WALTER

Product innovations
Edition 2014-1

Turning, drilling, threading and milling

_INNOVATIONS

Our business is customer value.

Walter General Catalogue + Supplementary Catalogue + New products brochure

You will find the complete tool range of our three competence brands **Walter**, **Walter Titex** and **Walter Prototyp** in the 2012 edition of the General Catalogue, in the 2013/2014 edition of the Supplementary Catalogue and in this first edition of the 2014 new products brochure entitled “Our business is customer value”.
This replaces the previous brochure (second edition for 2013) entitled “Experience, knowledge, technology: Expertise at your side”.

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.

= The full range of tools

TURNING VISIONS INTO REALITY.

Turning your own ideas into reality requires the right tools. Tools for turning, milling, drilling and threading. But it also takes heart and soul. And that's from the initial inspiration through to the final application.

With the competence brands Walter, Walter Titex, Walter Prototyp and Walter Multiply, you receive more than just tools from us, because we do all we can to understand and meet the needs of our customers. We concentrate on the application and what the customer wants to achieve. We help customers to turn their ideas into reality.

For us, perfection is the most important thing. It is the easiest way to achieve productivity and efficiency, and the only way to turn visions into reality.

Expect more. Engineer what you envision.

WALTER

WALTER WALTER TITEX WALTER PROTOTYP WALTER MULTIPLY

TURNING

DRILLING AND THREADING

MILLING

Watch the innovations video:
Scan this QR code or go directly to
http://goo.gl/ncHFHi

WALTER

Product innovations
Edition 2014-1

Turning

_ TOOL INNOVATIONS IN TURNING

This is the way to turn cost-effectively.

Walter Tiger·tec® Silver technology for ISO P, ISO K and ISO M materials.

THE TECHNOLOGY

The patented Tiger·tec® Silver CVD coating is characterised by the highest wear resistance combined with increased toughness. The result: Increases in performance of up to 75% and in some cases, even higher when turning steel, cast iron and stainless materials.

NEW: Tiger·tec® Silver CVD coating
- Aluminium oxide with optimised microstructure for maximum crater wear resistance/cutting speed
- Mechanical post-treatment creates compressive stresses to prevent fracture on the cutting edge
- Silver flank face as an indicator layer for easy wear detection

NEW: Ground contact surface
- Optimum process reliability for interrupted cuts with double-sided inserts.

NEW: Universal geometries
- Wide range of applications
- Short chips

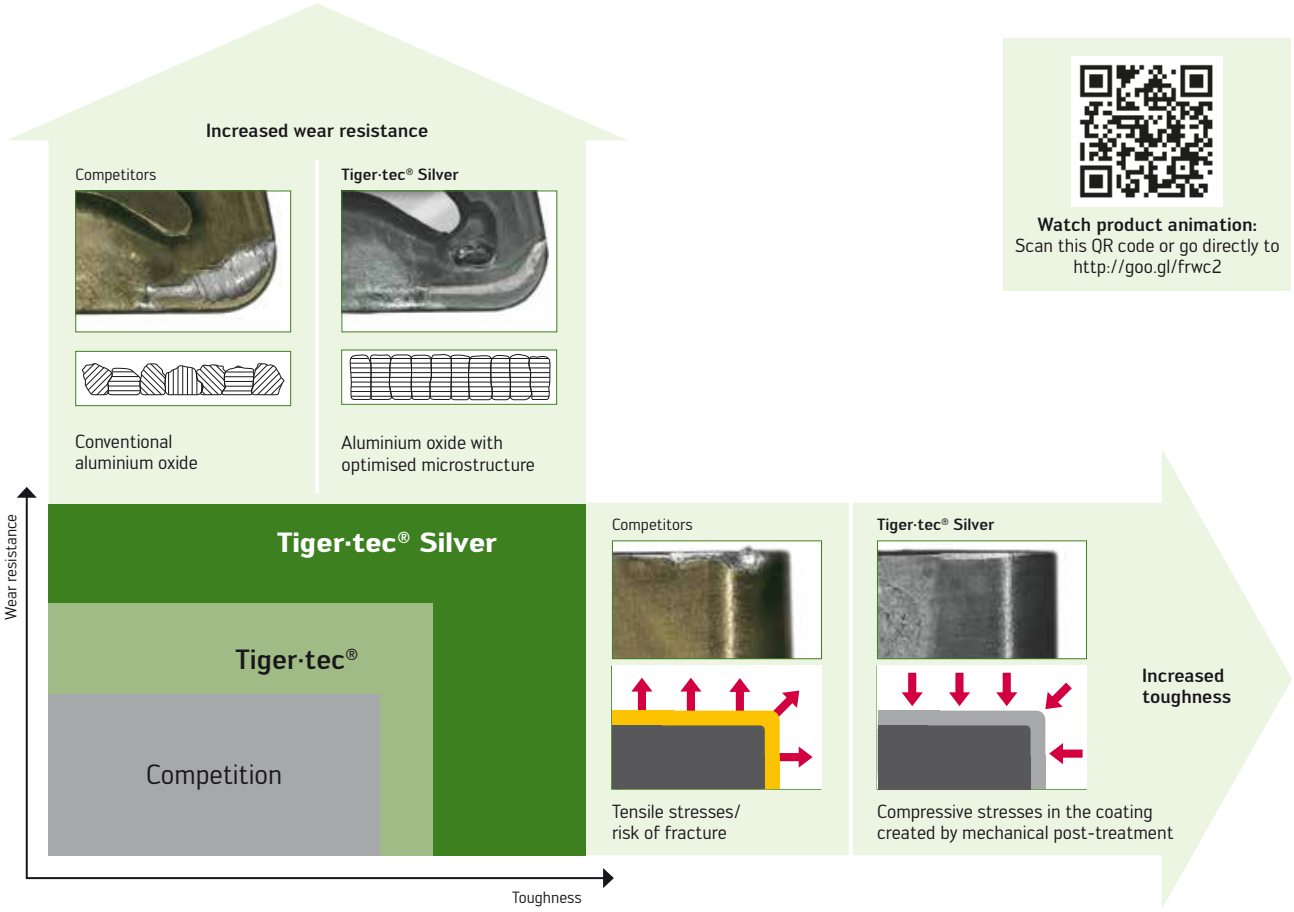
Ordering information can be found from page 20 onwards.

BENEFITS FOR YOU

- Reduction in tooling costs thanks to an increase in tool life of up to 75 per cent, and in some cases, even higher.
- Short process times through maximum cutting speed thanks to Tiger·tec® Silver technology and new geometries
- Greater process reliability when machining interrupted cuts and skins thanks to the contact surface being ground after coating and to mechanical post-treatment

Tiger·tec® Silver

PRODUCT ADVANTAGES

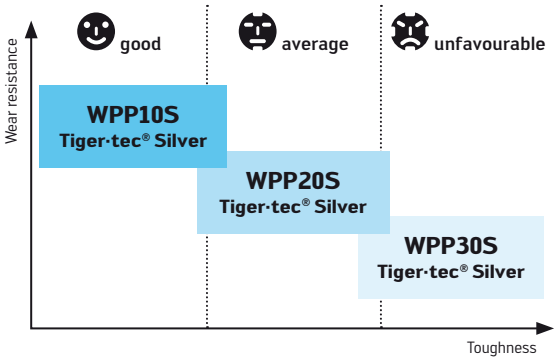


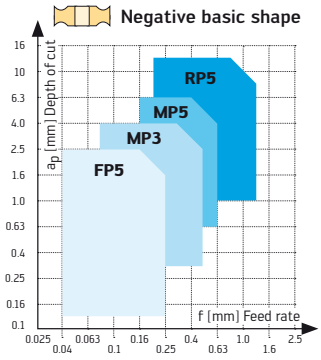
Watch product animation:
Scan this QR code or go directly to http://goo.gl/frwc2

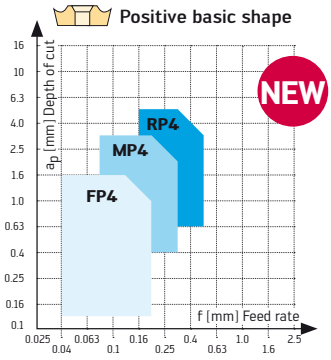
Walter Tiger·tec® Silver technology for ISO P, ISO K and ISO M materials.

NEW 2014

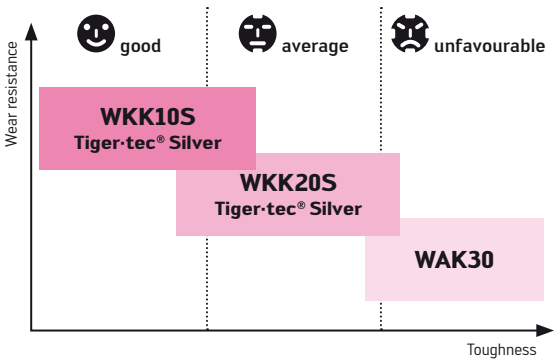
OVERVIEW OF GRADES AND GEOMETRIES: ISO P

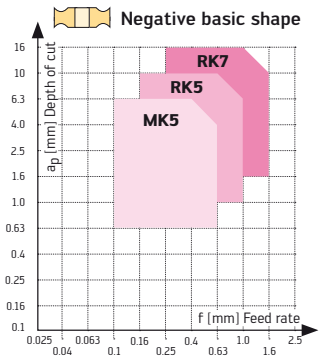




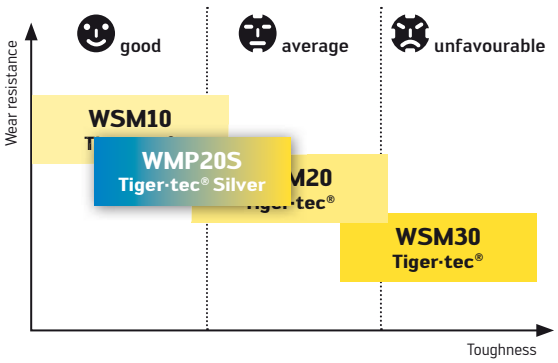


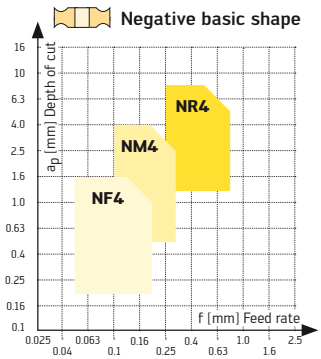
OVERVIEW OF GRADES AND GEOMETRIES: ISO K

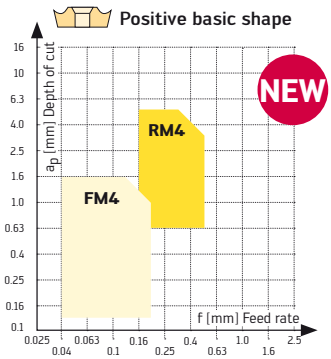




OVERVIEW OF GRADES AND GEOMETRIES: ISO M

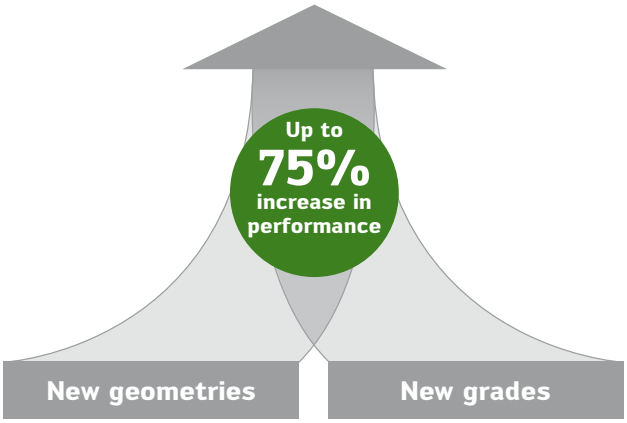






Ordering information can be found from page 20 onwards.

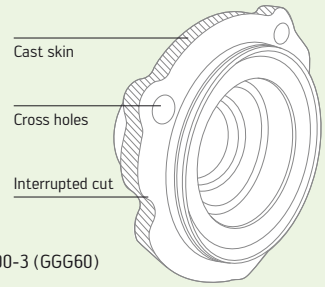
Tiger·tec® Silver



GRADES AND GEOMETRIES

In the families for ISO indexable inserts, the new Tiger·tec® Silver grades are combined with new geometries. The new geometries have a wider chip-breaking range, which simplifies application.

Transmission housing cover – GGG60

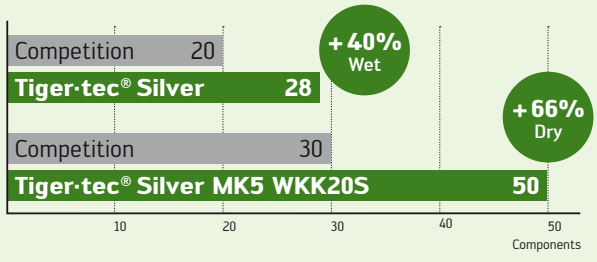


Workpiece material: EN–GJS600-3 (GGG60)
Tensile strength: 190 HB
Indexable insert: CNMG160612–**MK5**
Cutting material: WKK20S **Tiger·tec® Silver**
Tool: DCLNL3225P16

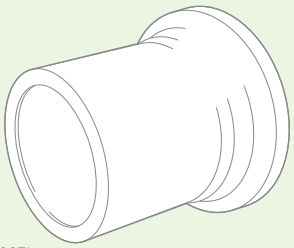
Cutting data

	Competition ISO K20	**Tiger·tec® Silver WKK20S**
v_c	240 m/min	240 m/min
f	0.25 mm	0.25 mm
a_p	3.0 – 5.0 mm	3.0 – 5.0 mm
Tool life for wet machining	20 components	28 components
Tool life for dry machining	30 components	50 components

Comparison of the number of components



Bearing bush 100Cr6 – Turning internal fit

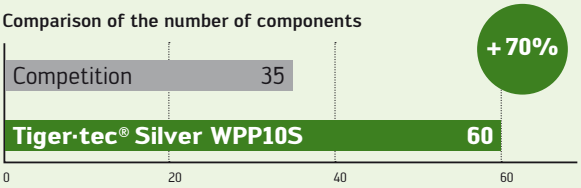


Workpiece material: 100Cr6 (1.2067)
Tensile strength: 950 N/mm²
Indexable insert: CCGT09T308-**MP4**
Cutting material: WPP10S **Tiger·tec® Silver**
Tool: A20S-SCLCL09
Projection length: 80 mm (4 x D)
Machining: D fit: 37.75 +/– 0.01 mm

Cutting data

	Competition ISO P15	**Tiger·tec® Silver WPP10S**
v_c	230 m/min	230 m/min
f	0.25 mm	0.25 mm
a_p	0.75 mm	0.75 mm
Tool life	35 components	60 components
Number of dimensional corrections for turning internal fits	5 corrections	1 correction

Comparison of the number of components



Walter FP4, MP4 and RP4 positive ISO P indexable inserts – with bite.

NEW 2014

THE NEW ISO P GEOMETRIES:

FP4: Steel finishing – universal

- Circumference precision-sintered
- 7° clearance angle

Application:

- Finish machining of small-diameter shafts
- Optimum surface quality, chip breaking
- a_p: 0.1 – 2.5 mm; f: 0.04 – 0.25 mm

Tiger·tec® Silver

MP4: Medium steel machining – optimum chip breaking

- Circumference precision-ground
- Circumference precision-sintered from August 2014
- 7° clearance angle (.CGT...)
- 11° clearance angle (.PGT...)
- Straight cutting edge for C, S and T basic shapes, to facilitate use as a chamfer insert in boring tools

Application:

- Machining long-chipping materials
- Universal use in a wide range of applications
- Fully ground circumference gives highest diameter tolerance accuracy for use in boring tools
- a_p 0.4 – 3.5 mm; f: 0.08 – 0.35 mm

RP4: Steel roughing – stable cutting edge

- Circumference precision-sintered
- 7° clearance angle
- Basic shape: CCMT, DCMT, SCMT, TCMT, VCMT, WCMT

Application:

- Roughing forged parts and cast skins
- Maximum machining volumes and tool life
- a_p 0.6 – 5.0 mm; f: 0.12 – 0.50 mm

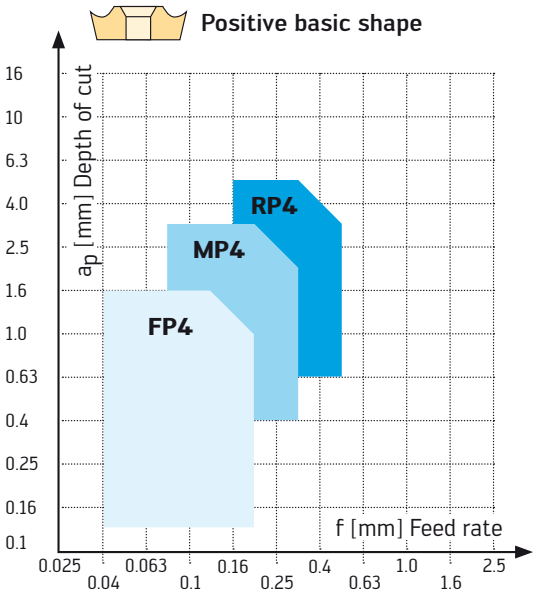
Watch product video:
Scan this QR code or go directly to http://goo.gl/K1xV4Y

BENEFITS FOR YOU

- Excellent chip-breaking properties even on difficult materials, such as 16MnCr5 or construction steels, particularly with the MP4 geometry
- Easy identification thanks to information lasered directly onto the indexable insert
- Increase in performance of 75% and in some cases, even higher thanks to the new Tiger·tec® Silver cutting materials WPP10S, WPP20S and WPP30S

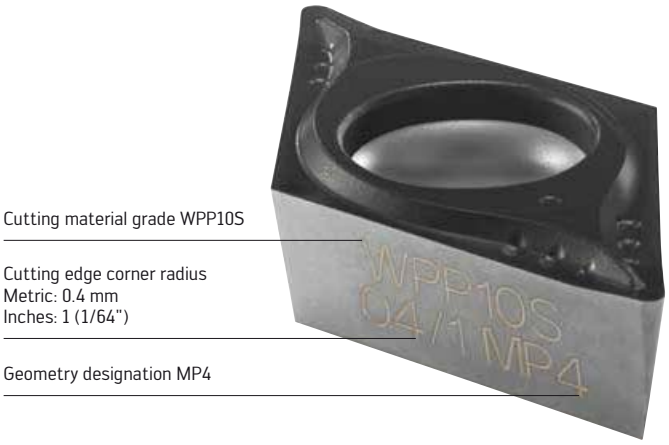
Ordering information can be found from page 23 onwards.

RANGE OF APPLICATIONS:



ADDITIONAL INFORMATION:

Laser engraving of the corner radius size, grade and geometry ensures that there will not be any mix-ups of indexable inserts on the machine.



TWO VERSIONS OF THE MP4 GEOMETRY:

	 Circumference precision-ground CCGT…– MP4	 Circumference precision-sintered CCMT…– MP4
Repeatability/ Repeat accuracy	++	–
Diameter tolerance/ Turning internal fits	++	+
Machining long, unstable components	++	+
Machining interrupted cuts and skins	–	++

++ Very well suited
\+ Well suited
– Acceptable

Walter Tiger·tec® Silver – WMP20S: The universal cutting material for machining ISO M and ISO P materials.

PROGRAMME ADDITION 2014

THE APPLICATION

Primary application of ISO M:

– Machining stainless materials, such as X5CrNi18-10 (1.4301)(304) and X6CrNiMoTi17-12-2 (1.4571)(316Ti)

Primary application of ISO P:

– Machining steels, such as 42CrMo4, 100Cr6 and C45

Secondary application of ISO S:

– Materials such as Inconel 718

THE NEW GRADE

WMP20S (ISO M20; ISO P20)

– Excellent wear resistance thanks to Tiger·tec® Silver CVD coating
– Continuous cut to medium interrupted cuts
– Universal use in ISO M and ISO P workpiece materials
– For a very wide spectrum of materials and parts in production

BENEFITS FOR YOU

– Lower inventory of grades
– Universal application, stainless and steel materials
– Maximum productivity thanks to **Tiger·tec® Silver** technology
– Alternative universal cutting material to our **Tiger·tec®** WSM grades
– Particularly suited to small and medium batch sizes

Tiger·tec® Silver

Axle

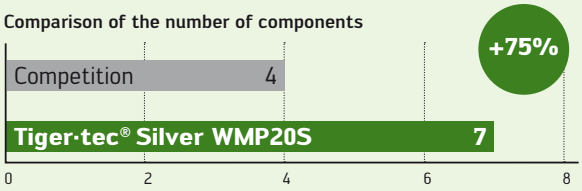
Workpiece material:	X2CrNiMo17 / 1.4404 AISI / SAE 316L
Machine:	Okuma LB15 Emulsion 6 – 8%
Operation:	Facing/longitudinal turning
Indexable insert:	WNMG080412-NM4
Cutting material:	WMP20S

	Competition ISO M20	**Tiger·tec® Silver WMP20S**
v_c	200 m/min	200 m/min
f	0.25 mm	0.25 mm
a_p	3 mm	3 mm
Tool life	4 components	7 components

Competition (4 components)

Tiger·tec® Silver WMP20S (7 components)

Comparison of the number of components

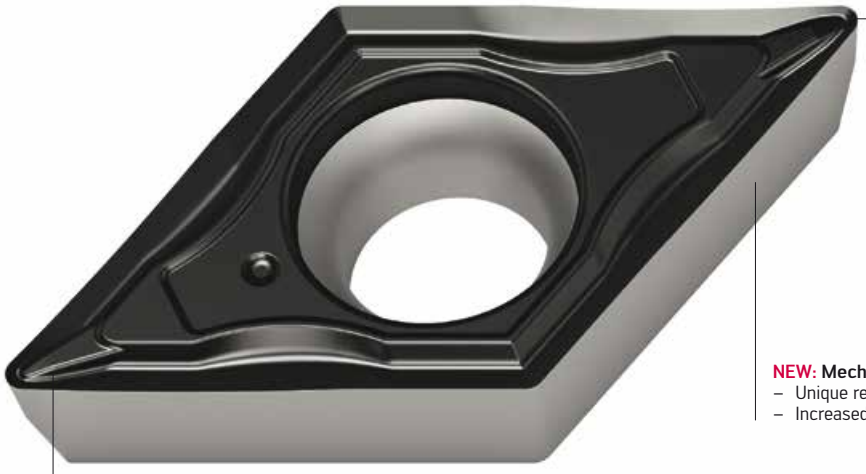


Ordering information can be found from page 25 onwards.

THE GEOMETRIES:

After the success of the negative geometries NF4, NM4 and NR4 in the new WMP20S grade, Walter is now providing new chip formers for positive indexable inserts.
The universal grade is available in combination with both the **FM4** and **RM4** geometries.

Watch product video:
Scan this QR code or go directly to
http://goo.gl/9r3Nr



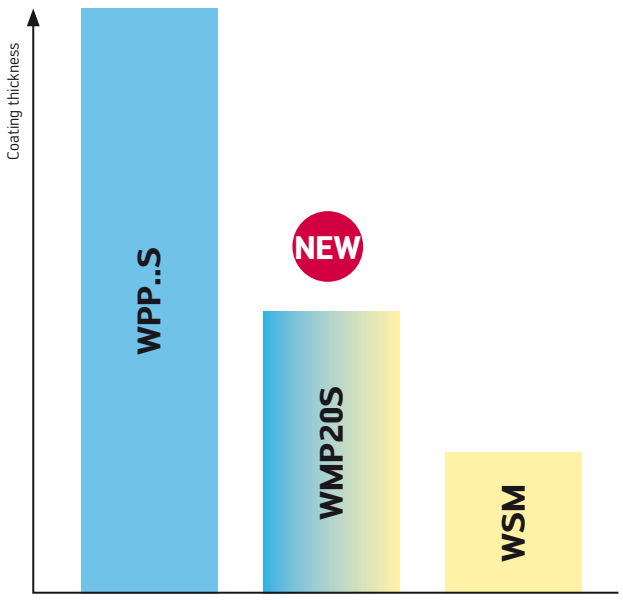
NEW: **WMP20S cutting material**
– For universal use

NEW: **Mechanical post-treatment**
– Unique residual stress state
– Increased toughness

NEW: **Positive geometries**
– FM4
– RM4

The combination of sharp ISO M geometries and a Tiger·tec® Silver cutting material with high wear resistance provides a high-performance alternative to the present WSM and WPP..S cutting materials.

The schematic diagram shows the ratio of the coating thickness.



Walter Cut – Tiger·tec® Silver WKP13S, WKP23S and WKP33S – high-performance cutting materials specifically developed for grooving.

THE APPLICATION

Primary application of ISO P:

– Typical steels, such as High grade steel 42CrMo4, Bearing Steel 100Cr6 and medium plain carbon steel C45

Primary application of ISO K:

– All cast iron materials, such as grey cast iron (EN-GJL), ductile cast iron (EN-GJS) and vermicular cast iron (EN-GJV)

THE NEW GRADES

WKP13S (ISO P10 ; ISO K20)

– Excellent wear resistance and cutting speed
– Continuous cut

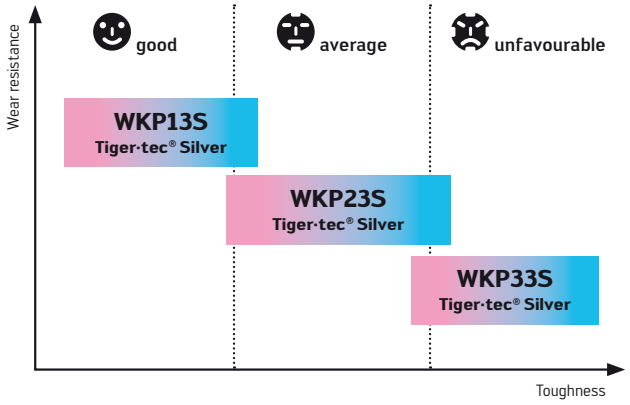
WKP23S (ISO P20 ; ISO K25)

– Excellent wear resistance and cutting speed
– Continuous cut to medium interrupted cuts
– Universal grade for approx. 80% of all applications

WKP33S (ISO P30 ; ISO K30)

– Excellent wear resistance and high toughness
– Unfavourable conditions or interrupted cuts

NEW: Tiger·tec® Silver **CVD coating**
– Aluminium oxide with optimised microstructure for maximum crater wear resistance/cutting speed
– Mechanical post-treatment creates compressive stresses to prevent fracture on the cutting edge
– Silver flank face as an indicator layer for easy wear detection



Tiger·tec® Silver

Ordering information can be found from page 32 onwards.

BENEFITS FOR YOU

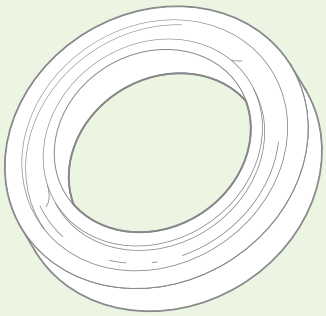
- Maximum productivity due to an increase in cutting data, together with maintained or improved tool life. All thanks to the latest **Tiger·tec® Silver** technology
- Wear-resistant cutting material complementing our WSM grades

THE GEOMETRIES:

The new WKP13S, WKP23S and WKP33S grades are introduced in combination with the proven recessing geometries UD4, UA4, UF4 and RD4, and the plunge grooving and parting off geometries GD3 and CE4. This means the new Tiger·tec® Silver technology is combined in machining with the long-standing experience of our existing geometries.

Watch product video:
Scan QR code or go directly to
http://goo.gl/dcyLLa

Axial grooving
2 x 4 mm
Forging blank



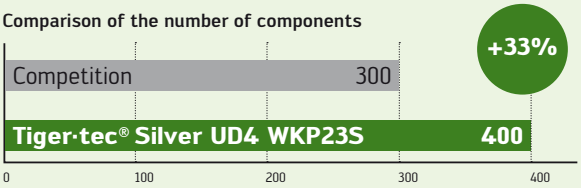
Workpiece material: C45 (1.0503)
Indexable insert: GX24-3E400N04-UD4
Cutting material: WKP23S **Tiger·tec® Silver**
Tool: G1111.2525R-5T12-040GX24

Cutting data

	Competition CVD	**Tiger·tec® Silver WKP23S**
v_c	250 m/min	250 m/min
f	0.15 mm	0.20 mm
Cutting depth	4 mm	4 mm
Tool life	300 components	400 components
Machining time	36 secs	30 secs -20%

Note:
Excellent chip breaking thanks to UD4 geometry.
High level of process reliability

Comparison of the number of components



Walter Cut – SX:
Parting off and slitting with the new single-edged grooving system.

THE SYSTEM

The Walter Cut range of grooving tools is being expanded with the new SX grooving system. This enables the user to part off and groove, or slit and slot mill, using the same system insert.

G2012
Monoblock toolholder with precise internal coolant supply, parting off up to a diameter of 65 mm

G2042
Deep parting blades, parting off up to a diameter of 160 mm

F5055
Slotting cutters with a diameter range of 63 – 250 mm

BENEFITS FOR YOU

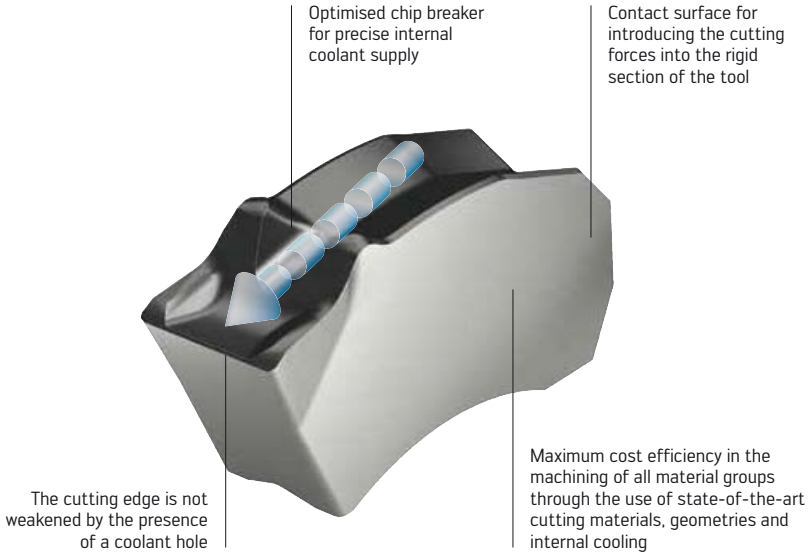
- Lower inventory costs due to one cutting insert type being used in multiple tool variants
- Maximum tool life due to the optimised self-clamping system
- User-friendly self-clamping system for fast replacement of the cutting edge

Watch product video:
Scan this QR code or go directly to http://goo.gl/mjxsMT

Watch product animation:
Scan this QR code or go directly to http://goo.gl/jJ2nMS

Ordering information can be found from page 37 onwards.

THE STABILITY



Tiger·tec® Silver

INSERT WIDTHS

2.0 / 3.0 / 4.0 / 5.0 / 6.0

CHIP BREAKER TYPES

CE4 – The universal one
- Stable cutting edge
- Excellent chip formation
- Moderate to high feed rates

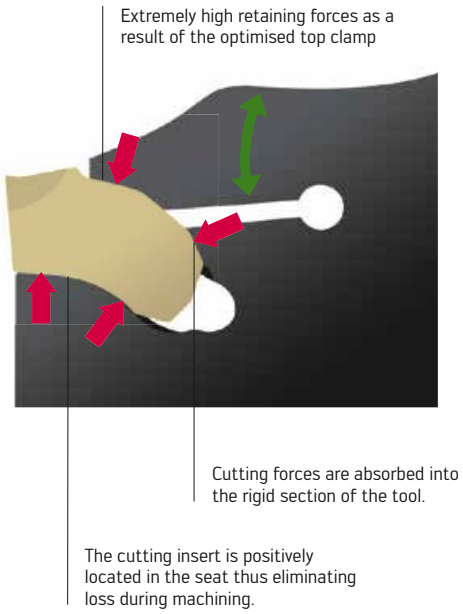
CF5 – The positive one
- Reduced burr and pip
- For long-chipping workpiece materials
- Low to moderate feed rates

CF6 – The sharp one
- Minimum burr and pip
- For small diameters and thin-walled tubes
- Low feed rates

CUTTING MATERIAL GRADES

Two **Tiger·tec® Silver** PVD grades: WSM33S and WSM43S for steel, stainless steels and materials which are difficult to machine

HOW IT WORKS



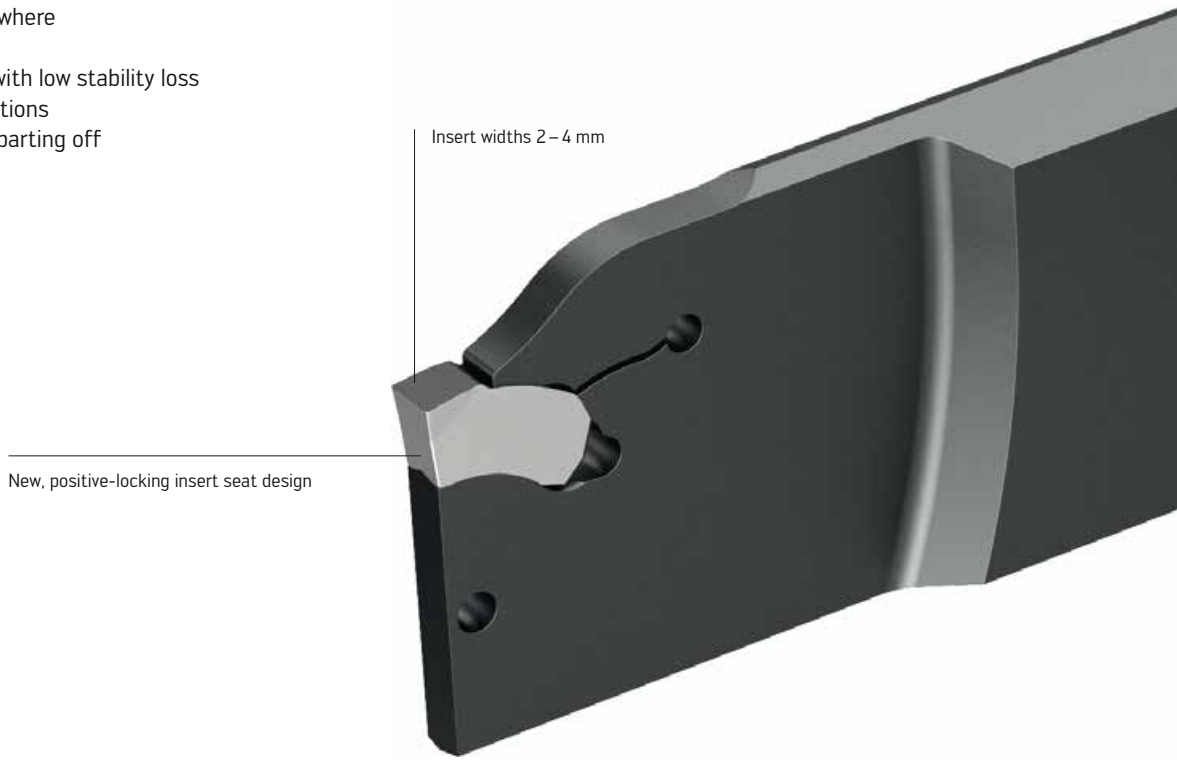
Walter Cut – SX G2042R/L: Reinforced parting blades with the latest self-clamping system for even greater stability.

THE TOOLS

- G2042..R/L parting blades with reinforced shank
- Blade heights of 26 and 32 mm to fit existing blocks.
- Insert widths from 2 to 4 mm
- Available in right-hand, left-hand, and contra versions
- Grooving to a cutting depth of 33 mm and parting off up to a diameter of 65 mm

THE APPLICATION

- For grooving and parting off on all types of lathes
- For parting off operations where space is limited
- For parting off operations with low stability loss when using long tool projections
- First choice of blade when parting off



BENEFITS FOR YOU

- Low vibration tendency thanks to reinforced shank
- Can be used on all conventional clamping blocks
- No loss of the cutting edge during machining due to the optimal, positive-locking design of the insert seat
- Maximum tool life due to the optimised self-clamping system
- User-friendly self-clamping system for fast replacement of the cutting edge
- No limitation on inserting the parting blade in the clamping block caused by a clamping screw
- High level of process reliability thanks to stable tool design

Ordering information can be found from page 41 onwards.

NEW 2014

Reinforced parting blade **Type:** G2042..R/L

RIGHT-HAND TOOL

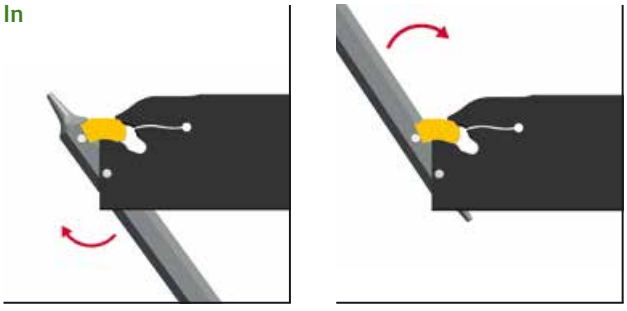
Standard Contra

LEFT-HAND TOOL

Standard Contra

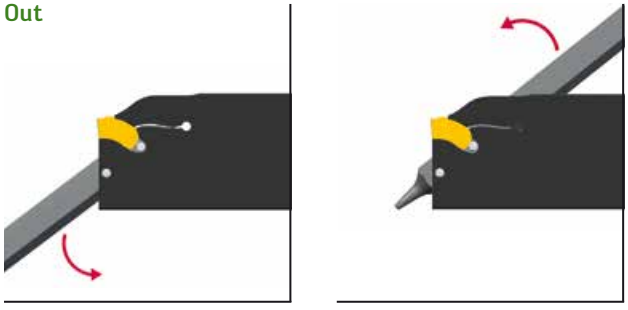
EASY CUTTING EDGE CHANGE

In



1. Insert the key
2. Push the cutting insert in as far as it will go

Out



3. To change the cutting insert, position the key behind the insert
4. Prise out the cutting insert by moving the key in the opposite direction

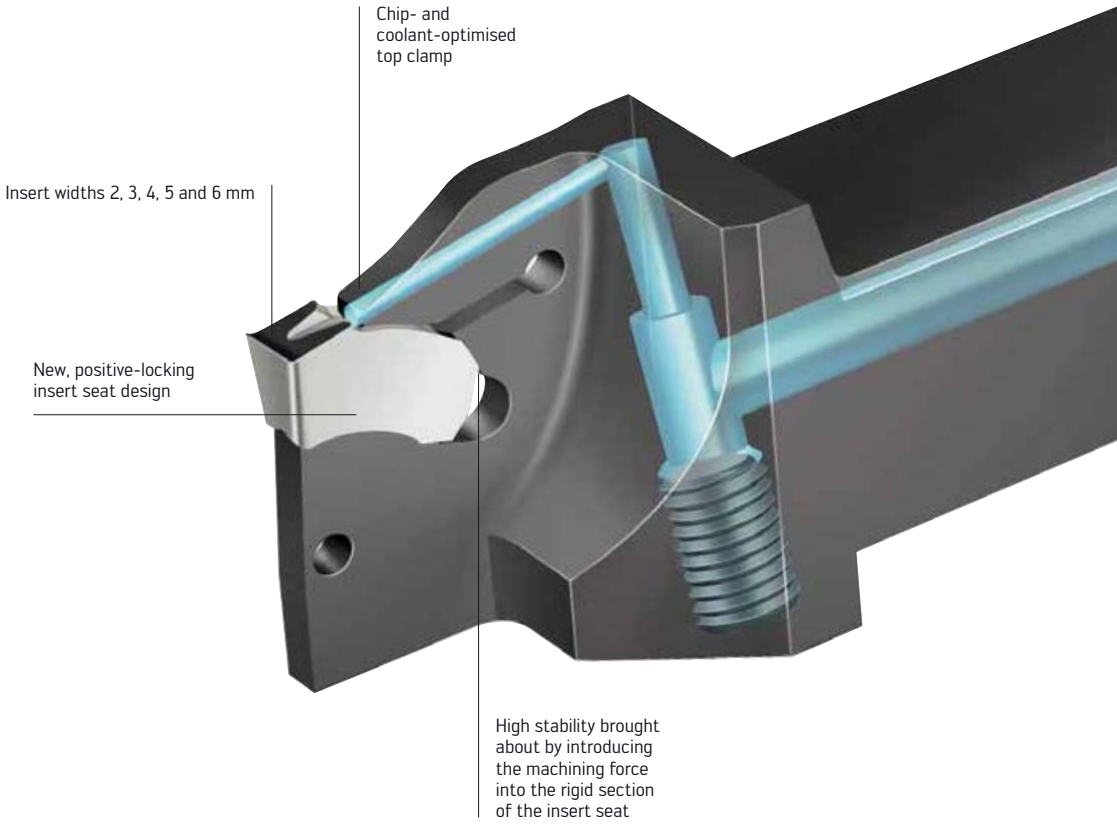
Walter Cut SX G2012 – SX monoblock tools with internal cooling for multi-spindle machines, and all centre lathes.

THE TOOLS

– Internal coolant supply
– G2012 in shank sizes 1212, 1616, 2020 and 2525 mm
– Insert widths 2, 3, 4, 5 and 6 mm
– Parting off of diameters up to 80 mm

THE APPLICATION

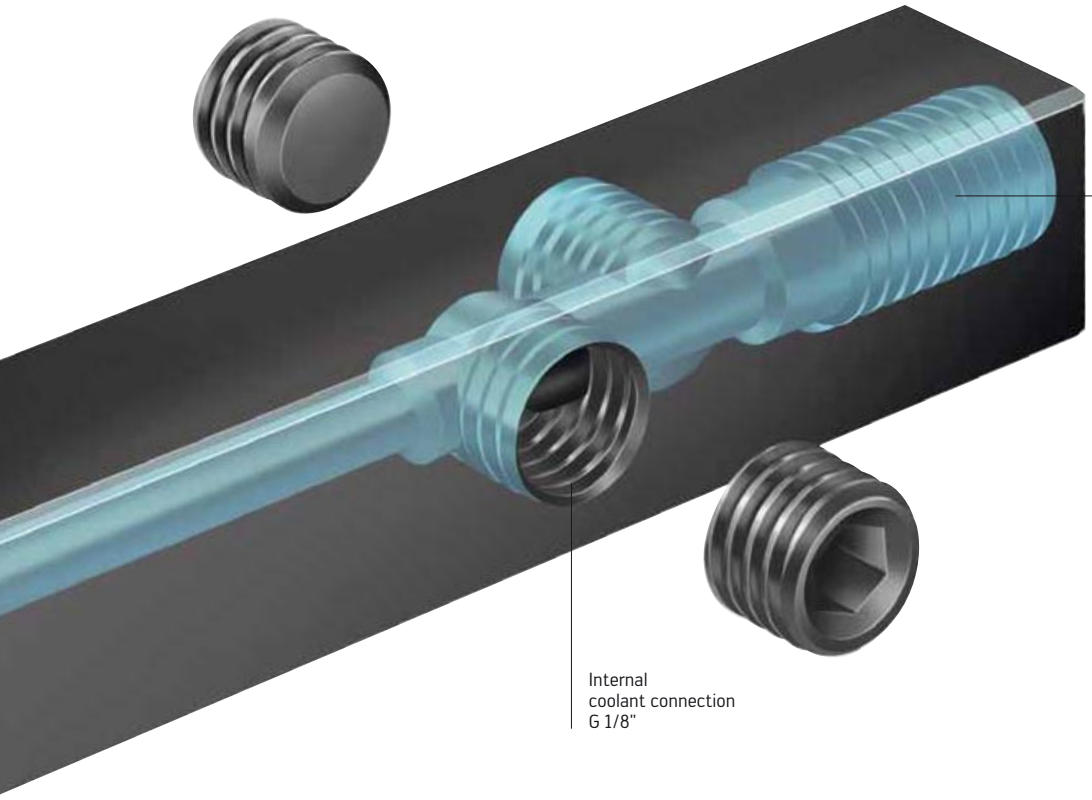
– For use on lathes of all types, in particular:
  • Automatic and platen lathes
  • Multi-spindle machines
  • Centre lathes
  • Bar feed lathes
– Ideally suited for small parts production and the décolletage industry
– Also for general mechanical engineering



BENEFITS FOR YOU

– State-of-the-art tool technology for grooving and parting off
– Low tool head height for easy chip removal
– Low tool head length for use on all common machine types
– Left, right and rear connections
– Direct coolant outlet and, therefore, no “spray effect”
– Longer tool life and productivity thanks to optimum cooling
– No downtime due to the formation of difficult swarf in production
– User-friendly self-clamping system for fast replacement of the cutting edge

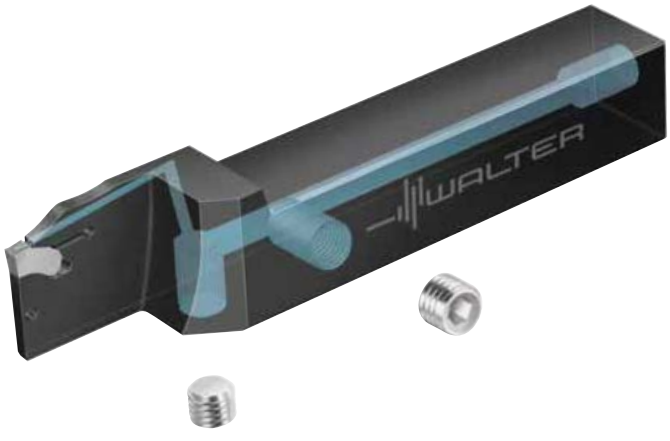
Ordering information can be found from page 39 onwards.



Monoblock tools with internal coolant supply
1212 and 1616 mm shanks

Type: G2012

Watch product video:
Scan this QR code or go directly to
http://goo.gl/jJ2nMS



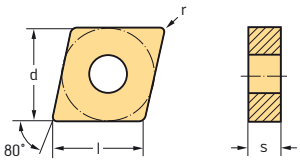
Monoblock tools with internal coolant supply
2020 and 2525 mm shanks

Type: G2012

Watch product video:
Scan this QR code or go directly to
http://goo.gl/viJ9A

Negative basic shape
CNMG

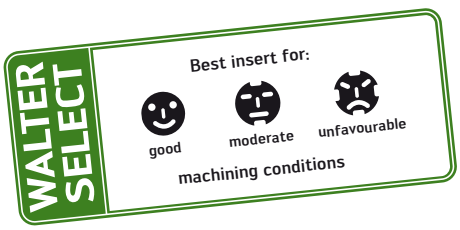
Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	K HC WKK10S	K HC WKK20S
	CNMG120408-RP5	0,8	0,20 - 0,40	0,8 - 6,0	☺	😐	☹	☺	😐
	CNMG120412-RP5	1,2	0,25 - 0,60	1,0 - 6,0	☺	😐	☹	☺	😐
	CNMG120416-RP5	1,6	0,35 - 0,70	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	☺	😐	☹		

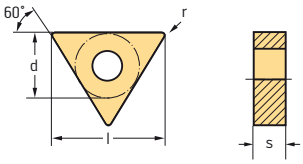
For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
HC = Coated carbide
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.
For cutting data, see page A-120 of the Walter Supplementary Catalogue 2013/2014.



☺😐☹ New addition to range

Negative basic shape
TNMG

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	M HC WSM10	M HC WSM20	K HC WKK10S	K HC WKK20S
	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	☺	😐	☹				
	TNMG220404-MP5	0,4	0,16 - 0,25	0,6 - 5,0	☺	😐					
	TNMG220408-MP5	0,8	0,18 - 0,35	0,8 - 5,0	☺	😐	☹				
	TNMG220412-MP5	1,2	0,20 - 0,40	1,0 - 5,0	☺	😐	☹				
	TNMG270608-MP5	0,8	0,25 - 0,45	0,8 - 7,0	☺	😐	☹				
	TNMG270612-MP5	1,2	0,30 - 0,50	1,0 - 7,0	☺	😐	☹				
	TNMG270616-MP5	1,6	0,35 - 0,55	1,2 - 7,0	☺	😐	☹				
	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	☺	😐	☹				
	TNMG270612-RP5	1,2	0,35 - 0,70	1,6 - 10,0	☺	😐	☹				
	TNMG270616-RP5	1,6	0,35 - 0,80	2,0 - 10,0	☺	😐	☹				
	TNMG160412-NRS	1,2	0,25 - 0,50	1,5 - 4,5				☺	😐		

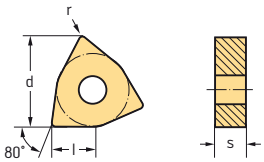
For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.
For cutting data, see page A-120 of the Walter Supplementary Catalogue 2013/2014.

HC = Coated carbide

☺😐☹ New addition to range

Negative basic shape
WNMG

Tiger·tec® Silver

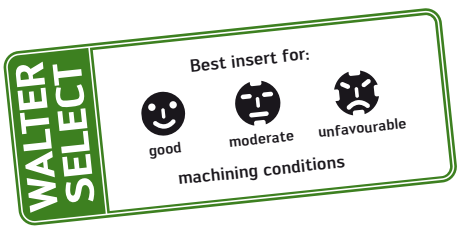


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	K HC WKK10S	K HC WKK20S
	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 in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.
For cutting data, see page A-120 of the Walter Supplementary Catalogue 2013/2014.

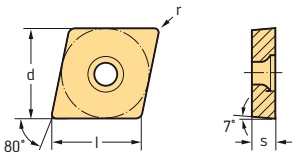
HC = Coated carbide



☺😐☹ New addition to range

Positive basic shape
CCGT/CPGT/CCMT

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	CCMT060202-FP4	0,2	0,04 - 0,12	0,1 - 1,0	●	●						
	CCMT060204-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	CCMT060208-FP4	0,8	0,08 - 0,20	0,1 - 2,5	●	●						
	CCMT09T302-FP4	0,2	0,04 - 0,12	0,1 - 1,0	●	●						
	CCMT09T304-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	CCMT09T308-FP4	0,8	0,08 - 0,20	0,1 - 2,5	●	●						
	CCMT120404-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	CCMT120408-FP4	0,8	0,08 - 0,20	0,1 - 2,5	●	●						
	CCMT060202-FM4	0,2	0,04 - 0,12	0,1 - 1,0				●	●			
	CCMT060204-FM4	0,4	0,05 - 0,16	0,1 - 1,5				●	●			
	CCMT060208-FM4	0,8	0,08 - 0,20	0,1 - 2,5				●	●			
	CCMT09T302-FM4	0,2	0,04 - 0,12	0,1 - 1,0				●	●			
	CCMT09T304-FM4	0,4	0,05 - 0,16	0,1 - 1,5				●	●			
	CCGT060204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	CCGT060208-MP4	0,8	0,12 - 0,30	0,5 - 2,0	●	●						
	CCGT09T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	●	●						
	CCGT09T308-MP4	0,8	0,12 - 0,32	0,5 - 3,0	●	●						
	CCGT120408-MP4	0,8	0,12 - 0,32	0,5 - 3,5	●	●						
	CPGT050204-MP4	0,4	0,08 - 0,20	0,4 - 1,5		●						
	CPGT060204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	CPGT060208-MP4	0,8	0,12 - 0,30	0,5 - 2,0	●	●						
	CPGT09T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	●	●						
	CPGT09T308-MP4	0,8	0,12 - 0,32	0,5 - 3,0	●	●						
	CCMT060204-RP4	0,4	0,12 - 0,25	0,4 - 2,5	●	●	●					
	CCMT060208-RP4	0,8	0,16 - 0,30	0,6 - 2,5	●	●	●					
	CCMT09T304-RP4	0,4	0,12 - 0,25	0,4 - 3,0	●	●	●					
	CCMT09T308-RP4	0,8	0,16 - 0,35	0,6 - 4,0	●	●	●					
	CCMT120404-RP4	0,4	0,12 - 0,25	0,4 - 3,0	●	●	●					
	CCMT120408-RP4	0,8	0,16 - 0,40	0,6 - 5,0	●	●	●					
	CCMT120412-RP4	1,2	0,20 - 0,50	0,8 - 5,0	●	●	●					

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

HC = Coated carbide

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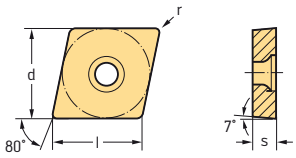
● ● ● New addition to range

Positive basic shape
CCGT/CPGT/CCMT

Tiger·tec® Silver

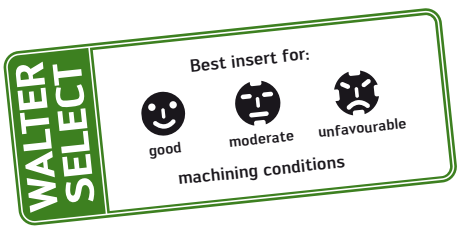


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	CCMT060204-RM4	0,4	0,12 - 0,25	0,4 - 2,5				☹	☹			
	CCMT060208-RM4	0,8	0,16 - 0,30	0,6 - 2,5				☹	☹			
	CCMT09T304-RM4	0,4	0,12 - 0,25	0,4 - 3,0				☹	☹			
	CCMT09T308-RM4	0,8	0,16 - 0,35	0,6 - 4,0				☹	☹			
	CCMT120404-RM4	0,4	0,12 - 0,25	0,4 - 3,0				☹	☹			
	CCMT120408-RM4	0,8	0,16 - 0,40	0,6 - 5,0				☹	☹			

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

HC = Coated carbide



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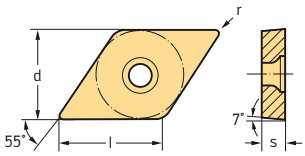
☹☹☹ New addition to range

Positive basic shape
DCGT/DPGT/DCMT

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	DCMT070202-FP4	0,2	0,04 - 0,12	0,1 - 1,0	●	●						
	DCMT070204-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	DCMT070208-FP4	0,8	0,08 - 0,20	0,1 - 2,5	●	●						
	DCMT11T302-FP4	0,2	0,04 - 0,12	0,1 - 1,0	●	●						
	DCMT11T304-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	DCMT11T308-FP4	0,8	0,08 - 0,20	0,1 - 2,5	●	●						
	DCMT070204-FM4	0,4	0,05 - 0,16	0,1 - 1,5				●	●			
	DCMT11T302-FM4	0,2	0,04 - 0,12	0,1 - 1,0				●	●			
	DCMT11T304-FM4	0,4	0,05 - 0,16	0,1 - 1,5				●	●			
	DCMT11T308-FM4	0,8	0,08 - 0,20	0,1 - 2,5				●	●			
	DCGT070204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	DCGT11T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	●	●						
	DCGT11T308-MP4	0,8	0,12 - 0,32	0,5 - 3,0	●	●						
	DPGT070204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	DPGT11T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	●	●						
	DPGT11T308-MP4	0,8	0,12 - 0,32	0,5 - 3,0	●	●						
	DCMT070204-RP4	0,4	0,12 - 0,20	0,4 - 2,0	●	●	✖					
	DCMT070208-RP4	0,8	0,16 - 0,25	0,6 - 2,0	●	●	✖					
	DCMT11T304-RP4	0,4	0,12 - 0,25	0,4 - 3,0	●	●	✖					
	DCMT11T308-RP4	0,8	0,16 - 0,30	0,6 - 4,0	●	●	✖					
	DCMT11T312-RP4	1,2	0,20 - 0,35	0,8 - 4,0	●	●	✖					
	DCMT070204-RM4	0,4	0,12 - 0,20	0,4 - 2,0				●	●			
	DCMT11T304-RM4	0,4	0,12 - 0,25	0,4 - 3,0				●	●			
	DCMT11T308-RM4	0,8	0,16 - 0,30	0,6 - 4,0				●	●			

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

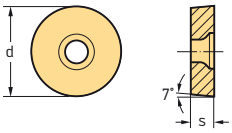
HC = Coated carbide

44

● ● ✖ New addition to range

Positive basic shape
RCMT

Tiger·tec® Silver

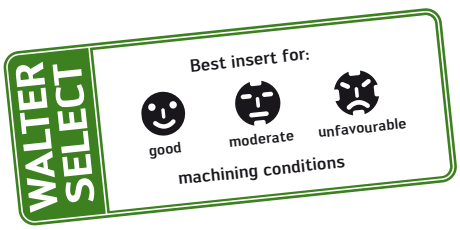


Indexable inserts

	Designation	d mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	RCMT0602M0-FP4	6	0,07 - 0,30	0,6 - 2,5	☺	😐						
	RCMT0803M0-FP4	8	0,08 - 0,30	0,8 - 3,0		😐						
	RCMT10T3M0-FP4	10	0,10 - 0,35	1,0 - 4,0		😐						
	RCMT1204M0-FP4	12	0,12 - 0,40	1,2 - 5,0	☺	😐						
	RCMT0602M0-RP4	6	0,08 - 0,50	0,6 - 2,5	☺	😐	☹					
	RCMT060300-RP4	6,35	0,08 - 0,50	0,6 - 2,5	☺	😐	☹					
	RCMT0803M0-RP4	8	0,10 - 0,60	0,8 - 3,0	☺	😐	☹					
	RCMT09T300-RP4	9,525	0,10 - 0,60	0,8 - 3,0	☺	😐	☹					
	RCMT10T3M0-RP4	10	0,12 - 0,80	1,0 - 4,0	☺	😐	☹					
	RCMT120400-RP4	12,7	0,12 - 1,00	1,2 - 5,0	☺	😐	☹					
	RCMT1204M0-RP4	12	0,12 - 1,00	1,2 - 5,0	☺	😐	☹					
	RCMT1605M0-RP4	16	0,15 - 1,20	1,6 - 7,0	☺	😐	☹					
	RCMT1606M0-RP4	16	0,15 - 1,20	1,6 - 7,0	☺	😐	☹					

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

HC = Coated carbide



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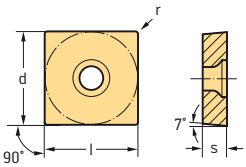
☺😐☹ New addition to range

Positive basic shape
SCGT/SPGT/SCMT

Tiger·tec® Silver

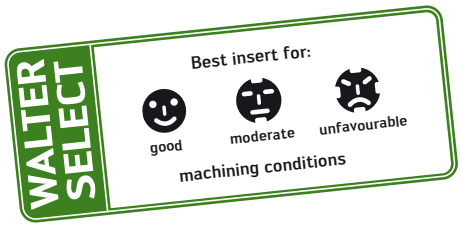


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	SCMT09T304-FP4	0,4	0,05 - 0,15	0,1 - 1,5	☺	😐						
	SCMT09T308-FP4	0,8	0,05 - 0,18	0,1 - 1,8	☺	😐						
	SCMT120404-FP4	0,4	0,05 - 0,15	0,1 - 1,5	☺	😐						
	SCMT120408-FP4	0,8	0,05 - 0,18	0,1 - 1,8	☺	😐						
	SCMT120412-FP4	1,2	0,12 - 0,32	0,3 - 1,8	☺	😐						
	SCMT09T304-FM4	0,4	0,05 - 0,15	0,1 - 1,5				😐	😐			
	SCMT09T308-FM4	0,8	0,05 - 0,18	0,1 - 1,8				😐	😐			
	SCGT09T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	☺	😐						
	SCGT09T308-MP4	0,8	0,12 - 0,30	0,5 - 3,0	☺	😐						
	SCGT120408-MP4	0,8	0,12 - 0,32	0,5 - 3,5	☺	😐						
	SPGT09T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	☺	😐						
	SPGT09T308-MP4	0,8	0,12 - 0,32	0,5 - 3,0	☺	😐						
	SCMT09T304-RP4	0,4	0,12 - 0,25	0,4 - 3,0	☺	😐	😟					
	SCMT09T308-RP4	0,8	0,16 - 0,35	0,6 - 4,0	☺	😐	😟					
	SCMT09T312-RP4	1,2	0,20 - 0,45	0,8 - 5,0	☺							
	SCMT120404-RP4	0,4	0,12 - 0,25	0,4 - 3,0	☺	😐	😟					
	SCMT120408-RP4	0,8	0,16 - 0,40	0,6 - 5,0	☺	😐	😟					
	SCMT120412-RP4	1,2	0,20 - 0,50	0,8 - 5,0	☺	😐	😟					
	SCMT09T308-RM4	0,8	0,16 - 0,35	0,6 - 4,0				😐	😐			
	SCMT120408-RM4	0,8	0,16 - 0,40	0,6 - 5,0				😐	😐			
	SCMT120412-RM4	1,2	0,20 - 0,50	0,8 - 5,0				😐	😐			

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

HC = Coated carbide

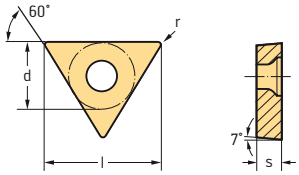


44

☺ 😐 😟 New addition to range

Positive basic shape
TCGT/TPGT/TCMT

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	TCMT06T102-FP4	0,2	0,02 - 0,10	0,1 - 1,0		●						
	TCMT06T104-FP4	0,4	0,04 - 0,17	0,1 - 1,0		●						
	TCMT090202-FP4	0,2	0,04 - 0,12	0,1 - 1,0		●						
	TCMT090204-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	TCMT090208-FP4	0,8	0,08 - 0,20	0,1 - 2,5		●						
	TCMT110202-FP4	0,2	0,04 - 0,12	0,1 - 1,0	●	●						
	TCMT110204-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	TCMT110208-FP4	0,8	0,08 - 0,20	0,1 - 2,5	●	●						
	TCMT16T302-FP4	0,2	0,04 - 0,12	0,1 - 1,0		●						
	TCMT16T304-FP4	0,4	0,05 - 0,16	0,1 - 1,5	●	●						
	TCMT16T308-FP4	0,8	0,08 - 0,20	0,1 - 2,5	●	●						
	TCMT110204-FM4	0,4	0,05 - 0,16	0,1 - 1,5				●	●			
	TCMT16T304-FM4	0,4	0,05 - 0,16	0,1 - 1,5				●	●			
	TCMT16T308-FM4	0,8	0,08 - 0,20	0,1 - 2,5				●	●			
	TCGT090204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	TCGT110204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	TCGT110208-MP4	0,8	0,12 - 0,30	0,5 - 2,0	●	●						
	TCGT16T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	●	●						
	TCGT16T308-MP4	0,8	0,12 - 0,32	0,5 - 3,0	●	●						
	TPGT090204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	TPGT110204-MP4	0,4	0,08 - 0,20	0,4 - 2,0	●	●						
	TPGT110208-MP4	0,8	0,12 - 0,30	0,5 - 2,0	●	●						
	TPGT16T304-MP4	0,4	0,08 - 0,25	0,4 - 3,0	●	●						
	TPGT16T308-MP4	0,8	0,12 - 0,32	0,5 - 3,0	●	●						

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

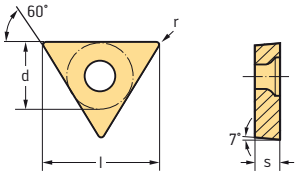
HC = Coated carbide

44

● ● ● New addition to range

Positive basic shape
TCGT/TPGT/TCMT

Tiger·tec® Silver



Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	TCMT090204-RP4	0,4	0,12 - 0,25	0,4 - 3,0	●	●	●					
	TCMT090208-RP4	0,8	0,16 - 0,30	0,6 - 3,0	●	●	●					
	TCMT110204-RP4	0,4	0,12 - 0,25	0,4 - 3,0	●	●	●					
	TCMT110208-RP4	0,8	0,16 - 0,30	0,6 - 3,0	●	●	●					
	TCMT16T304-RP4	0,4	0,12 - 0,25	0,4 - 3,0	●	●	●					
	TCMT16T308-RP4	0,8	0,16 - 0,30	0,6 - 4,0	●	●	●					
	TCMT16T312-RP4	1,2	0,20 - 0,40	0,8 - 4,0	●	●	●					
	TCMT110208-RM4	0,8	0,16 - 0,30	0,6 - 3,0				●	●			
	TCMT16T304-RM4	0,4	0,12 - 0,25	0,4 - 3,0				●	●			
	TCMT16T308-RM4	0,8	0,16 - 0,30	0,6 - 4,0				●	●			

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

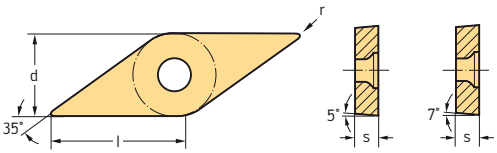
HC = Coated carbide

44

● ● ● New addition to range

Positive basic shape
VCMT

Tiger·tec® Silver

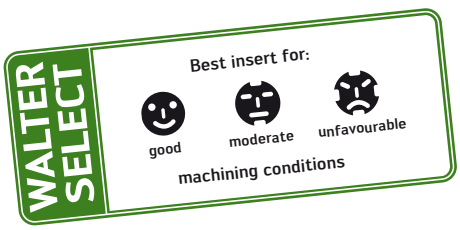


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	VCMT110302-FP4	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐						
	VCMT110304-FP4	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐						
	VCMT160402-FP4	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐						
	VCMT160404-FP4	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐						
	VCMT160408-FP4	0,8	0,08 - 0,20	0,1 - 2,5	☺	😐						
	VCMT110302-FM4	0,2	0,04 - 0,12	0,1 - 1,0				😐	😐			
	VCMT160402-FM4	0,2	0,04 - 0,12	0,1 - 1,0				😐	😐			
	VCMT160404-FM4	0,4	0,05 - 0,16	0,1 - 1,5				😐	😐			
	VCMT160408-FM4	0,8	0,08 - 0,20	0,1 - 2,5				😐	😐			
	VCMT110304-RP4	0,4	0,12 - 0,20	0,4 - 2,5	☺	😐	☹					
	VCMT110308-RP4	0,8	0,16 - 0,25	0,6 - 3,0	☺	😐	☹					
	VCMT160404-RP4	0,4	0,12 - 0,25	0,4 - 2,5	☺	😐	☹					
	VCMT160406-RP4	0,6	0,15 - 0,25	0,6 - 3,0	☺	😐	☹					
	VCMT160408-RP4	0,8	0,16 - 0,30	0,6 - 3,0	☺	😐	☹					
	VCMT160412-RP4	1,2	0,20 - 0,35	0,8 - 4,0	☺	😐	☹					
	VCMT160404-RM4	0,4	0,12 - 0,25	0,4 - 2,5				😐	😐			
	VCMT160408-RM4	0,8	0,16 - 0,30	0,6 - 3,0				😐	😐			

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

HC = Coated carbide

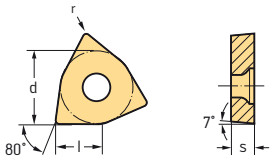


44

☺ 😐 ☹ New addition to range

Positive basic shape
WCMT

Tiger·tec® Silver

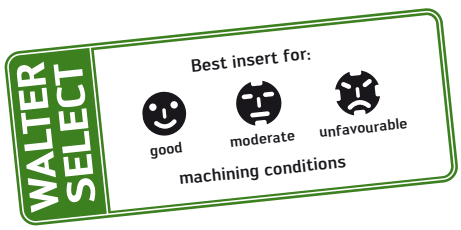


Indexable inserts

	Designation	r mm	f mm	ap mm	P HC WPP10S	P HC WPP20S	P HC WPP30S	P HC WMP20S	M HC WMP20S	M HC WSM10	M HC WSM20	M HC WSM30
	WCMT040202-FP4	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐						
	WCMT040204-FP4	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐						
	WCMT040208-FP4	0,8	0,08 - 0,20	0,1 - 2,5	☺	😐						
	WCMT06T302-FP4	0,2	0,04 - 0,12	0,1 - 1,0	☺	😐						
	WCMT06T304-FP4	0,4	0,05 - 0,16	0,1 - 1,5	☺	😐						
	WCMT06T308-FP4	0,8	0,08 - 0,20	0,1 - 2,5		😐						
	WCMT080404-FP4	0,4	0,05 - 0,16	0,1 - 1,5		😐						
	WCMT080408-FP4	0,8	0,08 - 0,20	0,1 - 2,5		😐						
	WCMT030202-RP4	0,2	0,08 - 0,12	0,2 - 1,5	☺	😐	☹					
	WCMT040204-RP4	0,4	0,12 - 0,25	0,4 - 2,5	☺	😐	☹					
	WCMT06T304-RP4	0,4	0,12 - 0,25	0,4 - 3,0	☺	😐	☹					
	WCMT06T308-RP4	0,8	0,16 - 0,35	0,6 - 4,0	☺	😐	☹					
	WCMT080404-RP4	0,4	0,12 - 0,25	0,4 - 3,0	☺	😐	☹					
	WCMT080408-RP4	0,8	0,16 - 0,40	0,6 - 4,0	☺	😐	☹					
	WCMT080412-RP4	1,2	0,20 - 0,55	0,8 - 5,0	☺	😐	☹					

For dimensions, see the ISO 1832 designation key from page A-4 onwards in the Walter Supplementary Catalogue 2013/2014.
For achievable surface finish qualities and technical information, see page A 298 in the Walter General Catalogue 2012.

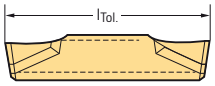
HC = Coated carbide

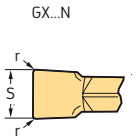


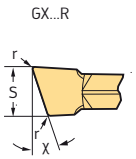
44

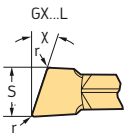
☺ 😐 ☹ New addition to range

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 WKP23S	P HC WSM23S	P HC WSM33S	P HC WSM43S	M WSM23S	M HC WSM33S	M HC WSM43S	K WKP23S	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 - 0,09	±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	0,04 - 0,11	±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	0,06 - 0,18	±0,05	±0,15			😐	😣		😐	😣			😐	😣
	GX24-1E250N02-CE4	2,5	0,2		24	0,07 - 0,18	±0,05	±0,15			😐	😣		😐	😣			😐	😣
	GX24-2E300N02-CE4	3	0,2		24	0,09 - 0,30	±0,05	±0,15	😊		😐	😣		😐	😣	😐		😐	😣
	GX24-2E300R/L6-CE4	3	0,2	6°	24,6	0,08 - 0,24	±0,05	±0,15	😊		😐	😣		😐	😣	😐		😐	😣
	GX24-3E400N03-CE4	4	0,3		24	0,10 - 0,32	±0,05	±0,15	😊		😐	😣		😐	😣	😐		😐	😣
	GX24-3E400R/L6-CE4	4	0,2	6°	24,6	0,08 - 0,20	±0,05	±0,15			😐	😣		😐	😣			😐	😣
	GX24-3E500N03-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	😊		😐	😣		😐	😣	😐		😐	😣
	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			😐	😣		😊	😐			😐	😣

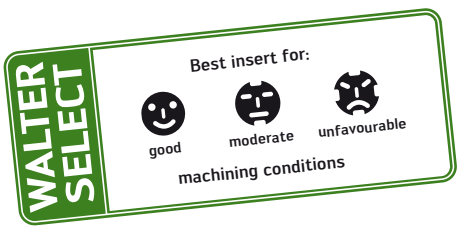
l_{Tol} = Repeat accuracy when changing indexable insert

HC = Coated carbide

Radius tolerance r_{Tol} = ±0.05 mm

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

For cutting data for WSM..S grades, see page A-140 of the Walter Supplementary Catalogue 2013/2014.



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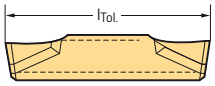
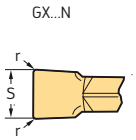
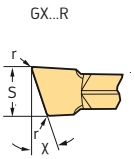
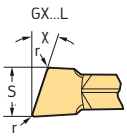
😊😐😣 New addition to range

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 WKP23S	P HC WSM23S	P HC WSM33S	P HC WSM43S	M WSM23S	M HC WSM33S	M HC WSM43S	K WKP23S	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	●		●	●		●	●	●		●	●
	GX09-2E350N03-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	●		●	●		●	●	●		●	●
	GX16-1E250N02-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	●		●	●		●	●	●		●	●
	GX16-3E400N04-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	●		●	●		●	●	●		●	●
	GX16-4E600N05-GD3	6	0,5		16	0,14 - 0,28	±0,02	±0,05			●	●		●	●			●	●
	GX24-2E300N03-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	●		●	●		●	●	●		●	●
	GX24-3E500N04-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	●		●	●		●	●	●		●	●

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{Tol} = ±0.05 mm
HC = Coated carbide
For cutting data for WSM..S grades, see page A-140 of the Walter Supplementary Catalogue 2013/2014.

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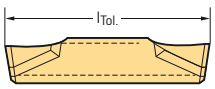
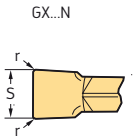
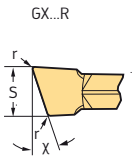
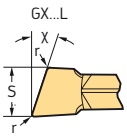
● ● ● New addition to range

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









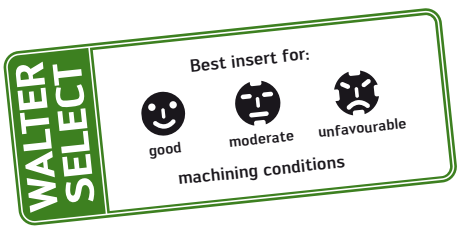
Indexable inserts

	Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P WKP13S	P WKP23S	P WKP33S	P WSM23S	P HC WSM33S	P HC WSM43S	M WSM23S	M HC WSM33S	M HC WSM43S	K WKP13S	K WKP23S	K WKP33S	S WSM23S	S HC WSM33S	S HC WSM43S
	GX16-1E200N02-UD4	2	0,2	16	0,10 - 0,15	0,3 - 1,2	±0,05	±0,15		😊			😐			😐			😐			😐	
	GX16-2E300N03-UD4	3	0,3	16	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15		😊			😐			😐			😐			😐	
	GX16-3E400N04-UD4	4	0,4	16	0,10 - 0,30	0,5 - 2,8	±0,05	±0,15		😊			😐			😐			😐			😐	
	GX16-3E500N04-UD4	5	0,4	16	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15		😊			😐			😐			😐			😐	
	GX24-2E300N03-UD4	3	0,3	24	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15	😊	😊	😐		😕			😕		😊	😐	😣		😕	
	GX24-2E318N03-UD4	3,2	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	0,9 - 3,5	±0,05	±0,15		😊			😕			😕			😐			😕	
	GX30-5E800N12-UD4	8	1,2	30	0,14 - 0,40	1,0 - 3,5	±0,05	±0,15		😊			😕			😕			😐			😕	

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

HC = Coated carbide

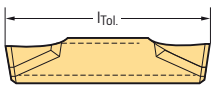
For cutting data for WSM..S grades, see page A-140 of the Walter Supplementary Catalogue 2013/2014.

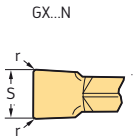


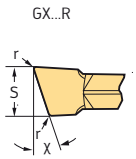
45

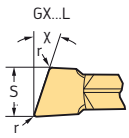
😊😐😣 New addition to range

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









Indexable inserts

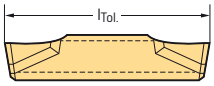
	Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P WKP13S	P WKP23S	P WKP33S	P HC WSM23S	P HC WSM33S	P HC WSM43S	M WSM23S	M HC WSM33S	M HC WSM43S	K WKP13S	K WKP23S	K WKP33S	S HC WSM23S	S HC WSM33S	S HC WSM43S
	GX09-1E200N02-UF4	2	0,2	9	0,10 - 0,15	0,3 - 1,0	±0,05	±0,15					☻	☹		☻	☹					☻	☹
	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		☻			☻	☹		☻	☹		☻			☻	☹
	GX16-1E239N02-UF4	2,4	0,2	16	0,10 - 0,18	0,3 - 1,3	±0,05	±0,15					☻	☻		☻	☻					☻	☻
	GX16-1E250N02-UF4	2,5	0,2	16	0,10 - 0,18	0,3 - 1,3	±0,05	±0,15		☻			☻	☹		☻	☹		☻			☻	☹
	GX16-2E300N03-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		☻			☻	☹		☻	☹		☻			☻	☹
	GX16-3E500N04-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		☻			☻	☹		☻	☹		☻			☻	☹
	GX24-2E300N03-UF4	3	0,3	24	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15		☻			☻	☹		☻	☹		☻			☻	☹
	GX24-2E318N03-UF4	3,2	0,3	24	0,10 - 0,20	0,4 - 2,0	±0,05	±0,15					☻	☹		☻	☹					☻	☹
	GX24-3E400N04-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		☻			☻			☻			☻			☻	
	GX24-3E475N04-UF4	4,8	0,4	24	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15		☻			☻	☹		☻	☹		☻			☻	☹
	GX24-3E500N04-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		☻			☻			☻			☻			☻	
	GX24-4E600N05-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	0,8 - 3,5	±0,05	±0,15		☻			☻			☻			☻			☻	
	GX24-4E635N05-UF4	6,4	0,5	24	0,15 - 0,60	0,6 - 3,5	±0,05	±0,15		☻			☻	☹		☻	☹		☻			☻	☹
	GX16-1E200N02-UA4	2	0,2	16	0,08 - 0,15	0,3 - 1,2	±0,05	±0,15	☻									☻					
	GX16-2E300N03-UA4	3	0,3	16	0,10 - 0,22	0,4 - 2,0	±0,05	±0,15	☻		😐							☻		☹			
	GX16-3E400N04-UA4	4	0,4	16	0,10 - 0,35	0,5 - 2,8	±0,05	±0,15	☻		😐							☻		☹			
	GX16-3E500N04-UA4	5	0,4	16	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15	☻		😐							☻		☹			
	GX16-4E600N05-UA4	6	0,5	16	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15	☻		😐							☻		☹			
	GX24-2E300N03-UA4	3	0,3	24	0,10 - 0,22	0,4 - 2,0	±0,05	±0,15	☻		😐							☻		☹			
	GX24-3E400N04-UA4	4	0,4	24	0,10 - 0,35	0,5 - 2,8	±0,05	±0,15	☻		😐							☻		☹			
	GX24-3E500N04-UA4	5	0,4	24	0,12 - 0,35	0,5 - 3,0	±0,05	±0,15	☻		😐							☻		☹			
	GX24-4E600N05-UA4	6	0,5	24	0,14 - 0,40	0,6 - 3,5	±0,05	±0,15	☻		😐							☻		☹			

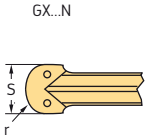
l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{Tol} = ±0.05 mm
HC = Coated carbide
For cutting data for WSM..S grades, see page A-140 of the Walter Supplementary Catalogue 2013/2014.

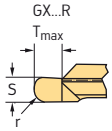
45

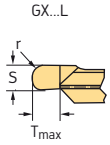
☻ 😐 ☹ New addition to range

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







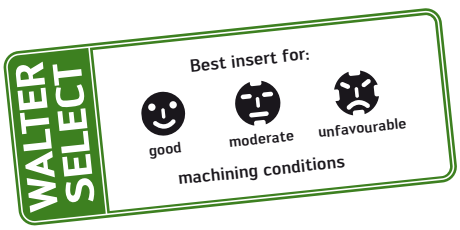


Indexable inserts

	Designation	s mm	r mm	l mm	f mm	ap mm	s_{Tol} mm	l_{Tol} mm	P WKP23S	P HC WSM23S	P HC WSM33S	P HC WSM43S	M WSM23S	M HC WSM33S	M HC WSM43S	K WKP23S	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	2,4	1,2	16	0,08 - 0,25	0,2 - 1,0	±0,05	±0,15			●			●				●
	GX16-1E300N15-RD4	3	1,5	16	0,10 - 0,35	0,5 - 1,5	±0,05	±0,15		●	●			●			●	●
	GX24-2E300N15-RD4	3	1,5	24	0,10 - 0,35	0,5 - 1,5	±0,05	±0,15	●		●			●		●		●
	GX24-2E318N16-RD4	3,2	1,59	24	0,10 - 0,35	0,5 - 1,5	±0,05	±0,15	●		●			●		●		●
	GX24-3E400N20-RD4	4	2	24	0,15 - 0,50	0,5 - 2,0	±0,05	±0,15	●		●			●		●		●
	GX24-3E475N24-RD4	4,8	2,38	24	0,17 - 0,70	0,5 - 2,5	±0,05	±0,15	●		●			●		●		●
	GX24-3E500N25-RD4	5	2,5	24	0,17 - 0,70	0,5 - 2,5	±0,05	±0,15	●		●			●		●		●
	GX24-4E600N30-RD4	6	3	24	0,17 - 0,70	0,5 - 3,0	±0,05	±0,15	●		●			●		●		●
	GX24-4E635N32-RD4	6,4	3,18	24	0,17 - 0,70	0,5 - 3,0	±0,05	±0,15	●		●			●		●		●
	GX30-5E800N40-RD4	8	4	30	0,17 - 0,70	0,6 - 4,5	±0,05	±0,15	●							●		

l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{Tol} = ±0.05 mm
HC = Coated carbide

For cutting data for WSM..S grades, see page A-140 of the Walter Supplementary Catalogue 2013/2014.



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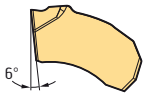
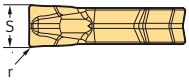
● ● ● New addition to range

Walter Cut SX grooving inserts
Grooving, parting and slitting





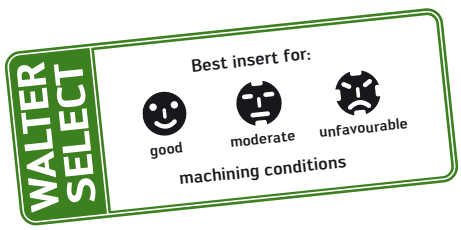
Tiger·tec® Silver

Indexable inserts

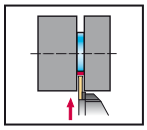
	Designation	s mm	r mm	f mm	s_{Tol} mm	l_{Tol} mm	P				M			K	S		
									HC			HC				HC	
							WKP23S	WSM23S	WSM33S	WSM43S	WSM23S	WSM33S	WSM43S	WKP23S	WSM23S	WSM33S	WSM43S
	SX-2E200N02-CE4	2	0,2	0,04 - 0,12	±0,05	±0,01			☹	☹		☹	☹			☹	☹
	SX-3E300N02-CE4	3	0,2	0,09 - 0,30	±0,05	±0,01			☹	☹		☹	☹			☹	☹
	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	0,06 - 0,15	±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			☹	☹		☹	☹			☹	☹

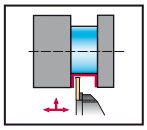
l_{Tol} = Repeat accuracy when changing indexable insert
Radius tolerance r_{Tol} = ±0.05 mm
HC = Coated carbide

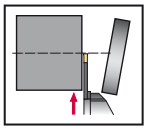
For cutting data for WSM..S grades, see page A-140 of the Walter Supplementary Catalogue 2013/2014.



Walter Cut
G1011

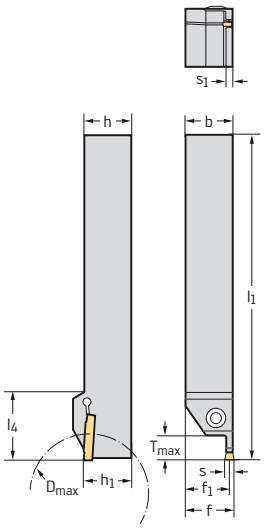






- External machining
- Radial grooving 0°
- One-piece shank tool
- For grooving, recessing and parting off
- For GX cutting inserts

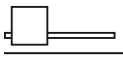
Tool



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-2T21GX24	2	21		16	16	15	150	40	1,5	GX 24-1E2/F2 . .
★ G1011.2020R/L-2T21GX24		21		20	20	19	150	40	1,5	
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	11	145	35	2,4	
G1011.2525R/L-3T21GX24		21	80	25	25	11	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	
G1011.2020R/L-4T21GX24		21	80	20	20	18	150	40	3,4	
G1011.2012R/L-4T21GX24		21	80	20	12	10	150	40	3,4	
G1011.2525R/L-4T12GX24		12		25	25	11	145	35	3,4	
G1011.2525R/L-4T21GX24		21	80	25	25	23	150	40	3,4	
★ G1011.2525R/L-4T32GX24		32		25	25	23	165	55	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	10	145	35	4,2	
G1011.2525R/L-5T21GX24		21	80	25	25	10	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	10	145	35	5,2	
G1011.2525R/L-6T21GX24		21	80	25	25	10	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 Tmax with greater diameters than Dmax, see page A 318 of the Walter General Catalogue 2012.
Max. double sided GX cutting insert cutting depth 23 mm
f = f1+s/2
Ordering example: Right-handed shank tool: G1011.2020R-3T12GX24
Shank tool G1011.2020L-3T12GX24

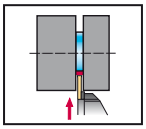
Assembly parts

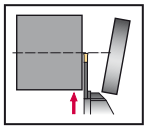
	Type	GX 16-1E2/F2 . .-GX 30-5E8..
	Clamping screw for grooving insert Tightening torque	FS2118 (Torx 20IP) 5,0 Nm
	Torx key	FS1464 (Torx 20IP)

32 45

★ 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
★ G2012.1212R/L-2T16SX-P	2	16	12	12	11	120	25	SX-2 . .
★ G2012.1616R/L-2T16SX-P		16	16	16	15	120	25	
★ G2012.1212R/L-3T16SX-P	3	16	12	12	11	120	25	SX-3 . .
★ G2012.1616R/L-3T16SX-P		16	16	16	15	120	25	
★ G2012.2020R/L-2T20SX-P	2	20	20	20	19	125	37	SX-2 . .
G2012.2020R/L-3T22SX-P	3	22	20	20	20	125	38	SX-3 . .
G2012.2525R/L-3T33SX-P		33	25	25	25	125	43	
G2012.2020R/L-4T29SX-P	4	29	20	20	20	125	45	SX-4 . .
G2012.2525R/L-4T33SX-P		33	25	25	25	125	48	
★ G2012.2020R/L-5T29SX-P	5	29	20	20	18	125	44	SX-5 . .
★ G2012.2525R/L-5T40SX-P		40	25	25	18	125	44	
★ G2012.2525R/L-6T40SX-P	6	40	25	25	22	125	51	SX-6 . .

For instructions on replacing the cutting edge, see page A-150 of the Walter Supplementary Catalogue 2013/2014.
For the connection set for internal coolant supply with G1/8" thread, see page A-151 of the Walter Supplementary Catalogue 2013/2014.
f = f1+s/2
Ordering example: Right-handed shank tool: G2012.2020R-3T22SX-P / left-handed shank tool: G2012.2020L-3T22SX-P

Assembly parts

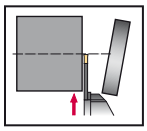
Type	SX-2 . . – SX-6 . .
1/8" blind plug	FS2258

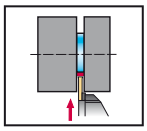
Accessories

Type	SX-2 . .	SX-3 . . – SX-6 . .
Mounting wrench for grooving insert	FS2249	FS1494

★ New addition to range

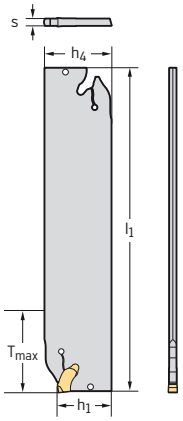
Walter Cut
G2042 N





- 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	24,5	
★ G2042.32N-5T60SX	5	60	32	150	24,4	SX-5 . .
★ G2042.46N-5T80SX		80	46	150	37,4	
★ G2042.32N-6T60SX	6	60	32	150	24,3	SX-6 . .
★ G2042.46N-6T80SX		80	46	150	36,9	

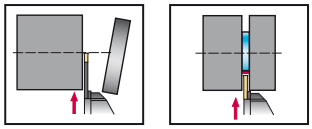
For clamping blocks, see page A 217 of the Walter General Catalogue 2012.
For instructions on replacing the cutting edge, see page A-150 of the Walter Supplementary Catalogue 2013/2014.

Accessories

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

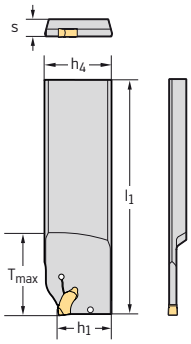
★ New addition to range

Walter Cut
G2042 R/L



- External machining
- Radial grooving 0°
- 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
★ G2042.26L/R-2T26SX	2	26	26	110	21	SX-2 . .
★ G2042.32L/R-2T26SX		26	32	110	24,6	
★ G2042.26L/R-3T33SX	3	33	26	110	21	SX-3 . .
★ G2042.32L/R-3T33SX		33	32	110	24,6	
★ G2042.32L/R-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 of the Walter Supplementary Catalogue 2013/2014.

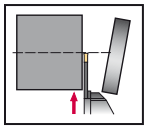
Accessories

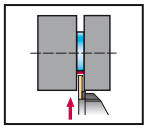
	Type	SX-2 . . – SX-4 . .
	Mounting wrench for grooving insert	FS1494

★ New addition to range

37 45

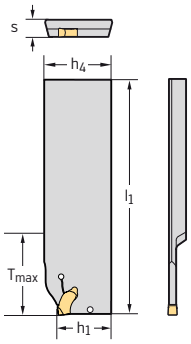
Walter Cut
G2042 Contra version





- External machining
- Radial grooving 0°
- 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
★ G2042.26L/R-2T26SX-C	2	26	26	110	21	SX-2 . .
★ G2042.32L/R-2T26SX-C		26	32	110	24,6	
★ G2042.26L/R-3T33SX-C	3	33	26	110	21	SX-3 . .
★ G2042.32L/R-3T33SX-C		33	32	110	24,6	
★ G2042.32L/R-4T33SX-C	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 of the Walter Supplementary Catalogue 2013/2014.

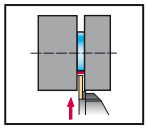
Accessories

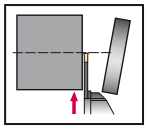
	Type	SX-2 . . – SX-4 . .
	Mounting wrench for grooving insert	FS1494

37 45

★ New addition to range

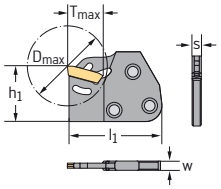
Walter Cut
G1332





- External machining
- Radial grooving 0°
- Replacement module
- For parting off and grooving
- For GX cutting inserts

Modules



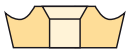
Designation	s mm	T_{max} mm	D_{max} mm	h_1 mm	W mm	l_1 mm	Type
G1332.IMR/L-GAD1.5N-GX16	1,5	15	32	24	1,25	41	GX16-0E . .
G1332.IMR/L-GAD2N-GX16	2	15	32	24	1,45	41	GX16-1E2/F2 . .
G1332.IMR/L-GAD3N-GX16	3	15	32	24	2,2	41	GX16-2E3/F3 . .
G1332.IMR/L-GAD3N-GX24		21	35	24	2,2	51,5	GX24-2E3/F3 . .

For instructions on replacing the cutting edge, see page A 314 of the Walter General Catalogue 2012.

Accessories

	Type	GX16-0E . . – GX24-2E3/F3 . .
	Mounting wrench for GX grooving insert	FS1494

Cutting data for turning inserts – Positive basic shape
Carbide grades



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

= 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 WPP10S f [mm/U]		
									0,10	0,20	0,40
P	Non-alloyed steel	C ≤ 0,25%	Annealed	125	428	P1	●●	●	560	500	430
		C > 0,25... ≤ 0,55%	Annealed	190	639	P2	●●	●	470	430	340
		C > 0,25... ≤ 0,55%	Tempered	210	708	P3	●●	●	360	330	300
		C > 0,55%	Annealed	190	639	P4	●●	●	460	430	410
		C > 0,55%	Tempered	300	1013	P5	●●	●	270	240	220
		Free cutting steel (short-chipping)	Annealed	220	745	P6	●●	●	460	430	410
	Low-alloyed steel	Annealed		175	591	P7	●●	●	420	390	370
		Tempered		300	1013	P8	●●	●	250	220	200
		Tempered		380	1282	P9	●●	●	190	160	140
		Tempered		430	1477	P10	●●	●	60	50	
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	P11	●●	●	440	410	390
		Hardened and tempered		300	1013	P12	●●	●	210	190	170
		Hardened and tempered		400	1361	P13	●●	●	70	60	
	Stainless steel	Ferritic/martensitic, annealed		200	675	P14	●●	●	380	350	330
		Martensitic, tempered		330	1114	P15	●●	●	190	160	140
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
		Pearlitic		260	867	K2	●●	●	240	210	190
	Grey cast iron	Low tensile strength		180	602	K3	●●	●	530	490	450
		High tensile strength/austenitic		245	825	K4	●●	●	280	250	230
	Cast iron with spheroidal graphite	Ferritic		155	518	K5	●●	●	300	270	250
		Pearlitic		265	885	K6	●●	●	210	180	160
	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)	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					
	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

Parting off
Grooving/recessing

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.

Cutting data for Walter Cut – Parting off, grooving and recessing Tiger·tec® Silver

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								
WPP20S f [mm/U]			WPP30S f [mm/U]			WMP20S f [mm/U]		
0,10	0,20	0,40	0,10	0,20	0,40	0,10	0,20	0,40
470	430	350	450	410	300	340	230	190
400	360	280	380	340	250	290	190	150
290	260	240	230	200	180	210	170	130
380	350	330	320	280	260	270	170	130
220	190	170	170	140	120	160	110	90
380	350	330	320	280	260			
360	330	300	270	240	220	240	170	150
200	170	150	150	120	90	160	100	70
150	120	90	120	80	60	120	80	50
50	40							
360	330	300	270	240	220	240	170	100
170	140	120	140	110	80	100	70	60
60	50							
270	240	220	200	170	150	280	240	200
160	130	110	130	90	70	190	150	130
						250	190	120
						150	130	
						160	140	100
250	220	200						
210	180	160						
480	450	430						
210	180	160						
230	200	180						
160	130	110						

		Cutting material grades					
		Starting values for cutting speed v_c [m/min]					
		WKP13S		WKP23S		WKP33S	
		↓	⊤	↓	⊤	↓	⊤
●●			220	190	200		180
●●			200	170	180		170
●●			190	160	170		160
●●			200	170	180		170
●●			170	140	150		150
●●			200	170	180		170
●●			200	170	180		160
●●			170	140	150		150
●●			170	140	150		130
●●			100		80		60
●●			180	120	170		160
●●			160	100	150		140
●●			100		80		60
●●			200		180		160
●●			130		120		110
●●							
●●			130		120		110
●●							
●●	●		190	180	160		140
●●	●		170	160	130		100
●●	●		350	230	330		250
●●	●		310	190	300		290
●●	●		300	210	290		280
●●	●		260	170	250		240
●●	●		220	190	200		180
●●							
●●							
●●							
●●							
●●							
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●●							

TURNING

DRILLING AND THREADING

MILLING

Watch the innovations video:
Scan this QR code or go directly to
http://goo.gl/ncHFHi

WALTER TITEX

Product innovations
Edition 2014-1

Drilling

_ TOOL INNOVATIONS IN DRILLING

X·treme performance for all applications.

Walter Titex XD drilling technology: High-precision in one operation down to 70 x D_c.

Coating
- TTP tip coating

4 lands for optimum hole quality and use on:
- Inclined hole exits
- Workpieces with cross holes

Polished flute
for reliable chip removal

THE TOOL

- Solid carbide high-performance drill with internal cooling
- TTP tip coating
- Dimensions:
  - 40 x D_c as standard tool
  - **NEW:** 50 x D_c as standard tool
  - 60 – 70 x D_c as special tool
- Diameter range 4.5 – 12 mm
- Shank according to DIN 6535 HA

NEW 2014

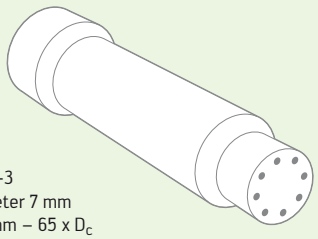
THE APPLICATION

- For the ISO material groups P, K, N (M, S)
- Can be used with emulsion and oil
- For use in general mechanical engineering, mould and die making and the automotive and energy industries

BENEFITS FOR YOU

- Up to 10 times the productivity of single edge gun drills
- Drilling without pecking
- Extremely high process reliability in deep drilling applications
- Suitable for use with coolant pressures from 20 bar
- Can be used with various material groups such as ISO P, K, N (M, S)
- Can be used for cross holes and inclined exits

Piston rod

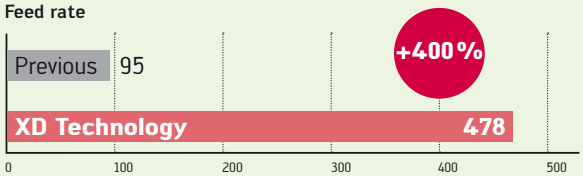


Workpiece material: St 52-3
Tool: Diameter 7 mm
Hole depth: 450 mm – 65 x D_c

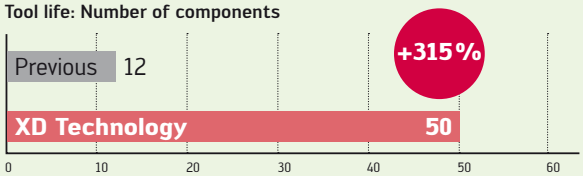
Cutting data

	Previous Gun drill	XD70 Technology
v_c	70 m/min	70 m/min
n	3185 rpm	3185 rpm
f	0.03 mm/rev	0.15 mm/rev
v_f	95 mm/min	478 mm/min
Tool life	12 components	50 components

Feed rate



Tool life: Number of components



Ordering information can be found on page 53.

70 x D_c as special tool

Standard range

X·treme D50 – 50 x D_c

X·treme D40 – 40 x D_c

Alpha®4 XD30 – 30 x D_c

Alpha®4 XD25 – 25 x D_c

Alpha®4 XD20 – 20 x D_c

Alpha®4 XD16 – 16 x D_c

Watch product video:
Scan this QR code or go directly to
http://goo.gl/yQB64

Watch product animation:
Scan this QR code or go directly to
http://goo.gl/ZBIMm

Walter Titex X·treme Pilot 180 – For when the start of the hole must be precise and flat.

PROGRAMME ADDITION 2014

THE TOOL

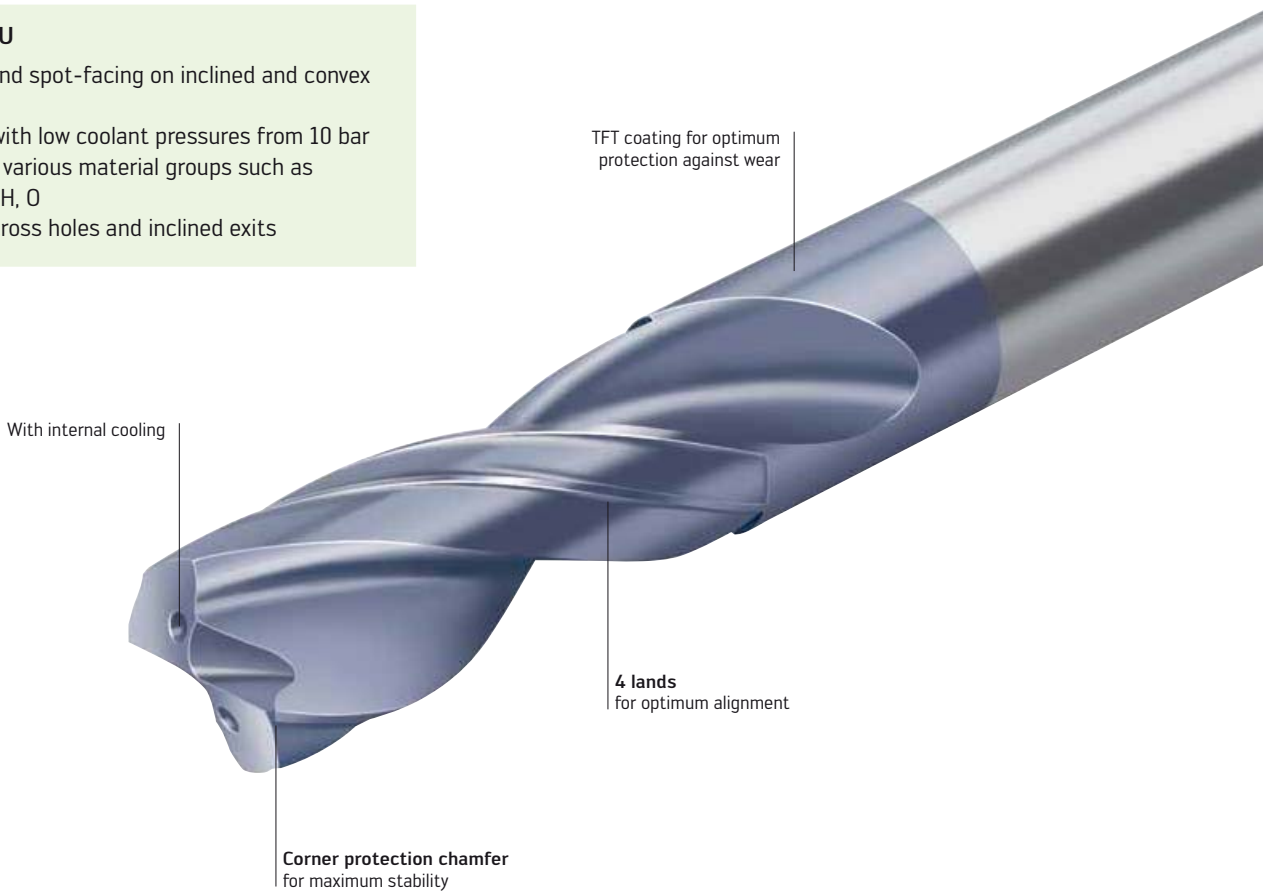
- Solid carbide high-performance pilot drill with internal cooling
- TFT coating
- 180° point angle
- Dimensions according to Walter standard
  - 2 x D_C
- **NEW:** Diameter range 3 – **20 mm**
- Shank according to DIN 6535 HA

THE APPLICATION

- For the ISO material groups P, M, K, N, S, H, O
- Pilot drill for solid carbide deep-hole drills from the Alpha® and X·treme drill families for drilling depths from approx. 12 x D_C
- Can be used for spot-facing on inclined and convex surfaces
- Can be used with emulsion and oil
- For use in general mechanical engineering, mould and die making and the automotive and energy industries

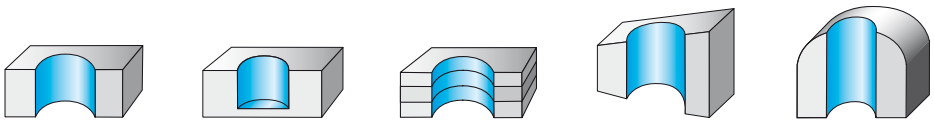
BENEFITS FOR YOU

- For pilot drilling and spot-facing on inclined and convex surfaces
- Suitable for use with low coolant pressures from 10 bar
- Can be used with various material groups such as ISO P, M, K, N, S, H, O
- Can be used for cross holes and inclined exits



Watch product video:
Scan this QR code or go directly to http://goo.gl/mSjzdI

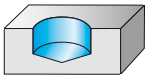
Walter Titex X·treme **Typ:** A7191TFT



Ordering information can be found from page 54 onwards.

Shank DIN 6535 HA

OTHER PILOT DRILLS FROM WALTER TITEX



Cylindrical piloting

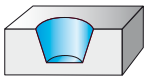
Typ: A6181TFT

Cylindrical piloting

Typ: A6181AML

Cylindrical piloting with 90° countersink

Typ: K3281TFT



Conical piloting for seamless wall finish

Typ: K5191TFT

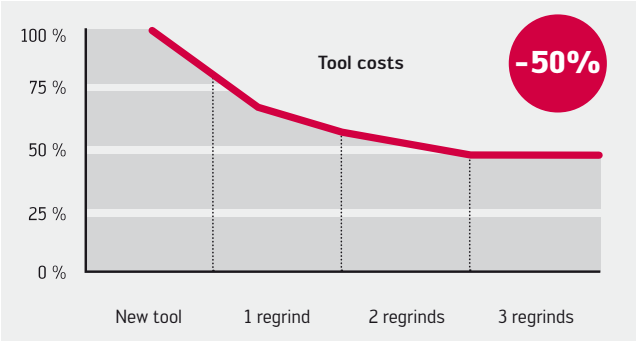
An overview of the pilot drills can be found on page B 4 of the Walter General Catalogue 2012.

Regrinding and coating service: Top quality, straightforward processing and prompt delivery.

The Walter Multiply "Almost as good as new" service

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. As it is carrying out numerous machining steps, 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 wins over 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

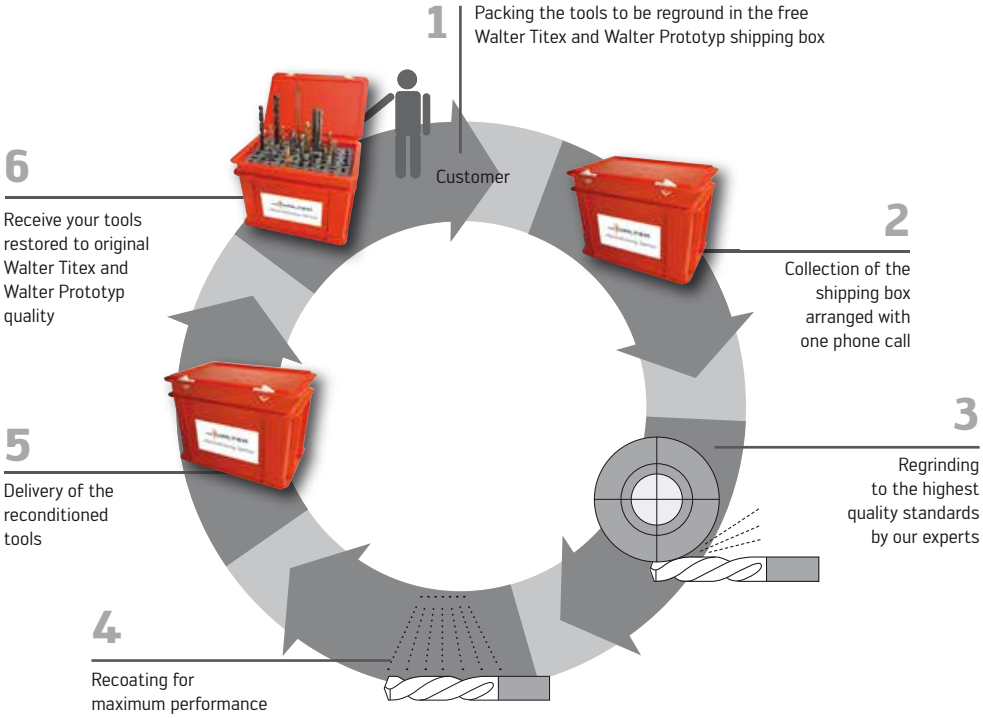
Take advantage of the clear benefits of Walter Multiply:

- Original geometry and coating
- Certified reconditioning centres
- Stable production processes thanks to consistent tool life

ORIGINAL

Not to be ignored, and extremely practical: The Walter RedBox for collecting tools is provided and collected by Walter free of charge

Reliable, just like the tool itself: The reconditioning cycle of Walter Multiply



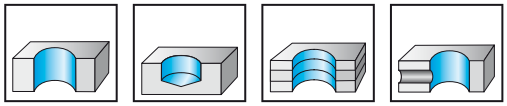
* Reconditioning of Walter Prototyp products is not available in all regions. For further details, please contact your local Walter representative.

Solid carbide coolant through drills

A7595TTP

X·treme D50

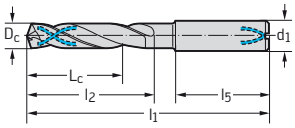
50 x D_c



- K30F - TTP
- Typ X·treme D50
- Right-hand cutting
- 130° point angle

	P	M	K	N	S	H	O
TTP	●●	●	●●	●●	●		

Shank DIN 6535 HA



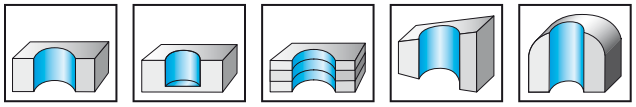
D_c e7 mm	D_c Inches/no.	d_1 h6 mm	L_c mm	l_1 mm	l_2 mm	l_5 mm	Designation A7595TTP
4,5		5	233	273	240	28	★ -4.5
4,762	3/16"	5	259	299	267	28	★ -3/16IN
4,8		5	259	299	267	28	★ -4.8
5		5	259	299	267	28	★ -5
5,5		6	285	334	294	36	★ -5.5
5,556	7/32"	6	308	357	317	36	★ -7/32IN
5,8		6	308	357	317	36	★ -5.8
6		6	308	357	317	36	★ -6
6,1		8	337	389	347	36	★ -6.1
6,35	1/4"	8	337	389	347	36	★ -1/4IN
6,5		8	337	389	347	36	★ -6.5
6,8		8	357	409	368	36	★ -6.8
7		8	357	409	368	36	★ -7
7,144	9/32"	8	388	441	400	36	★ -9/32IN
7,4		8	388	441	400	36	★ -7.4
7,5		8	388	441	400	36	★ -7.5
7,938	5/16"	8	410	462	422	36	★ -5/16IN
8		8	410	462	422	36	★ -8
8,3		10	441	500	454	40	★ -8.3
8,5		10	441	500	454	40	★ -8.5
8,731	11/32"	10	466	525	480	40	★ -11/32IN
9		10	466	525	480	40	★ -9

★ New addition to range

52 56

Solid carbide coolant through pilot drill
A7191TFT
X·treme Pilot 180

2 x D_C

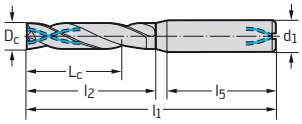


- K30F - TFT
- Type X·treme Pilot 180
- Right-hand cutting
- 180° point angle

Special features:
45 - 55 HRC

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

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 A7191TFT
3		6	7	62	12	42	-3
3,175	1/8"	6	7	62	12	42	-1/8IN
3,5		6	7	62	13	42	-3.5
3,572	9/64"	6	7	62	13	42	-9/64IN
3,969	5/32"	6	8	66	14	42	-5/32IN
4		6	8	66	14	42	-4
4,5		6	9	66	16	42	-4.5
4,763	3/16"	6	10	66	18	42	-3/16IN
4,8		6	10	66	18	42	-4.8
5		6	10	66	18	42	-5
5,5		6	11	66	20	42	-5.5
5,556	7/32"	6	12	66	21	42	-7/32IN
5,8		6	12	66	21	42	-5.8
6		6	12	66	21	42	-6
6,1		8	13	79	23	47	-6.1
6,35	1/4"	8	13	79	23	47	-1/4IN
6,5		8	13	79	23	47	-6.5
6,8		8	14	79	25	47	-6.8
7		8	14	79	25	47	-7
7,144	9/32"	8	16	79	28	47	-9/32IN
7,4		8	16	79	28	47	-7.4
7,5		8	16	79	28	47	-7.5
7,938	5/16"	8	16	79	28	47	-5/16IN
8		8	16	79	28	47	-8
8,3		10	18	89	32	50	-8.3
8,5		10	18	89	32	50	-8.5
8,731	11/32"	10	18	89	32	50	-11/32IN
9		10	18	89	32	50	-9
9,525	3/8"	10	20	89	35	50	-3/8IN
9,8		10	20	89	35	50	-9.8
10		10	20	89	35	50	-10
10,2		12	23	102	40	52	★ -10.2
10,319	13/32"	12	23	102	40	52	★ -13/32IN
10,5		12	23	102	40	52	★ -10.5
11		12	23	102	40	52	★ -11
11,113	7/16"	12	25	102	43	52	★ -7/16IN
11,5		12	25	102	43	52	★ -11.5
11,8		12	25	102	43	52	★ -11.8
11,906	15/32"	12	25	102	43	52	★ -15/32IN
12		12	25	102	43	52	★ -12
12,5		14	35	107	49	52	★ -12.5
12,7	1/2"	14	35	107	49	52	★ -1/2IN
13		14	35	107	49	52	★ -13
13,5		14	35	107	49	52	★ -13.5
14		14	35	107	49	52	★ -14
14,288	9/16"	16	40	115	56	53	★ -9/16IN
14,5		16	40	115	56	53	★ -14.5

Continued

★ New addition to range

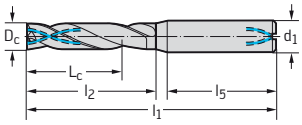
56

Solid carbide coolant-through pilot drill
A7191TFT
X·treme Pilot 180

2 x D_c

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

Continued

	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 A7191TFT
Shank DIN 6535 HA	15		16	40	115	56	53	★ -15
	16		16	40	115	56	53	★ -16
	17		18	45	123	63	53	★ -17
	18		18	45	123	63	53	★ -18
	19		20	50	131	70	55	★ -19
	20		20	50	131	70	55	★ -20

★ New addition to range

Cutting data for solid carbide drills with internal cooling

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

= Cutting data for wet machining
= dry machining is possible, cutting data must be selected from TEC

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

v_c = Cutting speed
VCRR = v_c rating chart from *page B 382*
VRR = feed rate chart from *page B 384*

							Drilling depth			**50 x D_c**				**Pilot drills**			
							Designation			A7595TTP				A7191TFT			
							Type			**X-treme D50**				**X-treme Pilot 180**			
							Dimensions			Walter standard				Walter standard			
							Ø range (mm)			4,50 – 9,00				3,00 – 20,00			
							Cutting material			K30F				K30F			
							Coating			TTP				TFT			
							Page			53				54			
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				90	10	**E O**		120	9	**E O**	**M L**
		C > 0,25... ≤ 0,55%	Annealed	190	639	P2				90	10	**E O**		105	8	**E O**	**M L**
		C > 0,25... ≤ 0,55%	Tempered	210	708	P3				80	10	**E O**		100	8	**E O**	**M L**
		C > 0,55%	Annealed	190	639	P4				90	10	**E O**		105	8	**E O**	**M L**
		C > 0,55%	Tempered	300	1013	P5				63	10	**E O**		75	6	**E O**	**M L**
		Free cutting steel (short-chipping)	Annealed	220	745	P6				80	10	**E O**		120	9	**E O**	**M L**
	Low-alloyed steel	Annealed		175	591	P7				90	10	**E O**		105	8	**E O**	**M L**
		Tempered		300	1013	P8				71	8	**E O**		75	6	**E O**	**M L**
		Tempered		380	1282	P9								50	4	**O E**	**M L**
		Tempered		430	1477	P10								42	2	**O E**	
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	P11				80	10	**E O**		67	6	**E O**	
		Hardened and tempered		300	1013	P12				63	10	**E O**		60	5	**E O**	**M L**
		Hardened and tempered		400	1361	P13								42	2	**O E**	
	Stainless steel	Ferritic/martensitic, annealed		200	675	P14				71	9	**E O**		67	6	**E O**	
		Martensitic, tempered		330	1114	P15				56	8	**E O**		42	5	**E O**	
M	Stainless steel	Austenitic, quench hardened		200	675	M1				56	6	**O E**		42	4	**E O**	
		Austenitic, precipitation hardened (PH)		300	1013	M2								56	4	**E O**	
		Austenitic/ferritic, duplex		230	778	M3				50	6	**O E**		34	4	**E O**	
K	Malleable cast iron	Ferritic		200	675	K1				90	12	**E O**		100	12	**E O**	**M L**
		Pearlitic		260	867	K2				71	9	**E O**		75	12	**E O**	**M L**
	Grey cast iron	Low tensile strength		180	602	K3				90	11	**E O**		120	12	**E O**	**M L**
		High tensile strength/austenitic		245	825	K4				90	12	**E O**		100	12	**E O**	**M L**
	Cast iron with spheroidal graphite	Ferritic		155	518	K5				90	11	**E O**		100	12	**E O**	**M L**
		Pearlitic		265	885	K6				71	9	**E O**		75	12	**E O**	**M L**
	GGV (CGI)			200	675	K7				71	9	**E O**		90	12	**E O**	**M L**
N	Aluminium wrought alloys	Cannot be hardened		30	–	N1				90	13	**E O**		400	12	**E O**	**M**
		Hardenable, hardened		100	343	N2				90	13	**E O**		400	12	**E O**	**M**
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3				90	13	**E O**		250	12	**E O**	**M**
		≤ 12% Si, hardenable, hardened		90	314	N4				90	13	**E O**		240	12	**E O**	**M**
		> 12% Si, cannot be hardened		130	447	N5				90	13	**E O**		190	10	**E O**	**M**
	Magnesium alloys			70	250	N6								240	12		**M L**
	Copper and copper alloys (bronze/brass)	Non-alloyed, electrolytic copper		100	343	N7				90	13	**E O**		210	6	**E O**	**M**
		Brass, bronze, red brass		90	314	N8				90	13	**E O**		180	8	**E O**	
		Cu-alloys, short-chipping		110	382	N9								190	12	**E O**	**M**
		High-strength, Ampco		300	1013	N10								60	5	**E O**	**M**
S	Heat-resistant alloys	Fe-based	Annealed	200	675	S1								42	4	**E O**	
			Hardened	280	943	S2								26	3	**O E**	
		Ni or Co base	Annealed	250	839	S3								32	3	**E O**	
			Hardened	350	1177	S4								16	2	**O E**	
			Cast	320	1076	S5								20	2	**O E**	
	Titanium alloys	Pure titanium		200	675	S6								56	5	**O E**	
		α and β alloys, hardened		375	1262	S7				32	4	**O E**		48	4	**O E**	
		β alloys		410	1396	S8								12	2	**O E**	
	Tungsten alloys			300	1013	S9								60	5	**E O**	**M**
	Molybdenum alloys			300	1013	S10								60	5	**E O**	**M**
H	Hardened steel	Hardened and tempered		50 HRC	–	H1								36	2	**O E**	
		Hardened and tempered		55 HRC	–	H2								31	2	**O E**	
		Hardened and tempered		60 HRC	–	H3											
	Hardened cast iron	Hardened and tempered		55 HRC	–	H4								31	2	**O E**	
O	Thermoplastics	Without abrasive fillers				O1								100	12	**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.*

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

VRR	Feed rate 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

TURNING

DRILLING AND THREADING

MILLING

Watch the innovations video:
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WALTER

Product innovations
Edition 2014-1

Drilling

_ TOOL INNOVATIONS IN DRILLING

Powerful, robust, precise.

Walter Precision – now with Walter Capto™: Precision with ease. LWS

THE TOOL

- Single-edged precision boring tool with convenient analogue readings
- **Reduced-weight design** LWS
- Walter Capto™ adaptor
- Backlash-free adjustment
- The B4031 system is self-balancing
- Diameter range 90 – 110 mm and 110 – 153 mm with cartridges
- Internal coolant supply up to cutting edge
- 0.002 mm adjustment accuracy
- Adaptors and extensions matched to the system
- Indexable insert range adapted for precision boring

THE APPLICATION

- For all material groups
- For finish machining precise holes (IT6)
- Holes from 90 – 153 mm
- General mechanical engineering, production of precision parts, automotive and aerospace industries

LWS = Light Weight Solution

Walter Precision^{MINI}, Walter Precision^{MEDIUM}, Walter Precision^{MAXI}

Ordering information can be found from page 64 onwards.

Watch product video:
Scan this QR code or go directly to
http://goo.gl/Ky4Qia

Walter Precision[MEDIUM]

Type: B4031.C.

BENEFITS FOR YOU

- Easier handling thanks to significant weight reduction
- Improved action on the spindle
- High rigidity despite its light-weight design
- High-precision tool system that is stable, compact and cost-effective
- High surface quality thanks to balanced tools
- Extensive range of indexable inserts
- CC.. and WC.. Indexable inserts for finishing
- Flexibility provided by the extensive range of modular components, such as adaptors, extensions, etc.
- Repair service

Types: B3220.T. B3220.C.

Walter Boring – Indexable inserts for counterboring: The MP4 brings even greater accuracy.

THE INSERT

- Indexable inserts in basic shapes CCGT, WCGT and SCGT
- Version with circumference fully ground
- Straight cutting edge for C and S basic shapes, for use as a chamfer insert in boring tools.
- Variable-width groove designed for different cutting depths
- 7° clearance angle
- Also suitable for turning operations

THE APPLICATION

- Machining long-chipping materials
- Outstanding chip breaking even with variable machining conditions
- When exacting diameter tolerances are required in boring tools
- a_p 0.4 – 3.5 mm f: 0.08 – 0.35 mm

Walter Boring[MEDIUM], **Walter Boring**[MAXI] **Types:** B3220.T. B3220.C.

BENEFITS FOR YOU

- Increase in performance of +75% and in some cases, even higher thanks to the new Tiger·tec® Silver cutting materials WPP10S, WPP20S and WPP30S.
- Excellent chip-breaking properties even on difficult materials, such as 16MnCr5, St37 construction steels or steels with a very low carbon content e.g. C10
- Easy selection of indexable inserts thanks to insert information and new designation information lasered directly onto the insert

Ordering information can be found from page 23 onwards.

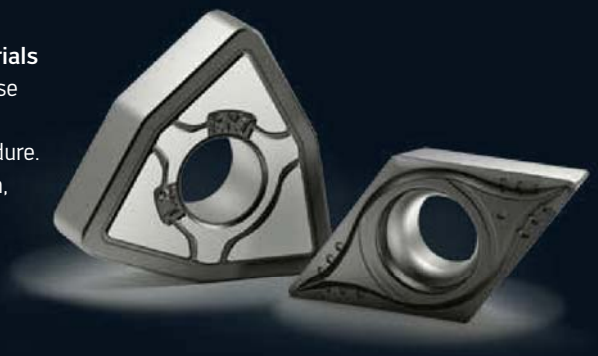
WALTER

Watch trailer:

MORE FORCE, MORE STAMINA, MORE BITE.

Tiger·tec® Silver turning inserts for ISO P, ISO K and ISO M materials
New cutting materials and new geometries – coming together to increase performance by up to 75%. Based on the unique wear resistance and toughness, it is possible to predict what these cutting materials can endure. This is made possible by a new, patented aluminium oxide coating, which, in conjunction with the Tiger·tec® Silver procedure that is recognised worldwide, adds a whole new dimension to machining.

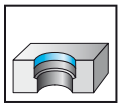
Tiger·tec® Silver – because process reliability deserves more bite.



Tiger·tec® Silver

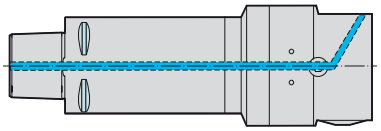
Self-balancing precision boring tool
B 4031.C LWS

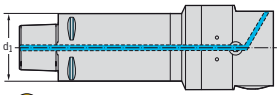
Walter Precision MEDIUM



- Ø 90 – 153 mm
- κ = 95° / κ = 93°
- Z = 1

Basic body | **Cartridge with C insert**



Tool	Basic body Designation	d_1 mm	D_c mm	Designation	Type
 	★ B4031G.C6.090–110.Z1.AL*	C8	90 – 110	EB327.CC06	CC . . 0602 . .
	★ B4031G.C6.110–153.Z1.AL*	C8	110 – 153		

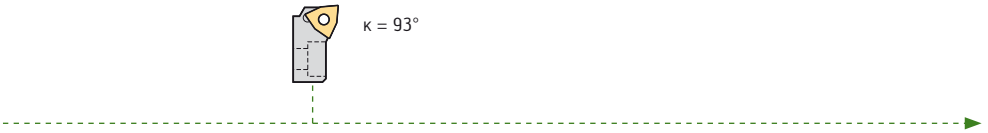
* reduced-weight aluminium design
For assembly aids, see page G 105 of the Walter General Catalogue 2012.
Bodies and assembly parts are included in the scope of delivery.

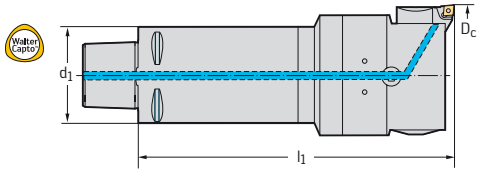
Assembly parts		$D_{c\ min–max}$ [mm] 90 – 110	110 – 153
	Clamping screw	FS 2035 (SW 6)	FS 2036 (SW 6)
	Tightening torque	15 Nm	15 Nm

★ New addition to range

Cartridge with W insert

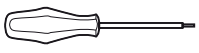
Complete tool





Designation	Type	d_1 mm	l_1 mm	kg	Complete tool Designation with C insert	Complete tool Designation with W insert
EB347.WC04	CC . . 0402 . .	60	230	3,4	★ B4031.C6.090-110Z1.CC06	★ B4031.C6.090-110.Z1.WC04
		60	230	3,8	★ B4031.C6.110-153Z1.CC06	★ B4031.C6.110-153.Z1.WC04

Accessories

		for $D_{c\ min-max}$ [mm]	
		70 – 90	90 – 153
	Screwdriver for clamping screw	FS 1483 (Torx 8IP)	
	Wrench DIN 911 for clamping screw	SW 5	SW 6

Torque screwdriver with interchangeable blades, see page H-2 of the Walter Supplementary Catalogue 2013/2014.

★ New addition to range

TURNING

DRILLING AND THREADING

MILLING

Watch the innovations video:
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WALTER

Product innovations
Edition 2014-1

Threading

_ TOOL INNOVATIONS IN THREADING

Precise threads, reliable processes.

Walter Prototyp – Setting the standards for thread mills with the new Supreme line.

TC610 and TC611 thread mills
Dimension range:
M: M6 – M24
MF: M6 x 0,5 – M28 x 2
UNC: UNC1/4 – UNC1
UNF: UNF10 – UNF3/4
G: G1/8 – G1x20

THE TOOL

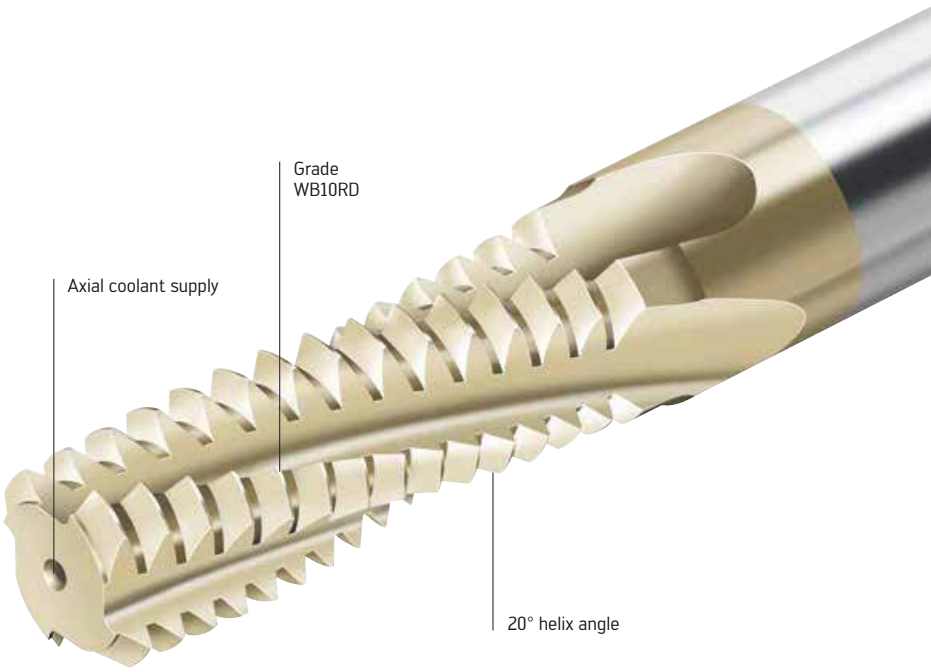
- Special micro-grain carbide with high wear resistance and cutting edge strength, optimised for toughness
- Grade: WJ30RC and WB10RD
- Variants with axial internal coolant supply, which guarantees increased process reliability
- Shank tolerance h6 for use in hydraulic expansion, shrink-fit and precision chucks
- High-precision concentricity (radial runout less than 10 µm) for outstanding thread quality and long tool life
- Thread lengths 1.5 and 2.0 x D available

THE APPLICATION

- Blind and through hole threads up to 2.0 x D
- **Primary application:** ISO material groups P, M, K, N, S
- **Secondary application:** ISO material groups O
- **Universal application:** Can be used for internal threads in all areas of industry

THE PREREQUISITE

- 3D CNC control
- Machining centre or turn/mill centre
- For use in hydraulic expansion, shrink-fit, Weldon and precision chucks



Walter Prototyp Supreme

***Types:** TC610 (1.5 x D)
TC611 (2.0 x D)

BENEFITS FOR YOU

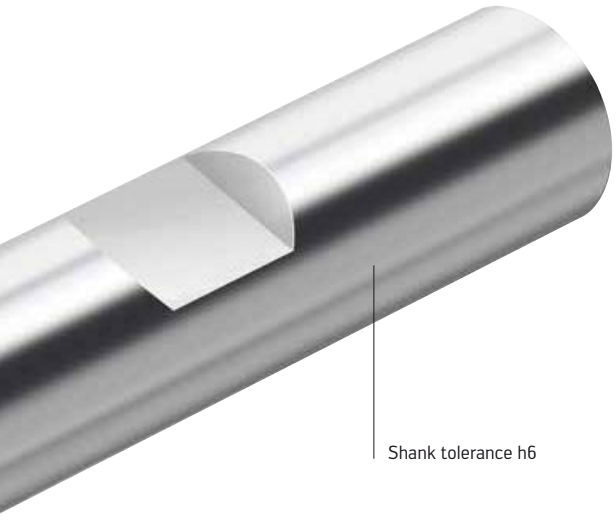
- Significant increases in tool life and process reliability thanks to the new WB10RD and WJ30RC grades
- New geometry prevents vibrations and produces excellent surfaces
- Optimum chip removal as internal cooling prevents fracture

* New designation key: see page 70.

Ordering information can be found from page 71 onwards.

The new Walter Prototyp Supreme product line

When high cutting speeds and maximum tool life are needed – for example in mass production – tools are required that win favour through their performance. The Walter Supreme product line was designed not only to achieve the most demanding of productivity targets but to surpass them without compromising process reliability. The full passion of our developers has gone into these tools.



THE WB10RD GRADE

– Highest data with maximum tool life

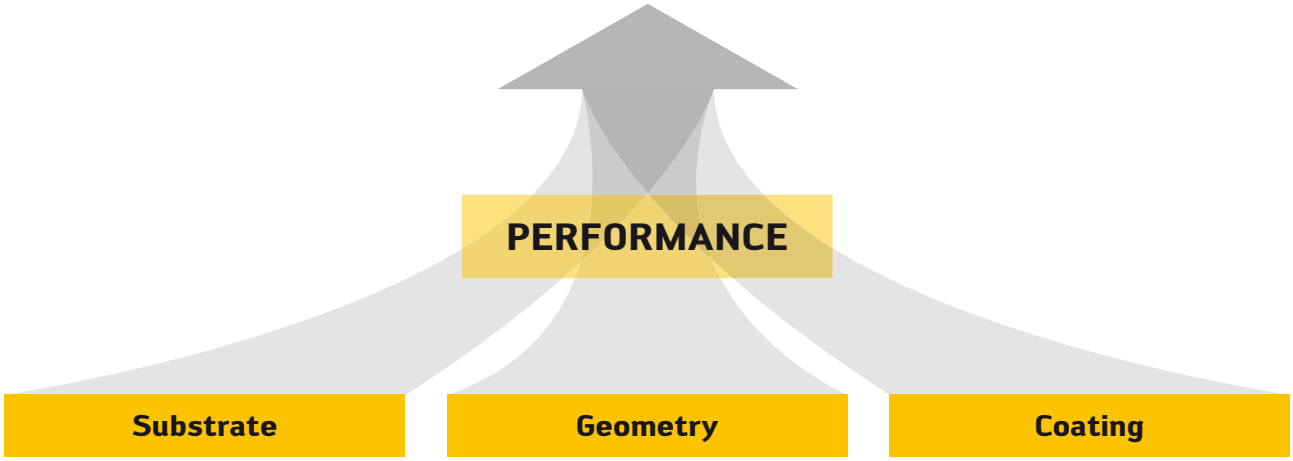
Prerequisite
– Stable clamping
– Internal cooling

THE WJ30RC GRADE

– Most economical solution for smaller batches
– High production security under variable cutting conditions

Advantages
– Machining also possible without internal cooling
– Reliable in unstable conditions

Watch product video:
Scan this QR code or go directly to http://goo.gl/iU3b6g



Designation key for Walter Prototyp threading tools

Example

T	C	6	10	-	M10X1.5	-	W	1	-	W	B	10	RD
1	2	3	4		5		6	7		Grade			

1 – Tool group

T	Threading

2 – Generation

3 – Tool type

6	Thread mill

4 – Tool type

10	Universal	20° helix angle	1,5 x D
11	Universal	20° helix angle	2,0 x D

5 – Thread dimensions

6 – Shank type

W	Weldon shank

7 – Cooling

0	External cooling
1	Axial internal cooling

Grade designation key for solid carbide and HSS cutting materials

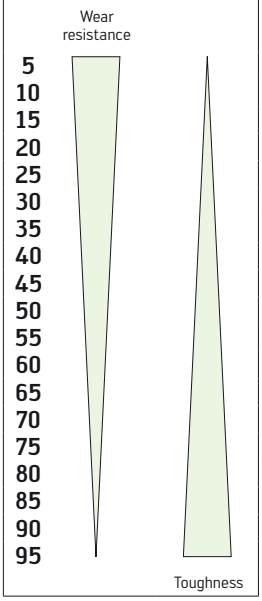
Example

W	B	10	RD
Walter	1	2	3

1 – Substrate

VHM	B
	J
	K
HSS	

2 – Application range



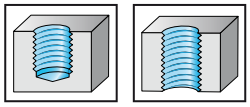
3 – Coating

RC	TiALN
RD	TiALN (+ ZrN)
TF	TiALN
UU	Uncoated

Watch the video:
Scan this QR code or go directly to
http://goo.gl/vlIWQg

Shank thread mill
Supreme TC610

≤ 1,5 x D_N



- Solid carbide
- 4 to 6 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)
- WB10RD (TiALN + ZrN)

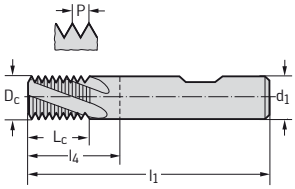
M

DIN 13

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●
WB10RD	●●	●●	●●	●●	●●		●

Tool

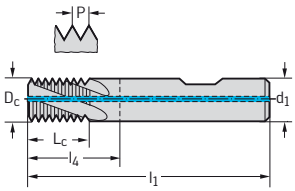
Shank DIN 6535 HB



Designation	P mm	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
TC610-M6-W0-	1	4,5	9	57	21	6	4	☹
TC610-M8-W0-	1,25	6	12,5	65	21	6	4	☹
TC610-M10-W0-	1,5	7,5	15	72	27	8	4	☹
TC610-M12-W0-	1,75	9,5	19,25	80	32	10	4	☹
TC610-M14-W0-	2	10	22	83	32	10	4	☹
TC610-M16-W0-	2	12	24	92	38	12	5	☹
TC610-M20-W0-	2,5	16	30	92	44	16	6	☹
TC610-M24-W0-	3	19	36	104	54	20	6	☹

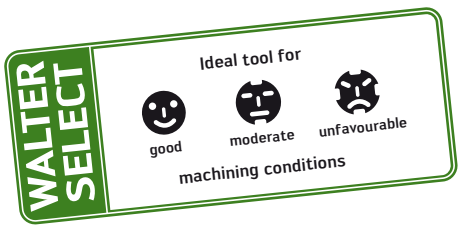
Tool

Shank DIN 6535 HB



Designation	P mm	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC	WB10RD
TC610-M6-W1-	1	4,5	9	57	21	6	4	☹	☺
TC610-M8-W1-	1,25	6	12,5	65	21	6	4	☹	☺
TC610-M10-W1-	1,5	7,5	15	72	27	8	4	☹	☺
TC610-M12-W1-	1,75	9,5	19,25	80	32	10	4	☹	☺
TC610-M14-W1-	2	10	22	83	32	10	4	☹	☺
TC610-M16-W1-	2	12	24	92	38	12	5	☹	☺
TC610-M20-W1-	2,5	16	30	92	44	16	6	☹	☺
TC610-M24-W1-	3	19	36	104	54	20	6	☹	☺

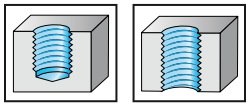
Ordering example: TC610 thread mill with solid carbide shank, M10 thread dimension, in the WB10RD grade
Ordering code: TC610-M10-W1-WB10RD



☹☹☹ New addition to range

Shank thread mill
Supreme TC611

≤ 2 x D_N



- Solid carbide
- 4 to 6 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)
- WB10RD (TiALN + ZrN)

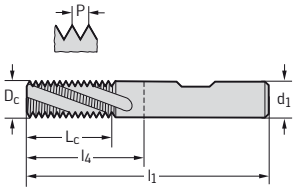
M

DIN 13

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●
WB10RD	●●	●●	●●	●●	●●		●

Tool

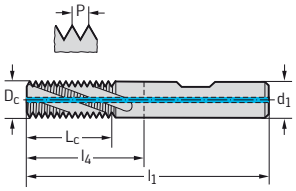
Shank DIN 6535 HB



Designation	P mm	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
TC611-M6-W0-	1	4,5	12	57	21	6	4	☹
TC611-M8-W0-	1,25	6	16,25	57	21	6	4	☹
TC611-M10-W0-	1,5	7,5	21	63	27	8	4	☹
TC611-M12-W0-	1,75	9,5	24,5	72	32	10	4	☹
TC611-M14-W0-	2	10	28	80	40	10	4	☹
TC611-M16-W0-	2	12	32	89	44	12	5	☹
TC611-M20-W0-	2,5	16	40	105	57	16	6	☹
TC611-M24-W0-	3	19	48	118	68	20	6	☹

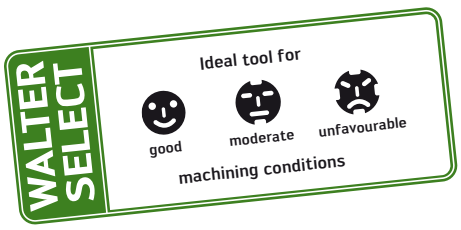
Tool

Shank DIN 6535 HB



Designation	P mm	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC	WB10RD
TC611-M6-W1-	1	4,5	12	57	21	6	4	☹	☺
TC611-M8-W1-	1,25	6	16,25	57	21	6	4	☹	☺
TC611-M10-W1-	1,5	7,5	21	63	27	8	4	☹	☺
TC611-M12-W1-	1,75	9,5	24,5	72	32	10	4	☹	☺
TC611-M14-W1-	2	10	28	80	40	10	4	☹	☺
TC611-M16-W1-	2	12	32	89	44	12	5	☹	☺
TC611-M20-W1-	2,5	16	40	105	57	16	6	☹	☺
TC611-M24-W1-	3	19	48	118	68	20	6	☹	☺

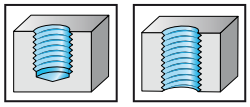
Ordering example: TC611 thread mill with solid carbide shank, M10 thread dimension, in the WB10RD grade
Ordering code: TC611-M10-W1-WB10RD



☺ ☹ ☹ New addition to range

Shank thread mill
Supreme TC610

≤ 1,5 x D_N



- Solid carbide
- 4 to 8 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)
- WB10RD (TiALN + ZrN)

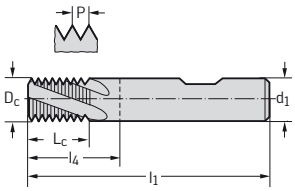
MF

DIN 13

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●
WB10RD	●●	●●	●●	●●	●●		●

Tool

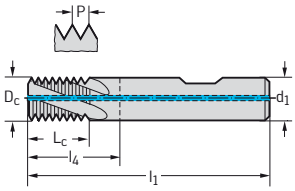
Shank DIN 6535 HB



Designation	P mm	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
TC610-MF6X0.5-W0-	0,5	4,8	10	57	21	6	5	☹
TC610-MF8X0.75-W0-	0,75	6	9	57	21	6	5	☹
TC610-MF8X1-W0-	1	6	12	57	21	6	4	☹
TC610-MF10X0.5-W0-	0,5	8	12	63	27	8	7	☹
TC610-MF10X1-W0-	1	8	15	63	27	8	5	☹
TC610-MF12X1-W0-	1	10	15	72	32	10	6	☹
TC610-MF12X1.25-W0-	1,25	10	18	72	32	10	6	☹
TC610-MF12X1.5-W0-	1,5	10	18,75	72	32	10	5	☹
TC610-MF14X1-W0-	1	12	18	83	38	12	7	☹
TC610-MF14X1.5-W0-	1,5	12	21	83	38	12	6	☹
TC610-MF16X1-W0-	1	14	21	83	38	14	7	☹
TC610-MF16X1.5-W0-	1,5	14	24	83	38	14	6	☹
TC610-MF18X1-W0-	1	16	24	92	44	16	8	☹
TC610-MF18X1.5-W0-	1,5	16	27	92	44	16	7	☹
TC610-MF20X2-W0-	2	16	27	92	44	16	6	☹
TC610-MF24X2-W0-	2	20	30	104	54	20	7	☹
TC610-MF28X2-W0-	2	25	36	121	65	25	8	☹

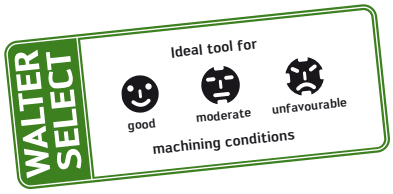
Tool

Shank DIN 6535 HB



Designation	P mm	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC	WB10RD
TC610-M6X0.5-W1-	0,5	4,8	10	57	21	6	5	☹	
TC610-M8X0.75-W1-	0,75	6	9	57	21	6	5	☹	☺
TC610-M8X1-W1-	1	6	12	57	21	6	4	☹	☺
TC610-M10X0.5-W1-	0,5	8	12	63	27	8	7	☹	
TC610-M10X1-W1-	1	8	15	63	27	8	5	☹	☺
TC610-M12X1-W1-	1	10	15	72	32	10	6	☹	☺
TC610-M12X1.25-W1-	1,25	10	18	72	32	10	6	☹	☺
TC610-M12X1.5-W1-	1,5	10	18,75	72	32	10	5	☹	
TC610-M14X1-W1-	1	12	18	83	38	12	7	☹	☺
TC610-M14X1.5-W1-	1,5	12	21	83	38	12	6	☹	☺
TC610-M16X1-W1-	1	14	21	83	38	14	7	☹	☺
TC610-M16X1.5-W1-	1,5	14	24	83	38	14	6	☹	☺
TC610-M18X1-W1-	1	16	24	92	44	16	8	☹	
TC610-M18X1.5-W1-	1,5	16	27	92	44	16	7	☹	☺
TC610-M20X2-W1-	2	16	27	92	44	16	6	☹	☺
TC610-M24X2-W1-	2	20	30	104	54	20	7	☹	
TC610-M28X2-W1-	2	25	36	121	65	25	8	☹	

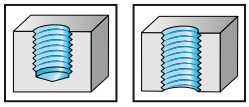
Ordering example: TC610 thread mill with solid carbide shank, M10x1 thread dimension, in the WB10RD grade
Ordering code: TC610-M10x1-W1-WB10RD



☺ ☹ ☹ New addition to range

Shank thread mill
Supreme TC610

≤ 1,5 x D_N



- Solid carbide
- 3 to 6 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)

UNC

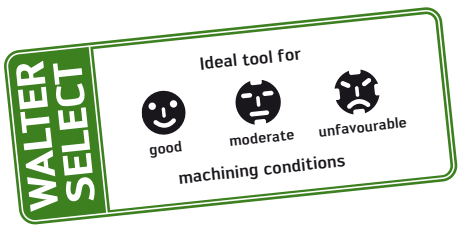
ASME B1.1

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●

Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC610-UNC1/4-W0-	20	4,8	10,16	57	21	6	3	☻
	TC610-UNC5/16-W0-	18	5,5	12,7	57	21	6	4	☻
	TC610-UNC3/8-W0-	16	7,5	14,287	63	27	8	4	☻
	TC610-UNC7/16-W0-	14	8	18,142	63	27	8	4	☻
	TC610-UNC9/16-W0-	12	10	19,538	72	32	10	4	☻
	TC610-UNC1/2-W0-	13	10	19,538	72	32	10	4	☻
	TC610-UNC5/8-W0-	11	12	25,4	83	38	12	5	☻
	TC610-UNC3/4-W0-	10	14	30,48	90	45	14	5	☻
	TC610-UNC7/8-W0-	9	16	33,866	98	50	16	5	☻
	TC610-UNC1-W0-	8	18	38,1	104	54	20	5	☻

Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC610-UNC1/4-W1-	20	4,8	10,16	57	21	6	3	☻
	TC610-UNC5/16-W1-	18	5,5	12,7	57	21	6	4	☻
	TC610-UNC3/8-W1-	16	7,5	14,287	63	27	8	4	☻
	TC610-UNC7/16-W1-	14	8	18,142	63	27	8	4	☻
	TC610-UNC9/16-W1-	12	10	19,538	72	32	10	4	☻
	TC610-UNC1/2-W1-	13	10	19,538	72	32	10	4	☻
	TC610-UNC5/8-W1-	11	12	25,4	83	38	12	5	☻
	TC610-UNC3/4-W1-	10	14	30,48	90	45	14	5	☻
	TC610-UNC7/8-W1-	9	16	33,866	98	50	16	5	☻
	TC610-UNC1-W1-	8	18	38,1	104	54	20	5	☻

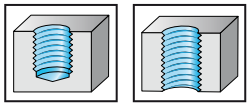
Ordering example: TC610 thread mill with solid carbide shank, UNC9/16 thread dimension, in the WJ30RC grade
Ordering code: TC610-UNC9/16-W0-WJ30RC



☻☻☻ New addition to range

Shank thread mill
Supreme TC611

≤ 2 x D_N



- Solid carbide
- 3 to 6 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)

UNC

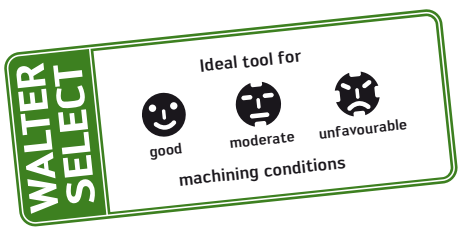
ASME B1.1

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●

Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC611-UNC1/4-W0-	20	4,8	12,7	57	21	6	3	
	TC611-UNC5/16-W0-	18	5,5	16,933	57	21	6	4	
	TC611-UNC3/8-W0-	16	7,5	19,05	63	27	8	4	
	TC611-UNC7/16-W0-	14	8	23,585	68	32	8	4	
	TC611-UNC9/16-W0-	12	10	29,633	80	36	10	4	
	TC611-UNC1/2-W0-	13	10	25,4	76	40	10	4	
	TC611-UNC5/8-W0-	11	12	32,327	90	45	12	5	
	TC611-UNC3/4-W0-	10	14	38,1	98	53	14	5	
	TC611-UNC7/8-W0-	9	16	45,155	108	60	16	5	
	TC611-UNC1-W0-	8	18	50,8	116	68	20	5	

Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC611-UNC1/4-W1-	20	4,8	12,7	57	21	6	3	
	TC611-UNC5/16-W1-	18	5,5	16,933	57	21	6	4	
	TC611-UNC3/8-W1-	16	7,5	19,05	63	27	8	4	
	TC611-UNC7/16-W1-	14	8	23,585	68	32	8	4	
	TC611-UNC9/16-W1-	12	10	29,633	80	36	10	4	
	TC611-UNC1/2-W1-	13	10	25,4	76	40	10	4	
	TC611-UNC5/8-W1-	11	12	32,327	90	45	12	5	
	TC611-UNC3/4-W1-	10	14	38,1	98	53	14	5	
	TC611-UNC7/8-W1-	9	16	45,155	108	60	16	5	
	TC611-UNC1-W1-	8	18	50,8	116	68	20	5	

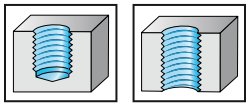
Ordering example: TC611 thread mill with solid carbide shank, UNC9/16 thread dimension, in the WJ30RC grade
Ordering code: TC611-UNC9/16-W0-WJ30RC



New addition to range

Shank thread mill
Supreme TC610

≤ 1,5 x D_N



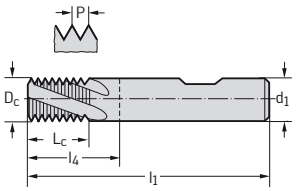
- Solid carbide
- 3 to 6 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)

UNF

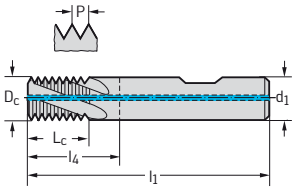
ASME B1.1

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●

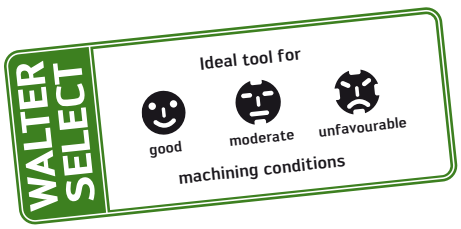
Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC610-UNF10-W0-	32	3,6	7,937	57	21	6	3	☹
	TC610-UNF1/4-W0-	28	4,8	9,978	57	21	6	4	☹
	TC610-UNF5/16-W0-	24	6	12,7	57	21	6	4	☹
	TC610-UNF7/16-W0-	20	8	17,78	63	27	8	4	☹
	TC610-UNF9/16-W0-	18	10	22,557	72	32	10	5	☹
	TC610-UNF3/4-W0-	16	14	28,575	88	43	14	6	☹



Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC610-UNF10-W1-	32	3,6	7,937	57	21	6	3	☹
	TC610-UNF1/4-W1-	28	4,8	9,978	57	21	6	4	☹
	TC610-UNF5/16-W1-	24	6	12,7	57	21	6	4	☹
	TC610-UNF7/16-W1-	20	8	17,78	63	27	8	4	☹
	TC610-UNF9/16-W1-	18	10	22,557	72	32	10	5	☹
	TC610-UNF3/4-W1-	16	14	28,575	88	43	14	6	☹



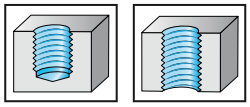
Ordering example: TC610 thread mill with solid carbide shank, UNF9/16 thread dimension, in the WJ30RC grade
Ordering code: TC610-UNF9/16-W0-WJ30RC



☹ New addition to range

Shank thread mill
Supreme TC611

≤ 2 x D_N



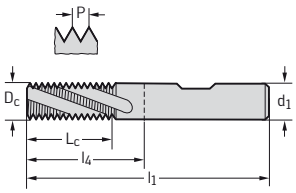
- Solid carbide
- 3 to 6 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)

UNF

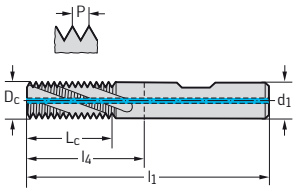
ASME B1.1

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●

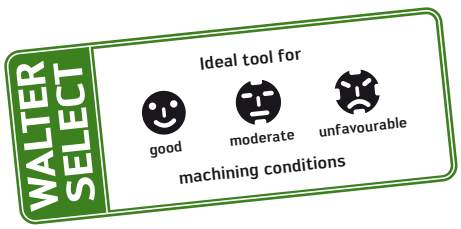
Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC611-UNF10-W0-	32	3,6	10,318	57	21	6	3	
	TC611-UNF1/4-W0-	28	4,8	12,7	57	21	6	4	
	TC611-UNF5/16-W0-	24	6	15,875	57	21	6	4	
	TC611-UNF7/16-W0-	20	8	22,86	68	32	8	4	
	TC611-UNF9/16-W0-	18	10	29,633	80	40	10	5	
	TC611-UNF3/4-W0-	16	14	38,1	98	53	14	6	



Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC611-UNF10-W1-	32	3,6	10,318	57	21	6	3	
	TC611-UNF1/4-W1-	28	4,8	12,7	57	21	6	4	
	TC611-UNF5/16-W1-	24	6	15,875	57	21	6	4	
	TC611-UNF7/16-W1-	20	8	22,86	68	32	8	4	
	TC611-UNF9/16-W1-	18	10	29,633	80	40	10	5	
	TC611-UNF3/4-W1-	16	14	38,1	98	53	14	6	



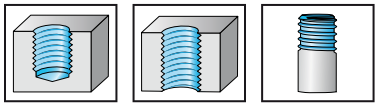
Ordering example: TC611 thread mill with solid carbide shank, UNF9/16 thread dimension, in the WJ30RC grade
Ordering code: TC611-UNF9/16-W0-WJ30RC



New addition to range

Shank thread mill
Supreme TC610

≤ 1,5 x D_N



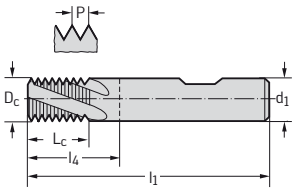
- Solid carbide
- 5 to 8 cutting edges
- 20° helix angle
- Materials up to 48 HRC
- WJ30RC (TiALN)

G

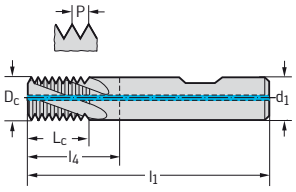
DIN EN ISO 228

	P	M	K	N	S	H	O
WJ30RC	●●	●●	●●	●●	●●		●

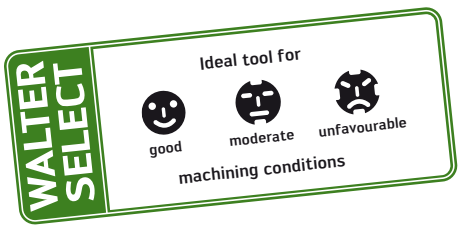
Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC6010-G1/8-W0-	28	6	15	57	21	6	5	☹
	TC6010-G1/4-W0-	19	10	20	72	32	10	5	☹
	TC6010-G3/8-W0-	19	14	27	83	38	14	7	☹
	TC6010-G1/2-W0-	14	16	31	96	44	16	6	☹
	TC6010-G5/8-W0-	14	20	36	104	54	20	8	☹
	TC6010-G1X20-W0-	11	20	46	120	75	20	6	☹



Tool	Designation	P Threads per inch	D_c mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30RC
Shank DIN 6535 HB	TC6010-G1/8-W1-	28	6	15	57	21	6	5	☹
	TC6010-G1/4-W1-	19	10	20	72	32	10	5	☹
	TC6010-G3/8-W1-	19	14	27	83	38	14	7	☹
	TC6010-G1/2-W1-	14	16	31	96	44	16	6	☹
	TC6010-G5/8-W1-	14	20	36	104	54	20	8	☹
	TC6010-G1X20-W1-	11	20	46	120	75	20	6	☹



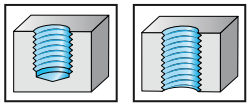
Ordering example: TC610 thread mill with solid carbide shank, G1/4 thread dimension, in the WJ30RC grade
Ordering code: TC6010-G1/4-W0-WJ30RC



☹ New addition to range

Orbital thread mill
TMO

≤ 2 x D_N



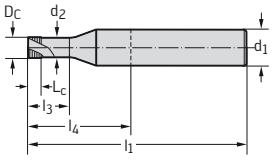
- Solid carbide
- 3-4 cutting edges
- 15° helix angle
- Materials up to 48 HRC

UNF

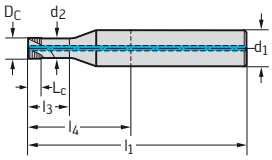
ASME B1.1

	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 H5387006
Shank DIN 6535HA	10-32 UNF	32	3,85	3,175	10,9	1,21	57	21	6	3	★ -UNF10



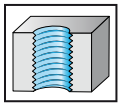
Tool		P Threads per inch	D_c mm	L_c mm	l_3 ±1 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	TICN Designation H5387016
Shank DIN 6535 HA	1/4-UNF	28	5,25	3,81	14,1	4	57	21	6	3	★ -UNF1/4
	5/16-UNF	24	6,55	4,233	17,5	5,1	63	27	8	3	★ -UNF5/16
	3/8-UNF	24	7,85	3,175	20,7	6,4	63	27	8	4	★ -UNF3/8



★ New addition to range

Machine tap
Prototex® Eco Plus

≤ 3 x D_N



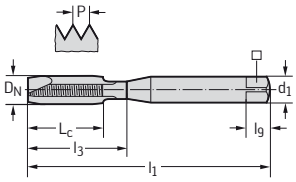
- HSS-E-PM
- Chamfer form B = 3.5 – 5 thread
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials
- Suitable for minimum quantity lubrication

UNC

ASME B1.1

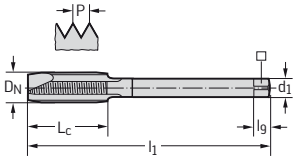
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN/ANSI 2B



D_N-TPI Nom	D_N inch	l_1 inch	L_c inch	L_3 inch	D_1 inch	□ inch	l_9 inch	N	THL Designation AEP2221002
No. 4-40	0.112	2.205	0.354	0.709	0.141	0.110	3/16	3	-UNC4
No. 6-32	0.138	2.205	0.433	0.787	0.141	0.110	3/16	3	-UNC6
No. 8-32	0.164	2.480	0.472	0.827	0.168	0.131	1/4	3	-UNC8
No.10-24	0.190	2.756	0.512	0.984	0.194	0.152	1/4	3	-UNC10
1/4-20	0.250	3.150	0.591	1.181	0.255	0.191	5/16	3	-UNC1/4
5/16-18	0.313	3.543	0.709	1.378	0.318	0.238	3/8	3	-UNC5/16
3/8-16	0.375	3.937	0.787	1.535	0.381	0.286	7/16	3	-UNC3/8

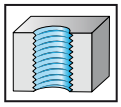
DIN/ANSI 2B



D_N-TPI Nom	D_N inch	l_1 inch	L_c inch	L_3 inch	D_1 inch	□ inch	l_9 inch	N	THL Designation AEP2226002
1/2-13	0.500	4.331	0.906	-	0.367	0.275	7/16	4	-UNC1/2
5/8-11	0.625	4.331	0.984	-	0.480	0.360	9/16	4	-UNC5/8
3/4-10	0.750	4.921	1.181	-	0.590	0.442	11/16	4	-UNC3/4

Machine tap
Prototex® Eco Plus

≤ 3 x D_N



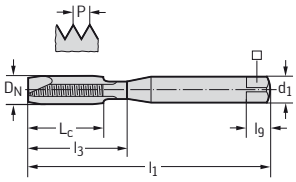
- HSS-E-PM
- Chamfer form B = 3.5 – 5 thread
- Materials from 500 to 1350 N/mm² or 42 HRC
- For long-chipping materials
- Suitable for minimum quantity lubrication

UNF

ASME B1.1

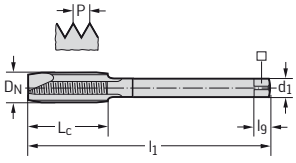
	P	M	K	N	S	H	O
THL	●●	●●	●●	●●			

DIN/ANSI 2B



D_N-TPI Nom	D_N inch	l_1 inch	L_c inch	L_3 inch	D_1 inch	□ inch	l_9 inch	N	THL Designation AEP2321002
No. 6-40	0.138	2.205	0.433	0.787	0.141	0.110	3/16	3	-UNF6
No. 10-32	0.190	2.756	0.512	0.984	0.194	0.152	1/4	3	-UNF10
1/4-28	0.250	3.150	0.591	1.181	0.255	0.191	5/16	3	-UNF1/4
5/16-24	0.313	3.543	0.709	1.378	0.318	0.238	3/8	3	-UNF5/16
3/8-24	0.375	3.937	0.787	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 inch	L_3 inch	D_1 inch	□ inch	l_9 inch	N	THL Designation AEP2326002
7/16-20	0.438	3.937	0.787	-	0.323	0.242	13/32	3	-UNF7/16
1/2-20	0.500	3.937	0.827	-	0.367	0.275	7/16	4	-UNF1/2
5/8-18	0.625	3.937	0.827	-	0.480	0.360	9/16	4	-UNF5/8
3/4-16	0.750	4.330	0.944	-	0.590	0.442	11/16	4	-UNF3/4

Walter Toolshop – Quick. Easy. Order.

The next generation Walter Toolshop is here – more convenience functions for registered users mean that selecting and ordering has become even easier.

- All standard tools from the competence brands Walter, Walter Titex and Walter Prototyp are available
- 45,000 products can be ordered 24 hours a day
- Fast and easy product search thanks to search function and filter
- Availability and stock levels can be checked before ordering
- The current net and total prices are always displayed
- All transactions can be reviewed using the order and billing history
- Order tracking via a link to the website of the shipping company
- Repeat orders can be made from previous orders and bills
- Tool search and ordering via customer-specific article numbers (if entered in the Walter System)
- Personal address book for easy handling of direct deliveries
- Choice of 20 different shopping languages

www.walter-tools.com

WALTER

TURNING

DRILLING AND THREADING

MILLING

Watch the innovations video:
Scan this QR code or go directly to
http://goo.gl/ncHFHi

WALTER PROTOTYP

_ TOOL INNOVATIONS IN MILLING

Effectively cooled for greater performance.

Walter Prototyp – Setting the standard for tool life with the new Advance line.

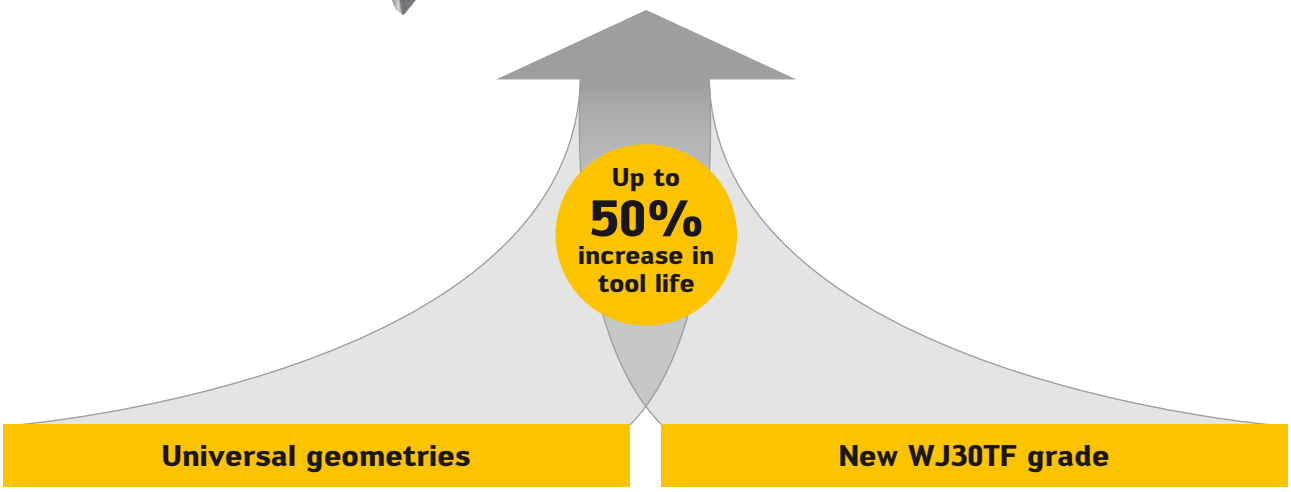
Shoulder mills with 45° and 30° helix angle:
MC111, MC112 and **MC122**
Shoulder/slot mills with 30° helix angle: **MC213** and **MC216**
Shoulder/slot mill with 45° helix angle: **MC322**

THE TOOLS

- New line of Advance milling cutters for universal use
- Includes six new types of cutter with 280 different dimensions, and a range of diameters and lengths for slot milling and trimming with different cutting-edge versions
- Available in four different lengths
- Diameter range 2 – 25 mm
- 2 to 8 cutting edges
- Shank in accordance with DIN 6535 HA and HB
- Grade: WJ30TF

THE APPLICATION

- Universal application in the ISO material groups P, M, K and S
- Shoulder milling, full slotting, pocket milling, ramping, plunging
- Machining deep cavities thanks to reduced neck (d2)
- For use in general mechanical engineering, and mould and die making in the energy, medical, aerospace and automotive industries



New designation key: see page 93.

Ordering information can be found from page 94 onwards.

The new Walter Prototyp Advance product line

With impressive performance data and a wide product range which covers practically all relevant machining tasks, the Walter Advance product line is perfect for any modern production system producing medium component quantities and above-average high quality standards. Thanks to superior geometries and perfectly matched cutting materials, these tools perform impressively with absolute precision, maximum reliability and the greatest possible flexibility in everyday use.

Walter Prototyp Advance

BENEFITS FOR YOU

- Long tool life thanks to the high-performance WJ30TF grade
- Low inventory costs as a wide range of applications is covered

THE GRADE: WJ30TF

An essential component of the WJ30TF grade is the newly developed coating with a nanolaminated structure to counteract any possible crack formation. The hardness measures 3200 HV for an e-module of 440 Gpa – an ideal balance of hardness and toughness.

Walter Prototyp – Top performance with the new Supreme line.

Shoulder/slot mill with 50° helix angle: **MC326**
Slot drill with 50° helix angle: **MC726**

THE TOOL

- Universal high-performance milling cutter
- With and without corner radius
- From R = 0.08 to 4 mm
- Diameter range 2 to 25 mm
- 50° helix angle
- 3, 4 and 5 cutting edges
- Available with and without reduced neck (d2)
- Shank in accordance with DIN 6535 HA and HB
- Grade: WK40TF

THE APPLICATION

- Primary application: ISO material group P
- Secondary applications: ISO material groups M, K and S
- For roughing and finishing
- Full slotting up to 0.9 x D_C
- For pocket milling, ramping and contour milling
- The reduced neck also makes it suitable for machining relatively deep cavities
- Areas of use: General mechanical engineering, and the energy, medical, aerospace and automotive industries

NEW: **WK40TF grade**

BENEFITS FOR YOU

- A high level of process reliability due to the reinforced core at the rear and large chip clearance at the front
- The new WK40TF enables an incredibly high level of productivity with cutting data which is up to 50 per cent higher than conventional products on the market, and a tool life which is up to 100 per cent longer

Walter Prototyp Supreme **Type:** MC326

Watch product video:
Scan this QR code or go directly to
http://goo.gl/EffUcD

New designation key: see page 93.

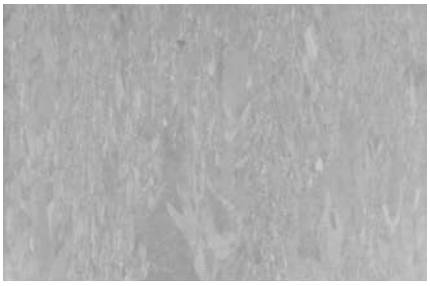
Ordering information can be found from page 100 onwards.

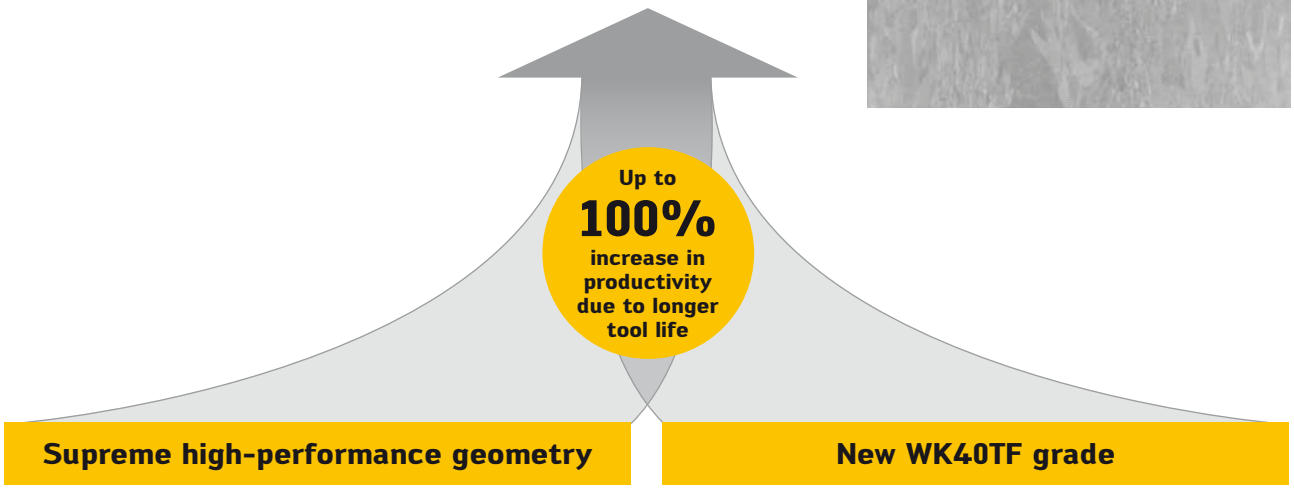
The new Walter Prototyp Supreme product line

When high cutting speeds and maximum tool life are needed – for example in mass production – tools are required that win favour through their performance. The Walter Supreme product line was designed not only to achieve the most demanding of productivity targets but to surpass them, without compromising process reliability. The full passion of our developers has gone into these tools.

THE GRADE: WK40TF

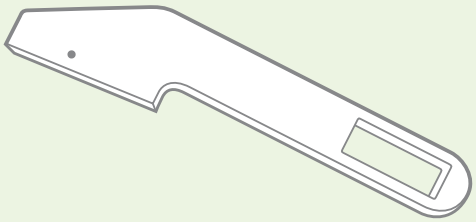
For this grade, the relatively tough substrate combines with the new TiAlN coating developed by Walter, which provides outstanding wear protection. It is this combination which forms the basis for the extremely high tool performance.





Blade:
Roughing, contour-parallel

Workpiece material: 16MnCr5 / 1.7131
Tensile strength: Rm = ca. 600 N/mm²
Tool: Walter Prototyp Supreme MC326

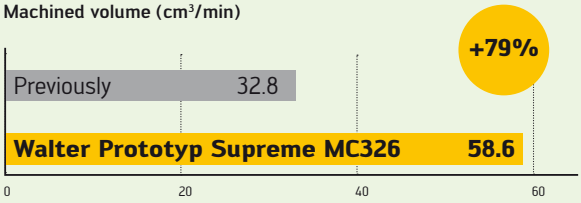


Cutting data

	Previous	Walter Prototyp Supreme MC326
v_c	280 m/min	500 m/min
n	7427 rpm	13,263 rpm
f_z	0.085 mm	0.09 mm
v_f	2525 mm/min	4509 mm/min
a_p	13 mm	13 mm
a_e	1 mm	1 mm

Note: 2.2 minutes saved per component through an 80% increase in v_c

Machined volume (cm³/min)



Walter Prototyp – Outstanding machining of structural components for the aerospace industry with the new Supreme line.

Shoulder/slot mills with 30° helix angle: **MB265 (Roughing)** and **MB266 (Roughing and Finishing)**

THE TOOL

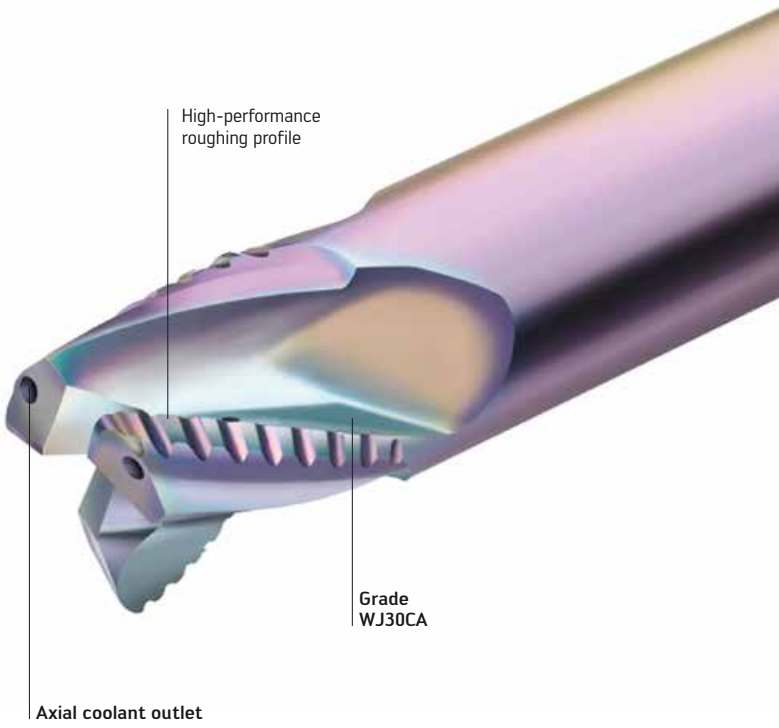
- Solid carbide high-performance milling cutters with corner radius
- From R = 0.5 to 4 mm
- Diameter range 12 to 25 mm
- With internal cooling
- 30° helix angle
- Shank according to DIN 6535 HA with surface treatment
- Polished flutes
- Reduced neck
- High-performance grade: WJ30CA

THE APPLICATION

- Specially designed for the machining of aluminium integral components in the aerospace industry
- Developed for wet machining
- Roughing and finishing

BENEFITS FOR YOU

- The Supreme MB265 and MB266 set new standards for metal removal rates when machining aluminium components
- Thanks to the long reach, deep pockets can be machined with standard tools
- High level of process reliability due to special shank treatment for increased torque and transmission of power in the tool adaptor



Walter Prototyp Supreme **Type:** MB265

New designation key: see page 93.

Ordering information can be found from page 116 onwards.

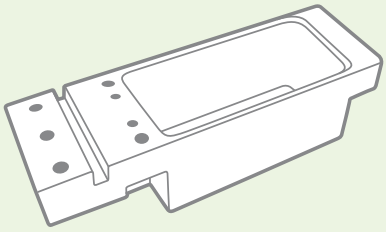
The new Walter Prototyp Supreme product line

When high cutting speeds and maximum tool life are needed – for example in mass production – tools are required that win favour through their performance. The Walter Supreme product line was designed not only to achieve the most demanding of productivity targets but to surpass them without compromising process reliability. The full passion of our developers has gone into these tools.

Walter Prototyp Supreme **Type:** MB266

Gas module: Roughing pockets

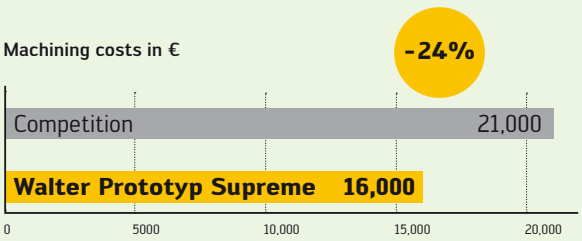
Workpiece material: AlMgSi1 (3.2315)
Tensile strength: Rm = ca. 600 N/mm²
Tool: Walter Prototyp Supreme MB265
Adaptor: HSK 63 A (power clamping chuck)



Cutting data

	Competition	**Walter Prototyp Supreme MB265**
v_c	800 m/min	850 m/min
v_f	3500 mm/min	4000 mm/min
z	2	3
a_p	4 mm	10 mm
a_e	8 mm	8 mm

Machining costs in €



Walter GPS

Global **P**roductivity **S**ystem

The latest generation of tool navigation.

The right tool at the click of a mouse

With just four clicks, Walter GPS takes you from the definition of your objective to the most cost-effective tool and machining solution. Walter GPS is surprisingly comprehensive. Whether for drilling, threading or milling, full information on all tools from Walter, Walter Titex and Walter Prototyp can be displayed in an instant. Access mandatory usage data, such as accurate cutting data or precise cost-efficiency calculations, on your screen. Walter GPS is now also available for smartphones and tablet PCs. This means that you are able to access all the required tool information at any time, wherever you are, even without a PC: In the workshop, at the machine or on the move.

WALTER WALTER TITEX WALTER PROTOTYP WALTER MULTIPLY

WALTER

Designation key for Walter Prototyp milling tools

Example

M	C	3	26	-	12.0	A	4	B	200	A	-	W	K	40	TF
1	2	3	4		5	6	7	8	9	10		Grade			

1 – Tool group

M	Milling

2 – Generation

3 – Tool type

1	Shoulder mill
2	Shoulder mill/slot mill/porcupine cutter helix angle ≤ 39°
3	Shoulder mill/slot mill/porcupine cutter helix angle ≤ 40°
7	Slot drill/circular interpolation mill

4 – Tool type

11	Universal	30° helix angle
12	Universal	30° helix angle
13	Universal	30° helix angle
16	Universal	30° helix angle
22	Universal	45° helix angle
26	Universal	50° helix angle
65	ISO N	30° helix angle
66	ISO N	30° helix angle

5 – Cutting diameter

6 – Shank type

A	Parallel shank
W	Weldon shank

7 – Number of teeth

8 – Design standard

A	DIN 6527 K
B	DIN 6527 L
P	P standard
L	P standard L
X	P standard XL

9 – Corner radius

10 – Variant

B	Neck length S
C	Neck length M
D	Neck length L
E	Neck length XL
J	Cutting depth S
K	Cutting depth M
L	Cutting depth L
BJ	Neck length S/cutting depth S
BK	Neck length S/cutting depth M
R	Neck length M/cutting depth S
S	Neck length L/cutting depth S
T	Neck length XL/cutting depth S

Grade designation key for solid carbide and HSS cutting materials

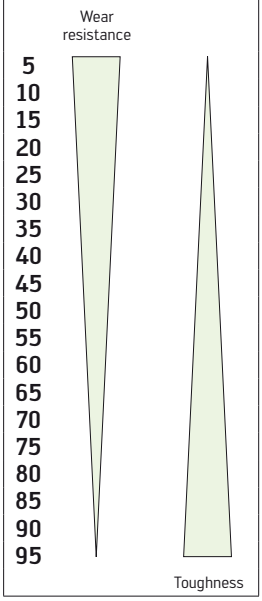
Example

W	K	40	TF
Walter	1	2	3

1 – Substrate

Solid carbide	B
	J
	K
HSS	

2 – Application range



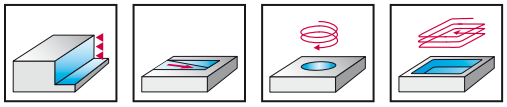
3 – Coating

RC	TiALN
RD	TiALN (+ ZrN)
TF	TiALN
UU	Uncoated
CA	CrN

Watch the video:
Scan this QR code or go directly to http://goo.gl/vllWQg

End mill
Advance MC122

Materials up to 48 HRC



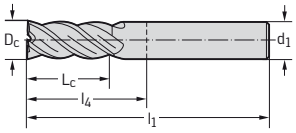
- Solid carbide
- 4 to 5 cutting edges
- With centre cut
- 45° helix angle
- WJ30TF (TiALN)

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
WJ30TF	●●	●	●		●		

DIN 6527 L

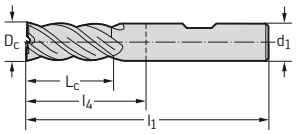
Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC122-02.0A4B-	2	7	57	21	6	4	●●●
MC122-03.0A4B-	3	8	57	21	6	4	●●●
MC122-04.0A4B-	4	11	57	21	6	4	●●●
MC122-05.0A4B-	5	13	57	21	6	4	●●●
MC122-06.0A4B-	6	13	57	21	6	4	●●●
MC122-08.0A4B-	8	19	63	27	8	4	●●●
MC122-10.0A4B-	10	22	72	32	10	4	●●●
MC122-12.0A4B-	12	26	83	38	12	4	●●●
MC122-14.0A4B-	14	26	83	38	14	4	●●●
MC122-16.0A4B-	16	32	92	44	16	4	●●●
MC122-18.0A5B-	18	32	92	44	18	5	●●●
MC122-20.0A5B-	20	38	104	54	20	5	●●●

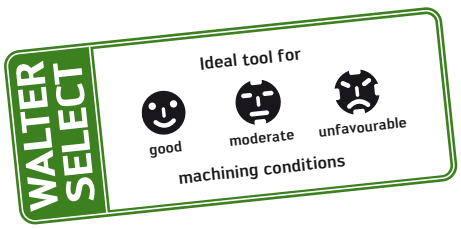
DIN 6527 L

Shank DIN 6535 HB



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC122-02.0W4B-	2	7	57	21	6	4	●●●
MC122-03.0W4B-	3	8	57	21	6	4	●●●
MC122-04.0W4B-	4	11	57	21	6	4	●●●
MC122-05.0W4B-	5	13	57	21	6	4	●●●
MC122-06.0W4B-	6	13	57	21	6	4	●●●
MC122-08.0W4B-	8	19	63	27	8	4	●●●
MC122-10.0W4B-	10	22	72	32	10	4	●●●
MC122-12.0W4B-	12	26	83	38	12	4	●●●
MC122-14.0W4B-	14	26	83	38	14	4	●●●
MC122-16.0W4B-	16	32	92	44	16	4	●●●
MC122-20.0W5B-	20	38	104	54	20	5	●●●
MC122-25.0A5B-	25	45	121	65	25	5	●●●

Ordering example: MC122 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC122-10.0A4B-WJ30TF

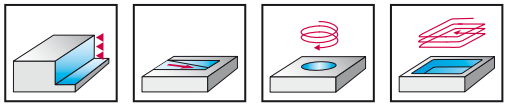


●●● New addition to range

52 118

End mill
Advance MC122

Materials up to 48 HRC



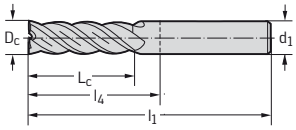
- Solid carbide
- 4 to 5 cutting edges
- With centre cut
- 45° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.1 \times D_c$
Shoulder milling: $a_e \leq 0.05 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

P standard L

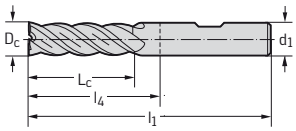
Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC122-06.0A4L-	6	22	65	29	6	4	☺
MC122-08.0A4L-	8	28	80	44	8	4	☺
MC122-10.0A4L-	10	32	100	60	10	4	☺
MC122-12.0A4L-	12	40	100	55	12	4	☺
MC122-14.0A4L-	14	50	104	59	14	4	☺
MC122-16.0A5L-	16	50	115	67	16	5	☺
MC122-20.0A5L-	20	55	125	75	20	5	☺

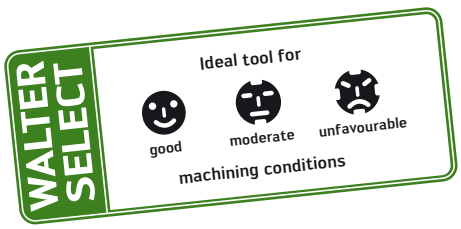
P standard L

Shank DIN 6535 HB



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC122-06.0W4L-	6	22	65	29	6	4	☺
MC122-08.0W4L-	8	28	80	44	8	4	☺
MC122-10.0W4L-	10	32	100	60	10	4	☺
MC122-12.0W4L-	12	40	100	55	12	4	☺
MC122-14.0W4L-	14	50	104	59	14	4	☺
MC122-16.0W5L-	16	50	115	67	16	5	☺
MC122-20.0W5L-	20	55	125	75	20	5	☺

Ordering example: MC122 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC122-10.0A4L-WJ30TF

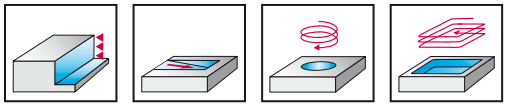


☺☺☺ New addition to range

52 118

End mill
Advance MC122

Materials up to 48 HRC



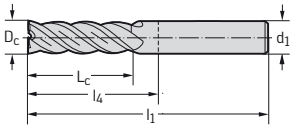
- Solid carbide
- 4 to 8 cutting edges
- With centre cut
- 45° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.1 \times D_c$
Shoulder milling: $a_e \leq 0.05 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

P standard XL

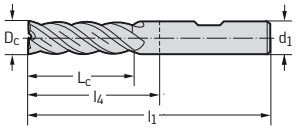
Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC122-06.0A4XK-	6	35	80	44	6	4	☹
MC122-08.0A4XK-	8	45	97	61	8	4	☹
MC122-10.0A4XK-	10	50	118	78	10	4	☹
MC122-12.0A4XK-	12	60	120	75	12	4	☹
MC122-16.0A5XK-	16	65	130	82	16	5	☹
MC122-16.0A5XL-	16	80	145	97	16	5	☹
MC122-20.0A6XK-	20	75	145	95	20	6	☹
MC122-20.0A6XL-	20	100	170	120	20	6	☹
MC122-25.0A8XK-	25	90	153	97	25	8	☹
MC122-25.0A8XL-	25	125	188	132	25	8	☹

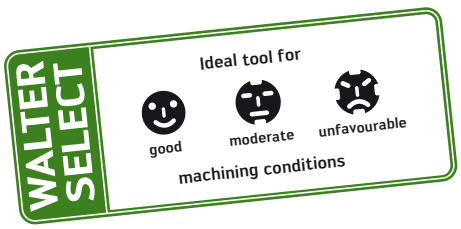
P standard XL

Shank DIN 6535 HB



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC122-04.0W4XK-	4	20	65	29	6	4	☹
MC122-05.0W4XK-	5	25	65	29	6	4	☹
MC122-06.0W4XK-	6	35	80	44	6	4	☹
MC122-08.0W4XK-	8	45	97	61	8	4	☹
MC122-10.0W4XK-	10	50	118	78	10	4	☹
MC122-12.0W4XK-	12	60	120	75	12	4	☹
MC122-14.0W4XK-	14	70	124	79	14	4	☹
MC122-16.0W5XK-	16	65	130	82	16	5	☹
MC122-16.0W5XL-	16	80	145	97	16	5	☹
MC122-18.0W5XK-	18	90	155	107	18	5	☹
MC122-20.0W6XK-	20	75	145	95	20	6	☹
MC122-20.0W6XL-	20	100	170	120	20	6	☹
MC122-25.0W8XK-	25	90	153	97	25	8	☹
MC122-25.0W8XL-	25	125	188	132	25	8	☹

Ordering example: MC122 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC122-10.0A4XK-WJ30TF

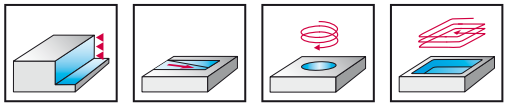


☹☹☹ New addition to range

52 118

End mill
Advance MC111

Materials up to 48 HRC



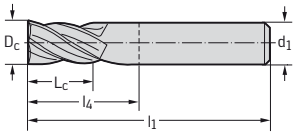
- Solid carbide
- 4 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.3x\ D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●	●	●		

DIN 6527 K

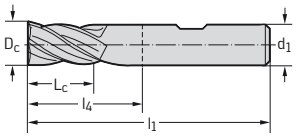
Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC111-02.0A4A-	2	4	50	14	6	4	☻
MC111-03.0A4A-	3	5	50	14	6	4	☻
MC111-04.0A4A-	4	8	54	18	6	4	☻
MC111-05.0A4A-	5	9	54	18	6	4	☻
MC111-06.0A4A-	6	10	54	18	6	4	☻
MC111-07.0A4A-	7	11	58	22	8	4	☻
MC111-08.0A4A-	8	12	58	22	8	4	☻
MC111-10.0A4A-	10	14	66	26	10	4	☻
MC111-12.0A4A-	12	16	73	28	12	4	☻
MC111-14.0A4A-	14	18	75	30	14	4	☻
MC111-16.0A4A-	16	22	82	34	16	4	☻
MC111-18.0A4A-	18	24	84	36	18	4	☻
MC111-20.0A4A-	20	26	92	42	20	4	☻

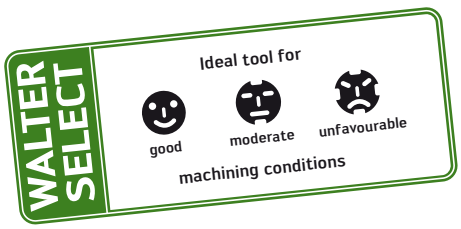
DIN 6527 K

Shank DIN 6535 HB



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC111-02.0W4A-	2	4	50	14	6	4	☻
MC111-03.0W4A-	3	5	50	14	6	4	☻
MC111-04.0W4A-	4	8	54	18	6	4	☻
MC111-05.0W4A-	5	9	54	18	6	4	☻
MC111-06.0W4A-	6	10	54	18	6	4	☻
MC111-07.0W4A-	7	11	58	22	8	4	☻
MC111-08.0W4A-	8	12	58	22	8	4	☻
MC111-10.0W4A-	10	14	66	26	10	4	☻
MC111-12.0W4A-	12	16	73	28	12	4	☻
MC111-14.0W4A-	14	18	75	30	14	4	☻
MC111-16.0W4A-	16	22	82	34	16	4	☻
MC111-18.0W4A-	18	24	84	36	18	4	☻
MC111-20.0W4A-	20	26	92	42	20	4	☻

Ordering example: MC111 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC111-10.0A4A-WJ30TF

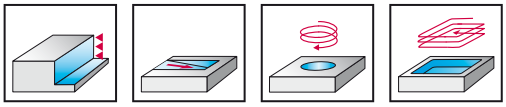


☻☻☻ New addition to range

52 119

End mill
Advance MC111

Materials up to 48 HRC

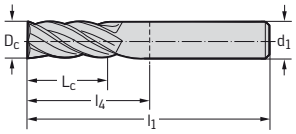


- Solid carbide
- 4 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.3x\ D_c$
Shoulder milling: $a_e \leq 0.1 \times D_c$

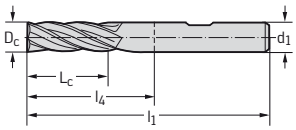
	P	M	K	N	S	H	O
WJ30TF	●●	●	●	●	●		

DIN 6527 L



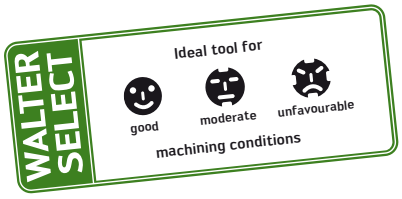
Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC111-02.0A4B-	2	7	57	21	6	4	●●
MC111-02.5A4B-	2,5	8	57	21	6	4	●●
MC111-03.0A4B-	3	8	57	21	6	4	●●
MC111-03.5A4B-	3,5	10	57	21	6	4	●●
MC111-04.0A4B-	4	11	57	21	6	4	●●
MC111-04.5A4B-	4,5	11	57	21	6	4	●●
MC111-05.0A4B-	5	13	57	21	6	4	●●
MC111-05.5A4B-	5,5	13	57	21	6	4	●●
MC111-06.0A4B-	6	13	57	21	6	4	●●
MC111-06.5A4B-	6,5	16	63	27	8	4	●●
MC111-07.0A4B-	7	16	63	27	8	4	●●
MC111-08.0A4B-	8	19	63	27	8	4	●●
MC111-09.0A4B-	9	19	72	32	10	4	●●
MC111-10.0A4B-	10	22	72	32	10	4	●●
MC111-12.0A4B-	12	26	83	38	12	4	●●
MC111-14.0A4B-	14	26	83	38	14	4	●●
MC111-16.0A4B-	16	32	92	44	16	4	●●
MC111-18.0A4B-	18	32	92	44	18	4	●●
MC111-20.0A4B-	20	38	104	54	20	4	●●

DIN 6527 L



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC111-02.0W4B-	2	7	57	21	6	4	●●
MC111-02.5W4B-	2,5	8	57	21	6	4	●●
MC111-03.0W4B-	3	8	57	21	6	4	●●
MC111-04.0W4B-	4	11	57	21	6	4	●●
MC111-05.0W4B-	5	13	57	21	6	4	●●
MC111-06.0W4B-	6	13	57	21	6	4	●●
MC111-07.0W4B-	7	16	63	27	8	4	●●
MC111-08.0W4B-	8	19	63	27	8	4	●●
MC111-09.0W4B-	9	19	72	32	10	4	●●
MC111-10.0W4B-	10	22	72	32	10	4	●●
MC111-12.0W4B-	12	26	83	38	12	4	●●
MC111-14.0W4B-	14	26	83	38	14	4	●●
MC111-16.0W4B-	16	32	92	44	16	4	●●
MC111-18.0W4B-	18	32	92	44	18	4	●●
MC111-20.0W4B-	20	38	104	54	20	4	●●
MC111-25.0W4B-	25	45	121	65	25	4	●●

Ordering example: MC111 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC111-10.0A4B-WJ30TF

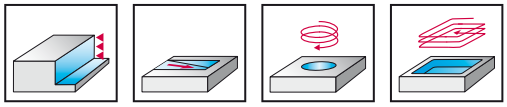


●●● New addition to range

52 119

End mill with corner radius
Advance MC122

Materials up to 52 HRC



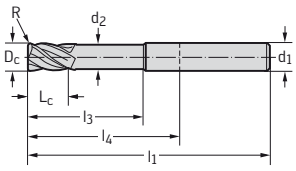
- Solid carbide
- Long reach
- 4 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.5 \times D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

P standard L

Shank DIN 6535 HA

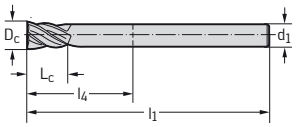


Designation	D_c h9 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	WJ30TF
MC112-04.0A4L050-	4	0,5	4	20	3,8	57	21	6	4	●●
MC112-05.0A4L050-	5	0,5	5	20	4,75	57	21	6	4	●●
MC112-06.0A4L100-	6	1	6	24	5,7	63	27	8	4	●●
MC112-08.0A4L100-	8	1	8	29	7,6	72	32	10	4	●●
MC112-10.0A4L150-	10	1,5	10	35	9,5	83	38	12	4	●●
MC112-12.0A4L150-	12	1,5	12	36	11,4	83	38	12	4	●●
MC112-16.0A4L200-	16	2	16	42	15,2	92	44	16	4	●●

[1]Shank tolerance h6

P standard XL

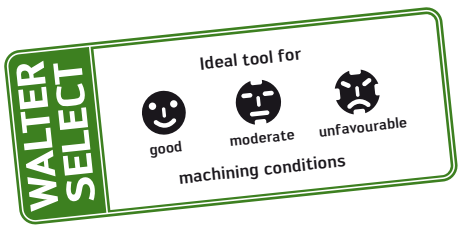
Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	WJ30TF
MC112-06.3A4X-	6,3	6	100	64	6	4	●●
MC112-08.3A4X-	8,3	8	100	64	8	4	●●
MC112-10.3A4X-	10,3	10	150	110	10	4	●●
MC112-12.5A4X-	12,5	12	150	105	12	4	●●
MC112-14.5A4X-	14,5	14	150	105	14	4	●●
MC112-16.5A4X-	16,5	16	150	102	16	4	●●

[1] Shank tolerance h6

Ordering example: MC112 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC112-10.0A4L150-WJ30TF

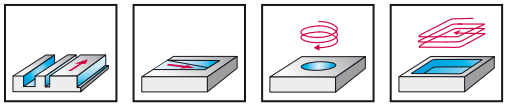


●●● New addition to range

52 119

Slot drill
Supreme MC726

Materials up to 48 HRC



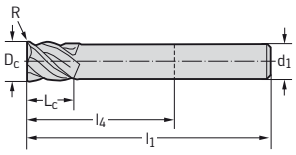
- Solid carbide
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

DIN 6527 K

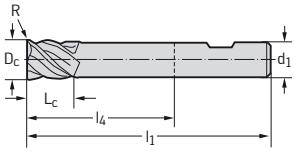
Shank DIN 6535 HA



Designation	D_c e8 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC726-02.8A3A008J-	2,8	0,08	3	50	14	6	3	☻
MC726-03.0A3A008J-	3	0,08	3	50	14	6	3	☻
MC726-03.8A3A008J-	3,8	0,08	4	54	18	6	3	☻
MC726-04.0A3A008J-	4	0,08	4	54	18	6	3	☻
MC726-04.8A3A016J-	4,8	0,16	5	54	18	6	3	☻
MC726-05.0A3A016J-	5	0,16	5	54	18	6	3	☻
MC726-05.8A4A016J-	5,75	0,16	6	54	18	6	4	☻
MC726-06.0A4A016J-	6	0,16	6	54	18	6	4	☻
MC726-07.8A4A016J-	7,75	0,16	8	58	22	8	4	☻
MC726-08.0A4A016J-	8	0,16	8	58	22	8	4	☻
MC726-09.7A4A025J-	9,7	0,25	10	66	26	10	4	☻
MC726-10.0A4A025J-	10	0,25	10	66	26	10	4	☻
MC726-12.0A4A025J-	12	0,25	12	73	28	12	4	☻
MC726-14.0A4A025J-	14	0,25	14	75	30	14	4	☻
MC726-16.0A4A025J-	16	0,25	16	82	34	16	4	☻

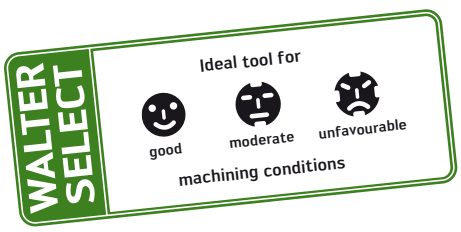
DIN 6527 K

Shank DIN 6535 HB



Designation	D_c e8 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC726-02.8W3A008J-	2,8	0,08	3	50	14	6	3	☻
MC726-03.0W3A008J-	3	0,08	3	50	14	6	3	☻
MC726-03.8W3A008J-	3,8	0,08	4	54	18	6	3	☻
MC726-04.0W3A008J-	4	0,08	4	54	18	6	3	☻
MC726-04.8W3A016J-	4,8	0,16	5	54	18	6	3	☻
MC726-05.0W3A016J-	5	0,16	5	54	18	6	3	☻
MC726-05.8W4A016J-	5,75	0,16	6	54	18	6	4	☻
MC726-06.0W4A016J-	6	0,16	6	54	18	6	4	☻
MC726-07.8W4A016J-	7,75	0,16	8	58	22	8	4	☻
MC726-08.0W4A016J-	8	0,16	8	58	22	8	4	☻
MC726-09.7W4A025J-	9,7	0,25	10	66	26	10	4	☻
MC726-10.0W4A025J-	10	0,25	10	66	26	10	4	☻
MC726-12.0W4A025J-	12	0,25	12	73	28	12	4	☻
MC726-14.0W4A025J-	14	0,25	14	75	30	14	4	☻
MC726-16.0W4A025J-	16	0,25	16	82	34	16	4	☻

Ordering example: MC726 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC726-10.0A4A025J-WK40TF

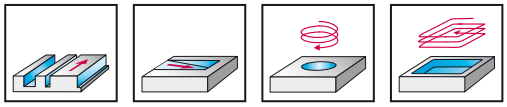


☻☻☻ New addition to range

52 120

End mill with corner radius
Supreme MC326

Materials up to 48 HRC



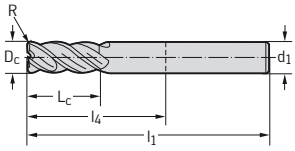
- Solid carbide
- 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

DIN 6527 L

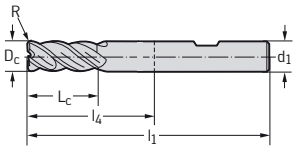
Shank DIN 6535 HA



Designation	D_c h9 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC326-06.0A4B100-	6	1	13	57	21	6	4	●
MC326-08.0A4B200-	8	2	19	63	27	8	4	●
MC326-10.0A4B200-	10	2	22	72	32	10	4	●
MC326-12.0A4B300-	12	3	26	83	38	12	4	●
MC326-14.0A4B300-	14	3	26	83	38	14	4	●
MC326-16.0A4B300-	16	3	32	92	44	16	4	●
MC326-16.0A4B400-	16	4	32	92	44	16	4	●
MC326-20.0A4B300-	20	3	38	104	54	20	4	●
MC326-20.0A4B400-	20	4	38	104	54	20	4	●

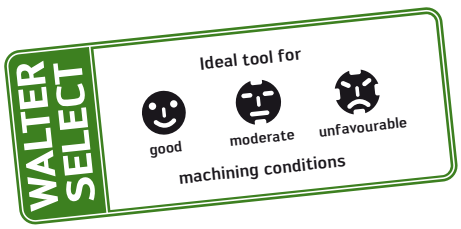
DIN 6527 L

Shank DIN 6535 HB



Designation	D_c h9 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC326-06.0W4B100-	6	1	13	57	21	6	4	●
MC326-08.0W4B200-	8	2	19	63	27	8	4	●
MC326-10.0W4B200-	10	2	22	72	32	10	4	●
MC326-12.0W4B300-	12	3	26	83	38	12	4	●
MC326-14.0W4B300-	14	3	26	83	38	14	4	●
MC326-16.0W4B300-	16	3	32	92	44	16	4	●
MC326-16.0W4B400-	16	4	32	92	44	16	4	●
MC326-20.0W4B300-	20	3	38	104	54	20	4	●
MC326-20.0W4B400-	20	4	38	104	54	20	4	●

Ordering example: MC326 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC326-10.0A4B200-WK40TF

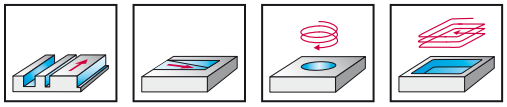


● ● ● New addition to range

52 120

End mill
Supreme MC326

Materials up to 48 HRC



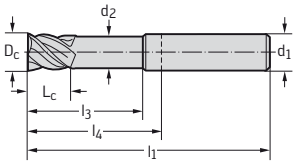
- Solid carbide
- Long reach
- 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

DIN 6527 L

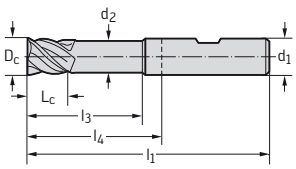
Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC326-06.0A4BCJ-	6	6	19	5,7	57	21	6	4	●
MC326-08.0A4BCJ-	8	8	25	7,6	63	27	8	4	●
MC326-10.0A4BCJ-	10	10	30	9,5	72	32	10	4	●
MC326-12.0A4BCJ-	12	12	36	11,4	83	38	12	4	●
MC326-14.0A4BCJ-	14	14	36	13,3	83	38	14	4	●
MC326-18.0A4BCJ-	16	16	42	15,2	92	44	16	4	●

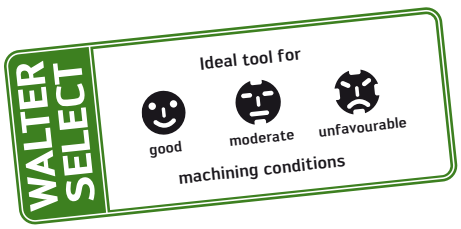
DIN 6527 L

Shank DIN 6535 HB



Designation	D_c h10 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC326-06.0A4BC-	6	13	19	5,7	57	21	6	4	●
MC326-08.0A4BC-	8	19	25	7,6	63	27	8	4	●
MC326-10.0A4BC-	10	22	30	9,5	72	32	10	4	●
MC326-12.0A4BC-	12	26	36	11,4	83	38	12	4	●
MC326-14.0A4BC-	14	26	36	13,3	83	38	14	4	●
MC326-16.0A4BC-	16	32	42	15,2	92	44	16	4	●
MC326-20.0A4BC-	20	38	52	19	104	54	20	4	●

Ordering example: MC326 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC326-10.0A4BCJ-WK40TF

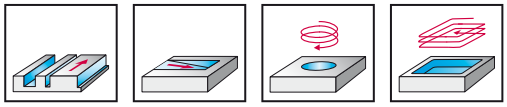


● ● ● New addition to range

52 120

End mill with corner radius
Supreme MC326

Materials up to 48 HRC



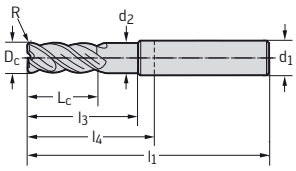
- Solid carbide
- Long reach
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

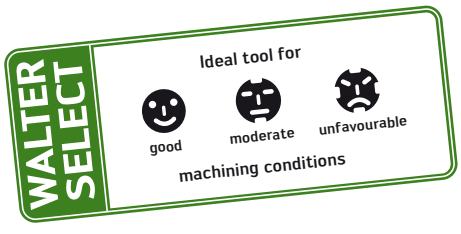
DIN 6527 L

Shank DIN 6535 HA



Designation	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	WK40TF
MC326-02.0A3B020C-	2	0,2	7	9,5	1,92	57	21	6	3	●
MC326-03.0A3B030C-	3	0,3	8	10	2,9	57	21	6	3	●
MC326-04.0A3B050C-	4	0,5	11	15	3,8	57	21	6	3	●
MC326-05.0A3B050C-	5	0,5	13	16	4,75	57	21	6	3	●
MC326-06.0A4B050C-	6	0,5	13	19	5,7	57	21	6	4	●
MC326-06.0A4B080C-	6	0,8	13	19	5,7	57	21	6	4	●
MC326-06.0A4B100C-	6	1	13	19	5,7	57	21	6	4	●
MC326-08.0A4B050C-	8	0,5	19	25	7,6	63	27	8	4	●
MC326-08.0A4B080C-	8	0,8	19	25	7,6	63	27	8	4	●
MC326-08.0A4B100C-	8	1	19	25	7,6	63	27	8	4	●
MC326-08.0A4B150C-	8	1,5	19	25	7,6	63	27	8	4	●
MC326-08.0A4B200C-	8	2	19	25	7,6	63	27	8	4	●
MC326-10.0A4B050C-	10	0,5	22	30	9,5	72	32	10	4	●
MC326-10.0A4B080C-	10	0,8	22	30	9,5	72	32	10	4	●
MC326-10.0A4B100C-	10	1	22	30	9,5	72	32	10	4	●
MC326-10.0A4B150C-	10	1,5	22	30	9,5	72	32	10	4	●
MC326-10.0A4B200C-	10	2	22	30	9,5	72	32	10	4	●
MC326-12.0A4B050C-	12	0,5	26	36	11,4	83	38	12	4	●
MC326-12.0A4B080C-	12	0,8	26	36	11,4	83	38	12	4	●
MC326-12.0A4B100C-	12	1	26	36	11,4	83	38	12	4	●
MC326-12.0A4B150C-	12	1,5	26	36	11,4	83	38	12	4	●
MC326-12.0A4B200C-	12	2	26	36	11,4	83	38	12	4	●
MC326-12.0A4B250C-	12	2,5	26	36	11,4	83	38	12	4	●
MC326-12.0A4B300C-	12	3	26	36	11,4	83	38	12	4	●
MC326-14.0A4B100C-	14	1	26	36	13,3	83	38	14	4	●
MC326-14.0A4B150C-	14	1,5	26	36	13,3	83	38	14	4	●
MC326-14.0A4B200C-	14	2	26	36	13,3	83	38	14	4	●
MC326-14.0A4B300C-	14	3	26	36	13,3	83	38	14	4	●
MC326-16.0A4B050C-	16	0,5	32	42	15,2	92	44	16	4	●
MC326-16.0A4B100C-	16	1	32	42	15,2	92	44	16	4	●
MC326-16.0A4B200C-	16	2	32	42	15,2	92	44	16	4	●
MC326-16.0A4B250C-	16	2,5	32	42	15,2	92	44	16	4	●
MC326-16.0A4B300C-	16	3	32	42	15,2	92	44	16	4	●
MC326-16.0A4B400C-	16	4	32	42	15,2	92	44	16	4	●
MC326-20.0A4B050C-	20	0,5	38	52	19	104	54	20	4	●
MC326-20.0A4B100C-	20	1	38	52	19	104	54	20	4	●
MC326-20.0A4B200C-	20	2	38	52	19	104	54	20	4	●
MC326-20.0A4B250C-	20	2,5	38	52	19	104	54	20	4	●
MC326-20.0A4B300C-	20	3	38	52	19	104	54	20	4	●
MC326-20.0A4B400C-	20	4	38	52	19	104	54	20	4	●

Ordering example: MC326 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC326-10.0A4B050C-WK40TF

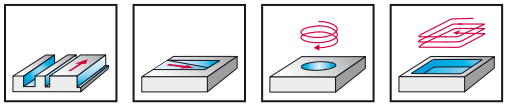


● ● ● New addition to range

52 120

End mill with corner radius
Supreme MC326

Materials up to 48 HRC



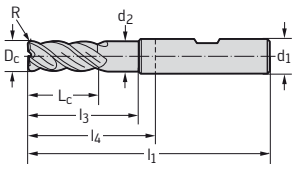
- Solid carbide
- Long reach
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

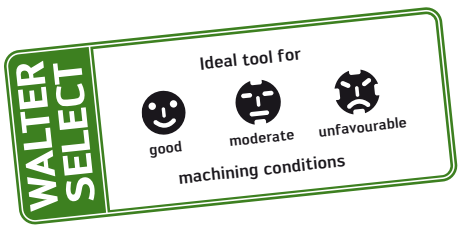
DIN 6527 L

Shank DIN 6535 HB



Designation	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	WK40TF
MC326-02.0W3B020C-	2	0,2	7	9,5	1,92	57	21	6	3	☻
MC326-03.0W3B030C-	3	0,3	8	10	2,9	57	21	6	3	☻
MC326-04.0W3B050C-	4	0,5	11	15	3,8	57	21	6	3	☻
MC326-05.0W3B050C-	5	0,5	13	16	4,75	57	21	6	3	☻
MC326-06.0W4B050C-	6	0,5	13	19	5,7	57	21	6	4	☻
MC326-06.0W4B100C-	6	1	13	19	5,7	57	21	6	4	☻
MC326-08.0W4B050C-	8	0,5	19	25	7,6	63	27	8	4	☻
MC326-08.0W4B100C-	8	1	19	25	7,6	63	27	8	4	☻
MC326-08.0W4B150C-	8	1,5	19	25	7,6	63	27	8	4	☻
MC326-08.0W4B200C-	8	2	19	25	7,6	63	27	8	4	☻
MC326-10.0W4B050C-	10	0,5	22	30	9,5	72	32	10	4	☻
MC326-10.0W4B100C-	10	1	22	30	9,5	72	32	10	4	☻
MC326-10.0W4B150C-	10	1,5	22	30	9,5	72	32	10	4	☻
MC326-10.0W4B200C-	10	2	22	30	9,5	72	32	10	4	☻
MC326-12.0W4B050C-	12	0,5	26	36	11,4	83	38	12	4	☻
MC326-12.0W4B100C-	12	1	26	36	11,4	83	38	12	4	☻
MC326-12.0W4B150C-	12	1,5	26	36	11,4	83	38	12	4	☻
MC326-12.0W4B200C-	12	2	26	36	11,4	83	38	12	4	☻
MC326-12.0W4B250C-	12	2,5	26	36	11,4	83	38	12	4	☻
MC326-12.0W4B300C-	12	3	26	36	11,4	83	38	12	4	☻
MC326-14.0W4B100C-	14	1	26	36	13,3	83	38	14	4	☻
MC326-14.0W4B150C-	14	1,5	26	36	13,3	83	38	14	4	☻
MC326-14.0W4B200C-	14	2	26	36	13,3	83	38	14	4	☻
MC326-14.0W4B300C-	14	3	26	36	13,3	83	38	14	4	☻
MC326-16.0W4B050C-	16	0,5	32	42	15,2	92	44	16	4	☻
MC326-16.0W4B100C-	16	1	32	42	15,2	92	44	16	4	☻
MC326-16.0W4B200C-	16	2	32	42	15,2	92	44	16	4	☻
MC326-16.0W4B250C-	16	2,5	32	42	15,2	92	44	16	4	☻
MC326-16.0W4B300C-	16	3	32	42	15,2	92	44	16	4	☻
MC326-16.0W4B400C-	16	4	32	42	15,2	92	44	16	4	☻
MC326-20.0W4B050C-	20	0,5	38	52	19	104	54	20	4	☻
MC326-20.0W4B100C-	20	1	38	52	19	104	54	20	4	☻
MC326-20.0W4B200C-	20	2	38	52	19	104	54	20	4	☻
MC326-20.0W4B250C-	20	2,5	38	52	19	104	54	20	4	☻
MC326-20.0W4B300C-	20	3	38	52	19	104	54	20	4	☻
MC326-20.0W4B400C-	20	4	38	52	19	104	54	20	4	☻

Ordering example: MC326 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC326-10.0W4B050C-WK40TF

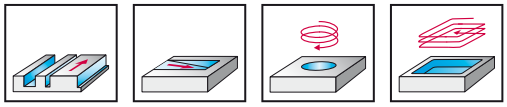


☻☻☻ New addition to range

52 120

End mill with corner radius
Supreme MC326

Materials up to 48 HRC



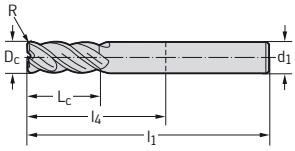
- Solid carbide
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

P standard L

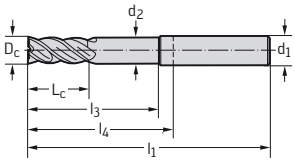
Shank DIN 6535 HA



Designation	D_c h9 mm	R mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC326-04.0A3L100-	4	1	11	57	21	6	3	●
MC326-05.0A3L100-	5	1	13	57	21	6	3	●
MC326-06.0A4L100-	6	1	13	65	29	6	4	●
MC326-08.0A4L200-	8	2	19	80	44	8	4	●
MC326-10.0A4L200-	10	2	22	100	60	10	4	●
MC326-12.0A4L300-	12	3	26	100	55	12	4	●
MC326-14.0A4L300-	14	3	26	104	59	14	4	●
MC326-16.0A4L300-	16	3	32	115	67	16	4	●
MC326-16.0A4L400-	16	4	32	115	67	16	4	●
MC326-20.0A4L300-	20	3	38	125	75	20	4	●
MC326-20.0A4L400-	20	4	38	125	75	20	4	●

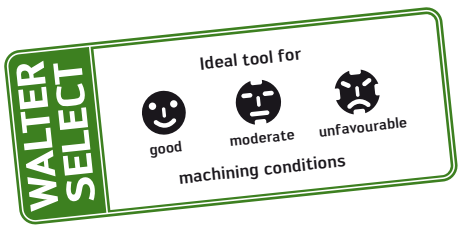
P standard L

Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WK40TF
MC326-04.0A3LC-	4	11	15	3,8	57	21	6	3	●
MC326-05.0A3LC-	5	13	16	4,75	57	21	6	3	●
MC326-06.0A4LC-	6	13	27	5,7	65	29	6	4	●
MC326-08.0A4LC-	8	19	42	7,6	80	44	8	4	●
MC326-10.0A4LC-	10	22	58	9,5	100	60	10	4	●
MC326-12.0A4LC-	12	26	53	11,4	100	55	12	4	●
MC326-14.0A4LC-	14	26	57	13,3	104	59	14	4	●
MC326-16.0A4LC-	16	32	65	15,2	115	67	16	4	●
MC326-20.0A4LC-	20	38	73	19	125	75	20	4	●

Ordering example: MC326 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC326-10.0A4L200-WK40TF

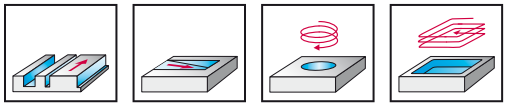


● ● ● New addition to range

52 120

End mill with corner radius
Supreme MC326

Materials up to 48 HRC



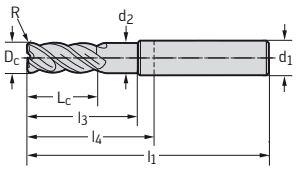
- Solid carbide
- Long reach
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

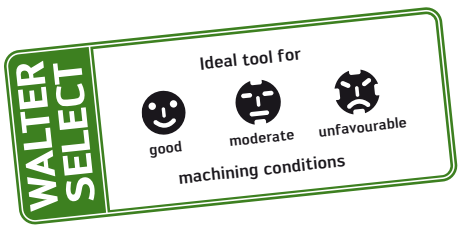
P standard L

Shank DIN 6535 HA



Designation	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	WK40TF
MC326-04.0A3L050C-	4	0,5	11	15	3,8	57	21	6	3	☹
MC326-04.0A3L100C-	4	1	11	15	3,8	57	21	6	3	☹
MC326-05.0A3L050C-	5	0,5	13	16	4,75	57	21	6	3	☹
MC326-05.0A3L100C-	5	1	13	16	4,75	57	21	6	3	☹
MC326-06.0A4L050C-	6	0,5	13	27	5,7	65	29	6	4	☹
MC326-06.0A4L100C-	6	1	13	27	5,7	65	29	6	4	☹
MC326-08.0A4L050C-	8	0,5	19	42	7,6	80	44	8	4	☹
MC326-08.0A4L100C-	8	1	19	42	7,6	80	44	8	4	☹
MC326-08.0A4L200C-	8	2	19	42	7,6	80	44	8	4	☹
MC326-10.0A4L050C-	10	0,5	22	58	9,5	100	60	10	4	☹
MC326-10.0A4L100C-	10	1	22	58	9,5	100	60	10	4	☹
MC326-10.0A4L200C-	10	2	22	58	9,5	100	60	10	4	☹
MC326-12.0A4L050C-	12	0,5	26	53	11,4	100	55	12	4	☹
MC326-12.0A4L100C-	12	1	26	53	11,4	100	55	12	4	☹
MC326-12.0A4L300C-	12	3	26	53	11,4	100	55	12	4	☹
MC326-14.0A4L050C-	14	0,5	26	57	13,3	104	59	14	4	☹
MC326-14.0A4L100C-	14	1	26	57	13,3	104	59	14	4	☹
MC326-14.0A4L300C-	14	3	26	57	13,3	104	59	14	4	☹
MC326-16.0A4L050C-	16	0,5	32	65	15,2	115	67	16	4	☹
MC326-16.0A4L100C-	16	1	32	65	15,2	115	67	16	4	☹
MC326-16.0A4L200C-	16	2	32	65	15,2	115	67	16	4	☹
MC326-16.0A4L300C-	16	3	32	65	15,2	115	67	16	4	☹
MC326-16.0A4L400C-	16	4	32	65	15,2	115	67	16	4	☹
MC326-20.0A4L100C-	20	1	38	73	19	125	75	20	4	☹
MC326-20.0A4L200C-	20	2	38	73	19	125	75	20	4	☹
MC326-20.0A4L300C-	20	3	38	73	19	125	75	20	4	☹
MC326-20.0A4L400C-	20	4	38	73	19	125	75	20	4	☹

Ordering example: MC326 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC326-10.0A4L050C-WK40TF

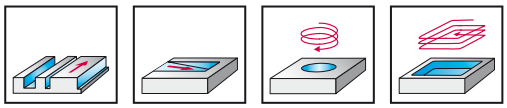


☹☹☹ New addition to range

52 120

End mill with corner radius
Supreme MC326

Materials up to 48 HRC



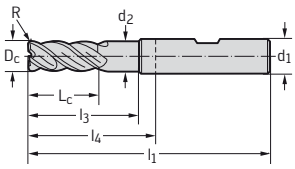
- Solid carbide
- Long reach
- 3 to 4 cutting edges
- With centre cut
- 50° helix angle
- WK40TF (TiALN)

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
WK40TF	●●	●	●		●		

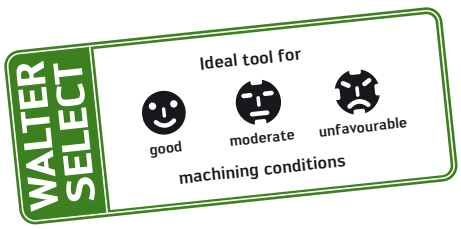
P standard L

Shank DIN 6535 HB



Designation	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	WK40TF
MC326-04.0W3L050C-	4	0,5	11	15	3,8	57	21	6	3	●
MC326-04.0W3L100C-	4	1	11	15	3,8	57	21	6	3	●
MC326-05.0W3L050C-	5	0,5	13	16	4,75	57	21	6	3	●
MC326-05.0W3L100C-	5	1	13	16	4,75	57	21	6	3	●
MC326-06.0W4L050C-	6	0,5	13	27	5,7	65	29	6	4	●
MC326-06.0W4L100C-	6	1	13	27	5,7	65	29	6	4	●
MC326-08.0W4L050C-	8	0,5	19	42	7,6	80	44	8	4	●
MC326-08.0W4L100C-	8	1	19	42	7,6	80	44	8	4	●
MC326-08.0W4L200C-	8	2	19	42	7,6	80	44	8	4	●
MC326-10.0W4L050C-	10	0,5	22	58	9,5	100	60	10	4	●
MC326-10.0W4L100C-	10	1	22	58	9,5	100	60	10	4	●
MC326-10.0W4L200C-	10	2	22	58	9,5	100	60	10	4	●
MC326-12.0W4L050C-	12	0,5	26	53	11,4	100	55	12	4	●
MC326-12.0W4L100C-	12	1	26	53	11,4	100	55	12	4	●
MC326-12.0W4L300C-	12	3	26	53	11,4	100	55	12	4	●
MC326-14.0W4L050C-	14	0,5	26	57	13,3	104	59	14	4	●
MC326-14.0W4L100C-	14	1	26	57	13,3	104	59	14	4	●
MC326-14.0W4L300C-	14	3	26	57	13,3	104	59	14	4	●
MC326-16.0W4L050C-	16	0,5	32	65	15,2	115	67	16	4	●
MC326-16.0W4L100C-	16	1	32	65	15,2	115	67	16	4	●
MC326-16.0W4L200C-	16	2	32	65	15,2	115	67	16	4	●
MC326-16.0W4L300C-	16	3	32	65	15,2	115	67	16	4	●
MC326-16.0W4L400C-	16	4	32	65	15,2	115	67	16	4	●
MC326-20.0W4L100C-	20	1	38	73	19	125	75	20	4	●
MC326-20.0W4L200C-	20	2	38	73	19	125	75	20	4	●
MC326-20.0W4L300C-	20	3	38	73	19	125	75	20	4	●
MC326-20.0W4L400C-	20	4	38	73	19	125	75	20	4	●

Ordering example: MC326 solid carbide end mill with D_c 10 mm, in the WK40TF grade
Ordering code: MC326-10.0W4L050C-WK40TF

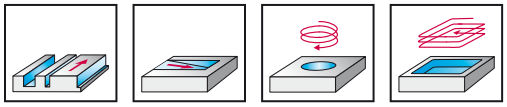


● ● ● New addition to range

52 120

End mill
Advance MC322

Materials up to 48 HRC



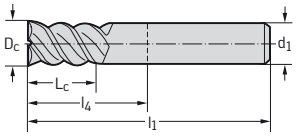
- Solid carbide
- 4 to 5 cutting edges
- With centre cut
- 45° helix angle
- WJ30TF (TiALN)

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
WJ30TF	●●	●	●		●		

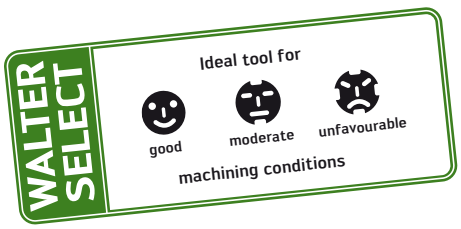
DIN 6527 K

Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC322-06.0A4A-	6	10	54	18	6	4	●●
MC322-08.0A4A-	8	12	58	22	8	4	●●
MC322-10.0A4A-	10	14	66	26	10	4	●●
MC322-12.0A4A-	12	16	73	28	12	4	●●
MC322-16.0A4A-	16	22	82	34	16	4	●●
MC322-20.0A5A-	20	26	92	42	20	5	●●

Ordering example: MC322 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC322-10.0A4A-WJ30TF

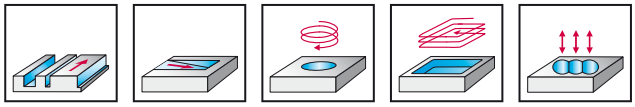


●●● New addition to range

52 121

End mill
Advance MC216

Materials up to 48 HRC



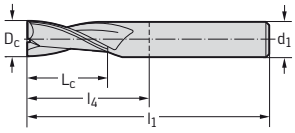
- Solid carbide
- 2 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.5 \times D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

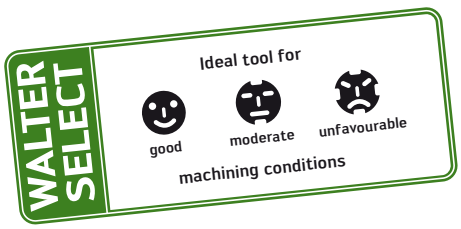
DIN 6527 L

Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC216-02.0A2B-	2	6	57	21	6	2	●●
MC216-02.5A2B-	2,5	7	57	21	6	2	●●
MC216-03.0A2B-	3	7	57	21	6	2	●●
MC216-03.5A2B-	3,5	7	57	21	6	2	●●
MC216-04.0A2B-	4	8	57	21	6	2	●●
MC216-04.5A2B-	4,5	8	57	21	6	2	●●
MC216-05.0A2B-	5	10	57	21	6	2	●●
MC216-06.0A2B-	6	10	57	21	6	2	●●
MC216-07.0A2B-	7	13	63	27	8	2	●●
MC216-08.0A2B-	8	16	63	27	8	2	●●
MC216-09.0A2B-	9	16	72	32	10	2	●●
MC216-10.0A2B-	10	19	72	32	10	2	●●
MC216-11.0A2B-	11	22	83	38	12	2	●●
MC216-12.0A2B-	12	22	83	38	12	2	●●
MC216-14.0A2B-	14	22	83	38	14	2	●●
MC216-16.0A2B-	16	26	92	44	16	2	●●
MC216-18.0A2B-	18	26	92	44	18	2	●●
MC216-20.0A2B-	20	32	104	54	20	2	●●

Ordering example: MC216 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC216-10.0A2B-WJ30TF

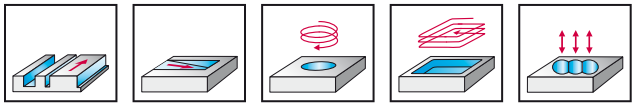


●●● New addition to range

52 121

End mill
Advance MC216

Materials up to 48 HRC



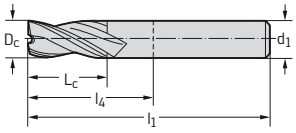
- Solid carbide
- 3 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.5x\ D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

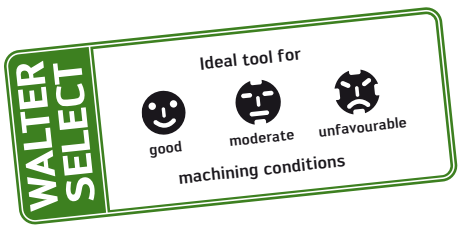
DIN 6527 L

Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC216-02.0A3B-	2	6	57	21	6	3	☻
MC216-02.5A3B-	2,5	7	57	21	6	3	☻
MC216-03.0A3B-	3	7	57	21	6	3	☻
MC216-03.5A3B-	3,5	7	57	21	6	3	☻
MC216-04.0A3B-	4	8	57	21	6	3	☻
MC216-04.5A3B-	4,5	8	57	21	6	3	☻
MC216-05.0A3B-	5	10	57	21	6	3	☻
MC216-05.5A3B-	5,5	10	57	21	6	3	☻
MC216-06.0A3B-	6	10	57	21	6	3	☻
MC216-06.5A3B-	6,5	13	63	27	8	3	☻
MC216-07.0A3B-	7	13	63	27	8	3	☻
MC216-07.5A3B-	7,5	16	63	27	8	3	☻
MC216-08.0A3B-	8	16	63	27	8	3	☻
MC216-09.0A3B-	9	16	72	32	10	3	☻
MC216-10.0A3B-	10	19	72	32	10	3	☻
MC216-11.0A3B-	11	22	83	38	12	3	☻
MC216-12.0A3B-	12	22	83	38	12	3	☻
MC216-13.0A3B-	13	22	83	38	14	3	☻
MC216-14.0A3B-	14	22	83	38	14	3	☻
MC216-15.0A3B-	15	26	92	44	16	3	☻
MC216-16.0A3B-	16	26	92	44	16	3	☻
MC216-18.0A3B-	18	26	92	44	18	3	☻
MC216-20.0A3B-	20	32	104	54	20	3	☻

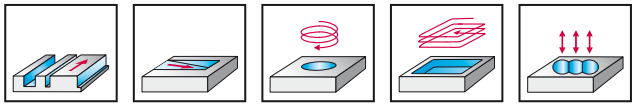
Ordering example: MC216 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC216-10.0A3B-WJ30TF



☻☻☻ New addition to range

52 121

End mill
Advance MC216



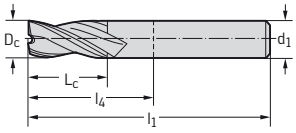
- Solid carbide
- 3 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.5x\ D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

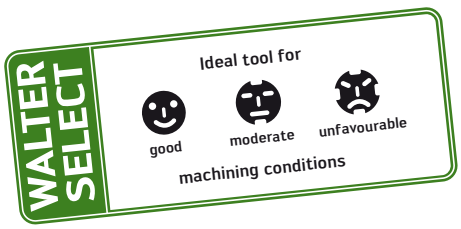
DIN 6527 L

Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC216-01.0A3BJ-	1	3	38	10	3	3	●●
MC216-01.1A3BJ-	1,1	3	38	10	3	3	●●
MC216-01.2A3BJ-	1,2	3	38	10	3	3	●●
MC216-01.3A3BJ-	1,3	3	38	10	3	3	●●
MC216-01.4A3BJ-	1,4	3	38	10	3	3	●●
MC216-01.5A3BJ-	1,5	3	38	10	3	3	●●
MC216-01.6A3BJ-	1,6	3	38	10	3	3	●●
MC216-01.7A3BJ-	1,7	3	38	10	3	3	●●
MC216-01.8A3BJ-	1,8	3	38	10	3	3	●●
MC216-01.9A3BJ-	1,9	3	38	10	3	3	●●
MC216-02.0A3BJ-	2	3	38	10	3	3	●●
MC216-02.0A3BK-	2	6	38	10	3	3	●●
MC216-02.1A3BJ-	2,1	3	38	10	3	3	●●
MC216-02.2A3BJ-	2,2	3	38	10	3	3	●●
MC216-02.3A3BJ-	2,3	3	38	10	3	3	●●
MC216-02.4A3BJ-	2,4	3	38	10	3	3	●●
MC216-02.5A3BJ-	2,5	3	38	10	3	3	●●
MC216-02.5A3BK-	2,5	7	38	10	3	3	●●
MC216-02.6A3BJ-	2,6	3	38	10	3	3	●●
MC216-02.7A3BJ-	2,7	3	38	10	3	3	●●
MC216-02.8A3BJ-	2,8	3	38	10	3	3	●●
MC216-02.9A3BJ-	2,9	3	38	10	3	3	●●
MC216-03.0A3BJ-	3	3	38	10	3	3	●●
MC216-03.0A3BK-	3	7	38	10	3	3	●●

Ordering example: MC216 solid carbide end mill with D_c 1.8 mm, in the WJ30TF grade
Ordering code: MC216-01.8A3BJ-WJ30TF

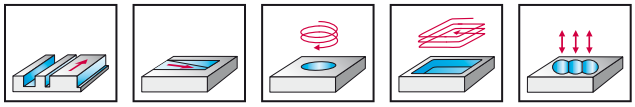


●●● New addition to range

52 121

End mill
Advance MC216

Materials up to 48 HRC



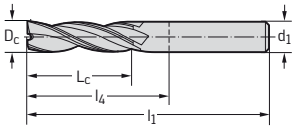
- Solid carbide
- 3 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.3x\ D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

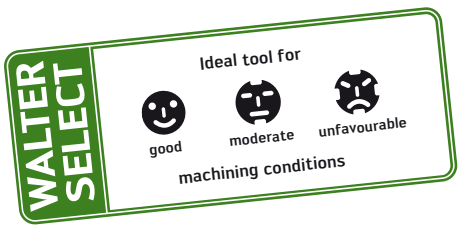
P standard L

Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h6 mm	Z	WJ30TF
MC216-01.0A3L-	1	4	38	10	3	3	●
MC216-01.5A3L-	1,5	6	38	10	3	3	●
MC216-02.0A3L-	2	8	38	10	3	3	●
MC216-03.0A3L-	3	12	38	12	3	3	●
MC216-04.0A3L-	4	14	50	22	4	3	●
MC216-05.0A3L-	5	16	57	21	6	3	●
MC216-06.0A3L-	6	22	65	29	6	3	●
MC216-08.0A3L-	8	28	80	44	8	3	●
MC216-10.0A3L-	10	32	100	60	10	3	●
MC216-12.0A3L-	12	38	100	55	12	3	●
MC216-16.0A3L-	16	50	115	67	16	3	●
MC216-20.0A3L-	20	50	125	75	20	3	●

Ordering example: MC216 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC216-10.0A3L-WJ30TF

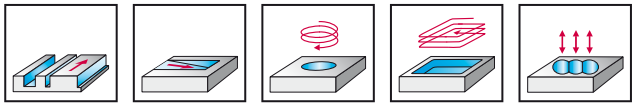


● ● ● New addition to range

52 121

End mill with corner radius
Advance MC213

Materials up to 52 HRC



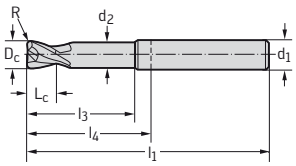
- Solid carbide
- Long reach
- 2 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.5x\ D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

P standard L

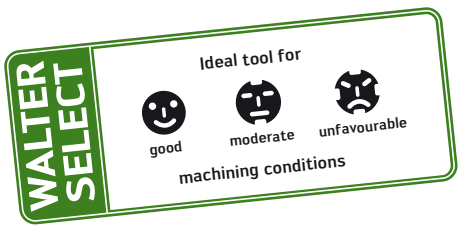
Shank DIN 6535 HA



Designation	D_c h9 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	WJ30TF
MC213-00.6A2L006C-	0,6	0,06	0,6	2,4	0,56	54	18	6	2	☺
MC213-00.8A2L008C-	0,8	0,08	0,8	3,2	0,76	54	18	6	2	☺
MC213-01.0A2L010C-	1	0,1	1	4	0,96	65	29	6	2	☺
MC213-01.5A2L015C-	1,5	0,15	1,5	6	1,44	65	29	6	2	☺
MC213-02.0A2L020C-	2	0,2	2	8	1,92	72	36	6	2	☺
MC213-02.0A2L050C-	2	0,5	2	8	1,92	72	36	6	2	☺
MC213-03.0A2L020C-	3	0,2	3	12	2,9	72	36	6	2	☺
MC213-03.0A2L030C-	3	0,3	3	12	2,9	72	36	6	2	☺
MC213-04.0A2L040C-	4	0,4	4	16	3,8	72	36	6	2	☺
MC213-05.0A2L050C-	5	0,5	5	20	4,75	72	36	6	2	☺
MC213-06.0A2L020C-	6	0,2	6	24	5,7	72	36	6	2	☺
MC213-06.0A2L050C-	6	0,5	6	24	5,7	72	36	6	2	☺
MC213-08.0A2L030C-	8	0,3	8	29	7,6	80	44	8	2	☺
MC213-08.0A2L050C-	8	0,5	8	29	7,6	80	44	8	2	☺
MC213-08.0A2L100C-	8	1	8	29	7,6	80	44	8	2	☺
MC213-08.0A2L150C-	8	1,5	8	29	7,6	80	44	8	2	☺
MC213-10.0A2L030C-	10	0,3	10	35	9,5	100	60	10	2	☺
MC213-10.0A2L050C-	10	0,5	10	35	9,5	100	60	10	2	☺
MC213-10.0A2L100C-	10	1	10	35	9,5	100	60	10	2	☺
MC213-10.0A2L150C-	10	1,5	10	35	9,5	100	60	10	2	☺
MC213-12.0A2L050C-[1)]	12	0,5	12	36	11,4	100	55	12	2	☺
MC213-12.0A2L100C-	12	1	12	36	11,4	100	55	12	2	☺
MC213-12.0A2L150C-[1)]	12	1,5	12	36	11,4	100	55	12	2	☺

[1)] Shank tolerance h6

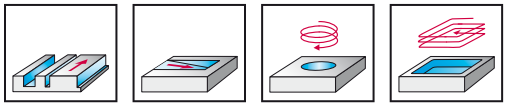
Ordering example: MC213 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC213-10.0A2L030C-WJ30TF



☺☺☺ New addition to range

End mill with corner radius
Advance MC213

Materials up to 55 HRC



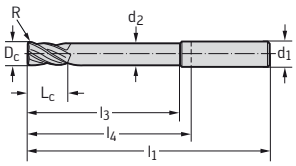
- Solid carbide
- Long reach
- 2 to 4 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

Special features:
Slot milling: $a_p \leq 0.3x\ D_c$
Shoulder milling: $a_e \leq 0.3 \times D_c$

	P	M	K	N	S	H	O
WJ30TF	●●	●	●		●		

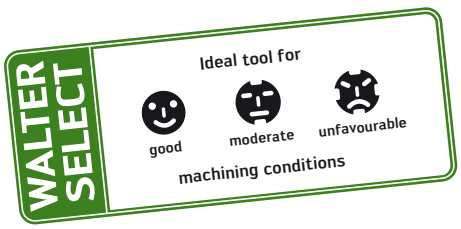
P standard XL

Shank DIN 6535 HA



Designation	D_c h9 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	WJ30TF
MC213-04.0A2X050R-	4	0,5	4	20	3,9	100	64	6	2	☺
MC213-04.0A2X050S-	4	0,5	4	30	3,9	100	64	6	2	☺
MC213-04.0A2X050T-	4	0,5	4	40	3,9	100	64	6	2	☺
MC213-05.0A2X050R-	5	0,5	5	25	4,9	100	64	6	2	☺
MC213-05.0A2X050S-	5	0,5	5	50	4,9	100	64	6	2	☺
MC213-06.0A4X050R-	6	0,5	6	30	5,9	100	64	6	4	☺
MC213-06.0A4X050S-	6	0,5	6	45	5,9	100	64	6	4	☺
MC213-06.0A4X050T-	6	0,5	6	60	5,9	100	64	6	4	☺
MC213-08.0A4X050R-	8	0,5	8	40	7,85	120	84	8	4	☺
MC213-08.0A4X050S-	8	0,5	8	60	7,85	120	84	8	4	☺
MC213-08.0A4X050T-	8	0,5	8	80	7,85	120	84	8	4	☺
MC213-10.0A4X100S-	10	1	10	50	9,85	150	110	10	4	☺
MC213-10.0A4X100T-	10	1	10	75	9,85	150	110	10	4	☺
MC213-12.0A4X100S-	12	1	12	60	11,8	150	105	12	4	☺

Ordering example: MC213 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC213-10.0A4X100S-WJ30TF

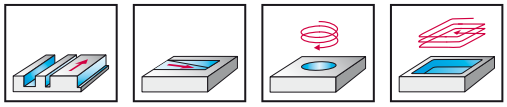


☺☺☺ New addition to range

52 121

End mill
Advance MC213

Materials up to 55 HRC



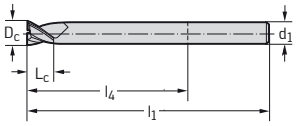
- Solid carbide
- Long reach
- 2 cutting edges
- With centre cut
- 30° helix angle
- WJ30TF (TiALN)

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
WJ30TF	●●	●	●		●		

P standard XL

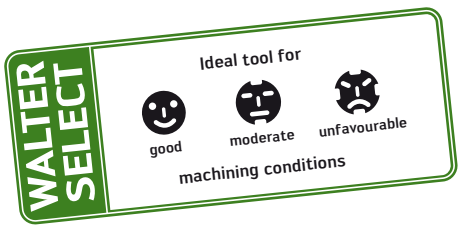
Shank DIN 6535 HA



Designation	D_c h10 mm	L_c mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	WJ30TF
MC213-06.3A2X-	6,3	6	100	64	6	2	☻
MC213-08.3A2X-	8,3	8	100	64	8	2	☻
MC213-10.3A2X-	10,3	10	150	110	10	2	☻
MC213-12.5A2X-[1)]	12,5	12	150	105	12	2	☻
MC213-14.5A2X-[1)]	14,5	14	150	105	14	2	☻
MC213-16.5A2X-[1)]	16,5	16	150	102	16	2	☻

[1)] Shank tolerance h6

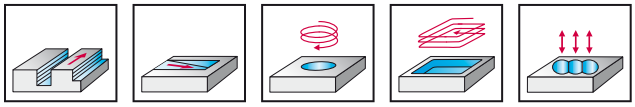
Ordering example: MC213 solid carbide end mill with D_c 10 mm, in the WJ30TF grade
Ordering code: MC213-10.3A2X-WJ30TF



☻☻☻ New addition to range

52 121

Roughing mill
Supreme MB265



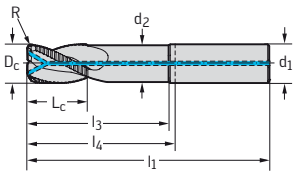
- Solid carbide
- Long reach
- 3 cutting edges
- With centre cut
- 30° helix angle
- WJ30UU (uncoated)
- WJ30CA (TiALN + CrN)

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
WJ30UU				●●			
WJ30CA				●●			

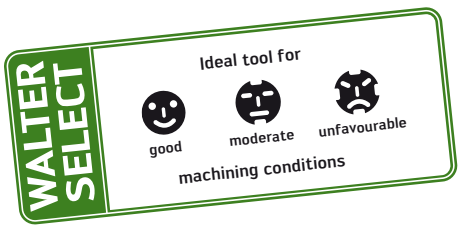
P standard XL

Shank DIN 6535 HA



Designation	D_c h10 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	WJ30UU	WJ30CA
MB265-16.0A3X200A-	16	2	20	65	15,2	115	67	16	3	☺	☺
MB265-16.0A3X300A-	16	3	20	65	15,2	115	67	16	3	☺	
MB265-16.0A3X200B-	16	2	24	42	15,2	92	44	16	3	☺	☺
MB265-20.0A3X200A-	20	2	20	88	19	140	90	20	3	☺	☺
MB265-20.0A3X200B-	20	2	25	73	19	125	75	20	3	☺	☺
MB265-20.0A3X400B-	20	4	25	73	19	125	75	20	3	☺	
MB265-25.0A3X200A-	25	2	25	92	23,75	150	94	25	3	☺	
MB265-25.0A3X400A-	25	4	25	92	23,75	150	94	25	3	☺	
MB265-25.0A3X200B-	25	2	30	72	23,75	130	74	25	3	☺	
MB265-25.0A3X300B-	25	3	37	52	23,75	110	54	25	3	☺	
MB265-25.0A3X400B-	25	4	30	72	23,75	130	74	25	3	☺	☺
MB265-25.0A3X200C-	25	2	37	52	23,75	110	54	25	3		☺
MB265-25.0A3X400C-	25	4	37	52	23,75	110	54	25	3	☺	

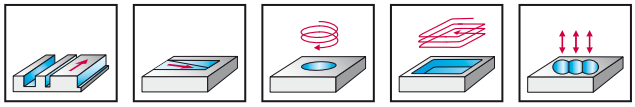
Ordering example: MB265 solid carbide end mill with D_c 20 mm, in the WJ30UU grade
Ordering code: MB265-20.0A3X200B-WJ30UU



☺☺☺ New addition to range

52 122

End mill with corner radius
Supreme MB266



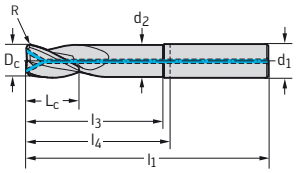
- Solid carbide
- Long reach
- 3 cutting edges
- With centre cut
- 30° helix angle
- WJ30UU (uncoated)

Special features:
Slot milling: $a_p \leq 0.9 \times D_c$
Shoulder milling: $a_e \leq 0.6 \times D_c$

	P	M	K	N	S	H	O
WJ30UU				●●			

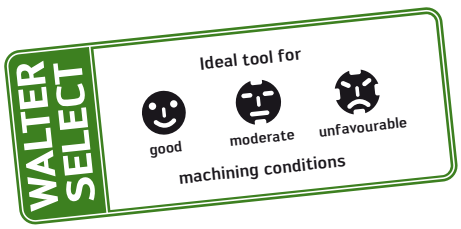
P standard XL

Shank DIN 6535 HA



Designation	D_c h9 mm	R mm	L_c mm	l_3 mm	d_2 mm	l_1 mm	l_4 mm	d_1 h5 mm	Z	WJ30UU
MB266-12.0A3X050A-	12	0,5	12	68	11,5	115	70	12	3	☺
MB266-12.0A3X200A-	12	2	12	68	11,5	115	70	12	3	☺
MB266-12.0A3X050B-	12	0,5	18	53	11,5	100	55	12	3	☺
MB266-12.0A3X200B-	12	2	18	53	11,5	100	55	12	3	☺
MB266-12.0A3X050C-	12	0,5	24	36	11,5	83	38	12	3	☺
MB266-12.0A3X200C-	12	2	24	36	11,5	83	38	12	3	☺
MB266-16.0A3X050A-	16	0,5	16	80	15,2	130	82	16	3	☺
MB266-16.0A3X200A-	16	2	16	80	15,2	130	82	16	3	☺
MB266-16.0A3X400A-	16	4	16	80	15,2	130	82	16	3	☺
MB266-16.0A3X050B-	16	0,5	24	65	15,2	115	67	16	3	☺
MB266-16.0A3X200B-	16	2	24	65	15,2	115	67	16	3	☺
MB266-16.0A3X300B-	16	3	24	65	15,2	115	67	16	3	☺
MB266-16.0A3X050C-	16	0,5	32	42	15,2	92	44	16	3	☺
MB266-16.0A3X200C-	16	2	32	42	15,2	92	44	16	3	☺
MB266-16.0A3X400C-	16	4	32	42	15,2	92	44	16	3	☺
MB266-20.0A3X050A-	20	0,5	20	88	19	140	90	20	3	☺
MB266-20.0A3X300A-	20	3	20	88	19	140	90	20	3	☺
MB266-20.0A3X050B-	20	0,5	30	73	19	125	75	20	3	☺
MB266-20.0A3X300B-	20	3	30	73	19	125	75	20	3	☺
MB266-20.0A3X400B-	20	4	30	73	19	125	75	20	3	☺
MB266-25.0A3X400A-	25	4	25	92	23,75	150	94	25	3	☺
MB266-25.0A3X050C-	25	0,5	37	72	23,75	130	74	25	3	☺
MB266-25.0A3X400C-	25	4	37	72	23,75	130	74	25	3	☺

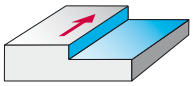
Ordering example: MB266 solid carbide end mill with D_c 16 mm, in the WJ30UU grade
Ordering code: MB266-16.0A3X050A-WJ30UU



☺☺☺ New addition to range

52 123

Cutting data for shoulder milling



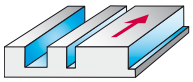
Material group	Structure of main material groups and code letters	Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]	Product line	Advance			
								Dimensions acc. to	Product family	λ	Page
								DIN 6527 L P standard L P standard XL	MC122	45°	
							Ø range	Ø 2 – 25 mm			
							Number of teeth	Z = 4 – 8			
							Grade	WJ30TF			
								a_e / D_c			VT
								1/1	1/4	1/10	
P	Non-alloyed steel	C ≤ 0,25%	Annealed	125	428	P1		-	240	300	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					
		Tempered		380	1282	P9					
		Tempered		430	1477	P10					
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	P11		-	200	240	A
		Hardened and tempered		300	1013	P12					
		Hardened and tempered		400	1361	P13					
	Stainless steel	Ferritic/martensitic, annealed		200	675	P14		-	100	120	A
		Martensitic, tempered		330	1114	P15		-	45	60	A
M	Stainless steel	Austenitic, quench hardened		200	675	M1		-	90	120	B
		Austenitic, precipitation hardened (PH)		300	1013	M2		-	45	60	B
		Austenitic/ferritic, duplex		230	778	M3		-	90	120	B
K	Malleable cast iron	Ferritic		200	675	K1		-	190	230	A
		Pearlitic		260	867	K2		-	150	180	A
	Grey cast iron	Low tensile strength		180	602	K3		-	190	230	A
		High tensile strength/austenitic		245	825	K4		-	150	180	A
	Cast iron with spheroidal graphite	Ferritic		155	518	K5		-	190	230	A
		Pearlitic		265	885	K6		-	150	180	A
	GGV (CGI)			200	675	K7		-	190	230	A
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		-	50	60	B
			Hardened	280	943	S2		-	50	60	B
		Ni or Co base	Annealed	250	839	S3		-	50	60	B
			Hardened	350	1177	S4		-	30	50	B
			Cast	320	1076	S5		-	30	50	B
	Titanium alloys	Pure titanium		200	675	S6					
		α and β alloys, hardened		375	1262	S7		-	50	60	B
		β alloys		410	1396	S8		-	30	50	B
	Tungsten alloys			300	1013	S9		-	70	80	B
	Molybdenum alloys			300	1013	S10		-	70	80	B
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					
	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 specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Advance				Advance			
	Dimensions acc. to	Product family	λ	Page	Dimensions acc. to	Product family	λ	Page
	DIN 6527 K DIN 6527 L	**MC111**	**30°**		**P standard L P standard XL**	**MC112**	**30°**	
	Ø 2 – 25 mm				Ø 4 – 16,5 mm			
	Z = 4				Z = 4			
	WJ30TF				WJ30TF			
	a_e / D_c			VT	a_e / D_c			VT
	1/1	1/4	1/10		1/1	1/4	1/10	
	-	280	340	A	-	240	300	A
	-	270	320	A	-	230	280	A
	-	230	280	A	-	200	240	A
	-	230	280	A	-	200	240	A
	-	160	200	A	-	140	170	A
	-	230	280	A	-	200	240	A
	-	230	280	A	-	200	240	A
	-	230	280	A	-	200	240	A
	-	120	140	A	-	100	120	A
	-	55	70	A	-	45	60	A
	-	110	140	B	-	90	120	B
	-	55	70	B	-	45	60	B
	-	110	140	B	-	90	120	B
	-	220	270	A	-	190	230	A
	-	170	210	A	-	150	180	A
	-	220	270	A	-	190	230	A
	-	170	210	A	-	150	180	A
	-	220	270	A	-	190	230	A
	-	170	210	A	-	150	180	A
	-	220	270	A	-	190	230	A
	-	800	1100	C				
	-	800	1100	C				
	-	500	700	C				
	-	500	700	C				
	-	60	70	B	-	50	60	B
	-	60	70	B	-	50	60	B
	-	60	70	B	-	50	60	B
	-	35	60	B	-	30	50	B
	-	35	60	B	-	30	50	B
	-	60	70	B	-	50	60	B
	-	35	60	B	-	30	50	B
	-	85	100	B	-	70	80	B
	-	85	100	B	-	70	80	B

Cutting data for shoulder/slot milling



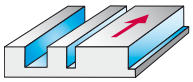
Material group	Structure of main material groups and code letters	Workpiece material		Brinell hardness HB	Tensile strength R_m N/mm²	Machining group[1]	Product line	Supreme			
								Dimensions acc. to	Product family	λ	Page
								DIN 6527 K DIN 6527 L P standard L	MC326 MC726	50°	
							Ø range	Ø 2 – 20 mm			
							Number of teeth	Z = 3 – 5			
							Grade	WK40TF			
								a_e / D_c			VT
								1/1	1/2	1/10	
P	Non-alloyed steel	C ≤ 0.25%	Annealed	125	428	P1		210	260	370	A
		C > 0.25... ≤ 0.55%	Annealed	190	639	P2		210	260	370	A
		C > 0.25... ≤ 0.55%	Tempered	210	708	P3		170	220	320	A
		C > 0.55%	Annealed	190	639	P4		170	220	320	A
		C > 0.55%	Tempered	300	1013	P5		120	150	220	A
		Free cutting steel (short-chipping)	Annealed	220	745	P6		170	220	320	A
	Low-alloyed steel	Annealed		175	591	P7		170	220	320	A
		Tempered		300	1013	P8					
		Tempered		380	1282	P9					
		Tempered		430	1477	P10					
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	P11		170	220	320	A
		Hardened and tempered		300	1013	P12					
		Hardened and tempered		400	1361	P13					
	Stainless steel	Ferritic/martensitic, annealed		200	675	P14		90	110	160	A
		Martensitic, tempered		330	1114	P15		45	55	80	A
M	Stainless steel	Austenitic, quench hardened		200	675	M1		70	90	130	B
		Austenitic, precipitation hardened (PH)		300	1013	M2		50	70	100	B
		Austenitic/ferritic, duplex		230	778	M3		70	90	130	B
K	Malleable cast iron	Ferritic		200	675	K1		160	210	300	A
		Pearlitic		260	867	K2		120	160	230	A
	Grey cast iron	Low tensile strength		180	602	K3		160	210	300	A
		High tensile strength/austenitic		245	825	K4		130	180	250	A
	Cast iron with spheroidal graphite	Ferritic		155	518	K5		160	210	300	A
		Pearlitic		265	885	K6		120	160	230	A
	GGV (CGI)			200	675	K7		160	210	300	A
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		45	60	80	B
			Hardened	280	943	S2		45	60	80	B
		Ni or Co base	Annealed	250	839	S3		45	60	80	B
			Hardened	350	1177	S4		25	35	50	B
			Cast	320	1076	S5		25	35	50	B
	Titanium alloys	Pure titanium		200	675	S6		160	200	300	B
		α and β alloys, hardened		375	1262	S7		50	60	90	B
		β alloys		410	1396	S8		25	30	45	B
	Tungsten alloys			300	1013	S9		60	80	110	B
	Molybdenum alloys			300	1013	S10		60	80	110	B
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					
	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 specified cutting data are average recommended values.
For special applications, adjustment is recommended.

	Advance				Advance				Advance			
	Dimensions acc. to	Product family	λ	Page	Dimensions acc. to	Product family	λ	Page	Dimensions acc. to	Product family	λ	Page
	DIN 6527 K	**MC322**	**45°**		**DIN 6527 K** **P standard L**	**MC216**	**30°**		**P standard L** **P standard XL**	**MC213**	**30°**	
	Ø 6 – 20 mm				Ø 1 – 20 mm				Ø 0,6 – 16,5 mm			
	Z = 4 – 5				Z = 2 – 3				Z = 2 – 4			
	WJ30TF				WJ30TF				WJ30TF			
	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	
	190	240	350	A	180	280	340	A	200	240	300	A
	180	230	330	A	180	270	320	A	190	230	280	A
	150	200	280	A	150	230	280	A	160	200	240	A
	150	200	280	A	150	230	280	A	160	200	240	A
	100	140	200	A	100	160	200	A	110	140	170	A
	150	200	280	A	150	230	280	A	160	200	240	A
	150	200	280	A	150	230	280	A	160	200	240	A
	150	200	280	A	150	230	280	A	160	200	240	A
	80	100	150	A	80	120	140	A	80	100	120	A
	40	50	70	A	40	55	70	A	35	45	60	A
	70	90	140	B	60	110	140	B	70	90	120	B
	60	70	100	B	40	55	70	B	35	45	60	B
	60	70	100	B	60	110	140	B	70	90	120	B
	150	190	280	A	140	220	270	A	160	190	230	A
	120	150	210	A	110	170	210	A	120	150	180	A
	150	190	280	A	140	220	270	A	160	190	230	A
	120	160	230	A	110	170	210	A	120	150	180	A
	150	190	280	A	140	220	270	A	160	190	230	A
	110	150	210	A	110	170	210	A	120	150	180	A
	100	130	180	A	140	220	270	A	160	190	230	A
	35	50	70	B	40	60	70	B	40	50	60	B
	30	45	60	B	40	60	70	B	40	50	60	B
	35	50	70	B	40	60	70	B	40	50	60	B
	20	30	45	B	20	35	60	B	20	30	50	B
	20	30	45	B	20	35	60	B	20	30	50	B
	40	55	80	B	40	60	70	B	40	50	60	B
	20	30	40	B	20	35	60	B	20	30	50	B
	40	70	110	B	50	85	100	B	60	70	80	B
	40	70	110	B	50	85	100	B	60	70	80	B

Cutting data for shoulder/slot milling



Material group	Structure of main material groups and code letters: Workpiece material			Brinell hardness HB	Tensile strength R_m N/mm²	Machining group [1]	Product line: Supreme				
							Dimensions acc. to: P standard XL	Product family: MB265	λ: 30°	Page	
							Ø range: Ø 16 – 25 mm				
							Number of teeth: Z = 3				
							Grade: WJ30UU & WJ30CA				
							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		1500	1800	1800	C
		Hardenable, hardened		100	343	N2		1500	1800	1800	C
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	260	N3		400	450	500	C
		≤ 12% Si, hardenable, hardened		90	314	N4		400	450	500	C
		> 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					
	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.*

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	Supreme			
	Dimensions acc. to	Product family	λ	Page
	P standard XL	**MB266**	**30°**	
	Ø 12 – 25 mm			
	Z = 3			
	WJ30UU			
	a_e / D_c			VT
	1/1	1/2	1/10	
	1500	1800	1800	C
	1500	1800	1800	C
	400	450	500	C
	400	450	500	C

TURNING

DRILLING AND THREADING

MILLING

Watch the innovations video:
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http://goo.gl/ncHFHi

WALTER

Product innovations
Edition 2014-1

Milling

_ TOOL INNOVATIONS IN MILLING

Power at the cutting edge.

_ THE NEW GENERATION OF MILLS

Walter BLAXX shoulder mill: A higher feed rate without steps.

PROGRAMME ADDITION 2014

THE TOOLS

- F5041, F5141 and F5241 tangential shoulder mills with four-edged indexable insert
- Diameter range 25 – 160 mm
- 3 sizes of indexable insert – LNHU0904../LNHU1306../ LNHU1607..
- 3 cutting depths: 8, 12 and 15 mm
- **NEW:** Cartridges for face mill F2010
- High radial and axial runout accuracy
- Soft-cutting geometries due to helical cutting edges
- Precise 90° angle on the component
- Special surface treatment provides protection from corrosion and wear

THE APPLICATION

- For shoulder and face milling all steel and cast iron materials, stainless steels, materials with difficult cutting properties and aluminium
- Highly flexible use: The automotive industry, aerospace industry and general mechanical engineering, etc.

BENEFITS FOR YOU

Maximum process reliability due to stable design

- High carbide volume in the cutting force direction
- Special tool body surface treatment and reinforced core

High level of cost efficiency

- Four cutting edges per indexable insert
- Up to 30 per cent higher feed rate per tooth
- More cutting edges per diameter

Powered by Tiger·tec® Silver

- 2 CVD grades (WKP25S and WKP35S) for steel and cast iron machining
- 2 PVD grades (WSM35S and WSP45S) for steel, stainless steels and materials with difficult cutting properties

Walter BLAXX

Powered by Tiger·tec® Silver

The new generation of Walter BLAXX mills **Type:** F5141

Ordering information can be found from page 132 onwards.

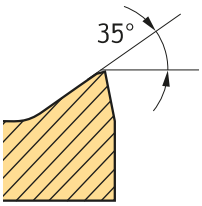
NEW: CARTRIDGES FOR FACE MILL F2010

- F2010…R751M for LNHU0904..
- F2010…R752M for LNHU1306..
- Ø 80 – 315 mm
- Approach angle K = 90°
- Axial runout adjustable

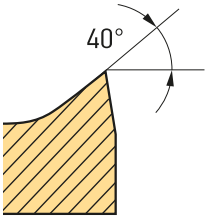
Walter BLAXX **Type:** FR751

Walter BLAXX **Type:** F2010...R751

THE GEOMETRY VARIANTS



L55T – The universal one
- For medium machining conditions
- Can be used universally for most materials



L85T – The sharp one
- For aluminium machining
- Low cutting forces
- Sharp cutting edge

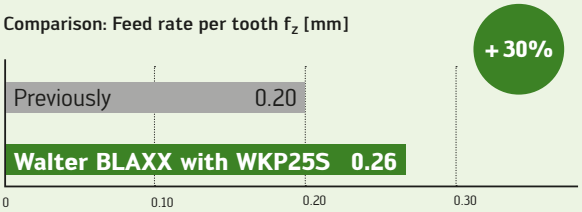
Walter BLAXX:
Feed rates which are up to 30% higher possible due to the tangential location of the indexable inserts

Workpiece material:	GGG50, ISO K
Tool:	Shoulder mill, diameter 80 mm
Indexable insert:	LNHU130608R-L55T
Cutting material:	**WKP25S**

Cutting data

v_c	264 m/min
a_p	8 mm
a_e	50 mm

Comparison: Feed rate per tooth f_z [mm]



Watch animation:
Scan this QR code or go directly to http://goo.gl/CesMH

Walter Tiger·tec® Silver: Tougher and more wear-resistant with a PVD-Al_2O_3 coating.

PROGRAMME ADDITION 2014

THE COATING

- Globally unique PVD aluminium oxide coating
- Optimum cutting material toughness thanks to minimal thermal loads in the coating process
- Optimum protection against heat transfer into the cutting edge thanks to aluminium oxide heat shield
- Extremely smooth rake face ensures low-friction machining

THE INDEXABLE INSERTS

- For Walter BLAXX shoulder mill and porcupine cutter F5.41 and F5138 with various corner radii
- **NEW:** For all popular tools from the Walter milling range, e.g.:
  - **Xtra·tec®** F4033, F4047, F4048, F4041, F4042 face and shoulder mills
  - **Xtra·tec®** F4053, F4153, F4253 side and face mills
  - **Xtra·tec®** F4038, F4138, F4238, F4338 porcupine cutters

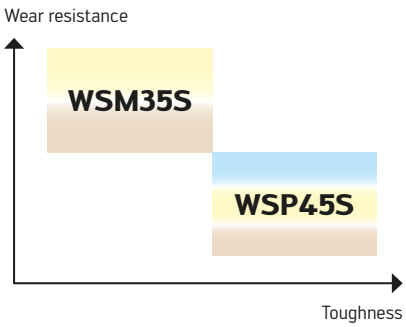
THE GRADES

- Designation WSM35S and WSP45S
- Primary application: Machining stainless steels and materials with difficult cutting properties
- WSP45S also suitable for machining steels

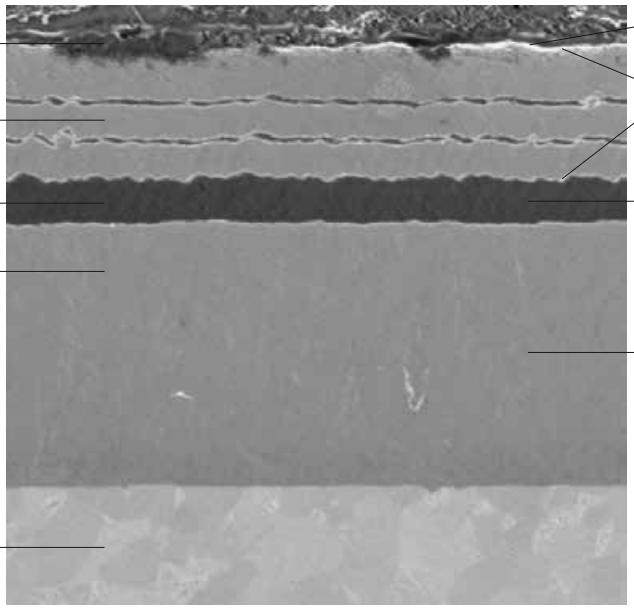
A small selection from the extensive **Tiger·tec® Silver** product range

BENEFITS FOR YOU

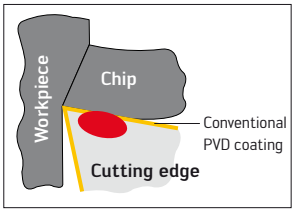
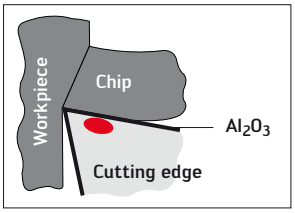
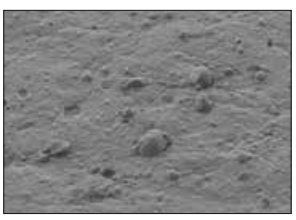
- A high level of process reliability thanks to the unique combination of wear resistance and toughness
- A high level of productivity when machining exotic materials thanks to the globally unique Walter PVD-Al_2O_3 coating
- Less built up edge formation thanks to extremely smooth surfaces
- Reliable wear detection through two-tone **Tiger·tec®** coating



Ordering information can be found from page 136 onwards.



Tiger·tec® Silver

COMPARISON	Competition	Tiger·tec® Silver PVD
Heat entry into the carbide = Temperature at the cutting edge	 High level of heat entry into the carbide	 Thermal protection by Al_2O_3
Surface structure of coating	 High level of friction due to surface structure	 Reduced friction due to improved surface

Walter PCD milling cutters with laser-generated chip breakers: Innovative special solutions for long-chipping materials.

SPECIAL TOOLS FROM WALTER

THE TOOLS

- Profile and shoulder mills with application-optimised PCD grades in virtually any form
- Optimised geometries for reduced cutting forces and minimal vibration tendency
- Particularly well suited to applications requiring long tools or reach.

THE APPLICATION

- For a wide variety of non-ferrous materials
- Plastics with and without fillers
- High surface-quality requirements
- Low cutting forces with long tools
- Good chip control
- Customised milling, turning and boring tools

THE WORKPIECE MATERIAL

- Aluminium alloys with an Si content of up to approx. 7 per cent
- Copper and copper alloys
- Plastics (thermoplastics)
- Fibre-reinforced plastics

BENEFITS FOR YOU

- Good chip control
- Chip breaking even with very tough materials and aluminium wrought alloys
- Low vibration tendency
- Lower cutting forces

Example: Walter PCD form mill

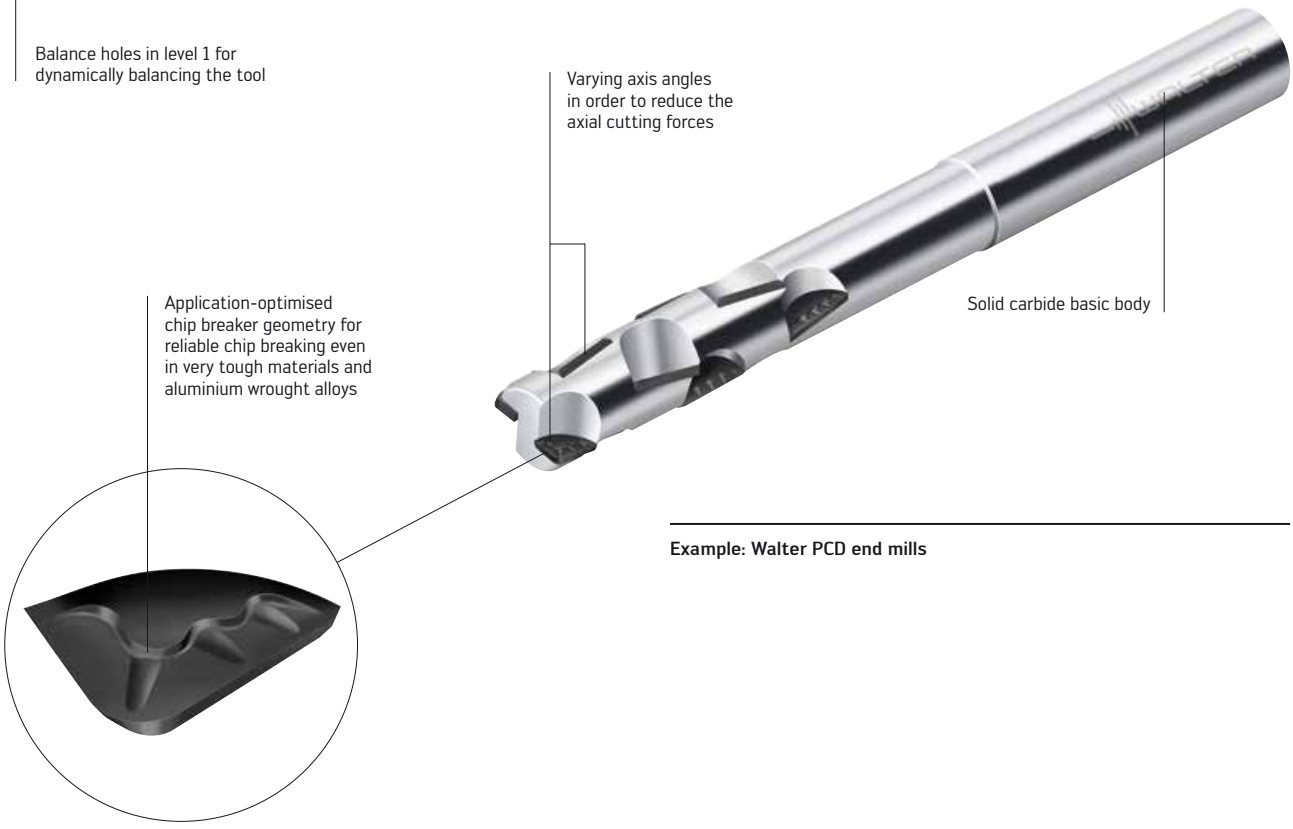
PCD SPECIAL TOOLS FROM WALTER

Strong PCD tools are the first choice for cost-effective and high-precision machining of light and high-strength materials, for example in the automotive or aerospace industry. Walter's PCD special tools are characterised by extremely long tool life (50 to 200 times that of standard carbide tools), as well as the highest level of process reliability and dimensional stability. This opens up enormous potential for new production possibilities, particularly in mass production.

WHY PCD?

- Significant improvement in tool life
- Improved surface quality
- Higher cutting data
- Sharper cutting edge
- Reduced thermal impact
- Optimum thermal conductivity of the cutting material
- Minimised risk of delamination
- Dry machining possible
- Repeated resharpening or reconditioning possible

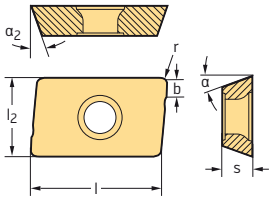
Balance holes in level 1 for dynamically balancing the tool



Example: Walter PCD end mills

Positive rhombic

Tiger·tec®



Indexable inserts

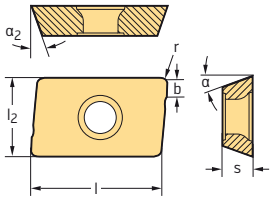
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
	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	3,35	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			●	●	●	●	●	●							●	●	●	●	
	ADGT080308R-F56	G	2	6,75	9,52	3,35	15°	20°	0,8	1,2				●				●										●	
	ADGT120404R-F56	G	2	8,4	13,6	4,76	15°	20°	0,4	1,2				●				●										●	
	ADGT1204PER-F56	G	2	8,4	13,6	4,76	15°	20°	0,8	1,2			●	●	●	●	●	●							●	●	●	●	
	ADGT120430R-F56	G	2	8,4	13,6	4,76	15°	20°	3	0,8				●				●										●	
	ADGT120440R-F56	G	2	8,4	13,6	4,76	15°	20°	4	0,4				●				●										●	
	ADGT1606PER-F56	G	2	10,8	17,5	6,15	15°	20°	0,8	1,6			●	●	●	●	●	●							●	●	●	●	
	ADGT160612R-F56	G	2	10,8	17,5	6,15	15°	20°	1,2	1,6				●				●										●	
	ADGT160616R-F56	G	2	10,8	17,5	6,15	15°	20°	1,6	1,4				●				●										●	
	ADGT160620R-F56	G	2	10,8	17,5	6,15	15°	20°	2	1,4				●				●										●	
	ADGT160632R-F56	G	2	10,8	17,5	6,15	15°	20°	3,2	1,2				●				●										●	
	ADGT160640R-F56	G	2	10,8	17,5	6,15	15°	20°	4	1				●				●										●	
	ADGT160650R-F56	G	2	10,8	17,5	6,15	15°	20°	5	0,4				●				●										●	
	ADGT10T3PER-G77	G	2	7,25	11,3	3,8	15°	15°	0,8	1,2			●	●	●		●	●							●		●	●	
	ADGT10T316R-G77	G	2	7,25	11,3	3,8	15°	15°	1,6	1,2			●		●		●								●		●		
	ADGT10T325R-G77	G	2	7,25	11,3	3,8	15°	15°	2,5	1			●		●		●								●		●		
	ADGT10T330R-G77	G	2	7,25	11,3	3,8	15°	15°	3	0,8			●		●		●								●		●		
	ADGT10T332R-G77	G	2	7,25	11,3	3,8	15°	15°	3,2	0,8			●		●		●								●		●		
	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

Tiger·tec®



Indexable inserts

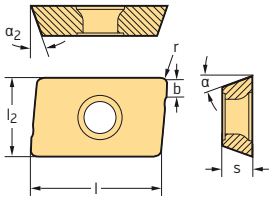
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
	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

Tiger·tec®



Indexable inserts

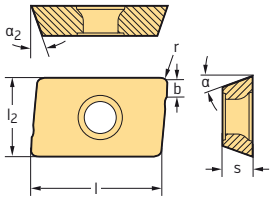
Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
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		●	●	●	●	●	●	●				●			●	●	●	●	
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		●	●	●			●	●				●					●	●	

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Positive rhombic

Tiger·tec®



Indexable inserts

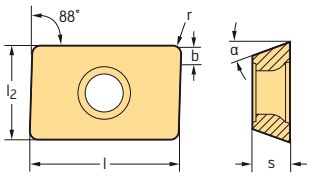
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	α_2	r mm	b mm	P				M				K				N		S				H
												HC				HC				HC				HC	HW		HC			HC
											WKP25S	WKP35S	WSP45	WSP45S	WSM35	WSM35S	WSP45	WSP45S	WAK15	WKK25	WKP25S	WKP35S	WXN15	WK10	WSM35	WSM35S	WSP45	WSP45S	WHH15
	ADMT160640R-F56	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

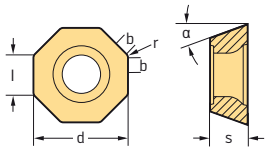
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	S HC WSP45S	H HC WHH15
	LPGT070304R-F55	G	2	6,35	7,94	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

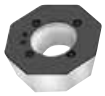
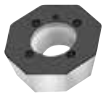
● ● ● New addition to range

Positive 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	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	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	S HC WSP45S	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		●	●							●	●	●	●								

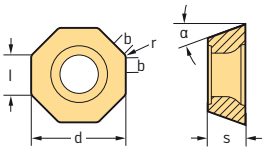
* ZZN for k = 43° only

HC = Coated carbide
CN = Silicon nitride Si_3N_4
HW = Uncoated carbide
HF = Uncoated fine-grained carbide

● ● ● New addition to range

Positive octagonal

Tiger·tec®



Indexable inserts

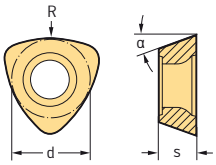
	Designation	Tolerance class	Number of cutting edges	l mm	d mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	K CN WSN10	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
	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
HF = Uncoated fine-grained carbide

Positive triangular

Tiger·tec®



Indexable inserts

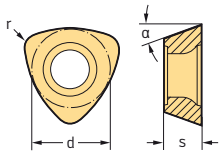
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	R mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	S HC WSP45S	H HC WHH15
	P26315-R10	M	3	6,75	2,78	14°	10	●	●	●	●	●	●	●			●	●			●	●	●	
	P26315-R12	M	3	8,5	3,18	14°	12,5	●	●	●	●	●	●	●			●	●			●	●	●	
	P26315-R15	M	3	10,5	3,97	14°	15	●	●	●	●	●	●	●			●	●			●	●	●	
	P26315-R16	M	3	10,5	3,97	14°	16	●	●	●	●	●	●	●			●	●			●	●	●	
	P26315-R20	M	3	12,7	4,76	11°	20	●	●	●	●	●	●	●			●	●			●	●	●	
	P26315-R25	M	3	12,7	4,76	11°	25	●	●	●	●	●	●	●			●	●			●	●	●	
	P26315-R31	M	3	12,7	4,76	11°	31,5	●	●	●	●	●	●	●			●	●			●	●	●	
	P26325-R25	M	3	13	5,56	14°	25	●	●	●		●	●		●		●	●			●	●		
	P26325-R31	M	3	13	5,56	14°	31,5	●	●	●		●	●		●		●	●			●	●		

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Positive triangular

Tiger·tec®



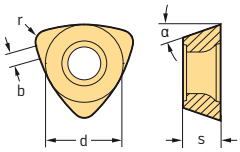
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	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 WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
	P26335-R10	M	3	6,75	3,18	14°	0,8	●	●	●	●	●	●	●	●			●	●			●	●	●	●	
	P26335-R14	M	3	9,52	3,97	14°	1,2	●	●	●	●	●	●	●	●			●	●			●	●	●	●	
	P26335-R25	M	3	13	5,56	14°	2	●	●	●	●	●	●	●	●			●	●			●	●	●	●	
	P26337-R10	M	3	6,75	3,18	14°	0,8	●	●	●	●	●		●	●			●	●			●		●	●	
	P26337-R14	M	3	9,52	3,97	14°	1,2	●	●	●	●	●		●	●			●	●			●		●	●	
	P26337-R25	M	3	13	5,56	14°	2	●	●	●	●	●		●	●			●	●			●		●	●	
	P26339-R10	M	3	6,75	3,18	14°	0,8	●	●	●	●	●	●	●	●			●	●			●	●	●	●	
	P26339-R14	M	3	9,52	3,97	14°	1,2	●	●	●	●	●	●	●	●			●	●			●	●	●	●	
	P26339-R25	M	3	13	5,56	14°	2	●	●	●	●	●	●	●	●			●	●			●	●	●	●	

HC = Coated carbide
HW = Uncoated carbide

Positive triangular

Tiger·tec®



Indexable inserts

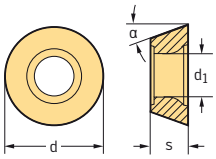
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	r mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	S HC WSP45S	H HC WHH15
	P26379-R10	M	3	6,75	3,18	14°	0,8	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

● ● ● New addition to range

Positive round

Tiger·tec®



Indexable inserts

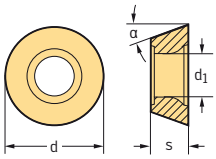
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	α	d_1 mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
	ROGX0803M0-G77	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		●	●	●	●		●	●				●			●		●	●	
	ROHX10T3M0-F67	H	4	10	3,97	11°	4,4		●	●	●	●		●	●				●			●		●	●	
	ROHX1204M0-F67	H	4	12	4,76	11°	4,4		●	●	●	●		●	●				●			●		●	●	
	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		●	●	●	●	●	●	●				●			●	●	●	●	

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Positive round

Tiger·tec®



Indexable inserts

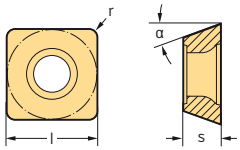
	Designation	Tolerance class	d mm	s mm	α	d_1 mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15	HF WMG40
	RDGT0803M0-G85	G	8	3,18	15°	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

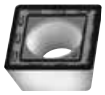
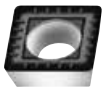
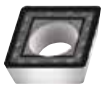
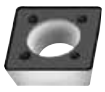
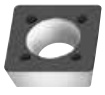
● ● ● New addition to range

Positive square

Tiger·tec®



Indexable inserts

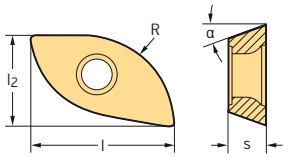
	Designation	Tolerance class	Number of cutting edges	l mm	s mm	α	r mm	P				M				K					N		S			H
								HC				HC				HC				CN	HC	HW	HC			HC
								WKP25S	WKP35S	WSP45	WSP45S	WSM35	WSM35S	WSP45	WSP45S	WAK15	WKK25	WKP25S	WKP35S	WSN10	WXN15	WK10	WSM35	WSP45	WSP45S	WHH15
	SPGT120606-F57	G	4	12,7	6,35	11°	0,6		●	●	●	●	●	●	●				●				●	●	●	
	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 form inserts

Tiger·tec®



Indexable inserts

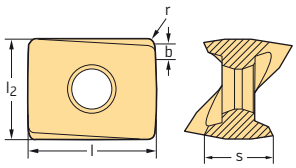
	Designation	Tolerance class	Number of cutting edges	l_2 mm	l mm	s mm	α	R mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSP45	S HC WSP45S	H HC WHH15
	XDMT1303080R-F55	M	2	8,56	13,18	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

Negative rhombic

Tiger·tec®



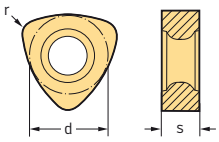
Indexable inserts

	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	P HC WSP45S	M HC WSM35	M HC WSM35S	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
	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

Negative triangular

Tiger·tec®



Indexable inserts

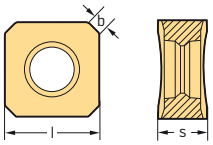
	Designation	Tolerance class	Number of cutting edges	d mm	s mm	r mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
	P23696-1.0	M	6	9,52	5	1,2	●	●	●	●	●	●	●	●			●	●			●	●	●	●	
	P23696-2.0	M	6	13,5	7	1,6	●	●	●	●	●	●	●	●			●	●			●	●	●	●	

HC = Coated carbide
HW = Uncoated carbide

● ● ● New addition to range

Negative square

Tiger·tec®



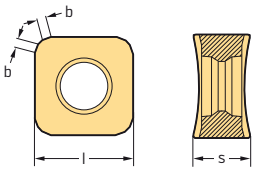
Indexable inserts

	Designation	Tolerance class	Number of cutting edges	l mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	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 WSM35S	S HC WSP45	S HC WSP45S	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

Negative square

Tiger·tec®



Indexable inserts

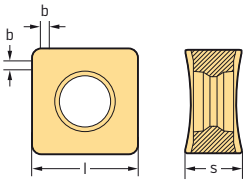
	Designation	Tolerance class	Number of cutting edges	l mm	s mm	b mm	P HC WKP25S	P HC WKP35S	P HC WSP45	P HC WSP45S	M HC WSM35	M HC WSM35S	M HC WSP45	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35	S HC WSM35S	S HC WSP45	S HC WSP45S	H HC WHH15
	SNGX1205ENN-F27	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

● ● ● 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	P HC WSP45S	M HC WSM35	M HC WSM35S	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 WSM35S	S HC WSP45	S HC WSP45S	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
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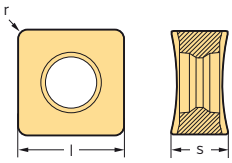
Negative square

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	P HC WSP45S	M HC WSM35	M HC WSM35S	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
	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
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● ● ● New addition to range

WALTER MULTIPLY

Services for Planning

Services for Production and Logistics

Services for Maintenance

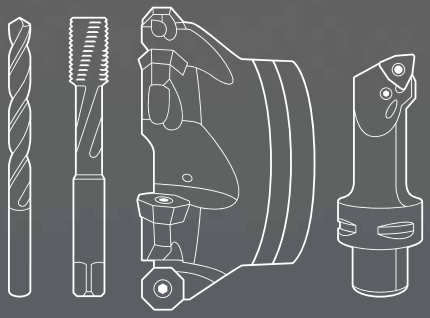
Services for Training

COMPLEX PROCESSES CAN SOMETIMES SEEM QUITE EASY.

Walter Multiply is the new competence brand from Walter, which combines together all measures involved in increasing productivity with a multi-stage service programme. As a result, even highly complex processes can suddenly seem really easy.

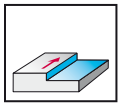
Walter Multiply means multiplying the factors which lead to success. Because of the integrated efficiency of our multi-stage services, production performance can be increased by a significantly higher factor than would ever be possible using the total sum of all individual measures. Addition in process chains is a thing of the past. The future is now **Walter Multiply.**

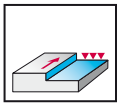
Complexity made easy.



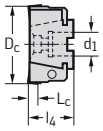
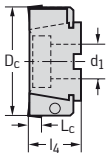
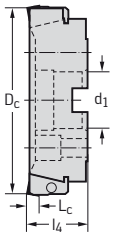
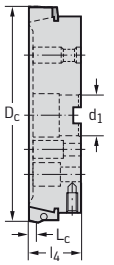
www.walter-tools.com

Face mill F 2010



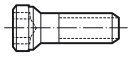


- Approach angle κ = 90°
- Four cutting edges per indexable insert
- Negative basic insert shape
- Tangential indexable insert arrangement
- Axial runout adjustable

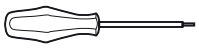
Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 traverse keyway 	F2010.B.080.Z06.08.R751M	80	27	50	8	6	1,2	6	
	F2010.B.100.Z07.08.R751M	100	32	50	8	7	1,8	7	LNHU 0904 . .
	F2010.B.125.Z08.08.R751M	125	40	63	8	8	3,5	8	
Cyl. bore DIN 138 traverse keyway 	F2010.B.160.Z10.08.R751M	160	40/40 B	63	8	10	5,5	10	LNHU 0904 . .
Cyl. bore DIN 138 traverse keyway 	F2010.B.200.Z12.08.R751M	200	60/50 B	63	8	12	8,2	12	
	F2010.B.250.Z12.08.R751M	250	60/50 B	63	8	12	14,6	12	LNHU 0904 . .
	F2010.B.250.Z16.08.R751M	250	60/50 B	63	8	16	14,5	16	
Cyl. bore DIN 138 traverse keyway 	F2010.B.315.Z14.08.R751M	315	60/50-60 BB	80	8	14	26,3	14	LNHU 0904 . .
	F2010.B.315.Z18.08.R751M	315	60/50-60 BB	80	8	18	26,2	18	

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

Assembly parts

	D_c mm	80-315
	Adjusting pin	FS303 (Torx 20)
	Cartridge for tool body	FR751M
	Clamping screw for cartridge	FS247 (SW 4)
	Tightening torque	8,0 Nm
	Clamping screw for indexable insert	FS1457 (Torx 9IP)
	Tightening torque	2,0 Nm

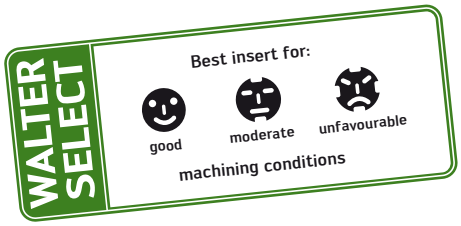
Accessories

	D_c mm	80-315
	Allen key ISO 2936 for cartridge	ISO2936-4 (SW 4)
	Screwdriver for adjusting pin	FS228 (Torx 20)
	Screwdriver for indexable insert	FS1484 (Torx 9IP)

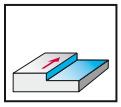
Indexable inserts

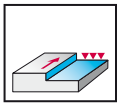
		Radius mm	Face chamfer width mm	P HC WKP25S	P HC WKP35S	P HC WSP45S	M HC WSM35S	M HC WSP45S	K HC WAK15	K HC WKK25	K HC WKP25S	K HC WKP35S	N HC WXN15	N HW WK10	S HC WSM35S	S HC WSP45S	H HC WHH15
	LNHU090404R-L55T	0,4	1,5	☺	😐	☹	😐	☹	☺	😐	😐	☹			😐	☹	
	LNHU090404R-L85T	0,4	1,5										☺	☺			
	LNHU090408R-L55T	0,8	1,1		😐	☹	😐	☹				☹			😐	☹	
	LNHU090412R-L55T	1,2	0,8		😐	☹	😐	☹				☹			😐	☹	
	LNHU090416R-L55T	1,6			😐	☹	😐	☹				☹			😐	☹	
	LNHU090420R-L55T	2			😐	☹	😐	☹				☹			😐	☹	

HC = Coated carbide
HW = Uncoated carbide



Face mill F 2010





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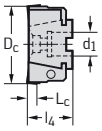
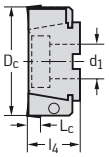
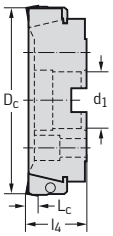
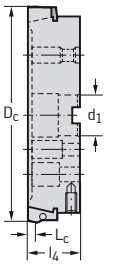
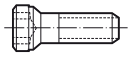
Tool	Designation	D_c mm	d_1 mm	l_4 mm	L_c mm	Z	kg	No. of indexable inserts	Type
Cyl. bore DIN 138 traverse keyway 	F2010.B.080.Z06.12.R752M	80	27	50	12	6	1,2	6	
	F2010.B.100.Z07.12.R752M	100	32	50	12	7	1,8	7	LNHU 1306 . .
	F2010.B.125.Z08.12.R752M	125	40	63	12	8	3,5	8	
Cyl. bore DIN 138 traverse keyway 	F2010.B.160.Z10.12.R752M	160	40/40 B	63	12	10	5,5	10	LNHU 1306 . .
Cyl. bore DIN 138 traverse keyway 	F2010.B.200.Z12.12.R752M	200	60/50 B	63	12	12	8,2	12	
	F2010.B.250.Z12.12.R752M	250	60/50 B	63	12	12	14,6	12	LNHU 1306 . .
	F2010.B.250.Z16.12.R752M	250	60/50 B	63	12	16	14,5	16	
Cyl. bore DIN 138 traverse keyway 	F2010.B.315.Z14.12.R752M	315	60/50-60 BB	80	12	14	26,3	14	LNHU 1306 . .
	F2010.B.315.Z18.12.R752M	315	60/50-60 BB	80	12	18	26,2	18	

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

Assembly parts

	D_c mm	80-315
	Adjusting pin	FS303 (Torx 20)
	Cartridge for tool body	FR752M
	Clamping screw for cartridge	FS247 (SW 4)
	Tightening torque	8,0 Nm
	Clamping screw for indexable insert	FS2081 (Torx 15IP)
	Tightening torque	3,0 Nm

Accessories

	D_c mm	80-315
	Allen key ISO 2936 for cartridge	ISO2936-4 (SW 4)
	Screwdriver for adjusting pin	FS228 (Torx 20)
	Screwdriver for indexable insert	FS1485 (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			😐	☹	😐	☹				☹			😐	☹	

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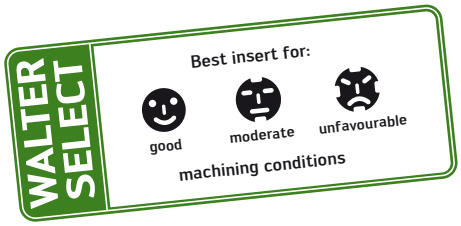

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Cutting data for roughing
Face/shoulder milling

= 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				DP	
WSP45		WSP45S		WSM35		WSM35S		WKK25		WXN15		WMG40		WK10		WSN10		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*	
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: Starting values for cutting speed v_c [m/min] HC WKP35S a_e / D_c* 1/2	WKP35S a_e / D_c* 1/5	WKP25S a_e / D_c* 1/2	WKP25S a_e / D_c* 1/5
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 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: Starting values for cutting speed v_c [m/min] HC WKP35S 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		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 1/2	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	275			185	230	185	230				
	200	255			150	200	150	200				
	175	220			130	165	130	165				
	200	255			150	200	150	200				
	165	200			105	115	105	115				
	170	210			125	160	125	160				
	200	255			150	190	150	190				
	155	200			105	115	105	115				
	125	140			60	70	60	70				
	120	130			50	60	50	60				
	110	130			90	110	90	110				
	80	95			65	70	65	70				
	80	90			50	60	50	60				
					90	110	90	110	95	120	95	120
					60	70	60	70	60	70	60	70
					85	100	85	100	100	120	100	120
					75	90	75	90	90	110	90	110
					75	90	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	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								
			40	50								
			40	50								
	400	400	400	400	400	400	400	400	400	400	400	400
	300	300	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: Starting values for cutting speed v_c [m/min] HC WKP35S a_e / D_c* 1/1 1/2	WKP35S a_e / D_c* 1/5	WKP25S a_e / D_c* 1/1 1/2	WKP25S a_e / D_c* 1/5
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		WSP45S		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*		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
			210	260	210	260												
			170	220	170	220												
			160	210	160	210												
			170	220	170	220												
			120	130	120	130												
			160	210	160	210												
			170	210	170	210												
			125	150	125	150												
			85	95	85	95												
			60	65	60	65												
			100	130	100	130												
			75	90	75	90												
			65	75	65	75												
			100	120	100	120	110	130	110	130								
			55	65	55	65	60	70	60	70								
			90	100	90	100	100	120	100	120								
			70	80	70	80	80	100	80	100								
			80	90	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	60	65	70	80	70	80					67	72		
			40	45	40	45	55	60	55	60					40	45		
			45	50	45	50	55	65	55	65					50	55		
			27	32	27	32	35	40	35	40					22	27		
			35	40	35	40	45	50	45	50					30	35		
			65	80	65	80	80	100	80	100					70	80		
			40	45	40	45	50	55	50	55					45	50		
			35	40	35	40	45	50	45	50								
			40	45	40	45	50	55	50	55								
			35	40	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	300	300
	400	400	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 mills

= 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		WSP45S		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*		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	1/4*	1/10
			185	230	185	230	185	230	185	230	185	230								
			150	200	150	200	150	200	150	200	150	200								
			135	170	135	170	135	170	135	170	135	170								
			135	170	135	170	135	170	135	170	135	170								
			105	125	105	125	105	125	105	125	105	125								
			140	180	140	180	140	180	140	180	140	180								
			150	190	150	190	150	190	150	190	150	190								
			105	115	105	115	105	115	105	115	105	115								
			75	85	75	85	75	85	75	85	75	85								
			65	75	65	75	65	75	65	75	65	75								
			90	110	90	110	90	110	90	110	90	110								
			60	70	60	70	60	70	60	70	60	70								
			55	65	55	65	55	65	55	65	55	65								
			90	110	90	110	90	110	90	110	90	110	95	120						
			60	80	60	80	60	80	60	80	60	80	65	85						
			85	100	85	100	85	100	85	100	85	100	100	120						
			70	85	70	85	70	85	70	85	70	85	85	100						
			75	90	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	55	60	70	80						
			40	45	40	45	40	45	40	45	40	45	50	55						
			45	50	45	50	45	50	45	50	45	50	55	60						
			30	35	30	35	30	35	30	35	30	35	35	40						
			35	40	35	40	35	40	35	40	35	40	45	50						
			55	60	55	60	55	60	55	60	55	60	70	80						
			30	35	30	35	30	35	30	35	30	35	40	45						
			25	30	25	30	25	30	25	30	25	30	35	40						
			30	35	30	35	30	35	30	35	30	35	40	45						
			25	30	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	400	400
	300	300	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%).

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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
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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.
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	Cutting material grades																							
	Starting values for cutting speed v_c [m/min]																							
	HC																							
	WKP35			WKP25S			WKP25			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%).

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*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

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CN = Silicon nitride Si_3N_4

How to find us.

HEADQUARTERS

Walter AG
Tübingen, Germany

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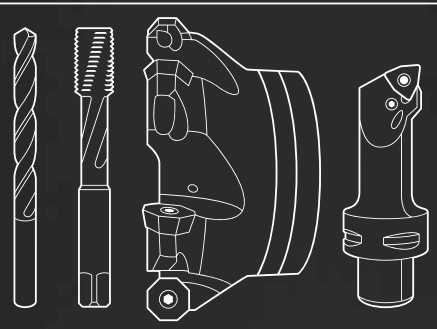

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