1306 . .
	★ F5138.W40.040.Z02.45	40	40	64	135	45	2	1,1	2 6	
Cyl. bore DIN 138 longitudinal key way 	★ F5138.B16.040.Z02.34	40	16	55		34	2	0,3	2 4	LN . . 1306 . .
	★ F5138.B16.040.Z02.45	40	16	65		45	2	0,33	2 6	
	★ F5138.B22.050.Z03.34	50	22	55		34	3	0,46	3 6	
	★ F5138.B22.050.Z03.45	50	22	65		45	3	0,5	3 9	
	★ F5138.B27.063.Z04.45	63	27	70		45	4	1,1	4 12	
	★ F5138.B27.063.Z04.56	63	27	80		56	4	1,2	4 16	
	★ F5138.B32.080.Z05.56	80	32	85		56	5	2,2	5 20	

Bodies and assembly parts are included in the scope of delivery.

For flat wrenches for screw heads, see page G 105 of the Walter General catalogue 2012.

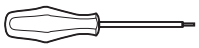
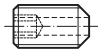
For special clamping screws for arbour mounted tools, see page G-41.

★ New addition to range

Assembly parts

	D_c mm	40-80
	Clamping screw for insert Tightening torque	FS2081 (Torx 15 IP) 3,0 Nm

Accessories

	D_c mm	40-80
	Torque screwdriver	FS2003
	Screwdriver	FS1485 (Torx 15IP)
	Interchangeable blade	FS2014 (Torx 15IP)
	Coolant nozzle*	FS2250

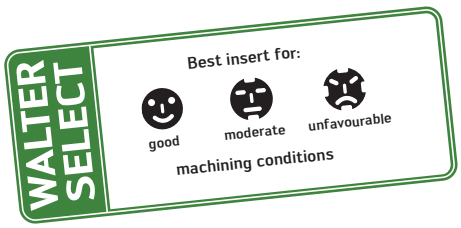
* FS2250 coolant nozzle must be secured against loosening.

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45S	M HC WSM35S	M HC WSP45	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35S	S HC WSP45	H HC WHH15
	LNHU130608R-L55T	0,8	2,2	☺	😐	☹	😐	☹	☺	😐	😐	☹			😐	☹	
	LNHU130608R-L85T	0,8	2,2										☺	☺			
	LNHU130612R-L55T	1,2	1,85		😐	☹	😐	☹				☹			😐	☹	
	LNHU130616R-L55T	1,6	1,5		😐	☹	😐	☹				☹			😐	☹	
	LNHU130620R-L55T	2	1,15		😐	☹	😐	☹				☹			😐	☹	
	LNHU130625R-L55T	2,5	0,7		😐	☹	😐	☹				☹			😐	☹	
	LNHU130630R-L55T	3			😐	☹	😐	☹				☹			😐	☹	
	LNHU130632R-L55T	3,2			😐	☹	😐	☹				☹			😐	☹	

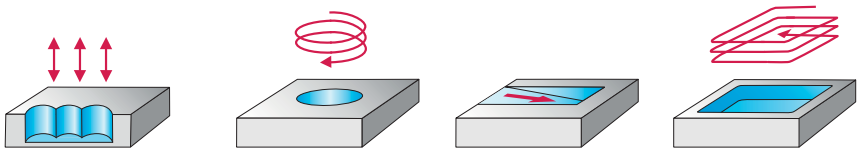
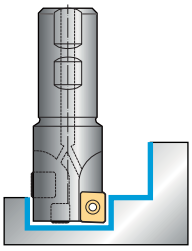
Indexable inserts with corner radius R > 0.8 mm can only be used as front inserts.

HC = Coated carbide
HW = Uncoated carbide

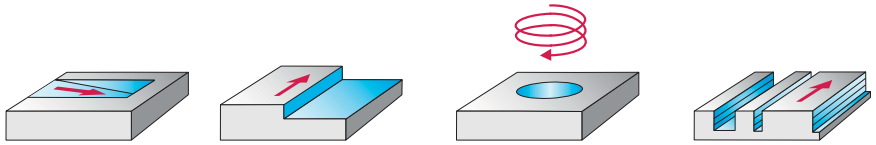


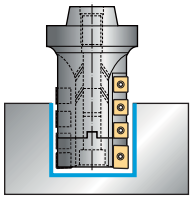
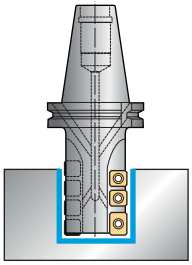
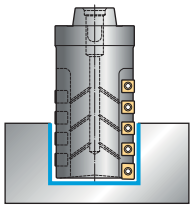
F-40 G-2 F-94

Walter Select – Slot milling

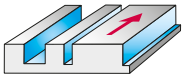
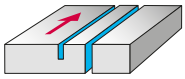
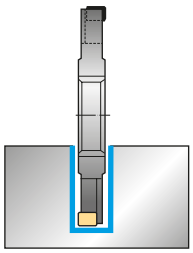
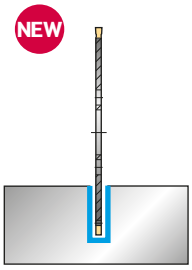
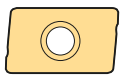
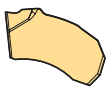
Machining		
Lead angle κ	90°	
Slot mill	F 2237 	
Ø range [mm]	18–40	
Page	*F 174**	
P Steel	●●	
M Stainless steel	●●	
K Cast iron	●●	
N NF metals	●	
S Difficult-to-machine materials	●	
H Hard materials		
O Other		
Basic insert shape		
Insert types	LP . . 07 . . / SP . . 06 . . LP . . 15 . . / SP . . 09 . . SP . . 12 . .	
Max. cutting depths [mm]	25	
Number of cutting edges per indexable insert	2 / 4	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

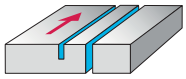
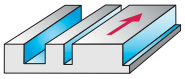
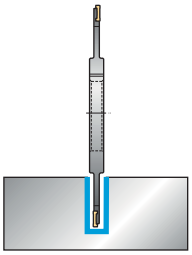
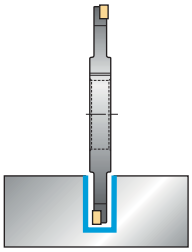
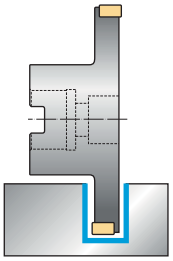


	90°	90°	90°
	F 2238CE / CK	**F 2238**	**F 2338**
			
	50–80	20–125	63–100
	*F 178**	*F 176**	*F 184**
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
	●	●	●
	●●	●●	●●
			
	LP . . 1504 . . SP . . 1204 . .	LP . . 0703 . . / LP . . 1504 . . LP . . 15T3 . . SP . . 0603 . . / SP . . 09T3 . . SP . . 1204 . .	LP . . 1506 . . SP . . 1206 . .
	117	87	103
	2 / 4	2 / 4	2 / 4

Walter Select – Slot milling

Machining				
Lead angle κ	90°		90°	
Slot mill	F 2252 		F 5055 NEW  Walter BLAXX	
Ø range [mm]	100–315	80–315	63–250	
Page	*F 186 / F 190**	*F 188 / F 194**	F-84	
P Steel	●●	●●	●●	
M Stainless steel	●●	●●	●	
K Cast iron	●●	●●	●●	
N NF metals	●●	●●	●●	
S Difficult-to-machine materials	●●	●	●	
H Hard materials		●		
O Other	●	●	●	
Basic insert shape				
Insert types	AD . . 0803 . . AD . . 1204 . . AD . . 1606 . .	MP . . 0603 . . MP . . 0803 . . MP . . 1204 . .	SX . .	
Helically toothed: max. cutting depths [mm]	8 + 11,7 + 15	6 + 8 + 12	—	
Cross-toothed Max. cutting widths [mm]	12–25	8–23,5	2,0 + 3,0 + 4,0	
Number of cutting edges per indexable insert	2	2	1	

** The pages indicated in italics refer to the Walter General catalogue 2012.*

			
	90°	90°	90°
	F 4053	F 4153	F 4253
			
	Xtra·tec®	Xtra·tec®	Xtra·tec®
	80–160	80–200	100–315
	*F 200**	*F 204**	*F 208**
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
	●	●	●
	●●	●●	●●
			
	LN . X 070204 . .	LN . . 0803 . . LN . . 0804 . . LN . . 1005 . .	LN . . 0804 . . LN . . 1005 . . LN . . 1206 . . LN . . 1608 . .
	—	—	—
	4	6 + 8 + 10	12 + 14 + 16 + 20 + 25
	2 + 2	2 + 2	2 + 2

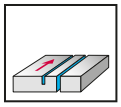
WALTER SELECT

●● Primary application

● Other application

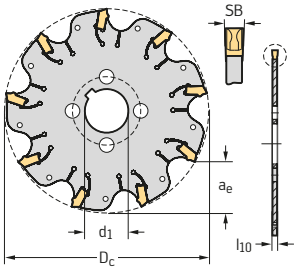
Slitting cutter F 5055.B

Walter BLAXX



- Approach angle κ = 90°
- One cutting edge per indexable insert
- Positive basic insert shape

Tool	Designation	D_c mm	d_1 mm	SB mm	a_{emax} mm	l_{10} mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 longitudinal key way	★ F5055.B16.063.Z05.2,0	63	16	2	15	1,6	5	0,023	5	SX-2
	★ F5055.B16.063.Z04.3,0	63	16	3	15	2,4	4	0,034	4	SX-3
	★ F5055.B16.063.Z04.4,0	63	16	4	15	3,4	4	0,048	4	SX-4
	★ F5055.B16.080.Z07.2,0	80	16	2	20	1,6	7	0,041	7	SX-2
	★ F5055.B16.080.Z06.3,0	80	16	3	20	2,4	6	0,061	6	SX-3
	★ F5055.B16.080.Z06.4,0	80	16	4	20	3,4	6	0,086	6	SX-4
	★ F5055.B22.100.Z09.2,0	100	22	2	25	1,6	9	0,068	9	SX-2
	★ F5055.B22.100.Z09.3,0	100	22	3	25	2,4	9	0,1	9	SX-3
	★ F5055.B22.100.Z09.4,0	100	22	4	25	3,4	9	0,14	9	SX-4
	★ F5055.B32.125.Z11.2,0	125	32	2	33	1,6	11	0,11	11	SX-2
	★ F5055.B32.125.Z11.3,0	125	32	3	33	2,4	11	0,17	11	SX-3
	★ F5055.B32.125.Z11.4,0	125	32	4	33	3,4	11	0,24	11	SX-4
	★ F5055.B40.160.Z14.2,0	160	40	2	38	1,6	14	0,19	14	SX-2
	★ F5055.B40.160.Z14.3,0	160	40	3	38	2,4	14	0,29	14	SX-3
	★ F5055.B40.160.Z14.4,0	160	40	4	38	3,4	14	0,4	14	SX-4
	★ F5055.B40.200.Z19.3,0	200	40	3	58	2,4	19	0,48	19	SX-3
	★ F5055.B40.200.Z19.4,0	200	40	4	58	3,4	19	0,7	19	SX-4
	★ F5055.B40.250.Z24.3,0	250	40	3	83	2,4	24	0,8	24	SX-3
	★ F5055.B40.250.Z24.4,0	250	40	4	83	3,4	24	1,1	24	SX-4



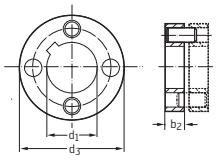
Values for $a_{e\ max}$ in combination with drive collar.

For information on high-speed applications, see page F-122.

To fit the indexable insert, use the mounting wrench FS 1494.

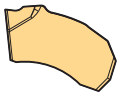
★ New addition to range

Accessories

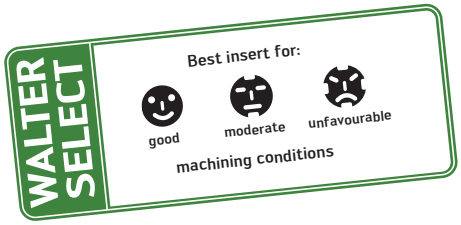
	D_c mm SBmm	63 2	63 3-4	80 2-4	100 2-4	125 2-4	160 2-4	200 3-4	250 3-4
	Drive collar	FS1345	FS1346	FS1347	FS1348	FS1349	FS1350	FS1350	FS1350
	Mounting wrench	FS1494	FS1494	FS1494	FS1494	FS1494	FS1494	FS1494	FS1494
	Clamping screw for retaining washer							FS966 (SW 5)	FS966 (SW 5)
	Retaining washer instead of drive collar							FS1351	FS1351
	Allen key for clamping screw							ISO 2936-5 (SW 5)	ISO 2936-5 (SW 5)
	Retaining washer instead of drive collar								FS1352

Drive collars and retaining discs should always be ordered in pairs.
Clamping screws for retaining washers are included in the scope of delivery.

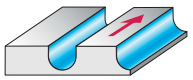
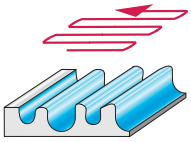
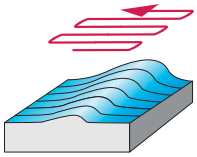
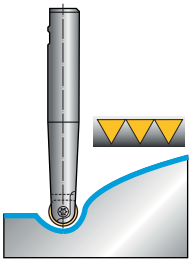
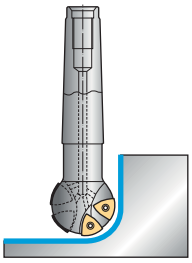
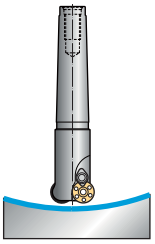
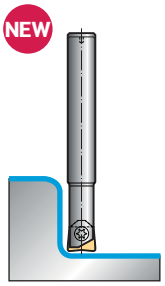
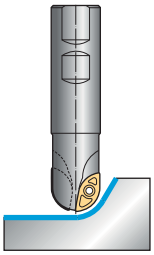
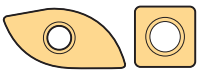
Indexable inserts

		s mm	r mm	P HC			M HC			K HC		N HC	HW	S HC			H HC	HC
				WSM23S	WSM33S	WSM43S	WSM23S	WSM33S	WSM43S	WKP25S	WKP35S	WXN15	WK10	WSM23S	WSM33S	WSM43S	WHH15	WXM15
	SX-2E200N02-CE4	2	0,2		😐	☹		☺	😐						😐	☹		
	SX-3E300N02-CE4	3	0,2		😐	☹		☺	😐						😐	☹		
	SX-4E400N02-CE4	4	0,2		😐	☹		☺	😐						😐	☹		
	SX-2E200N02-CF5	2	0,2		😐	☹		☺	😐						😐	☹		
	SX-3E300N02-CF5	3	0,2		😐	☹		☺	😐						😐	☹		
	SX-4E400N02-CF5	4	0,2		😐	☹		☺	😐						😐	☹		
	SX-2E200N02-CF6	2	0,2		😐	☹		☺	😐						😐	☹		
	SX-3E300N02-CF6	3	0,2		😐	☹		☺	😐						😐	☹		

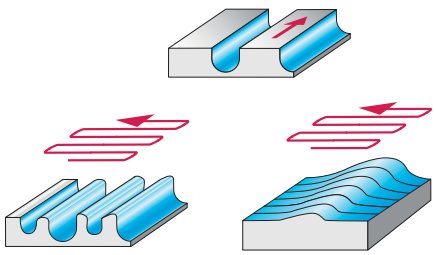
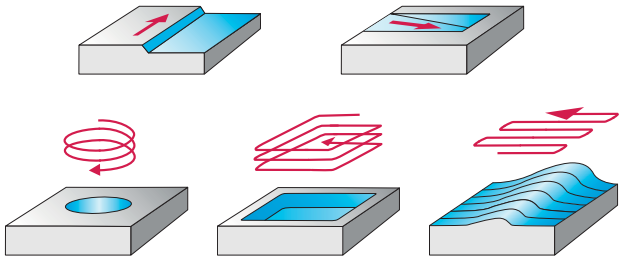
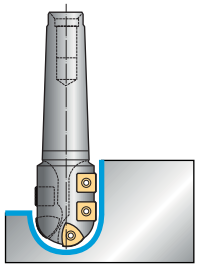
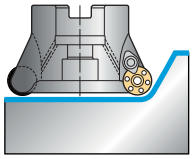
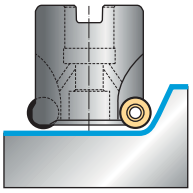
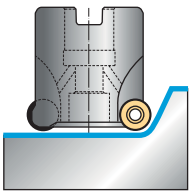
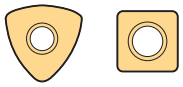
HC = Coated carbide
HW = Uncoated carbide



Walter Select – Copy milling

Machining					
					
Copy milling cutter	**F 2139** 	**F 2239 B** 	**F 2231 / A** 	**F 4031** NEW  **Xtra·tec®**	**F 2339 / A + B** 
Ø range [mm]	8–32	20–50	10–40	8–32	16–50
Page	*F 214**	*F 226**	*F 216**	**F-90**	*F 228**
P Steel	●●	●●	●●	●●	●●
M Stainless steel	●●	●	●●	●●	●●
K Cast iron	●●	●●	●●	●●	●●
N NF metals	●●	●	●●	●	●
S Difficult-to-machine materials	●●	●	●	●●	●
H Hard materials	●●		●●	●●	●
O Other	●	●	●		
Basic insert shape					
Insert types	P 3201 P 3204	P 2631 . .	RD . . 0501 / 0803 . . RD . . 10T3 / 1204 . . RD . . 1505 / 1605 . . RD . . 2006 . .	P 8001	XD . 13 / 16 / 20 / 24 . . XD . . 25 / 32 / 40 . . SP . . 0603/09T3 . . SP . . 1204 . .
Max. cutting depths [mm]	4–16	15–39	2,5–10	2,0–3,5	11–57
Number of cutting edges per indexable insert	1	3	–	1	2 / 4

** The pages indicated in italics refer to the Walter General catalogue 2012.*

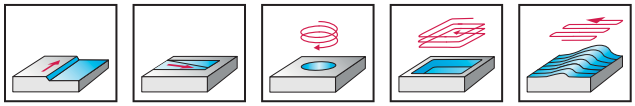
				
	F 2239	**F 2234**	**F 2334**	**F 2334R**
				NEW 
	20–63	12–160	25–160	25–63
	*F 226**	*F 218**	*F 222**	**F-88**
	●●	●●	●●	●●
	●	●●	●●	●●
	●●	●●	●●	●●
	●	●●	●	●
	●	●	●●	●●
		●●	●	●
	●	●		
				
	P 2631 . . SP . . 0603 . . SP . . 09T3 . . SP . . 1204 . .	RD . .	RO . X . .	RO . X . .
	15–84	2,5–10	4–10	5 + 6
	3 / 4	–	4 / 6 / 8	4

WALTER SELECT

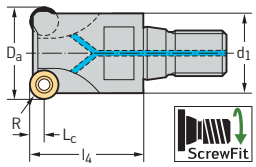
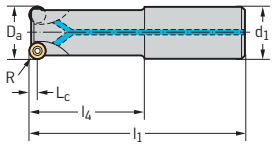
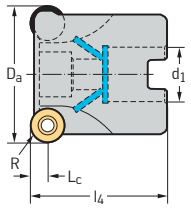
●● Primary application

● Other application

Round insert cutter F 2334R



- Four cutting edges per indexable insert
- Positive basic insert shape
- With indexing faces
- Reinforced design

Tool	Designation	R mm	D_a mm	d_1 mm	l_4 mm	l_1 mm	L_c mm	Z	kg	No. of indexable inserts	Type
NCT ScrewFit 	★ F2334R.T22.025.Z03.05	5	25	T22	35		5	3	0,1	3	RO . X 10T3 . .
	★ F2334R.T28.032.Z04.05	5	32	T28	40		5	4	0,2	4	
	★ F2334R.T36.040.Z04.06	6	40	T36	40		6	4	0,31	4	RO . X 1204 . .
Parallel shank 	★ F2334R.Z32.032.Z04.05	5	32	32	70	131	5	4	0,7	4	RO . X 10T3 . .
Cyl. bore DIN 138 longitudinal key way 	★ F2334R.B16.040.Z04.06	6	40	16	40		6	4	0,19	4	RO . X 1204 . .
	★ F2334R.B16.040.Z05.05	5	40	16	40		5	5	0,2	5	RO . X 10T3 . .
	★ F2334R.B16.040.Z05.06	6	40	16	40		6	5	0,21	5	RO . X 1204 . .
	★ F2334R.B16.040.Z06.05	5	40	16	40		5	6	0,21	6	RO . X 10T3 . .
	★ F2334R.B22.050.Z05.06	6	50	22	40		6	5	0,32	5	RO . X 1204 . .
	★ F2334R.B22.050.Z06.06	6	50	22	40		6	6	0,31	6	
	★ F2334R.B22.052.Z05.06	6	52	22	40		6	5	0,33	5	
	★ F2334R.B22.052.Z06.06	6	52	22	40		6	5	0,33	5	
	★ F2334R.B22.063.Z07.06	6	63	22	40		6	7	0,6	7	

Bodies and assembly parts are included in the scope of delivery.

For flat wrenches for screw heads, see page G 105 of the Walter General catalogue 2012.

★ New addition to range

Assembly parts

	Type D_a	RO . X 10T3 . . 25	RO . X 10T3 . . 31,75–32	RO . X 1204 . . 38,1–63,5
	Clamping screw for indexable insert	FS2181 (Torx 15 IP)	FS2119 (Torx 15 IP)	FS1453 (Torx 15 IP)
	Tightening torque	3,0 Nm	3,0 Nm	3,5 Nm

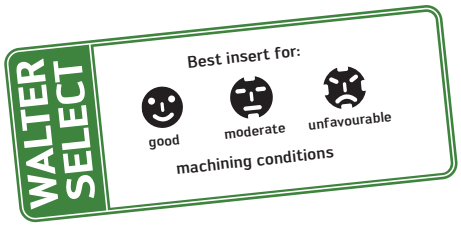
Accessories

	D_a mm Type	
	Screwdriver	FS1485 (Torx 15IP)
	Torque screwdriver	FS2003
	Interchangeable blade	FS2014 (Torx 15IP)

Indexable inserts

		Radius mm		P HC			M HC			K HC				N HC	N HW	S HC			H HC
				WKP25S	WKP35S	WSP45	WSM35	WSM35S	WSP45	WAK15	WKK25	WKP25S	WKP35S	WXN15	WK10	WSM35	WSM35S	WSP45	WHH15
	ROGX10T3M0-G77	5				☹	☺		☹							☺		☹	
	ROGX1204M0-G77	6				☹	☺		☹							☺		☹	
	ROHX10T3M0-D57	5			☹	☠	😐	😐	☠				☠			😐	😐	☠	
	ROHX10T3M0-D67	5				☠	☹		☠							☹		☠	
	ROHX10T3M0-F67	5			😐	☠	😐		☠				☠			😐		☠	
	ROHX10T3M0T-A27	5			☠								☠						
	ROHX1204M0-D57	6			☹	☠	☹	😐	☠				☠			☹	😐	☠	
	ROHX1204M0-D67	6				☠	☹		☠							☹		☠	
	ROHX1204M0-F67	6			😐	☠	😐		☠				☠			😐		☠	
	ROHX1204M0T-A27	6			☠								☠						
	ROMX10T3M0-D57	5			☹	☠	☹	😐	☠				☠			☹	😐	☠	
	ROMX1204M0-D57	6			😐	☠	☹	😐	☠				☠			☹	😐	☠	

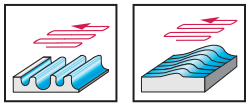
HC = Coated carbide
HW = Uncoated carbide



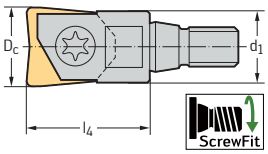
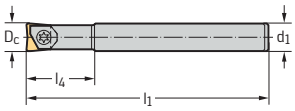
F-17 G-2 F-104

Profile mill F 4031

Xtra·tec®



- One cutting edge per exchangeable insert
- Positive basic insert shape

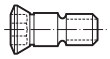
Tool	Designation	D_c mm	d_1 mm	l_4 mm	l_1 mm	Z	kg	No. of indexable inserts	Type
NCT ScrewFit 	★ F4031.T14.012.Z02.20	12	T14	25		2	0,03	1	P8001-D12R . .
	★ F4031.T14.016.Z02.25	16	T14	25		2	0,03	1	P8001-D16R . .
	★ F4031.T18.020.Z02.32	20	T18	30		2	0,05	1	P8001-D20R . .
	★ F4031.T22.025.Z02.40	25	T22	35		2	0,09	1	P8001-D25R . .
	★ F4031.T28.032.Z02.50	32	T28	40		2	0,17	1	P8001-D32R . .
Parallel shank without flat 	★ F4031.Z12.012.Z02.20	12	12	32	130	2	0,1	1	P8001-D12R . .
	★ F4031.Z16.016.Z02.25	16	16	40	140	2	0,2	1	P8001-D16R . .
	★ F4031.Z20.020.Z02.32	20	20	50	160	2	0,35	1	P8001-D20R . .
	★ F4031.Z25.025.Z02.40	25	25	63	160	2	0,5	1	P8001-D25R . .
	★ F4031.Z32.032.Z02.50	32	32	80	180	2	1	1	P8001-D32R . .

Bodies and assembly parts are included in the scope of delivery.

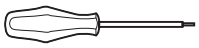
For flat wrenches for screw heads, see page G 105 of the Walter General catalogue 2012.

★ New addition to range

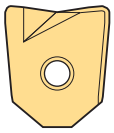
Assembly parts

	D_c mm	12	16	20	25	32
	Clamping screw for indexable insert Tightening torque	FS2072 (Torx 20 IP) 5,0 Nm	FS2073 (Torx 20 IP) 5,0 Nm	FS2074 (Torx 20 IP) 5,0 Nm	FS2075 (Torx 20 IP) 5,0 Nm	FS2107 (Torx 30 IP) 6,0 Nm

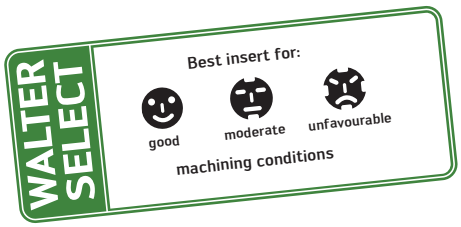
Accessories

	D_c mm	12-25	32
	Torque screwdriver	FS2003	
	Interchangeable blade	FS2015 (Torx 20IP)	FS2109 (Torx 30IP)
	Screwdriver	FS1486 (Torx 20IP)	FS2108 (Torx 30IP)
	Torque T-handle		FS2041

Indexable inserts

		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35	P HC WSP45	P HC WSP46	M HC WSM35	M HC WSP45	M HC WSP46	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	S HC WSP46	H HC WHH15
	P8001-D12R05R-A57	0,5	1,5		✖		✖			✖				✖					✖	
	P8001-D12R10R-A57	1	1,5		✖		✖			✖				✖					✖	☻
	P8001-D16R10R-A57	1	1,5		✖		✖			✖				✖					✖	☻
	P8001-D20R16R-A57	1,6	1,5		✖		✖			✖				✖					✖	☻
	P8001-D25R20R-A57	2	1,5		✖		✖			✖				✖					✖	☻
	P8001-D32R20R-A57	2	1,5		✖		✖			✖				✖					✖	☻

HC = Coated carbide
HW = Uncoated carbide



F-16 G-2 F-106

Cutting data for roughing
Face/shoulder milling

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: HC WKP35S a_e / D_c* 1/1	WKP35S 1/5	WKP25S 1/1	WKP25S 1/5	WAK15 1/1	WAK15 1/5
									Starting values for cutting speed v_c [m/min]					
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	250	300	290	320		
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	220	260	260	330		
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	215	250	255	320		
		C > 0.55 %	annealed	190	639	P4	●	●●	220	260	260	330		
		C > 0.55 %	tempered	300	1013	P5	●	●●	160	180	220	260		
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	210	240	250	315		
	Low-alloyed steel	annealed		175	591	P7	●	●●	220	270	260	320		
		tempered		300	1013	P8	●	●●	170	190	210	250		
		tempered		380	1282	P9	●	●●	130	150	170	190		
		tempered		430	1477	P10	●	●●	110	130	150	170		
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	130	160	140	170		
		hardened and tempered		300	1013	P12	●	●●	80	90	110	130		
		hardened and tempered		400	1361	P13	●	●●	70	80	90	110		
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	140	160				
		martensitic, tempered		330	1114	P15	●	●●	90	110				
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●						
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●						
		austenitic/ferritic, duplex		230	778	M3	●●	●						
K	Malleable cast iron	ferritic		200	675	K1	●	●●	160	190	180	210	210	230
		pearlitic		260	867	K2	●	●●	140	170	160	190	190	210
	Grey cast iron	low tensile strength		180	602	K3	●	●●	300	330	320	350	380	410
		high tensile strength/austenitic		245	825	K4	●	●●	190	220	180	210	230	260
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	200	220	220	240	260	280
		pearlitic		265	885	K6	●	●●	130	150	140	170	170	200
	GGV (CGI)			200	675	K7	●	●●	130	160	150	180	180	200
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●							
		hardenable, hardened		100	343	N2	●●							
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●							
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●							
		> 12 % Si, cannot be hardened		130	447	N5	●●							
	Magnesium alloys			70	250	N6	●●							
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●							
		brass, bronze, red brass		90	314	N8	●●							
		Cu-alloys, short-chipping		110	382	N9	●●							
		high-strength, Ampco		300	1013	N10	●●							
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●							
			hardened	280	943	S2	●●							
		Ni or Co base	annealed	250	839	S3	●●							
			hardened	350	1177	S4	●●							
			cast	320	1076	S5	●●							
	Titanium alloys	pure titanium		200	675	S6	●●							
		α and β alloys, hardened		375	1262	S7	●●							
		β alloys		410	1396	S8	●●							
	Tungsten alloys			300	1013	S9	●●							
	Molybdenum alloys			300	1013	S10	●●							
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●					65	80
		hardened and tempered		55 HRC	–	H2		●●					50	65
		hardened and tempered		60 HRC	–	H3		●●					40	50
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●					50	65
O	Thermoplastics	without abrasive fillers				O1	●●	●	400	400			400	400
	Thermosetting plastics	without abrasive fillers				O2	●●	●	300	300			300	300
	Plastic, glass-fibre reinforced	GFRP				O3								
	Plastic, carbon-fibre reinforced	CFRP				O4								
	Plastic, aramid-fibre reinforced	AFRP				O5								
	Graphite (technical)			80 Shore		O6		●●			400	500	600	800

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.
[2] Cutting data can also be used without coolant.
* a_e/D_c = 1/10, v_c = 10 % higher than 1/5.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

Cutting material grades

Starting values for cutting speed v_c [m/min]

HC												HF		HW		CN		BH				DP	
WSP45		WSP45S		WSM35		WSM35S		WKK25		WXN15		WMG40		WK10		WSN10		WCB50		WCB80		WCD10[2]	
a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*	
1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5
230	290	230	290																				
190	250	190	250																				
180	230	180	230																				
190	250	190	250																				
130	145	130	145																				
175	225	175	225																				
190	240	190	240																				
130	145	130	145																				
100	110	100	110																				
80	90	80	90																				
115	140	115	140																				
75	90	75	90																				
65	80	65	80																				
115	140	115	140	120	150	120	150																
80	100	80	100	80	110	80	110																
110	130	110	130	130	155	130	155																
90	100	90	100	100	120	100	120																
100	120	100	120	120	140	120	140																
								190	230							900	1000						
								170	200							800	900						
								350	380							1100	1300			1000	1250		
								190	230							900	1000			800	950		
								240	260							750	900			650	800		
								150	180							650	750			600	700		
								160	190							650	750			600	700		
										2640	2640	1500	1500	2200	2200							3000	4000
										1980	1980	1000	1000	1650	1650							2000	2000
										660	730			550	605							1500	1500
										530	530			440	440							1000	1000
										265	310			220	260							500	500
										530	530			440	440								
										460	460			380	380								
										260	300			220	260								
										190	200			160	170								
										150	160			120	130								
65	70	65	70	80	90	80	90					75	80										
45	50	45	50	60	65	60	65					45	50										
50	55	50	55	60	70	60	70					55	60										
30	35	30	35	40	45	40	45					25	30										
40	45	40	45	50	55	50	55					35	40										
65	70	65	70	80	90	80	90					75	80										
30	35	30	35	40	45	40	45					25	30										
30	35	30	35	30	45	30	45					30	40										
70	80	70	80	70	80	70	80					70	80										
70	80	70	80	70	80	70	80					70	80										
								65	80					65	80			450	550				
								50	65					50	65			220	280				
								40	50					40	50			140	220				
								50	65					50	65			220	280				
400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400								
300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300								
								600	800	600	800			400	500								

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for roughing
Shoulder milling with full effective teeth porcupine cutters (F2338F, F4038, F4138, F4238, F4338, F5138)

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: HC WKP35S a_e / D_c* 1/2	HC WKP35S a_e / D_c* 1/5	HC WKP25S a_e / D_c* 1/2	HC WKP25S a_e / D_c* 1/5
									Starting values for cutting speed v_c [m/min]			
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	195	250	210	275
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	170	215	200	255
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	155	190	175	220
		C > 0.55 %	annealed	190	639	P4	●	●●	170	215	200	255
		C > 0.55 %	tempered	300	1013	P5	●	●●	130	145	165	200
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	150	210	170	210
	Low-alloyed steel	annealed		175	591	P7	●	●●	170	215	200	255
		tempered		300	1013	P8	●	●●	130	145	155	200
		tempered		380	1282	P9	●	●●	85	100	125	140
		tempered		430	1477	P10	●	●●	80	90	110	120
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	100	120	110	130
		hardened and tempered		300	1013	P12	●	●●	65	75	80	95
		hardened and tempered		400	1361	P13	●	●●	60	70	70	80
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	105	120		
		martensitic, tempered		330	1114	P15	●	●●	60	70		
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●				
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●				
		austenitic/ferritic, duplex		230	778	M3	●●	●				
K	Malleable cast iron	ferritic		200	675	K1	●	●●	150	170	120	220
		pearlitic		260	867	K2	●	●●	120	140	130	150
	Grey cast iron	low tensile strength		180	602	K3	●	●●	160	180	180	230
		high tensile strength/austenitic		245	825	K4	●	●●	120	140	130	150
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	140	150	150	160
		pearlitic		265	885	K6	●	●●	105	115	120	125
	GGV (CGI)			200	675	K7	●	●●	150	170	120	220
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●					
		hardenable, hardened		100	343	N2	●●					
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●					
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●					
		> 12 % Si, cannot be hardened		130	447	N5	●●					
	Magnesium alloys			70	250	N6	●●					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●					
		brass, bronze, red brass		90	314	N8	●●					
		Cu-alloys, short-chipping		110	382	N9	●●					
		high-strength, Ampco		300	1013	N10	●●					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●					
			hardened	280	943	S2	●●					
		Ni or Co base	annealed	250	839	S3	●●					
			hardened	350	1177	S4	●●					
			cast	320	1076	S5	●●					
	Titanium alloys	pure titanium		200	675	S6	●●					
		α and β alloys, hardened		375	1262	S7	●●					
		β alloys		410	1396	S8	●●					
	Tungsten alloys			300	1013	S9	●●					
	Molybdenum alloys			300	1013	S10	●●					
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●				
		hardened and tempered		55 HRC	–	H2		●●				
		hardened and tempered		60 HRC	–	H3		●●				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●				
O	Thermoplastics	without abrasive fillers				O1	●●	●	400	400		
	Thermosetting plastics	without abrasive fillers				O2	●●	●	300	300		
	Plastic, glass-fibre reinforced	GFRP				O3						
	Plastic, carbon-fibre reinforced	CFRP				O4						
	Plastic, aramid-fibre reinforced	AFRP				O5						
	Graphite (technical)			80 Shore		O6		●●			400	500

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.
* a_e/D_c = 1/10, v_c = 10 % higher than 1/5.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades															
	Starting values for cutting speed v_c [m/min]															
	HC														HW	
	WAK15		WSP45		WSP45S		WSM35		WSM35S		WKK25		WXN15		WK10	
	a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*	
	1/2	1/5	1/2	1/5	1/2	1/5	1/2	1/5	1/2	1/5	1/2	1/5	1/2	1/5	1/2	1/5
			185	230	185	230										
			150	200	150	200										
			130	165	130	165										
			150	200	150	200										
			105	115	105	115										
			125	160	125	160										
			150	190	150	190										
			105	115	105	115										
			60	70	60	70										
			60	70	60	70										
			90	110	90	110										
			65	70	65	70										
			60	70	60	70										
			90	110	90	110	95	120	95	120						
			60	70	60	70	60	70	60	70						
			85	100	85	100	100	120	100	120						
			70	80	70	80	80	100	80	100						
			75	90	75	90	90	110	90	110						
	210	270									190	250			70	80
	160	180									140	160			65	65
	220	280									200	260			75	85
	160	180									140	160			55	55
	180	190									160	170			70	80
	155	165									135	145			65	65
	210	270									190	250			70	80
													1800	1800	1500	1500
													1440	1440	1200	1200
													540	640	450	530
													430	430	360	360
													220	260	180	215
													430	430	360	360
													170	210	140	175
													280	280	230	230
													170	210	140	175
													130	170	100	130
			50	55	50	55	65	70	65	70						
			35	40	35	40	50	50	50	50						
			40	45	40	45	50	55	50	55						
			25	30	25	30	30	35	30	35						
			30	35	30	35	50	45	50	45						
			50	65	50	65	65	80	65	80						
			30	35	30	35	40	45	40	45						
			25	30	25	30	35	40	35	40						
			30	35	30	35	40	45	40	45						
			25	30	25	30	35	40	35	40						
	45	55									45	55				35
	40	50									40	50				35
	40	50									40	50				35
	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	600	800									600	800	600	800	400	500

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for roughing
Slot milling with half effective teeth porcupine cutters (F2237, F2238, F2338)

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]	= Cutting data for wet machining	= Dry machining is possible	Cutting material grades: HC WKP35S — Starting values for cutting speed v_c [m/min] a_e / D_c* 1/1 1/2	a_e / D_c* 1/5
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	195	250
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	170	215
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	155	190
		C > 0.55 %	annealed	190	639	P4	●	●●	170	215
		C > 0.55 %	tempered	300	1013	P5	●	●●	130	145
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	150	210
	Low-alloyed steel	annealed		175	591	P7	●	●●	170	215
		tempered		300	1013	P8	●	●●	130	145
		tempered		380	1282	P9	●	●●	85	100
		tempered		430	1477	P10	●	●●	80	90
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	100	120
		hardened and tempered		300	1013	P12	●	●●	65	75
		hardened and tempered		400	1361	P13	●	●●	60	70
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	105	120
		martensitic, tempered		330	1114	P15	●	●●	60	70
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●		
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●		
		austenitic/ferritic, duplex		230	778	M3	●●	●		
K	Malleable cast iron	ferritic		200	675	K1	●	●●	150	170
		pearlitic		260	867	K2	●	●●	120	140
	Grey cast iron	low tensile strength		180	602	K3	●	●●	160	180
		high tensile strength/austenitic		245	825	K4	●	●●	120	140
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	140	150
		pearlitic		265	885	K6	●	●●	105	115
	GGV (CGI)			200	675	K7	●	●●	150	170
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●			
		hardenable, hardened		100	343	N2	●●			
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●			
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●			
		> 12 % Si, cannot be hardened		130	447	N5	●●			
	Magnesium alloys			70	250	N6	●●			
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●			
		brass, bronze, red brass		90	314	N8	●●			
		Cu-alloys, short-chipping		110	382	N9	●●			
		high-strength, Ampco		300	1013	N10	●●			
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●			
			hardened	280	943	S2	●●			
		Ni or Co base	annealed	250	839	S3	●●			
			hardened	350	1177	S4	●●			
			cast	320	1076	S5	●●			
	Titanium alloys	pure titanium		200	675	S6	●●			
		α and β alloys, hardened		375	1262	S7	●●			
		β alloys		410	1396	S8	●●			
	Tungsten alloys			300	1013	S9	●●			
	Molybdenum alloys			300	1013	S10	●●			
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●		
		hardened and tempered		55 HRC	–	H2		●●		
		hardened and tempered		60 HRC	–	H3		●●		
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●		
O	Thermoplastics	without abrasive fillers				O1	●●	●	400	400
	Thermosetting plastics	without abrasive fillers				O2	●●	●	300	300
	Plastic, glass-fibre reinforced	GFRP				O3				
	Plastic, carbon-fibre reinforced	CFRP				O4				
	Plastic, aramid-fibre reinforced	AFRP				O5				
	Graphite (technical)			80 Shore		O6		●●		

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.
* a_e/D_c = 1/10, v_c = 10 % higher than 1/5.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades									
	Starting values for cutting speed v_c [m/min]									
	HC									
	WKP25S		WAK15		WSP45		WSM35		WSM35S	
	a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*	
	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5
	210	275			185	230				
	200	255			150	200				
	175	220			130	165				
	200	255			150	200				
	165	200			105	115				
	170	210			125	160				
	200	255			150	190				
	155	200			105	115				
	125	140			60	70				
	120	130			50	60				
	110	130			90	110				
	80	95			65	70				
	80	90			50	60				
					90	110	95	120	95	120
					60	70	60	70	60	70
					85	100	100	120	100	120
					75	90	90	110	90	110
					75	90	90	110	90	110
	120	220	210	270						
	130	150	160	180						
	180	230	220	280						
	130	150	160	180						
	150	160	180	190						
	120	125	155	165						
	120	220	210	270						
					50	55	65	70	65	70
					35	40	50	50	50	50
					40	45	50	55	50	55
					25	30	30	35	30	35
					30	35	50	45	50	45
					50	65	65	80	65	80
					30	35	40	45	40	45
					25	30	35	40	35	40
					30	35	40	45	40	45
					25	30	35	40	35	40
			45	55						
			40	50						
			40	50						
	400	400	400	400	400	400	400	400	400	400
	300	300	300	300	300	300	300	300	300	300
	400	500								

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for roughing
Circular interpolation milling (F2231, F2234, F2330, F2334, F2334R, F3040, F4030, F4042, F4080, F4081)

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: HC WKP35S a_e / D_c* 1/1 1/2	HC WKP35S a_e / D_c* 1/5	HC WKP25S a_e / D_c* 1/1 1/2	HC WKP25S a_e / D_c* 1/5
									Starting values for cutting speed v_c [m/min]			
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	220	270	260	330
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	200	230	230	300
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	210	230	250	310
		C > 0.55 %	annealed	190	639	P4	●	●●	200	230	230	300
		C > 0.55 %	tempered	300	1013	P5	●	●●	140	160	200	230
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	190	220	220	290
	Low-alloyed steel	annealed		175	591	P7	●	●●	200	240	230	290
		tempered		300	1013	P8	●	●●	150	170	190	230
		tempered		380	1282	P9	●	●●	110	130	140	160
		tempered		430	1477	P10	●	●●	80	100	110	130
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	120	140	130	150
		hardened and tempered		300	1013	P12	●	●●	80	90	110	130
		hardened and tempered		400	1361	P13	●	●●	70	80	100	120
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	120	140		
		martensitic, tempered		330	1114	P15	●	●●	60	70		
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●				
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●				
		austenitic/ferritic, duplex		230	778	M3	●●	●				
K	Malleable cast iron	ferritic		200	675	K1	●	●●	110	120	130	140
		pearlitic		260	867	K2	●	●●	130	160	150	180
	Grey cast iron	low tensile strength		180	602	K3	●	●●	270	300	190	310
		high tensile strength/austenitic		245	825	K4	●	●●	150	180	170	200
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	180	200	200	220
		pearlitic		265	885	K6	●	●●	120	140	130	160
	GGV (CGI)			200	675	K7	●	●●	120	150	140	170
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●					
		hardenable, hardened		100	343	N2	●●					
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●					
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●					
		> 12 % Si, cannot be hardened		130	447	N5	●●					
	Magnesium alloys			70	250	N6	●●					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●					
		brass, bronze, red brass		90	314	N8	●●					
		Cu-alloys, short-chipping		110	382	N9	●●					
		high-strength, Ampco		300	1013	N10	●●					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●					
			hardened	280	943	S2	●●					
		Ni or Co base	annealed	250	839	S3	●●					
			hardened	350	1177	S4	●●					
			cast	320	1076	S5	●●					
	Titanium alloys	pure titanium		200	675	S6	●●					
		α and β alloys, hardened		375	1262	S7	●●					
		β alloys		410	1396	S8	●●					
	Tungsten alloys			300	1013	S9	●●					
	Molybdenum alloys			300	1013	S10	●●					
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●				
		hardened and tempered		55 HRC	–	H2		●●				
		hardened and tempered		60 HRC	–	H3		●●				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●				
O	Thermoplastics	without abrasive fillers				O1	●●	●	300	300		
	Thermosetting plastics	without abrasive fillers				O2	●●	●	400	400		
	Plastic, glass-fibre reinforced	GFRP				O3						
	Plastic, carbon-fibre reinforced	CFRP				O4						
	Plastic, aramid-fibre reinforced	AFRP				O5						
	Graphite (technical)			80 Shore		O6		●●			400	500

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.
* a_e/D_c = 1/10, v_c = 10 % higher than 1/5.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades															
	Starting values for cutting speed v_c [m/min]															
	HC												HF		HW	
	WAK15		WSP45		WSM35		WSM35S		WKK25		WXN15		WMG40		WK10	
	a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*		a_e / D_c*	
	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5
			210	260												
			170	220												
			160	210												
			170	220												
			120	130												
			160	210												
			170	210												
			125	150												
			85	95												
			60	65												
			100	130												
			75	90												
			65	75												
			100	120	110	130	110	130								
			55	65	60	70	60	70								
			90	100	100	120	100	120								
			70	80	80	100	80	100								
			80	90	90	110	90	110								
	150	160							140	150						
	160	170							150	160						
	340	370							330	360						
	200	220							190	210						
	230	250							220	240						
	160	190							150	180						
	150	170							140	160						
											2640	2640	1500	1500	2200	2200
											1780	1780	900	900	1500	1500
											600	660			500	540
											480	480			400	400
											240	280			200	230
											480	480			400	400
											180	200			150	160
											240	280			200	230
											180	200			150	160
											240	280			200	230
			60	65	70	80	70	80					67	72		
			40	45	55	60	55	60					40	45		
			45	50	55	65	55	65					50	55		
			27	32	35	40	35	40					22	27		
			35	40	45	50	45	50					30	35		
			65	80	80	100	80	100					70	80		
			40	45	50	55	50	55					45	50		
			35	40	45	50	45	50								
			40	45	50	55	50	55								
			35	40	45	50	45	50								
	45	55							45	55						35
	45	55							45	55						35
	45	55							45	55						35
	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
	600	800							600	800	600	800			400	500

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for roughing
Slot milling with side and face milling cutters

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WKP35S a_e / D_c 1/4*	WKP35S a_e / D_c 1/10	WKP25S a_e / D_c 1/4*	WKP25S a_e / D_c 1/10
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	195	250	210	285
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	170	215	200	255
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	160	205	185	230
		C > 0.55 %	annealed	190	639	P4	●	●●	160	200	185	230
		C > 0.55 %	tempered	300	1013	P5	●	●●	130	145	165	200
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	160	205	190	245
	Low-alloyed steel	annealed		175	591	P7	●	●●	170	215	200	255
		tempered		300	1013	P8	●	●●	125	145	155	200
		tempered		380	1282	P9	●	●●	85	95	125	140
		tempered		430	1477	P10	●	●●	80	90	120	130
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	100	120	110	145
		hardened and tempered		300	1013	P12	●	●●	65	80	75	100
		hardened and tempered		400	1361	P13	●	●●	60	70	70	90
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	105	130		
		martensitic, tempered		330	1114	P15	●	●●	60	85		
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●				
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●				
		austenitic/ferritic, duplex		230	778	M3	●●	●				
K	Malleable cast iron	ferritic		200	675	K1	●	●●	140	155	155	180
		pearlitic		260	867	K2	●	●●	135	145	100	155
	Grey cast iron	low tensile strength		180	602	K3	●	●●	160	180	180	230
		high tensile strength/austenitic		245	825	K4	●	●●	120	140	130	150
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	140	150	170	190
		pearlitic		265	885	K6	●	●●	110	120	110	150
	GGV (CGI)			200	675	K7	●	●●	120	135	120	165
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●					
		hardenable, hardened		100	343	N2	●●					
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●					
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●					
		> 12 % Si, cannot be hardened		130	447	N5	●●					
	Magnesium alloys			70	250	N6	●●					
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●					
		brass, bronze, red brass		90	314	N8	●●					
		Cu-alloys, short-chipping		110	382	N9	●●					
		high-strength, Ampco		300	1013	N10	●●					
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●					
			hardened	280	943	S2	●●					
		Ni or Co base	annealed	250	839	S3	●●					
			hardened	350	1177	S4	●●					
			cast	320	1076	S5	●●					
	Titanium alloys	pure titanium		200	675	S6	●●					
		α and β alloys, hardened		375	1262	S7	●●					
		β alloys		410	1396	S8	●●					
	Tungsten alloys			300	1013	S9	●●					
	Molybdenum alloys			300	1013	S10	●●					
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●				
		hardened and tempered		55 HRC	–	H2		●●				
		hardened and tempered		60 HRC	–	H3		●●				
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●				
O	Thermoplastics	without abrasive fillers				O1	●●	●	400	400		
	Thermosetting plastics	without abrasive fillers				O2	●●	●	300	300		
	Plastic, glass-fibre reinforced	GFRP				O3						
	Plastic, carbon-fibre reinforced	CFRP				O4						
	Plastic, aramid-fibre reinforced	AFRP				O5						
	Graphite (technical)			80 Shore		O6		●●			400	500

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.
* $a_e = a_{e\ max.}$

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades																	
	Starting values for cutting speed v_c [m/min]																	
	HC																	
	WAK15		WSP45		WSM43S		WSM35		WSM33S		WSM35S		WKK25		WXN15		WK10	
	a_e / D_c		a_e / D_c		a_e / D_c		a_e / D_c		a_e / D_c		a_e / D_c		a_e / D_c*		a_e / D_c*		a_e / D_c*	
	1/4*	1/10	1/4*	1/10	1/4*	1/10	1/4*	1/10	1/4*	1/10	1/4*	1/10	1/4*	1/10	1/4*	1/10	1/4*	1/10
			185	230	185	230	185	230	185	230								
			150	200	150	200	150	200	150	200								
			135	170	135	170	135	170	135	170								
			135	170	135	170	135	170	135	170								
			105	125	105	125	105	125	105	125								
			140	180	140	180	140	180	140	180								
			150	190	150	190	150	190	150	190								
			105	115	105	115	105	115	105	115								
			75	85	75	85	75	85	75	85								
			65	75	65	75	65	75	65	75								
			90	110	90	110	90	110	90	110								
			60	70	60	70	60	70	60	70								
			55	65	55	65	55	65	55	65								
			90	110	90	110	90	110	90	110	95	120						
			60	80	60	80	60	80	60	80	65	85						
			85	100	85	100	85	100	85	100	100	120						
			70	85	70	85	70	85	70	85	85	100						
			75	90	75	90	75	90	75	90	90	110						
	150	200											160	200				
	120	170											110	170				
	220	280											200	250				
	160	180											145	165				
	180	190											185	210				
	150	160											120	165				
	165	175											130	170				
															1800	1800	1500	1500
															1440	1440	1200	1200
															540	640	450	530
															430	430	360	360
															220	280	180	230
															430	430	360	360
															170	210	140	175
															280	280	230	230
															385	385	320	320
															150	190	120	160
			55	60	55	60	55	60	55	60	70	80						
			40	45	40	45	40	45	40	45	50	55						
			45	50	45	50	45	50	45	50	55	60						
			30	35	30	35	30	35	30	35	35	40						
			35	40	35	40	35	40	35	40	45	50						
			55	60	55	60	55	60	55	60	70	80						
			30	35	30	35	30	35	30	35	40	45						
			25	30	25	30	25	30	25	30	35	40						
			30	35	30	35	30	35	30	35	40	45						
			25	30	25	30	25	30	25	30	35	40						
	50	60											50	60			40	40
	40	50											40	50			35	35
	40	50											40	50			35	35
	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	600	800											600	800	600	800	400	500

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for roughing
Copy milling

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WKP35S a_e / D_c 1/1	1/5	1/10
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	240	300	300
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	200	255	275
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	185	240	240
		C > 0.55 %	annealed	190	639	P4	●	●●	155	195	210
		C > 0.55 %	tempered	300	1013	P5	●	●●	145	180	185
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	200	255	275
	Low-alloyed steel	annealed		175	591	P7	●	●●	165	210	230
		tempered		300	1013	P8	●	●●	155	195	215
		tempered		380	1282	P9	●	●●	145	180	200
		tempered		430	1477	P10	●	●●	120	155	170
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	110	145	160
		hardened and tempered		300	1013	P12	●	●●	75	100	100
		hardened and tempered		400	1361	P13	●	●●	65	80	90
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	120	155	170
		martensitic, tempered		330	1114	P15	●	●●	110	145	155
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●			
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●			
		austenitic/ferritic, duplex		230	778	M3	●●	●			
K	Malleable cast iron	ferritic		200	675	K1	●	●●	250	290	310
		pearlitic		260	867	K2	●	●●	200	240	260
	Grey cast iron	low tensile strength		180	602	K3	●	●●	240	280	300
		high tensile strength/austenitic		245	825	K4	●	●●	190	230	250
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	240	280	300
		pearlitic		265	885	K6	●	●●	190	230	250
	GGV (CGI)			200	675	K7	●	●●	180	220	250
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●				
		hardenable, hardened		100	343	N2	●●				
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●				
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●				
		> 12 % Si, cannot be hardened		130	447	N5	●●				
	Magnesium alloys			70	250	N6	●●				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●				
		brass, bronze, red brass		90	314	N8	●●				
		Cu-alloys, short-chipping		110	382	N9	●●				
		high-strength, Ampco		300	1013	N10	●●				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●				
			hardened	280	943	S2	●●				
		Ni or Co base	annealed	250	839	S3	●●				
			hardened	350	1177	S4	●●				
			cast	320	1076	S5	●●				
	Titanium alloys	pure titanium		200	675	S6	●●				
		α and β alloys, hardened		375	1262	S7	●●				
		β alloys		410	1396	S8	●●				
	Tungsten alloys			300	1013	S9	●●				
	Molybdenum alloys			300	1013	S10	●●				
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●			
		hardened and tempered		55 HRC	–	H2		●●			
		hardened and tempered		60 HRC	–	H3		●●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●			
O	Thermoplastics	without abrasive fillers				O1	●●	●	400	450	500
	Thermosetting plastics	without abrasive fillers				O2	●●	●	300	350	400
	Plastic, glass-fibre reinforced	GFRP				O3					
	Plastic, carbon-fibre reinforced	CFRP				O4					
	Plastic, aramid-fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6		●●			

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades																	
	Starting values for cutting speed v_c [m/min]																	
	HC																	
	WKP25S			WAK15			WSP45			WSP45S			WSM35			WSM35S		
	a_e / D_c			a_e / D_c			a_e / D_c			a_e / D_c			a_e / D_c			a_e / D_c		
	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10
	285	375	365				230	290	365	230	290	365						
	240	310	330				190	250	315	190	250	315						
	230	285	285				155	200	250	155	200	250						
	200	255	255				145	170	215	145	170	215						
	185	230	230				130	145	180	130	145	180						
	240	310	330				190	250	315	190	250	315						
	210	265	300				190	240	300	190	240	300						
	200	255	275				145	170	215	145	170	215						
	185	230	255				130	145	180	130	145	180						
	155	200	220				100	110	140	100	110	140						
	145	185	200				115	140	175	115	140	175						
	100	120	120				75	90	115	75	90	115						
	80	90	110				65	80	100	65	80	100						
	155	200	220				115	140	175	115	140	175	120	150	190	120	150	190
	130	165	165				90	110	140	90	110	140	95	120	150	95	120	150
							110	130	165	110	130	165	130	155	195	130	155	195
							90	110	140	90	110	140	110	130	170	110	130	170
							100	120	150	100	120	150	120	145	180	120	145	180
	320	370	400	370	420	450												
	270	320	350	320	370	400												
	300	350	370	350	400	420												
	250	300	320	300	350	370												
	300	350	370	350	400	420												
	250	300	320	300	350	370												
	240	280	320	290	340	370												
							65	70	90	65	70	90	80	90	115	80	90	115
							45	50	65	45	50	65	60	54	70	60	54	70
							50	55	70	50	55	70	60	70	90	60	70	90
							30	35	45	30	35	45	40	45	55	40	45	55
							40	45	55	40	45	55	50	55	70	50	55	70
							65	80	100	65	80	100	80	100	125	80	100	125
							40	45	55	40	45	55	50	55	70	50	55	70
							35	40	50	35	40	50	40	45	55	40	45	55
							40	45	55	40	45	55	50	55	70	50	55	70
							40	45	55	40	45	55	50	55	70	50	55	70
				400	450	500	500	600	700	500	600	700	500	600	700	500	600	700
				300	350	400	400	500	600	400	500	600	400	500	600	400	500	600
	400	500	600	500	600	700												

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for roughing
Copy milling

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WKK25 a_e / D_c 1/1	1/5	1/10
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●			
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●			
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●			
		C > 0.55 %	annealed	190	639	P4	●	●●			
		C > 0.55 %	tempered	300	1013	P5	●	●●			
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●			
	Low-alloyed steel	annealed		175	591	P7	●	●●			
		tempered		300	1013	P8	●	●●			
		tempered		380	1282	P9	●	●●			
		tempered		430	1477	P10	●	●●			
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●			
		hardened and tempered		300	1013	P12	●	●●			
		hardened and tempered		400	1361	P13	●	●●			
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●			
		martensitic, tempered		330	1114	P15	●	●●			
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●			
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●			
		austenitic/ferritic, duplex		230	778	M3	●●	●			
K	Malleable cast iron	ferritic		200	675	K1	●	●●	330	375	405
		pearlitic		260	867	K2	●	●●	285	330	360
	Grey cast iron	low tensile strength		180	602	K3	●	●●	315	360	375
		high tensile strength/austenitic		245	825	K4	●	●●	270	315	330
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	315	360	375
		pearlitic		265	885	K6	●	●●	270	315	330
	GGV (CGI)			200	675	K7	●	●●	260	300	330
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●				
		hardenable, hardened		100	343	N2	●●				
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●				
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●				
		> 12 % Si, cannot be hardened		130	447	N5	●●				
	Magnesium alloys			70	250	N6	●●				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●				
		brass, bronze, red brass		90	314	N8	●●				
		Cu-alloys, short-chipping		110	382	N9	●●				
		high-strength, Ampco		300	1013	N10	●●				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●				
			hardened	280	943	S2	●●				
		Ni or Co base	annealed	250	839	S3	●●				
			hardened	350	1177	S4	●●				
			cast	320	1076	S5	●●				
	Titanium alloys	pure titanium		200	675	S6	●●				
		α and β alloys, hardened		375	1262	S7	●●				
		β alloys		410	1396	S8	●●				
	Tungsten alloys			300	1013	S9	●●				
	Molybdenum alloys			300	1013	S10	●●				
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●			
		hardened and tempered		55 HRC	–	H2		●●			
		hardened and tempered		60 HRC	–	H3		●●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●			
O	Thermoplastics	without abrasive fillers				O1	●●	●	600	700	800
	Thermosetting plastics	without abrasive fillers				O2	●●	●	500	600	700
	Plastic, glass-fibre reinforced	GFRP				O3					
	Plastic, carbon-fibre reinforced	CFRP				O4					
	Plastic, aramid-fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6		●●	500	600	700

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades											
	Starting values for cutting speed v_c [m/min]											
	HC						HF			HW		
	WXN15			WHH15			WMG40			WK10		
	a_e / D_c			a_e / D_c			a_e / D_c			a_e / D_c		
	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10
				170	225	305						
				150	200	270						
				120	160	220						
				105	140	190						
				80	105	145						
				120	160	220						
				140	185	250						
				120	160	220						
				110	150	200						
				105	140	190						
				105	140	190						
				100	130	180						
				80	100	140						
				120	160	220						
				100	130	180						
				105	140	190						
				90	120	160						
				110	150	200						
				90	120	160						
				110	150	200						
				90	130	180						
				80	110	150						
	1920	1920	2110				1600	1600	1760	2000	2000	2200
	1440	1440	1630				1200	1200	1360	1500	1500	1700
	480	530	580				400	440	480	500	550	600
	385	385	420				320	320	350	400	400	440
	190	225	250				160	190	210	200	235	260
	480	530	580				400	440	480	500	550	600
	240	310	340				200	260	280	250	320	355
	260	325	360				220	270	300	270	340	375
	365	465	515				305	390	430	380	485	535
	210	280	340				170	230	280	190	260	320
							50	55	60			
							40	45	50			
							30	35	40			
							70	90	100			
							30	40	45			
							30	40	45			
							40	45	50			
							40	45	50			
				50	65	85						
				35	50	70						
				35	45	60						
				40	55	80						
	700	800	900	700	800	900	650	800	900	700	850	950
	580	735	810	600	700	800	550	700	800	600	765	840
	600	700	800	600	700	800						

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for semi-finishing and finishing
Copy milling

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WKP35S a_e / D_c* 1/1	1/5	1/20
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●	210	275	375
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●	185	255	340
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●	145	185	260
		C > 0.55 %	annealed	190	639	P4	●	●●	120	165	220
		C > 0.55 %	tempered	300	1013	P5	●	●●	90	120	160
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●	190	260	340
	Low-alloyed steel	annealed		175	591	P7	●	●●	165	220	295
		tempered		300	1013	P8	●	●●	145	185	260
		tempered		380	1282	P9	●	●●	130	175	240
		tempered		430	1477	P10	●	●●	120	165	220
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●	130	175	240
		hardened and tempered		300	1013	P12	●	●●	120	165	220
		hardened and tempered		400	1361	P13	●	●●	90	120	160
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●	145	185	260
		martensitic, tempered		330	1114	P15	●	●●	110	1745	200
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●			
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●			
		austenitic/ferritic, duplex		230	778	M3	●●	●			
K	Malleable cast iron	ferritic		200	675	K1	●	●●	170	230	290
		pearlitic		260	867	K2	●	●●	140	200	250
	Grey cast iron	low tensile strength		180	602	K3	●	●●	190	250	300
		high tensile strength/austenitic		245	825	K4	●	●●	140	200	250
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	190	250	300
		pearlitic		265	885	K6	●	●●	150	210	260
	GGV (CGI)			200	675	K7	●	●●	130	190	240
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●				
		hardenable, hardened		100	343	N2	●●				
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●				
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●				
		> 12 % Si, cannot be hardened		130	447	N5	●●				
	Magnesium alloys			70	250	N6	●●				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●				
		brass, bronze, red brass		90	314	N8	●●				
		Cu-alloys, short-chipping		110	382	N9	●●				
		high-strength, Ampco		300	1013	N10	●●				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●				
			hardened	280	943	S2	●●				
		Ni or Co base	annealed	250	839	S3	●●				
			hardened	350	1177	S4	●●				
			cast	320	1076	S5	●●				
	Titanium alloys	pure titanium		200	675	S6	●●				
		α and β alloys, hardened		375	1262	S7	●●				
		β alloys		410	1396	S8	●●				
	Tungsten alloys			300	1013	S9	●●				
	Molybdenum alloys			300	1013	S10	●●				
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●			
		hardened and tempered		55 HRC	–	H2		●●			
		hardened and tempered		60 HRC	–	H3		●●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●			
O	Thermoplastics	without abrasive fillers				O1	●●	●	450	500	550
	Thermosetting plastics	without abrasive fillers				O2	●●	●	350	400	450
	Plastic, glass-fibre reinforced	GFRP				O3					
	Plastic, carbon-fibre reinforced	CFRP				O4					
	Plastic, aramid-fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6		●●			

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.
* a_e/D_c = 1/50, v_c = 40 % higher than 1/20.

The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades																							
	Starting values for cutting speed v_c [m/min]																							
	HC																							
	WKP35			WKP25			WKP25S			WAK15			WSP45 WSP46			WSP45S			WSM35 WSM36			WSM35S		
	a_e / D_c*			a_e / D_c*			a_e / D_c*			a_e / D_c*			a_e / D_c*			a_e / D_c*			a_e / D_c*			a_e / D_c*		
	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20
	210	275	375	255	340	460	255	340	460				345	435	545	345	435	545						
	185	255	340	230	310	405	230	310	405				285	375	470	285	375	470						
	145	185	260	185	240	330	185	240	330				235	300	375	235	300	375						
	120	165	220	155	210	285	155	210	285				220	255	320	220	255	320						
	90	120	160	120	155	220	120	155	220				195	220	270	195	220	270						
	190	260	340	230	310	410	230	310	410				290	380	470	290	380	470						
	165	220	295	210	275	375	210	275	375				285	360	450	285	360	450						
	145	185	260	185	240	330	185	240	330				220	255	320	220	255	320						
	130	175	240	165	230	310	165	230	310				195	220	270	195	220	270						
	120	165	220	155	210	285	155	210	285				150	165	205	150	165	205						
	130	175	240	155	210	285	155	210	285				175	210	265	175	210	265						
	120	165	220	145	200	265	145	200	265				115	135	170	115	135	170						
	90	120	160	120	155	220	120	155	220				110	130	150	110	130	150						
	145	185	260	185	240	330	185	240	330				175	310	260	175	310	260	180	225	280	180	225	280
	110	1745	200	145	200	265	145	200	265				135	160	205	135	160	205	145	180	225	145	180	225
													165	195	245	165	195	245	195	235	290	195	235	290
													130	160	210	130	160	210	160	200	250	160	200	250
													150	180	230	150	180	230	180	220	270	180	220	270
	170	230	290	230	330	430	230	330	430	280	380	480												
	140	200	250	200	270	370	200	270	370	250	320	420												
	190	250	300	250	350	450	250	350	450	300	400	500												
	140	200	250	200	270	370	200	270	370	250	320	420												
	190	250	300	250	350	450	250	350	450	300	400	500												
	150	210	260	210	290	410	210	290	410	260	320	460												
	130	190	240	190	260	360	190	260	360	240	310	410												
													100	105	130	100	105	130	120	135	170	120	135	170
													70	75	95	70	75	95	90	100	125	90	100	125
													75	85	105	75	85	105	90	105	130	90	105	130
													45	55	70	45	55	70	60	70	90	60	70	90
													60	70	90	60	70	90	75	85	105	75	85	105
													100	120	150	100	120	150	120	150	190	120	150	190
										40	50	70	60	70	90	60	70	90	75	85	105	75	85	105
													50	60	80	50	60	80	65	75	95	65	75	95
													70	80	100	70	80	100	80	90	110	80	90	110
													70	80	100	70	80	100	80	90	110	80	90	110
	450	500	550							450	500	550	550	650	750	550	650	750	550	650	750	550	650	750
	350	400	450							350	400	450	450	550	650	450	550	650	450	550	650	450	550	650
				500	600	700	500	600	700	600	700	800												

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Cutting data for semi-finishing and finishing
Copy milling

= Cutting data for wet machining
= Dry machining is possible

Material group	Structure of main material groups and code letters			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]			Cutting material grades: Starting values for cutting speed v_c [m/min] HC WKK25 a_e / D_c* 1/1	1/5	1/20
P	Non-alloyed steel	C ≤ 0.25 %	annealed	125	428	P1	●	●●			
		C > 0.25... ≤ 0.55 %	annealed	190	639	P2	●	●●			
		C > 0.25... ≤ 0.55 %	tempered	210	708	P3	●	●●			
		C > 0.55 %	annealed	190	639	P4	●	●●			
		C > 0.55 %	tempered	300	1013	P5	●	●●			
		free cutting steel (short-chipping)	annealed	220	745	P6	●	●●			
	Low-alloyed steel	annealed		175	591	P7	●	●●			
		tempered		300	1013	P8	●	●●			
		tempered		380	1282	P9	●	●●			
		tempered		430	1477	P10	●	●●			
	High-alloyed steel and high-alloyed tool steel	annealed		200	675	P11	●	●●			
		hardened and tempered		300	1013	P12	●	●●			
		hardened and tempered		400	1361	P13	●	●●			
	Stainless steel	ferritic/martensitic, annealed		200	675	P14	●	●●			
		martensitic, tempered		330	1114	P15	●	●●			
M	Stainless steel	austenitic, quench hardened		200	675	M1	●●	●			
		austenitic, precipitation hardened (PH)		300	1013	M2	●●	●			
		austenitic/ferritic, duplex		230	778	M3	●●	●			
K	Malleable cast iron	ferritic		200	675	K1	●	●●	250	340	430
		pearlitic		260	867	K2	●	●●	225	280	375
	Grey cast iron	low tensile strength		180	602	K3	●	●●	270	360	450
		high tensile strength/austenitic		245	825	K4	●	●●	225	280	375
	Cast iron with spheroidal graphite	ferritic		155	518	K5	●	●●	270	360	450
		pearlitic		265	885	K6	●	●●	230	280	410
	GGV (CGI)			200	675	K7	●	●●	210	270	360
N	Aluminium wrought alloys	cannot be hardened		30	–	N1	●●				
		hardenable, hardened		100	343	N2	●●				
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	260	N3	●●				
		≤ 12 % Si, hardenable, hardened		90	314	N4	●●				
		> 12 % Si, cannot be hardened		130	447	N5	●●				
	Magnesium alloys			70	250	N6	●●				
	Copper and copper alloys (bronze/brass)	non-alloyed, electrolytic copper		100	343	N7	●●				
		brass, bronze, red brass		90	314	N8	●●				
		Cu-alloys, short-chipping		110	382	N9	●●				
		high-strength, Ampco		300	1013	N10	●●				
S	Heat-resistant alloys	Fe-based	annealed	200	675	S1	●●				
			hardened	280	943	S2	●●				
		Ni or Co base	annealed	250	839	S3	●●				
			hardened	350	1177	S4	●●				
			cast	320	1076	S5	●●				
	Titanium alloys	pure titanium		200	675	S6	●●				
		α and β alloys, hardened		375	1262	S7	●●		35	45	60
		β alloys		410	1396	S8	●●				
	Tungsten alloys			300	1013	S9	●●				
	Molybdenum alloys			300	1013	S10	●●				
H	Hardened steel	hardened and tempered		50 HRC	–	H1		●●			
		hardened and tempered		55 HRC	–	H2		●●			
		hardened and tempered		60 HRC	–	H3		●●			
	Hardened cast iron	hardened and tempered		55 HRC	–	H4		●●			
O	Thermoplastics	without abrasive fillers				O1	●●	●	700	800	900
	Thermosetting plastics	without abrasive fillers				O2	●●	●	600	700	800
	Plastic, glass-fibre reinforced	GFRP				O3					
	Plastic, carbon-fibre reinforced	CFRP				O4					
	Plastic, aramid-fibre reinforced	AFRP				O5					
	Graphite (technical)			80 Shore		O6		●●	600	700	900

●● Recommended application (the specified cutting data are regarded as starting values for the recommended application).
● Possible application, reduce cutting data by 30–50 % (increase for ISO M approx. 70–80 %).

[1] The classification of the machining groups can be found in the Walter General catalogue 2012 from page H 8 onwards.
* a_e/D_c = 1/50, v_c = 40 % higher than 1/20.

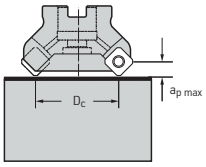
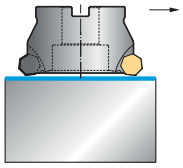
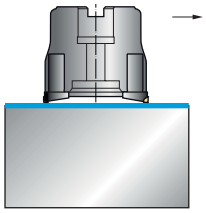
The specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Cutting material grades											
	Starting values for cutting speed v_c [m/min]											
	HC						HF			HW		
	WXN15			WHH15			WMG40			WK10		
	a_e / D_c*			a_e / D_c*			a_e / D_c*			a_e / D_c*		
	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20
				210	280	380						
				190	250	340						
				150	200	270						
				130	170	235						
				100	130	180						
				180	240	330						
				170	230	310						
				150	200	270						
				140	190	250						
				130	170	235						
				130	170	235						
				120	160	220						
				110	150	210						
				150	200	270						
				120	160	220						
				130	170	235						
				110	150	200						
				140	190	250						
				110	150	200						
				140	190	250						
				120	160	220						
				110	150	200						
	2400	2400	2640				1600	1600	1760	2000	2000	2200
	1800	1800	2040				1200	1200	1360	1500	1500	1700
	600	660	720				400	440	480	500	550	600
	480	480	530				320	320	350	400	400	440
	240	280	310				160	190	210	200	235	260
	600	660	720				400	440	480	500	550	600
	460	580	640				305	390	430	380	485	535
	320	410	450				220	270	300	270	340	375
	300	380	430				200	260	280	250	320	355
	200	240	270				120	150	180	160	200	230
							55	60	65			
							45	50	55			
							30	40	45			
							80	100	110			
							30	45	50			
				60	80	110						
				40	50	70						
				40	45	60						
				50	70	90						
	800	1000	1100	800	900	1000	600	700	750	700	800	900
	720	920	1010	700	800	900	480	610	670	600	765	840
	600	700	900	700	800	1000				400	500	700

HC = Coated carbide
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

BH = CBN with high CBN content
BL = CBN with low CBN content
DP = Polycrystalline diamond
CN = Silicon nitride Si_3N_4

Feed determination (starting values)
Face/shoulder milling cutter

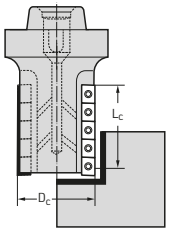
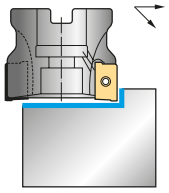
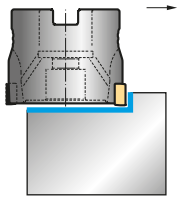
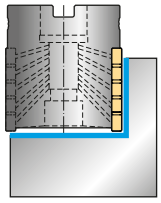
Material group	Mill type	F 4045		F 4050
	Feed per tooth f_{Z0} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$		 Xtra·tec®	
	Lead angle κ	45°		75° + 90°
	Page	F-54		F-58
		f_{Z0} [mm]		f_{Z0} [mm]
	Tool Ø or Ø range [mm]	63–200	80–200	79,4–200
	Maximum cutting data $a_{p\,max} = L_c$ [mm]	4	6	1,1 / 4,0
P	Non-alloyed steel [1]			
P	Low-alloyed steel			
P	High-alloyed steel and tool steel			
P	Stainless steel			
M	Stainless steel [2]			
K	Malleable cast iron	0,25	0,30	
K	Grey cast iron	0,30	0,50	
K	Cast iron with spheroidal graphite	0,25	0,40	
K	GGV (CGI)	0,20	0,25	
N	Aluminium wrought alloys			0,15
N	Cast aluminium alloys			0,15
N	Magnesium alloys			0,15
N	Copper and copper alloys (bronze/brass)			0,10
S	Heat-resistant alloys			
S	Titanium alloys			
S	Tungsten alloys			
S	Molybdenum alloys			
H	Hardened steel			
H	Hardened cast iron			
O	Thermoplastics			
O	Plastic, carbon-fibre reinforced			
O	Graphite (technical)			

Insert types			XNHF 0705 . .	XNHF 0906 . .	FR 733 FR 734
Correction factor **Ka_e**	$a_e / D_c =$	1/1 – 1/2	1,0	1,0	1,0
		1/5	1,1	1,1	1,1
For the feed per tooth depending on the ratio of cut width a_e to cutter diameter D_c		1/10	1,2	1,2	1,2
		1/20	1,3	1,3	1,3
		1/50			
Correction factor **Ka_p**	$a_p =$	1			
		2			
For the feed per tooth dependant on the cutting depth a_p		3			
		4			
		6			
		8			
$f_Z = f_{Z0} \cdot Ka_e \cdot Ka_p$		$a_{p\,max} = L_c$			

[1] and cast steel
[2] and austenitic/ferritic

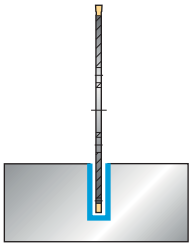
Feed determination (starting values)
Shoulder mill – Porcupine cutter, full effective teeth

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

Material group	Mill type	F 2010 / F 4042	F 5 . 41		F 5138
	Feed per tooth f_{Z0} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$				
		Xtra·tec®	Walter BLAXX		Walter BLAXX
	Lead angle κ	90°	90°		90°
	Page	F-68	F-72		F-78
		f_{Z0} [mm]	f_{Z0} [mm]		f_{Z0} [mm]
		F 2010 F 4042	F5041	F5141	F5241	
	Tool Ø or Ø range [mm]	40–315	25–63	40–125	50–160	40–80
	Maximum cutting data $a_{p\,max} = L_c$ [mm]	15	8,4	12,2	15,2	23–56
P	Non-alloyed steel [1]	0,25	0,18	0,24	0,28	0,23
P	Low-alloyed steel	0,18	0,12	0,18	0,22	0,17
P	High-alloyed steel and tool steel	0,18	0,12	0,18	0,22	0,17
P	Stainless steel	0,15	0,10	0,14	0,16	0,12
M	Stainless steel [2]	0,12	0,10	0,12	0,14	0,11
K	Malleable cast iron	0,25	0,14	0,24	0,28	0,23
K	Grey cast iron	0,30	0,18	0,30	0,35	0,28
K	Cast iron with spheroidal graphite	0,25	0,14	0,24	0,28	0,22
K	GGV (CGI)	0,18	0,12	0,18	0,20	0,17
N	Aluminium wrought alloys	0,15	0,12	0,15	0,15	0,15
N	Cast aluminium alloys	0,15	0,15	0,15	0,15	0,12
N	Magnesium alloys	0,15	0,12	0,15	0,15	0,12
N	Copper and copper alloys (bronze/brass)	0,12	0,10	0,12	0,12	0,12
S	Heat-resistant alloys	0,15	0,10	0,14	0,17	0,12
S	Titanium alloys	0,15	0,10	0,14	0,17	0,12
S	Tungsten alloys	0,15	0,10	0,14	0,17	0,12
S	Molybdenum alloys	0,15	0,10	0,14	0,17	0,12
H	Hardened steel					
H	Hardened cast iron					
O	Thermoplastics	0,20				
O	Plastic, carbon-fibre reinforced					
O	Graphite (technical)	0,15	0,12	0,18	0,18	0,15
	Insert types	AD . T 1606 . .	LN . . 0904 . .	LN . . 1306 . .	LN . . 1607 . .	LNHU 1306 . .
	Correction factor Ka_e $a_e / D_c =$ 1/2	1,0	1,0	1,0	1,0	1,0**
	1/5	1,1	1,1	1,1	1,1	1,1
	For the feed per tooth depending on the ratio of cut width a_e to cutter diameter D_c 1/10	1,2	1,2	1,2	1,2	1,2
	1/20	1,3	1,3	1,3	1,3	1,3
	1/50					1,5
	Correction factor Ka_p $a_p =$ 6					1,0
	9					1,0
	For the feed per tooth dependant on the cutting depth a_p 12					1,0
	0,5 x D_c					1,0
	0,75 x D_c					0,8
	$f_Z = f_{Z0} \cdot Ka_e \cdot Ka_p$ 1 x D_c					0,7
	$a_{p\,max} = L_c$					0,5*

[1] and cast steel
[2] and austenitic/ferritic
* Only possible if $a_e/D_c < 1/5$
** Only possible if $a_p < 0.75 \times D_c$

Feed determination (starting values)
Side and face milling cutters

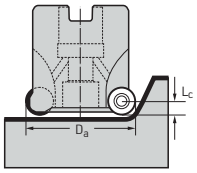
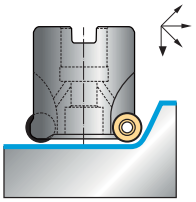
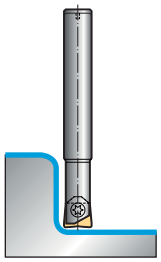
Material group	Mill type	F 5055		
	Feed per tooth f_{Z0} for plunging, central positioning			
	Lead angle κ	90°		
	Page	**F-84**		
		f_{Z0} [mm]		
	Tool Ø or Ø range [mm]	63–160	63–250	63–250
	Maximum cutting width SB [mm]	2,0	3,0	4,0
P	Non-alloyed steel [1]	0,08	0,10	0,12
	Low-alloyed steel	0,07	0,09	0,11
	High-alloyed steel and tool steel	0,07	0,09	0,11
	Stainless steel	0,06	0,08	0,09
M	Stainless steel [2]	0,06	0,08	0,09
K	Malleable cast iron	0,07	0,09	0,11
	Grey cast iron	0,08	0,10	0,12
	Cast iron with spheroidal graphite	0,07	0,09	0,11
	GGV (CGI)			
N	Aluminium wrought alloys	0,07	0,09	0,11
	Cast aluminium alloys	0,07	0,09	0,11
	Magnesium alloys	0,07	0,09	0,11
	Copper and copper alloys (bronze/brass)	0,07	0,09	0,11
S	Heat-resistant alloys			
	Titanium alloys			
	Tungsten alloys			
	Molybdenum alloys			
H	Hardened steel			
	Hardened cast iron			
O	Thermoplastics			
	Plastic, carbon-fibre reinforced			
	Graphite (technical)			
	Insert types			
Correction factor Ka_e for feed per tooth depending on the ratio of cutting width a_e to mill diameter D_c	central	1,0	1,0	1,0
	$a_e / D_c =$ 1/3	1,5	1,5	1,5
	1/5	1,8	1,8	1,8
	1/10	2,5	2,5	2,5
$f_Z = f_{Z0} \cdot Ka_e$	1/20	3,3	3,3	3,3
	1/50	5,8	5,8	5,8

[1] and cast steel
[2] and austenitic/ferritic

Please note: The feed per tooth f_z should not exceed 0.6 mm.

Feed determination (starting values)
Copy milling cutter (toric)

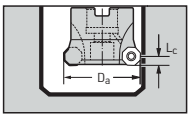
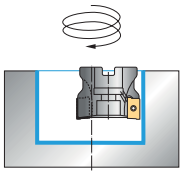
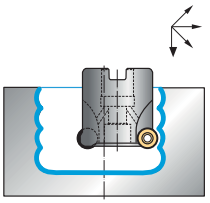
The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

	Mill type	F 2334R	F 4031
	Feed per tooth f_{Z0} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$		
		Xtra·tec®	 Xtra·tec®
	Lead angle κ	–	–
	Page	F-88	F-90
Material group		f_{Z0} [mm]	f_{Z0} [mm]
	Tool Ø or Ø range [mm]	25–40 / 40–63	12 / 16 / 20 / 25 / 32
	Maximum cutting data $a_{p\,max} = L_c$ [mm]	5 / 6	2–2,5 / 2,5 / 3,1 / 3,5 / 3,5
P	Non-alloyed steel [1]	0,17 / 0,22	0,12 / 0,14 / 0,14 / 0,17 / 0,17
P	Low-alloyed steel	0,13 / 0,15	0,08 / 0,10 / 0,12 / 0,14 / 0,14
P	High-alloyed steel and tool steel	0,13 / 0,15	0,08 / 0,10 / 0,12 / 0,14 / 0,14
P	Stainless steel	0,09 / 0,11	0,06 / 0,08 / 0,10 / 0,12 / 0,12
M	Stainless steel [2]	0,09 / 0,11	0,06 / 0,08 / 0,10 / 0,12 / 0,12
K	Malleable cast iron	0,17 / 0,22	0,10 / 0,12 / 0,14 / 0,17 / 0,17
K	Grey cast iron	0,22 / 0,28	0,12 / 0,15 / 0,17 / 0,20 / 0,20
K	Cast iron with spheroidal graphite	0,17 / 0,22	0,10 / 0,12 / 0,14 / 0,17 / 0,17
K	GGV (CGI)	0,17 / 0,22	0,10 / 0,12 / 0,14 / 0,17 / 0,17
N	Aluminium wrought alloys		0,07 / 0,09 / 0,11 / 0,13 / 0,13
N	Cast aluminium alloys		0,07 / 0,09 / 0,11 / 0,13 / 0,13
N	Magnesium alloys		0,07 / 0,09 / 0,11 / 0,13 / 0,13
N	Copper and copper alloys (bronze/brass)		0,06 / 0,08 / 0,10 / 0,12 / 0,12
S	Heat-resistant alloys	0,09 / 0,11	0,05 / 0,06 / 0,08 / 0,08 / 0,08
S	Titanium alloys	0,09 / 0,11	0,05 / 0,06 / 0,08 / 0,08 / 0,08
S	Tungsten alloys	0,09 / 0,11	0,05 / 0,06 / 0,08 / 0,08 / 0,08
S	Molybdenum alloys	0,09 / 0,11	0,05 / 0,06 / 0,08 / 0,08 / 0,08
H	Hardened steel		0,05 / 0,06 / 0,08 / 0,08 / 0,08
H	Hardened cast iron		0,06 / 0,07 / 0,09 / 0,09 / 0,09
O	Thermoplastics	0,10 / 0,15	0,10 / 0,15 / 0,17 / 0,20 / 0,25
O	Plastic, carbon-fibre reinforced		
O	Graphite (technical)	0,10 / 0,12	0,10 / 0,12 / 0,15 / 0,20 / 0,20
	Insert types	RO . X 10T3 . . / RO . X 1204 . .	P8001-D12 . . / P8001-D16 . . / P8001-D20 . . / P8001-D25 . . / P8001-D32 . .
	Correction factor **Ka_e** $a_e / D_c =$ 1/1 – 1/2	1,0 / 1,0	1,0 / 1,0 / 1,0 / 1,0 / 1,0
	1/5	1,2 / 1,2	1,2 / 1,2 / 1,2 / 1,2 / 1,2
	For the feed per tooth depending on the ratio of cut width a_e to cutter diameter D_c — 1/10	1,5 / 1,5	1,5 / 1,5 / 1,5 / 1,5 / 1,5
	1/20	1,8 / 1,8	1,8 / 1,8 / 1,8 / 1,8 / 1,8
	1/50	2,0 / 2,0	2,0 / 2,0 / 2,0 / 2,0 / 2,0
	Correction factor **Ka_p** $a_p =$ 1	1,5 / 1,6	
	2	1,2 / 1,3	
	For the feed per tooth dependant on the cutting depth a_p — 3	1,0 / 1,1	
	4	1,0 / 1,0	
	6		
	$f_Z = f_{Z0} \cdot Ka_e \cdot Ka_p$ 8		
	10		

[1] and cast steel
[2] and austenitic/ferritic

Feed determination (starting values)
Circular interpolation milling cutter

The specified feed rates are average recommended values.
For special applications, adjustment is recommended.

Material group	Mill type	F 2010 / F 4042	F 2334R	
	Feed per tooth f_{z0} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$ 	 Xtra·tec®		
	Lead angle κ	90°	–	
	Page	**F-68**	**F-88**	
		f_{z0} [mm] F 2010 F 4042	f_{z0} [mm]	
	Tool Ø or Ø range [mm]	40–160	25–40	40–63
	Maximum cutting data $a_{p\,max} = L_c$ [mm]	15	5	6
P	Non-alloyed steel [1]	0,22	0,17	0,22
P	Low-alloyed steel	0,16	0,13	0,15
P	High-alloyed steel and tool steel	0,16	0,13	0,15
P	Stainless steel	0,13	0,09	0,11
M	Stainless steel [2]	0,10	0,09	0,11
K	Malleable cast iron	0,22	0,17	0,22
K	Grey cast iron	0,27	0,22	0,28
K	Cast iron with spheroidal graphite	0,22	0,17	0,22
K	GGV (CGI)	0,22	0,17	0,22
N	Aluminium wrought alloys	0,13		
N	Cast aluminium alloys	0,13		
N	Magnesium alloys	0,13		
N	Copper and copper alloys (bronze/brass)	0,13		
S	Heat-resistant alloys	0,13	0,09	0,11
S	Titanium alloys	0,13	0,09	0,11
S	Tungsten alloys	0,13	0,09	0,11
S	Molybdenum alloys	0,13	0,09	0,11
H	Hardened steel			
H	Hardened cast iron			
O	Thermoplastics	0,20	0,10	0,15
O	Plastic, carbon-fibre reinforced			
O	Graphite (technical)	0,15	0,10	0,12
	Insert types	AD . T 1606 . .	RO . X 10T3 . .	RO . X 1204 . .
	Correction factor Ka_e $a_e / D_c =$ 1/1 – 1/2	1,0	1,0	1,0
	For the feed per tooth depending on the ratio of cut width a_e to cutter diameter D_c 1/5	1,1	1,2	1,2
	1/10	1,2	1,5	1,5
	1/20	1,3	1,8	1,8
	1/50		2,0	2,0
	Correction factor K $1<(L : D_c) =$ ≤ 2			
	$f_z = f_{z0} \cdot Ka_e \cdot K$ $2<(L : D_c) =$ ≤ 4			
	$4<(L : D_c) =$ ≤ 6			

[1] and cast steel
[2] and austenitic/ferritic

Cutting tool material application tables – Milling

Coated carbide

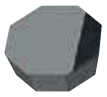
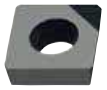
Walter grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Application range 01 05 10 15 20 25 30 35 40 45	Coating process	Coating composition	Indexable insert example
WKP 35 S	HC – P 35	●●								CVD	$TiCN + Al_2O_3$ (+TiCN)	
	HC – K 35			●●								
WKP 25S	HC – P 25	●●								CVD	$TiCN + Al_2O_3$ (+TiCN)	
	HC – K 25			●●								
WKP 35	HC – P 35	●●								CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – K 35			●●								
WKP 25	HC – P 25	●●								CVD	$TiCN + Al_2O_3$ (+TiN)	
	HC – K 25			●●								
WAK 15	HC – K 15			●●						CVD	$TiCN + Al_2O_3$ (+TiN)	
WSP 45S	HC – S 45					●●				PVD	$TiAlN + Al_2O_3$ (Al)	
	HC – P 45	●●										
	HC – M 45		●●									
WSM 35S	HC – S 35					●●				PVD	$TiAlN + Al_2O_3$ (Al)	
	HC – M 35		●●									
WSP 45	HC – S 45					●●				PVD	$TiAlN + Al_2O_3$ (ZrCN)	
	HC – P 45	●●										
	HC – M 45		●●									
WSM 35	HC – S 35					●●				PVD	$TiAlN + Al_2O_3$ (ZrCN)	
	HC – M 35		●●									
WKK 25	HC – K 25			●●						PVD	$TiAlN + Al_2O_3$ (ZrCN)	
WSP 46	HC – S 45					●●				PVD	$TiAlN + Al_2O_3$	
	HC – P 45	●●										
	HC – M 45		●●									
WSM 36	HC – S 35					●●				PVD	$TiAlN + Al_2O_3$	
	HC – M 35		●●									
WHH 15	HC – H 15						●●			PVD	TiAlN	
	HC – P 15	●										
	HC – K 15			●								
WXN 15	HC – N 15				●●					PVD	TiCNplus	
WXM 15	HC – P 15	●●								PVD	Multilayer TiAlN / TiN	
	HC – M 15		●									
	HC – K 15			●								

BH = CBN with high CBN content
CN = Silicon nitride Si_3N_4
DP = Polycrystalline diamond
HC = Coated carbide
HF = Uncoated fine-grained carbide
HW = Uncoated carbide

●● Primary application
● Other application

Cutting tool material application tables – Milling

Uncoated carbide grades, cutting ceramics, CBN and PCD

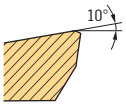
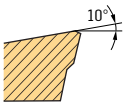
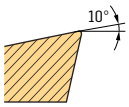
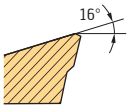
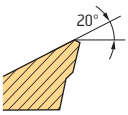
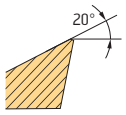
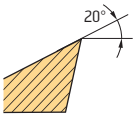
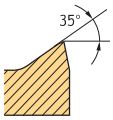
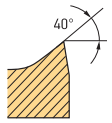
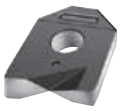
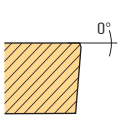
Walter grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine cut materials	H Hard materials	O Other	Application range: 01 05 10 15 20 25 30 35 40 45	Coating process	Coating composition	Indexable insert example
WK 10	HW – N 10				●●					—	—	
WMG 40	HF – N 35				●●					—	—	
WCB 80	BH – K 05			●●						—	—	
	BH – H 15						●					
WCB 50	BH – H 10						●●			—	—	
	BH – K 10			●								
WSN 10	CN – K 20			●●						—	—	
WCD 10	DP – N 10				●●					—	—	

BH = CBN with high CBN content
CN = Silicon nitride Si_3N_4
DP = Polycrystalline diamond
HC = Coated carbide
HF = Uncoated fine-grained carbide
HW = Uncoated carbide

●● Primary application
● Other application

Geometry overview of milling indexable inserts

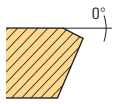
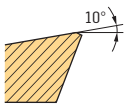
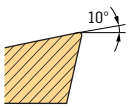
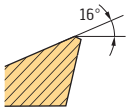
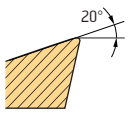
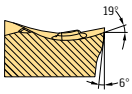
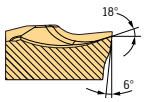
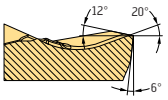
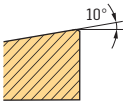
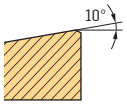
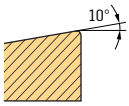
Tool families/insert geometry

Geometry example	Remarks on field of applications	Cut Main cutting edge	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Suitable tool families
 AD . T . .	**D51 – The quiet one** → antivibration geometry → for tools with long projection lengths	 10°	●●	●	●●		●			**F2010** **F 4042** **F 4042R** **F 4038** **F 4138** **F 4238** **F 4338**
	D56 – The stable one → for unfavourable machining conditions → maximum cutting edge stability → high feeds	 10°	●●	●	●●		●			
	D67 – The powerful one → high cutting edge stability → for machining high-alloy and high-tensile steels and Ni-based alloys → high level of accuracy	 10°	●●	●●	●		●●			
	F56 – The universal one → for medium machining conditions → universal application for most materials	 16°	●●	●●	●●		●●			
	G56 – The easy-cutting one → for good machining conditions → low cutting forces → medium feed rates	 20°	●●	●●	●●		●●			
	G77 – The special one → for machining titanium materials → low cutting forces → high level of accuracy	 20°	●	●●			●●			
	G88 – The sharp one → for machining aluminium → low cutting forces → sharp cutting edges	 20°				●●			●	
 LNHU . .	**L55T – The universal one** → for medium machining conditions → universal application for most materials	 35°	●●	●●	●●		●●			**F 5041** **F 5141** **F 5241** **F 5138**
	L85T – The sharp one → for machining aluminium → low cutting forces → sharp cutting edges	 40°				●●			●	
 P 8001 . .	**A57 – The universal one** → for medium machining conditions → universal application for most materials	 0°	●●	●	●●		●	●●		**F 4031**

●● Primary application
● Other application

Geometry overview of milling indexable inserts

Tool families/insert geometry

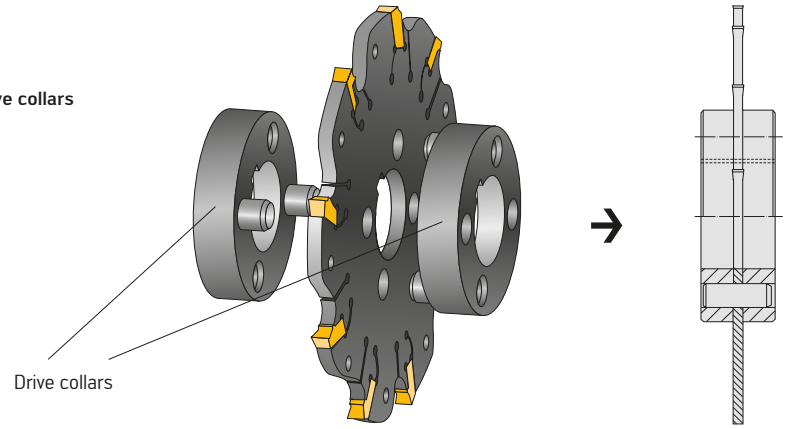
Geometry example	Remarks on field of applications	Cut Main cutting edge	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	O Other	Suitable tool families
 RO . X . .	**A27 – The stable one** → for unfavourable machining conditions → maximum cutting edge stability → high feeds		●●		●●					F 2334R
	D57 – The universal one → for medium machining conditions → universal application for most materials		●●	●●	●●		●●			
	D67 – The powerful one → high cutting edge stability → for machining high-alloy and high-tensile steels and Ni-based alloys, e.g. Inconel → high level of accuracy		●●	●●	●		●●			
	F67 – The easy-cutting one → especially for blade machining → low cutting forces		●●	●●	●		●●			
	G77 – The special one → for machining titanium materials → low cutting forces → high level of accuracy		●	●●			●●			
 SX . .	**CF6 – The easy-cutting one** → good machining conditions → low feeds → for machining non-ferrous metals → low cutting force		●●	●●		●●	●●		●	F 5055
	CF5 – The universal one → universal application for most materials → light to moderate feeds		●●	●●	●	●●	●●		●	
	CE4 – The stable one → moderate to high feeds → excellent chip constriction → stable cutting edge		●●	●	●●	●	●	●		
 XNHF . .	**D27 – The stable one** → for unfavourable machining conditions → maximum cutting edge stability → high feeds		●		●●					F 4045
	D57 – The universal one → for medium machining conditions → universal application		●		●●					
	D67 – The easy-cutting one → for good machining conditions → low cutting forces → medium feed rates		●		●●					

●● Primary application
● Other application

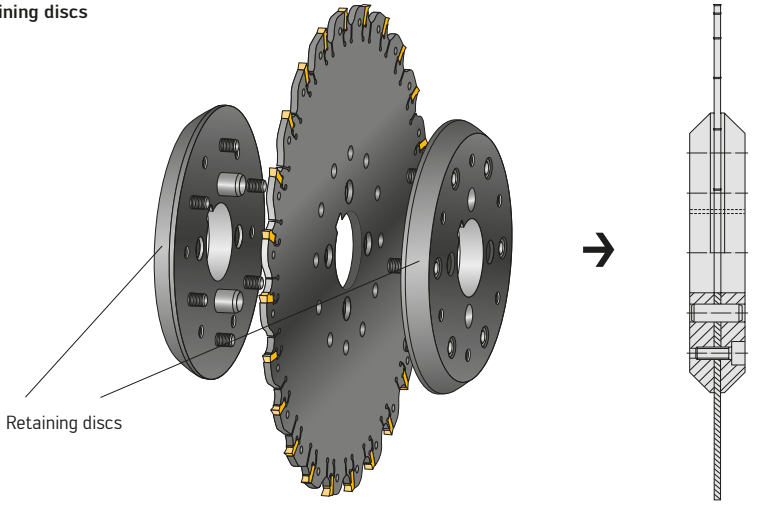
Assembly instructions for Walter BLAXX slitting cutter F 5055

Slitting cutters F 5055 must always be used together with two drive collars or retaining discs (order separately):

Mounting with drive collars



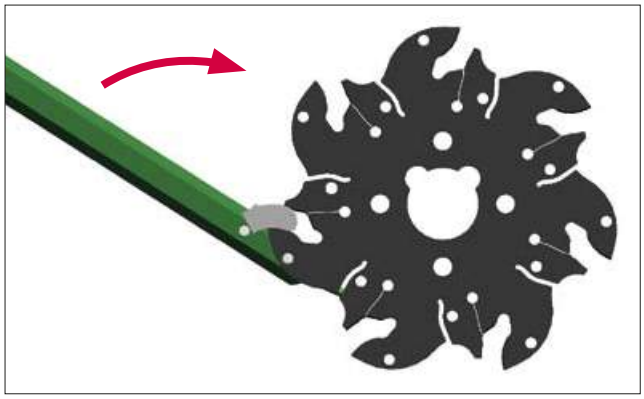
Mounting with retaining discs



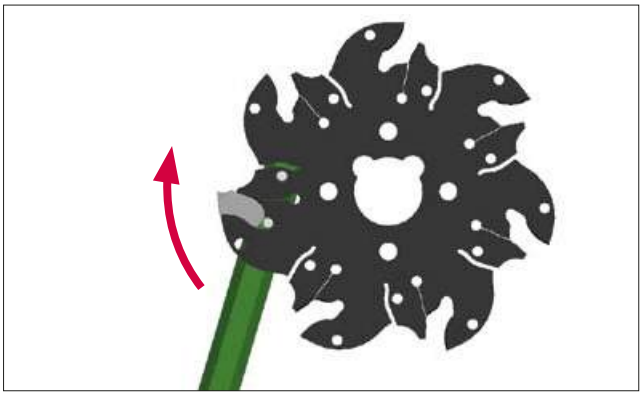
Please note:
When using retaining discs, check the measurement a_e (see page F-84).

Use of the mounting wrench:

Mounting the insert



Removing the insert

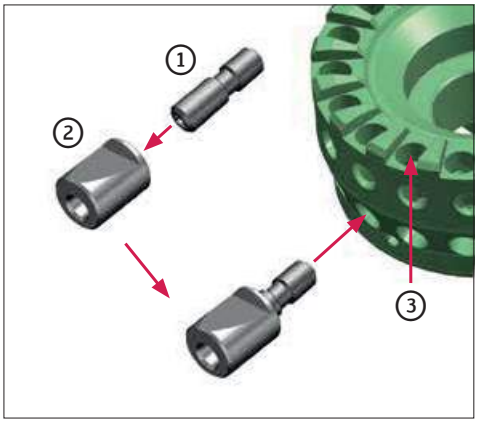


Note:
Only use mounting wrench FS 1494. When mounting the insert, always position the wrench in the bore hole below the insert.

Assembly instructions for F 4050

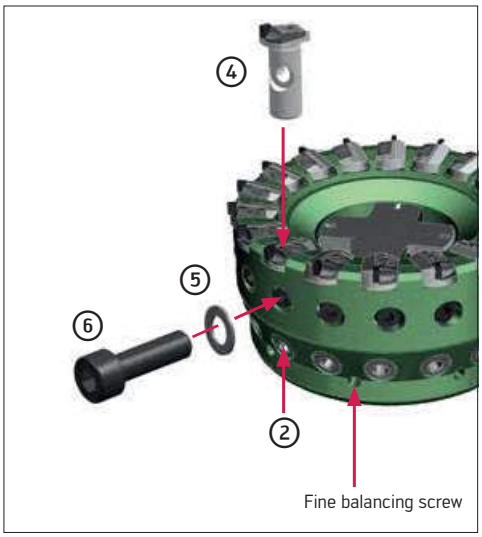
Fitting the adjustment unit

Screw the compound screw ① approx. 1 to 2 threads deep into the adjusting key ②.
Then fit the adjusting key ② in the body.
Screw in as far as the stop.
If it is stiff to fit, the key must be held in position in the cartridge mounting bore ③ using a pin.



Fitting the cartridges

Insert the cartridge ④ into the cartridge mounting bore from above ③.
Then reset the clamping wedge ② as far as the outer stop, while pressing the cartridge ④ downwards.
Now fit the cartridge clamping screw ⑥ with the Schnorr washer ⑤.



Setting instructions for F 4050

Requirements

You can set the runout using optical or touch-sensitive measuring devices.
For touch-sensitive measuring devices, a probe fitted with a flattened shoe and having a low measuring force should be used. When using optical measuring devices, check for dirt deposits on the cutting edge. All cartridge clamping screws ⑥ must be tightened to a torque of 3 Nm, and all adjusting keys ② must be reset to the outer stop.

Setting the runout

The highest cutting edge is the starting point for setting the runout. This should be set to the nominal installation height. All other cutting edges must be set to this height. The cutting edge height can be adjusted using the adjusting key ②. If the cutting edge has been set too high, the cartridge clamping screw ⑥ must be loosened, the adjusting key ② must be turned back and the cartridge must be pressed downwards. After the cartridge clamping screw ⑥ has been re-tightened, the cutting edge can be set.

Once all cartridges are set to the same height, all cartridge clamping screws ⑥ must be tightened to a torque of 9 Nm. The clamping wedges ② must be released and then positioned only lightly. Then check the runout again (runout should be within 5 µm).

When using a wiper finishing cartridge, this should protrude 0.03-0.05 mm axially in comparison to roughing cartridges.

Notes on high-speed cutting

1. Maximum permissible RPM:
   The limiting values shown in the tables should not be exceeded. Otherwise correct operation and/or reliability is not guaranteed.
2. Only use original Walter inserts and assembly parts (screws etc.). Recommendation: New screws should be fitted after having replaced the inserts five times at the latest.
3. Observe the torques specified in the catalogue.
4. Balancing:
   Balancing in two steps is required when milling at fast speeds (> 6,000 rpm) or at circumferential speeds of > 1,000 m/min.:
   a. Basic balancing of the tool body including indexable inserts (can be carried out by Walter if required). In this case, tool adaptors that have been balanced separately beforehand must be used.
   b. Fine balancing of the tool when fully mounted on the adaptor. The fine balancing operation is strongly recommended as even the smallest eccentricity can seriously affect the balance status.
5. Short projection lengths reduce concentricity faults or an imbalance, as well as increase spindle life. The specified speeds apply to the use of tools without additional extensions.
6. Safety guards:
   Appropriate safety guards or machine encapsulations must be used to securely collect particles which spin off, such as chips or cutting edges that are broken as a result of collisions.
7. Damaged tools:
   The operating speed must be specified for the repair of HSC Tools. Repairs on Walter tools for HSC machining operations must only be carried out by Walter.
8. Use of standards:
   Walter recommends using the balancing standard DIN 69888, which describes the balancing of tools and the requirements in the chip removal area. DIN 69888 is tailored to the needs of the cutting area, and describes the tool balancing requirements in a practical way. DIN ISO 1940, which was previously often used, describes balancing for all areas of mechanical engineering. The requirements when working at circumferential speeds of >1,000 m/min are described in DIN ISO 15641.

Walter milling cutters

Tool	Safety-related parts	in relation to	n_{max} [1/min] with D														
			Ø 10	Ø 16	Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100	Ø 125	Ø 160	Ø 200	Ø 250	Ø 315
F 2010	all cartridges										6.700	6.000	5.400	4.700	4.200	3.800	3.350
F 2139[1]	P 32 . .	D_c		40.000*	40.000*	40.000*	40.000*										
F 2231 Form A	RD . . 0501M0	D_a	40.000*														
	RD . . 0803M0	D_a		40.000*													
	RD . . 10T3M0	D_a			40.000*												
	RD . . 1204M0	D_a				33.300											
	RD . . 1605M0	D_a					27.200										
	RD . . 2006M0	D_a						24.300									
F 2233	SD . . 09T3 . .	D_c			40.000*	39.600	35.000	31.300	28.000	25.000	22.100	19.800					
	SP . . 1204 . .	D_c				40.000	40.000	37.600	33.600	30.000	26.600	23.800	21.200	17.000			
F 2234	RD . . 0501M0	D_a		40.000*	40.000*	40.000*											
	RD . . 07T1M0	D_a		40.000*	40.000*	40.000*	35.000	31.300									
	RD . . 0803M0	D_a		40.000*	40.000*	40.000*											
	RD . . 10T3M0	D_a			40.000*	40.000*	37.100										
	RD . . 1204M0	D_a				33.300	29.400	26.300	23.500	21.000	18.600	16.600					
	RD . . 1605M0	D_a							21.700	19.400	17.200	15.300	13.700				
	RD . . 2006M0	D_a								19.400	17.200	15.300	13.700	12.100			
F 2238	LP . . 0703 . .	D_c			40.000*	40.000*	39.900	35.700	31.900								
	LP . . 15T3 . .	D_c						21.900	19.600								
	LP . . 1504 . .	D_c							18.500	16.500	14.600	13.000	11.700				
	AP . . 2004 . .	D_c							17.300	15.500	13.700						
F 2241	SP . . 0603 . .	D_c		40.000*	40.000*	40.000*	38.500	37.600	33.600								
	SP . . 09T3 . .	D_c				40.000*	39.900	35.700	31.900	28.500	25.200	22.600	20.200	17.000			
	SP . . 1204 . .	D_c					30.800	27.600	24.600	22.000	19.500	17.400	15.600	13.800			
F 2250	all cartridges	D_c							22.800	20.400	18.100	16.100	14.400	12.800	11.400	10.200	
	without cartridges SP . . 1204 . .	D_c								22.000	19.500	17.400					
F 2330	P 2633 . .	D_c			35.400	31.700	28.000	25.000	22.400	20.000	17.700						

[1] The specified speed of 40,000 rpm refers to the entire tool diameter range of 8-32 mm.

* Higher speeds than 40,000 1/min are possible under favourable conditions and short projection lengths upon consultation with Walter.

Notes on high-speed cutting (continued)

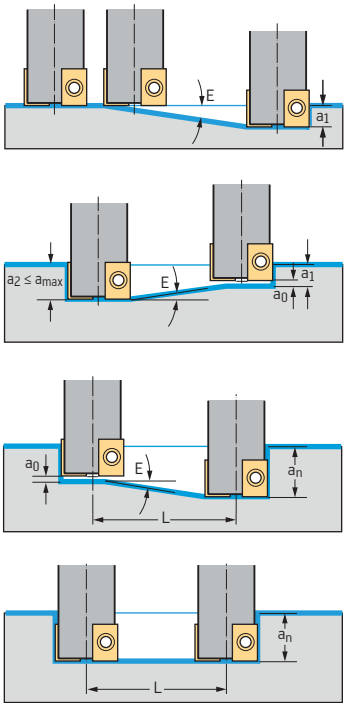
Walter milling cutters

Tool	Safety-related parts	in relation to	n_{max} [1/min] with D														
			Ø 10	Ø 16	Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100	Ø 125	Ø 160	Ø 200	Ø 250	Ø 315
F 2334	RO . . 0803M0	D_a				40.000*	37.100										
	RO . . 10T3M0	D_a					37.100	33.200	29.700	26.500	23.500						
	RO . . 1204M0	D_a						28.200	25.200	22.500	19.900						
	RO . . 1605M0	D_a							23.000	20.500	18.100	16.200	14.500				
	RO . . 2006M0	D_a								19.400	17.200	15.300	13.700	12.100			
F 2334R	RO . X 10T3	D_a				40.000*	37.100	33.200									
	RO . X 1204	D_a						28.200	25.200	22.500							
F 3040	ZD . . 1504 . .	D_c				36.500	32.200	28.800	25.800	23.000							
	ZD . . 2005 . .	D_c					32.200	28.800	25.800	23.000							
F 4030	P 23696-1.0	D_a				34.900	30.800	27.600	24.600	22.000							
	P 23696-1.0	D_a							20.200	18.000	15.900	14.200					
F 4031	P 8001	D_c		40.000*	40.000*	40.000*	40.000*										
F 4033	SN . X 1205 . .	D_c						20.000	17.900	16.000	14.200	12.700	11.300	10.000			
	SN . X 1606 . .	D_c					21.000	18.800	16.800	15.000	13.300	11.900	10.600	9.400	8.400	7.500	
F 4038	AD . . 0803 . .	D_c			40.000*	38.000	33.600										
F 4138	AD . . 1204 . .	D_c					25.100	22.400	20.000	17.900	15.800						
F 4238	AD . . 1606 . .	D_c						15.800	14.100	12.600	11.100						
F 4338	AD . . 1807 . .	D_c								12.600	11.100	10.000	8.900				
F 4041	LNGX 1307 . .	D_c					14.000	12.500	11.200	10.000	8.800	7.900	7.000	6.200	5.600	5.000	
F 4042 F 4042R	AD . . 0803 . .	D_c		40.000*	40.000*	38.000	33.600	30.100	26.900								
	AD . . 10T3 . .	D_c		39.600	35.400	31.700	28.000	25.000	22.400	20.000							
	AD . . 1204 . .	D_c				28.400	25.100	22.400	20.000	17.900	15.800						
	AD . . 1606 . .	D_c						15.800	14.100	12.600	11.100	10.000	8.900	7.900			
	AD . . 1807 . .	D_c					17.600	15.800	14.100	12.600	11.100	10.000	8.900	7.900			
F 4045	XN . F 0705 . .	D_c								10.000	8.800	7.900	7.000	6.200	5.600		
	XN . F 0906 . .	D_c									5.700	5.100	4.600	4.000	3.600		
F 4047	SN . X 1205 . .	D_c						18.800	16.800	14.000	13.300	11.900	10.600	9.400	8.400		
F 4048	SN . X 1205 . .	D_c						18.800	16.800	14.000	13.300	11.900	10.600	9.400	8.400		
F 4050		D_c									20.000	17.800	16.000	14.100	12.600		
F 4080	OD . . 0504 . .	D_a					29.400	26.300	23.500	21.000	18.600	16.600	14.900	13.100			
	OD . . 0605 . .	D_a							19.600	17.500	15.500	13.800	12.400	10.900	9.800		
F 4081	OD . . 0504 . .	D_a					29.400	26.300	23.500	21.000	18.600	16.600					
	OD . . 0605 . .	D_a							19.600	17.500	15.500	13.800					
F 4053	LN . X 0702 . .	D_c									21.200	19.000	17.000	15.000			
F 4153	LN . U 0803 . .	D_c									11.000	9.900	8.800	7.800			
	LN . U 0804 . .	D_c									9.300	8.300	7.400	6.500			
	LN . U 1005 . .	D_c									13.700	12.300	11.000	9.700			
F 4253	LN . U 0804 . .	D_c											17.000	15.000			
	LN . U 1005 . .	D_c											16.100	14.200			
	LN . U 1206 . .	D_c											12.400	10.900	9.800	8.700	
	LN . U 1608 . .	D_c												7.800	7.000	6.200	5.500
F 5041	LN . . 0904 . .	D_c				39.600	35.000	31.300	28.000	25.000							
F 5141	LN . . 1306 . .	D_c						22.500	20.200	18.000	15.900	14.200	12.700				
F 5241	LN . . 1607 . .	D_c							20.200	18.000	15.900	14.200	12.700	11.200			
F 5138	LNHU 1306 . .	D_c						22.500	20.200	18.000	15.900						
F 5055	SX . .	D_c								5.100	4.000	3.200	2.600	2.000	1.600	1.300	

* Higher speeds than 40,000 1/min are possible under favourable conditions and short projection lengths upon consultation with Walter.

Application information for shoulder milling cutter F 4042

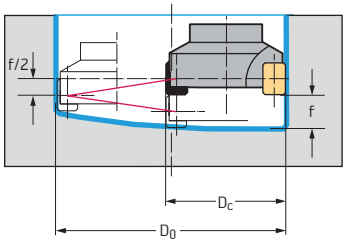
Angular plunging and circular interpolating into solid material



Plunging with shoulder milling cutter

Milling cutter Ø D_c [mm]	AD . . 160608 $a_{p\ max}$ = 15 mm Plunging angle E_{max} [°]	$D_{0\ min}$ [mm]	$D_{0\ max}$ [mm]	a_0 [mm]
25	8,5	32	50	1,7
32	7,5	46	64	3,2
36	7,0	54	72	3,2
40	5,9	62	80	2,9
44	4,5	70	88	2,9
50	3,9	82	100	2,6
54	2,7	90	108	2,6
63	2,6	108	126	2,3
66	1,8	114	132	2,3
80	1,9	142	160	2,3
84	1,6	150	168	2,3
100	1,5	182	200	2,3
125	1,2	232	250	2,3
160	0,9	302	320	2,3

Circular interpolation milling

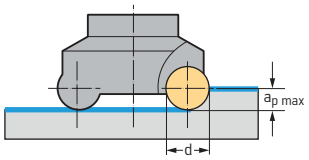


Max. axial feed per tool revolution (“thread pitch”) f [mm]

Machined hole Ø D_0 [mm]	AD . . 160608 D_c [mm] 25	32	36	40	44	50	54	63	66	80	84	100	125	160
32	3,4													
40	7,2													
50	11,9	7,6												
60	15,0	11,7	9,4											
80	15,0	15,0	15,0	13,1	9,1									
100	15,0	15,0	15,0	15,0	14,0	10,8	7,0							
120	15,0	15,0	15,0	15,0	15,0	15,0	9,9	8,1	5,5					
150	15,0	15,0	15,0	15,0	15,0	15,0	14,4	12,4	8,4	7,5	5,9			
180	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	11,4	10,7	8,6			
200	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	13,4	12,8	10,3	8,2		
250	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	14,7	12,3	8,0	
300	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	11,2	
350	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	4,4	9,3
400	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	11,7
450	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	14,2
500	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0

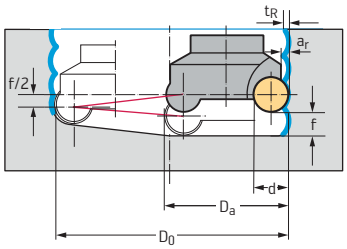
Application information for round insert cutter F 2334R

Face milling

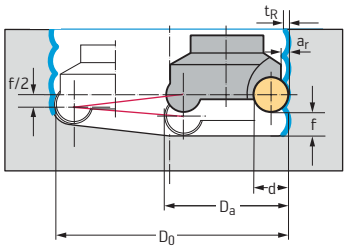


	Max. milling depth $a_{p\ max}$ [mm]			
	Indexable insert diameter d [mm]			
	d = 10	d = 12		
$a_{p\ max}$ [mm]	5,0	6,0		

Circular interpolation milling of a hole into solid material



D_a [mm]	Range of diameters for milling a hole in one pass [mm]			
	Indexable insert diameter d [mm]			
	d = 10		d = 12	
	$D_{0\ min}$ [mm]	$D_{0\ max}$ [mm]	$D_{0\ min}$ [mm]	$D_{0\ max}$ [mm]
25	31	50		
32	45	64		
40	61	80	57,4	80
50			77,2	100
52			81,2	104
63			103,2	26

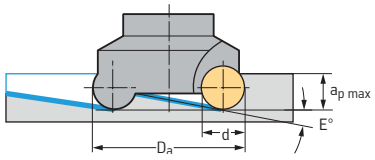


Axial feed rate per revolution f [mm]	Groove depth on the hole wall t_R [mm]			
	Indexable insert diameter d [mm]			
	d = 10	d = 12		
1	0,025	0,02		
2	0,010	0,08		
3	0,230	0,19		
4	0,417	0,34		
5	0,670	0,54		
6	(1,000)	0,80		
7	(1,429)	(1,12)		
8		(1,53)		
$a_{r\ max}$	1,5	2,0		

The values in brackets only apply to short bores.

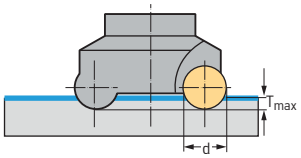
Application information for round insert cutter F 2334R (continued)

Inclined plunging



	F 2334R: Maximum feed angle E [°]			
D_a [mm]	Indexable insert diameter d [mm]			
	d = 10	d = 12		
25	14,6			
32	8,6			
40	5,8	7,9		
50	4,0	5,4		
52	3,9	5,3		
63	3,0	3,4		
$a_{p\ max}$ [mm]	8,8	10,5		

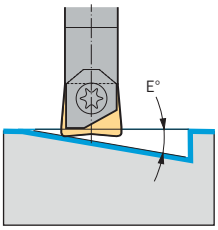
Vertical plunging



	F 2334R: Max. plunging depth T_{max} [mm]			
	Indexable insert diameter d [mm]			
	d = 10	d = 12		
T_{max} [mm]	2,6	3,1		

Application information for torus cutter F 4031

Inclined plunging



D_c [mm]	Maximum feed angle E [°]		
Ø 12	8		
Ø 16	8		
Ø 20	8		
Ø 25	8		
Ø 32	8		

CONTENTS

Adaptors and clamping units

Product range overview of Walter Capto™ clamping units and adaptors

Manual clamping units

VDI clamping units
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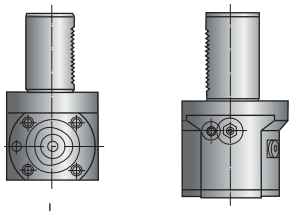

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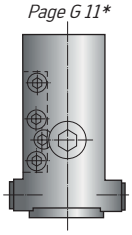
Type 2085 — *Page G 11**



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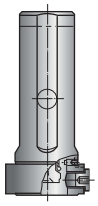
Type 2000/ 3000 — *Page G 12**



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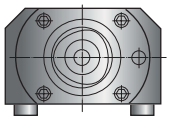

Adaptors

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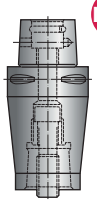
NEW



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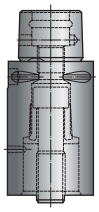

Tool adaptors

Walter Capto™ cutting tools
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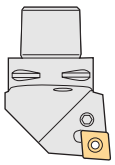

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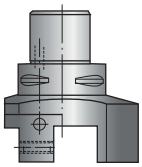

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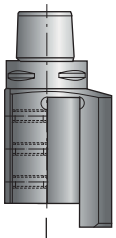

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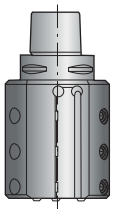

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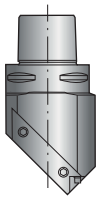

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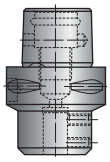

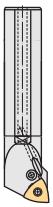

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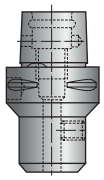

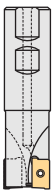

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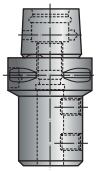

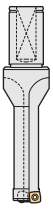

** The pages indicated in italics refer to the Walter General catalogue 2012.*

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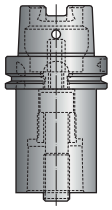

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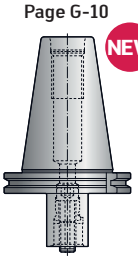

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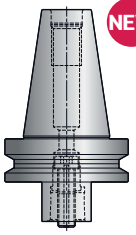

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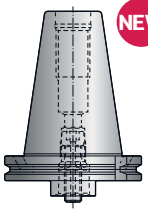

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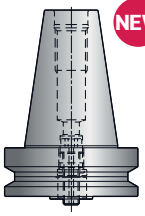

Driven Walter Capto™ toolholders
on request

Walter Capto™ special clamping units
on request

Walter Capto™

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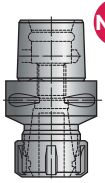
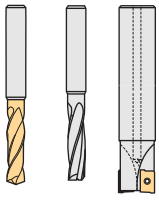
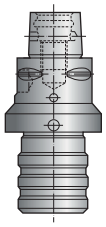
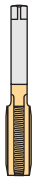
Page G-14



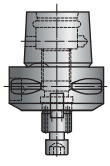


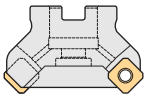
C ... – 391.60
*Page G 22**



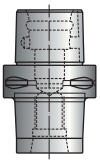


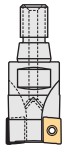
AK 155.8.C
*Page G 25**





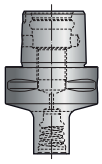
AK 580.C
*Page G 80**





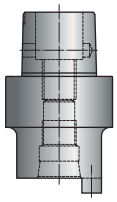
ScrewFit

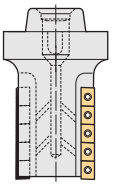
AK 681
*Page G 86**



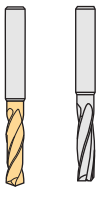
ConeFit™

A 100 M.8
*Page G 47**





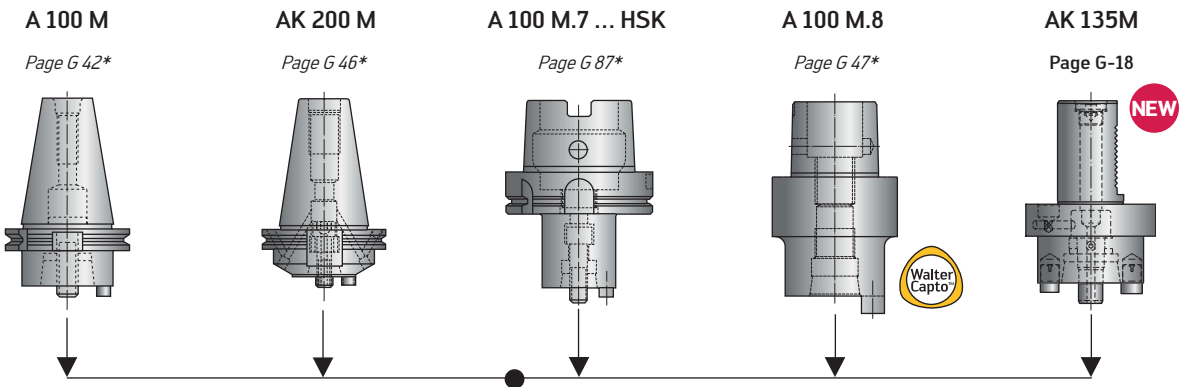
Walter Capto™ hydro-expansion chucks
on request



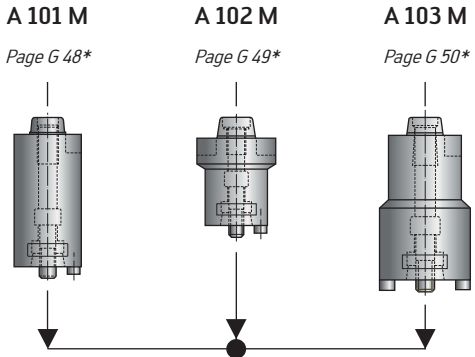
*** BIG PLUS SYSTEM - Licence BIG DAISHOWA*

Product range overview of Walter NC Tools

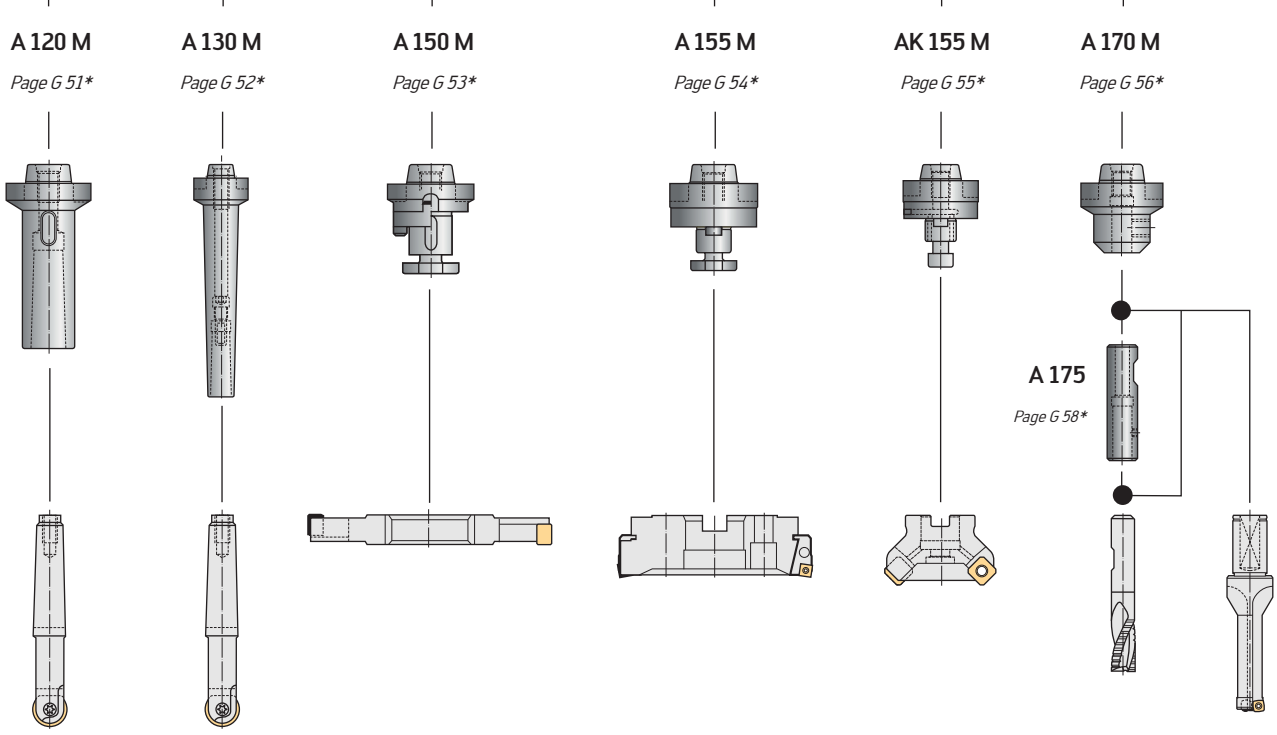
Master



Intermediate elements



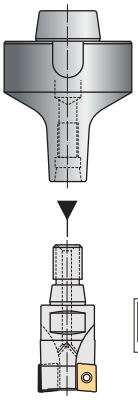
NCT adaptors



** The pages indicated in italics refer to the Walter General catalogue 2012.*

AK 520

*Page G 69**



ScrewFit

For the ScrewFit system, see page C 42 or F 52 in the Walter General catalogue 2012.

A 201 M

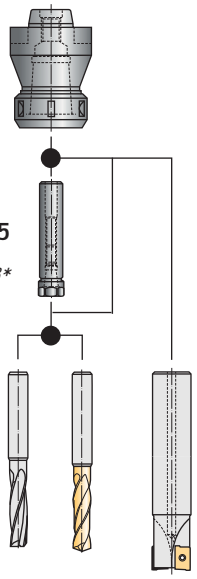
*Page G 59**

AK 300 M

*Page G 61**

A 305

*Page G 63**

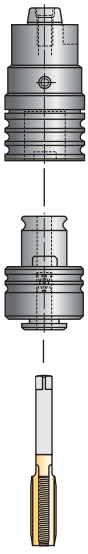


A 320 M

*Page G 64**

A 330/ A 331

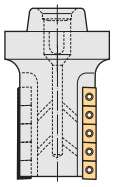
*Page G 98**



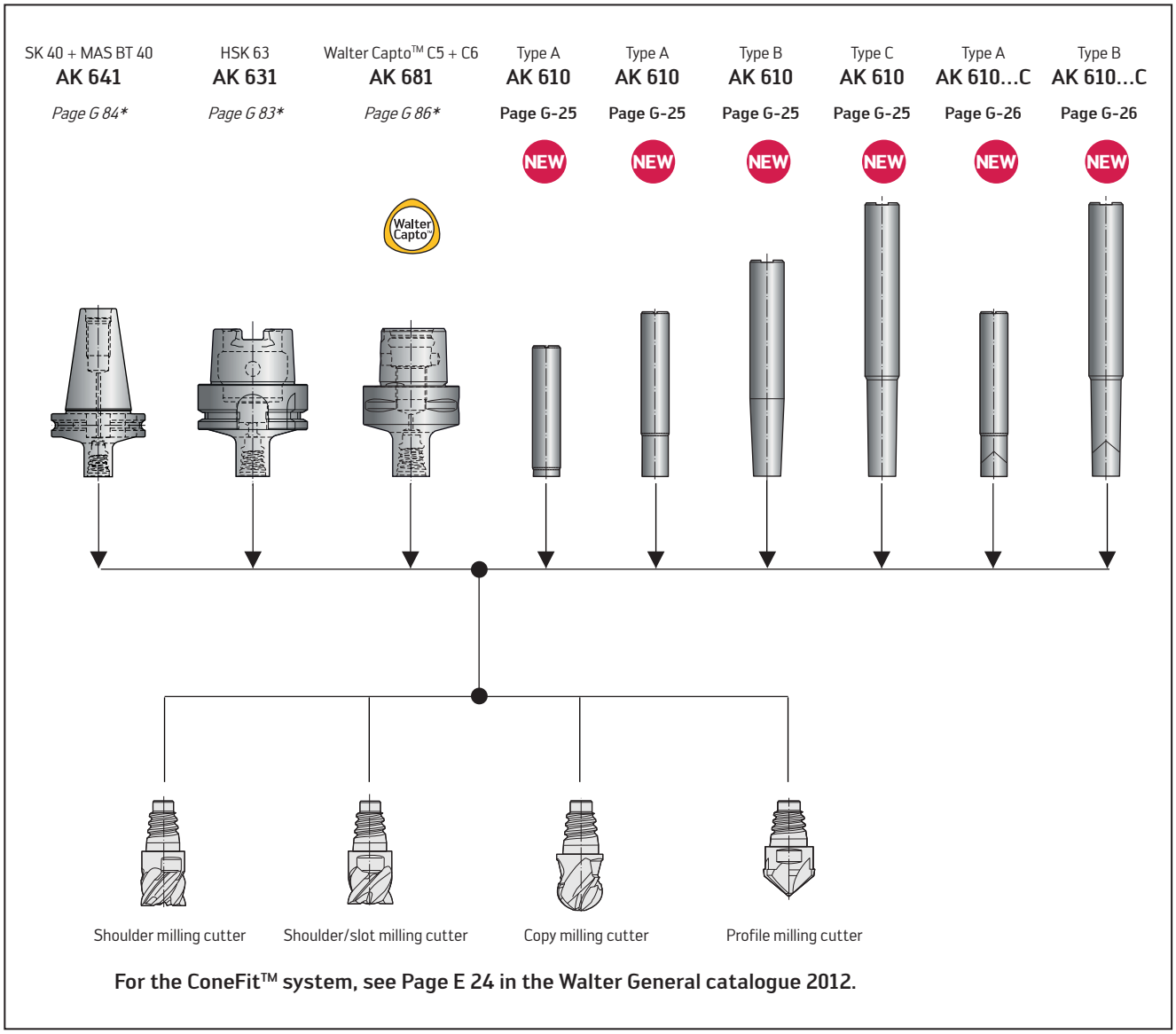
A 340 M

*Page G 65**

Tools with NCT interface



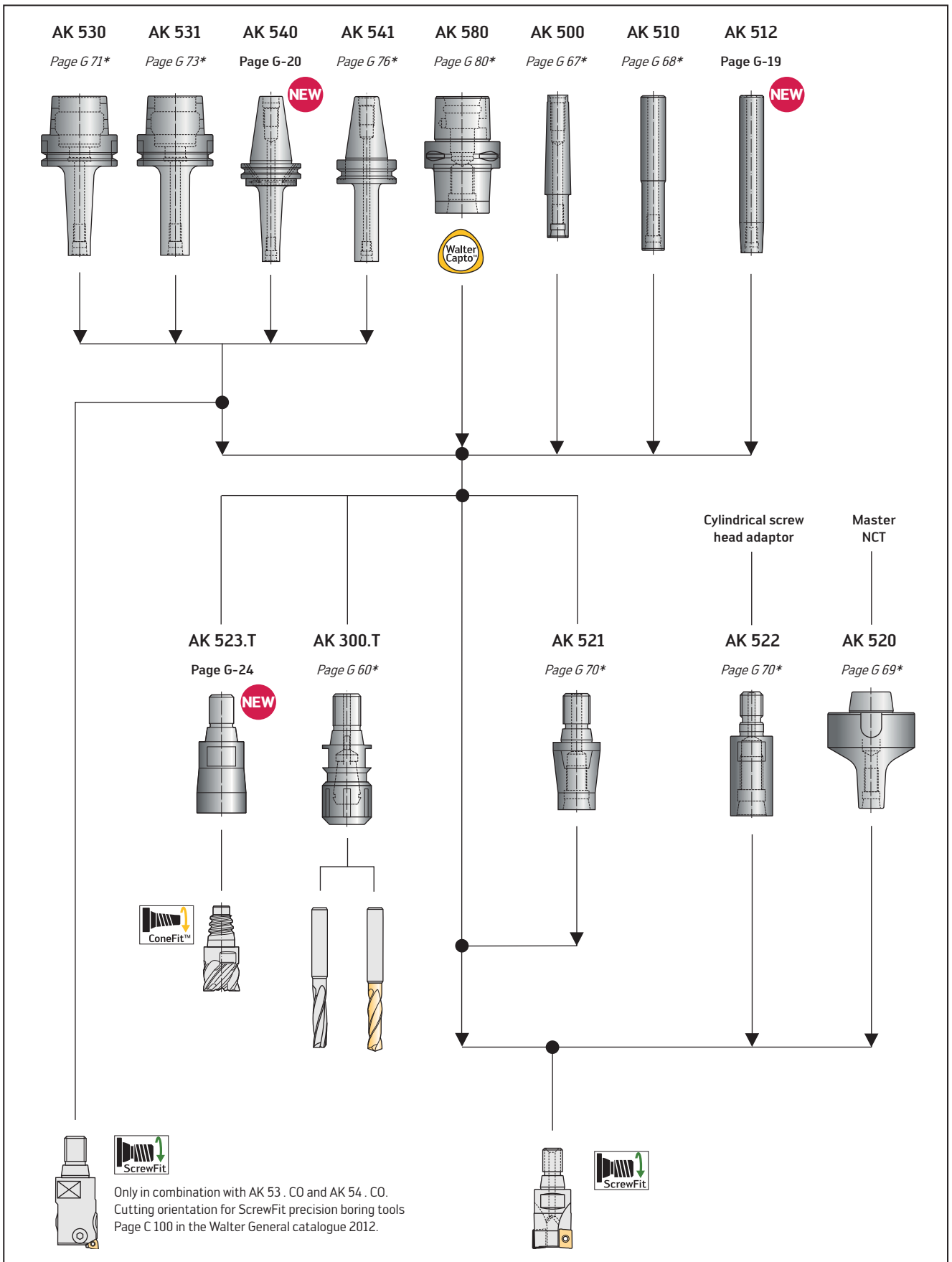
Product range overview of adaptors for ConeFit™



For the ConeFit™ system, see Page E 24 in the Walter General catalogue 2012.

** The pages indicated in italics refer to the Walter General catalogue 2012.*

Product range overview of adaptors for ScrewFit

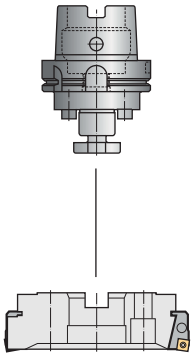


For ScrewFit system, see page C 42 or F 52 in the Walter General catalogue 2012.

Product range overview of HSK adaptors

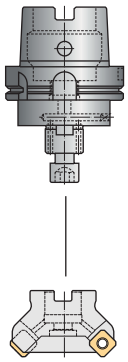
A 155...HSK

*Page G 88**



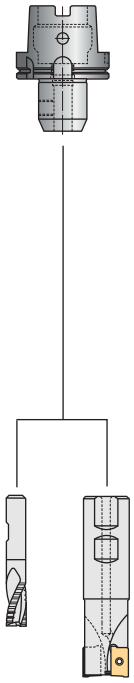
AK 155...HSK

*Page G 89**



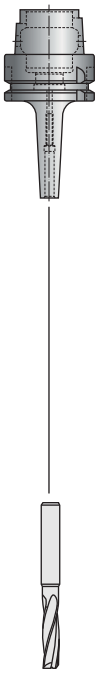
A 170...HSK

*Page G 90**



A 560

*Page G 92**



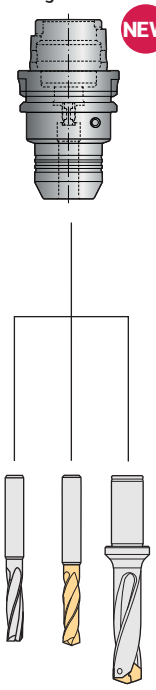
S 9000631

*Page G 96**

AK 182...HSK

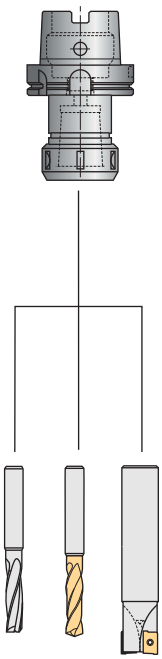
Page G-28

NEW



AK 300...HSK

*Page G 94**



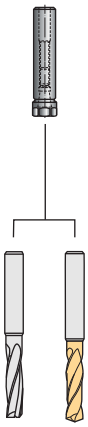
Adaptors

A 175

*Page G 58**

A 305

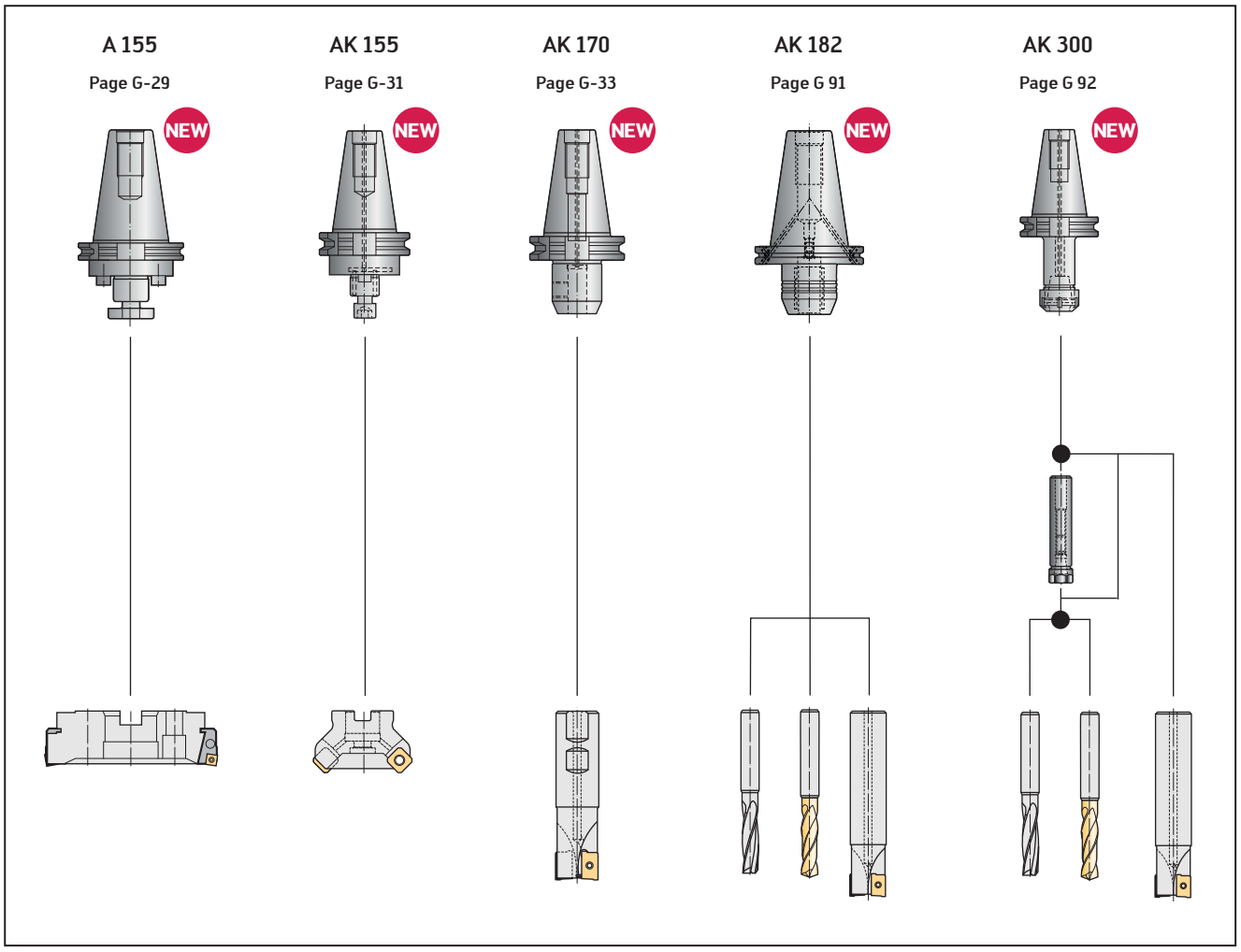
*Page G 73**



S 901835 . .

*Page G 97**

Product range overview of SK adaptors



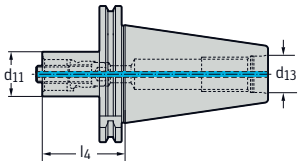
** The pages indicated in italics refer to the Walter General catalogue 2012.*

Basic holder DIN 69871 AD
C ... – 390.140
SK40 + SK50

- Walter Capto™ in acc. with ISO 26623

Tool

SK DIN69871-AD



Designation	SK	d_{11} mm	l_4 mm	d_{13} mm	kg
★ C3-390.140-40 030	SK40	C3	30	M16	0,8
★ C3-390.140-40 060	SK40	C3	60	M16	1
★ C3-390.140-50 030	SK50	C3	30	M24	2,6
★ C3-390.140-50 060	SK50	C3	60	M24	2,7
★ C4-390.140-40 060	SK40	C4	60	M16	1,1
★ C4-390.140-50 030	SK50	C4	30	M24	2,6
★ C4-390.140-50 060	SK50	C4	60	M24	2,8
★ C5-390.140-40 040	SK40	C5	40	M16	0,9
★ C5-390.140-40 080	SK40	C5	80	M16	1,5
★ C5-390.140-50 030	SK50	C5	30	M24	2,6
★ C5-390.140-50 070	SK50	C5	70	M24	3,1
★ C6-390.140-40 085	SK40	C6	85	M16	1,8
★ C6-390.140-50 030	SK50	C6	60	M24	2,5
★ C6-390.140-50 080	SK50	C6	80	M24	3,6
★ C8-390.140-50 070	SK50	C8	70	M24	3,7
★ C8-390.140-50 120	SK50	C8	120	M24	5,6

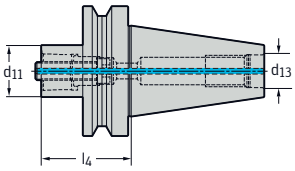
Bodies and assembly parts are included in the scope of delivery.

★ New addition to range

Basic holder MAS-BT JIS B 6339
C ... – 390.58 + C ... – 390.55

SK40 + SK50

- Walter Capto™ in acc. with ISO 26623

Tool	Designation	d_1 mm	d_{11} mm	l_4 mm	d_{13} mm	kg
JIS B 6339 	★ C3-390.55-40 030	SK40	C3	30	M16	1
	★ C3-390.55-40 060	SK40	C3	60	M16	1,1
	★ C3-390.58-50 040	SK50	C3	40	M24	3,6
	★ C3-390.58-50 070	SK50	C3	70	M24	3,7
	★ C4-390.55-40 030	SK40	C4	30	M16	0,9
	★ C4-390.55-40 060	SK40	C4	60	M16	1,2
	★ C4-390.58-50 040	SK50	C4	40	M24	3,5
	★ C4-390.58-50 070	SK50	C4	70	M24	3,8
	★ C5-390.55-40 050	SK40	C5	50	M16	1,1
	★ C5-390.55-40 090	SK40	C5	90	M16	1,7
	★ C5-390.58-50 040	SK50	C5	40	M24	3,4
	★ C5-390.58-50 080	SK50	C5	80	M24	4
	★ C6-390.55-40 075	SK40	C6	75	M16	1,7
	★ C6-390.58-50 050	SK50	C6	50	M24	3,5
	★ C6-390.58-50 100	SK50	C6	100	M24	4,6
	★ C8-390.58-50 070	SK50	C8	70	M24	4
	★ C8-390.58-50 120	SK50	C8	120	M24	5,9

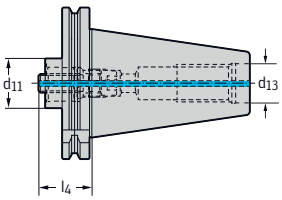
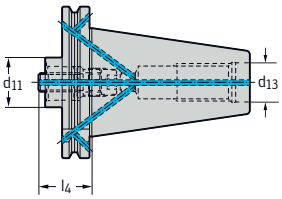
Bodies and assembly parts are included in the scope of delivery.

★ New addition to range

Basic holder DIN 69871 AD/AD+B
C ... – 390.540

SK40 + SK50

- Walter Capto™ in acc. with ISO 26623
- BIG PLUS SYSTEM - Licence BIG DAISHOWA

Tool	Designation	d_{11} mm	d_{11} mm	l_4 mm	d_{13} mm	kg
SK DIN69871-AD 	★ C6-390.540-40 085	SK40	C6	85	M16	2,4
	★ C3-390.540-40 030	SK40	C3	30	M16	0,8
	★ C4-390.540-40 040	SK40	C4	40	M16	0,8
	★ C5-390.540-40 050	SK40	C5	50	M16	0,8
SK DIN69871-AD+B 	★ C8-390.540-50 070A	SK50	C8	70	M24	3,4
	★ C3-390.540-50 030A	SK50	C3	30	M24	2,6
	★ C4-390.540-50 030A	SK50	C4	30	M24	2,6
	★ C5-390.540-50 030A	SK50	C5	30	M24	2,6
	★ C6-390.540-50 050A	SK50	C6	50	M24	2,4

Bodies and assembly parts are included in the scope of delivery.

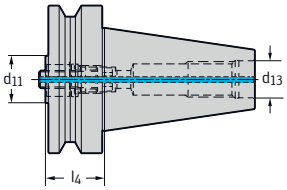
★ New addition to range

Basic holder MAS-BT JIS B 6339
C ... – 390.558 + C ... – 390.555

SK40 + SK50

- Walter Capto™ in acc. with ISO 26623
- BIG PLUS SYSTEM - Licence BIG DAISHOWA

Tool	Designation	d_1 mm	d_{11} mm	l_4 mm	d_{13} mm	kg
JIS B 6339	★ C5-390.555-40 050	SK40	C5	50	M16	1,1
	★ C8-390.558-50 070	SK50	C8	70	M24	4,1
	★ C3-390.555-40 030	SK40	C3	30	M16	1,0
	★ C3-390.558-50 040	SK50	C3	40	M24	3,6
	★ C4-390.555-40 040	SK40	C4	40	M16	1,0
	★ C4-390.558-50 040	SK50	C4	40	M24	3,6
	★ C5-390.558-50 040	SK50	C5	40	M24	3,2
	★ C6-390.555-40 075	SK40	C6	75	M16	1,7
	★ C6-390.558-50 050	SK50	C6	50	M24	3,4



Bodies and assembly parts are included in the scope of delivery.

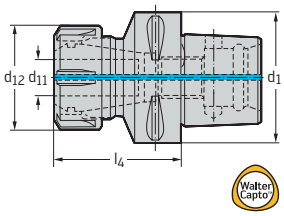
★ New addition to range

Collet chuck ISO 26623
C ... – 391.14
Walter Capto ™ C3 - C6

- For ER collets in acc. with DIN 6499

Tool

Walter Capto™ in acc. with ISO 26623



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	Collets	kg
C3-391.14-20 045	C3	1-13	35	45	ER 20	0,23
C4-391.14-20 052	C4	1-13	35	52	ER 20	0,41
C4-391.14-25 052	C4	1-16	42	52	ER 25	0,7
C4-391.14-32 054	C4	1-20	50	54	ER 32	0,47
C5-391.14-20 055	C5	1-13	35	55	ER 20	0,8
C5-391.14-25 055	C5	1-16	42	55	ER 25	0,6
C5-391.14-32 057	C5	1-20	50	57	ER 32	0,7
C6-391.14-20 060	C6	1-13	35	60	ER 20	0,9
C6-391.14-25 060	C6	1-16	42	60	ER 25	1
C6-391.14-25 100	C6	1-16	42	100	ER 25	1,4
C6-391.14-32 060	C6	2-20	50	60	ER 32	1,1
C6-391.14-32 100	C6	2-20	50	100	ER 32	1,6
C6-391.14-40 065	C6	3-26	63	65	ER 40	1,2
★ C8-391.14-25 070	C8	1-16	42	70	ER 25	1,7
★ C8-391.14-32 070	C8	2-20	50	70	ER 32	1,7
★ C8-391.14-32 160	C8	2-20	50	160	ER 32	4,1
★ C8-391.14-40 070	C8	3-26	63	70	ER 40	2,0

For collets, see page G 99 in the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Collets	ER 20	ER 25	ER 32	ER 40
	Clamping nut	FS1451	FS1540	FS1541	FS1542

Accessories

	Collets	ER 20	ER 25	ER 32	ER 40
	Tensioning key	FS1539	FS1544	FS1545	FS1546

★ New addition to range

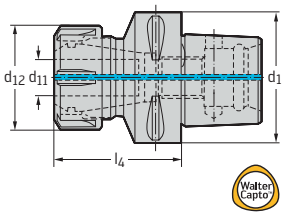
ER collet chuck for internal cooling
C … – 391.14

Walter Capto ™ C3 – C6

- For ER collets in acc. with DIN 6499

Tool

Walter Capto™ in acc. with ISO 26623



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	Collets	kg
C3-391.14-20 050	C3	1-13	35	50	ER 20	0,31
C4-391.14-20 057	C4	1-13	35	57	ER 20	0,49
C4-391.14-25 057	C4	1-16	42	57	ER 25	0,8
C4-391.14-32 059	C4	1-20	50	59	ER 32	0,6
C5-391.14-20 060	C5	1-13	35	60	ER 20	0,9
C5-391.14-25 060	C5	1-16	42	60	ER 25	0,8
C5-391.14-32 062	C5	1-20	50	62	ER 32	0,9
C6-391.14-20 065	C6	1-13	35	65	ER 20	1,1
C6-391.14-25 065	C6	1-16	42	65	ER 25	1,2
C6-391.14-25 105	C6	1-16	42	105	ER 25	1,5
C6-391.14-32 065	C6	2-20	50	65	ER 32	1,2
C6-391.14-32 105	C6	2-20	50	105	ER 32	1,8
C6-391.14-40 070	C6	3-26	63	70	ER 40	1,5
★ C8-391.14-25 075	C8	1-16	42	75	ER 25	1,7
★ C8-391.14-32 075	C8	2-20	50	75	ER 32	1,7
★ C8-391.14-32 165	C8	2-20	50	165	ER 32	4,1
★ C8-391.14-40 075	C8	3-26	63	75	ER 40	2,0

If the collet chuck is used for the internal coolant supply, use the sealing discs on page G 102 of the Walter General catalogue 2012.
The clamping nut can be damaged if the chuck is used without a sealing disc.
For collets, see page G 99 of the Walter General catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Collets	ER 20	ER 25	ER 32	ER 40
	Clamping nut for internal coolant supply	FS1359	FS1449	FS1360	FS1450

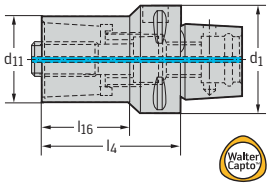
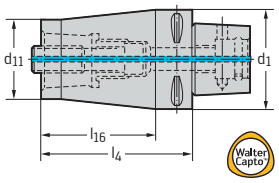
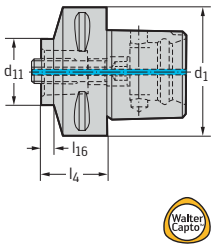
Accessories

	Collets	ER 20	ER 25	ER 32	ER 40
	Tensioning key	FS1539	FS1544	FS1545	FS1546

★ New addition to range

Reduction adaptor
C ... – 391.02

Walter Capto ™ C4 - C8

Tool	Designation	d_1 mm	d_{11} mm	l_4 mm	l_{16} mm	kg
Walter Capto™ in acc. with ISO 26623	C4-391.02-32 055A	C4	C3	55	31,0	0,45
	C5-391.02-32 060A	C5	C3	60	35,0	0,7
	C5-391.02-40 065A	C5	C4	65	40,0	0,8
	C6-391.02-32 070A	C6	C4	70	39,0	1,1
	C6-391.02-40 080A	C6	C4	80	51,3	1,3
	C6-391.02-50 080A	C6	C5	80	51,5	1,5
	★ C8-391.02-32 060A	C8	C3	60	29,0	1,7
	★ C8-391.02-40 070A	C8	C4	70	36,0	1,9
	C8-391.02-50 080A	C8	C5	80	49,3	2,3
	C8-391.02-63 080A	C8	C6	80	53,1	2,5
Walter Capto™ in acc. with ISO 26623	C4-391.02-32 070A	C4	C3	70	12,0	0,6
	C5-391.02-40 085A	C5	C4	85	12,0	1,1
	C6-391.02-50 110A	C6	C5	110	12,0	2,2
	C8-391.02-63 120A	C8	C6	120	12,0	2,1
Walter Capto™ in acc. with ISO 26623 short version	C5-391.02-32 033*	C5	C3	33	10	0,5
	C5-391.02-40 040*	C5	C4	40	18	0,6
	C6-391.02-32 032*	C6	C3	32	6	0,9
	C6-391.02-40 040*	C6	C4	40	11,3	1
	C6-391.02-50 050*	C6	C5	50	24,5	1,1
	C8-391.02-50 045	C8	C5	45	10	1,9
	C8-391.02-63 055	C8	C6	55	20	2,1

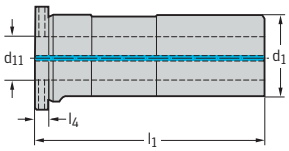
Bodies and assembly parts are included in the scope of delivery.

*Short version only for bushing clamp.

Boring bar holder
AK 600

- With Weldon shank in acc. with DIN 9766
- Self centring for cylindrical round shank

Tool



Designation	d_1 mm	d_{11} mm	l_1 mm	l_4 mm	kg
AK600.25.061.06	25	6	61	5	0,2
AK600.25.061.08	25	8	61	5	0,2
AK600.25.061.10	25	10	61	5	0,2
AK600.25.061.12	25	12	61	5	0,1
AK600.25.061.16	25	16	61	5	0,2
AK600.32.085.06	32	6	85	5	0,6
AK600.32.085.08	32	8	85	5	0,5
AK600.32.085.10	32	10	85	5	0,5
AK600.32.085.12	32	12	85	5	0,5
AK600.32.085.16	32	16	85	5	0,4
AK600.32.085.20	32	20	85	5	0,3
AK600.40.105.06	40	6	105	5	1,1
AK600.40.105.08	40	8	105	5	1,0
AK600.40.105.10	40	10	105	5	0,9
AK600.40.105.12	40	12	105	5	0,9
AK600.40.105.16	40	16	105	5	0,9
AK600.40.105.20	40	20	105	5	0,8
★ AK600.40.105.25	40	25	105	5	0,7

Note: The groove for the self centring of the boring bar is present on all Walter Turn boring bars with cylindrical shank Ø 6–25 mm.

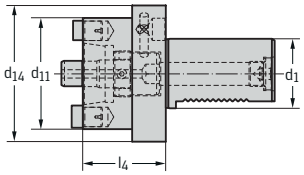
★ New addition to range

Master VDI DIN 69880
AK 135M

VDI 40, 50 + 60

- Modular NCT adaptor

Tool	Designation	d_1 mm	d_{11} mm	d_{14} mm	l_4 mm	kg
VDI DIN 69880	★ AK135M.5.40.060.N8	40	NCT80	83	60	2,7
	★ AK135M.5.50.060.N8	50	NCT80	98	60	3,7
	★ AK135M.5.60.060.N8	60	NCT80	123	60	5,5



★ New addition to range

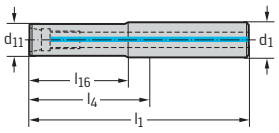
Adaptor DIN 1835 A
AK 512

- For NCT ScrewFit front pieces
- Steel shank with solid carbide core

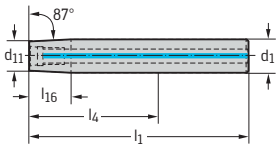
Tool

Shank DIN 1835 A

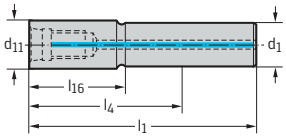
A



B



C



ScrewFit

Designation	d_1 mm	d_{11} mm	l_{16} mm	l_4 mm	l_1 mm	Version	kg
★ AK512.Z16.T14.070	16	T14	38	70	120	B	0,2
★ AK512.Z16.T14.120	16	T14	37	120	170	B	0,3
★ AK512.Z20.T18.123	20	T18	45	123	175	A	0,5
★ AK512.Z25.T22.122	25	T22	55	122	180	A	0,8
★ AK512.Z25.T28.127	25	T28	60	127	185	C	0,9
★ AK512.Z32.T28.283	32	T28	60	283	345	B	2,6

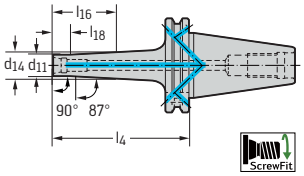
★ New addition to range

Adaptor DIN 69871 AD+B
AK 540
SK40

- For NCT ScrewFit front pieces

Tool

SK DIN 69871 AD+B



Designation	d_1 mm	d_{11} mm	d_{14} mm	l_4 mm	l_{16} mm	l_{18} mm	kg
AK540.S40.T09.040	SK40	T09	12	40	17	10	0,9
AK540.S40.T09.065	SK40	T09	12	65	31	10	0,9
AK540.S40.T09.090	SK40	T09	12	90	31	10	0,9
AK540.S40.T14.045	SK40	T14	16	45	17	10	0,9
AK540.S40.T14.070	SK40	T14	16	70	24	10	0,9
AK540.S40.T14.095	SK40	T14	16	95	24	10	1,0
AK540.S40.T14.120	SK40	T14	16	120	24	10	1,0
★ AK540.S40.T18.040CO	SK40	T18	20	40	16	10	0,82
AK540.S40.T18.050CO*	SK40	T18	20	50	22	10	0,9
AK540.S40.T18.075	SK40	T18	20	75	24	10	1,0
AK540.S40.T18.100	SK40	T18	20	100	24	10	1,0
AK540.S40.T18.125	SK40	T18	20	125	24	10	1,2
AK540.S40.T18.150	SK40	T18	20	150	24	10	1,3
★ AK540.S40.T22.040CO	SK40	T22	25	40	16	10	0,83
AK540.S40.T22.060CO*	SK40	T22	25	60	32	10	0,9
AK540.S40.T22.085	SK40	T22	25	85	38	10	1,0
AK540.S40.T22.110	SK40	T22	25	110	38	10	1,1
AK540.S40.T22.135	SK40	T22	25	135	38	10	1,4
AK540.S40.T22.160	SK40	T22	25	160	38	10	1,5
AK540.S40.T28.040CO*	SK40	T28	32	40	17	10	0,9
AK540.S40.T28.065	SK40	T28	32	65	37	10	1,0
AK540.S40.T28.090	SK40	T28	32	90	48	10	1,2
AK540.S40.T28.115	SK40	T28	32	115	48	10	1,3
AK540.S40.T28.140	SK40	T28	32	140	48	10	1,6
AK540.S40.T28.165	SK40	T28	32	165	48	10	1,9
AK540.S40.T36.040CO*	SK40	T36	40	40	17	10	0,9
AK540.S40.T36.065	SK40	T36	40	65	40	10	1,1
AK540.S40.T36.090	SK40	T36	40	90	48	10	1,4
AK540.S40.T36.115	SK40	T36	40	115	48	10	1,7
AK540.S40.T45.040CO*	SK40	T45	50	40	17	10	1,0
AK540.S40.T45.065	SK40	T45	50	65	42	10	1,3
AK540.S40.T45.090	SK40	T45	50	90	67	10	2,0

The delivery status is form AD. To convert to form B, remove the two threaded plugs.
Bodies and assembly parts are included in the scope of delivery.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.
* ... CO = Interface is cutting edge oriented. For using B 4030.T and B 3230.T.

Assembly parts

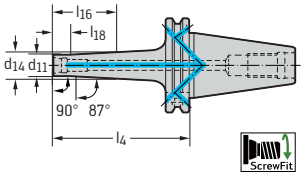
	d_1 mm	SK40
	Threaded plug DIN 913	M04X005 DIN 913

★ New addition to range

Adaptor DIN 69871 AD+B
AK 540
SK50

- For NCT ScrewFit front pieces

Tool	Designation	d_1 mm	d_{11} mm	d_{14} mm	l_4 mm	l_{16} mm	l_{18} mm	kg
SK DIN 69871 AD+B	AK540.S50.T22.050CO*	SK50	T22	25	50	25	10	2,8
	AK540.S50.T22.100	SK50	T22	25	100	38	10	3,0
	AK540.S50.T22.150	SK50	T22	25	150	38	10	3,4
	AK540.S50.T22.200	SK50	T22	25	200	38	10	3,8
	AK540.S50.T28.050CO*	SK50	T28	32	50	25	10	2,9
	AK540.S50.T28.100	SK50	T28	32	100	48	10	3,2
	AK540.S50.T28.150	SK50	T28	32	150	48	10	3,6
	AK540.S50.T28.200	SK50	T28	32	200	48	10	4,8
	AK540.S50.T28.250	SK50	T28	32	250	48	10	4,7
	AK540.S50.T36.050CO*	SK50	T36	40	50	25	10	2,9
	AK540.S50.T36.100	SK50	T36	40	100	48	10	3,4
	AK540.S50.T36.150	SK50	T36	40	150	48	10	4,1
	AK540.S50.T36.200	SK50	T36	40	200	48	10	4,9
	AK540.S50.T36.250	SK50	T36	40	250	48	10	5,7
	AK540.S50.T45.050CO*	SK50	T45	50	50	25	10	3,0
	AK540.S50.T45.100	SK50	T45	50	100	57	10	3,8
	AK540.S50.T45.150	SK50	T45	50	150	57	10	4,7
	AK540.S50.T45.200	SK50	T45	50	200	57	10	5,8
	AK540.S50.T45.250	SK50	T45	50	250	57	10	7,0



The delivery status is form AD. To convert to form B, remove the two threaded plugs.
Bodies and assembly parts are included in the scope of delivery.
For pull studs for steep tapers, see page H 42of the Walter General catalogue 2012.
* ... CO = Interface is cutting edge oriented. For using B 4030.T and B 3230.T.

Assembly parts

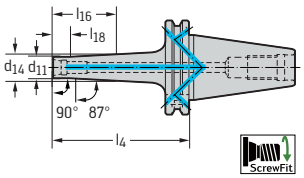
	d_1 mm	SK50
	Threaded plug DIN 913	M06X006 DIN 913

Adaptor MAS-BT JIS B 6339
AK 540

SK40

- For NCT ScrewFit front pieces

Tool	Designation	d_1 mm	d_{11} mm	d_{14} mm	l_4 mm	l_{16} mm	l_{18} mm	kg
JIS B 6339	AK540.BT40.T09.050	SK40	T09	12	50	17	10	1,1
	AK540.BT40.T09.075	SK40	T09	12	75	31	10	1,1
	AK540.BT40.T09.100	SK40	T09	12	100	31	10	1,1
	AK540.BT40.T14.055	SK40	T14	16	55	22	10	1,1
	AK540.BT40.T14.080	SK40	T14	16	80	24	10	1,1
	AK540.BT40.T14.105	SK40	T14	16	105	24	10	1,2
	AK540.BT40.T14.130	SK40	T14	16	130	24	10	1,3
	AK540.BT40.T18.060CO*	SK40	T18	20	60	24	10	1,1
	AK540.BT40.T18.085	SK40	T18	20	85	24	10	1,1
	AK540.BT40.T18.110	SK40	T18	20	110	24	10	1,3
	AK540.BT40.T18.135	SK40	T18	20	135	24	10	1,4
	AK540.BT40.T18.160	SK40	T18	20	160	24	10	1,6
	★ AK540.BT40.T22.050CO	SK40	T22	25	50	17	10	1,01
	AK540.BT40.T22.070CO*	SK40	T22	25	70	37	10	1,0
	AK540.BT40.T22.095	SK40	T22	25	95	38	10	1,3
	AK540.BT40.T22.120	SK40	T22	25	120	38	10	1,6
	AK540.BT40.T22.145	SK40	T22	25	145	38	10	1,6
	AK540.BT40.T22.170	SK40	T22	25	170	38	10	1,8
	AK540.BT40.T28.050CO*	SK40	T28	32	50	17	10	1,1
	AK540.BT40.T28.075	SK40	T28	32	75	42	10	1,2
	AK540.BT40.T28.100	SK40	T28	32	100	48	10	1,4
	AK540.BT40.T28.125	SK40	T28	32	125	48	10	1,6
	AK540.BT40.T28.150	SK40	T28	32	150	48	10	1,9
	AK540.BT40.T28.175	SK40	T28	32	175	48	10	2,1
	AK540.BT40.T36.075CO*	SK40	T36	40	75	42	10	1,3
	AK540.BT40.T36.100	SK40	T36	40	100	48	10	1,6
	AK540.BT40.T36.125	SK40	T36	40	125	48	10	1,9
	AK540.BT40.T45.075CO*	SK40	T45	50	75	42	10	1,6
	AK540.BT40.T45.100	SK40	T45	50	100	57	10	1,9



For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

* ... CO = Interface is cutting edge oriented. For using B 4030.T and B 3230.T.

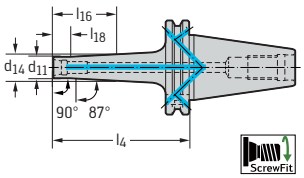
★ New addition to range

Adaptor MAS-BT JIS B 6339
AK 540

SK50

- For NCT ScrewFit front pieces

Tool	Designation	d_1 mm	d_{11} mm	d_{14} mm	l_4 mm	l_{16} mm	l_{18} mm	kg
JIS B 6339	AK540.BT50.T22.070CO*	SK50	T22	25	70	26	10	3,9
	AK540.BT50.T22.120	SK50	T22	25	120	38	10	4,0
	AK540.BT50.T22.170	SK50	T22	25	170	38	10	4,4
	AK540.BT50.T22.220	SK50	T22	25	220	38	10	4,9
	AK540.BT50.T28.070CO*	SK50	T28	32	70	26	10	3,9
	AK540.BT50.T28.120	SK50	T28	32	120	48	10	4,2
	AK540.BT50.T28.170	SK50	T28	32	170	48	10	4,7
	AK540.BT50.T28.220	SK50	T28	32	220	48	10	5,2
	AK540.BT50.T28.270	SK50	T28	32	270	48	10	5,7
	AK540.BT50.T36.070CO*	SK50	T36	40	70	26	10	3,9
	AK540.BT50.T36.120	SK50	T36	40	120	48	10	4,4
	AK540.BT50.T36.170	SK50	T36	40	170	48	10	5,1
	AK540.BT50.T36.220	SK50	T36	40	220	48	10	5,9
	AK540.BT50.T36.270	SK50	T36	40	270	48	10	6,9
	AK540.BT50.T45.070CO*	SK50	T45	50	70	26	10	4,1
	AK540.BT50.T45.120	SK50	T45	50	120	57	10	4,8
	AK540.BT50.T45.170	SK50	T45	50	170	57	10	5,7
	AK540.BT50.T45.220	SK50	T45	50	220	57	10	6,6
	AK540.BT50.T45.270	SK50	T45	50	270	57	10	8,0

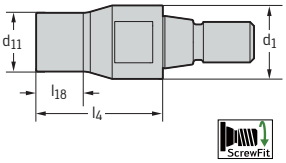
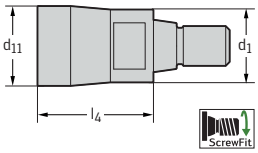


For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

* ... CO = Interface is cutting edge oriented. For using B 4030.T and B 3230.T.

ScrewFit to ConeFit Adaptor
AK523.T

- For ConeFit front pieces

Tool	Designation	d_1 mm	d_{11} mm	l_4 mm	l_{18} mm	kg
NCT ScrewFit 	★ AK523.T14.10.E12	T14	E12	25	10	0,054
NCT ScrewFit 	★ AK523.T14.25.E16	T14	E16	25		0,062
	★ AK523.T18.30.E20	T18	E20	30		0,11
	★ AK523.T22.35.E25	T22	E25	35		0,2

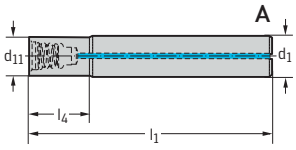
★ New addition to range

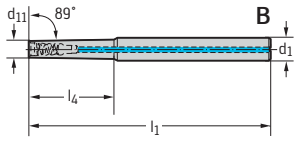
Adaptor DIN 6535 HA
AK610

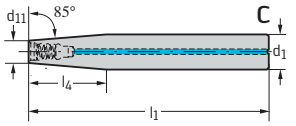
- For ConeFit™ mill heads

Tool

Shank DIN 6335 HA
with coolant supply







Designation	d_1 mm	d_{11} mm	l_4 mm	l_1 mm	Version	kg
AK610.Z16.E10.005	10	E10	5	65	A	0,11
★ AK610.Z12.E10.005	10	E10	5	65	A	0,067
AK610.Z10.E10.020	10	E10	20	75	A	0,05
AK610.Z16.E10.036	10	E10	36,5	140	C	0,2
AK610.Z16.E10.050	10	E10	50	160	B	0,21
AK610.Z16.E12.005	12	E12	5	65	A	0,1
AK610.Z12.E12.022	12	E12	22	100	A	0,087
AK610.Z16.E12.025	12	E12	25,1	140	C	0,2
AK610.Z16.E12.060	12	E12	60	170	B	0,22
AK610.Z20.E16.005	16	E16	5	70	A	0,17
★ AK610.Z16.E16.025	16	E16	25	110	A	0,17
AK610.Z20.E16.025	16	E16	25	110	A	0,24
AK610.Z25.E16.054	16	E16	54,8	170	C	0,6
AK610.Z20.E16.075	16	E16	75	190	B	0,39
AK610.Z25.E20.005	20	E20	5	80	A	0,28
AK610.Z20.E20.030	20	E20	30	120	A	0,26
AK610.Z32.E20.073	20	E20	73,1	180	C	1
★ AK610.Z20.E20.110C	20	E20	110	180	A	0,7
AK610.Z32.E25.005	25	E25	5	80	A	0,46
AK610.Z25.E25.040	25	E25	40	140	A	0,5
AK610.Z32.E25.045	25	E25	45,1	200	C	1,2

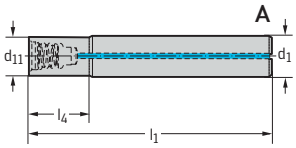
★ New addition to range

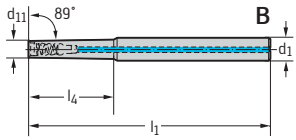
Adaptors DIN 6535 HA
AK610

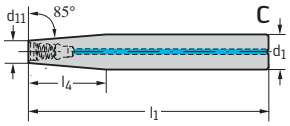
- For ConeFit™ mill heads
- With solid carbide shank

Tool

Shank DIN 6335 HA
with coolant supply







Designation	d_1 mm	d_{11} mm	l_4 mm	l_1 mm	Version	kg
AK610.Z10.E10.050C	10	E10	50	100	A	0,1
AK610.Z16.E10.100C	10	E10	100	155	B	0,3
AK610.Z12.E12.048C	12	E12	48	100	A	0,14
AK610.Z16.E12.090C	12	E12	90	150	B	0,34
AK610.Z16.E16.080C	16	E16	80	135	A	0,34
AK610.Z20.E16.118C	16	E16	118	175	B	0,6
AK610.Z20.E20.038C	20	E20	38	95	A	0,34
★ AK610.Z20.E20.110C	20	E20	110	180	A	0,7
AK610.Z25.E25.120C	25	E25	120	200	A	1,2

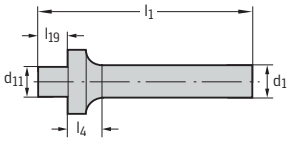
★ New addition to range

Adaptor with parallel shank
A159

- For honeycomb milling cutters

Tool

Shank DIN6335HA



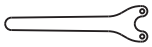
Designation	d_1 mm	d_{11} mm	l_1 mm	l_4 mm	l_{19} mm	kg
A159.Z16.013.13	16	13	72	11	13,5	0,13
A159.Z16.016.13	16	16	72	11	13	0,15

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	d_{11} mm	13	16
	Feather key	FS2153	FS2154
	Clamping screw	FS2151	FS2152

Accessories

	d_{11} mm	13	16
	Hex nut driver DIN3116	A13	C18

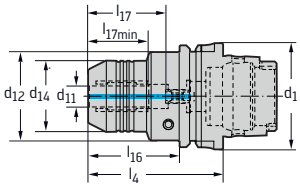
Hydraulic expansion chuck DIN 69893/1 A
AK182.H

HSK63 + HSK100

- For tools with shank in acc. with DIN 1835

Tool

HSK DIN 69893/1 A

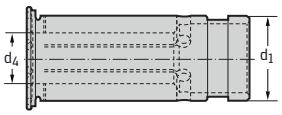


Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	d_{14} mm	l_{16} mm	l_{17} mm	l_{17min} mm	kg
★ AK182.H100.090.20	HSK-A100	20		90	52,5	61	51	41	2,8
★ AK182.H100.100.32	HSK-A100	32		100	72	71	61	51	3,8
★ AK182.H63.080.12	HSK-A63	12	52,5	80	42	54	46	36	1,3
★ AK182.H63.080.20	HSK-A63	20		80	52,5	54	51	41	1,3

Bodies and assembly parts are included in the scope of delivery.

For accessories for HSK, see page H 42 of the Walter General catalogue 2012.

Accessories



	d_4 mm	3	4	5	6	7	8	9	10	11
Adaptor sleeves for peripheral cooling	d_1 = 12 mm	FS2194	FS2195	FS2196	FS2197	-	FS2198	-	-	-
	d_1 = 20 mm	FS2213	FS2214	FS2215	FS2216	-	FS2217	-	FS2218	-
	d_1 = 32 mm	-	-	-	FS2231	-	FS2232	-	FS2233	-
Adaptor sleeves sealed for internal cooling	d_1 = 12 mm	FS2189	FS2190	FS2191	FS2192	-	FS2193	-	-	-
	d_1 = 20 mm	FS2199	FS2200	FS2201	FS2202	FS2203	FS2204	FS2205	FS2206	FS2207
	d_1 = 32 mm	-	-	-	FS2222	-	FS2223	-	FS2224	-

Continued	d_4 mm	12	13	14	15	16	18	20	25
Adaptor sleeves for peripheral cooling	d_1 = 12 mm	-	-	-	-	-	-	-	-
	d_1 = 20 mm	FS2219	-	FS2220	-	FS2221	-	-	-
	d_1 = 32 mm	FS2234	-	FS2235	-	FS2236	FS2237	FS2238	FS2239
Adaptor sleeves sealed for internal cooling	d_1 = 12 mm	-	-	-	-	-	-	-	-
	d_1 = 20 mm	FS2208	FS2209	FS2210	FS2211	FS2212	-	-	-
	d_1 = 32 mm	FS2225	-	FS2226	-	FS2227	FS2228	FS2229	FS2230

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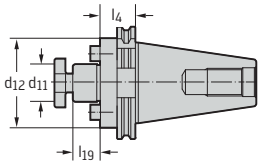
★ New addition to range

Face mill adaptor DIN69871-A
A 155.S ...
SK40 + SK50

- For tools in acc. with DIN 1880

Tool

SK DIN 69871-A



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	l_{19} mm	kg
★ A155.S40.035.16	SK40	16	36	35	17	0,9
★ A155.S40.035.22	SK40	22	48	35	19	1,1
★ A155.S40.035.27	SK40	27	48	35	21	1,2
★ A155.S40.050.32	SK40	32	78	50	24	1,8
★ A155.S40.100.16	SK40	16	36	100	17	1,9
★ A155.S40.100.22	SK40	22	48	100	19	2
★ A155.S40.100.27	SK40	27	60	100	21	2,5
★ A155.S40.100.32	SK40	32	78	100	24	3,6
★ A155.S50.035.22	SK50	22	48	35	19	2,9
★ A155.S50.035.27	SK50	27	60	35	21	3,1
★ A155.S50.035.32	SK50	32	78	35	24	3,4
★ A155.S50.050.40*	SK50	40	89	50	27	4,1
★ A155.S50.070.60*	SK50	60	127	70	40	7,2
★ A155.S50.100.22	SK50	22	48	100	19	4,6
★ A155.S50.100.27	SK50	27	60	100	21	5,3
★ A155.S50.100.32	SK50	32	78	100	24	6,6
★ A155.S50.100.40*	SK50	40	89	100	27	9,5

Bodies and assembly parts are included in the scope of delivery.

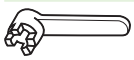
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

* With 4 additional threaded holes for tools with DIN 2079 tooling connection.

Assembly parts

	d_{11} mm	16	22	27	32	40	60
	Milling cutter tightening screw DIN 6367	FS430	FS431	FS432	FS433	FS434	FS912

Accessories

	d_{11} mm	16	22	27	32	40	60
	Wrench for milling cutter tightening screw	FS436	FS437	FS438	FS439	FS440	FS913

★ New addition to range

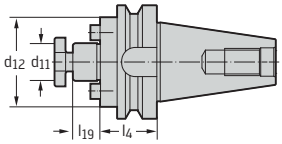
Face mill adaptor MAS-BT JIS B 6339
A 155.BT ...

SK40 + SK50

- For tools in acc. with DIN 1880

Tool

JIS B 6339



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	l_{19} mm	kg
★ A155.BT40.035.16	SK40	16	36	35	17	1,1
★ A155.BT40.035.22	SK40	22	48	35	19	1,2
★ A155.BT40.035.27	SK40	27	48	35	21	1,3
★ A155.BT40.065.32	SK40	32	78	65	24	2
★ A155.BT40.100.16	SK40	16	36	100	17	1,8
★ A155.BT40.100.22	SK40	22	48	100	19	2
★ A155.BT40.100.27	SK40	27	60	100	21	2,5
★ A155.BT50.055.22	SK50	22	48	55	19	3,7
★ A155.BT50.055.27	SK50	27	60	55	21	3,9
★ A155.BT50.055.32	SK50	32	78	55	24	4,2
★ A155.BT50.055.40*	SK50	40	89	55	27	4,9
★ A155.BT50.080.60*	SK50	60	127	80	40	3,8
★ A155.BT50.100.22	SK50	22	48	100	19	4,5
★ A155.BT50.100.27	SK50	27	60	100	21	5,8
★ A155.BT50.100.32	SK50	32	78	100	24	6,5

Bodies and assembly parts are included in the scope of delivery.

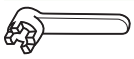
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

* With 4 additional threaded holes for tools with DIN 2079 tooling connection.

Assembly parts

	d_{11} mm	16	22	27	32	40	60
	Milling cutter tightening screw DIN 6367	FS430	FS431	FS432	FS433	FS434	FS912

Accessories

	d_{11} mm	16	22	27	32	40	60
	Wrench for milling cutter tightening screw	FS436	FS437	FS438	FS439	FS440	FS913

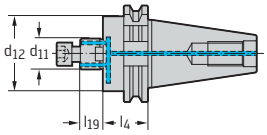
★ New addition to range

Face mill adaptor DIN 69871 AD+B
AK 155.S ...
SK40 + SK50

- For tools in acc. with DIN 1880

Tool

SK DIN 69871 AD+B



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	l_{19} mm	kg
★ AK155.S40.035.16	SK40	16	36	35	17	0,9
★ AK155.S40.035.22	SK40	22	48	35	19	1,1
★ AK155.S40.035.27	SK40	27	48	35	21	1,2
★ AK155.S40.050.32	SK40	32	78	50	24	1,8
★ AK155.S50.035.16	SK50	16	36	35	17	2,7
★ AK155.S50.035.22	SK50	22	48	35	19	2,9
★ AK155.S50.035.27	SK50	27	60	35	21	3,1
★ AK155.S50.035.32	SK50	32	78	35	24	3,4

Bodies and assembly parts are included in the scope of delivery.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	d_{11} mm	16	22	27	32
	Tightening screw ISO 4762	FS938 (SW 6)	FS939 (SW 8)	FS940 (SW 10)	FS941 (SW 14)

Accessories

	d_{11} mm	16	22	27	32
	Allen key ISO 2936	ISO2936-6 (SW 6)	ISO2936-8 (SW 8)	ISO2936-10 (SW 10)	ISO2936-14 (SW 14)

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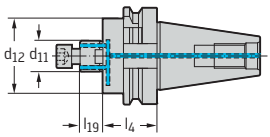
★ New addition to range

Face mill adaptor MAS-BT JIS B 6339
AK 155.BT ...

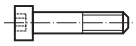
SK40 + SK50

- For tools in acc. with DIN 1880

Tool	Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	l_{19} mm	kg
JIS B 6339 	★ AK155.BT40.035.16	SK40	16	36	35	17	1,1
	★ AK155.BT40.035.22	SK40	22	48	35	19	1,2
	★ AK155.BT40.035.27	SK40	27	48	35	21	1,3
	★ AK155.BT40.065.32	SK40	32	78	65	24	2
	★ AK155.BT50.055.16	SK50	16	36	55	17	3,5
	★ AK155.BT50.055.22	SK50	22	48	55	19	3,7
	★ AK155.BT50.055.27	SK50	27	60	55	21	3,9
	★ AK155.BT50.055.32	SK50	32	78	55	24	4,2

Bodies and assembly parts are included in the scope of delivery.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	d_{11} mm	16	22	27	32
	Tightening screw ISO 4762	FS938 (SW 6)	FS939 (SW 8)	FS940 (SW 10)	FS941 (SW 14)

Accessories

	d_{11} mm	16	22	27	32
	Allen key ISO 2936	ISO2936-6 (SW 6)	ISO2936-8 (SW 8)	ISO2936-10 (SW 10)	ISO2936-14 (SW 14)

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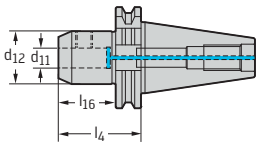
★ New addition to range

Weldon adaptor DIN 69871 AD+B
AK 170.S ...
SK40 + SK50

- For tools with shank in acc. with DIN 1835 Form B

Tool

SK DIN 69871 AD+B

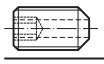


Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	l_{16} mm	kg
★ AK170.S40.050.06	SK40	6	25	50	35	0,9
★ AK170.S40.050.08	SK40	8	28	50	35	0,9
★ AK170.S40.050.10	SK40	10	35	50	39	1
★ AK170.S40.050.12	SK40	12	42	50	44	1
★ AK170.S40.050.14	SK40	14	42	50	44	1
★ AK170.S40.063.16	SK40	16	48	63	47	1
★ AK170.S40.063.18	SK40	18	48	63	47	1,2
★ AK170.S40.063.20	SK40	20	52	63	49	1,3
★ AK170.S40.100.25	SK40	25	65	100	59	2,3
★ AK170.S40.100.32	SK40	32	72	100	63	2,5
★ AK170.S50.063.06	SK50	6	25	63	35	2,8
★ AK170.S50.063.08	SK50	8	28	63	35	2,7
★ AK170.S50.063.10	SK50	10	35	63	39	2,9
★ AK170.S50.063.12	SK50	12	42	63	44	3
★ AK170.S50.063.14	SK50	14	42	63	44	3
★ AK170.S50.063.16	SK50	16	48	63	47	3,1
★ AK170.S50.063.18	SK50	18	48	63	47	3
★ AK170.S50.063.20	SK50	20	52	63	49	3,1
★ AK170.S50.080.25	SK50	25	65	80	59	3,8
★ AK170.S50.100.32	SK50	32	72	100	63	4,5
★ AK170.S50.100.40	SK50	40	78	100	73	4,7

Bodies and assembly parts are included in the scope of delivery.

For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	d_{11} mm	6	8	10	12-14	16-18	20	25	32-40
	Clamping screw DIN 1835-B	M06X010	M08X010	M10X012	M12X016	M14X016	M16X016	M18X2X020	M20X2X020

★ New addition to range

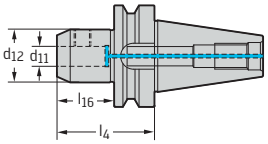
Weldon adaptor MAS-BT JIS B 6339
AK 170.BT ...

SK40 + SK50

- For tools with shank in acc. with DIN 1835 Form B

Tool

JIS B 6339

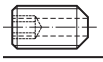


Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	l_{16} mm	kg
★ AK170.BT40.050.06	SK40	6	25	50	35	0,9
★ AK170.BT40.050.08	SK40	8	28	50	35	1
★ AK170.BT40.063.10	SK40	10	35	63	39	1,1
★ AK170.BT40.063.12	SK40	12	42	63	44	1,2
★ AK170.BT40.063.14	SK40	14	44	63	44	1,2
★ AK170.BT40.063.16	SK40	16	48	63	47	1,2
★ AK170.BT40.063.18	SK40	18	50	63	47	1,3
★ AK170.BT40.063.20	SK40	20	52	63	49	1,4
★ AK170.BT40.090.25	SK40	25	65	90	59	2,4
★ AK170.BT40.100.32	SK40	32	72	100	63	2,6
★ AK170.BT50.063.06	SK50	6	25	63	35	3,6
★ AK170.BT50.063.08	SK50	8	28	63	35	3,5
★ AK170.BT50.070.10	SK50	10	35	70	39	3,7
★ AK170.BT50.080.12	SK50	12	42	80	44	3,8
★ AK170.BT50.080.16	SK50	16	48	80	47	3,9
★ AK170.BT50.080.20	SK50	20	52	80	49	3,9
★ AK170.BT50.100.25	SK50	25	65	100	59	4,6
★ AK170.BT50.105.32	SK50	32	72	105	63	5,3
★ AK170.BT50.115.40	SK50	40	78	115	75	5,5

Bodies and assembly parts are included in the scope of delivery.

For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	d_{11} mm	6	8	10	12-14	16-18	20	25	32-40
	Clamping screw DIN 1835-B	M06X010	M08X010	M10X012	M12X016	M14X016	M16X016	M18X2X020	M20X2X020

★ New addition to range

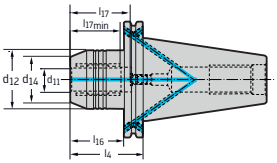
Hydraulic expansion chuck DIN 69871 AD+B
AK 182.S ...

SK40 + SK50

- For tools with shank in acc. with DIN 1835

Tool

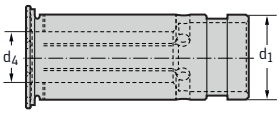
SK DIN 69871 AD+B



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	d_{14} mm	l_{16} mm	l_{17} mm	l_{17min} mm	kg
★ AK182.S40.050.12	SK40	12	42	50	32	31	46	36	1,1
★ AK182.S40.065.20	SK40	20	49,25	65	38	45,5	51	41	1,3
★ AK182.S50.065.20	SK50	20	49,25	65	38	45,5	51	41	3,1
★ AK182.S50.081.32	SK50	32	72	81	58,5	62	61	51	4,1

The delivery status is form AD. To convert to form B, remove the two threaded plugs.
Bodies and assembly parts are included in the scope of delivery.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Accessories



	d_4 mm	3	4	5	6	7	8	9	10	11
Adaptor sleeves for peripheral cooling	d_1 = 12 mm	FS2194	FS2195	FS2196	FS2197	-	FS2198	-	-	-
	d_1 = 20 mm	FS2213	FS2214	FS2215	FS2216	-	FS2217	-	FS2218	-
	d_1 = 32 mm	-	-	-	FS2231	-	FS2232	-	FS2233	-
Adaptor sleeves sealed for internal cooling	d_1 = 12 mm	FS2189	FS2190	FS2191	FS2192	-	FS2193	-	-	-
	d_1 = 20 mm	FS2199	FS2200	FS2201	FS2202	FS2203	FS2204	FS2205	FS2206	FS2207
	d_1 = 32 mm	-	-	-	FS2222	-	FS2223	-	FS2224	-

Continued	d_4 mm	12	13	14	15	16	18	20	25	
Adaptor sleeves for peripheral cooling	d_1 = 12 mm	-	-	-	-	-	-	-	-	
	d_1 = 20 mm	FS2219	-	FS2220	-	FS2221	-	-	-	
	d_1 = 32 mm	FS2234	-	FS2235	-	FS2236	FS2237	FS2238	FS2239	
Adaptor sleeves sealed for internal cooling	d_1 = 12 mm	-	-	-	-	-	-	-	-	
	d_1 = 20 mm	FS2208	FS2209	FS2210	FS2211	FS2212	-	-	-	
	d_1 = 32 mm	FS2225	-	FS2226	-	FS2227	FS2228	FS2229	FS2230	

G-41

★ New addition to range

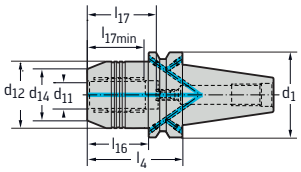
Hydraulic expansion chuck MAS-BT JIS B 6339
AK 182.BT ...

SK40 + SK50

- For tools with shank in acc. with DIN 1835

Tool

JIS 6339

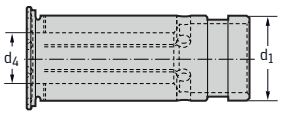


Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	d_{14} mm	l_{16} mm	l_{17} mm	l_{17min} mm	kg
★ AK182.BT40.058.12	SK40	12	42	58	32	31	46	36	1,2
★ AK182.BT40.072.20	SK40	20	49,25	72	38	45,5	51	41	1,4
★ AK182.BT50.084.20	SK50	20	49,25	84	38	45,5	51	41	4,1
★ AK182.BT50.090.32	SK50	32	72	90	58,5	52	61	51	4,6

Bodies and assembly parts are included in the scope of delivery.

For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Accessories



	d_4 mm	3	4	5	6	7	8	9	10	11
Adaptor sleeves for peripheral cooling	d_1 = 12 mm	FS2194	FS2195	FS2196	FS2197	-	FS2198	-	-	-
	d_1 = 20 mm	FS2213	FS2214	FS2215	FS2216	-	FS2217	-	FS2218	-
	d_1 = 32 mm	-	-	-	FS2231	-	FS2232	-	FS2233	-
Adaptor sleeves sealed for internal cooling	d_1 = 12 mm	FS2189	FS2190	FS2191	FS2192	-	FS2193	-	-	-
	d_1 = 20 mm	FS2199	FS2200	FS2201	FS2202	FS2203	FS2204	FS2205	FS2206	FS2207
	d_1 = 32 mm	-	-	-	FS2222	-	FS2223	-	FS2224	-

Continued	d_4 mm	12	13	14	15	16	18	20	25	
Adaptor sleeves for peripheral cooling	d_1 = 12 mm	-	-	-	-	-	-	-	-	
	d_1 = 20 mm	FS2219	-	FS2220	-	FS2221	-	-	-	
	d_1 = 32 mm	FS2234	-	FS2235	-	FS2236	FS2237	FS2238	FS2239	
Adaptor sleeves sealed for internal cooling	d_1 = 12 mm	-	-	-	-	-	-	-	-	
	d_1 = 20 mm	FS2208	FS2209	FS2210	FS2211	FS2212	-	-	-	
	d_1 = 32 mm	FS2225	-	FS2226	-	FS2227	FS2228	FS2229	FS2230	

G-41

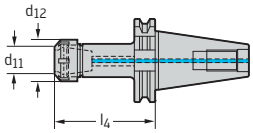
★ New addition to range

Collet chuck DIN 69871 AD+B
AK 300.S ...
SK40 + SK50

- For ER collets in acc. with DIN 6499

Tool

SK DIN 69871 AD+B



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	Collets	kg
★ AK300.S40.075.ER16	SK40	1-10	28	75	ER 16	1
★ AK300.S40.075.ER20	SK40	1-13	34	75	ER 20	1,1
★ AK300.S40.075.ER25	SK40	1-16	42	75	ER 25	1,3
★ AK300.S40.075.ER32	SK40	1-20	50	75	ER 32	1,4
★ AK300.S40.075.ER40	SK40	2-26	63	75	ER 40	1,6
★ AK300.S40.105.ER16	SK40	1-10	28	105	ER 16	1,1
★ AK300.S40.105.ER20	SK40	1-13	34	105	ER 20	1,3
★ AK300.S40.105.ER25	SK40	1-16	42	105	ER 25	1,7
★ AK300.S40.105.ER32	SK40	1-20	50	105	ER 32	1,8
★ AK300.S40.105.ER40	SK40	2-26	63	105	ER 40	2
★ AK300.S50.075.ER20	SK50	1-13	34	75	ER 20	2,9
★ AK300.S50.075.ER25	SK50	1-16	42	75	ER 25	3,2
★ AK300.S50.075.ER32	SK50	1-20	50	75	ER 32	3,3
★ AK300.S50.075.ER40	SK50	2-26	63	75	ER 40	3,3
★ AK300.S50.105.ER20	SK50	1-13	34	105	ER 20	3,1
★ AK300.S50.105.ER25	SK50	1-16	42	105	ER 25	3,4
★ AK300.S50.105.ER32	SK50	1-20	50	105	ER 32	3,7
★ AK300.S50.105.ER40	SK50	2-26	63	105	ER 40	4,1

Bodies and assembly parts are included in the scope of delivery.
If the collet chuck is used for the internal coolant supply, use the sealing discs on page G 102 of the Walter General catalogue 2012.
The clamping nut can be damaged if the chuck is used without a sealing disc.
For collets, see page G 99 of the Walter General catalogue 2012.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	Collets	ER 16	ER 20	ER 25	ER 32	ER 40
	Clamping nut for internal coolant supply	FS1448	FS1359	FS1449	FS1360	FS1450

Accessories

	Collets	ER 16-ER 20	ER 25	ER 32	ER 40
	Tensioning key	FS1539	FS1544	FS1545	FS1546

★ New addition to range

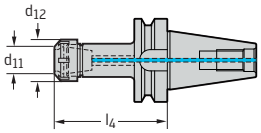
Collet chuck MAS-BT JIS B 6339
AK 300.BT ...

SK40 + SK50

- For ER collets in acc. with DIN 6499

Tool

JIS B 6339



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	Collets	kg
★ AK300.BT40.075.ER16	SK40	1-10	28	75	ER 16	1,1
★ AK300.BT40.075.ER20	SK40	1-13	34	75	ER 20	1,2
★ AK300.BT40.075.ER25	SK40	1-16	42	75	ER 25	1,4
★ AK300.BT40.075.ER32	SK40	1-20	50	75	ER 32	1,5
★ AK300.BT40.075.ER40	SK40	2-26	63	75	ER 40	1,6
★ AK300.BT40.105.ER16	SK40	1-10	28	105	ER 16	1,3
★ AK300.BT40.105.ER20	SK40	1-13	34	105	ER 20	1,5
★ AK300.BT40.105.ER25	SK40	1-16	42	105	ER 25	1,7
★ AK300.BT40.105.ER32	SK40	1-20	50	105	ER 32	1,8
★ AK300.BT40.105.ER40	SK40	2-26	63	105	ER 40	1,9
★ AK300.BT50.075.ER20	SK50	1-13	34	75	ER 20	3,7
★ AK300.BT50.075.ER25	SK50	1-16	42	75	ER 25	4
★ AK300.BT50.075.ER32	SK50	1-20	50	75	ER 32	4
★ AK300.BT50.085.ER40	SK50	2-26	63	75	ER 40	4,2
★ AK300.BT50.105.ER20	SK50	1-13	34	105	ER 20	4,1
★ AK300.BT50.105.ER25	SK50	1-16	42	105	ER 25	4,3
★ AK300.BT50.105.ER32	SK50	1-20	50	105	ER 32	4,5
★ AK300.BT50.105.ER40	SK50	2-26	63	105	ER 40	4,9

Bodies and assembly parts are included in the scope of delivery.
If the collet chuck is used for the internal coolant supply, use the sealing discs on page G 102 of the Walter General catalogue 2012.
The clamping nut can be damaged if the chuck is used without a sealing disc.
For collets, see page G 99 of the Walter General catalogue 2012.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	Collets	ER 16	ER 20	ER 25	ER 32	ER 40
	Clamping nut for internal coolant supply	FS1448	FS1359	FS1449	FS1360	FS1450

Accessories

	Collets	ER 16-ER 20	ER 25	ER 32	ER 40
	Tensioning key	FS1539	FS1544	FS1545	FS1546

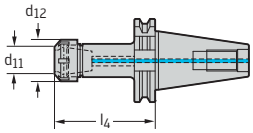
★ New addition to range

Collet chuck DIN 69871 AD+B
AK 300.S ...
SK40 + SK50

- For ER collets in acc. with DIN 6499

Tool

SK DIN 69871 AD+B



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	Collets	kg
★ AK300.S40.070.ER16	SK40	1-10	28	70	ER 16	1
★ AK300.S40.070.ER20	SK40	1-13	34	70	ER 20	1,1
★ AK300.S40.070.ER25	SK40	1-16	42	70	ER 25	1,2
★ AK300.S40.070.ER32	SK40	1-20	50	70	ER 32	1,4
★ AK300.S40.070.ER40	SK40	2-26	63	70	ER 40	1,5
★ AK300.S40.100.ER16	SK40	1-10	28	100	ER 16	1,1
★ AK300.S40.100.ER20	SK40	1-13	34	100	ER 20	1,3
★ AK300.S40.100.ER25	SK40	1-16	42	100	ER 25	1,5
★ AK300.S40.100.ER32	SK40	1-20	50	100	ER 32	1,8
★ AK300.S40.100.ER40	SK40	2-26	63	100	ER 40	1,9
★ AK300.S50.070.ER20	SK50	1-13	34	70	ER 20	2,9
★ AK300.S50.070.ER25	SK50	1-16	42	70	ER 25	3,2
★ AK300.S50.070.ER32	SK50	1-20	50	70	ER 32	3,1
★ AK300.S50.070.ER40	SK50	2-26	63	70	ER 40	3,5
★ AK300.S50.100.ER20	SK50	1-13	34	100	ER 20	3,1
★ AK300.S50.100.ER25	SK50	1-16	42	100	ER 25	3,6
★ AK300.S50.100.ER32	SK50	1-20	50	100	ER 32	3,8
★ AK300.S50.100.ER40	SK50	2-26	63	100	ER 40	4,1

Bodies and assembly parts are included in the scope of delivery.
For collets, see page G 99 of the Walter General catalogue 2012.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	Collets	ER 16	ER 20	ER 25	ER 32	ER 40
	Clamping nut	FS1537	FS2183	FS1540	FS1541	FS1542

Accessories

	Collets	ER 16-ER 20	ER 25	ER 32	ER 40
	Tensioning key	FS1539	FS1544	FS1545	FS1546

★ New addition to range

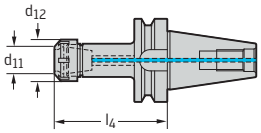
Collet chuck MAS-BT JIS B 6339
AK 300.BT ...

SK40 + SK50

- For ER collets in acc. with DIN 6499

Tool

JIS B 6339



Designation	d_1 mm	d_{11} mm	d_{12} mm	l_4 mm	Collets	kg
★ AK300.BT40.070.ER16	SK40	1-10	28	70	ER 16	1,1
★ AK300.BT40.070.ER20	SK40	1-13	34	70	ER 20	1,1
★ AK300.BT40.070.ER25	SK40	1-16	42	70	ER 25	1,3
★ AK300.BT40.070.ER32	SK40	1-20	50	70	ER 32	1,4
★ AK300.BT40.070.ER40	SK40	2-26	63	70	ER 40	1,6
★ AK300.BT40.100.ER16	SK40	1-10	28	100	ER 16	1,3
★ AK300.BT40.100.ER20	SK40	1-13	34	100	ER 20	1,5
★ AK300.BT40.100.ER25	SK40	1-16	42	100	ER 25	1,7
★ AK300.BT40.100.ER32	SK40	1-20	50	100	ER 32	1,8
★ AK300.BT40.100.ER40	SK40	2-26	63	100	ER 40	1,9
★ AK300.BT50.070.ER20	SK50	1-13	34	70	ER 20	3,7
★ AK300.BT50.070.ER25	SK50	1-16	42	70	ER 25	4
★ AK300.BT50.070.ER32	SK50	1-20	50	70	ER 32	4
★ AK300.BT50.080.ER40	SK50	2-26	63	70	ER 40	4,2
★ AK300.BT50.100.ER20	SK50	1-13	34	100	ER 20	4,1
★ AK300.BT50.100.ER25	SK50	1-16	42	100	ER 25	4,3
★ AK300.BT50.100.ER32	SK50	1-20	50	100	ER 32	4,5
★ AK300.BT50.100.ER40	SK50	2-26	63	100	ER 40	4,9

Bodies and assembly parts are included in the scope of delivery.
For collets, see page G 99 of the Walter General catalogue 2012.
For pull studs for steep tapers, see page H 42 of the Walter General catalogue 2012.

Assembly parts

	Collets	ER 16	ER 20	ER 25	ER 32	ER 40
	Clamping nut	FS1537	FS2183	FS1540	FS1541	FS1542

Accessories

	Collets	ER 16-ER 20	ER 25	ER 32	ER 40
	Tensioning key	FS1539	FS1544	FS1545	FS1546

★ New addition to range

Tightening screws for face mill adaptors

When using face mill adaptors A150, A155 and AK155 in combination with porcupine cutters and ramping milling cutters with cylindrical bores and DIN 138 longitudinal key way, the tightening screw of the adaptor must be replaced.

Designation	Tightening screw for adaptor*
F4138.B16.040.Z03.33	M8 x 40 (SW6)
F4138.B16.040.Z03.43	M8 x 50 (SW6)
F4138.B22.050.Z04.43	M10 x 45 (SW8)
F4138.B22.050.Z04.54	M10 x 55 (SW8)
F4138.B27.063.Z05.43	M12 x 45 (SW10)
F4138.B27.063.Z05.54	M12 x 55 (SW10)
F4138.B32.080.Z06.54	M16 x 65 (SW14)
F4138.B32.080.Z06.65	M16 x 70 (SW14)
F4238.B22.050.Z03.43	M10 x 45 (SW8)
F4238.B27.063.Z04.43	M12 x 55 (SW10)
F4238.B27.063.Z04.57	M12 x 70 (SW10)
F4238.B27.066.Z04.57	M12 x 70 (SW10)
F4238.B32.080.Z05.57	M16 x 70 (SW14)
F4238.B32.080.Z05.71	M16 x 90 (SW14)
F4238.B32.085.Z05.71	M16 x 90 (SW14)
F4338.B27.063.Z04.31	M12 x 40 (SW10)
F4338.B27.063.Z04.47	M12 x 50 (SW10)
F4338.B27.063.Z04.63	M12 x 65 (SW10)
F4338.B32.080.Z05.31	M16 x 35 (SW14)
F4338.B32.080.Z05.63	M16 x 70 (SW14)
F4338.B32.080.Z05.78	M16 x 90 (SW14)
F4338.B40.100.Z05.78	M20 x 80 (SW17)
F4338.B40.125.Z06.94	M20 x 90 (SW17)

Designation	Tightening screw for adaptor*
F5138.B22.040.Z02.34	M10 x 40 (SW8)
F5138.B22.040.Z02.45	M10 x 45 (SW8)
F5138.B22.050.Z03.34	M10 x 40 (SW8)
F5138.B22.050.Z03.45	M10 x 45 (SW8)
F5138.B27.063.Z04.45	M12 x 50 (SW10)
F5138.B27.063.Z04.56	M12 x 60 (SW10)
F5138.B32.080.Z05.56	M16 x 65 (SW14)
F2238.B.050.Z02.42	M10 x 40 (SW8)
F2238.B.063.Z03.50	M12 x 35 (SW10)
F2238.B.065.Z03.50	M12 x 35 (SW10)
F2238.B.080.Z03.67	M16 x 60 (SW14)
F2238.B.082.Z03.67	M16 x 60 (SW14)
F2238.B.100.Z04.77	M20 x 70 (SW17)
F2238.B.125.Z05.87	M24 x 80 (SW19)
F3040.B.040.Z03.15	M8 x 40 (SW6)
F3040.B.050.Z04.15	M10 x 35 (SW8)
F3040.B.063.Z05.15	M10 x 35 (SW8)
F3040.B.050.Z03.20	M10 x 40 (SW8)
F3040.B.063.Z04.20	M10 x 35 (SW8)

* Cap screw ISO 4762 (12.9)

Recommended ap [mm] limits for hydraulic expansion chuck AK 182

D_C [mm]		12 mm			16 mm		20 mm	
Adaptor in the hydraulic expansion chuck		AK 182 ... 12 direct	AK 182 ... 20 reduced	AK 182 ... 32 reduced	AK 182 ... 20 reduced	AK 182 ... 32 reduced	AK 182 ... 20 direct	AK 182 ... 32 reduced
P	ISO-P	10	15	30	10	25	10	20
M	ISO-M	10	13	30	10	30	10	23
K	ISO-K	12	18	40	12	30	10	28
N	Aluminium	30	40	40	40	40	16	40
S	Inconel	8	12	27	10	23	8	18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CONTENTS

General

Torque screwdriver with interchangeable blades

Torque screwdriver

Designation	Size		Scale range
FS 2001	1	4	0.4–1.2 Nm
FS 2003	3	4	1.5-5.0 Nm
FS 2002	1	4	3.5–10.6 in lbs
FS 2004	3	4	13.3-44 in lbs

Designation	Size		Scale range
FS 2248		4	1.0-6.0 Nm

Interchangeable blades	Designation	Torx	
 Torx interchangeable blades Blade length 175 mm	FS 2005	6	4
	FS 2006	7	
	FS 2007	8	
	FS 2008	10	
	FS 2009	15	
	FS 2010	20	
 Torx Plus interchangeable blades Blade length 175 mm	FS 2085	6 IP	4
	FS 2011	7 IP	
	FS 2012	8 IP	
	FS 2013	9 IP	
	FS 2014	15 IP	
	FS 2015	20 IP	
	FS 2016	25 IP	
Complete blade set (FS 2005–FS 2016) Blade length 175 mm	FS 2017		4

Torque T-handle

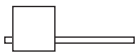
Designation		Scale range
FS 2041	6	4.5–14 Nm
FS 2042	6	40–123 in lbs

Interchangeable blades	Designation	Torx / SW	
 Torx interchangeable blades Blade length 130 mm	FS 2043	15	6
	FS 2044	20	
	FS 2045	25	
	FS 2046	30	
 Torx Plus interchangeable blades Blade length 130 mm	FS 2047	15 IP	6
	FS 2048	20 IP	
	FS 2049	25 IP	
	FS 2109	30 IP	
 Hexagonal interchangeable blades Blade length 130 mm	FS 2050	SW 3	6
	FS 2051	SW 4	
	FS 2052	SW 5	
Complete blade set (FS 2043–FS 2052) Blade length 130 mm	FS 2053		6

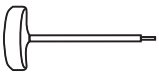
Screwdriver

Screwdriver types	Designation	Torx
 Screwdriver	FS 1063	6
	FS 2086	6 IP
	FS 309	7
	FS 2088	7 IP
	FS 230	8
	FS 1483	8 IP
	FS 1128	9
	FS 1484	9 IP
	FS 229	15
	FS 1485	15 IP
	FS 228	20
	FS 1486	20 IP
	FS 2167	25
	FS 1487	25 IP
	FS 396	30
	FS 2109	30 IP

IP = Torx Plus

Screwdriver types	Designation	Torx	SW
 Torx key	FS 2146	6 IP	–
	FS 2087	6 IP	–
	FS 325	7	–
	FS 1490	7 IP	–
	FS 257	8	–
	FS 1466	9 IP	–
	FS 1050	10	–
	FS 255	15	–
	FS 1465	15 IP	3,5
	FS 1496	15 IP	4,0
	FS 256	20	–
	FS 1154	–	2,0
	FS 1155	–	2,5

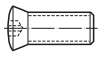
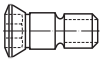
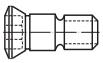
IP = Torx Plus

Screwdriver types	Designation	Torx
 Handle key, small	FS 1047	15
	FS 1048	20
	FS 1049	25
 Handle key, large	FS 1172	15
	FS 1173	20
	FS 1174	25
	FS 1175	30

Allen key	Designation	Torx	SW
	ISO 2936–1,3	–	1,3
	ISO 2936–1,5	–	1,5
	ISO 2936–2	–	2
	ISO 2936–2,5	–	2,5
	ISO 2936–3	–	3
	ISO 2936–4	–	4
	ISO 2936–5	–	5
	ISO 2936–6	–	6
	FS 1464	20 IP	–
	FS 1592	25 IP	–

IP = Torx Plus

Clamping Screws for Indexable Inserts

Screw types	Designation	Dimensions	Torx	Tightening torque Nm
 Clamping screws with head angle 43° for inserts with countersink	FS 322	M 2,5 x 5,7	7	0,8
	FS 258	M 3 x 5,7	8	1,5
	FS 246	M 3 x 7	8	1,5
	FS 1163	M 3,5 x 10	15	3,0
	FS 320	M 4 x 5	15	3,0
	FS 318	M 4 x 6	15	3,0
	FS 245	M 4 x 6,5	15	3,0
	FS 321	M 4 x 7	15	3,0
	FS 319	M 4 x 8	15	3,0
	FS 244	M 4 x 9	15	3,0
	FS 749	M 4 x 10,5	15	3,0
	FS 326	M 4 x 12	15	3,0
	FS 1458	M 4 x 11,3	15 IP	2,5
	FS 954	M 4,5 x 11	20	4,5
	FS 260	M 5 x 9,5	20	5,0
	FS 243	M 5 x 11	20	5,0
	FS 242	M 5 x 13	20	5,0
	FS 1165	M 5 x 12	20	6,0
	FS 1010	M 6 x 14	20	5,0
	FS 1164	M 6 x 15	25	10,0
 Fitting screws	FS 925	M 2,5 x 6,5	8	0,8
	FS 397	M 3 x 6,9	8	1,0
	FS 2070	M 3 x 6,5	8 IP	2,0
	FS 922	M 3,5 x 9,5	15	2,5
	FS 390	M 4 x 0,5 x 8,4	15	4,0
	FS 2071	M 4 x 8,4	15 IP	4,0
	FS 1028	M 4,5 x 12,8	20	4,0
	FS 1153	M 4,5 x 14	20	4,0
	FS 391	M 5 x 0,5 x 9,1	20	5,0
	FS 392	M 5 x 0,5 x 12,75	20	5,0
	FS 393	M 5 x 0,5 x 15,45	20	5,0
	FS 2072	M 5 x 9,55	20 IP	5,0
	FS 2073	M 5 x 0,5 x 12,75	20 IP	5,0
	FS 2074	M 5 x 15,45	20 IP	5,0
	FS 2075	M 6 x 20,35	20 IP	5,0
	FS 394	M 6 x 0,7 x 20,35	20	5,0
	FS 395	M 8 x 0,75 x 24,7	30	6,0
	FS 2107	M 8 x 24,7	30 IP	10,0
 Clamping screws for exchangeable blades	FS 1396	M 2,5 x 10,9	7 IP	1,2
	FS 1397	M 3 x 12,8	8 IP	2,0
	FS 1398	M 3 x 14,7	8 IP	2,0
	FS 1399	M 4 x 16,7	15 IP	4,0
	FS 1400	M 5 x 18,7	20 IP	5,0
	FS 1401	M 5 x 20,6	20 IP	5,0
	FS 1402	M 5 x 22,6	20 IP	5,0
	FS 1403	M 6 x 24,6	25 IP	5,5
	FS 1404	M 6 x 26,6	25 IP	5,5
	FS 2159	M 6 x 29,6	25 IP	5,5
 Clamping screws for thread milling inserts with head angle 60° and arched countersink in accordance with ISO	T9111010-1XT7	M 2,2 x 5	7	0,4
	T9111020-2XT8	M 2,6 x 6,5	8	1,0
	T9111030-3XT10	UNC 5 x 9,5	10	1,5 / 2,0
	T9111031-3MXT10	UNC 5 x 8	10	1,5 / 2,0
	T9111040-4XT20	UNC 8 x 10,7	20	5,0
	T9111050-5XT25	M 5 x 15	25	6,0

Screw types	Designation	Dimensions	Torx	Tightening torque Nm
 Clamping screws with head angle 60° for inserts with arched countersink in acc. with ISO	FS 1358	M 1,8 x 3,5	6	0,4
	FS 1012	M 1,8 x 4,3	6	0,4
	FS 2076	M 2 x 3,2	6 IP	0,6
	FS 1003	M 2 x 3,25	6	0,4
	FS 1151	M 2 x 3,45	6	0,4
	FS 2147	M 2 x 4,25	6 IP	0,6
	FS 2148	M 2 x 4,95	6 IP	0,6
	FS 1004	M 2,2 x 4,6	7	0,6
	FS 2084	M 2,2 x 4,6	7 IP	0,9
	FS 2111	M 2,2 x 4,85	7 IP	0,9
	FS 1020	M 2,2 x 5,5	7	0,6
	FS 2149	M 2,2 x 6,4	7 IP	0,9
	FS 2066	M 2,5 x 5,2	7 IP	0,9
	FS 924	M 2,5 x 4,5	8	0,8
	FS 1455	M 2,5 x 4,5	8 IP	0,8 / 1,2
	FS 1129	M 2,5 x 5,2	8	0,8
	FS 1021	M 2,5 x 5,5	8	0,8
	FS 2067	M 2,5 x 5,7	7 IP	0,9
	FS 375	M 2,5 x 5,8	7	0,8
	FS 923	M 2,5 x 6	8	0,8 / 1,2
	FS 1454	M 2,5 x 6	8 IP	0,8 / 1,2
	FS 2061	M 2,5 x 6,5	7 IP	0,9
	FS 2077	M 3 x 5,3	9 IP	1,5
	FS 1005	M 3 x 6	8	1,0
	FS 1456	M 3 x 6,2	9 IP	1,5 / 2,0
	FS 2078	M 3 x 7,2	9 IP	1,5
	FS 1013	M 3 x 7,5	8	1,0
	FS 1457	M 3 x 7,7	9 IP	1,5
	FS 379	M 3 x 8,5	8	1,0
	FS 2079	M 3 x 8,7	9 IP	2,0
	FS 920	M 3,5 x 7,3	15	2,5
	FS 2062	M 3,5 x 8,1	15 IP	3,0
	FS 359	M 3,5 x 9	15	2,5
	FS 2119	M 3,5 x 9,3	15 IP	3,0
	FS 2063	M 3,5 x 10,1	15 IP	3,0
	FS 1006	M 3,5 x 12	15	2,5
	FS 2060	M 3,5 x 12,1	15 IP	3,0
	FS 2064	M 4 x 0,5 x 11	15 IP	3,0
	FS 2065	M 4 x 0,5 x 14	15 IP	3,0
	FS 1011	M 4 x 7,8	15	3,0
	FS 2080	M 4 x 8,5	15 IP	2,5
	FS 2114	M 4 x 9	15 IP	2,5
	FS 378	M 4 x 9,5	15	3,0
	FS 1453	M 4 x 9,7	15 IP	2,5 / 3,5
	FS 1459*	M 4 x 10	15 IP	4,0
	FS 2163	M 4 x 10,8	15 IP	3,0
	FS 2081	M 4 x 12	15 IP	3,0
	FS 1007	M 4 x 12	15	3,0
	FS 1029	M 5 x 9	20	5,0
	FS 2139	M 5 x 10	20 IP	5,0
	FS 1030	M 5 x 11	20	5,0
	FS 1495	M 5 x 13	20 IP	5,0
	FS 1031	M 5 x 13	20	5,0
	FS 1009	M 5 x 16	20	5,0
	FS 2112	M 5 x 16	20 IP	5,0
	FS 2090	M 5 x 17,25	20 IP	5,0
	FS 1036	M 6 x 14	20	5,0
	FS 2089	M 6 x 18,25	25 IP	5,0
	FS 1008	M 6 x 18	20	5,0
	FS 1152	M 8 x 1 x 18,5	30	10,0
	FS 2150	M 8 x 22	30 IP	10,0

* Screw head with radius IP = Torx Plus

Calculations formulae for turning

Speed

$$n = \frac{v_c \times 1000}{D_c \times \pi} \quad [min^{-1}]$$

Cutting speed

$$v_c = \frac{D_c \times \pi \times n}{1000} \quad [m/min]$$

Feed rate

$$v_f = n \times f \quad [mm/min]$$

Metal removal rate

$$Q = v_c \times a_p \times f \quad [cm^3/min]$$

Chip cross section

$$A = h \times b = a_p \times f \quad [mm^2]$$

Chip width, chip thickness

$$b = \frac{a_p}{\sin\kappa} \quad [mm] \qquad h = f \times \sin\kappa \quad [mm]$$

Main cutting force

$$F_c = A \times k_{c1.1} \times h^{-mc} \quad [N]$$

Power requirement

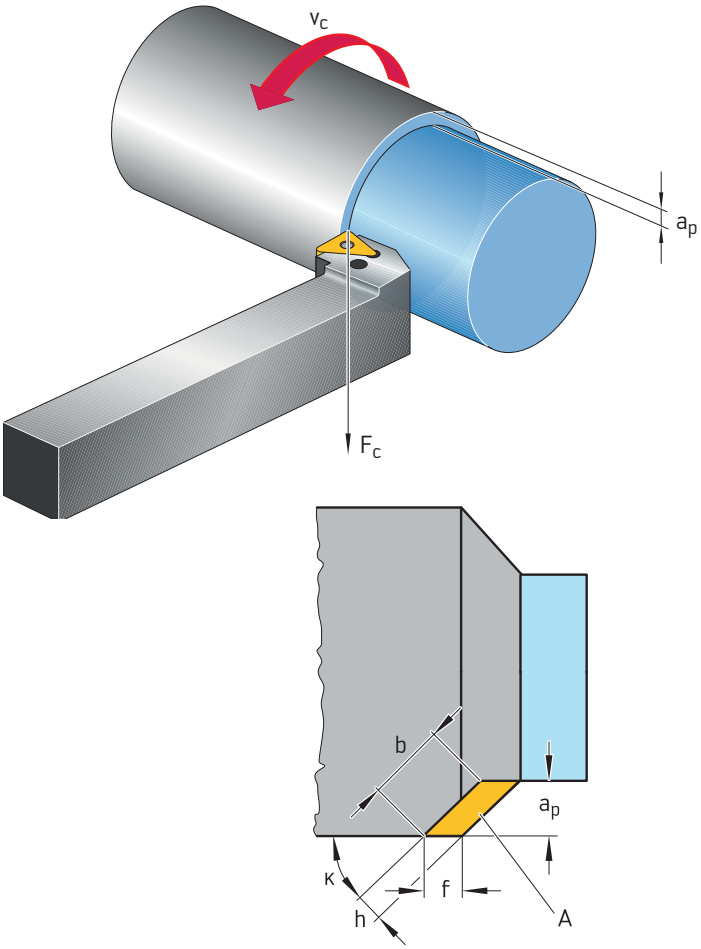
$$P_{mot} = \frac{F_c \times v_c}{60000 \times \eta} \quad [kW]$$

Cutting time

$$t_h = \frac{l_m}{f \times n} \quad [min]$$

Roughness profile depth

$$R_{max} = \frac{f^2}{8 \times r} \times 1000 \quad [\mu m]$$



n	Speed	rpm
D_c	Turning diameter	mm
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min
f	Feed per revolution	mm
Q	Metal removal rate	cm^3/min
a_p	Depth of cut	mm
A	Chip cross section	mm^2
h	Chip thickness	mm
b	Chip width	mm
κ	Lead angle	°
F_c	Main cutting power	N
$k_{c1.1}$*	Specific cutting force for 1 mm^2 chip cross section	N/mm^2
m_c*	Increase in the k_c curve	
P_{mot}	Drive power	kW
t_h	Cutting time	min
l_m	Length of cut	mm
R_{max}	Roughness profile depth	µm
r	Corner radius of the insert	mm
η	Efficiency of the machine	0.75 – 0.9)

* m_c and $k_{c\,1.1}$ see table on page H 7 in the Walter General catalogue 2012.

Drilling calculation formulae

Speed

$$n = \frac{v_c \times 1000}{D_c \times \pi} \quad [min^{-1}]$$

Cutting speed

$$v_c = \frac{D_c \times \pi \times n}{1000} \quad [m/min]$$

Feed per revolution

$$f = f_z \times z \quad [mm]$$

Feed rate

$$v_f = f \times n \quad [mm/min]$$

Metal removal rate (drilling)

$$Q = \frac{v_f \times \pi \times D_c^2}{4 \times 1000} \quad [cm^3/min]$$

Power requirement

$$P_{mot} = \frac{Q \times k_c}{60000 \times \eta} \quad [kW]$$

Torque

$$M_c = \frac{D_c^2 \times k_c \times f}{8000} = \frac{P_c \times 9500}{n} \quad [Nm]$$

Feed force

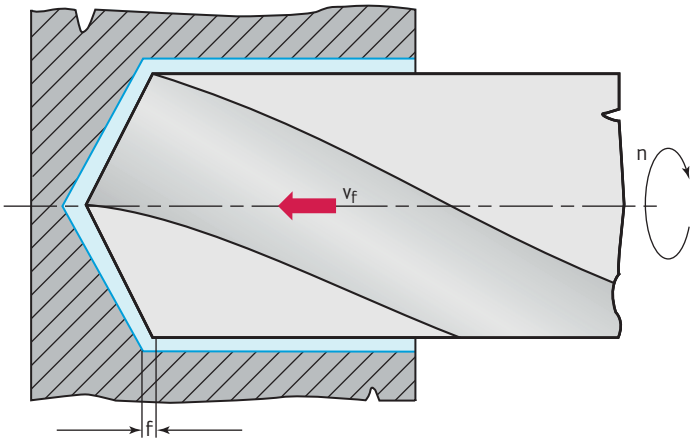
$$F_f = 0{,}63 \times \frac{f \times D_c \times k_c}{2} \quad [N]$$

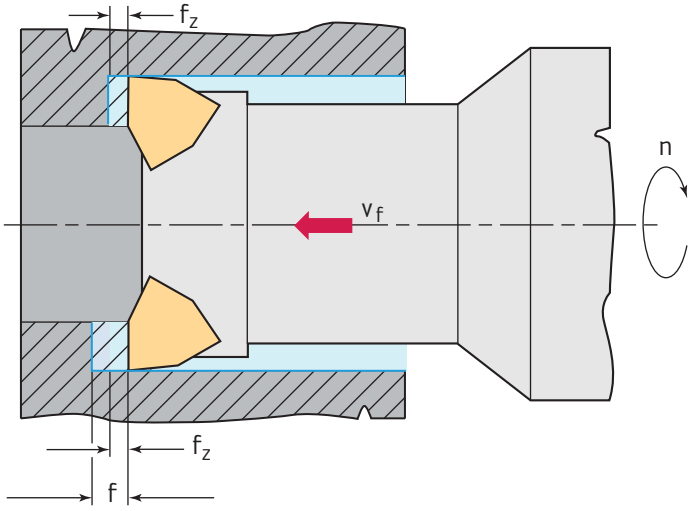
Specific cutting force

$$k_c = \frac{k_{c1.1}}{h^{m_c}}$$

Chip thickness

$$h = f_z \times \sin\kappa \quad [mm]$$





n	Speed	rpm
D_c	Cutter diameter	mm
z	Number of teeth	
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min
f_z	Feed per tooth	mm
f	Feed per revolution	mm
A	Chip cross section	mm^2
Q	Metal removal rate	cm^3/min
P_{mot}	Drive power	kW
M_c	Torque	Nm
F_f	Axial force	N
h	Chip thickness	mm
k_c	Specific cutting force	N/mm^2
η	Efficiency of the machine (0.7 – 0.95)	
κ	Lead angle	°
$k_{c1.1}$*	Specific cutting force for 1 mm^2 chip cross section with h = 1 mm	N/mm^2
m_c*	Increase in the k_c curve	

* m_c and $k_{c\,1.1}$ see table on page H 7 in the Walter General catalogue 2012.

Milling calculation formulae

Speed

$$n = \frac{v_c \times 1000}{D_c \times \pi} \quad [min^{-1}]$$

Cutting speed

$$v_c = \frac{D_c \times \pi \times n}{1000} \quad [m/min]$$

Feed rate

$$v_f = f_z \times z \times n \quad [mm/min]$$

Feed per tooth

$$f_z = \frac{v_f}{z \times n} \quad [mm/z]$$

Metal removal rate

$$Q = \frac{a_e \times a_p \times v_f}{1000} \quad [cm^3/min]$$

Power requirement

$$P_{mot} = \frac{a_p \times a_e \times v_f \times k_c}{6 \times 10^7 \times \eta} \quad [kW]$$

Medium chip thickness

$$h_m = \frac{\{114{,}7 \times f_z \times \sin\kappa \times (a_e / D_c)\}}{\varphi_s} \quad [mm]$$

$$f_z = \frac{h_m \times \varphi_s}{114{,}7 \times \sin\kappa \times (a_e / D_c)} \quad [mm]$$

or

$$h_m \cong f_z \times \sqrt{\frac{a_e}{D_c}} \quad [mm]$$

$$f_z = \frac{h_m}{\sqrt{\frac{a_e}{D_c}}} \quad [mm]$$

as approximation formula for $a_e/D_c < 30\ \%$

Cutting angle

where milling cutter is positioned centrally

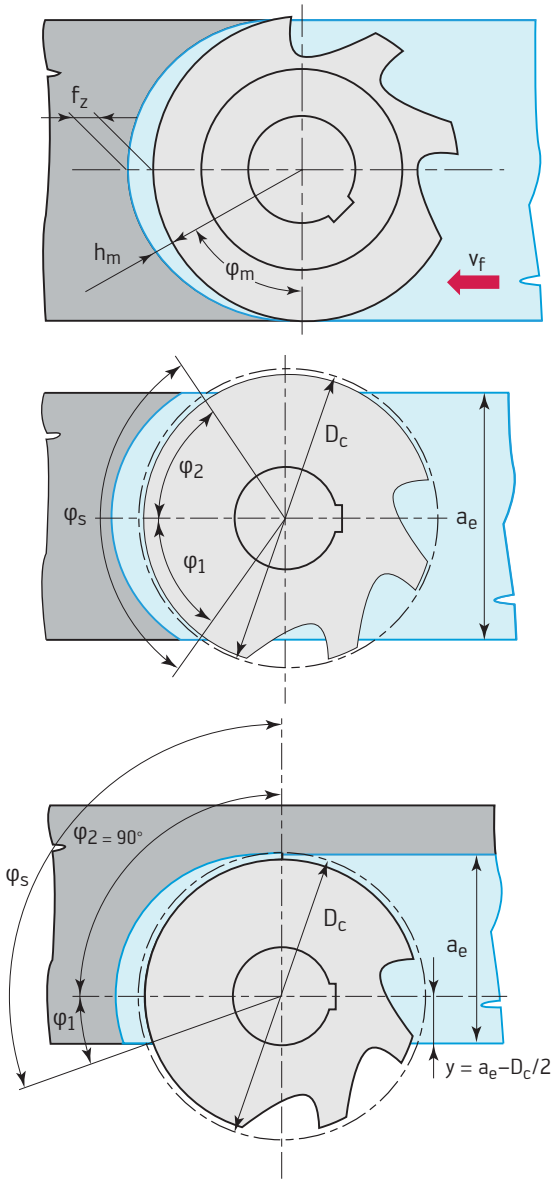
$$\varphi_s = 2 \times \arcsin\left(\frac{a_e}{D_c}\right) \quad [°]$$

where milling cutter is positioned eccentrically

$$\varphi_s = 90° + \arcsin\frac{a_e - (D_c/2)}{(D_c/2)} \quad [°]$$

Specific cutting force

$$k_c = \frac{1 - 0{,}01 \times \gamma_0}{h_m^{m_c}} \times k_{c1.1} \quad [N/mm^2]$$



n	Speed	rpm
D_c	Cutter diameter	mm
a_p	Depth of cut	mm
a_e	Width of cut	mm
z	Number of teeth	
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min
f_z	Feed per tooth	mm
Q	Metal removal rate	cm^3/min
P_{mot}	Drive power	kW
h_m	Medium chip thickness	mm
k_c	Specific cutting force	N/mm^2
η	Machine efficiency (0.7 – 0.95)	
κ	Lead angle	°
φ_s	Cutting angle	°
φ_1	Up-cut milling area	°
φ_2	Synchronous milling area	°
k_c	Specific cutting force	N/mm^2
$k_{c1.1}$*	Specific cutting force for 1 mm^2 chip cross section	N/mm^2
m_c*	Increase in the k_c curve	
y	Reverse cutting	mm

* For m_c and $k_{c1.1}$, see table on page H 7 in the Walter General catalogue 2012.

Cutting ratio for external circular interpolation

External contour

$$v_{fa} = \left(1 + \frac{D_c}{D_w + a_e}\right) \times v_f \quad [mm/min]$$

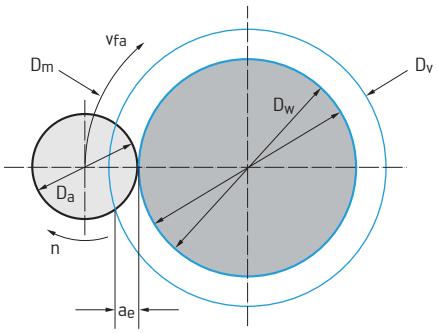
Circular interpolation milling circulation time

$$T_{rev} = \frac{D_m \times \pi}{n \times f_z \times z} \quad [min]$$

$$T_{rev} = \frac{(D_w + D_a)\, D_a \times \pi^2 \times 60}{v_c \times f_z \times z \times 1000} \quad [s]$$

Cutting width with external circular interpolation milling

$$a_e = \frac{(D^2_v - D^2_w)}{4(D_w + D_a)} \quad [mm]$$



External contour

v_{fa}	Feed rate of tool axis	[mm/min]
D_a	Milling cutter outer diameter	[mm]
D_m	Mid-point path diameter	[mm]
D_v	Workpiece raw diameter	[mm]
D_w	Workpiece machined diameter	[mm]
a_e	Material removal	[mm]
n	Speed	[rpm]
f_z	Feed per tooth	[mm]
z	Number of teeth	

Cutting ratio for internal circular interpolation milling of holes

Internal contour

$$v_{fi} = \left(1 - \frac{D_c}{D_w}\right) \times v_f \quad [mm/min]$$

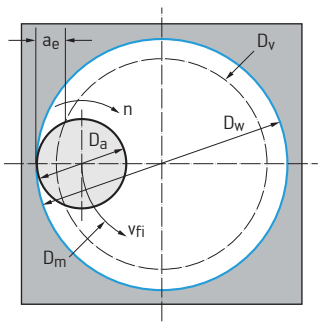
Circular interpolation milling circulation time

$$T_{rev} = \frac{D_m \times \pi}{n \times f_z \times z} \quad [min]$$

$$T_{rev} = \frac{(D_w - D_a)\, D_a \times \pi^2 \times 60}{v_c \times f_z \times z \times 1000} \quad [s]$$

Cutting width with circular interpolation milling

$$a_e = \frac{(D^2_w - D^2_v)}{4(D_w + D_a)} \quad [mm]$$



Internal contour

v_{fi}	Feed rate of tool axis	[mm/min]
D_a	Milling cutter diameter	[mm]
D_v	Workpiece raw diameter	[mm]
D_w	Workpiece machined diameter	[mm]
n	Speed	[rpm]

Thread machining calculation formulae

Speed

$$n = \frac{v_c \times 1000}{D_c \times \pi} \quad [min^{-1}]$$

Cutting speed

$$v_c = \frac{D_c \times \pi \times n}{1000} \quad [m/min]$$

Torque

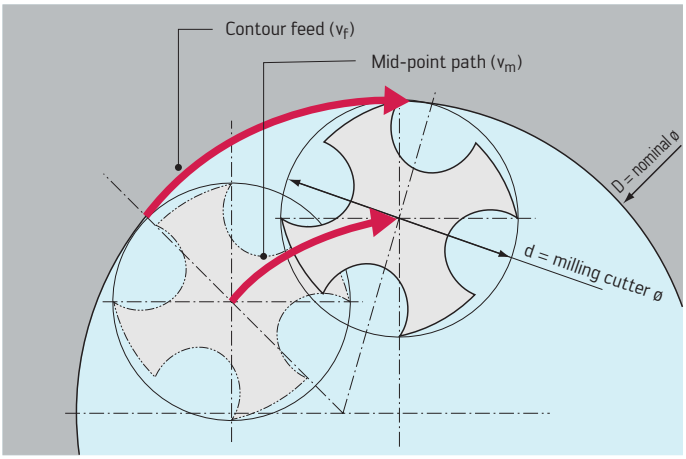
$$M_D = \frac{k_c \times h^2 \times d_1}{8000} \quad [Nm]$$

Power at the tap

$$P = \frac{M_D \times n}{9500} \quad [kW]$$

Power requirement

$$P_{mot} = \frac{P}{\eta_M} \quad [kW]$$



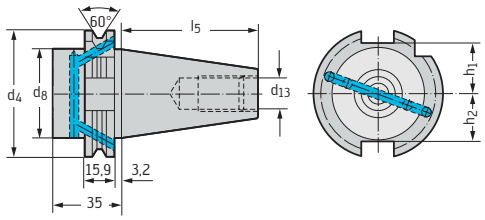
Thread milling calculation formulae

$$v_m = \frac{v_f \, (D-d)}{D}$$

k_c	Specific cutting force	N/mm^2
n	Speed	rpm
h	Thread pitch	mm
d_1	Nominal thread diameter	mm
P_{mot}	Drive power	kW
η_M	Machine efficiency (<1)	

Clamping systems for tools and tool adaptors

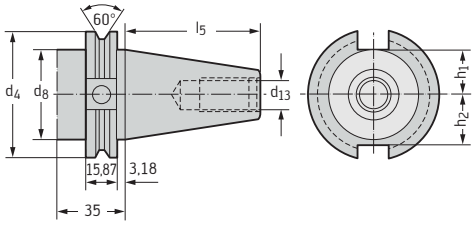
Tool adaptor DIN 69871 part 1 form B



ISO no.	l_5 mm	d_4 mm	$d_{8\ max.}$ mm	d_{13}	h_2 mm	h_1 mm
40	68,40	63,55	50	M16	22,8	25,0
50	101,75	97,50	80	M24	35,5	37,7

(with internal coolant supply; dimensions similar to form A)

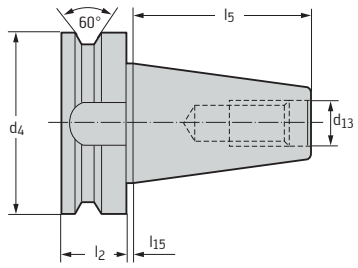
Tool adaptor ANSI B 5.50/CAT



ISO no.	l_5 mm	d_4 mm	d_8 mm	d_{13}	h_2 mm	h_1 mm
40	68,25	63,5	44,5	M16	22,6	25,0
50	101,6	98,4	70,0	M24	35,3	37,7

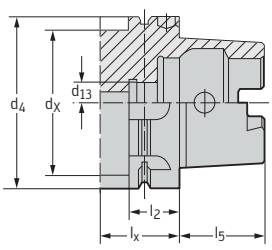
(ANSI/ASME B 5.50 – 1885)

Tool adaptor MAS BT



ISO no.	l_5 mm	d_4 mm	d_{13}	l_2 mm	l_{15} mm
40	65,4	63	M16	25	2
50	101,8	100	M24	35	3

Tool adaptor HSK DIN 69893, part 1, version A

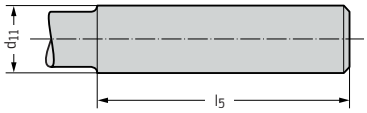


HSK	l_5 mm	d_4 mm	$d_{x\ max.}$ mm	d_{13}	l_2 mm	$l_{x\ min.}$ mm
63	32	63	53	M 18 × 1,0	26	42
100	50	100	85	M 24 × 1,5	29	45

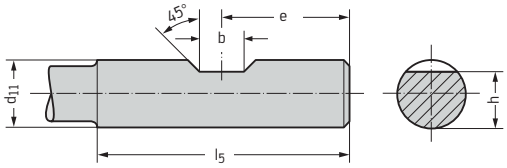
Clamping systems for tools and tool adaptors

Parallel shank
DIN 6535 HA / DIN 6535 HB

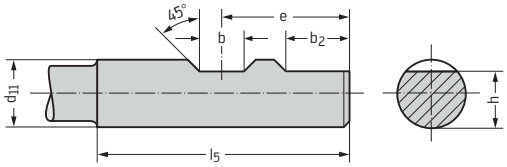
Form HA
for d_{11} = 6 – 20 mm



Form HB
for d_{11} = 6 – 20 mm



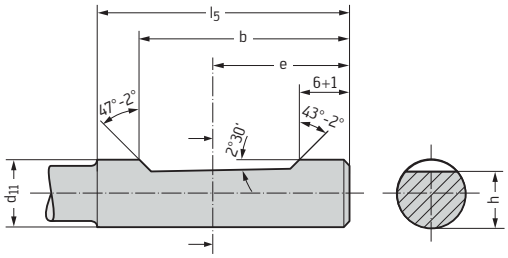
Form HB
for d_{11} = 25 mm



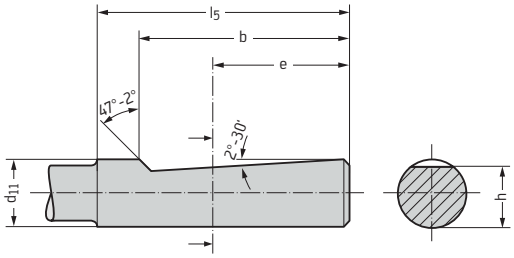
d_{11} h6 mm	l_5 +2 mm	b +0,05 mm	e -1 mm	b_2 +1 mm	h h11 mm
6	36	4,2	18	–	5,1
8	36	5,5	18	–	6,9
10	40	7	20	–	8,5
12	45	8	22,5	–	10,4
14	45	8	22,5	–	12,7
16	48	10	24	–	14,2
18	48	10	24	–	16,2
20	50	11	25	–	18,2
25	56	12	32	17	23,0

Parallel shank
DIN 6535 HE

for d_{11} = 6–20 mm



for d_{11} = 25 mm

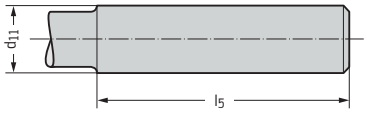


d_{11} h6 mm	l_5 +2 mm	b -1 mm	e mm	h mm
6	36	25	18	5,1
8	36	25	18	6,9
10	40	28	20	8,5
12	45	33	22,5	10,4
14	45	33	22,5	12,7
16	48	36	24	14,2
18	48	36	24	16,2
20	50	38	25	18,2
25	56	44	32	23,0

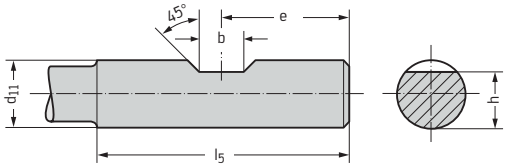
Clamping systems for tools and tool adaptors

Parallel shank DIN 1835 A / DIN 1835 B

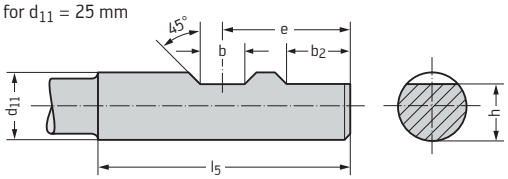
Form A
for d_{11} = 3 – 20 mm



Form B
for d_{11} = 3 – 20 mm



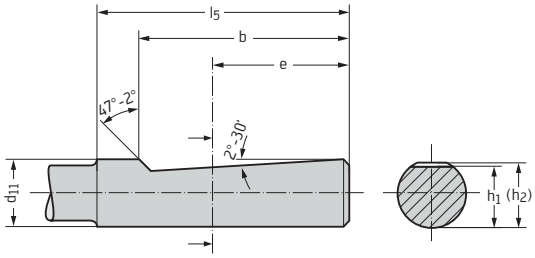
Form B
for d_{11} = 25 mm



d_{11} h6 mm	l_5 +2 mm	b +0,05 mm	e -1 mm	b_2 +1 mm	h h13 mm
3	28	–	–	–	–
4	28	–	–	–	–
5	28	–	–	–	–
6	36	4,2	18	–	4,8
8	36	5,5	18	–	6,6
10	40	7	20	–	8,4
12	45	8	22,5	–	10,4
16	48	10	24	–	14,2
20	50	11	25	–	18,2
25	56	12	32	17	23,0
32	60	14	36	19	30,0
40	70	14	40	19	38,0
50	80	18	45	23	47,8

Parallel shank DIN 1835 E

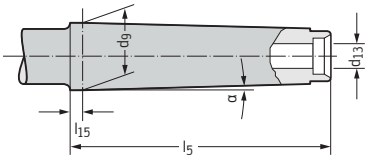
Form E



d_{11} h6 mm	l_5 +2 mm	b -1 mm	e mm	h_1 mm	(h_2) h13 mm
6	36	25	18	5,4	4,8
8	36	25	18	7,2	6,6
10	40	28	20	9,1	8,4
12	45	33	22,5	11,2	10,4
16	48	36	24	15,0	14,2
20	50	38	25	19,1	18,2
25	56	44	32	24,1	23,0
32	60	48	35	31,2	30,0

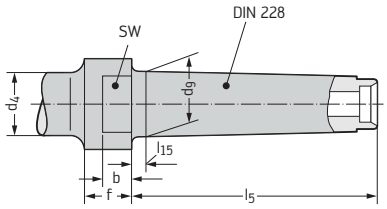
Clamping systems for tools and tool adaptors

Tool adaptor (MK) DIN 228 A



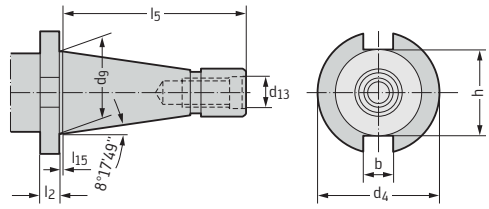
MK	d_9 mm	l_5 mm	l_{15} mm	α	d_{13}
0	9,045	53	3	1°29′27″	–
1	12,065	57	3,5	1°25′43″	M6
2	17,780	69	5	1°25′50″	M10
3	23,825	86	5	1°26′16″	M12
4	31,267	109	6,5	1°29′15″	M16
5	44,399	136	6,5	1°30′26″	M20

Tool adaptor (MK) DIN 2207



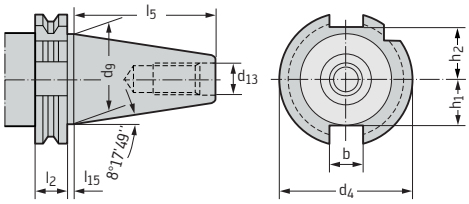
MK	d_9 mm	l_5 mm	l_{15} mm	d_4 mm	f mm	b mm	SW d_9 mm
3	23,825	86	5	36	18	12	24
4	31,267	109	6,5	43	23	15	32
5	44,399	136	6,5	60	28	18	45

Tool adaptor (SK) DIN 2080



ISO no.	d_9 mm	l_5 mm	l_{15} ± 0,2 mm	d_{13}	d_4 - 0,4 mm	l_2 ± 0,15 mm	b H12 mm	h max. mm
40	44,45	93,4	1,6	M16	63	10	16,1	45
50	69,85	126,8	3,2	M24	97,5	12	25,7	70,6

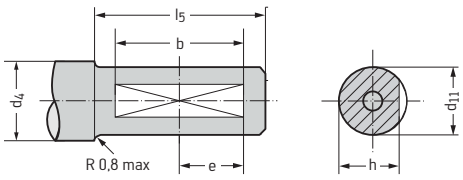
Tool adaptor (SK) DIN 69 871 part 1, form A



ISO no.	l_5 - 0,3 mm	l_2 - 0,1 mm	l_{15} ± 0,2 mm	d_9 mm	d_{13}	d_4 - 0,1 mm	b H12 mm	h_1 - 0,4 mm	h_2 - 0,4 mm
40	68,4	15,9	3,2	44,45	M16	63,55	16,1	22,8	25,0
50	101,75	15,9	3,2	69,85	M24	97,50	25,7	35,5	37,7

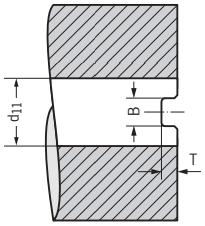
Clamping systems for tools and tool adaptors

Parallel shank ISO 9766:1990 (E)



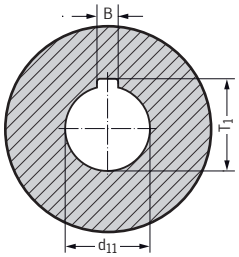
d_{11} h6 mm	d_4 min. mm	h h13 mm	l_5 ±1 mm	e mm	b mm
20	25	18,2	50	14,5	29
25	31	23	56	17,5	35
32	38	30	60	19,5	39

Bore with longitudinal key way DIN 138 – A 10



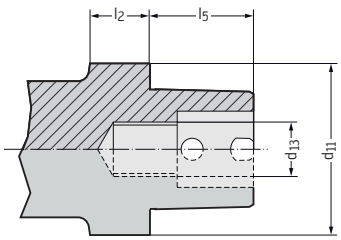
d_{11} mm	B H11 mm	T H12 mm
16	8,4	5,6
22	10,4	6,3
27	12,4	7
32	14,4	8
40	16,4	9

Bore with radial key way DIN 138 – L 10



d_{11} H7 mm	B mm	T_1 mm
16	4	17,7
22	6	24,1
27	7	29,8
32	8	34,8
40	10	43,5
50	12	53,6
60	14	64,2

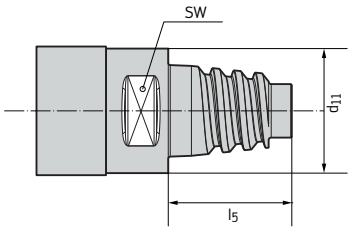
Tool adaptor Capto ISO 26623



Type	d_{11} mm	l_2 mm	l_5 mm	d_{13}
Capto C3	32	15	19	M 12 × 1,5
Capto C4	40	20	24	M 14 × 1,5
Capto C5	50	20	30	M 16 × 1,5
Capto C6	63	22	38	M 20 × 2
Capto C8	80	30	48	M 20 × 2

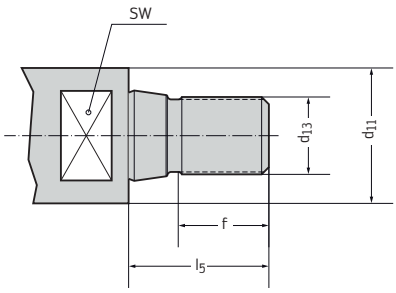
Clamping systems for tools and tool adaptors

Tool adaptor ConeFit™



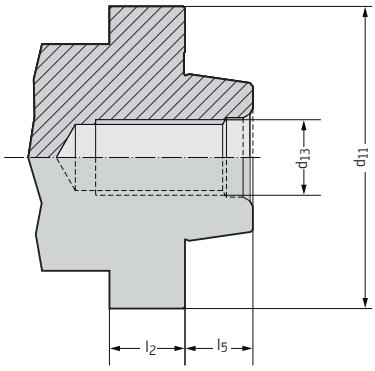
Type	d_{11} mm	l_5 mm	SW mm
E10	9,7	12,4	8
E12	11,7	14,5	10
E16	15,5	18,7	12
E20	19,3	21,3	16
E25	24,2	25,6	20

Tool adaptor ScrewFit



Type	d_{11} mm	d_{13}	l_5 mm	f mm	SW mm
T09	9,7	M5	14	6	8
T14	14,5	M8	18	10	12
T18	18,5	M10	21	12	14
T22	22	M12	23	14	17
T28	28	M16	29	18	21
T36	36	M20	35	20	30
T45	45	M20	35	20	36

Tool adaptor NCT

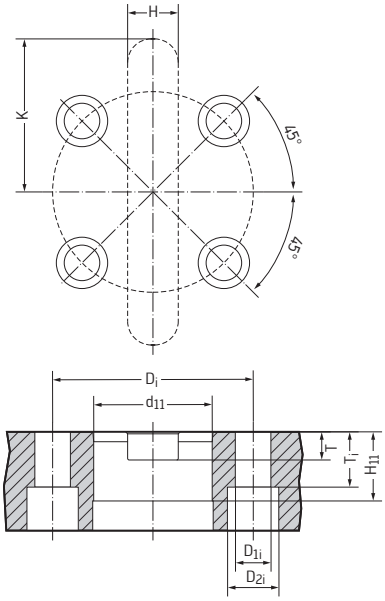


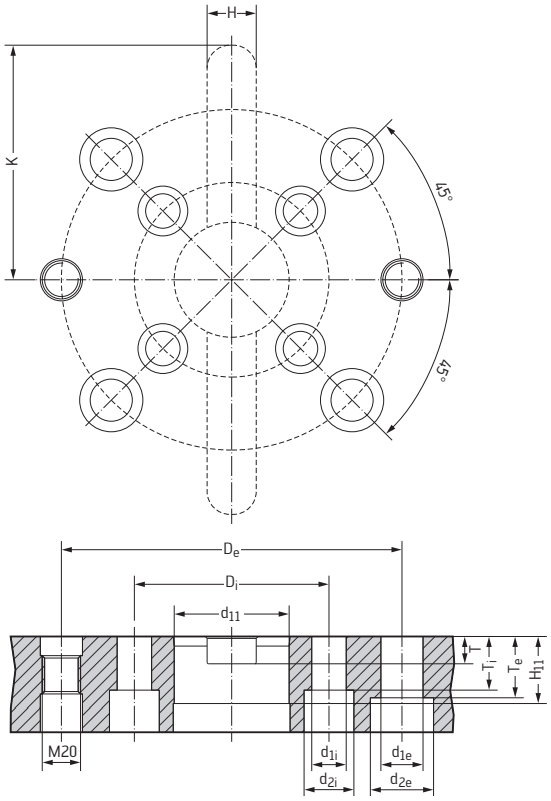
Type	d_{11} mm	d_{13}	l_5 mm	l_2 mm
25	24,85	M8	6,975	14
32	31,85	M8	6,975	14
40	39,85	M12	11,975	16
50	49,85	M12	11,975	16
63	62,85	M16	15,975	16
80	79,85	M20	17,975	18

Clamping systems for tools and tool adaptors

Bores with longitudinal key way for spindle head in acc. with DIN 2079 form B

	d_{11} mm	H_{11} mm	D_i mm	d_{1i} mm	d_{2i} mm	D_e mm	d_{1e} mm	d_{2e} mm	H mm	T mm	K mm	T_i mm	T_e mm
ISO 40/40 B	40	30	66,7	14	–	–	–	–	16,455	9,075	52,5	–	–
ISO 60/50 B	60	35	101,6	18	26	–	–	–	25,64	14,25	77,5	28	–
ISO 60/60-50 BB	60	35	101,6	18	26	177,8	22	33	25,64	14,25	122,5	28	32





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Walter AG

Derendinger Straße 53, 72072 Tübingen
Postfach 2049, 72010 Tübingen
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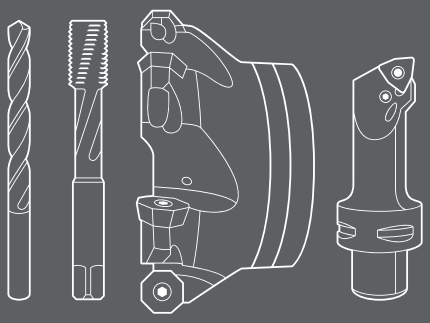

Walter GB Ltd.
Bromsgrove, England
+44 (1527) 839 450, service.uk@walter-tools.com

Walter Kesici Takımlar Sanayi ve Ticaret Ltd. Şti.
Istanbul, Türkiye
+90 (216) 528 1900 Pbx, service.tr@walter-tools.com

Walter Wuxi Co. Ltd.
Wuxi, Jiangsu, P.R. China
+86 (510) 8241 9399, service.cn@walter-tools.com

Walter AG Singapore Pte. Ltd.
+65 6773 6180, service.sg@walter-tools.com

Walter Korea Ltd.
Anyang-si Gyeonggi-do, Korea
+82 (31) 337 6100, service.kr@walter-tools.com

Walter Tools India Pvt. Ltd.
Pune, India
+91 (20) 3045 7300, service.in@walter-tools.com

Walter (Thailand) Co., Ltd.
Bangkok, 10120, Thailand
+66 2 687 0388, service.th@walter-tools.com

Walter Malaysia Sdn. Bhd.
Selangor D.E., Malaysia
+60 (3) 8023 7748, service.my@walter-tools.com

Walter Tooling Japan K.K.
Nagoya, Japan
+81 (52) 723 5800, service.jp@walter-tools.com

Walter USA, LLC
Waukesha WI, USA
+1 800-945-5554, service.us@walter-tools.com

Walter Canada
Mississauga, Canada
service.ca@walter-tools.com

Printed in Germany 6553542 (11/2013) EN