MILLING TOOLS

Metric Version Catalog 2012





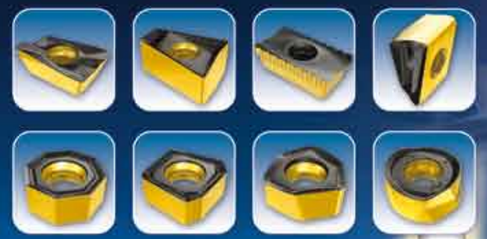
Member IMC Group

WWW.ISCAR.COM

MILLING TOOLS Metric Version Catalog 2012

MILLING TOOLS

Metric Version Catalog 2012



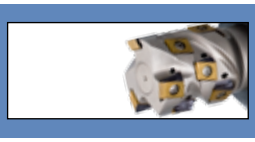
Member IMC Group

WWW.ISCAR.COM

MILLING SYSTEMS OVERVIEW  A

ENDMILLS AND MULTI-MASTER  B

FACE MILLS  C

EXTENDED FLUTE CUTTERS  D

PROFILING TOOLS AND FLEXFIT  E

PLUNGING CUTTERS  F

SLOTTING CUTTERS  G

CUTTERS FOR ALUMINUM  H

THREAD MILLING TOOLS  J

INSERTS  K

USER GUIDE, GRADES, MATERIALS  L

ALPHABETICAL INDEX  M

ITA
ISCAR TOOL ADVISOR
www.iscar.com/ita

The Ultimate Expert in Selecting the Best Tool

Member IMC Group
ISCAR



HELI2000

Strong, Durable
Highly Accurate 90° Milling



HELI2000 is an advanced design of the renowned **ISCAR HELIMILL** family, featuring:

- High 90° shoulder accuracy
- No mismatch, leaving a clean mirror-like side wall
- Impressive ramping down ability
- Capability to perform plunging applications
- Soft and clean cut due to helical cutting edges and high axial rake angles
- Very strong and durable cutter which looks like new after long use



HELIDO
490 LINE

H490 – A Family of Double-sided Inserts with 4 Helical Cutting Edges

HELIDO H490 – a family of tools for 90° milling, is another evolution of the original **HELIMILL** line.
The **HELIDO H490 ANKX** rectangular inserts have 4 helical right-hand cutting edges. They are available in cutting edge lengths of 9, 12 and 17 mm.
Insert construction is very thick and strong.
It is clamped into a dovetail inclined pocket which provides a very rigid clamping and has a wiper which leaves an excellent surface finish.
Due to its strong construction, excellent grade combinations and unique chip deflector with positive cutting angles, this family features high durability, low cutting forces and long tool life.
Our most advanced **SUMO TEC** grades ensure excellent performance and reliability.
The **HELIDO H490** tools can be used for machining steel, stainless steel and cast iron at very high machining parameters.

The family comprises milling tools in the following range:

- Endmills
- Face mills
- Extended flute arbor-type cutters

The tools can machine 90° shoulders, plunge with large stepover and perform slotting and facing operations.
All **HELIDO H490** tools have coolant holes.
The **HELIDO H490** family combines the most advantageous features of both the **HELIMILL** helical cutting edge and positive rake angle; and the **MILL2000** strong construction, most suited for heavy milling applications. The thick and robust insert with 4 cutting edges is very economical when taking into account the price per corner (when compared to the single-sided inserts).
No doubt, **HELIDO H490** is the state-of-the-art milling insert design. It enables excellent performance and extremely high productivity.



HELIDO
890 LINE

HELIDO S890 FSN
Face Mills Tool Family

HELIDO S890 FSN, a family of 88° cutting edge angle face mills was designed for machining of cast iron and steel components. The face mills carry inserts with 8 helical cutting edges, which can be used for up to 10 mm depth of cut, providing a very attractive economical advantage regarding price per cutting edge.

The **S890 SNMU 1305PNTR** insert features a high positive cutting rake for a light cut, and soft entry into and exit from the workpiece. The insert has a flat wiper for high quality surface finish.



HELIDO
845 LINE

45º EndMills and Face Mills with Double-Sided Inserts

ISCAR's unique family of 45° milling cutters can carry in their pockets either the **S845 SNMU 1305...** - square, double-sided inserts with 8 cutting edges or the **ONMU 0505...** octagonal, double-sided inserts with 16 cutting edges – the most economical inserts regarding price per cutting edge.
Both inserts have helical cutting edges and positive rake angles, featuring low power consumption and excellent surface finish.

The inserts are available in the most advanced **SUMO TEC** carbide grades.

- **SOE/SOF**. . . cutters with screw clamping of the inserts (coarse and regular pitch)
- **SOF45CL**-. . cutters with wedge clamping of the inserts (fine pitch).



8 Cutting Edges



16 Cutting Edges



HELIDO
600 UPFEED LINE

HELIDO-FEEDMILL
Combination Inserts with 6 Cutting Edges

ISCAR's **H600 WXCU** … **HELIDO**-**FEEDMILL** trigon double-sided, 6-edged insert combines **HELIDO**'s strength and **FEEDMILL**'s special geometry to facilitate milling at very high feed rates of up to 2 mm/tooth for high volume metal removal. The **H600 WXCU** … insert has a 17° cutting edge configuration. This design provides high stability and enables machining at high feed rates even in long overhang applications.

H600 WXCU 0403... H600 WXCU 05T3... and **H600 WXCU 0806** with various rake angles may be applied on a wide range of materials and applications. They are produced from the **SUMO TEC** grades. All of the tools have coolant holes and can be used for facing, ramping, plunging and helical interpolation applications, achieving excellent performance and tool life.





HELIDO

ROUND H400 LINE

H400 RNHU – A Revolutionary Double-sided Profiling Insert

The basis of the **H400** milling line is the **H400 RNHU**... double-sided, multi-radius insert configuration for productive profile milling operations. The insert is available in sizes 10, 12 and 16 and has four 120° segments of 5, 6 and 8 mm radius round cutting edges, respectively.
The unique design of **H400 RNHU**... inserts originates from the shape of a bounding circle which enables designing fine pitch cutters.
The insert substantially expands possibilities for machining blades, complicated **3D** shapes, etc., especially by 5-axis milling.
The milling tools include endmills, face mills and interchangeable heads with **FLEXFIT** adaptations in a wide diameter range.





Economical Coarse Pitch Tools

Precision Fine Pitch Tools for High Table Feeds

16 Economical Cutting Corners

F45WG - **16MILL** fine pitch face mills use the **16MILL ONHU 0806..** and **ONMU 0806..** inserts. The **F45WG** are 45° face mills which are designed for high table speed.
The inserts are clamped on the tools by using a wedge system which features high clamping security and edge location repeatability (both radial and axial). The wedge clamping system enables easy mounting and indexing of the inserts, a very important feature for fine pitch (high insert density) face mills.
The standard diameter range is from 80 to 250 mm.
The tools expand the application range of the **16MILL** inserts with fine pitch cutters.

Inserts

Each insert has 16 cutting edges, either right or left-hand. Maximum depth of cut is 5.5 mm if 16 cutting edges are required, or 13 mm, in which case only 8 cutting edges can be used.
The insert's central hole is used for screw clamping on the **F45NM** coarse pitch milling cutters.

Insert Types

ONMU 080608-**TN** - recommended for milling various kinds of grey and nodular cast iron.
ONMU 080608-**TN**-**MM** - recommended for milling various kinds of carbon and alloy steel.

These two insert types are utility, economical class for general applications. When higher accuracy and surface finish are required, both types are available as **ONHU 0806...** These are precision ground inserts. **ONHU 080600-N-PL** insert has a positive land, leaving sharp edges without chipping on cast iron components. The **ONMU 080612-HL** insert has a wide negative land, used for rough applications and inhomogeneous surfaces such as casting skin.

Wiper Insert

ONHU 080608 AN-W wiper insert can be mounted on regular pockets. This insert protrudes 0.05 mm axially. An average surface finish of 0.4µm Ra can easily be achieved. It has a 7 mm wiper edge.
When a feed per revolution is larger than the wiper length, 2 wiper inserts should be used, positioned 180° from one another.
The **wiper insert** has two **R.H.** and two **L.H.** wiper edges.

The cutters offer these advantages:

- **The most economical price per cutting edge**
- **Extremely high table speed**
- **Excellent surface finish**
- **Easy and very short edge indexing time**



HELITANG
T490 LINE

4 Cutting Corners, Tangential Geometry for Fast Metal Removal

Endmills, extended flute and face mills with tangentially clamped inserts

HELITANG T490 is a family of milling tools that uses tangentially clamped inserts with four right-hand helical cutting edges. The **T490** inserts are available in 8, 13 and 16 mm long cutting edges. The **T490 LN** ... inserts, due to their small size and tangential orientation in the pocket, enable tool design with larger core diameters than tools with regular, radially oriented inserts.
A most advanced insert design and production technology results in a soft and clean cut due to insert helical cutting edges and positive rake angles. **ISCAR**'s most advanced **SUMO TEC** grades ensure excellent performance and reliability.

HELITANG tools can be used for machining alloy and stainless steel, high temperature alloys and cast iron at very high material removal rates. The **T490** tools can be used for machining 90° shoulders at high rates, with no mismatch. All of the cutters have coolant holes.

The family features high durability and outstanding tool life, due to the tangentially oriented pocket, the most advanced insert production technology and excellent grade combinations.



HELITANG
T465 LINE

Heavy Duty 65° Face Mills with Tangentially Clamped Inserts

The **T465** line with a 65° cutting edge angle is a very efficient solution for high-productive face milling of large sized components.

The face mills carry tangentially clamped inserts **T465 LNHT 2212-ZN** with 4 cutting edges, which can be used for up to 19 mm depth of cut.
The **T465 LNHT 2212-ZN** inserts feature positive rake and axial angles (R.H. helix) and have a 2.5 mm flat wiper for improved surface finish.

Two edge configurations are available:
T465 LNHT 2212-ZNTR are used for steel and cast iron and **T465 LNHT 2212-ZN-R** are used for machining stainless steel and high temperature alloys.

The tools are designed for machining large parts such as those found in marine industries, power generation and other heavy industry applications. They are intended for machine power 30 kW and up.





MINI-TANGSLOT

Slotting Cutters with 4 Cutting Edged Tangential Inserts

MINI-TANGSLOT slotting cutters carry the unique, tangentially clamped inserts with 4 cutting edges. The inserts, in a range of 3 to 6 mm widths, have a chipformer that reduces the cutting forces and leaves a clean, undamaged surface.
Chattering is reduced, thus resulting in improved tool life.

Available are the following tool types:

- **SDN D..-LN08** disk type cutters.
- **ETS D..-LN08** T-slot cutters with integral shanks and internal coolant holes that reach each insert.

The tools feature excellent performance, high accuracy and a very attractive price per cutting edge.



TANGPLUNGE

PLUNGING LINE

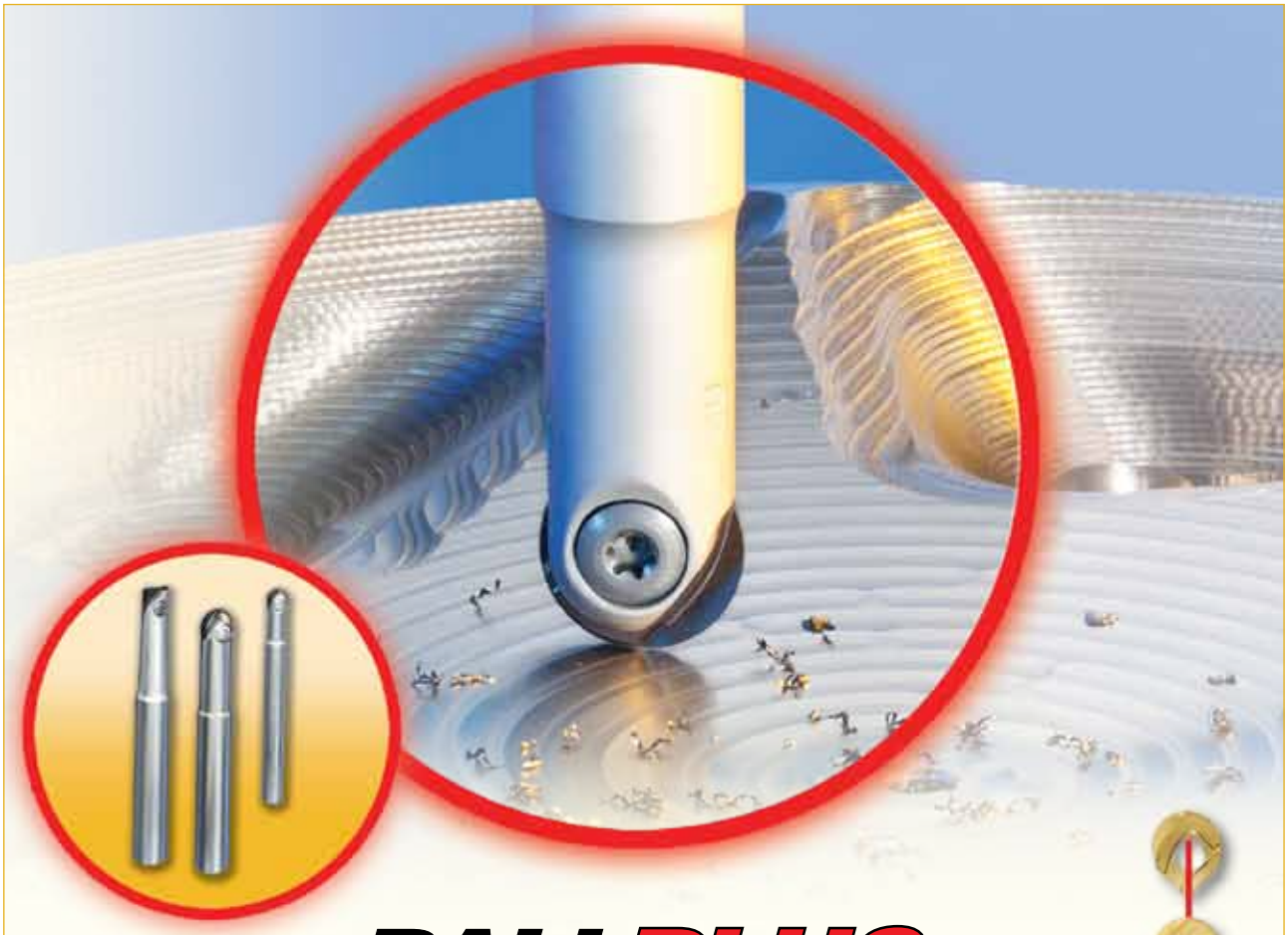
HTP... Side Plungers for Efficient Plunge Milling

TANGPLUNGE family endmills and face mills with tangentially clamped inserts for efficient plunge milling.

ISCAR's **HTP**... **LN** side plunger carries the **HTP LNHT**... tangentially clamped inserts on the frontal face of the tools. The inserts are double-sided with 4 cutting edges and are available in the most advanced **SUMO TEC** grades. They were designed with a positive rake face for reducing cutting forces and excellent chip flow. The inserts are available in sizes 6, 10 and 15 mm.

The tools have coolant holes and feature high durability, due to the unique insert pocket design. They are used mainly for plunging but can also be used for face milling, producing an outstanding surface finish. The tools are available in endmill and face mill configuration and also as interchangeable heads with a **FLEXFIT** threaded connection.

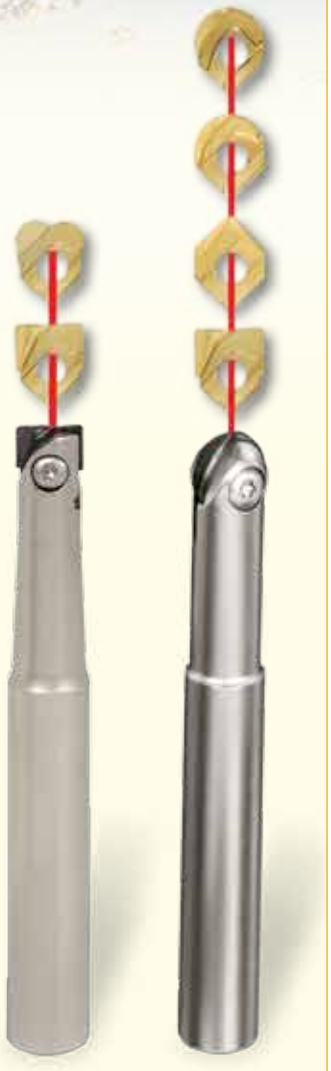




BALLPLUS

A Multifunction Milling System with Various Shank Options and Different Milling Heads

BALLPLUS is a multifunction system comprised of various shank options and 5 milling head types. Each shank has the ability to carry any one of the milling head types. Clamping and indexing of the milling heads is very simple. It can be done while the tool remains clamped on the machine - therefore no setup time is necessary after indexing. A unique pocket design enables a very firm insert clamping, edge position accuracy and no insert pullout problems.
BALLPLUS is a good and economical solution for reducing tool inventory. It is an attractive option for the die and mold industry and for any industry which uses many different endmills for its production applications.





MILLSHRED

Serrated Inserts for Deep Cavity Milling with Excellent Chip Evacuation

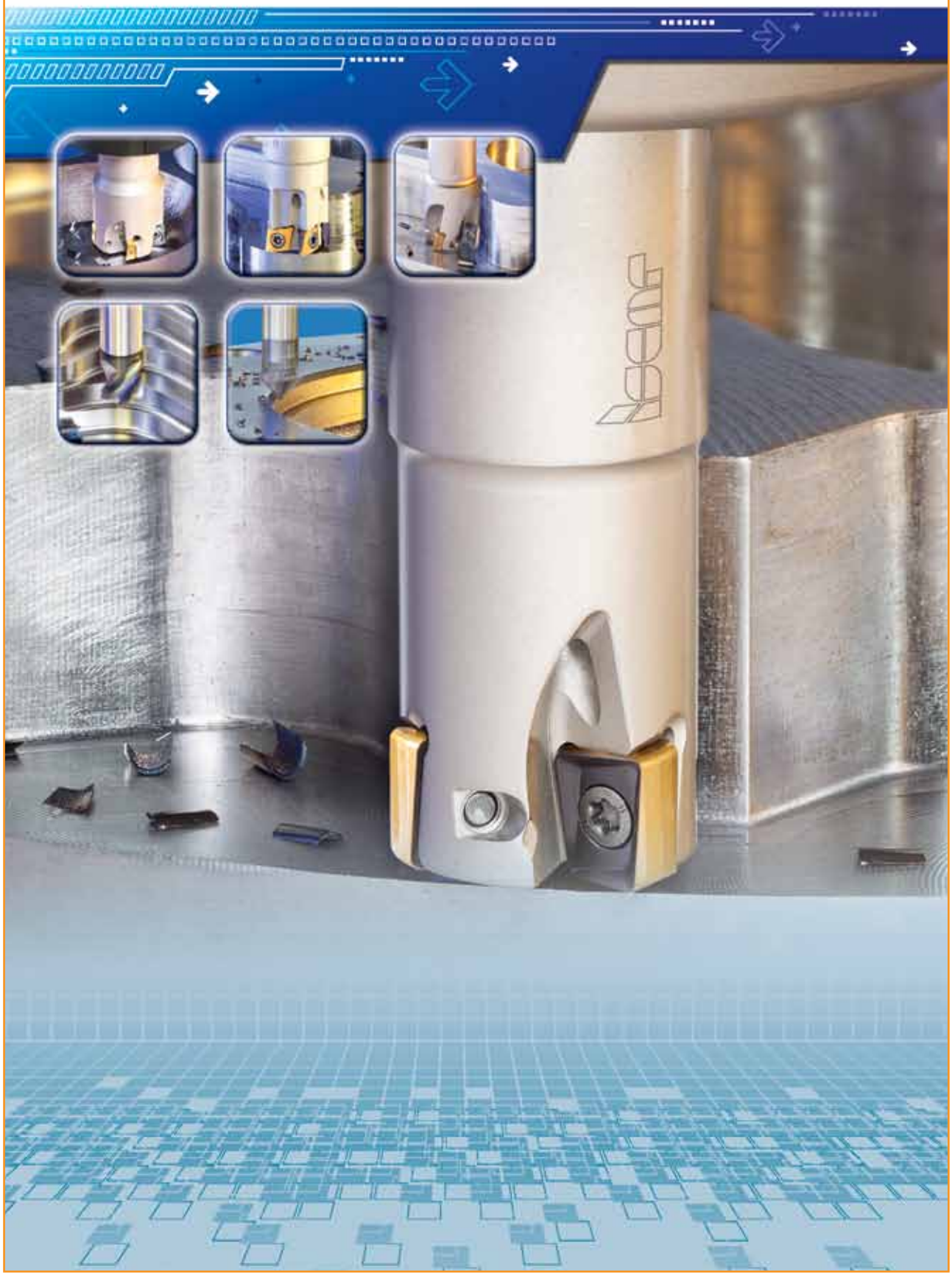
MILLSHRED is a family of milling cutters that can carry either round inserts with a serrated cutting edge or regular round inserts. When very deep cavities are machined, chip evacuation (even with air blow) is very problematic due to chip shape, weight and size.
In deep cavities there is a tendency for long chips to become trapped and then they are prone to be re-cut. When using **MILLSHRED**, small chips are produced, which have fewer tendencies to be re-cut. The insert has four indexing orientation options. The serrations on the insert's cutting edge were designed so they overlap, providing a fully effective cutter configuration.

With **MILLSHRED** you can achieve:

- Excellent tool stability
- Chips split into small pieces
- Optimal chip flow with easy evacuation, even from deep cavities
- High tooth loads - significantly reduced machining time and machining up to 8 mm depth-of-cut
- Small cutting forces - therefore the required machining power is low



ENDMILLS AND MULTI-MASTER



Member IMC Group

	Page	
Indexable ENDMILLS	B3-40	
MULTI-MASTER Indexable Solid Carbide Endmills	B41-74	
USER GUIDE	B75-79	



E90CN
pages **B**13

ISCARMILL



T290 ELN
pages **B**11-12

SUMOMILL 290 LINE



E90X
page **B**14

HELIQUAD



HP E90AN
pages **B**15-17

HELIPLUS



T490 ELN
pages
B18-19, **B**28-29, **B**32

HELITANG T490 LINE



HCE
pages **B**9-10

BALLPLUS



E90SP
page **B**22

HELIQUAD



HM90 E90A
pages **B**23-27

HELI2000



3M E90AX
pages **B**29

MILL2000



HM90 E90AD
pages **B**30-31

HELI2000



H490 E90AX
pages **B**20-21, **B**27,
B32-33

HELIDO 490 LINE



P290 EPW
pages **B**33-34

MILLSHRED P290 LINE



HP E90AT
pages **B**34-35

HELIPLUS



E90XC
page **B**35

HELIQUAD



E90AC
page **B**37

HELIMILL



MULTI MASTER
pages **B**41-74

MULTI-MASTER



SOLID CARBIDE
Refer to ISCAR
SOLID CARBIDE
AND MULTI-MASTER
TOOLS catalog

SOLIDMILL

Endmills 30°, 45°, 60°

Pictorial Tool Reference



E30/T230
page **B**37

ISCARMILL



SOE45
page **B**38

HELIDO 845 LINE



E45X
page **B**38

HELIQUAD



E45/T245
page **B**40

ISCARMILL



HCM
pages **E**8-14

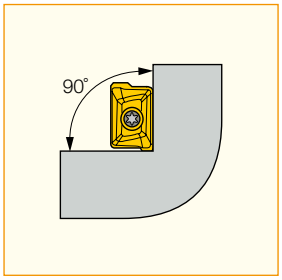
BALLPLUS

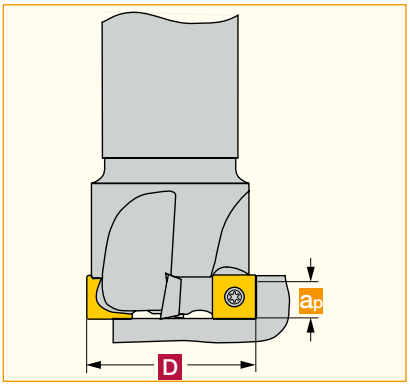


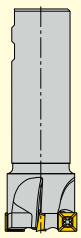
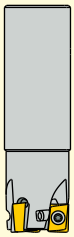
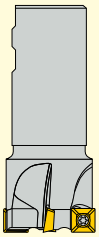
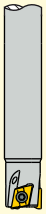
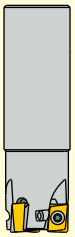
E60/T260
page **B**40

ISCARMILL

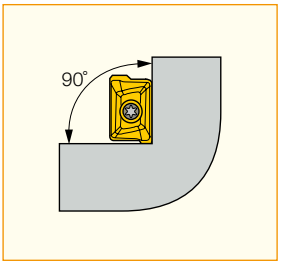
Endmills 90°
Selection Guide

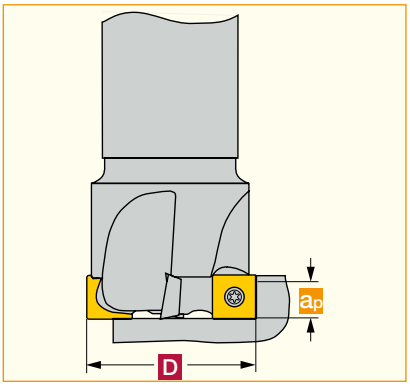




Tool	 T290 ELN-05	 E90X	 HP E90AN	 T490 ELN-08	 H490 E90AX-09	 E90SP	 T290 ELN-10 HM90 E90A-10	 H490 E90AX-12
ap	5	5.8	7.7	8	8	9.6	10	12
D	Number of Teeth (Effective)							
8	1	1						
10	2	1	1				1	
12	2;3	1	2				1	
14	3	2	2				1	
16	4;5	2	3;4	2	2		2	
17							2	
18		2		2			2	
19							2	
20	6	3	4;5	2;3	2;3		2;3	
21							2;3	
22				3			3	
25		4	5;7	3;4	3;4	2	2;3;4	2
28							4	
30							4	
32		5	6;8	3;5	4;5	3	3;4;5	3
40			8;10	4;6	5;6	4	3;5;6	4
50							7	5
Inserts	 T290 LNMT 05...	 SOMT 06... XOMT 06.. QOMT 06..	HP ANKT	 T490 LNMT T490 LNHT T490 LNMX	 H490 A..09	 XPMT 10.. SPMT 10... QPMT 10..	 T290 LNMT HM90 AP..10 AP...10	 H490 ANKX
Pages	B11-12	B14	B15-17	B18-19	B20	B22	B22-27	B27

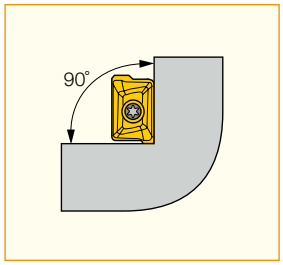
Endmills 90°
Selection Guide

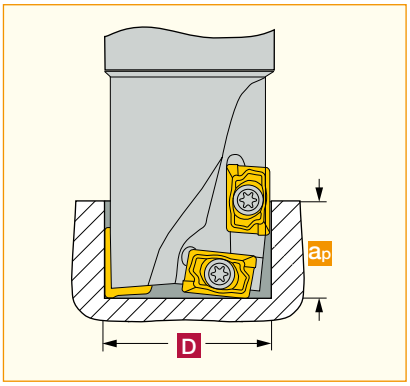


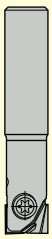
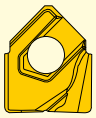


Tool	T490 ELN-13	3M E90AX-13	HM90 E90AD	T490 ELN-16	H490 E90AX-17	P290 EPW	HP E90AT-19	HP E90AT-22
ap	12.5	12.5	14	16	16.3	18	18	22
D	Number of Teeth (Effective)							
20			1					
25	2	2;3	2				2	
32	3	3;4	2;3	2	2	3	3	2
40	3;4	4;5	2;3;4	3	3	4	3	2
50	4;5				4			3
63					4			
80					5			
Inserts	T490 LNMT T490 LNHT	3M AXKT 1304	HM90 AD..15 AD...15	T490 LNMT	H490 AN.. -17	P290 ACKT 1806	HP AD..19	HP AD..22
Pages	B28-29	B29	B30-31	B32	B32-33	B33-34	B34	B35

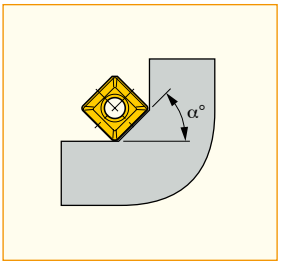
Center Cutting Endmills





Tool	 HCE	 E90XC	 E90AC
ap	8.1-14.7	6-22	10-38
D	Number of Teeth (Effective)		
12	2	1	
16	2	3	
20	2	5	
25	2		2;3
32			2;3
38			5;6
50			6;8
Inserts	 HCC	 SOMT 06	 APKT 10.. AD.. 1505
Pages	B9-10	B35	B37

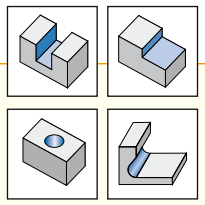
Endmills 35°, 45°, 60°
Selection Guide

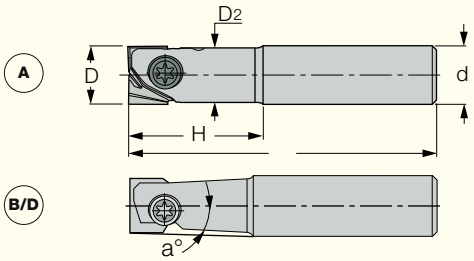


Tool	E30 / T230	HCM	SOE 45 8/16	E45X	E45 / T245	E60 / T260
ap	2.5; 7	5 - 12	3,5	4	3.6; 5.6; 7.8; 9.7	4.5; 12.3
D	α=30°	α=45°	α=45°	α=45°	α=45°	α=60°
	Number of Teeth (Effective)					
6				1		
8				1		
12	4	2			1; 4	4
16	3	2			2	
20		2				
25		2	2			2
30					3	
32			3			
40			4			
Inserts	T290 LNMT 05... TPMT	HCD	S845 SNMU/SNHU 1305 ONMU/ONHU 0505	SOMT 06... XOMT 06.. QOMT 06..	SCMT 12 SDMT 09 T290 LNMT 05... TPMT	T290 LNMT 05... TPMT
Pages	B37	E8-14	B38	B38	B40	B40

HCE

Multifunction Endmills which can Carry Several Insert Geometries





Designation	D	H	L	D_2	d	Shank(1)	a°	Type	Kg
HCE D12-A-L120-C12	12.00	30.00	120.00	11.10	12.00	C	-	A	0.10
HCE D12-B-L160-C20	12.00	50.00	160.00	-	20.00	C	4.6	B	0.41
HCE D12-D-L160-C16	12.00	60.00	160.00	-	16.00	C	1.9	D	0.21
HCE D16-A-L130-C16	16.00	36.00	130.00	14.90	16.00	C	-	A	0.19
HCE D16-B-L160-C25	16.00	60.00	160.00	-	25.00	C	4.3	B	0.58
HCE D16-D-L160-C20	16.00	65.00	160.00	-	20.00	C	1.7	D	0.32
HCE D20-A-L150-C20	20.00	60.00	150.00	18.80	20.00	C	-	A	0.42
HCE D20-D-L200-C25	20.00	90.00	200.00	-	25.00	C	1.6	D	0.75
HCE D25-A-L170-C25	25.00	70.00	170.00	23.00	25.00	C	-	A	0.57
HCE D25-D-L250-C32	25.00	125.00	250.00	-	32.00	C	1.6	D	1.20

• For undercutting use HTR inserts only • The dimensions are for HCC inserts with r=0.5 mm • For user guide see page L2-12,L15.

(1) C-Cylindrical

For inserts, see pages: HCC-QF (K100) • HTR-QF (K101).

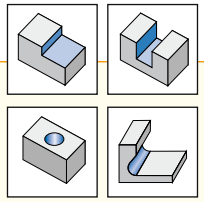
Spare Parts

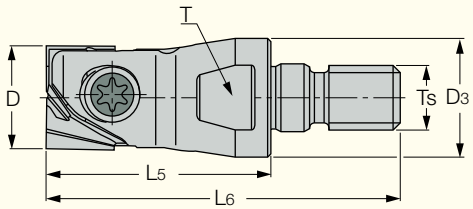
Designation	Screw	Torx Blade	T-Handle
HCE D12-A-L120-C12	SR 34-540	BLD T15/S7	SW6-T
HCE D12-B-L160-C20	SR 34-540	BLD T15/S7	SW6-T
HCE D12-D-L160-C16	SR 34-540	BLD T15/S7	SW6-T
HCE D16-A-L130-C16	SR 105739	BLD T20/S7	SW6-T
HCE D16-B-L160-C25	SR 105739	BLD T20/S7	SW6-T
HCE D16-D-L160-C20	SR 105739	BLD T20/S7	SW6-T
HCE D20-A-L150-C20	SR 1052964	BLD T25/S7	SW6-T
HCE D20-D-L200-C25	SR 1052964	BLD T25/S7	SW6-T
HCE D25-A-L170-C25	SR 1051666	BLD T25/S7	SW6-T
HCE D25-D-L250-C32	SR 1051666	BLD T25/S7	SW6-T

BALLPLUS • FLEXFIT

HCE-M

Multifunction Endmills with a FLEXFIT Threaded Adaptation, which can Carry Several Insert Geometries





Designation	D	L_5	L_6	Ts	D_3	T(1)	Kg
HCE D12/.50-M08	12.00	26.00	43.50	M08	13.00	11.0	0.12
HCE D16/.62-M08	16.00	30.00	47.50	M08	13.00	11.0	0.13
HCE D16/.62-M10	16.00	30.00	47.50	M10	18.00	15.0	0.09
HCE D20/.75-M10	20.00	37.00	57.00	M10	18.00	15.0	0.06
HCE D20/.75-M12	20.00	37.00	59.00	M12	22.50	17.0	0.17
HCE D25/1.0-M12	25.00	46.00	68.00	M12	23.00	19.0	0.12

• For adaptation see page B45,E46 • For undercutting use HTR inserts only. • The dimensions are for HCC inserts with r=0.5 mm
• For user guide see page L2-11,L15.

(1) Clamping wrench size

For inserts, see pages: HCC-QF (K100) • HTR-QF (K101).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

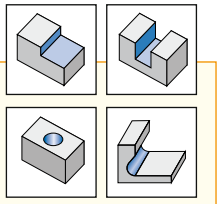
Designation	Screw	Torx Blade	T-Handle
HCE D12/.50-M08	SR 34-540	BLD T15/S7	SW6-T
HCE D16/.62-M08	SR 105739	BLD T20/S7	SW6-T
HCE D16/.62-M10	SR 105739	BLD T20/S7	SW6-T
HCE D20/.75-M10	SR 1052964	BLD T25/S7	SW6-T
HCE D20/.75-M12	SR 1052964	BLD T25/S7	SW6-T
HCE D25/1.0-M12	SR 1051666	BLD T25/S7	SW6-T

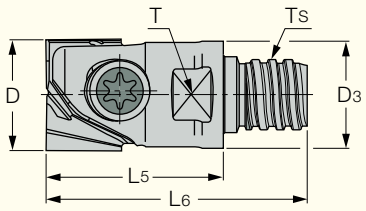
BALLPLUS • MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

HCE-MM

Multifunction Endmills with a MULTI-MASTER Threaded Adaptation, which can Carry Several Insert Geometries





Designation	D	L_6	L_5	Ts	D_3	T(1)	Kg
HCE D12/.50-MMT08	12.00	28.00	20.00	T8	11.50	10.0	0.09
HCE D16/.62-MMT10	16.00	36.75	25.00	T10	15.20	13.0	0.12
HCE D20/.75-MMT12	20.00	48.80	35.00	T12	18.50	15.0	0.14

• For adaptation see page B45 • For undercutting use HTR inserts only. • The dimensions are for HCC inserts with r=0.5 mm
• For user guide see page L2-11,L15.

(1) Clamping wrench size (should be ordered separately).

For inserts, see pages: HCC-QF (K100) • HTR-QF (K101).

For holders, see pages: MM CAB (B73) • MM GRT (shanks) (B69) • MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

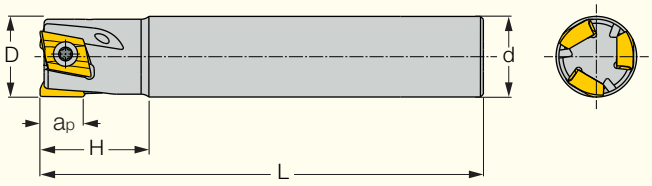
Spare Parts

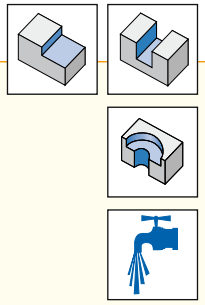
Designation	Screw	Torx Blade	T-Handle
HCE D12/.50-MMT08	SR 34-540	BLD T15/S7	SW6-T
HCE D16/.62-MMT10	SR 105739	BLD T20/S7	SW6-T
HCE D20/.75-MMT12	SR 1052964	BLD T25/S7	SW6-T

SUMOMILL
290 LINE

T290 ELN-05

Endmills with Tangentially Clamped Inserts





Designation	D	Z	L	H	a_p	d	Shank(1)	Kg
T290 ELN D08-01-C08-05	8.00	1	60.00	20.00	5.00	8.00	C	0.02
T290 ELN D10-02-C10-05	10.00	2	80.00	20.00	5.00	10.00	C	0.04
T290 ELN D12-02-C12-05	12.00	2	80.00	20.00	5.00	12.00	C	0.06
T290 ELN D12-03-C12-05	12.00	3	80.00	20.00	5.00	12.00	C	0.06
T290 ELN D14-03-C14-05	14.00	3	80.00	20.00	5.00	14.00	C	0.08
T290 ELN D16-04-C16-05	16.00	4	80.00	22.00	5.00	16.00	C	0.10
T290 ELN D16-05-C16-05	16.00	5	80.00	22.00	5.00	16.00	C	0.10

• For user guide see page L2-12,L15.

(1) C-Cylindrical

For inserts, see pages: T290 LNMT/LNHT 0502 (K37).

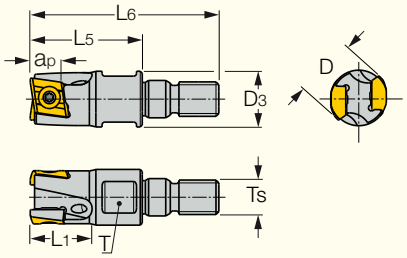
Spare Parts

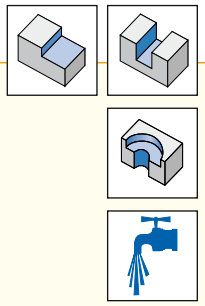
Designation	Screw	Key
T290 ELN D08-01-C08-05	SR 10503833	T-7/51
T290 ELN D10-02-C10-05	SR 10503833-S	T-7/51
T290 ELN D12-02-C12-05	SR 10503833	T-7/51
T290 ELN D12-03-C12-05	SR 10503833	T-7/51
T290 ELN D14-03-C14-05	SR 10503833	T-7/51
T290 ELN D16-04-C16-05	SR 10503833	T-7/51
T290 ELN D16-05-C16-05	SR 10503833	T-7/51

SUMOMILL • FLEXFIT
290 LINE

T290 ELN-M-05

Endmills with Tangentially Clamped Inserts and FLEXFIT Adaptation





Designation	D	Z	D_3	Ts	L_1	L_5	L_6	T(1)	a_p	Kg
T290 ELN D10-02-M06-05	10.00	2	9.70	M06	10.0	19.50	34.00	9.0	5.00	0.07
T290 ELN D12-03-M08-05	12.00	3	13.00	M08	15.0	17.50	35.00	9.0	5.00	0.04

• For adaptation see pages B45, E46 • For user guide see page L2-12,L15.

(1) Clamping wrench size

For inserts, see pages: T290 LNMT/LNHT 0502 (K37).

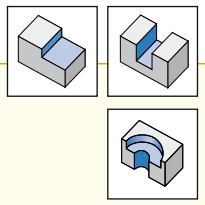
For holders, see pages: BT-ODP (FLEXFIT) (E47) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • S M (E43).

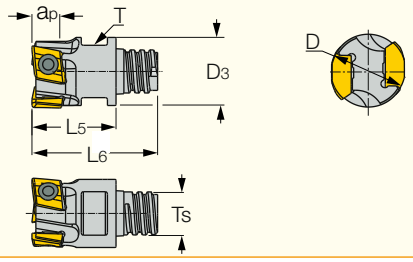
Spare Parts

Designation	Screw	Key
T290 ELN D10-02-M06-05	SR 10503833-S	T-7/51
T290 ELN D12-03-M08-05	SR 10503833	T-7/51

T290 ELN-MM-05

Endmills with Tangentially Clamped Inserts and MULTI-MASTER Adaptation





Designation	D	Z	a_p	D_3	Ts	L_5	L_6	T(1)	Kg
T290 ELN D10-02-MMT06-05	10.00	2	5.00	9.20	T06	13.40	20.00	8.0	0.05
T290 ELN D12-03-MMT08-05	12.00	3	5.00	11.00	T08	16.00	24.00	10.0	0.06
T290 ELN D14-03-MMT08-05	14.00	3	5.00	10.60	T08	16.06	24.00	10.0	0.13
T290 ELN D16-04-MMT10-05	16.00	4	5.00	14.95	T10	19.25	31.00	13.0	0.03

• For adaptation see page B45 • For user guide see page L2-11,L15.

(1) Clamping wrench size

For inserts, see pages: T290 LNMT/LNHT 0502 (K37).

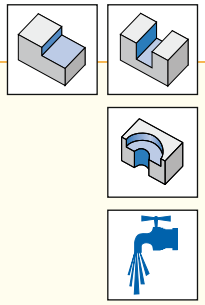
For holders, see pages: MM CAB (B73) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • TS CAB (B72).

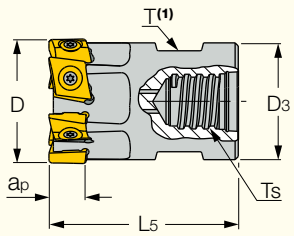
Spare Parts

Designation	Screw	Key
T290 ELN D10-02-MMT06-05	SR 10503833-S	T-7/51
T290 ELN D12-03-MMT08-05	SR 10503833	T-7/51
T290 ELN D14-03-MMT08-05	SR 10503833	T-7/51
T290 ELN D16-04-MMT10-05	SR 10503833	T-7/51

TS T290 ELN

Endmill Heads with Tangentially Clamped Inserts and SHANK-MASTER Threaded Adaptation





Designation	D	Z	a_p	D_3	L_5	Tsi	T(1)	Kg
TS T290 ELN D12-03-T08-05	12.00	3	5.00	11.50	20.00	T08	10.0	0.01
TS T290 ELN D16-04-T10-05	16.00	4	5.00	15.20	25.00	T10	13.0	0.02
TS T290 ELN D20-06-T12-05	20.00	6	5.00	18.50	30.00	T12	16.0	0.01

• For adaptation see page B45 • For user guide see page L2-11, L15.

(1) Clamping wrench size

For inserts, see pages: T290 LNMT/LNHT 0502 (K37).

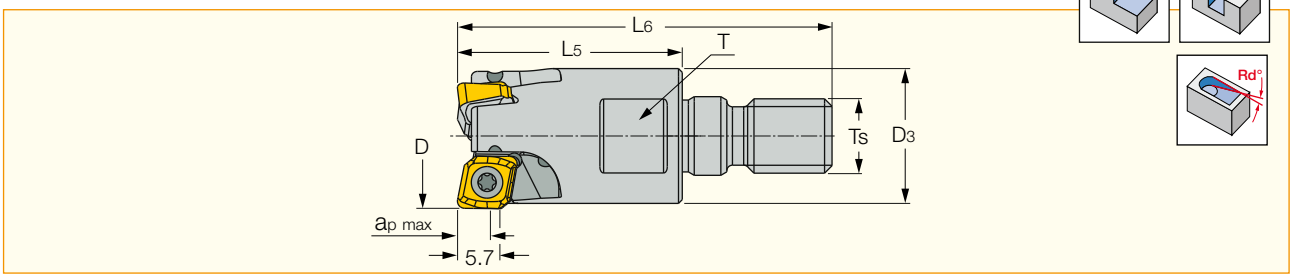
For holders, see pages: TS S-A (B72).

Spare Parts

Designation	Key	Screw
TS T290 ELN	T-7/51	SR 10503833

E90CN-M

90° Endmills with FLEXFIT Threaded Connection Carrying CNHT 0703 Toroidal Inserts



Designation	D(1)	Z	ap max(2)	L5	L6	Ts	Rd°	D3	T(3)	Kg
E90CN D16-2-M08-07	16.00	2	2.00	30.00	47.50	M08	5.0	13.00	13.0	0.07
E90CN D20-3-M10-07	20.00	3	2.00	30.00	50.00	M10	3.5	18.00	16.0	0.02
E90CN D25-4-M12-07	25.00	4	2.00	35.00	57.00	M12	2.5	21.00	17.0	0.09

• For adaptation see pages B45, E46 • For user guide see page L2-11, L15.

(1) Diameter D according to insert r=1.0, for other insert radii refer to attached table (2) 2 mm - maximum recommended depth of cut when CNHT 0703.. inserts are used. (3) Clamping wrench size

For inserts, see pages: CNHT (K106).

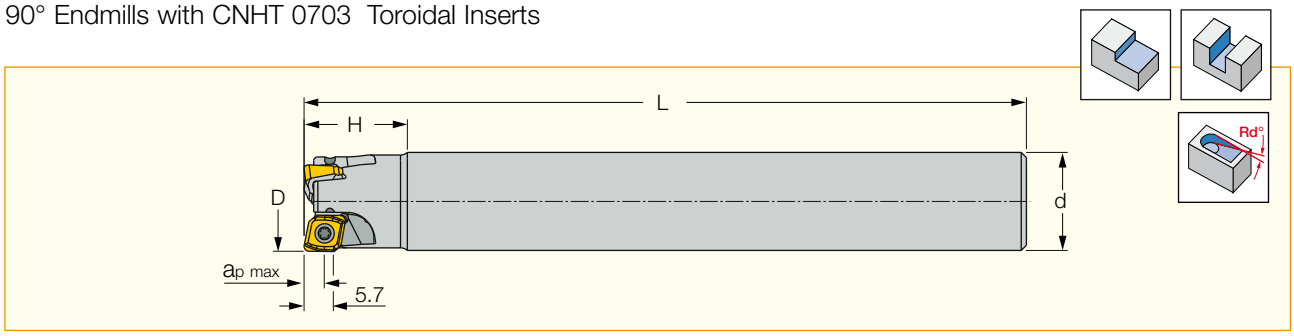
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

Designation	Key	Screw
E90CN-M	T-8/53	SR 34-505/LHG

E90CN

90° Endmills with CNHT 0703 Toroidal Inserts



Designation	D(1)	Z	ap max(2)	H	L	Rd°	d	Shank(3)	Kg
E90CN D16-2-L100-C15-07	16.00	2	2.00	20.00	100.00	5.0	15.00	C	0.11
E90CN D20-3-L140-C19-07	20.00	3	2.00	20.00	140.00	3.5	19.00	C	0.27
E90CN D25-4-L160-C24-07	25.00	4	2.00	20.00	160.00	2.5	24.00	C	0.35

• For user guide see pages L2-13.

(1) Diameter D according to insert r=1.0, for other insert radii refer to attached table (2) 2 mm - maximum recommended depth of cut when CNHT 0703.. inserts are used. (3) C-Cylindrical

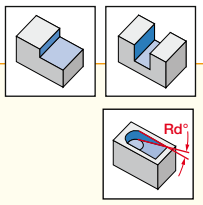
For inserts, see pages: CNHT (K106).

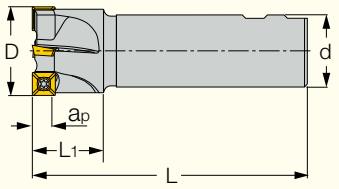
Spare Parts

Designation	Key	Screw
E90CN	T-8/53	SR 34-505/LHG

E90X

Endmills with Square Q/S/XOMT Inserts





Designation	D	Z	a_p	L_1	L	d	Shank(1)	R_d°	Kg
E90X D08-C10-06	8.00	1	5.80	16.0	70.00	10.00	C	0.5	0.04
E90X D08-W12-06	8.00	1	5.80	16.0	70.00	12.00	W	0.5	0.05
E90X D10-C10-06	10.00	1	5.80	20.0	80.00	10.00	C	1.0	0.04
E90X D10-W12-06	10.00	1	5.80	20.0	70.00	12.00	W	1.0	0.05
E90X D12-C16-06	12.00	1	5.80	22.0	80.00	16.00	C	90.0	0.10
E90X D12-W16-06	12.00	1	5.80	22.0	70.00	16.00	W	90.0	0.09
E90X D14-C16-06	14.00	2	5.80	20.0	80.00	16.00	C	-	0.11
E90X D14-W16-06	14.00	2	5.80	22.0	70.00	16.00	W	-	0.09
E90X D16-C16-06	16.00	2	5.80	20.0	90.00	16.00	C	3.5	0.13
E90X D16-W16-06	16.00	2	5.80	20.0	70.00	16.00	W	3.5	0.10
E90X D18-W20-06	18.00	2	5.80	20.0	80.00	20.00	W	3.0	0.21
E90X D20-C20-06	20.00	3	5.80	22.0	110.00	20.00	C	3.0	0.25
E90X D20-W20-06	20.00	3	5.80	22.0	80.00	20.00	W	3.0	0.21
E90X D25-C20-06	25.00	4	5.80	25.0	120.00	20.00	C	2.5	0.29
E90X D25-W20-06	25.00	4	5.80	25.0	80.00	20.00	W	2.5	0.20
E90X D32-W25-06	32.00	5	5.80	25.0	90.00	25.00	W	3.8	0.40

• For user guide see pages L2-13.

(1) C-Cylindrical, W-Weldon

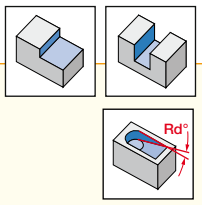
For inserts, see pages: QOMT-HQ (K59) • SOMT-HQ (K59) • XOMT-HQ (K60).

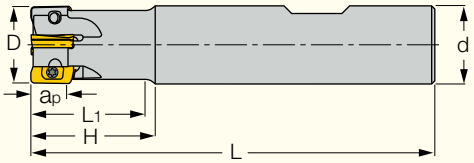
Spare Parts

Designation	Screw	Key
E90X D08-C10-06	SR 34-508	T-7/51
E90X D08-W12-06	SR 34-508	T-7/51
E90X D10-C10-06	SR 34-508	T-7/51
E90X D10-W12-06	SR 34-508	T-7/51
E90X D12-C16-06	SR 34-508	T-7/51
E90X D12-W16-06	SR 34-508	T-7/51
E90X D14-C16-06	SR 34-508/L	T-7/51
E90X D14-W16-06	SR 34-508/L	T-7/51
E90X D16-C16-06	SR 34-508/L	T-7/51
E90X D16-W16-06	SR 34-508/L	T-7/51
E90X D18-W20-06	SR 34-508/L	T-7/51
E90X D20-C20-06	SR 34-508/L	T-7/51
E90X D20-W20-06	SR 34-508/L	T-7/51
E90X D25-C20-06	SR 34-508/L	T-7/51
E90X D25-W20-06	SR 34-508	T-7/51
E90X D32-W25-06	SR 34-508/L	T-7/51

HP E90AN-07

Endmills with HELIPLUS HP ANKT 0702.. Inserts





Designation	D	Z	H	L_1	L	a_p	d	Shank(2)	$R_d°$	Coolant	Kg
HP E90AN-D10-1-C10-07-C	10.00	1	20.00	18.0	80.00	7.70	10.00	C	2.5	Y	0.04
HP E90AN-D12-2-C12-07-C	12.00	2	18.00	16.5	80.00	7.70	12.00	C	2.7	Y	0.06
HP E90AN-D14-2-C14-07-C	14.00	2	18.00	16.5	80.00	7.70	14.00	C	3.2	Y	0.08
HP E90AN-D16-3-C15-07-C-B (1)	16.00	3	26.00	24.5	150.00	7.70	15.00	C	3.2	Y	0.20
HP E90AN-D16-3-C16-07-C	16.00	3	26.00	24.5	90.00	7.70	16.00	C	3.2	Y	0.14
HP E90AN-D16-3-W16-07	16.00	3	21.00	18.5	85.00	7.70	16.00	W	3.2	-	0.12
HP E90AN-D16-4-C16-07-C	16.00	4	26.00	24.5	90.00	7.70	16.00	C	3.2	Y	0.11
HP E90AN-D16-4-W16-07	16.00	4	20.00	18.5	85.00	7.70	16.00	W	3.2	-	0.12
HP E90AN-D20-4-C19-07-C-B (1)	20.00	4	22.00	20.5	160.00	7.70	19.00	C	2.4	Y	0.32
HP E90AN-D20-4-C20-07-C	20.00	4	22.00	20.5	110.00	7.70	20.00	C	2.4	Y	0.23
HP E90AN-D20-4-W20-07	20.00	4	22.00	20.5	90.00	7.70	20.00	W	2.4	-	0.20
HP E90AN-D20-5-C20-07-C	20.00	5	22.00	20.5	110.00	7.70	20.00	C	2.4	Y	0.23
HP E90AN-D20-5-W20-07	20.00	5	22.00	20.5	90.00	7.70	20.00	W	2.4	-	0.23
HP E90AN-D25-5-C20-07-C	25.00	5	24.00	-	120.00	7.70	20.00	C	2.0	Y	0.28
HP E90AN-D25-5-C24-07-C-B (1)	25.00	5	24.00	-	200.00	7.70	24.00	C	2.0	Y	0.25
HP E90AN-D25-5-W25-07	25.00	5	24.00	22.5	95.00	7.70	25.00	W	2.0	-	0.38
HP E90AN-D25-7-C20-07-C	25.00	7	24.00	-	120.00	7.70	20.00	C	2.0	Y	0.32
HP E90AN-D25-7-W25-07	25.00	7	24.00	22.5	95.00	7.70	25.00	W	2.0	-	0.38
HP E90AN-D32-6-C25-07-C	32.00	6	30.00	-	130.00	7.70	25.00	C	1.4	Y	0.52
HP E90AN-D32-6-W25-07	32.00	6	30.00	-	95.00	7.70	25.00	W	1.4	-	0.44
HP E90AN-D32-8-C25-07-C	32.00	8	30.00	-	130.00	7.70	25.00	C	1.4	Y	0.54
HP E90AN-D32-8-W25-07	32.00	8	30.00	-	95.00	7.70	25.00	W	1.4	-	0.44
HP E90AN-D40-8-C32-07-C	40.00	8	30.00	-	130.00	7.70	32.00	C	1.0	Y	0.78
HP E90AN-D40-8-W32-07	40.00	8	30.00	-	110.00	7.70	32.00	W	1.0	-	0.71

• Insert tightening torque: 62 Nxcm • For user guide see pages L2-13.

(1) "B" suffix - cylindrical shank which may be shortened. (2) C-Cylindrical, W-Weldon

For inserts, see pages: HP ANCR 0702PNFR (K3) • HP ANKT/ANCT 0702..PN-R/PNTR (K2) • HP ANKW 070204PNTR (K2).

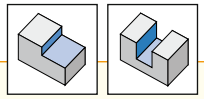
Spare Parts

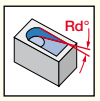
Designation	Screw	Key
HP E90AN-07	SR 34-533/L/HG	T-6/51

HELIPLUS • FLEXFIT

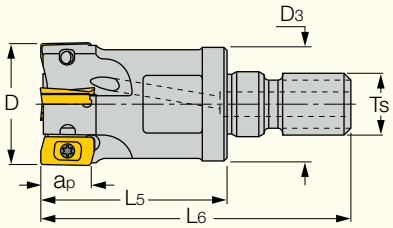
HP E90AN-M-07

90° Endmills with a FLEXFIT Threaded Adaptation
Using HELIPLUS HP ANKT 0702.. Inserts









Designation	D	Z	Ts	L_6	L_5	a_p	D_3	R_d°	Kg
HP E90AN-D12-2-M08	12.00	2	M08	35.50	18.00	7.70	13.00	2.7	0.04
HP E90AN-D16-3-M10	16.00	3	M10	48.00	28.00	7.70	18.00	3.2	0.10
HP E90AN-D20-4-M10	20.00	4	M10	50.00	30.00	7.70	18.00	2.4	0.07
HP E90AN-D25-5-M12	25.00	5	M12	57.00	35.00	7.70	21.00	2.0	0.09
HP E90AN-D32-6-M16	32.00	6	M16	60.00	35.00	7.70	29.00	1.4	0.22

• Insert tightening torque: 62 Nxcm • For adaptation see pages B45, E46 • For user guide see page L2-11, L15.

For inserts, see pages: HP ANCR 0702PNFR (K3) • HP ANKT/ANCT 0702..PN-R/PNTR (K2) • HP ANKW 070204PNTR (K2).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

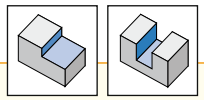
Designation	Screw	Key
HP E90AN-M-07	SR 34-533/L/HG	T-6/51

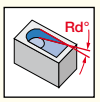
HELIPLUS • MULTI-MASTER

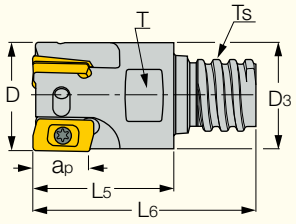
INDEXABLE SOLID CARBIDE LINE

HP E90AN-MM-07

90° Endmills with a MULTI-MASTER Threaded Adaptation
Using HELIPLUS HP ANKT 0702.. Inserts







Designation	D	Z	L_6	R_d°	L_5	a_p	Ts	D_3	T(1)	Kg
HP E90AN-D10-1-MMT06	10.00	1	20.00	2.5	13.40	7.70	T06	8.93	8.0	0.03
HP E90AN-D12-2-MMT08	12.00	2	24.45	2.7	18.50	7.70	T08	10.60	10.0	0.04
HP E90AN-D16-3-MMT10	16.00	3	31.75	3.2	20.00	7.70	T10	14.95	13.0	0.03
HP E90AN-D16-4-MMT10	16.00	4	31.75	3.2	20.00	7.70	T10	14.95	13.0	0.03
HP E90AN-D20-4-MMT12	20.00	4	35.30	2.4	21.50	7.70	T12	18.40	16.0	0.19
HP E90AN-D20-5-MMT12	20.00	5	35.30	2.4	21.50	7.70	T12	18.40	16.0	0.10

(1) Clamping wrench size • For adaptation see page B45• For user guide see page L2-11, L15.

For inserts, see pages: HP ANCR 0702PNFR (K3) • HP ANKT/ANCT 0702..PN-R/PNTR (K2) • HP ANKW 070204PNTR (K2).

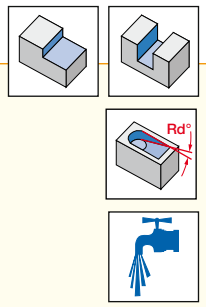
For holders, see pages: MM CAB (B73) • MM GRT (shanks) (B69) • MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

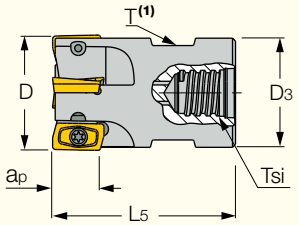
Spare Parts

Designation	Screw	Key
HP E90AN-MM-07	SR 34-533/L/HG	T-6/51

TS HP E90AN

90° Milling Heads with a TS Threaded Adaptation
Using HELIPLUS HP ANKT 0702.. Inserts





Designation	D	Z	a_p	D_3	L_5	Tsi	T(1)	Kg
TS HP E90AN-D12-2-T08	12.00	2	7.70	11.50	24.00	T08	10.0	0.00
TS HP E90AN-D16-3-T10	16.00	3	7.70	15.20	28.00	T10	13.0	0.01
TS HP E90AN-D20-4-T12	20.00	4	7.70	18.50	31.00	T12	16.0	0.01

(1) Clamping wrench size For adaptation see page B45• For user guide see page L2-11, L15.

For inserts, see pages: HP ANKT/ANCT 0702..PN-R/PNTR (K2).

For holders, see pages: TS S-A (B72).

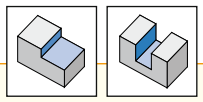
Spare Parts

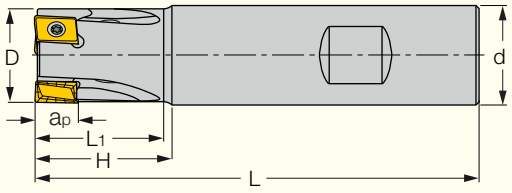
Designation	Key	Screw
TS HP E90AN	T-6/51	SR 34-533/L/HG

HELITANG
T490 LINE

T490 ELN-08

90° Face Mills Using Tangentially Clamped Inserts with 4 Helical, 8 mm Long Cutting Edges





Designation	D	Z	H	L_1	a_p	L	d	Shank(1)	Coolant	R_d°(2)	Kg
T490 ELN D16-2-C15-08-B	16.00	2	41.00	40.0	8.00	150.00	15.00	C	Y	2.0	0.22
T490 ELN D16-2-C16-08	16.00	2	28.00	26.0	8.00	90.00	16.00	C	N	2.0	0.13
T490 ELN D16-2-C16-08-C	16.00	2	28.00	26.0	8.00	90.00	16.00	C	Y	2.0	0.12
T490 ELN D16-2-W16-08	16.00	2	28.00	26.0	8.00	85.00	16.00	W	N	2.0	0.12
T490 ELN D16-2-W16-08-C	16.00	2	28.00	26.0	8.00	85.00	16.00	W	Y	2.0	0.11
T490 ELN D18-2-C20-08-C	18.00	2	28.00	26.0	8.00	90.00	20.00	C	Y	1.8	0.18
T490 ELN D20-2-C19-08-B	20.00	2	41.00	40.0	8.00	160.00	19.00	C	Y	1.7	0.31
T490 ELN D20-2-C20-08-C	20.00	2	28.00	26.0	8.00	110.00	20.00	C	Y	1.7	0.23
T490 ELN D20-2-W20-08-C	20.00	2	28.00	26.0	8.00	90.00	20.00	W	Y	1.7	0.28
T490 ELN D20-3-C20-08	20.00	3	28.00	26.0	8.00	110.00	20.00	C	N	1.7	0.25
T490 ELN D20-3-C20-08-C	20.00	3	28.00	26.0	8.00	110.00	20.00	C	Y	1.7	0.23
T490 ELN D20-3-W20-08	20.00	3	28.00	26.0	8.00	90.00	20.00	W	N	1.7	0.20
T490 ELN D20-3-W20-08-C	20.00	3	28.00	26.0	8.00	90.00	20.00	W	Y	1.7	0.18
T490 ELN D22-3-C20-08-C	22.00	3	-	30.0	8.00	110.00	20.00	C	Y	-	0.24
T490 ELN D25-3-C24-08-B	25.00	3	41.00	40.0	8.00	200.00	24.00	C	Y	-	0.61
T490 ELN D25-3-C25-08-C	25.00	3	28.00	26.0	8.00	120.00	25.00	C	Y	-	0.39
T490 ELN D25-3-W25-08-C	25.00	3	28.00	26.0	8.00	95.00	25.00	W	Y	-	0.30
T490 ELN D25-4-C25-08	25.00	4	28.00	26.0	8.00	120.00	25.00	C	N	-	0.43
T490 ELN D25-4-C25-08-C	25.00	4	28.00	26.0	8.00	120.00	25.00	C	Y	-	0.39
T490 ELN D25-4-W25-08	25.00	4	28.00	26.0	8.00	95.00	25.00	W	N	-	0.33
T490 ELN D25-4-W25-08-C	25.00	4	28.00	26.0	8.00	95.00	25.00	W	Y	-	0.30
T490 ELN D32-3-C32-08-C	32.00	3	32.00	30.0	8.00	130.00	32.00	C	Y	-	1.01
T490 ELN D32-3-W32-08-C	32.00	3	32.00	30.0	8.00	110.00	32.00	W	Y	-	0.60
T490 ELN D32-5-C32-08-C	32.00	5	32.00	30.0	8.00	130.00	32.00	C	Y	-	0.73
T490 ELN D32-5-W32-08-C	32.00	5	32.00	30.0	8.00	110.00	32.00	W	Y	-	0.60
T490 ELN D40-4-C32-08-C	40.00	4	-	30.0	8.00	130.00	32.00	C	Y	-	0.86
T490 ELN D40-4-W32-08-C	40.00	4	-	30.0	8.00	110.00	32.00	W	Y	-	0.92
T490 ELN D40-6-C32-08-C	40.00	6	-	30.0	8.00	130.00	32.00	C	Y	-	0.82
T490 ELN D40-6-W32-08-C	40.00	6	-	30.0	8.00	110.00	32.00	W	Y	-	0.69

• "B" suffix with long cylindrical shank which may be shortened. • For user guide see pages L2-13.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: T490 LNMT/LNHT 0804 (K38).

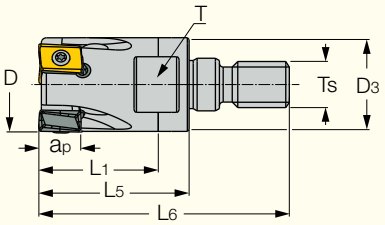
Spare Parts

Designation	Screw	Key
T490 ELN D16-18	SR 10502813-HGSM	IP-7/51
T490 ELN D20-40	SR 10502813-HG-M	IP-7/51

HELITANG • FLEXFIT
T490 LINE

T490 ELN-M-08

90° Endmills with a FLEXFIT Threaded Adaptation Using Tangentially Clamped Inserts



Designation	D	Z	a_p	D_3	L_1	L_5	L_6	Ts	T(1)	R_d°	Kg
T490 ELN D16-2-M10	16.00	2	8.00	18.00	22.0	30.00	50.00	M10	12.7	2.0	0.07
T490 ELN D20-3-M10	20.00	3	8.00	18.70	-	30.00	50.00	M10	15.0	1.7	0.06
T490 ELN D25-4-M12	25.00	4	8.00	21.00	-	28.00	50.00	M12	17.0	-	0.08
T490 ELN D32-5-M16	32.00	5	8.00	29.00	-	30.00	55.00	M16	25.0	-	0.16

• For adaptation see pages B45, E46 • For user guide see page L2-11, L15.

(1) Clamping wrench size

For inserts, see pages: T490 LNMT/LNHT 0804 (K38).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

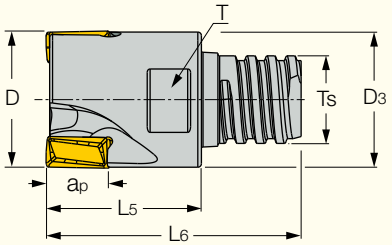
Spare Parts

Designation	Key	Screw
T490 ELN D16-2-M10	IP-7/51	SR 10502813-HGSM
T490 ELN D20-3-M10	IP-7/51	SR 10502813-HG-M
T490 ELN D25-4-M12	IP-7/51	SR 10502813-HG-M
T490 ELN D32-5-M16	IP-7/51	SR 10502813-HG-M

HELITANG • MULTI-MASTER
T490 LINE INDEXABLE SOLID CARBIDE LINE

T490 ELN-MM..-08

90° Endmills with a MULTI-MASTER Threaded Adaptation Using Tangentially Clamped Inserts



Designation	D	Z	a_p	D_3	L_5	L_6	Ts	T(1)	R_d°	Kg
T490 ELN D16-2-MMT10	16.00	2	8.00	14.70	20.00	32.00	T10	13.0	2.0	0.06
T490 ELN D20-2-MMT12	20.00	2	8.00	18.70	21.50	35.00	T12	16.0	1.7	0.08
T490 ELN D20-3-MMT12	20.00	3	8.00	18.70	21.50	35.00	T12	16.0	1.7	0.05

(1) Clamping wrench size. For adaptation see page B45• For user guide see page L2-11, L15.

For inserts, see pages: T490 LNMT/LNHT 0804 (K38).

For holders, see pages: MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

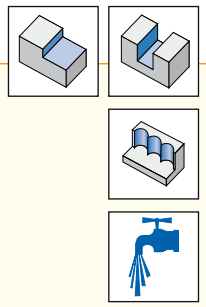
Spare Parts

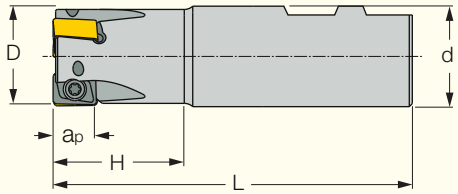
Designation	Screw	Key
T490 ELN D16-2-MMT10	SR 10502813-HGSM	IP-7/51
T490 ELN D20-2-MMT12	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-MMT12	SR 10502813-HG-M	IP-7/51

HELIDO 490 LINE

H490 E90AX-09

90° Endmills Using H490 ANKX 09... Double-Sided Rectangular Inserts with 4 Helical Cutting Edges





Designation	D	Z	a_p	L	H	d	Shank(1)	Kg
H490 E90AX D16-2-C15-09-B	16.00	2	8.00	150.00	40.0	15.00	C	0.18
H490 E90AX D16-2-C16-09	16.00	2	8.00	90.00	26.0	16.00	C	0.17
H490 E90AX D16-2-W16-09	16.00	2	8.00	85.00	26.0	16.00	W	0.11
H490 E90AX D18-2-C16-09	18.00	2	8.00	90.00	25.0	16.00	C	0.32
H490 E90AX D20-2-C19-09-B	20.00	2	8.00	160.00	40.0	19.00	C	0.31
H490 E90AX D20-2-C20-09	20.00	2	8.00	110.00	26.0	20.00	C	0.34
H490 E90AX D20-2-W20-09	20.00	2	8.00	90.00	26.0	20.00	W	0.21
H490 E90AX D20-3-C20-09	20.00	3	8.00	110.00	26.0	20.00	C	0.23
H490 E90AX D20-3-W20-09	20.00	3	8.00	90.00	26.0	20.00	W	0.25
H490 E90AX D22-3-C20-09	22.00	3	8.00	115.00	25.0	20.00	C	0.31
H490 E90AX D25-3-C24-09-B	25.00	3	8.00	200.00	40.0	24.00	C	0.61
H490 E90AX D25-3-C25-09	25.00	3	8.00	120.00	26.0	25.00	C	0.39
H490 E90AX D25-3-W25-09	25.00	3	8.00	95.00	26.0	25.00	W	0.36
H490 E90AX D25-4-C25-09	25.00	4	8.00	120.00	26.0	25.00	C	0.39
H490 E90AX D25-4-W25-09	25.00	4	8.00	95.00	26.0	25.00	W	0.16
H490 E90AX D32-4-C31-09-B	32.00	4	8.00	200.00	40.0	31.00	C	1.07
H490 E90AX D32-4-C32-09	32.00	4	8.00	130.00	30.0	32.00	C	0.72
H490 E90AX D32-4-W32-09	32.00	4	8.00	110.00	30.0	32.00	W	0.68
H490 E90AX D32-5-C32-09	32.00	5	8.00	130.00	30.0	32.00	C	0.72
H490 E90AX D32-5-W32-09	32.00	5	8.00	110.00	30.0	32.00	W	0.32
H490 E90AX D40-5-C32-09	40.00	5	8.00	130.00	38.0	32.00	C	0.25
H490 E90AX D40-5-W32-09	40.00	5	8.00	110.00	38.0	32.00	W	0.70
H490 E90AX D40-6-C32-09	40.00	6	8.00	130.00	38.0	32.00	C	0.70
H490 E90AX D40-6-W32-09	40.00	6	8.00	110.00	38.0	32.00	W	0.50

• For user guide see pages L2-13 • "B" Suffix cylindrical shank which may be shortened.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: H490 ANKX/ANCX-09 (K34).

Spare Parts

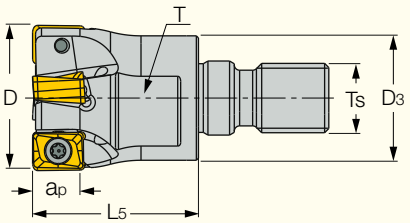
Designation	Screw	Handle	Torx Blade
H490 E90AX-09	SR 10508082-HG	SW4-SD	BLD T08/M7

HELIDO • FLEXFIT
490 LINE

H490 E90AX-M

90° Endmills with FLEXFIT Threaded Connection, Using H490 ANKX/ANCX 09... Double-Sided Rectangular Inserts.





Designation	D	Z	a_p	L_5	D_3	Ts	T(1)	Kg
H490 E90AX D20-3-M10-09	20.00	3	8.00	30.00	18.70	M10	16.0	0.06
H490 E90AX D25-4-M12-09	25.00	4	8.00	28.00	21.00	M12	17.0	0.12
H490 E90AX D32-5-M16-09	32.00	5	8.00	30.00	29.00	M16	25.0	0.22

• For adaptation see pages B45, E46 • For user guide see page L2-11, L15.

(1) Clamping wrench size

For inserts, see pages: H490 ANKX/ANCX-09 (K34).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

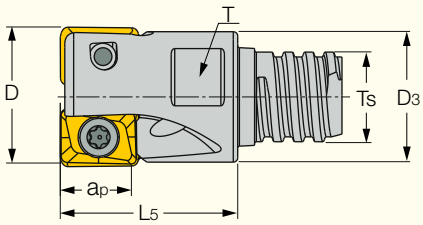
Designation	Screw	Torx Blade	Handle
H490 E90AX-M	SR 10508082-HG	BLD T08/M7	SW4-SD

HELIDO • MULTI-MASTER
490 LINE INDEXABLE SOLID CARBIDE LINE

H490 E90AX-MM

90° Endmills with MULTI-MASTER Threaded Connection, Using H490 ANKX/ANCX 090...Double-Sided Rectangular Inserts.





Designation	D	Z	a_p	L_5	D_3	Ts	T(1)
H490 E90AX D16-2-MMT10-09	16.00	2	8.00	23.00	15.30	T10	13.0
H490 E90AX D20-3-MMT12-09	20.00	3	8.00	24.00	19.30	T12	16.0

• For adaptation see page B45 • For user guide see page L2-11, L15.

(1) Clamping wrench size

For inserts, see pages: H490 ANKX/ANCX-09 (K34).

For holders, see pages: MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

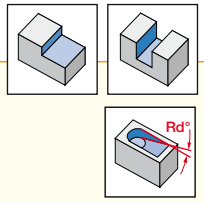
Spare Parts

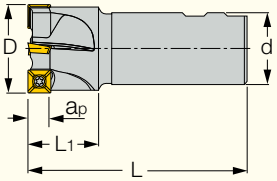
Designation	Screw	Torx Blade	Handle
H490 E90AX-MM	SR 10508082-HG	BLD T08/M7	SW4-SD

HELIQUAD

E90SP

Endmills with Square S/XPMT Inserts





Designation	D	Z	a_p	L_1	L	d	Shank(1)	R_d°	Kg
E90SP D25-C25-10	25.00	2	9.60	32.0	110.00	25.00	C	3.0	0.36
E90SP D25-W25-10	25.00	2	9.60	32.0	95.00	25.00	W	3.0	0.30
E90SP D32-C32-10	32.00	3	9.60	32.0	130.00	32.00	C	2.0	0.73
E90SP D32-W25-10	32.00	3	9.60	32.0	95.00	25.00	W	2.0	0.35
E90SP D40-C32-10	40.00	4	9.60	32.0	130.00	32.00	C	1.5	0.89
E90SP D40-W32-10	40.00	4	9.60	32.0	100.00	32.00	W	1.5	0.60

• For user guide see pages B36, L2-13.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: QPMR 1004..-HQ-M (K60) • QPMT 100408PDTN (K61) • SPMT-HQ (K61) • XPMT-HQ (K62).

Spare Parts

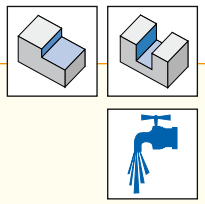
Designation	Screw	Key
E90SP	SR 14-544/S	T-15/51

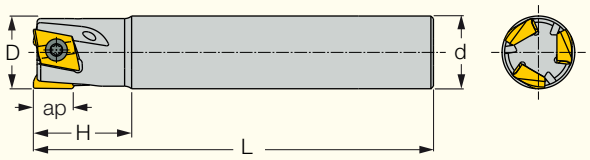
SUMOMILL

290 LINE

T290 ELN-10

Endmills with Tangentially Clamped Inserts





Designation	D	Z	L	H	a_p	d	Shank(1)	Kg
T290 ELN D20-02-C20-10	20.00	2	110.00	27.00	10.00	20.00	C	0.22
T290 ELN D20-03-C20-10	20.00	3	110.00	27.00	10.00	20.00	C	0.23
T290 ELN D20-03-W20-10	20.00	3	90.00	28.00	10.00	20.00	W	0.18
T290 ELN D25-03-C25-10-XL	25.00	3	150.00	30.00	10.00	25.00	C	0.51
T290 ELN D25-04-C25-10	25.00	4	120.00	28.00	10.00	25.00	C	0.40
T290 ELN D25-04-W25-10	25.00	4	95.00	30.00	10.00	25.00	W	0.30
T290 ELN D32-04-C32-10-XL	32.00	4	150.00	30.00	10.00	32.00	C	0.85
T290 ELN D32-05-C32-10	32.00	5	130.00	28.00	10.00	32.00	C	0.73
T290 ELN D32-05-W32-10	32.00	5	110.00	30.00	10.00	32.00	W	0.94
T290 ELN D40-05-C32-10-XL	40.00	5	150.00	30.00	10.00	32.00	C	0.32
T290 ELN D40-06-C32-10	40.00	6	130.00	30.00	10.00	32.00	C	0.75
T290 ELN D40-06-W32-10	40.00	6	110.00	30.00	10.00	32.00	W	0.32

(1) C-Cylindrical, W-Weldon• For user guide see pageL2-13.

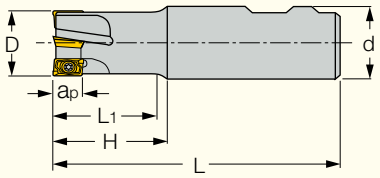
For inserts, see pages: T290 LNMT/LNHT 1004 (K37).

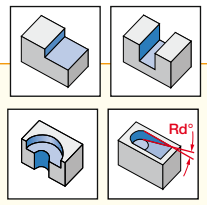
Spare Parts

Designation	Insert Screw	Torx Blade	T-Handle
T290 ELN-10	SR 10504970	BLD IP15/M7	SW6-T SHORT

HM90 E90A-10

Endmills for HM90 AP.. 1003... Inserts





Designation	D	Z	a_p	H	L_1	L	R_d°	d	Shank(1)	Coolant	Kg	RPM max
HM90 E90A-D10-1-C10	10.00	1	10.00	20.00	13.8	80.00	5.0	10.00	C	-	0.04	131850
HM90 E90A-D10-1-C10-C	10.00	1	10.00	20.00	13.8	80.00	5.0	10.00	C	Y	0.04	131850
HM90 E90A-D10-1-C16-LB	10.00	1	10.00	30.00	13.8	160.00	5.0	16.00	C	-	0.22	131850
HM90 E90A-D10-1-W16	10.00	1	10.00	20.00	10.6	80.00	5.0	16.00	W	-	0.10	131850
HM90 E90A-D10-1-W16-C	10.00	1	10.00	20.00	14.6	80.00	5.0	16.00	W	Y	0.14	131850
HM90 E90A-D12-1-C16	12.00	1	10.00	20.00	14.0	80.00	32.0	16.00	C	-	0.11	91850
HM90 E90A-D12-1-C16-C	12.00	1	10.00	20.00	14.0	80.00	32.0	16.00	C	Y	0.10	91850
HM90 E90A-D12-1-C16-LB	12.00	1	10.00	30.00	16.0	160.00	32.0	16.00	C	-	0.23	91850
HM90 E90A-D12-1-W16	12.00	1	10.00	20.00	14.0	80.00	32.0	16.00	W	-	0.11	91850
HM90 E90A-D12-1-W16-C	12.00	1	10.00	20.00	14.0	80.00	32.0	16.00	W	Y	0.10	91850
HM90 E90A-D14-1-C16	14.00	1	10.00	23.00	18.4	80.00	7.0	16.00	C	-	0.11	75350
HM90 E90A-D14-1-C16-C	14.00	1	10.00	23.00	18.4	80.00	7.0	16.00	C	Y	0.16	75350
HM90 E90A-D14-1-W16	14.00	1	10.00	23.00	18.4	80.00	7.0	16.00	W	-	0.16	75350
HM90 E90A-D14-1-W16-C	14.00	1	10.00	23.00	18.4	80.00	7.0	16.00	W	Y	0.10	75350
HM90 E90A-D16-2-C15-B	16.00	2	10.00	25.00	24.4	150.00	15.0	15.00	C	-	0.19	66200
HM90 E90A-D16-2-C15-B-C	16.00	2	10.00	25.00	24.4	150.00	-	15.00	C	Y	0.17	66200
HM90 E90A-D16-2-C16	16.00	2	10.00	26.00	25.2	90.00	15.0	16.00	C	-	0.12	66200
HM90 E90A-D16-2-C16-B	16.00	2	10.00	40.00	38.2	150.00	15.0	16.00	C	-	0.22	66200
HM90 E90A-D16-2-C16-B-C	16.00	2	10.00	40.00	38.2	150.00	-	16.00	C	Y	0.20	66200
HM90 E90A-D16-2-C16-C	16.00	2	10.00	26.00	25.2	90.00	15.0	16.00	C	Y	0.11	66200
HM90 E90A-D16-2-C16-LB	16.00	2	10.00	40.00	38.1	180.00	15.0	16.00	C	-	0.28	66200
HM90 E90A-D16-2-W16	16.00	2	10.00	26.00	25.2	85.00	15.0	16.00	W	-	0.12	66200
HM90 E90A-D16-2-W16-C	16.00	2	10.00	26.00	25.2	85.00	15.0	16.00	W	Y	0.11	66200
HM90 E90A-D17-2-C16	17.00	2	10.00	28.00	27.0	90.00	15.0	16.00	C	-	0.13	62900
HM90 E90A-D17-2-C16-L170	17.00	2	10.00	27.00	-	170.00	4.5	16.00	C	-	0.25	63000
HM90 E90A-D18-2-C16	18.00	2	10.00	26.00	-	90.00	7.5	16.00	C	-	0.13	59900
HM90 E90A-D18-2-C16-C	18.00	2	10.00	26.00	-	90.00	7.5	16.00	C	Y	0.17	59900
HM90 E90A-D18-2-W20	18.00	2	10.00	30.00	26.4	90.00	7.5	20.00	W	-	0.18	59900
HM90 E90A-D18-2-W20-C	18.00	2	10.00	30.00	26.4	90.00	7.5	20.00	W	Y	0.23	59900
HM90 E90A-D19-2-C20	19.00	2	10.00	26.00	25.0	90.00	7.5	20.00	C	-	0.25	57500
HM90 E90A-D20-2-C19-B	20.00	2	10.00	25.00	-	160.00	7.5	19.00	C	-	0.33	55150
HM90 E90A-D20-2-C19-B-C	20.00	2	10.00	25.00	-	160.00	7.5	19.00	C	Y	0.30	55150
HM90 E90A-D20-2-C20	20.00	2	10.00	26.00	25.3	110.00	7.5	20.00	C	-	0.24	55150
HM90 E90A-D20-2-C20-B	20.00	2	10.00	40.00	38.0	160.00	7.5	20.00	C	-	0.36	55150
HM90 E90A-D20-2-C20-B-C	20.00	2	10.00	40.00	38.0	160.00	7.5	20.00	C	Y	0.33	55150
HM90 E90A-D20-2-C20-C	20.00	2	10.00	26.00	25.3	110.00	7.5	20.00	C	Y	0.22	55150
HM90 E90A-D20-2-C20-LB	20.00	2	10.00	40.00	38.0	200.00	7.5	20.00	C	-	0.46	55150
HM90 E90A-D20-2-C20-XL	20.00	2	10.00	60.00	59.0	130.00	7.5	20.00	C	-	0.27	55150
HM90 E90A-D20-2-W16	20.00	2	10.00	26.10	-	85.00	7.5	16.00	W	-	0.19	55150
HM90 E90A-D20-2-W16-C	20.00	2	10.00	26.10	-	85.00	7.5	16.00	W	Y	0.12	55150
HM90 E90A-D20-2-W20	20.00	2	10.00	26.10	25.0	90.00	7.5	20.00	W	-	0.19	55150
HM90 E90A-D20-2-W20-C	20.00	2	10.00	26.10	25.0	90.00	7.5	20.00	W	Y	0.23	55150
HM90 E90A-D20-2-W20-XL	20.00	2	10.00	60.00	59.0	130.00	7.5	20.00	W	-	0.27	55150
HM90 E90A-D20-3-C20	20.00	3	10.00	26.10	25.0	110.00	7.5	20.00	C	-	0.24	55150
HM90 E90A-D20-3-C20-C	20.00	3	10.00	26.10	25.0	110.00	7.5	20.00	C	Y	0.22	55150
HM90 E90A-D20-3-W16	20.00	3	10.00	26.10	-	85.00	7.5	16.00	W	-	0.13	55150
HM90 E90A-D20-3-W16-C	20.00	3	10.00	26.10	-	85.00	7.5	16.00	W	Y	0.12	55150
HM90 E90A-D20-3-W20	20.00	3	10.00	26.10	25.0	90.00	7.5	20.00	W	-	0.19	55150
HM90 E90A-D20-3-W20-C	20.00	3	10.00	26.10	25.0	90.00	7.5	20.00	W	Y	0.18	55150
HM90 E90A-D21-2-C20-L270	21.00	2	10.00	26.00	-	270.00	2.8	20.00	C	-	0.64	53000
HM90 E90A-D21-3-C20	21.00	3	10.00	26.00	25.0	115.00	7.5	20.00	C	-	0.26	53300

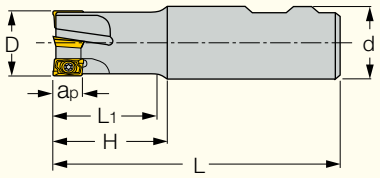
• For user guide see pages L2-13.

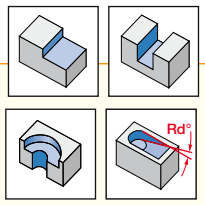
(1) C-Cylindrical, W-Weldon

For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKR 1003PDR-HM (K7) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • APKT 1003R8T-FF (K11) • APKW 100304 PDR (PCD) (K5) • HM90 APCR 100304PDFR-P/DP (K4) • HM90 APCT 1003 (K3) • HM90 APKT 1003 (K4) • HM90 APKT 1003PD-W (K11) • HM90 APKW 1003PDR (K10).

HM90 E90A-10 (continued)

Endmills for HM90 AP.. 1003... Inserts





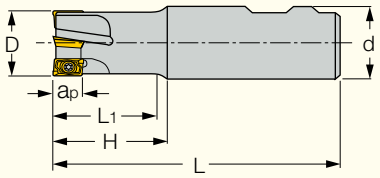
Designation	D	Z	a_p	H	L_1	L	R_d°	d	Shank(1)	Coolant	Kg	RPM max
HM90 E90A-D22-3-C20	22.00	3	10.00	26.00	-	115.00	7.5	20.00	C	-	0.26	51450
HM90 E90A-D22-3-C20-C	22.00	3	10.00	26.00	-	115.00	7.5	20.00	C	Y	0.31	51450
HM90 E90A-D22-3-W25	22.00	3	10.00	26.00	21.0	95.00	7.5	25.00	W	-	0.37	51450
HM90 E90A-D22-3-W25-C	22.00	3	10.00	26.00	21.0	95.00	7.5	25.00	W	Y	0.35	51450
HM90 E90A-D25-2-C25	25.00	2	10.00	26.10	25.0	120.00	5.0	25.00	C	-	0.49	47150
HM90 E90A-D25-2-C25-C	25.00	2	10.00	26.10	25.0	120.00	5.0	25.00	C	Y	0.40	47150
HM90 E90A-D25-2-W25	25.00	2	10.00	26.10	25.0	95.00	5.0	25.00	W	-	0.32	47150
HM90 E90A-D25-2-W25-C	25.00	2	10.00	26.10	25.0	95.00	5.0	25.00	W	Y	0.38	47150
HM90 E90A-D25-3-C24-B	25.00	3	10.00	25.00	-	200.00	5.0	24.00	C	-	0.67	47150
HM90 E90A-D25-3-C24-B-C	25.00	3	10.00	25.00	24.0	200.00	5.0	24.00	C	Y	0.64	47150
HM90 E90A-D25-3-C25	25.00	3	10.00	26.10	25.0	120.00	5.0	25.00	C	-	0.42	47150
HM90 E90A-D25-3-C25-B	25.00	3	10.00	40.00	37.0	200.00	5.0	25.00	C	-	0.72	47150
HM90 E90A-D25-3-C25-B-C	25.00	3	10.00	40.00	37.0	200.00	5.0	25.00	C	Y	0.68	47150
HM90 E90A-D25-3-C25-C	25.00	3	10.00	26.10	25.0	120.00	5.0	25.00	C	Y	0.46	47150
HM90 E90A-D25-3-W25	25.00	3	10.00	26.10	25.0	95.00	5.0	25.00	W	-	0.32	47150
HM90 E90A-D25-3-W25-C	25.00	3	10.00	26.10	25.0	95.00	5.0	25.00	W	Y	0.30	47150
HM90 E90A-D25-3-W25-XL	25.00	3	10.00	80.00	79.0	140.00	5.0	25.00	W	-	0.47	47150
HM90 E90A-D25-4-C25	25.00	4	10.00	26.00	25.0	120.00	5.0	25.00	C	-	0.42	47150
HM90 E90A-D25-4-C25-C	25.00	4	10.00	26.00	25.0	120.00	5.0	25.00	C	Y	0.39	47150
HM90 E90A-D25-4-W25	25.00	4	10.00	26.00	25.0	95.00	5.0	25.00	W	-	0.31	47150
HM90 E90A-D25-4-W25-C	25.00	4	10.00	26.00	25.0	95.00	5.0	25.00	W	Y	0.30	47150
HM90 E90A-D28-4-C25	28.00	4	10.00	26.00	-	120.00	2.0	25.00	C	-	0.44	43650
HM90 E90A-D28-4-C25-C	28.00	4	10.00	26.00	-	120.00	2.0	25.00	C	Y	0.48	43650
HM90 E90A-D28-4-W25	28.00	4	10.00	26.00	-	95.00	2.0	25.00	W	-	0.33	43650
HM90 E90A-D28-4-W25-C	28.00	4	10.00	26.00	-	95.00	2.0	25.00	W	Y	0.31	43650
HM90 E90A-D30-4-C32	30.00	4	10.00	40.00	35.4	130.00	2.0	32.00	C	-	0.79	36500
HM90 E90A-D30-4-C32-C	30.00	4	10.00	40.00	35.4	130.00	2.0	32.00	C	Y	0.77	36500
HM90 E90A-D30-4-W25	30.00	4	10.00	30.00	-	95.00	2.0	25.00	W	-	0.35	36500
HM90 E90A-D30-4-W25-C	30.00	4	10.00	30.00	-	95.00	2.0	25.00	W	Y	0.39	36500
HM90 E90A-D32-3-C31-B	32.00	3	10.00	25.00	24.8	250.00	3.0	31.00	C	-	1.14	35350
HM90 E90A-D32-3-C32	32.00	3	10.00	30.00	28.5	130.00	3.0	32.00	C	-	0.76	35350
HM90 E90A-D32-3-C32-C	32.00	3	10.00	30.00	28.5	130.00	3.0	32.00	C	Y	0.82	35350
HM90 E90A-D32-3-W25	32.00	3	10.00	30.00	-	95.00	3.0	25.00	W	-	0.38	35350
HM90 E90A-D32-3-W25-C	32.00	3	10.00	30.00	-	95.00	3.0	25.00	W	Y	0.36	35350
HM90 E90A-D32-3-W32	32.00	3	10.00	30.00	28.5	110.00	3.0	32.00	W	-	0.71	35350
HM90 E90A-D32-3-W32-C	32.00	3	10.00	30.00	28.5	110.00	3.0	32.00	W	Y	0.66	35350
HM90 E90A-D32-4-C32	32.00	4	10.00	30.00	28.5	130.00	3.0	32.00	C	-	0.82	35350
HM90 E90A-D32-4-C32-B	32.00	4	10.00	40.00	37.2	200.00	3.0	32.00	C	-	1.18	35350
HM90 E90A-D32-4-C32-C	32.00	4	10.00	30.00	28.5	130.00	3.0	32.00	C	Y	0.72	35350
HM90 E90A-D32-4-C32-LB	32.00	4	10.00	40.00	37.2	250.00	3.0	32.00	C	-	1.50	35350
HM90 E90A-D32-4-W25	32.00	4	10.00	30.00	-	95.00	3.0	25.00	W	-	0.37	35350
HM90 E90A-D32-4-W25-C	32.00	4	10.00	30.00	-	95.00	3.0	25.00	W	Y	0.42	35350
HM90 E90A-D32-4-W32	32.00	4	10.00	30.00	28.5	110.00	3.0	32.00	W	-	0.69	35350
HM90 E90A-D32-4-W32-C	32.00	4	10.00	30.00	28.5	110.00	3.0	32.00	W	Y	0.59	35350
HM90 E90A-D32-4-W32-XL	32.00	4	10.00	100.00	28.5	160.00	3.0	32.00	W	-	0.87	35350
HM90 E90A-D32-5-C32	32.00	5	10.00	30.00	28.5	130.00	3.0	32.00	C	-	0.83	35350
HM90 E90A-D32-5-C32-C	32.00	5	10.00	30.00	28.5	130.00	3.0	32.00	C	Y	0.72	35350
HM90 E90A-D32-5-W25	32.00	5	10.00	30.00	-	95.00	3.0	25.00	W	-	0.37	35350
HM90 E90A-D32-5-W25-C	32.00	5	10.00	30.00	-	95.00	3.0	25.00	W	Y	0.35	35350
HM90 E90A-D32-5-W32	32.00	5	10.00	30.00	28.5	110.00	3.0	32.00	W	-	0.62	35350
HM90 E90A-D32-5-W32-C	32.00	5	10.00	30.00	28.5	110.00	3.0	32.00	W	Y	0.60	35350

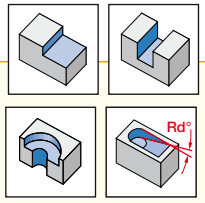
(1) C-Cylindrical, W-Weldon• For user guide see pages L2-13.

For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKR 1003PDR-HM (K7) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • APKT 1003R8T-FF (K11) • APKW 100304 PDR (PCD) (K5) • HM90 APCR 100304PDFR-P/DP (K4) • HM90 APCT 1003 (K3) • HM90 APKT 1003 (K4) • HM90 APKT 1003PD-W (K11) • HM90 APKW 1003PDR (K10).

HM90 E90A-10 (continued)

Endmills for HM90 AP.. 1003... Inserts





Designation	D	Z	a_p	H	L_1	L	R_d°	d	Shank(1)	Coolant	Kg	RPM max
HM90 E90A-D40-3-C32	40.00	3	10.00	30.00	-	130.00	2.7	32.00	C	-	0.93	31600
HM90 E90A-D40-3-C32-C	40.00	3	10.00	30.00	-	130.00	2.7	32.00	C	Y	0.91	31600
HM90 E90A-D40-3-W32	40.00	3	10.00	30.00	-	110.00	2.7	32.00	W	-	0.77	31600
HM90 E90A-D40-3-W32-C	40.00	3	10.00	30.00	-	110.00	2.7	32.00	W	Y	0.78	31600
HM90 E90A-D40-5-C32	40.00	5	10.00	30.00	-	130.00	2.7	32.00	C	-	0.83	31600
HM90 E90A-D40-5-C32-C	40.00	5	10.00	30.00	-	130.00	2.7	32.00	C	Y	0.81	31600
HM90 E90A-D40-5-C40-B	40.00	5	10.00	40.00	36.3	250.00	2.7	40.00	C	-	2.35	31600
HM90 E90A-D40-5-W32	40.00	5	10.00	30.00	-	110.00	2.7	32.00	W	-	0.70	31600
HM90 E90A-D40-5-W32-C	40.00	5	10.00	30.00	-	110.00	2.7	32.00	W	Y	0.68	31600
HM90 E90A-D40-5-W40-XL	40.00	5	10.00	125.00	123.0	200.00	2.7	40.00	W	-	1.00	31600
HM90 E90A-D40-6-C32	40.00	6	10.00	30.00	-	130.00	2.7	32.00	C	-	0.91	31600
HM90 E90A-D40-6-C32-C	40.00	6	10.00	30.00	-	130.00	2.7	32.00	C	Y	0.81	31600
HM90 E90A-D40-6-W32	40.00	6	10.00	30.00	-	110.00	2.7	32.00	W	-	0.70	31600
HM90 E90A-D40-6-W32-C	40.00	6	10.00	30.00	-	110.00	2.7	32.00	W	Y	0.68	31600
HM90 E90A-D50-7-C32	50.00	7	10.00	41.60	-	130.00	2.7	32.00	C	-	1.04	31600

(1) C-Cylindrical, W-Weldon• For user guide see pages L2-13.

For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKR 1003PDR-HM (K7) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • APKT 1003R8T-FF (K11) • APKW 100304 PDR (PCD) (K5) • HM90 APCR 100304PDFR-P/DP (K4) • HM90 APCT 1003 (K3) • HM90 APKT 1003 (K4) • HM90 APKT 1003PD-W (K11) • HM90 APKW 1003PDR (K10).

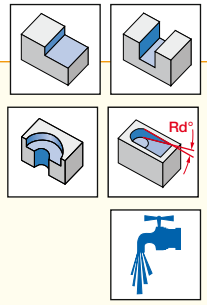
Spare Parts

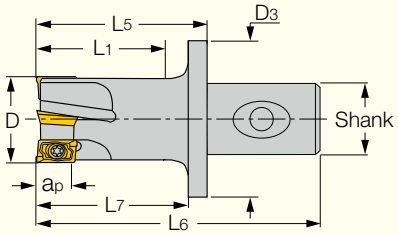
Designation	Screw	Key
HM90 E90A-10	SR 34-505/HG	T-8/53

HELI2000 • CLICKFIT

HM90 E90A-CF-10

Endmills with a CLICKFIT Adaptation for HM90 AP.. 1003... Inserts





Designation	D	Z	a_p	L_1	L_7	L_5	L_6	R_d°	D_3	Shank	Kg
HM90 E90A-D25-3-CF4	25.00	3	10.00	34.0	40.00	48.00	90.00	5.0	44.00	CF4	0.34
HM90 E90A-D32-4-CF4	32.00	4	10.00	39.0	45.00	53.00	95.00	3.0	44.00	CF4	0.44
HM90 E90A-D40-5-CF4	40.00	5	10.00	42.0	45.00	53.00	95.00	2.7	44.00	CF4	0.56

• For CLICKFIT shanks, see ISCAR Tool Holding Systems catalog. • For user guide see pages L2-13.

For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKR 1003PDR-HM (K7) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • APKT 1003R8T-FF (K11) • APKW 100304 PDR (PCD) (K5) • HM90 APCR 100304PDFR-P/DP (K4) • HM90 APCT 1003 (K3) • HM90 APKT 1003 (K4) • HM90 APKT 1003PD-W (K11) • HM90 APKW 1003PDR (K10).

Spare Parts

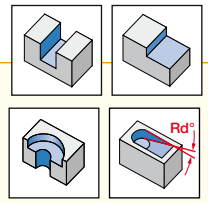
Designation	Screw	Key
HM90 E90A-CF-10	SR 34-505/HG	T-8/53

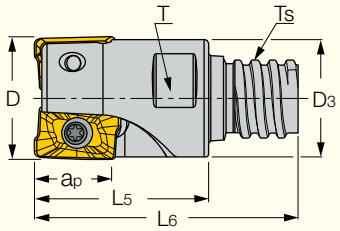
HELI2000 • MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

HM90 E90A-MM-10

90° Endmills with a MULTI-MASTER Threaded Adaptation for HM90 AP.. 1003... Inserts





Designation	D	Z	a_p	L_6	R_d°	L_5	Ts	T(1)	D_3	Kg
HM90 E90A-D16-2-MMT10	16.00	2	10.00	34.75	15.0	23.00	T10	13.0	15.30	0.03
HM90 E90A-D20-2-MMT12	20.00	2	10.00	38.30	7.5	24.60	T12	16.0	19.20	0.10
HM90 E90A-D20-3-MMT12	20.00	3	10.00	38.30	7.5	24.60	T12	16.0	19.20	0.05

• For adaptation see page B45 • For user guide see page L2-11, L15.

(1) Clamping wrench size

For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKR 1003PDR-HM (K7) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • APKT 1003R8T-FF (K11) • APKW 100304 PDR (PCD) (K5) • HM90 APCR 100304PDFR-P/DP (K4) • HM90 APCT 1003 (K3) • HM90 APKT 1003 (K4) • HM90 APKT 1003PD-W (K11) • HM90 APKW 1003PDR (K10).

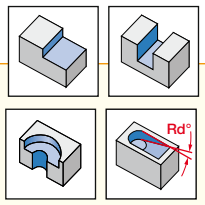
For holders, see pages: MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

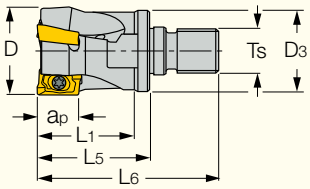
Spare Parts

Designation	Screw	Key
HM90 E90A-MM-10	SR 34-505/HG	T-8/53

HM90 E90A-M-10

90° Endmills with a FLEXFIT Threaded Adaptation for HM90 AP.. 1003... Inserts





Designation	D	Z	D3	Ts	L1	L5	L6	ap	Rd°	Kg
HM90 E90A-D16-2-M08	16.00	2	14.75	M08	24.0	30.00	47.50	10.00	15.0	0.02
HM90 E90A-D16-2-M10	16.00	2	18.00	M10	26.0	32.00	52.00	10.00	15.0	0.08
HM90 E90A-D20-2-M10	20.00	2	18.00	M10	30.0	30.00	50.00	10.00	7.5	0.05
HM90 E90A-D20-3-M10	20.00	3	18.00	M10	30.0	30.00	50.00	10.00	7.5	0.05
HM90 E90A-D20-3-M12	20.00	3	21.00	M12	24.0	30.00	52.00	10.00	7.5	0.08
HM90 E90A-D25-3-M12	25.00	3	21.00	M12	35.0	35.00	57.00	10.00	5.0	0.08
HM90 E90A-D25-3-M16	25.00	3	29.00	M16	29.0	35.00	60.00	10.00	5.0	0.12
HM90 E90A-D25-4-M12	25.00	4	21.00	M12	35.0	35.00	57.00	10.00	5.0	0.08
HM90 E90A-D25-4-M16	25.00	4	29.00	M16	29.0	35.00	60.00	10.00	5.0	0.19
HM90 E90A-D32-4-M16	32.00	4	29.00	M16	35.0	35.00	60.00	10.00	3.0	0.16

• For adaptation see pages B45, E46 • For user guide see page L2-11, L15.

For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKR 1003PDR-HM (K7) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • APKT 1003R8T-FF (K11) • APKW 100304 PDR (PCD) (K5) • HM90 APCR 100304PDFR-P/DP (K4) • HM90 APCT 1003 (K3) • HM90 APKT 1003 (K4) • HM90 APKT 1003PD-W (K11) • HM90 APKW 1003PDR (K10).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

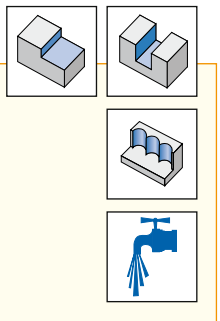
Spare Parts

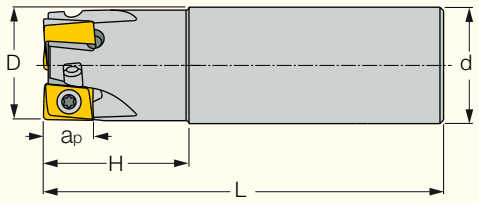
Designation	Screw	Key
HM90 E90A-M-10	SR 34-505/HG	T-8/53

HELIDO 490 LINE

H490 E90AX-12

90° Endmills Carrying H490 ANKX 12...Double-Sided Rectangular Inserts with 4 Helical Cutting Edges





Designation	D	Z	ap	L	H	d	Shank(1)	Rd°(2)	Kg
H490 E90AX D25-2-C25-12	25.00	2	12.00	110.00	35.0	25.00	C	1.5	0.36
H490 E90AX D25-2-W25-12	25.00	2	12.00	110.00	35.0	25.00	W	1.5	0.35
H490 E90AX D32-3-C32-12	32.00	3	12.00	110.00	40.0	32.00	C	4.0	0.60
H490 E90AX D32-3-W32-12	32.00	3	12.00	110.00	40.0	32.00	W	4.0	0.70
H490 E90AX D40-4-C32-12	40.00	4	12.00	130.00	40.0	32.00	C	1.5	0.95
H490 E90AX D40-4-W32-12	40.00	4	12.00	115.00	40.0	32.00	W	1.5	0.73
H490 E90AX D50-5-C32-12	50.00	5	12.00	130.00	50.0	32.00	C	1.5	1.03

(1) C-Cylindrical, W-Weldon (2) Rampdown angle is valid only when H490 ANKX 1205R15T-FF insert is used. • For user guide see pages L2-13.

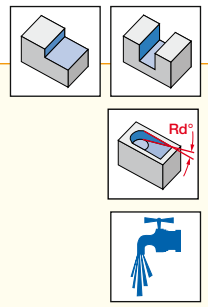
For inserts, see pages: H490 ANKX/ANCX 1205-FF (K35) • H490 ANKX/ANCX-12 (K35).

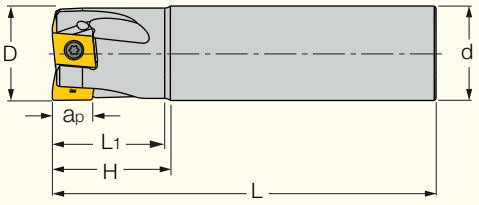
Spare Parts

Designation	Screw	T-Handle	Torx Blade
H490 E90AX D25-2-C25-12	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D25-2-W25-12	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D32-3-C32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D32-3-W32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-C32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-W32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D50-5-C32-12	SR 14-544	SW6-T	BLD T15/M7

T490 ELN-13

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 13 mm Long Cutting Edges





Designation	D	Z	L	H	L_1	a_p	d	Shank(3)	R_d°(4)	Kg
T490 ELN D25-2-C25-13 (1)	25.00	2	120.00	35.00	33.0	12.50	25.00	C	-	0.40
T490 ELN D25-2-W25-13 (1)	25.00	2	95.00	35.00	33.0	12.50	25.00	W	-	0.29
T490 ELN D32-3-C32-13	32.00	3	130.00	40.00	38.0	12.50	32.00	C	2.8	0.72
T490 ELN D32-3-C32-13B (2)	32.00	3	250.00	50.00	48.0	12.50	32.00	C	2.8	1.44
T490 ELN D32-3-W32-13	32.00	3	110.00	40.00	38.0	12.50	32.00	W	2.8	0.59
T490 ELN D40-3-C40-13B (2)	40.00	3	250.00	50.00	48.0	12.50	40.00	C	2.0	2.25
T490 ELN D40-4-C32-13	40.00	4	130.00	40.00	-	12.50	32.00	C	2.0	0.81
T490 ELN D40-4-W32-13	40.00	4	115.00	40.00	-	12.50	32.00	W	2.0	0.72
T490 ELN D50-4-C32-13	50.00	4	130.00	36.50	-	12.50	32.00	C	1.5	0.96
T490 ELN D50-5-C32-13	50.00	5	130.00	36.50	-	12.50	32.00	C	1.5	0.96

• For user guide see pages L2-13

(1) Cutting recommendations: at ap=5, fz=0.15 at ap=10, fz=0.1 (2) "B" suffix for long cylindrical shank which may be shortened. (3) C-Cylindrical, W-Weldon
(4) Only when T490 LNHT 1306 PNTR-RD insert is used

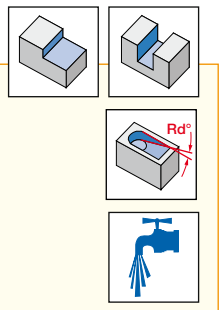
For inserts, see: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

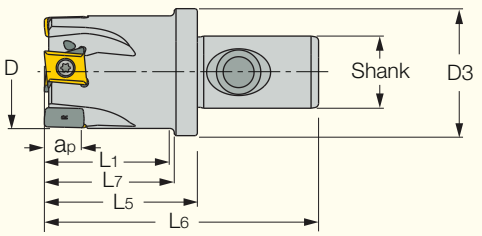
Spare Parts

Designation	Screw	Torx Blade	T-Handle
T490 ELN D25-2-C25-13	SR M4.5-10507218	BLD T15/S7	SW6-T SHORT
T490 ELN D25-2-W25-13	SR M4.5-10507218	BLD T15/S7	SW6-T SHORT
T490 ELN D32-3-C32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT
T490 ELN D32-3-C32-13B	SR 34-535-SN	BLD T15/S7	SW6-T SHORT
T490 ELN D32-3-W32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT
T490 ELN D40-3-C40-13B	SR 34-535-SN	BLD T15/S7	SW6-T SHORT
T490 ELN D40-4-C32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT
T490 ELN D40-4-W32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT
T490 ELN D50-4-C32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT
T490 ELN D50-5-C32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT

T490 ELN-CF-13

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 13 mm Long Cutting Edges with a CLICKFIT Adaptation





Designation	D	Z	a_p	L_1	L_7	L_5	L_6	D_3	Shank	R_d°(1)	Kg
T490 ELN D32-3-CF4-13	32.00	3	12.50	42.0	45.00	53.00	95.00	44.00	CF4	2.8	0.43
T490 ELN D40-4-CF4-13	40.00	4	12.50	43.2	45.00	53.00	95.00	44.00	CF4	2.0	0.56

• For user guide see pages L2-13.

(1) Only when T490 LNHT 1306 PNTR-RD insert is used

For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

For CLICKFIT shanks, see ISCAR Tool Holding Systems catalog.

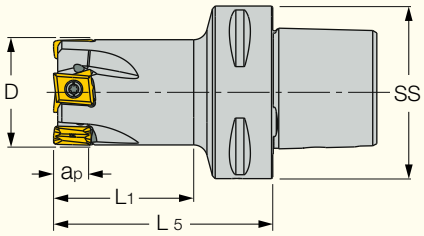
Spare Parts

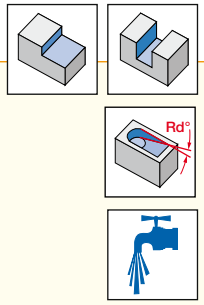
Designation	Screw	Torx Blade	T-Handle
T490 ELN-CF-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT

HELITANG
T490 LINE

T490 ELN-13-C#

90° Endmills with CAMFIX Shanks Carrying Tangentially Clamped Inserts with 4 Helical, 13 mm Long Cutting Edges





Designation	D	a_p	Z	L_1	L_5	SS	R_d°(1)	Kg
T490 ELN D32-3-L80C6-R-13	32.00	12.50	3	49.8	80.00	63	2.8	1.17
T490 ELN D40-4-L80C6-R-13	40.00	12.50	4	51.0	80.00	63	2.0	1.32
T490 ELN D50-5-L80C6-R-13	50.00	12.50	5	51.0	80.00	63	1.5	0.62

(1) Only when T490 LNHT 1306 PNTR-RD insert is used • For user guide see pages L2-13.

For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

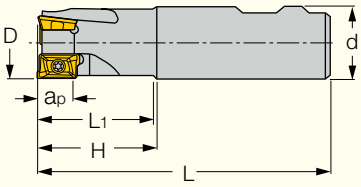
Spare Parts

Designation	Screw	Torx Blade	T-Handle
T490 ELN-13-C#	SR 34-535-SN	BLD T15/S7	SW6-T SHORT

MILL2000

3M E90AX

90° Endmills for 3M AXKT...Inserts



Designation	D	Z	a_p	H	L_1	L	d	Shank(1)	Kg
3M E90AX D25-2-W25-13-C	25.00	2	12.50	35.00	-	95.00	25.00	W	0.29
3M E90AX D25-W25-13-C	25.00	3	12.50	35.00	33.0	95.00	25.00	W	0.28
3M E90AX D32-3-W25-13-C	32.00	3	12.50	35.00	-	95.00	25.00	W	0.54
3M E90AX D32-W32-13-C	32.00	4	12.50	40.00	38.0	100.00	32.00	W	0.51
3M E90AX D40-4-W32-13-C	40.00	4	12.50	40.00	-	108.00	32.00	W	0.80
3M E90AX D40-W32-13-C	40.00	5	12.50	40.00	-	108.00	32.00	W	0.67

• Reduce feed by 50% during engagement and exit from the workpiece. • For user guide see pages L2-13.

(1) W-Weldon

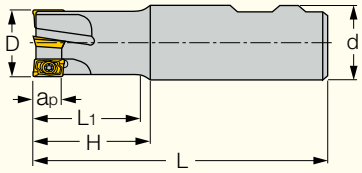
For inserts, see pages: 3M AXKT 1304 (K26) • 3M AXKT 1304..R-PDRMM (K26).

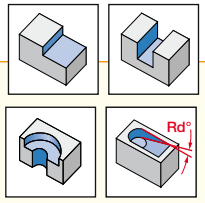
Spare Parts

Designation	Screw	Handle	Torx Blade
3M E90AX	SR 34-506/L	SW4-SD	BLD T09/M7-SW4

HM90 E90AD-15

90° Endmills for HM90 ADKT-1505... Inserts





Designation	D	Z	a_p	H	L_1	L	R_d°	d	Shank(1)	Coolant	Kg
HM90 E90AD-D20-1-C20	20.00	1	14.30	35.00	34.0	110.00	3.0	20.00	C	N	0.34
HM90 E90AD-D20-1-C20-B	20.00	1	14.30	35.00	-	160.00	3.0	20.00	C	N	0.36
HM90 E90AD-D25-2-C24-B	25.00	2	14.30	30.00	-	200.00	11.5	24.00	C	N	0.64
HM90 E90AD-D25-2-C25	25.00	2	14.30	35.00	34.0	110.00	11.5	25.00	C	N	0.37
HM90 E90AD-D25-2-C25-B	25.00	2	14.30	50.00	49.0	200.00	11.5	25.00	C	N	0.70
HM90 E90AD-D25-2-C25-C	25.00	2	14.30	35.00	34.0	110.00	11.5	25.00	C	Y	0.45
HM90 E90AD-D25-2-C25-XL	25.00	2	14.30	35.00	34.0	150.00	11.5	25.00	C	N	0.52
HM90 E90AD-D25-2-W25	25.00	2	14.30	35.00	34.0	110.00	11.5	25.00	W	N	0.32
HM90 E90AD-D25-2-W25-C	25.00	2	14.30	35.00	34.0	110.00	11.5	25.00	W	Y	0.41
HM90 E90AD-D25-2-W25-XL	25.00	2	14.30	70.00	69.0	150.00	11.5	25.00	W	N	0.50
HM90 E90AD-D32-2-C32	32.00	2	14.30	40.00	38.0	120.00	5.3	32.00	C	N	0.80
HM90 E90AD-D32-2-C32-C	32.00	2	14.30	40.00	38.0	120.00	5.3	32.00	C	Y	0.75
HM90 E90AD-D32-2-W32	32.00	2	14.30	40.00	39.0	110.00	5.3	32.00	W	N	0.73
HM90 E90AD-D32-2-W32-C	32.00	2	14.30	40.00	39.0	110.00	5.3	32.00	W	Y	0.68
HM90 E90AD-D32-3-C31-B	32.00	3	14.30	30.00	-	250.00	5.3	31.00	C	N	1.38
HM90 E90AD-D32-3-C32	32.00	3	14.30	40.00	38.0	120.00	5.3	32.00	C	N	0.66
HM90 E90AD-D32-3-C32-B	32.00	3	14.30	50.00	48.0	250.00	5.3	32.00	C	N	1.47
HM90 E90AD-D32-3-C32-C	32.00	3	14.30	40.00	38.0	120.00	5.3	32.00	C	Y	0.63
HM90 E90AD-D32-3-C32-XL	32.00	3	14.30	40.00	38.0	160.00	5.3	32.00	C	N	0.91
HM90 E90AD-D32-3-W32	32.00	3	14.30	40.00	38.3	110.00	5.3	32.00	W	N	0.59
HM90 E90AD-D32-3-W32-C	32.00	3	14.30	40.00	38.3	110.00	5.3	32.00	W	Y	0.56
HM90 E90AD-D32-3-W32-XL	32.00	3	14.30	40.00	38.3	160.00	5.3	32.00	W	N	0.91
HM90 E90AD-D40-2-C32	40.00	2	14.30	40.00	-	130.00	4.0	32.00	C	N	0.96
HM90 E90AD-D40-2-C32-C	40.00	2	14.30	40.00	-	130.00	4.0	32.00	C	Y	0.94
HM90 E90AD-D40-2-W32	40.00	2	14.30	40.00	-	115.00	4.0	32.00	W	N	0.90
HM90 E90AD-D40-2-W32-C	40.00	2	14.30	40.00	-	115.00	4.0	32.00	W	Y	0.30
HM90 E90AD-D40-3-C32	40.00	3	14.30	40.00	-	130.00	4.0	32.00	C	N	0.84
HM90 E90AD-D40-3-C32-C	40.00	3	14.30	40.00	-	130.00	4.0	32.00	C	Y	0.91
HM90 E90AD-D40-3-C40-B	40.00	3	14.30	50.00	48.0	250.00	4.0	40.00	C	N	2.33
HM90 E90AD-D40-3-W32	40.00	3	14.30	40.00	-	115.00	4.0	32.00	W	N	0.74
HM90 E90AD-D40-3-W32-C	40.00	3	14.30	40.00	-	115.00	4.0	32.00	W	Y	0.81
HM90 E90AD-D40-3-W40-XL	40.00	3	14.30	80.00	78.0	200.00	4.0	40.00	W	N	1.81
HM90 E90AD-D40-4-C32	40.00	4	14.30	40.00	-	130.00	4.0	32.00	C	N	0.83
HM90 E90AD-D40-4-C32-C	40.00	4	14.30	40.00	-	130.00	4.0	32.00	C	Y	0.78
HM90 E90AD-D40-4-W32	40.00	4	14.30	40.00	-	115.00	4.0	32.00	W	N	0.72
HM90 E90AD-D40-4-W32-C	40.00	4	14.30	40.00	-	115.00	4.0	32.00	W	Y	0.81

• Thinner insert ADM. 1503..mounted on TSP-15R seat. • For user guide see pages L2-13.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: ADCR 1505PDFR (K13) • ADCT 1505-FF (K19) • ADCT 1505PDFR-HM (K14) • ADKR 1505PD-R/L-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505-FF (K19) • ADKT 1505PD-W (K20) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • ADKT 1505PDTR-8M (K16) • ADKT 1505PDTR/L-RM (K17) • ADKW (CBN) (K15) • ADKW (PCD) (K15) • ADMT 1505PDR-HS (K17) • HM90 ADCR 1505PDFR-P (K13) • HM90 ADKT 1505PD-W (K20) • HM90 ADKT/ADCT 1505 (K12) • HM90 ADKW 1505PDR (K24).

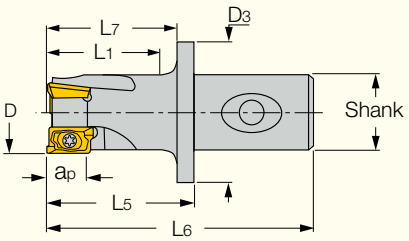
Spare Parts

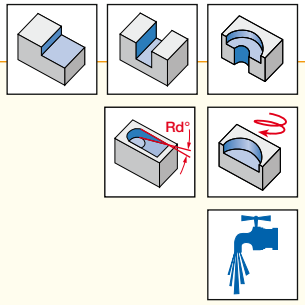
Designation	Screw	Handle	Torx Blade
HM90 E90AD-15	SR 14-544/S	SW6-SD	BLD T15/M7

HELI2000

HM90 E90AD-CF-15

90° Endmills with a CLICKFIT Adaptation for HM90 ADKT-1505... Inserts





Designation	D	Z	a_p	L_1	L_7	L_5	L_6	R_d°	D_3	Shank	Kg
HM90 E90AD-D25-2-CF4	25.00	2	14.30	42.0	45.00	53.00	95.00	11.5	44.00	CF4	0.35
HM90 E90AD-D32-3-CF4	32.00	3	14.30	40.0	45.00	53.00	95.00	5.3	44.00	CF4	0.42
HM90 E90AD-D40-4-CF4	40.00	4	14.30	44.0	50.00	58.00	100.00	4.0	44.00	CF4	0.70

• Thinner insert ADM. 1503..mounted on TSP-15R seat. • For user guide see page L2-11, L15.

For inserts, see pages: ADCR 1505PDFR (K13) • ADCT 1505-FF (K19) • ADCT 1505PDFR-HM (K14) • ADKR 1505PD-R/L-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505-FF (K19) • ADKT 1505PD-W (K20) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • ADKT 1505PDTR-8M (K16) • ADKT 1505PDTR/L-RM (K17) • ADKW (CBN) (K15) • ADKW (PCD) (K15) • ADMT 1505PDR-HS (K17) • HM90 ADCR 1505PDFR-P (K13) • HM90 ADKT 1505PD-W (K20) • HM90 ADKT/ADCT 1505 (K12) • HM90 ADKW 1505PDR (K24).

For CLICKFIT shanks, see ISCAR Tool Holding Systems catalog.

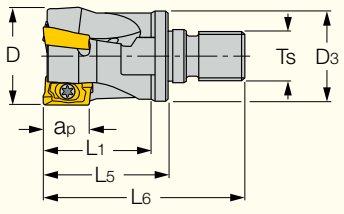
Spare Parts

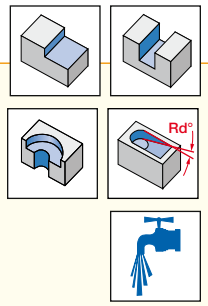
Designation	Screw	Handle	Torx Blade
HM90 E90AD-CF-15	SR 14-544/S	SW6-SD	BLD T15/M7

HELI2000 • FLEXFIT

HM90 E90AD-M-15

90° Endmills with a FLEXFIT Threaded Adaptation for HM90 ADKT-1505... Inserts





Designation	D	Z	a_p	D_3	Ts	L_1	L_5	L_6	R_d°	Kg
HM90 E90AD-D25-2-M12	25.00	2	14.30	21.00	M12	35.0	35.00	57.00	11.5	0.18
HM90 E90AD-D25-2-M16	25.00	2	14.30	29.00	M16	29.0	35.00	60.00	11.5	0.20
HM90 E90AD-D32-3-M16	32.00	3	14.30	29.00	M16	40.0	40.00	65.00	5.3	0.16
HM90 E90AD-D40-4-M16	40.00	4	14.30	29.00	M16	40.0	40.00	65.00	4.0	0.20

• For adaptation see pages B45, E46 • For user guide see page L2-11, L15.

For inserts, see pages: ADCR 1505PDFR (K13) • ADCT 1505-FF (K19) • ADCT 1505PDFR-HM (K14) • ADKR 1505PD-R/L-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505-FF (K19) • ADKT 1505PD-W (K20) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • ADKT 1505PDTR-8M (K16) • ADKT 1505PDTR/L-RM (K17) • ADKW (CBN) (K15) • ADKW (PCD) (K15) • ADMT 1505PDR-HS (K17) • HM90 ADCR 1505PDFR-P (K13) • HM90 ADKT 1505PD-W (K20) • HM90 ADKT/ADCT 1505 (K12) • HM90 ADKW 1505PDR (K24).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

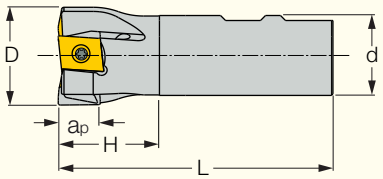
Spare Parts

Designation	Screw	Handle	Torx Blade
HM90 E90AD-M-15	SR 14-544/S	SW6-SD	BLD T15/M7

HELITANG
T490 LINE

T490 ELN-16

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 16 mm Long Cutting Edges



Designation	D	Z	a_p	H	L	d	Shank(1)	Kg
T490 ELN D32-2-C32-16	32.00	2	16.00	41.00	130.00	32.00	C	0.57
T490 ELN D32-2-W32-16	32.00	2	16.00	41.00	130.00	32.00	W	0.57
T490 ELN D40-3-C32-16	40.00	3	16.00	40.00	130.00	32.00	C	0.88
T490 ELN D40-3-W32-16	40.00	3	16.00	40.00	110.00	32.00	W	0.63

• For user guide see pages L2-13.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: T490 LNMT/LNHT 1607 (K40).

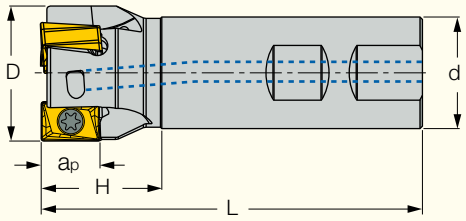
Spare Parts

Designation	Screw	Torx Blade	T-Handle
T490 ELN D32-2-C32-16	SR 14-591-S	BLD T20/M7	SW6-T
T490 ELN D32-2-W32-16	SR 14-591-S	BLD T20/M7	SW6-T
T490 ELN D40-3-C32-16	SR 14-591	BLD T20/M7	SW6-T
T490 ELN D40-3-W32-16	SR 14-591	BLD T20/M7	SW6-T

HELIDO
490 LINE

H490 E90AX-17

90° Endmills Carrying H490 ANKX 17... Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	D	Z	a_p	L	H	d	Shank(1)	$Rd°$(2)	Kg
H490 E90AX D32-2-C32-17	32.00	2	16.30	130.00	44.00	32.00	C	6.5	0.70
H490 E90AX D32-2-W32-17	32.00	2	16.30	95.00	30.00	32.00	W	6.5	0.50
H490 E90AX D40-3-C32-17	40.00	3	16.30	130.00	-	32.00	C	4.4	0.76
H490 E90AX D40-3-W32-17	40.00	3	16.30	110.00	-	32.00	W	4.4	0.64
H490 E90AX D50-4-C32-17	50.00	4	16.30	120.00	-	32.00	C	3.8	0.94

• For user guide see pages L2-13.

(1) C-Cylindrical, W-Weldon (2) Rampdown angle is valid only when the H490 ANKX1706R15T-FF insert is used (in that case tool diameter is 1.5 mm larger).

For inserts, see pages: H490 ANKX/ANCX 1706-FF (K36) • H490 ANKX/ANCX-17 (K36).

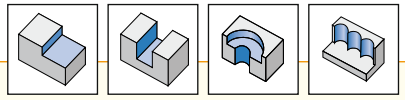
Spare Parts

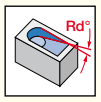
Designation	Screw	T-Handle	Torx Blade
H490 E90AX-17	SR 14-591	SW6-T	BLD T20/M7

HELIDO • CAMFIX
490 LINE

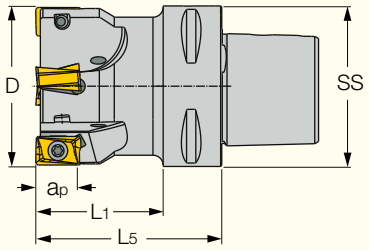
H490 E90AX-17-C#

90° Endmills with CAMFIX Shanks Carrying H490 ANKX 17...
Double-Sided Rectangular Inserts with 4 Helical Cutting Edges









Designation	D	a_p	Z	L_1	L_5	SS	$Rd°^{(1)}$	Kg
H490 E90AX D50-4-17-L63C6	50.00	16.30	4	40.0	63.00	63	3.8	1.34
H490 E90AX D63-4-17-L73C6	63.00	16.30	4	50.0	73.00	63	2.0	3.20
H490 E90AX D80-5-17-L73C6	80.00	16.30	5	50.0	73.00	63	1.5	2.30

• For user guide see pages L2-13. (1) Rampdown angle is valid only when H490 ANKX1706R15T-FF insert is used (in that case tool diameter is 1.5 mm larger).

For inserts, see pages: H490 ANKX/ANCX-17 (K36).

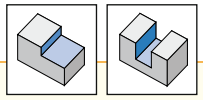
Spare Parts

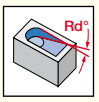
Designation	Screw	Torx Blade	T-Handle
H490 E90AX-17-C#	SR 14-591	BLD T20/M7	SW6-T

MILLSHRED
P290 LINE

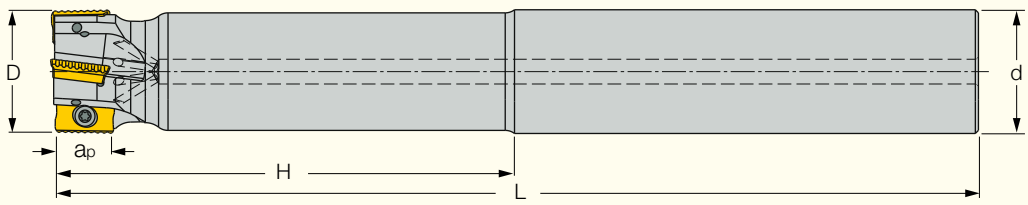
P290 EPW

Long Reach Endmills









Designation	D	a_p	Z	H	L	d	Shank(1)	$Rd°$	Kg
P290 EPW D32-3-170-W32-18	32.00	18.00	3	100.00	170.00	32.00	W	2.0	0.84
P290 EPW D32-3-210-C32-18	32.00	18.00	3	130.00	210.00	32.00	C	2.0	1.16
P290 EPW D32-3-240-C32-18	32.00	18.00	3	160.00	240.00	32.00	C	2.0	1.22
P290 EPW D40-4-170-W32-18	40.00	18.00	4	-	170.00	32.00	W	1.5	0.95
P290 EPW D40-4-200-C32-18	40.00	18.00	4	-	200.00	32.00	C	1.5	1.14
P290 EPW D40-4-250-W40-18	40.00	18.00	4	150.00	250.00	40.00	W	1.5	2.08

• For user guide see pages L2-13.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: P290 ACCT 1806 (K22) • P290 ACKT 1806 (K21).

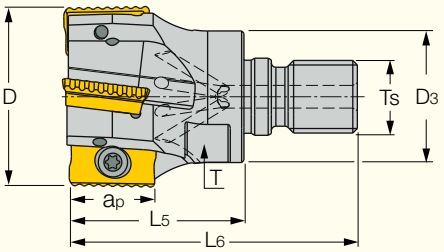
Spare Parts

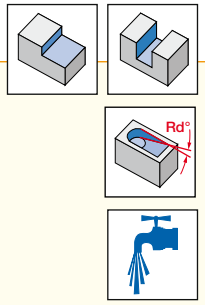
Designation	Screw	Torx Blade	T-Handle
P290 EPW	SR 14-544/S	BLD T15/M7	SW6-T

MILLSHRED
P290 LINE

P290 EPW-M

Endmills with FLEXFIT Threaded Adaptation





Designation	D	a_p	Z	L_5	L_6	Ts	D_3	T(1)	R_d°	Kg
P290 EPW D32-3-M16-18	32.00	18.00	3	40.00	65.00	M16	29.00	25.0	2.0	0.25
P290 EPW D40-4-M16-18	40.00	18.00	4	40.00	65.00	M16	29.00	25.0	1.5	0.29

• For adaptation see pages B45, E46 • For user guide, see pages L2-13.

(1) Clamping wrench size

For inserts, see pages: P290 ACCT 1806 (K22) • P290 ACKT 1806 (K21).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

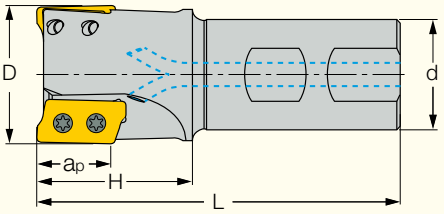
Spare Parts

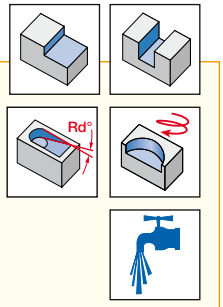
Designation	Screw	Torx Blade	T-Handle
P290 EPW-M	SR 14-544/S	BLD T15/M7	SW6-T

HELIPLUS

HP E90AT-19

90° Endmills with HP AD.. 1906.. Inserts





Designation	D	Z	a_p	L	H	R_d°	d	Shank(1)	Kg
HP E90AT-D25-2-W25-19	25.00	2	18.00	100.00	40.00	14.0	25.00	W	0.29
HP E90AT-D32-3-W32-19	32.00	3	18.00	105.00	40.00	7.0	32.00	W	0.61
HP E90AT-D40-3-W32-19	40.00	3	18.00	105.00	40.00	6.0	32.00	W	0.58

• First loosely attach the inner clamping screw, then the outer one. In the same order tighten them both. • For user guide see pages L2-13.

(1) W-Weldon

For inserts, see pages: HP ADCR 1906 (K28) • HP ADKT/ADCT 1906 (K29).

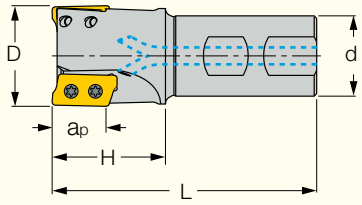
Spare Parts

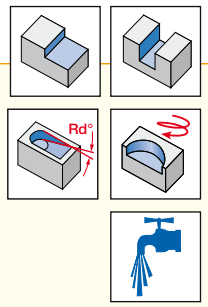
Designation	Screw	Handle	Torx Blade
HP E90AT-19	SR 14-571/L	SW6-SD	BLD T10/S7

HELIPLUS

HP E90AT-22

90° Endmills with HP AD.. 2207.. Inserts





Designation	D	Z	a_p	H	L	R_d°	d	Shank(1)	Kg
HP E90AT-D32-2-C32-22	32.00	2	22.00	45.00	130.00	10.1	32.00	C	0.77
HP E90AT-D32-2-W32-22	32.00	2	22.00	45.00	105.00	10.1	32.00	W	0.50
HP E90AT-D40-2-C32-22	40.00	2	22.00	45.00	130.00	7.0	32.00	C	0.88
HP E90AT-D40-2-W32-22	40.00	2	22.00	45.00	105.00	7.0	32.00	W	0.72
HP E90AT-D50-3-W32-22	50.00	3	22.00	45.00	105.00	5.0	32.00	W	0.93

• First loosely attach the inner clamping screw, then the outer one. In the same order tighten them both. • For user guide see pages L2-13.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: HP ADCR 2207 (K30) • HP ADKT/ADCT 2207 (K29).

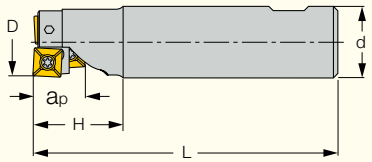
Spare Parts

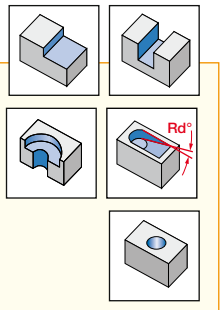
Designation	Screw	T-Handle	Torx Blade
HP E90AT-D32-2-C32-22	SR 14-544/S	SW6-T SHORT	BLD T15/M7
HP E90AT-D32-2-W32-22	SR 14-544/S	SW6-T SHORT	BLD T15/M7
HP E90AT-D40-2-C32-22	SR 14-544	SW6-T SHORT	BLD T15/M7
HP E90AT-D40-2-W32-22	SR 14-544	SW6-T SHORT	BLD T15/M7
HP E90AT-D50-3-W32-22	SR 14-544	SW6-T SHORT	BLD T15/M7

HELIQUAD

E90XC

Drilling Endmills with Square S/XOMT Inserts





Designation	D	Z	Flute	a_p	H	L	d	Shank(1)	Coolant	Kg
E90XC D12-06-C12-06	12.00	1	1	5.80	25.00	90.00	12.00	C	-	0.07
E90XC D12-06-W12-06	12.00	1	1	5.80	25.00	80.00	12.00	W	-	0.06
E90XC D16-11-C16-06	16.00	3	1	11.10	25.00	100.00	16.00	C	-	0.14
E90XC D16-11-W16-06	16.00	3	1	11.10	25.00	90.00	16.00	W	Y	0.12
E90XC D20-22-C20-06	20.00	5	1	22.00	37.00	120.00	20.00	C	Y	0.24
E90XC D20-22-W20-06	20.00	5	1	22.00	37.00	95.00	20.00	W	Y	0.23

• Use XOMT 06.... insert in central face location. • For user guide see page B36,L2-13.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: SOMT-HQ (K59) • XOMT-HQ (K60).

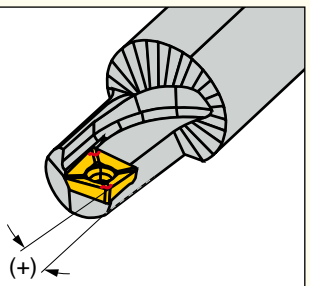
Spare Parts

Designation	Screw	Key
E90XC D12-06-C12-06	SR 34-508	T-7/51
E90XC D12-06-W12-06	SR 34-508	T-7/51
E90XC D16-11-C16-06	SR 34-508	T-7/51
E90XC D16-11-W16-06	SR 34-508	T-7/51
E90XC D20-22-C20-06	SR 34-508/L	T-7/51
E90XC D20-22-W20-06	SR 34-508/L	T-7/51

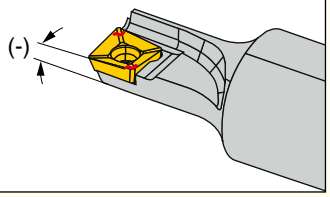
Insert Positioning on E90X / E90SP Endmills

Helix Angle

Right-Hand Helix
(Positive Axial)

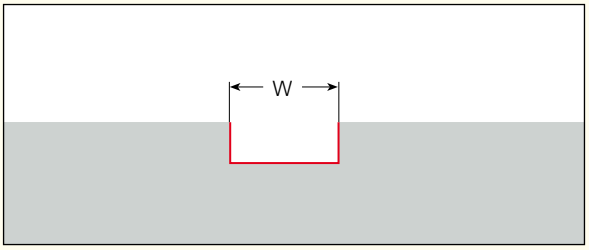


Left-Hand Helix
(Negative Axial)

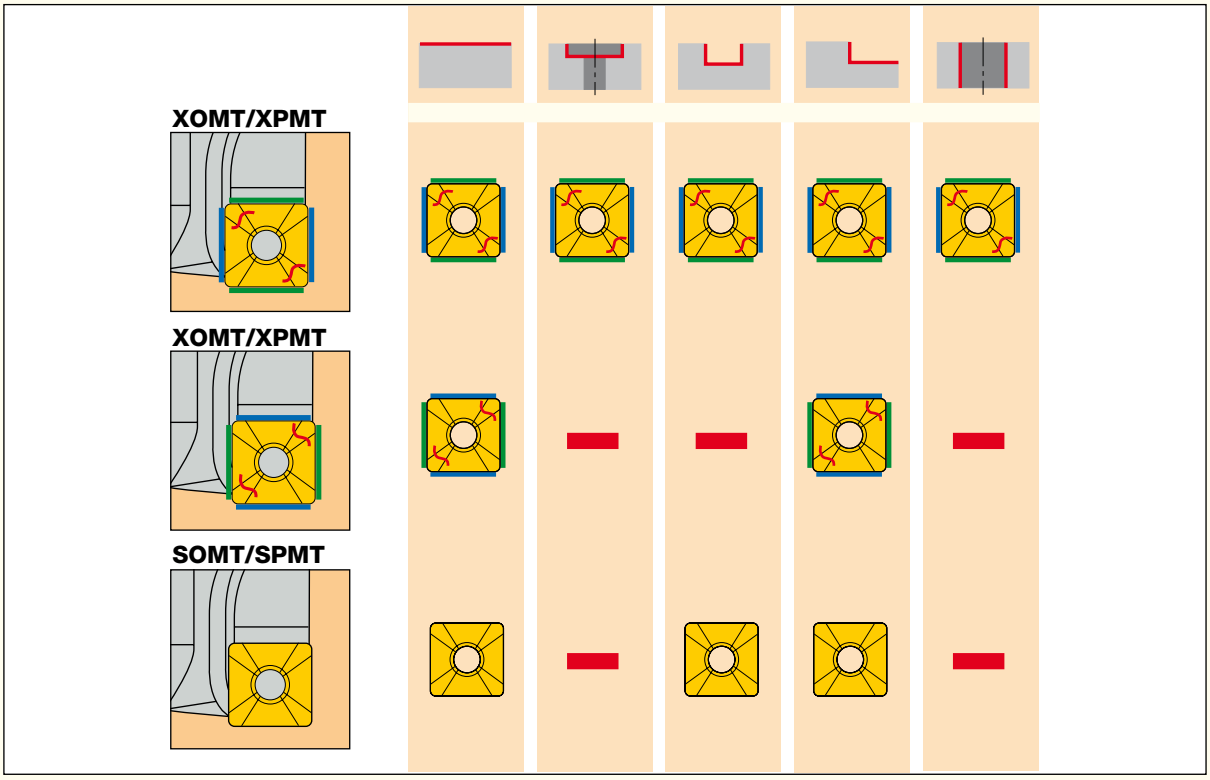


E90X-06 and E90SP
Slot Accuracy
SOMT & XOMT-06/SPMT & XPMT-10

	W Tolerance for E90X & E90SP	
Cutting Dia.	On Master Insert	On Standard
D	-0.10	+0.05 −0.15



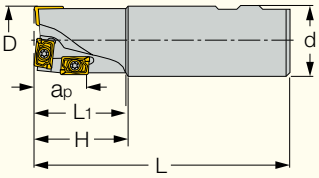


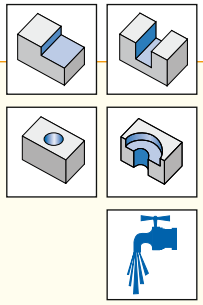


HELIMILL

E90AC

Drilling Endmills with APKT/ADKT Inserts





Designation	D	Z	Flute	a_p	L_1	H	L	d	Shank(1)	Kg	Insert
E90AC D25-10W25	25.00	2	1	10.00	39.0	40.00	100.00	25.00	W	0.27	APKT 1003
E90AC D25-20W25	25.00	3	1	19.00	49.0	50.00	110.00	25.00	W	0.30	APKT 1003
E90AC D32-14W32	32.00	2	1	14.00	48.0	50.00	130.00	32.00	W	0.60	AD..1505
E90AC D32-25W32	32.00	3	1	25.00	48.0	50.00	130.00	32.00	W	0.59	AD..1505
E90AC D38-25W32	38.00	5	2	26.00	-	50.00	130.00	32.00	W	0.70	AD..1505,XPMT 1004
E90AC D38-38W32	38.00	6	2	38.50	-	50.00	130.00	32.00	W	0.69	AD..1505,XPMT 1004
E90AC D50-25W32	50.00	6	2	26.00	-	41.00	130.00	32.00	W	0.99	AD..1505
E90AC D50-38W40	50.00	8	2	38.00	-	43.00	140.00	40.00	W	1.20	AD..1505

• For user guide see pages L2-13.

(1) W-Weldon

For inserts, see pages: ADCT 1505PDFR-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR/L-RM (K8) • XPMT-HQ (K62).

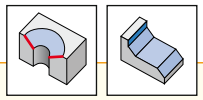
Spare Parts

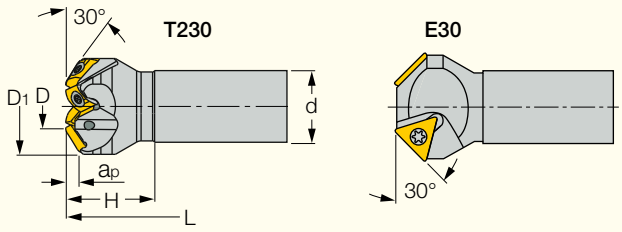
Designation	Screw	Torx Blade	T-Handle	Handle
E90AC D25-10W25	SR 34-505/HG	BLD T08/M7		SW4-SD
E90AC D25-20W25	SR 34-505/HG	BLD T08/M7		SW4-SD
E90AC D32-14W32	SR 34-505/HG	BLD T15/M7	SW6-T	
E90AC D32-25W32	SR 14-544/S	BLD T15/M7	SW6-T	
E90AC D38-25W32	SR 14-544/S	BLD T15/M7	SW6-T	
E90AC D38-38W32	SR 14-544/S	BLD T15/M7	SW6-T	
E90AC D50-25W32	SR 14-544/S	BLD T15/M7	SW6-T	
E90AC D50-38W40	SR 14-544/S	BLD T15/M7	SW6-T	

ISCARMILL

E30 / T230

30° Chamfering Endmills





Designation	D	D_1	Z	a_p	L	H	d	Shank(1)	Kg	Coolant	Insert
T230 ELN D12-4-C16-05	12.00	21.5	4	2.50	90.00	20.00	16.00	C	0.13	Y	T290 LNMT 05
T230 ELN D12-4-W16-05	12.00	21.5	4	2.50	90.00	20.00	16.00	W	0.13	Y	T290 LNMT 05
E30 D16-W25	16.00	40.9	3	7.00	100.00	36.40	25.00	W	0.42	N	TPMT 16

(1) C - Cylindrical, W - Weldon• For user guide see pages L2-13.

For inserts, see pages: T290 LNMT/LNHT 0502 (K37) • TPMT (K33).

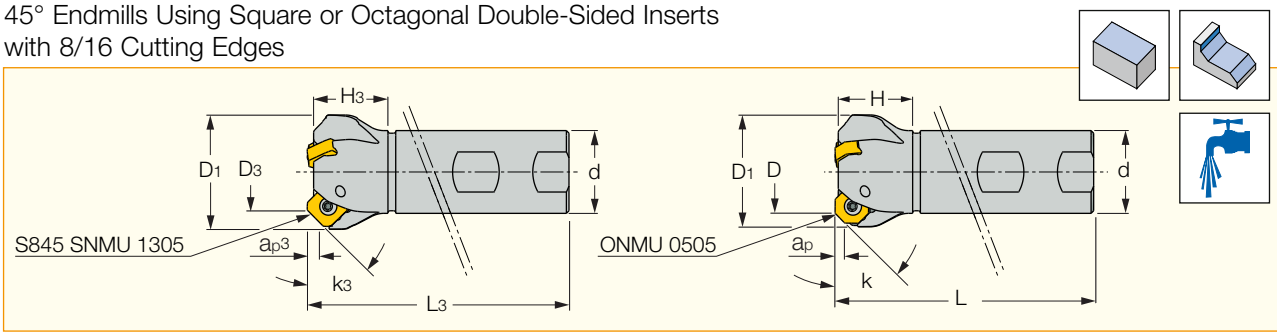
Spare Parts

Designation	Screw	Key
T230 ELN D12-4-C16-05	SR 10503833	T-7/51
T230 ELN D12-4-W16-05	SR 10503833	T-7/51
E30 D16-W25	SR 14-541	T-15/51

HELIDO
845 LINE

SOE45 8/16

45° Endmills Using Square or Octagonal Double-Sided Inserts with 8/16 Cutting Edges



Designation	D	D1	Z	L	ap	H	K°	D3	L3	ap3	H3	K3°	d	Shank(1)	Kg
SOE45 8/16-D025-02-W20R	25.00	35.4	2	100.00	3.50	30.00	44	22.65	101.20	6.00	31.20	45	20.00	W	0.10
SOE45 8/16-D032-03-W25R	32.00	42.4	3	100.00	3.50	30.00	44	29.65	101.20	6.00	31.20	45	25.00	W	0.38
SOE45 8/16-D040-04-W32R	40.00	50.4	4	110.00	3.50	35.00	44	37.65	111.20	6.00	36.20	45	32.00	W	0.20

• D3+ap3+H3+L3+K3° dimensions when S845 SNMU 1305.. inserts are used • For user guide see pages L2-13.

(1) W-Weldon

For inserts, see pages: ONHU 0505-W (K68) • ONHU/ONMU-05 (K68) • S845 SNHU 1305-W (K65) • S845 SNMU/SNHU-13 (K65).

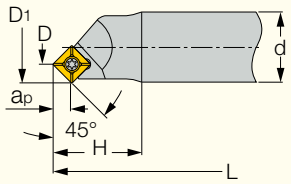
Spare Parts

Designation	Screw	Torx Blade	T-Handle
SOE45 8/16	SR 11800745	BLD IP15/S7	SW6-T SHORT

HELIQUAD

E45X

45° Chamfering Endmills with X/Q/SOMT 06 Inserts



Designation	D	D1	Z	ap	H	L	d	Shank(1)	Kg
E45X D06-C12-06	6.00	14.1	1	4.00	25.00	80.00	12.00	C	0.06
E45X D06-W12-06	6.00	14.1	1	4.00	19.00	70.00	12.00	W	0.05
E45X D08-C16-06	8.00	16.1	1	4.00	25.00	100.00	16.00	C	0.14
E45X D08-W16-06	8.00	16.1	1	4.00	23.00	80.00	16.00	W	0.11

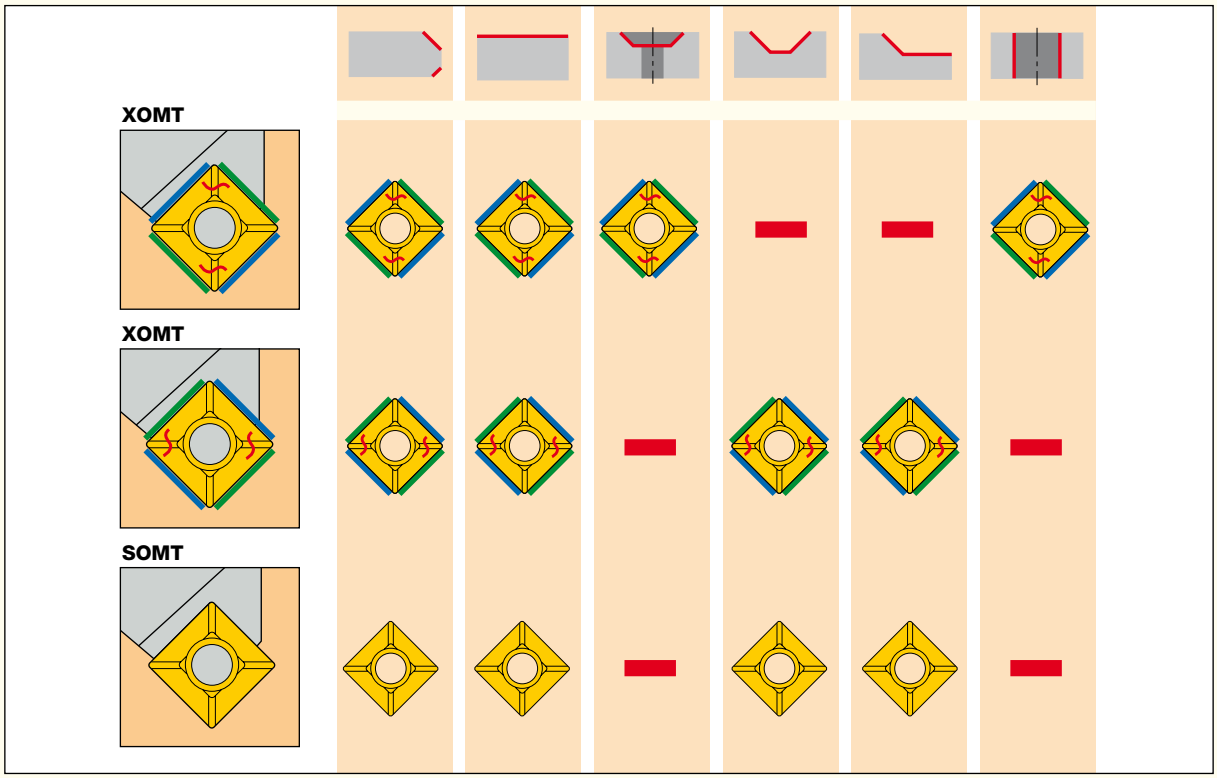
(1) C-Cylindrical, W-Weldon• For user guide see pages B39, L2-13.

For inserts, see pages: QOMT-HQ (K59) • SOMT-HQ (K59) • XOMT-HQ (K60).

Spare Parts

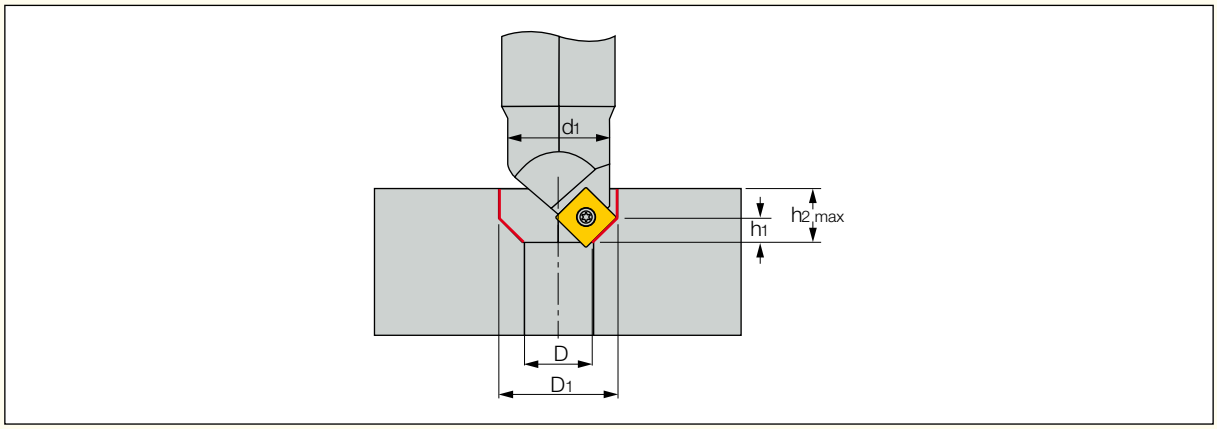
Designation	Screw	Key
E45X	SR 34-508	T-7/51

Insert Positioning on E45X Endmills



E45X-...-06

Countersinking Recommendations

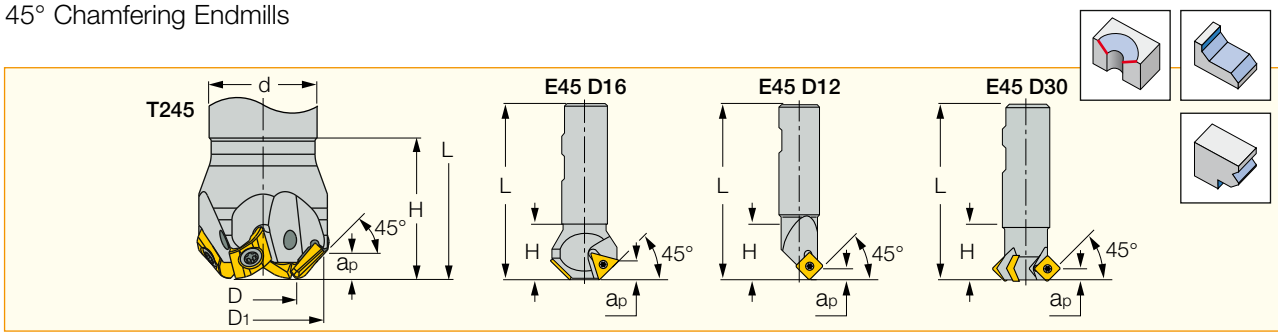


E45X

Designation	Min. Pre-Drilled Dia. D	D_1	h_1	h_{2max}	d	d_1
E45X D06	6.0	14.1	4.0	19.0	12	11.8
E45X D08	8.0	16.1	4.0	19.0	16	14.5

E45 / T245

45° Chamfering Endmills



Designation	D	D_1	Z	a_p	L	H	d	Shank(1)	Coolant	Kg	Insert
T245 ELN D12-4-C16-05	12.00	19.7	4	3.60	90.00	20.00	16.00	C	Y	0.12	T290 LNMT 05...
T245 ELN D12-4-W16-05	12.00	19.7	4	3.60	90.00	20.00	16.00	W	Y	0.12	T290 LNMT 05...
E45 D12-W20	12.00	23.2	1	5.60	100.00	30.00	20.00	W	N	0.20	SDMT 09
E45 D16-W25	16.00	35.9	2	9.70	100.00	33.00	25.00	W	N	0.35	TPMT 16
E45 D30-W25	30.00	46.1	3	7.80	100.00	35.00	25.00	W	N	0.37	SCMT/SCMW 12
E45 D30-W32	30.00	46.1	3	7.80	110.00	35.00	32.00	W	N	0.61	SCMT/SCMW 12

(1) W-Weldon C-Cylindrical• For user guide see pages L2-13.

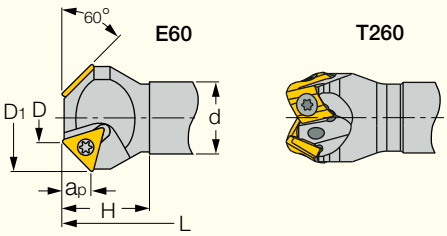
For inserts, see pages: SCMT-19 (K81) • SDMT-AD-N (K81) • T290 LNMT/LNHT 0502 (K37) • TPMT (K33).

Spare Parts

Designation	Screw	Key
T245 ELN D12-4-C16-05	SR 10503833	T-7/51
T245 ELN D12-4-W16-05	SR 10503833	T-7/51
E45 D12-W20	SR 14-541	T-15/51
E45 D16-W25	SR 14-541	T-15/51
E45 D30-W25	SR 16-212	T-20/51
E45 D30-W32	SR 16-212	T-20/51

E60 / T260

60° Chamfering Endmills



Designation	D	D_1	Z	a_p	L	H	d	Shank(1)	Coolant	Kg	Insert
T260 ELN D12-4-C12-05	12.00	17.5	4	4.50	80.00	20.00	12.00	C	Y	0.07	T290 LNMT 05
T260 ELN D12-4-W12-05	12.00	17.5	4	4.50	80.00	20.00	12.00	W	Y	0.07	T290 LNMT 05
E60 D25-W25	25.00	39.4	2	12.30	100.00	33.00	25.00	W	N	0.39	TPMT 16

(1) W-Weldon C-Cylindrical• For user guide see pages L2-13.

For inserts, see pages: T290 LNMT/LNHT 0502 (K37) • TPMT (K33).

Spare Parts

Designation	Screw	Key
T260 ELN D12-4-C12-05	SR 10503833	T-7/51
T260 ELN D12-4-W12-05	SR 10503833	T-7/51
E60 D25-W25	SR 14-541	T-15/51

MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE





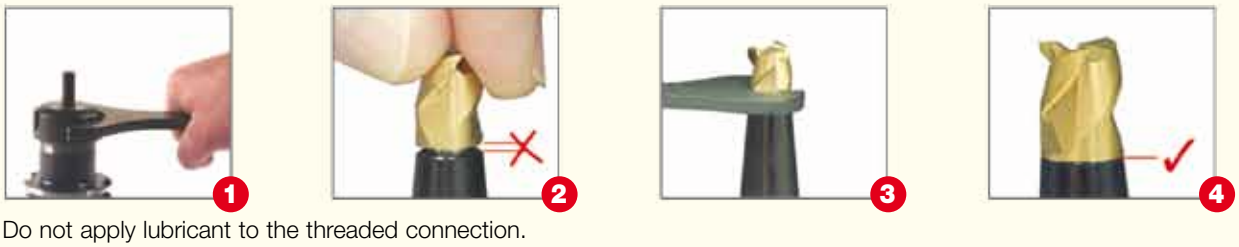
Clamping and Indexing Instructions



MM GRIT



MM TS...



Do not apply lubricant to the threaded connection.

Designation	Thread Size	Key [1]	Tightening Torque (Nxcm)
MM	T05	MM KEY 6x4	700
MM	T06	MM KEY 8x5	1000
MM	T08	MM KEY 10x7	1500
MM	T10	MM KEY 13x8	2800
MM	T12	MM KEY 16x9	2800
MM	T15	MM KEY 20	4000

[1] Order separately



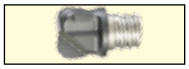
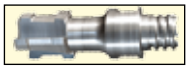
Indexable Solid Carbide Milling Heads
Table of Contents

Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page	
MM HC-2	10°	2	7.8-16		B46	E 
MM EA	45°	2, 3	8-25	High Speed Machining on aluminum	B47	
MM EAH-CF	40°	3	12-20	High Speed Machining on aluminum-CHATTER FREE	B48	
MM ECU-3	38°	3	7.7-19.7	DIN 6885	B48	
MM EC-3	45°	3	8-12.7		B49	
MM EC-4	30°, 45°	4	6-20		B50	
MM EC-6 MM EC-D	30°, 45° 50°	6, 8, 10	8-12.7 8-20		B51-52	
MM EC-8/10	30°, 45°	8,10	16-25		B52	
MM EFS	45°	4	8-25.4	FINISHRED	B53	
MM EFS-CF	38°	4	6-25	FINISHRED CHATTERFREE	B53	
MM EC-CF	38°	4	8-25	CHATTERFREE	B54	
MM ERA	45°	3	8-25	Rough Machining on Aluminum	B55	
MM ERS	45°	4, 5, 6	8-25, 4		B55	
MM EBA	45°	2	8-25	For Machining Aluminum	B58	

E = Economical

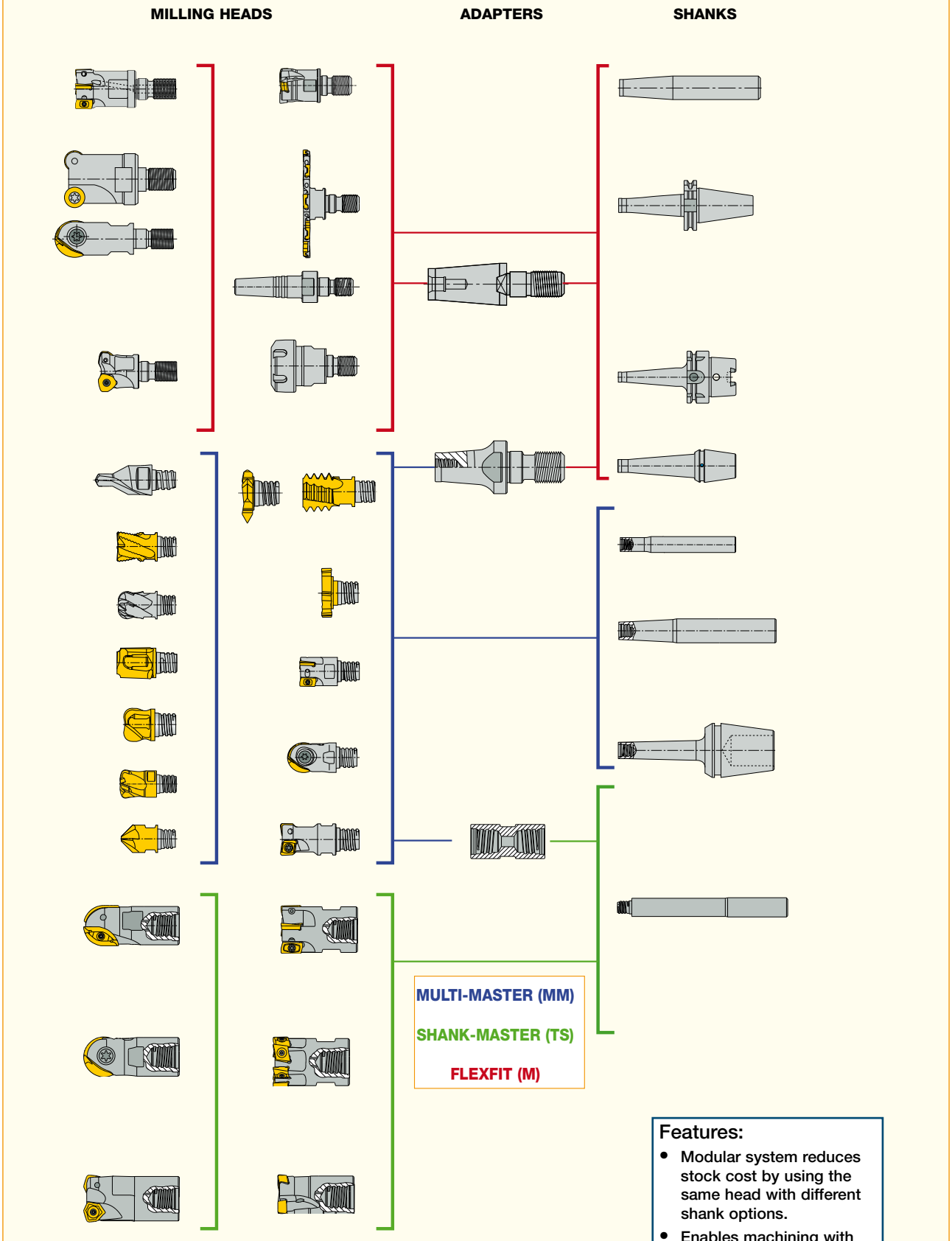
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

Indexable Solid Carbide Milling Heads
Table of Contents

Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page	
MM EB	30°	2, 4	6-20		B58	
MM HCR MM HRF	–	2	8-16	General Finishing	B56	E 
MM HBR	–	2	10-25.4		B57	E 
MM HT	–	2	10-20		B59	E 
MM HT-NWFR		2	12		B60	
MM HT-NCSR	–	2	12		B60	
MM FF	–	2	10-20		B61	E 
MM EFF	–	4,6	8-25.4		B62	
MM ETR	30°	6	8-16		B60	
MM HR	–	2	8-20		B63	E 
MM HCD	–	2	8-20	for DIN 74 Screw	B63	E 
MM ECF	–	4, 6	10-25		B64	
MM ECS	–	2	3.28-6.46	DIN 332	B66	
MM HDF	–	2	9.8-15.7	Double Chamfering	B64	
MM EDF	–	3	9.4, 11.6		B65	
MM TS MM GRIT	–	6 3,4,6	12.7-25 15.7, 17.7, 21.7, 27.7		G6, G7 G9-10	
MM GRIT-K/P-45A		3, 4	15.7,17.7,21.7		B66	
MM TS-DG		4	15.88, 19.05, 25.4		G8	
MM TRD MT-MM	–	3,4 3-6	15.7, 21.7 10-16	55°-DIN ISO 228, B.S 84 60°-ISO 68, DIN13	J29-31	
MM ESB-G	–	–	8-16	Blanks	B67	
MM ESR-G	–	–	8-25	Blanks	B67	

E = Economical

MULTI-MASTER, SHANK-MASTER and FLEXFIT
Connection Options



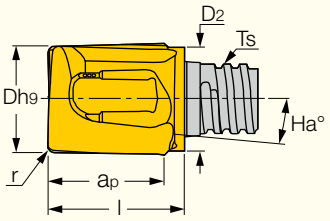
Features:

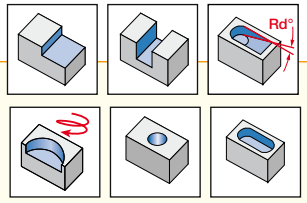
- Modular system reduces stock cost by using the same head with different shank options.
- Enables machining with larger overthang.
- Same head can be mounted on metric and inch combinations.

MM HC

Interchangeable Solid Carbide Slot Drill Milling Heads with Two 10° Helix Flutes







ECONOMICAL SOLUTION

Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	D	Flute	a_p	r	Ts	D_2	l	H_a°	T_m[1]	IC908	IC903	f_z (mm/t)
MM HC078C08R0.2-2T05	7.80	2	7.70	0.20	T05	7.60	10.00	10.0	r0-2.0	●		0.03-0.09
MM HC080C08R0.4-2T05	8.00	2	7.70	0.40	T05	7.60	10.00	10.0	r0-2.0	●	●	0.03-0.09
MM HC080C08R1.0-2T05	8.00	2	7.70	1.00	T05	7.60	10.00	10.0	r0-2.0	●	●	0.03-0.09
MM HC080C08R2.0-2T05	8.00	2	7.70	2.00	T05	7.60	10.00	10.0	r0-2.0	●	●	0.03-0.09
MM HC098C10R0.3-2T06	9.80	2	9.00	0.30	T06	9.60	12.35	10.0	r0-3.0	●		0.03-0.10
MM HC100C10R0.4-2T06	10.00	2	9.00	0.40	T06	9.60	12.35	10.0	r0-3.0	●	●	0.03-0.10
MM HC100C10R1.0-2T06	10.00	2	9.00	1.00	T06	9.60	12.35	10.0	r0-3.0	●	●	0.03-0.10
MM HC100C10R2.0-2T06	10.00	2	9.00	2.00	T06	9.60	12.35	10.0	r0-3.0	●	●	0.03-0.10
MM HC117C13R0.3-2T08	11.70	2	10.00	0.30	T08	11.50	14.20	10.0	r0-3.0	●		0.04-0.11
MM HC120C13R0.4-2T08	12.00	2	10.00	0.40	T08	11.50	14.20	10.0	r0-3.0	●	●	0.04-0.11
MM HC120C13R1.0-2T08	12.00	2	10.00	1.00	T08	11.50	14.20	10.0	r0-3.0	●	●	0.04-0.11
MM HC120C13R2.0-2T08	12.00	2	10.00	2.00	T08	11.50	14.20	10.0	r0-3.0	●	●	0.04-0.11
MM HC.500C55R016-2T08	12.70	2	11.00	0.40	T08	11.50	15.25	10.0	r0-3.2	●		0.04-0.11
MM HC140C11R0.4-2T08	14.00	2	11.60	0.40	T08	11.50	15.05	10.0	r0-4.0	●		0.04-0.12
MM HC157C16R0.3-2T10	15.70	2	15.00	0.30	T10	15.20	19.05	10.0	r0-4.0	●		0.05-0.13
MM HC160C16R0.4-2T10	16.00	2	14.90	0.40	T10	15.20	19.05	10.0	r0-4.0	●	●	0.05-0.13
MM HC160C16R0.8-2T10	16.00	2	14.90	0.80	T10	15.20	19.05	10.0	r0-4.0	●	●	0.05-0.13

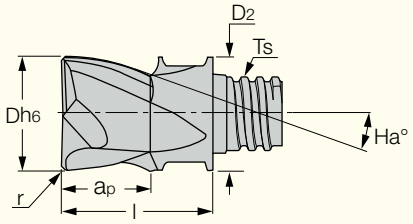
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

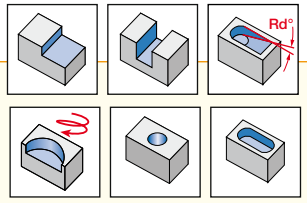
[1] Specially tailored radius range, available upon request.

MM EA

Interchangeable Solid Carbide Slot Drill Milling Heads for Machining Aluminum







ALUMINUM

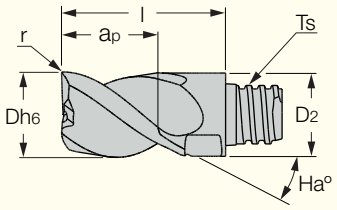
Designation	Dimensions D	Flute	a_p	r	Ts	D_2	l	H_a°	IC08	Recommended Machining Data f_z (mm/t)
MM EA080B05R0.5-2T05	8.00	2	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA080B05R0.5-3T05	8.00	3	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA100B07R0.5-2T06	10.00	2	7.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B07R1.0-2T06	10.00	2	7.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R0.5-3T06	10.00	3	6.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R1.0-3T06	10.00	3	6.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA120B09R0.5-2T08	12.00	2	9.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B09R1.0-2T08	12.00	2	9.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R0.5-3T08	12.00	3	8.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R1.0-3T08	12.00	3	8.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R3.0-3T08	12.00	3	8.00	3.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA.500B37R000-2T08	12.70	2	9.50	0.00	T08	12.40	16.50	45.0	●	0.04-0.11
MM EA.500B37R020-2T08	12.70	2	9.50	0.50	T08	12.40	16.50	45.0	●	0.04-0.11
MM EA.500B31R031-3T08	12.70	3	8.00	0.80	T08	12.40	16.50	45.0	●	0.04-0.11
MM EA.500B31R062-3T08	12.70	3	8.00	1.60	T08	12.40	16.50	45.0	●	0.04-0.11
MM EA.500B31R094-3T08	12.70	3	8.00	2.40	T08	12.40	16.50	45.0	●	0.04-0.11
MM EA.500B31R125-3T08	12.70	3	8.00	3.20	T08	12.40	16.50	45.0	●	0.04-0.11
MM EA160B10R000-3T10	16.00	3	10.00	0.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R1.0-3T10	16.00	3	10.00	1.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R2.0-3T10	16.00	3	10.00	2.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R3.0-3T10	16.00	3	10.00	3.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R4.0-3T10	16.00	3	10.00	4.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA200B12R0.5-3T12	20.00	3	12.00	0.50	T12	18.30	25.50	45.0	●	0.05-0.13
MM EA200B12R1.0-3T12	20.00	3	12.00	1.00	T12	18.30	25.50	45.0	●	0.05-0.13
MM EA200B12R2.0-3T12	20.00	3	12.00	2.00	T12	18.30	25.50	45.0	●	0.05-0.13
MM EA200B12R3.0-3T12	20.00	3	12.00	3.00	T12	18.30	25.50	45.0	●	0.05-0.13
MM EA200B12R4.0-3T12	20.00	3	12.00	4.00	T12	18.30	25.50	45.0	●	0.05-0.13
MM EA250H19R0.5-3T15	25.00	3	19.00	0.50	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R1.0-3T15	25.00	3	19.00	1.00	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R3.0-3T15	25.00	3	19.00	3.00	T15	23.90	37.00	40.0	●	0.06-0.16

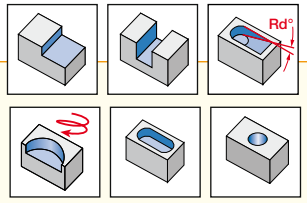
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EA-CF

Interchangeable Solid Carbide Endmill Heads with Variable Helix for Machining Aluminum







ALUMINUM

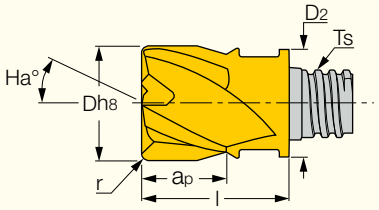
Designation	Dimensions D	Flute	ap	r	Ts	D2	l	Ha°	IC08	Recommended Machining Data fz (mm/t)
MM EA120H12R0.2CF-3T08	12.00	3	12.00	0.20	T08	11.70	23.00	40.0	●	0.04-0.11
MM EA160H16R0.2CF-3T10	16.00	3	16.00	0.20	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA200H20R0.2CF-3T12	20.00	3	20.00	0.20	T12	18.30	34.00	40.0	●	0.05-0.13

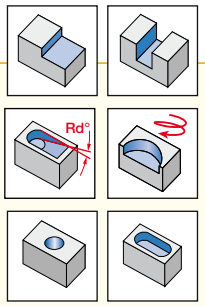
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM ECU

3 Flute Undersized Interchangeable Solid Carbide Heads for Keyways (DIN 6885)







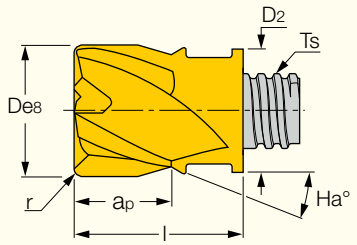
Designation	Dimensions D	Flute	ap	r	Ts	D2	l	Ha°	IC908	Recommended Machining Data fz (mm/t)
MM ECU077E04R020-3T05	7.70	3	4.00	0.20	T05	7.70	10.00	38.0	●	0.03-0.08
MM ECU097E05R030-3T06	9.70	3	5.00	0.30	T06	9.60	13.00	38.0	●	0.03-0.09
MM ECU117E07R030-3T08	11.70	3	7.00	0.30	T08	11.50	16.50	38.0	●	0.03-0.10
MM ECU157E08R030-3T10	15.70	3	8.00	0.30	T10	15.30	20.50	38.0	●	0.04-0.12
MM ECU197E12R040-3T12	19.70	3	12.00	0.40	T12	18.30	25.50	38.0	●	0.05-0.13

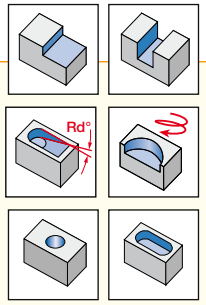
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EC-3

3 Flute 45° Helix, Interchangeable Solid Carbide Endmill Heads





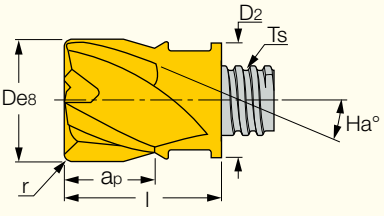


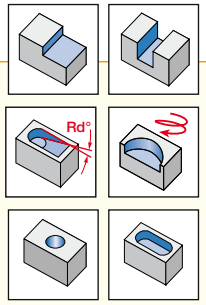
Designation	Dimensions D	Flute	a_p	r	Ts	D_2	l	H_a°	IC908	Recommended Machining Data f_z (mm/t)
MM EC080B05R000-3T05	8.00	3	5.00	0.00	T05	7.70	10.00	45.0	●	0.03-0.09
MM EC100B07R000-3T06	10.00	3	7.00	0.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EC100B12R000-3T06	10.00	3	12.00	0.00	T06	9.60	19.00	45.0	●	0.03-0.10
MM EC120B09R000-3T08	12.00	3	9.00	0.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EC.500B37R000-3T08	12.70	3	9.50	0.00	T08	12.40	16.50	45.0	●	0.05-0.10
MM EC.500B37R015-3T08	12.70	3	9.50	0.40	T08	12.40	16.50	45.0	●	0.05-0.10
MM EC.500B37R031-3T08	12.70	3	9.50	0.80	T08	12.40	16.50	45.0	●	0.05-0.10
MM EC.500B37R062-3T08	12.70	3	9.50	1.60	T08	12.40	16.50	45.0	●	0.05-0.10

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EC-4

4 Flute Interchangeable Solid Carbide Endmill Heads,
30° and 45° Helix, Various Corner Radii





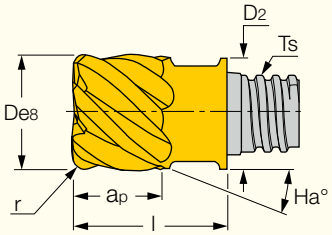
Designation	Dimensions D	r	Ha°	Flute	ap	Ts	D2	l	IC908	Recommended Machining Data fz (mm/t)
MM EC060B05R000-4T05	6.00	0.00	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.07
MM EC080B05R000-4T05	8.00	0.00	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B09R000-4T05	8.00	0.00	45.0	4	9.00	T05	7.70	15.00	●	0.03-0.09
MM EC080A05R0.5-4T05	8.00	0.50	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A09R0.5-4T05	8.00	0.50	30.0	4	9.00	T05	7.70	15.00	●	0.03-0.09
MM EC080B05R0.5-4T05	8.00	0.50	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A05R1.0-4T05	8.00	1.00	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B05R1.0-4T05	8.00	1.00	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A05R1.5-4T05	8.00	1.50	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B05R1.5-4T05	8.00	1.50	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC100B07R000-4T06	10.00	0.00	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B12R000-4T06	10.00	0.00	45.0	4	12.00	T06	9.60	19.00	●	0.03-0.10
MM EC100A07R0.5-4T06	10.00	0.50	30.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B07R0.5-4T06	10.00	0.50	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100A07R1.0-4T06	10.00	1.00	30.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B07R1.0-4T06	10.00	1.00	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC120B09R000-4T08	12.00	0.00	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B14R000-4T08	12.00	0.00	45.0	4	14.00	T08	11.70	23.00	●	0.04-0.11
MM EC120A09R0.5-4T08	12.00	0.50	30.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B09R0.5-4T08	12.00	0.50	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120A09R1.0-4T08	12.00	1.00	30.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B09R1.0-4T08	12.00	1.00	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC160B12R000-4T10	16.00	0.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R0.5-4T10	16.00	0.50	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R0.5-4T10	16.00	0.50	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R1.0-4T10	16.00	1.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R1.0-4T10	16.00	1.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R1.5-4T10	16.00	1.50	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R1.5-4T10	16.00	1.50	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R2.0-4T10	16.00	2.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R2.0-4T10	16.00	2.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R3.0-4T10	16.00	3.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R3.0-4T10	16.00	3.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R4.0-4T10	16.00	4.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R4.0-4T10	16.00	4.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC200B15R000-4T12	20.00	0.00	45.0	4	15.00	T12	18.30	25.50	●	0.05-0.13
MM EC200A15R0.5-4T12	20.00	0.50	30.0	4	15.00	T12	18.30	25.50	●	0.05-0.13
MM EC200A15R1.0-4T12	20.00	1.00	30.0	4	15.00	T12	18.30	25.50	●	0.05-0.13
MM EC200A15R2.0-4T12	20.00	2.00	30.0	4	15.00	T12	18.30	25.50	●	0.05-0.13
MM EC200A15R3.0-4T12	20.00	3.00	30.0	4	15.00	T12	18.30	25.50	●	0.05-0.13

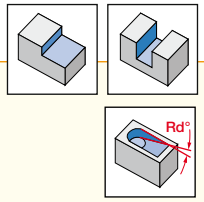
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EC-6

6 Flute Interchangeable Solid Carbide Endmill Heads,
30°and 45° Helix, Various Corner Radii





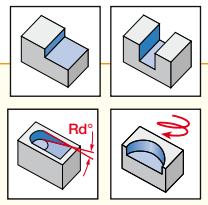


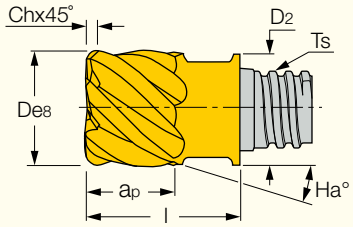
Designation	Dimensions D	Flute	a_p	r	Ts	D_2	l	H_a°	R_d°	IC908	Recommended Machining Data f_z (mm/t)
MM EC080A05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080A05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080A05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080B05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	45.0	3.0	●	0.03-0.10
MM EC080B05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	45.0	3.0	●	0.03-0.09
MM EC080B05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	45.0	3.0	●	0.03-0.09
MM EC100A07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100A07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100A07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100B07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	45.0	3.0	●	0.04-0.10
MM EC100B07R000-6T06	10.00	6	7.00	0.00	T06	9.60	13.00	45.0	3.0	●	0.03-0.10
MM EC100B07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	45.0	3.0	●	0.04-0.10
MM EC100B07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	45.0	3.0	●	0.03-0.10
MM EC100B12R1.5-6T06	10.00	6	12.00	1.50	T06	9.60	19.00	45.0	3.0	●	0.04-0.10
MM EC120A09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	30.0	6.0	●	0.04-0.11
MM EC120A09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	30.0	6.0	●	0.04-0.11
MM EC120B09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	45.0	3.0	●	0.04-0.10
MM EC120B09R000-6T08	12.00	6	9.00	0.00	T08	11.70	16.50	45.0	3.0	●	0.04-0.11
MM EC120B09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	45.0	3.0	●	0.04-0.10
MM EC120B09R1.5-6T08	12.00	6	9.00	1.50	T08	11.70	16.50	45.0	3.0	●	0.04-0.11
MM EC.500A37R015-6T08	12.70	6	9.50	0.40	T08	12.40	16.50	30.0	6.0	●	0.04-0.11
MM EC.500A37R030-6T08	12.70	6	9.50	0.76	T08	12.40	16.50	30.0	6.0	●	0.04-0.11
MM EC.500B37R000-6T08	12.70	6	9.50	0.00	T08	12.40	16.50	45.0	5.0	●	0.04-0.11
MM EC.500B37R015-6T08	12.70	6	9.50	0.40	T08	12.40	16.50	45.0	5.0	●	0.04-0.11
MM EC.500B37R031-6T08	12.70	6	9.50	0.80	T08	12.40	16.50	45.0	5.0	●	0.04-0.11
MM EC.500B37R060-6T08	12.70	6	9.50	1.50	T08	12.40	16.50	45.0	5.0	●	0.04-0.11

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EC-D

6, 8, 10 Flute Interchangeable Solid Carbide, Endmill Heads with 50° Helix, for Machining Hardened Steel



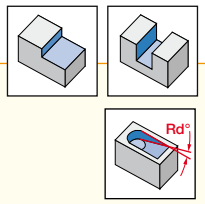


Designation	Dimensions D	Flute	ap	Ch	Ts	D2	l	Ha°	Rd°	IC903	Recommended Machining Data fz (mm/t)
MM EC080D05C01-6T05	8.00	6	5.00	0.10	T05	7.70	10.00	50.0	2.0	●	0.03-0.10
MM EC100D07C01-6T06	10.00	6	7.00	0.10	T06	9.60	13.00	50.0	2.0	●	0.03-0.10
MM EC120D09C01-6T08	12.00	6	9.00	0.10	T08	11.70	16.50	50.0	3.0	●	0.04-0.11
MM EC160D12C02-8T10	16.00	8	12.00	0.20	T10	15.30	20.50	50.0	3.0	●	0.05-0.13
MM EC200D15C02-10T12	20.00	10	15.00	0.20	T12	18.30	25.50	50.0	3.0	●	0.05-0.13

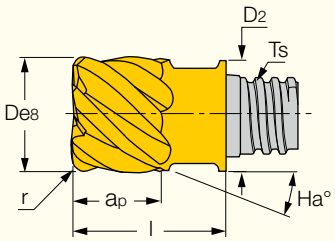
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EC-8/MM EC-10

8, 10 Flute Interchangeable Solid Carbide Endmill Heads, 30° and 45° Helix, Various Corner Radii







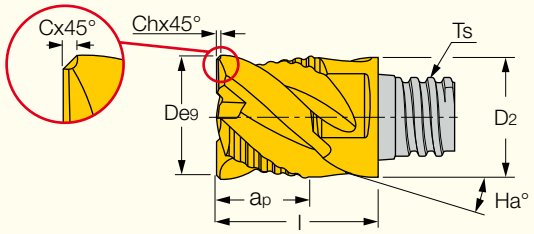
Designation	Dimensions D	Flute	ap	r	Ts	D2	l	Ha°	Rd°	Coolant	IC908	Recommended Machining Data fz (mm/t)
MM EC160A12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	-	●	0.05-0.13
MM EC160A12R0.5-8T10H	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	Y	●	0.05-0.13
MM EC160A12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	30.0	5.0	-	●	0.05-0.13
MM EC160A12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	30.0	5.0	-	●	0.05-0.13
MM EC160A12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	30.0	5.0	-	●	0.05-0.13
MM EC160B12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	45.0	5.0	-	●	0.05-0.13
MM EC160B12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	45.0	5.0	-	●	0.05-0.13
MM EC160B12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	45.0	5.0	-	●	0.05-0.13
MM EC160B12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	45.0	5.0	-	●	0.05-0.13
MM EC200A15R1.0-10T12	20.00	10	15.00	1.00	T12	18.30	25.50	30.0	3.0	-	●	0.05-0.13
MM EC200A15R2.0-10T12	20.00	10	15.00	2.00	T12	18.30	25.50	30.0	3.0	-	●	0.05-0.13
MM EC250A22R0.8-10T15	25.00	10	22.00	0.80	T15	23.90	37.00	30.0	3.0	-	●	0.05-0.13

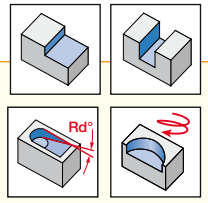
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EFS

Combination of Roughing and Finishing Interchangeable Solid Carbide Endmill Heads







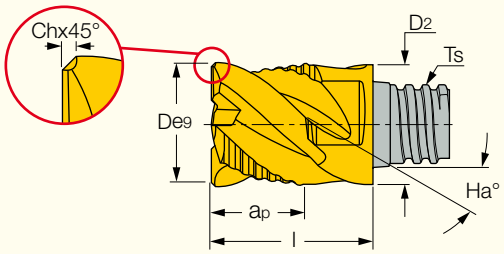
Designation	Dimensions D	Flute	ap	Ch	Ts	D2	l	Ha°	IC908	Recommended Machining Data fz (mm/t)
MM EFS080B05-4T05	8.00	4	5.00	0.30	T05	7.70	10.00	45.0	●	0.03-0.08
MM EFS100B07-4T06	10.00	4	7.00	0.30	T06	9.60	13.00	45.0	●	0.03-0.09
MM EFS120B09-4T08	12.00	4	9.00	0.40	T08	11.70	16.50	45.0	●	0.04-0.10
MM EFS.500B37-4T08	12.70	4	9.40	0.40	T08	12.40	16.50	45.0	●	0.04-0.00
MM EFS160B12-4T10	16.00	4	12.00	0.60	T10	15.30	20.50	45.0	●	0.05-0.11
MM EFS200B15-4T12	20.00	4	15.00	0.60	T12	18.30	25.50	45.0	●	0.05-0.11
MM EFS250B22-4T15	25.00	4	22.00	0.60	T15	23.90	37.00	45.0	●	0.06-0.11
MM EFS1.00B86-4T15	25.40	4	22.00	0.60	T15	23.90	37.00	45.0	●	0.00-0.00

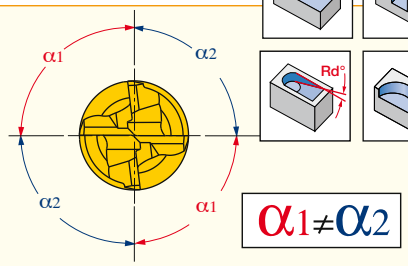
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EFS-CF

4 Flute 38° Helix with Variable Pitch, Solid Carbide Heads for Chatter Free Roughing and Finishing Applications







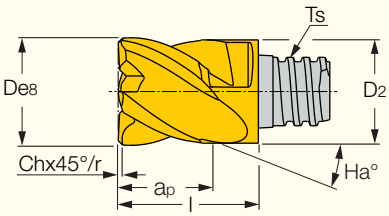
Designation	Dimensions D	Flute	ap	Ch	Ts	D2	l	Ha°	IC908	Recommended Machining Data fz (mm/t)
MM EFS060E05-4T05 CF	6.00	4	5.00	0.25	T05	7.70	10.00	38.0	●	0.03-0.08
MM EFS080E05-4T05 CF	8.00	4	5.00	0.3	T05	7.70	10.00	38.0	●	0.03-0.08
MM EFS100E07-4T06 CF	10.00	4	7.00	0.4	T06	9.60	13.00	38.0	●	0.03-0.09
MM EFS120E09-4T08 CF	12.00	4	9.00	0.5	T08	11.70	16.50	38.0	●	0.04-0.10
MM EFS.500E37-4T08 CF	12.70	4	9.50	0.5	T08	12.40	16.50	38.0	●	0.04-0.10
MM EFS160E12-4T10 CF	16.00	4	12.00	0.6	T10	15.30	20.50	38.0	●	0.05-0.11
MM EFS200E15-4T12 CF	20.00	4	16.00	0.6	T12	18.30	25.50	38.0	●	0.05-0.11
MM EFS250E22-4T15 CF	25.00	4	22.00	0.6	T15	23.90	37.00	38.0	●	0.06-0.11

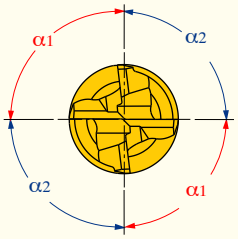
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

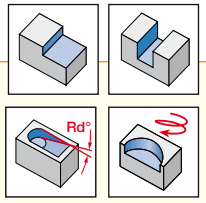
MM EC-CF

Interchangeable Solid Carbide Endmill Heads for Chatter Free Roughing and Finishing Operations









$\alpha 1 \neq \alpha 2$

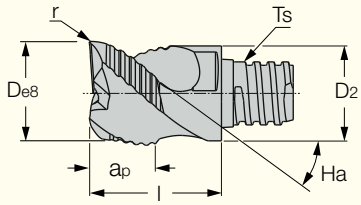
Designation	Dimensions D	Ch	r	Flute	a_p	Ts	D_2	l	H_a°	IC908	Recommended Machining Data f_z (mm/t)
MM EC080E05C3CF-4T05	8.00	0.3	-	4	5.00	T05	7.70	10.00	38.0	●	0.03-0.09
MM EC080E05R05CF-4T05	8.00	-	0.50	4	5.00	T05	7.70	10.00	38.0	●	0.03-0.09
MM EC100E07C4CF-4T06	10.00	0.4	-	4	7.00	T06	9.60	13.00	38.0	●	0.03-0.10
MM EC100E07R05CF-4T06	10.00	-	0.50	4	7.00	T06	9.60	13.00	38.0	●	0.03-0.10
MM EC120E09C5CF-4T08	12.00	0.5	-	4	9.00	T08	11.70	16.50	38.0	●	0.04-0.11
MM EC120E09R05CF-4T08	12.00	-	0.50	4	9.00	T08	11.70	16.50	38.0	●	0.04-0.11
MM EC500E37C20CF-4T08	12.70	0.5	-	4	9.50	T08	12.40	16.50	38.0	●	0.04-0.11
MM EC500E37R31CF-4T08	12.70	-	0.78	4	9.50	T08	12.40	16.50	38.0	●	0.04-0.11
MM EC500E37R0-CF-4T08	12.70	-	-	4	9.50	T08	12.40	16.50	38.0	●	0.04-0.11
MM EC160E12C6CF-4T10	16.00	0.6	-	4	12.00	T10	15.30	20.50	38.0	●	0.05-0.13
MM EC160E12R05CF-4T10	16.00	-	0.50	4	12.00	T10	15.30	20.50	38.0	●	0.05-0.13
MM EC200E15C6CF-4T12	20.00	0.6	-	4	15.00	T12	18.30	25.50	38.0	●	0.05-0.17
MM EC200E15R05CF-4T12	20.00	-	0.50	4	15.00	T12	18.30	25.50	38.0	●	0.05-0.17
MM EC250E22C6CF-4T15	25.00	0.6	-	4	22.00	T15	23.90	37.00	38.0	●	0.06-0.17
MM EC250E22R05CF-4T15	25.00	-	0.50	4	22.00	T15	23.90	37.00	38.0	●	0.06-0.17

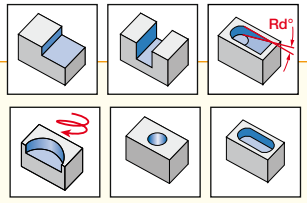
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM ERA

Interchangeable Solid Carbide Rough Milling Heads, for Machining Aluminum







ALUMINUM

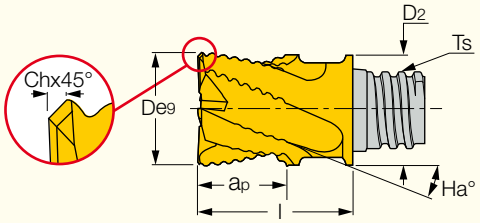
Designation	Dimensions D	Flute	a_p	r	Ts	D_2	l	H_a°	IC08	Recommended Machining Data f_z (mm/t)
MM ERA080B05R0.2-3T05	8.00	3	5.00	0.20	T05	7.70	10.00	45.0	●	0.03-0.15
MM ERA100B06R0.2-3T06	10.00	3	6.00	0.20	T06	9.60	13.00	45.0	●	0.05-0.20
MM ERA120B08R0.2-3T08	12.00	3	8.00	0.20	T08	11.70	16.50	45.0	●	0.07-0.22
MM ERA160B10R0.2-3T10	16.00	3	10.00	0.20	T10	15.30	20.50	45.0	●	0.07-0.25
MM ERA200B12R0.2-3T12	20.00	3	12.00	0.20	T12	18.30	25.50	45.0	●	0.07-0.25
MM ERA250B19R0.2-3T15	25.00	3	19.00	0.20	T15	23.90	37.00	45.0	●	0.07-0.25

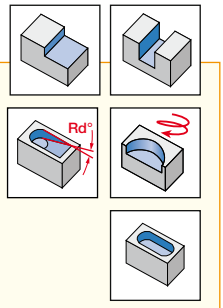
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM ERS

Interchangeable Solid Carbide Rough Milling Heads, for High Metal Removal Rates







Designation	Dimensions D	Flute	a_p	Ts	D_2	l	Ch	H_a°	R_d°	IC908	Recommended Machining Data f_z (mm/t)
MM ERS080B05-4T05	8.00	4	5.00	T05	7.70	10.00	0.25	45.0	90.0	●	0.03-0.08
MM ERS080B09-4T05	8.00	4	9.00	T05	7.70	15.00	0.25	45.0	90.0	●	0.03-0.08
MM ERS100B07-4T06	10.00	4	7.00	T06	9.60	13.00	0.30	45.0	90.0	●	0.03-0.09
MM ERS120B09-4T08	12.00	4	9.00	T08	11.70	16.50	0.35	45.0	90.0	●	0.04-0.10
MM ERS120B09-4T08-H (1)	12.00	4	9.00	T08	11.70	16.50	0.35	45.0	90.0	●	0.04-0.10
MM ERS120B14-4T08	12.00	4	14.00	T08	11.70	23.00	0.35	45.0	90.0	●	0.04-0.10
MM ERS.500B37-4T08	12.70	4	9.50	T08	12.40	16.50	0.35	45.0	90.0	●	0.04-0.10
MM ERS160B12-5T10	16.00	5	12.00	T10	15.30	20.50	0.40	45.0	7.0	●	0.04-0.10
MM ERS160B12-5T10-H (1)	16.00	5	12.00	T10	15.30	20.50	0.40	45.0	7.0	●	0.04-0.10
MM ERS200B15-6T12	20.00	6	15.00	T12	18.30	25.50	0.40	45.0	3.0	●	0.05-0.11
MM ERS250B22-6T15	25.00	6	22.00	T15	23.90	37.00	0.50	45.0	3.0	●	0.05-0.11
MM ERS1.00B86-6T15	25.40	6	22.00	T15	23.90	37.00	0.50	45.0	3.0	●	0.04-0.10

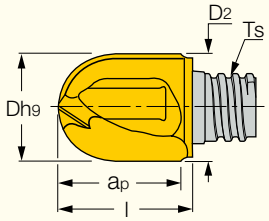
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

(1) With a central coolant hole

MM HCR

Interchangeable 2 Flute Solid Carbide Ball Nose Milling Heads





ECONOMICAL SOLUTION

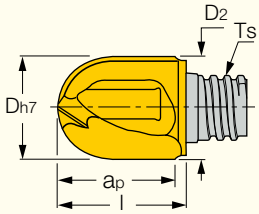
Designation	Dimensions D	Flute	a_p	Ts	D_2	l	IC908
MM HCR080-2T05	8.00	2	7.80	T05	7.60	9.95	●
MM HCR100-2T06	10.00	2	10.00	T06	9.60	12.35	●
MM HCR120-2T08	12.00	2	11.45	T08	11.50	15.30	●
MM HCR.500-2T08	12.70	2	12.90	T08	11.50	16.40	●
MM HCR160-2T10	16.00	2	15.80	T10	15.20	19.10	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM HRF

Interchangeable 2 Flute Solid Carbide Ball Nose Finish Milling Heads





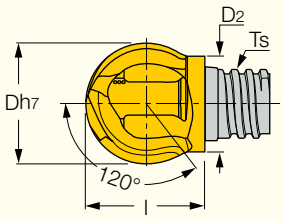
Designation	Dimensions D	Flute	a_p	Ts	D_2	l	Tough ↔ Hard IC908	IC903
MM HRF080-2T05	8.00	2	7.60	T05	7.60	9.95		●
MM HRF100-2T06	10.00	2	10.20	T06	9.60	12.35	●	●
MM HRF120-2T08	12.00	2	11.50	T08	11.50	15.30		●
MM HRF160-2T10	16.00	2	15.80	T10	15.20	19.10		●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM HBR

Interchangeable 2 Flute High Precision, Ball Nose Solid Carbide Milling Heads





ECONOMICAL SOLUTION

Designation	Dimensions D	Flute	Ts	D2	l	IC908
MM HBR100-2T05	10.00	2	T05	7.60	10.00	●
MM HBR120-2T06	12.00	2	T06	9.60	11.60	●
MM HBR.500-2T06	12.70	2	T06	9.60	12.25	●
MM HBR160-2T08	16.00	2	T08	11.50	15.40	●
MM HBR200-2T10	20.00	2	T10	15.20	18.40	●
MM HBR250-2T12	25.00	2	T12	18.30	23.20	●
MM HBR1.00-2T12	25.40	2	T12	18.30	23.40	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

Spare Parts

Designation	Wrench
MM HBR.375-2T05	MM KEY 6X4*
MM HBR100-2T05	MM KEY 6X4*
MM HBR120-2T06	MM KEY 10X7*
MM HBR.500-2T06	MM KEY 10X7*
MM HBR.625-2T08	MM KEY 13X8*
MM HBR160-2T08	MM KEY 13X8*
MM HBR.750-2T10	MM KEY 13X8*
MM HBR200-2T10	MM KEY 13X8*
MM HBR250-2T12	MM KEY 16X9*

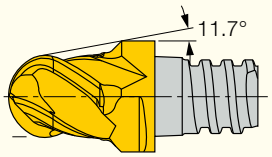
* Optional, should be ordered separately

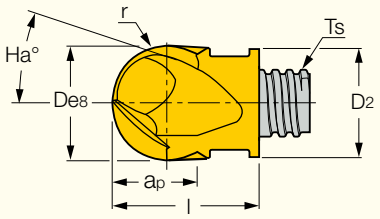
MM EB

Interchangeable Solid Carbide Ball Nose Milling Heads



MM EB060E05-4T05





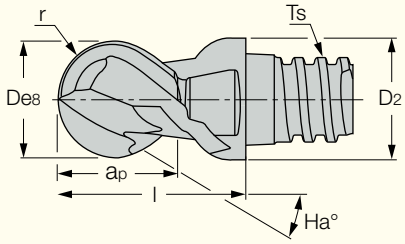
Designation	Dimensions D	Flute	a_p	r	Ts	D_2	l	H_a°	IC908
MM EB060E05-4T05	6.00	4	5.00	2.99	T05	8.00	10.00	38.0	●
MM EB080A05-2T05	8.00	2	5.00	3.98	T05	7.70	10.00	30.0	●
MM EB080A05-4T05	8.00	4	5.00	3.98	T05	7.70	10.00	30.0	●
MM EB100A07-2T06	10.00	2	7.00	4.98	T06	9.60	13.00	30.0	●
MM EB100A07-4T06	10.00	4	7.00	4.98	T06	9.60	13.00	30.0	●
MM EB120A09-2T08	12.00	2	9.00	5.98	T08	11.70	16.50	30.0	●
MM EB120A09-4T08	12.00	4	9.00	5.98	T08	11.70	16.50	30.0	●
MM EB.500A37-2T08	12.70	2	9.50	6.33	T08	12.40	16.50	30.0	●
MM EB.500A37-4T08	12.70	4	9.50	6.33	T08	12.40	16.50	30.0	●
MM EB160A09-2T10	16.00	2	9.00	7.98	T10	15.30	20.50	30.0	●
MM EB160A12-4T10	16.00	4	12.00	7.98	T10	15.30	20.50	30.0	●
MM EB200A15-4T12	20.00	4	15.00	9.97	T12	18.30	25.50	30.0	●
MM EB250A22-4T15	25.00	4	22.00	12.47	T15	23.90	37.00	30.0	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM EBA

2 Flute High Precision, Interchangeable Solid Carbide Ball Nose Heads, for Machining Aluminum





ALUMINUM

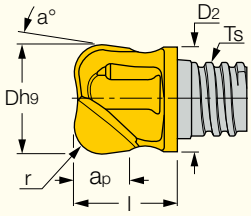
Designation	Dimensions D	Flute	a_p	r	$r^{\pm toler}$	Ts	D_2	l	H_a°	IC08
MM EBA080B05-2T05	8.00	2	5.00	3.98	0.010	T05	7.70	10.00	45.0	●
MM EBA100B07-2T06	10.00	2	7.00	4.98	0.010	T06	9.60	13.00	45.0	●
MM EBA120B09-2T08	12.00	2	9.00	5.98	0.012	T08	11.50	16.50	45.0	●
MM EBA.500B37-2T08	12.70	2	9.50	6.35	0.012	T08	12.40	16.50	45.0	●
MM EBA160B12-2T10	16.00	2	12.00	7.98	0.012	T10	15.30	20.50	45.0	●
MM EBA200B15-2T12	20.00	2	15.00	9.97	0.012	T12	18.30	25.50	45.0	●
MM EBA250B22-2T15	25.00	2	22.00	12.50	0.012	T15	23.90	37.00	45.0	●

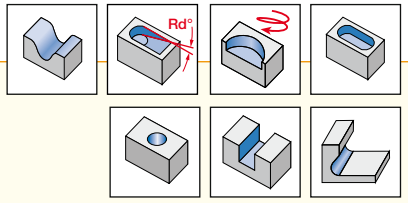
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM HT

Torodial 2 Flute Interchangeable Solid Carbide Heads







ECONOMICAL SOLUTION

Designation	Dimensions									Tough ↔ Hard	
	D	Flute	a_p	r	T_m[1]	Ts	D_2	l	a°	IC908	IC903
MM HT100C08R0.5-2T06	10.00	2	7.00	0.50	r0-1.0	T06	9.60	12.45	5	●	
MM HT100C08R1.0-2T06	10.00	2	7.00	1.00	r0-1.0	T06	9.60	12.45	5	●	
MM HT100N06R2.0-2T06	10.00	2	6.00	2.00	r0-3.0	T06	9.60	12.40	7	●	
MM HT100N07R0.5-2T06	10.00	2	6.90	0.50	r0-1.0	T06	9.60	11.20	5		●
MM HT100N07R1.0-2T06	10.00	2	6.90	1.00	r0-1.0	T06	9.60	11.20	5		●
MM HT100N07R2.0-2T06	10.00	2	6.90	2.00	r0-3.0	T06	9.60	11.20	5		●
MM HT100N07R3.0-2T06	10.00	2	6.90	3.00	r2.7-4.0	T06	9.60	11.20	5		●
MM HT120N06R3.0-2T06	12.00	2	5.40	3.00	r2.7-4.0	T06	9.10	9.10	7	●	
MM HT120N06R4.0-2T06	12.00	2	5.10	4.00	r2.7-4.0	T06	11.50	9.10	7	●	
MM HT120N06R1.6-2T08	12.00	2	5.70	1.60	r1.3-r2.7	T08	11.50	11.10	7	●	●
MM HT120N06R2.0-2T08	12.00	2	5.90	2.00	r1.3-2.7	T08	11.50	11.10	7	●	●
MM HT120N06R2.5-2T08	12.00	2	5.50	2.50	r1.3-4.0	T08	11.50	11.10	7	●	
MM HT120N06R3.0-2T08	12.00	2	5.50	3.00	r2.7-4.4	T08	11.50	11.10	7	●	●
MM HT120N06R4.0-2T08	12.00	2	5.60	4.00	r2.7-4.4	T08	11.50	11.10	7	●	●
MM HT160N07R2.0-2T10	16.00	2	6.90	2.00	r1.5-4.0	T10	15.20	13.10	7	●	
MM HT160N07R3.0-2T10	16.00	2	7.20	3.00	r1.5-4.0	T10	15.20	13.40	7	●	
MM HT160N07R4.0-2T10	16.00	2	7.10	4.00	r1.5-4.0	T10	15.20	13.40	7	●	
MM HT160N08R5.0-2T10	16.00	2	8.00	5.00	r2.7-4.4	T10	15.20	20.20	7	●	●
MM HT200N11R3.0-2T12	20.00	2	10.80	3.00	r3.0-8.0	T12	18.30	17.00	7	●	
MM HT200N11R4.0-2T12	20.00	2	11.10	4.00	r3.0-8.0	T12	18.30	17.30	7	●	
MM HT200N11R5.0-2T12	20.00	2	11.10	5.00	r3.0-8.0	T12	18.30	17.30	7	●	
MM HT200N11R6.0-2T12	20.00	2	11.00	6.00	r3.0-8.0	T12	18.30	17.30	7	●	
MM HT200N11R8.0-2T12	20.00	2	10.90	8.00	r3.0-8.0	T12	18.30	17.30	7	●	

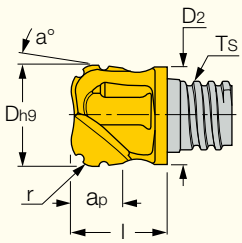
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

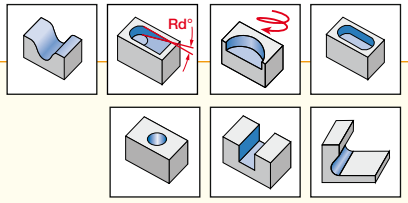
(1) Specially tailored radius range-upon request

MM HT-NCSR

2 Flute Chip Splitting Toroidal, Solid Carbide Milling Heads







ECONOMICAL SOLUTION

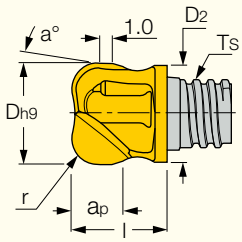
Designation	Dimensions D	Flute	ap	r	Tm(1)	Ts	D2	l	a°	IC908
MM HT120NCSR3.0-2T08	12.00	2	5.50	3.00	r2.7-4.4	T08	11.50	11.10	7	●

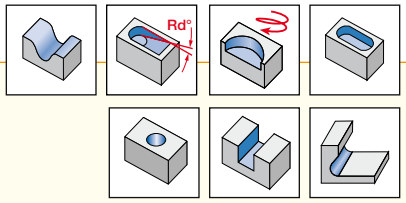
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

(1) Specially tailored radius range, available upon request.

MM HT-NWFR

2 Flute Toroidal Solid Carbide Milling Heads with a Side Tangential Wiper





ECONOMICAL SOLUTION

Designation	Dimensions D	Flute	ap	r	Tm(1)	Ts	D2	l	a°	IC908
MM HT120NWFR3.0-2T08	12.00	2	5.30	3.00	r2.7-4.4	T08	11.50	11.10	7	●

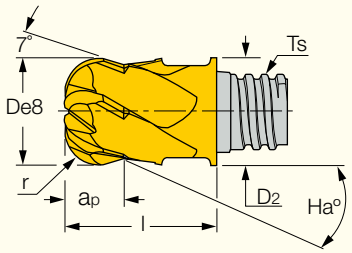
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

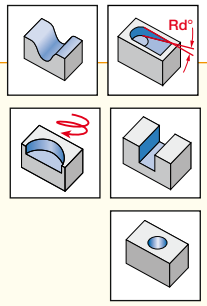
(1) Specially tailored radius range, available upon request.

MM ETR

Torodial 6 Flute Interchangeable Solid Carbide Heads







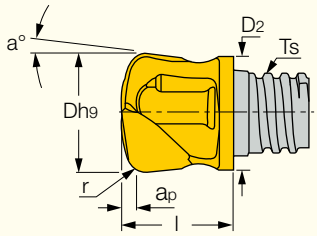
Designation	Dimensions D	Z	ap	r	Ts	D2	l	Ha°	Rd°	IC908
MM ETR080A04R2.0-6T05	8.00	6	5.00	2.00	T05	7.70	10.00	30.0	9.0	●
MM ETR100A05R3.0-6T06	10.00	6	7.00	3.00	T06	9.60	13.00	30.0	9.0	●
MM ETR120A07R4.0-6T08	12.00	6	9.00	4.00	T08	11.70	16.50	30.0	9.0	●
MM ETR160A09R5.0-6T10	16.00	6	12.00	5.00	T10	15.30	20.50	30.0	9.0	●

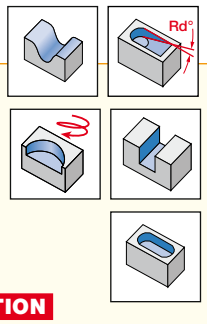
• For shanks, see pages B68-74 • For Clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM FF

2 Flute FEEDMILL Interchangeable Solid Carbide Heads, for Milling at Very High Feed and Small D.O.C.







ECONOMICAL SOLUTION

Designation	Dimensions D	Z	$a_{p\ max}$	r(1)	Ts	D_2	l	a°	R_d°	Tough ↔ Hard IC908	IC903	Recommended Machining Data f_z (mm/t)
MM FF100R1.5-L12-2T06	10.00	2	0.60	2.00	T06	9.60	12.50	7	90.0	●		0.30-0.60
MM FF120R2.0-2T08	12.00	2	0.68	2.50	T08	11.50	11.10	7	90.0	●	●	0.50-1.00
MM FF500R08-L59-2T08	12.70	2	0.68	2.50	T08	11.50	15.00	5	90.0	●		0.50-1.00
MM FF160R2.0-L20-2T10	16.00	2	1.10	3.00	T10	15.20	20.20	7	90.0	●		0.55-1.10
MM FF160R2.0-2T10	16.00	2	1.10	3.00	T10	15.20	13.50	7	90.0	●		0.55-1.10
MM FF200R2.0-2T12	20.00	2	1.50	3.40	T12	18.30	17.40	5	90.0	●		0.75-1.50

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

(1) Should be used for programming

Machining Example:

Shank: MM S-B-L140-C16-T08
Milling head: MM FF 120R2.0-2T08
Workpiece material: SAE 4340 HRc 28

Plunging
ap = 2 mm
Vc = 80 mm
F = 0.24 m/min

Milling
ap = 0.7 mm
ae = 8 mm
Vc = 150 m/min
Fz = 1 mm/tooth
Vf = 7960 mm/min

Machining Example:

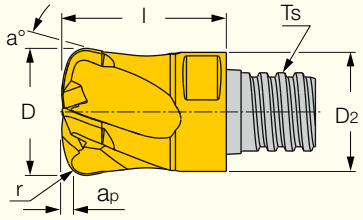
Shank: MM S-A-L070-W20-T10
Milling head: MM FF160R2.0-2T10 908
Workpiece material: P20 HRc 52

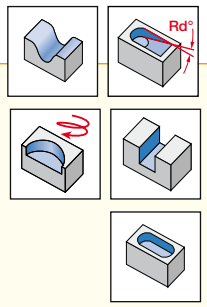
Milling
ap = 0.2 mm
ae = 6 mm
Vc = 150 m/min
Fz = 1.4 mm/tooth
Vf = 8355
T = 60 min

MM EFF

4,6 Flute Solid Carbide Heads for Milling at Very High Feed and Small D.O.C.







Designation	Dimensions D	Z	a_p	Ts	D_2	l	a°	r(2)	Tough ↔ Hard IC908	IC903	Recommended Machining Data f_z (mm/t)
MM EFF080T3R1.62-4T05	8.00	4	0.40	T05	7.50	10.00	7	1.62		●	0.12-0.48
MM EFF100T4R2.01-4T06	10.00	4	0.50	T06	9.50	13.00	7	2.01		●	0.16-0.57
MM EFF120T4R1.8-4T08H (1)	12.00	4	0.60	T08	11.50	16.50	7	1.80	●		0.16-0.67
MM EFF120T4R2.47-4T08	12.00	4	0.60	T08	11.50	16.50	7	2.47		●	0.16-0.67
MM EFF127T4R2.59-4T08	12.70	4	0.60	T08	12.20	16.50	7	2.59		●	0.16-0.67
MM EFF160T5R2.2-4T10H (1)	16.00	4	0.80	T10	15.30	20.50	7	2.20	●		0.20-0.75
MM EFF160T5R3.25-4T10	16.00	4	0.80	T10	15.30	20.50	7	3.25		●	0.20-0.75
MM EFF200T6R4.02-4T12	20.00	4	1.00	T12	18.30	25.50	7	4.02		●	0.20-0.90
MM EFF250A7R3.1-6T15	25.00	6	1.20	T15	23.90	25.00	7	3.10		●	0.25-1.00
MM EFF254A7R3.63-6T15	25.40	6	1.20	T15	23.90	25.00	7	3.10		●	0.25-1.00

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

(1) With a central coolant hole (2) Should be used for programming

Machining Recommendations

VDI 3323	Material Group(1)	Vc (m/min)	ap	ae	Fz (mm/t) vs. Tool Diameter (mm) 8	10	12	16	20	25
P	1	180	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	2	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	3	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	4	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	5	150	0.045xD	0.7xD	0.43	0.50	0.57	0.65	0.75	0.87
	6	150	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	7	140	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	8	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	9	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	10	130	0.04xD	0.6xD	0.28	0.33	0.38	0.48	0.57	0.67
	11	120	0.04xD	0.6xD	0.25	0.30	0.35	0.43	0.52	0.62
M	12, 13	120	0.04xD	0.6xD	0.30	0.35	0.43	0.52	0.60	0.70
K	15-16	180	Apmax	0.7xD	0.45	0.52	0.60	0.70	0.80	0.90
	17-18	160	Apmax	0.7xD	0.38	0.45	0.52	0.60	0.70	0.80
H	38.1(2)	100	0.035xD	0.45xD	0.20	0.25	0.33	0.40	0.48	0.55
	38.2(3)	80	0.03xD	0.3xD	0.16	0.22	0.30	0.38	0.45	0.52
	39(4)	60	0.02xD	0.25xD	0.12	0.16	0.16	0.20	0.20	0.25

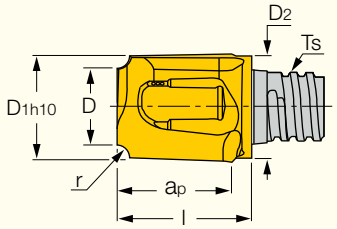
(1) ISCAR material group in accordance with VDI 3323 standard
(2) 45-49 HRc
(3) 50-55 HRc
(4) 56-63 HRc

ap - Depth of cut
ae - Width of cut

MM HR

Interchangeable 2 Flute Solid Carbide, Concave Radius Milling Heads





ECONOMICAL SOLUTION

Designation	Dimensions									IC908
	D_1	r	Z	D	a_p	Ts	D_2	l	T_m[1]	
MM HR1.0/047-5.8-2T05	8.0	1.00	2	5.80	7.50	T05	7.60	10.60	r0.5-3.0	●
MM HR1.6/063-6.8-2T06	10.0	1.60	2	6.80	9.50	T06	9.60	12.50	r0.5-3.0	●
MM HR2.0/078-6.0-2T06	10.0	2.00	2	6.00	9.50	T06	9.60	12.50	r0.5-3.0	●
MM HR2.5/094-5.1-2T06	10.0	2.50	2	5.10	9.50	T06	9.60	12.50	r0.5-3.0	●
MM HR3.0/125-6.5-2T08	12.7	3.00	2	6.50	12.00	T08	11.50	15.60	r0.5-4.0	●
MM HR4.0/156-4.7-2T08	12.7	4.00	2	4.70	12.00	T08	11.50	15.60	r0.5-4.0	●
MM HR5.0/188-6.2-2T10	16.0	5.00	2	6.20	15.00	T10	15.20	19.10	r0.5-5.0	●
MM HR6.0/236-8.0-2T12	20.0	6.00	2	8.00	7.00	T12	18.30	17.40	r0.5-6.0	●

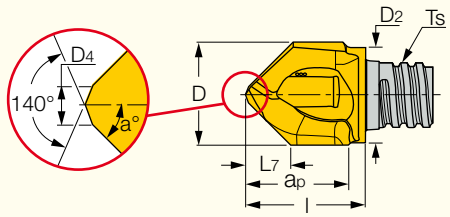
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

(1) Specially tailored radius range upon request.

MM HCD

2 Flute Interchangeable Solid Carbide Heads, for Chamfering, Countersinking and Spot Drilling





ECONOMICAL SOLUTION

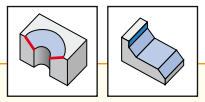
Designation	Dimensions										IC908
	D	Z	Dtol	a_p	Ts	D_2	l	a°	L_7	D_4	
MM HCD080-090-2T05 (1)	8.00	2	z9	7.00	T05	7.60	9.75	45	3.15	1.00	●
MM HCD083-090-2T05 (1)	8.30	2	z9	7.50	T05	7.60	10.00	45	3.56	1.00	●
MM HCD100-060-2T06	10.00	2	h10	9.30	T06	9.60	11.75	30	7.60	1.50	●
MM HCD100-090-2T06 (1)	10.00	2	z9	9.00	T06	9.60	11.75	45	4.40	1.50	●
MM HCD100-120-2T06	10.00	2	h10	9.50	T06	9.60	12.70	60	2.70	1.50	●
MM HCD104-090-2T06 (1)	10.40	2	z9	9.00	T06	9.60	11.75	45	4.60	1.50	●
MM HCD120-060-2T08	12.00	2	h10	11.00	T08	11.50	15.40	30	9.24	1.50	●
MM HCD120-090-2T08 (1)	12.00	2	z9	12.00	T08	11.50	15.50	45	5.30	1.50	●
MM HCD120-120-2T08	12.00	2	h10	11.65	T08	11.50	15.20	60	3.50	1.50	●
MM HCD124-090-2T08 (1)	12.40	2	z9	11.80	T08	11.50	15.50	45	5.50	1.50	●
MM HCD.500-080-2T08 (2)	12.70	2	z9	11.10	T08	12.20	15.50	40	6.80	1.50	●
MM HCD160-060-2T10	16.00	2	h10	16.20	T10	15.20	20.20	30	12.00	2.50	●
MM HCD160-090-2T10 (1)	16.00	2	z9	14.90	T10	15.20	18.80	45	7.10	1.50	●
MM HCD160-120-2T10	16.00	2	h10	15.50	T10	15.20	19.90	60	4.40	1.50	●
MM HCD165-090-2T10 (1)	16.50	2	z9	14.90	T10	15.20	18.80	45	7.10	1.50	●
MM HCD200-060-2T12	20.00	2	h10	18.20	T12	18.30	24.70	30	15.50	2.50	●
MM HCD200-090-2T12 (1)	20.00	2	z9	18.20	T12	18.30	24.70	45	9.40	1.50	●
MM HCD200-120-2T12	20.00	2	h10	14.65	T12	18.30	21.15	60	5.50	1.50	●

• For shanks, see pages B68-74 • Clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

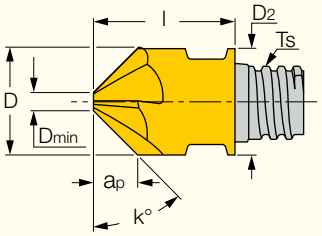
(1) May be used for F-type (fine) countersink according to DIN 74. (2) Countersink according to American National and British standard flat screws.

MM ECF

Interchangeable Solid Carbide Heads, for Chamfering and Countersinking





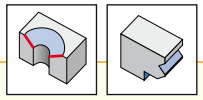


Designation	Dimensions D	Z	D min	a_p	Ts	D_2	l	K°	IC908
MM ECF45-100-4T06	10.00	4	1.95	4.00	T06	10.00	13.00	45	●
MM ECF60-100-4T06	10.00	4	1.60	7.30	T06	10.00	13.00	60	●
MM ECF45-120-4T08	12.00	4	1.95	5.00	T08	12.00	16.50	45	●
MM ECF45-.500-4T08	12.70	4	1.95	5.00	T08	12.70	16.50	45	●
MM ECF45-160-6T10	16.00	6	3.00	6.50	T10	16.00	20.50	45	●
MM ECF45-200-6T12	20.00	6	5.00	7.50	T12	18.30	25.50	45	●
MM ECF45-250-6T15	25.00	6	5.00	10.00	T15	23.90	37.00	45	●

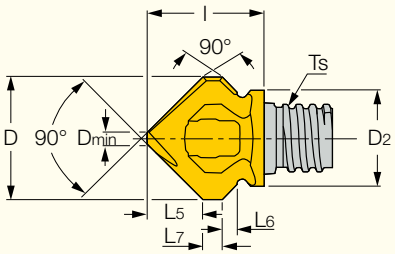
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

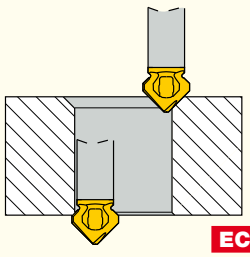
MM HDF

2 Flute Interchangeable Solid Carbide Heads, for Upper and Bottom Chamfering









ECONOMICAL SOLUTION

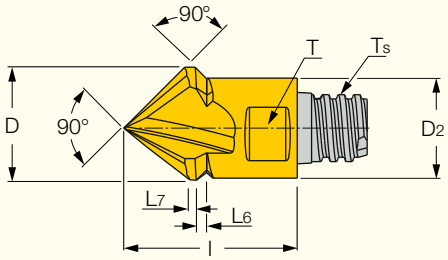
Designation	Dimensions D	Z	L_5	L_6	L_7	D min	Ts	D_2	l	IC908
MM HDF100-090-2T05	9.80	2	4.30	0.90	2.50	1.20	T05	7.60	10.80	●
MM HDF120-090-2T06	11.80	2	5.30	1.20	2.00	1.20	T06	9.30	11.20	●
MM HDF160-090-2T08	15.70	2	7.10	2.20	2.00	1.50	T08	11.50	14.00	●

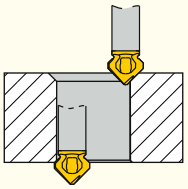
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

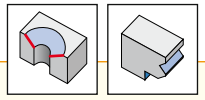
MM EDF

3 Flute Interchangeable Solid Carbide Heads, for Upper and Bottom Chamfering









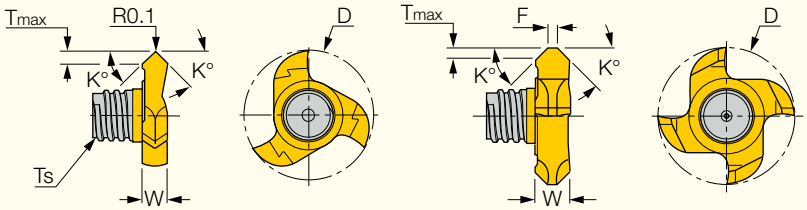
Designation	Dimensions							IC908
	D	D_2	Z	L_6	L_7	l	Ts	
MM EDF094-090-76-3T05	9.40	7.70	3	0.90	1.00	12.50	T05	●
MM EDF116-090-95-3T06	11.60	9.60	3	1.00	1.00	16.50	T06	●

• Suitable for pecking applications. • For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM GRIT-K/P-45A

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads





MM GRIT 18 MM GRIT 22

Designation	Dimensions D	K°	Tmax	F	W	Ts	Z	IC528
MM GRIT 18K-45A	17.70	45	1.40	-	3.40	T06	3	●
MM GRIT 18P-45A	17.70	45	1.40	-	3.40	T06	3	●
MM GRIT 22K-45A	21.70	45	1.70	1.50	5.50	T08	4	●
MM GRIT 22P-45A	21.70	45	1.70	1.50	5.50	T08	4	●

• Use carbide shanks for groove milling heads. • Each MM GRT shank is supplied with MM EGR clamping key. • Keys for other milling heads must be ordered separately. • MM GRT.. shanks serve mainly for MM GRIT.. slitting heads. • K-Type-For general steel machining. • P-Type-Positive geometry for soft and gummy materials.

• For user guide, see pages B75-79.

Spare Parts

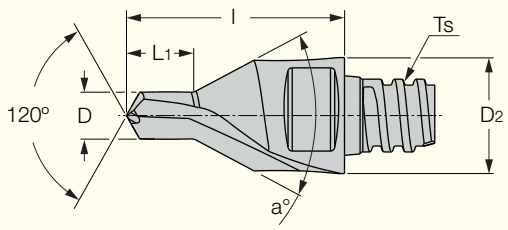
Designation	Clamping Key
MM GRIT 18K-45A	MM EGR 16-18*
MM GRIT 18P-45A	MM EGR 16-18*
MM GRIT 22K-45A	MM EGR 20-22*
MM GRIT 22P-45A	MM EGR 20-22*

* Optional, should be ordered separately

MM ECS

Centering Drill (DIN 332), Interchangeable Solid Carbide Heads





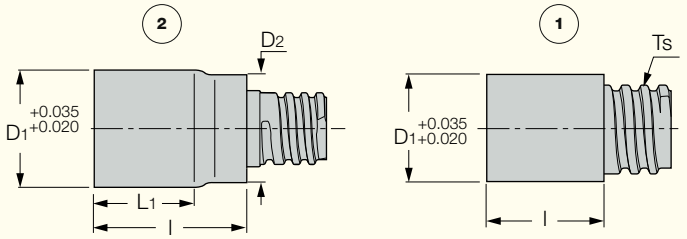
Designation	Dimensions D	D2	l	L1	Ts	a°	IC908
MM ECS-A3.15X08-2T05	3.28	8.00	15.00	4.6	T05	60	●
MM ECS-A4.00X10-2T06	4.12	10.00	19.00	5.9	T06	60	●
MM ECS-A5.00X12-2T08	5.13	12.00	23.00	7.2	T08	60	●
MM ECS-A6.30X16-2T10	6.46	16.00	28.00	8.9	T10	60	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages B75-79.

MM ESR-G

Interchangeable Solid Carbide Blank Heads





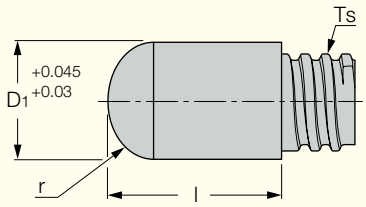
Designation	Dimensions D1	l	Ts	D2	L1	Fig	IC08
MM ESR-G 080-10 T05	8.0	10.50	T05	-	-	1	●
MM ESR-G 100-13 T05	10.0	13.35	T05	-	-	1	●
MM ESR-G.375-.56T06	9.5	13.35	T06	-	-	1	●
MM ESR-G 100-13 T06	10.0	13.35	T06	-	-	1	●
MM ESR-G 100-19 T06	10.0	19.45	T06	-	-	1	●
MM ESR-G 120-17 T06	12.0	17.05	T06	-	-	1	●
MM ESR-G 120-17 T08	12.0	17.05	T08	-	-	1	●
MM ESR-G 120-23 T08	12.0	23.00	T08	-	-	1	●
MM ESR-G.500-.67T08	12.7	17.06	T08	-	-	1	●
MM ESR-G.500-.91T08	12.7	23.40	T08	-	-	1	●
MM ESR-G 160-21 T08	16.0	20.85	T08	-	-	1	●
MM ESR-G.625-.83 T10	15.8	20.85	T10	-	-	1	●
MM ESR-G 160-21 T10	16.0	20.85	T10	-	-	1	●
MM ESR-G 164-24 T10	16.4	24.00	T10	-	-	1	●
MM ESR-G 200-26 T10	20.0	26.00	T10	18.30	16.8	2	●
MM ESR-G.750-1.02T12	19.0	26.00	T12	18.30	16.5	2	●
MM ESR-G 200-26 T12	20.0	26.00	T12	18.30	16.8	2	●
MM ESR-G 250-25 T15	25.0	25.60	T15	-	-	1	●
MM ESR-G 250-37 T15	25.0	37.60	T15	-	-	1	●
MM ESR-G1.0-1.00 T15	25.4	25.60	T15	-	-	1	●
MM ESR-G1.00-1.46T15	25.4	37.60	T15	-	-	1	●

• Do not apply lubricant to the threaded connection.

MM ESB-G

Interchangeable Solid Carbide Ball Nose Blank Heads



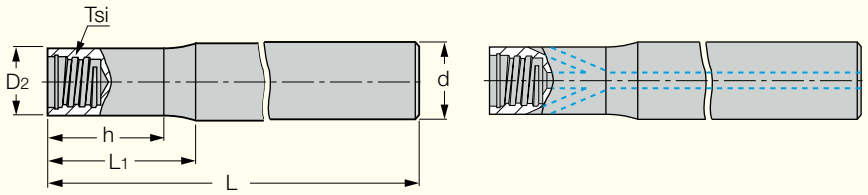


Designation	Dimensions D1	r	l	Ts	IC08
MM ESB-G 080-10 T05	8.0	4.15	10.35	T05	●
MM ESB-G.375-.56T06	9.5	4.90	13.35	T06	●
MM ESB-G 100-13 T06	10.0	5.20	13.35	T06	●
MM ESB-G 120-17 T08	12.0	6.20	17.09	T08	●
MM ESB-G.500-.67T08	12.7	6.50	17.05	T08	●
MM ESB-G 160-21 T10	16.0	8.15	20.85	T10	●

• Do not apply lubricant to the threaded connection.

MM S-A (stepped shanks)

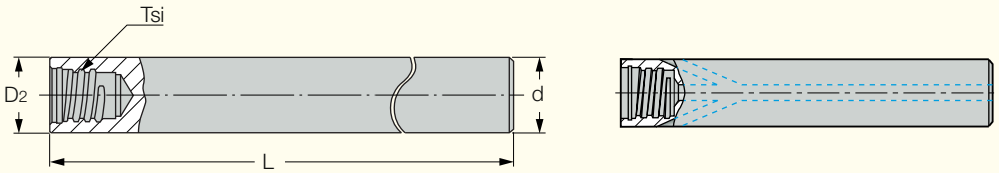
Stepped Cylindrical Shanks for Interchangeable Milling Heads



Designation	Tsi	d	D_2	Shank(1)	h	L_1	L	Shank m.	Coolant	Kg
MM S-A-L060-C08-T05	T05	8.00	7.60	C	12.50	15.0	60.00	S	N	0.02
MM S-A-L070-C08-T05-C	T05	8.00	7.60	C	18.00	20.0	70.00	C	N	0.04
MM S-A-L070-C08-T05-W	T05	8.00	7.60	C	18.90	20.0	70.00	W	N	0.07
MM S-A-L090-C08-T05-C	T05	8.00	7.60	C	38.00	40.0	90.00	C	N	0.06
MM S-A-L090-C08-T05-W	T05	8.00	7.60	C	38.90	40.0	90.00	W	N	0.07
MM S-A-L110-C08-T05-C	T05	8.00	7.60	C	57.90	60.0	110.00	C	N	0.02
MM S-A-L110-C08-T05-W	T05	8.00	7.60	C	58.90	60.0	110.00	W	N	0.09
MM S-A-L070-C10-T06-C	T06	10.00	9.60	C	18.00	20.0	70.00	C	N	0.01
MM S-A-L070-C10-T06-W-H	T06	10.00	9.60	C	18.90	20.0	70.00	W	Y	0.08
MM S-A-L075-C10-T06	T06	10.00	9.55	C	17.40	20.0	75.00	S	N	0.05
MM S-A-L075-C10-T06-H	T06	10.00	9.55	C	18.80	20.0	75.00	S	Y	0.04
MM S-A-L090-C10-T06-C	T06	10.00	9.60	C	38.00	40.0	90.00	C	N	0.01
MM S-A-L090-C10-T06-W	T06	10.00	9.55	C	17.20	20.0	90.00	W	N	0.12
MM S-A-L090-C10-T06-W-H	T06	10.00	9.60	C	39.00	40.0	90.00	W	Y	0.10
MM S-A-L110-C10-T06-C	T06	10.00	9.60	C	57.90	60.0	110.00	C	N	0.01
MM S-A-L110-C10-T06-W-H	T06	10.00	9.60	C	59.00	60.0	110.00	W	Y	0.12
MM S-A-L150-C10-T06-C	T06	10.00	9.60	C	98.50	100.0	150.00	C	N	0.15
MM S-A-L070-C12-T08-C	T08	12.00	11.50	C	17.90	20.0	70.00	C	N	0.11
MM S-A-L070-C12-T08-W-H	T08	12.00	11.50	C	18.70	20.0	70.00	W	Y	0.11
MM S-A-L090-C12-T08	T08	12.00	11.50	C	13.30	16.0	90.00	S	N	0.10
MM S-A-L090-C12-T08-H	T08	12.00	11.50	C	38.70	40.0	90.00	S	Y	0.08
MM S-A-L090-C12-T08-CH	T08	12.00	11.50	C	43.20	42.0	90.00	S	Y	0.07
MM S-A-L090-C12-T08-C	T08	12.00	11.50	C	37.00	40.0	90.00	C	N	0.11
MM S-A-L090-C12-T08-W-H	T08	12.00	11.50	C	38.70	40.0	90.00	W	Y	0.15
MM S-A-L110-C12-T08-W-H	T08	12.00	11.50	C	58.70	60.0	110.00	W	Y	0.18
MM S-A-L110-C12-T08-C	T08	12.00	11.50	C	57.80	60.0	110.00	C	N	0.11
MM S-A-L110-C12-T08-W	T08	12.00	11.50	C	17.00	20.0	110.00	W	N	0.09
MM S-A-L130-C12-T08-C	T08	12.00	11.50	C	77.80	80.0	130.00	C	N	0.19
MM S-A-L130-C12-T08-W-H	T08	12.00	11.50	C	78.70	80.0	130.00	W	Y	0.21
MM S-A-L070-C16-T10-W-H	T10	16.00	15.20	C	18.20	20.0	70.00	W	Y	0.21
MM S-A-L090-C16-T10-C	T10	16.00	15.20	C	37.50	40.0	90.00	C	N	0.21
MM S-A-L090-C16-T10-W-H	T10	16.00	15.20	C	38.20	40.0	90.00	W	Y	0.27
MM S-A-L100-C16-T10	T10	16.00	15.20	C	16.30	20.0	100.00	S	N	0.16
MM S-A-L100-C16-T10-H	T10	16.00	15.20	C	48.00	50.0	100.00	S	Y	0.13
MM S-A-L100-C16-T10-CH	T10	16.00	15.20	C	40.20	42.0	100.00	S	Y	0.14
MM S-A-L110-C16-T10-C	T10	16.00	15.20	C	58.00	60.0	110.00	C	N	0.27
MM S-A-L110-C16-T10-W-H	T10	16.00	15.20	C	58.20	60.0	110.00	W	Y	0.33
MM S-A-L130-C16-T10-C	T10	16.00	15.20	C	77.40	80.0	130.00	C	N	0.32
MM S-A-L130-C16-T10-W-H	T10	16.00	15.20	C	78.20	80.0	130.00	W	Y	0.39
MM S-A-L150-C16-T10-C	T10	16.00	15.20	C	97.40	100.0	150.00	C	N	0.02
MM S-A-L150-C16-T10-W-H	T10	16.00	15.20	C	98.20	100.0	150.00	W	Y	0.45
MM S-A-L090-C20-T12-C	T12	20.00	18.30	C	36.60	40.0	90.00	C	N	0.32
MM S-A-L090-C20-T12-W-H	T12	20.00	18.30	C	36.90	40.0	90.00	W	Y	0.41
MM S-A-L120-C20-T12	T12	20.00	18.30	C	20.30	25.0	120.00	S	N	0.44
MM S-A-L120-C20-T12-H	T12	20.00	18.30	C	66.70	70.0	120.00	S	Y	0.25
MM S-A-L130-C20-T12-C	T12	20.00	18.30	C	76.50	80.0	130.00	C	N	0.47
MM S-A-L130-C20-T12-W-H	T12	20.00	18.30	C	76.90	80.0	130.00	W	Y	0.59
MM S-A-L200-C20-T12-C	T12	20.00	18.30	C	116.50	120.0	200.00	C	N	0.76
MM S-A-L200-C20-T12-W-H	T12	20.00	18.30	C	116.90	120.0	200.00	W	Y	0.93
MM S-A-L120-C25-T15-C	T15	25.00	23.90	C	58.00	60.0	120.00	C	N	0.11
MM S-A-L120-C25-T15-W-H	T15	25.00	23.90	C	58.00	60.0	120.00	W	Y	0.89
MM S-A-L135-C25-T15	T15	25.00	23.90	C	33.00	35.0	135.00	S	N	0.47
MM S-A-L170-C25-T15-C	T15	25.00	23.90	C	98.00	100.0	170.00	C	N	0.96
MM S-A-L170-C25-T15-W-H	T15	25.00	23.90	C	98.00	100.0	170.00	W	Y	1.30
MM S-A-L175-C25-T15	T15	25.00	23.90	C	62.70	65.0	175.00	S	N	0.97
MM S-A-L210-C25-T15-W-H	T15	25.00	23.90	C	108.00	110.0	210.00	W	Y	1.61
MM S-A-L250-C25-T15-C	T15	25.00	23.90	C	148.00	150.0	250.00	C	N	1.45

MM TS-A

Cylindrical Shanks for Interchangeable Milling Heads

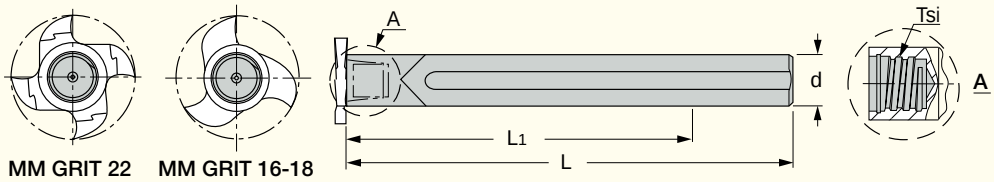


Designation	Tsi	d	D_2	L	Coolant	Kg
MM TS-A-L070-C08-T05	T05	8.00	8.00	70.00	N	0.03
MM TS-A-L080-C10-T06	T06	10.00	10.00	80.00	N	0.07
MM TS-A-L080-C10-T06-H	T06	10.00	10.00	80.00	Y	0.04
MM TS-A-L090-C12-T08	T08	12.00	12.00	90.00	N	0.12
MM TS-A-L090-C12-T08-H	T08	12.00	12.00	90.00	Y	0.08
MM TS-A-L100-C16-T10	T10	16.00	16.00	100.00	N	0.17
MM TS-A-L100-C16-T10-H	T10	16.00	16.00	100.00	Y	0.14

• Do not apply lubricant to the threaded connection

MM GRT (shanks)

Solid Carbide Cylindrical Shanks for Slitting and Grooving Interchangeable Milling Heads



Designation	Tsi	d	L_1	L	Shank(1)	Coolant
MM GRT-095-T06	T06	9.50	64.0	80.00	C	N
MM GRT-100-T06	T06	10.00	64.0	100.00	C	N
MM GRT-120C-T08	T08	12.00	78.0	100.00	C	Y
MM GRT-127C-T08	T08	12.70	96.0	120.00	C	Y

• L1=Maximum overhang. Check machining depth limit of endmill head when it has a smaller diameter than the shank diameter.

(1) C-Cylindrical

MM GRT... shanks serve mainly for MM GRIT... slitting heads.
When mounting other types of milling heads, do not exceed maximum specified depth of cut for the particular milling head.
Since the shank diameter is not relieved, it may touch a wall on the workpiece being machined.

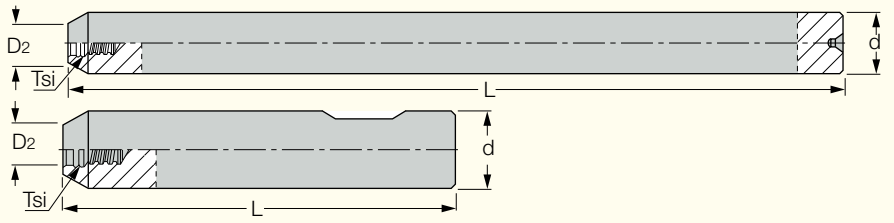
Use carbide shanks for groove milling heads and for applications requiring high rigidity and precision.
Each slitting shank is supplied with MM EGR clamping key. (page B42)
Keys for other milling heads must be ordered separately.

Spare Parts

Designation	Clamping Key
MM GRT-095-T06	MM EGR 16-18
MM GRT-100-T06	MM EGR 16-18
MM GRT-120C-T08	MM EGR 20-22
MM GRT-127C-T08	MM EGR 20-22

MM S-A (straight shanks)

Shanks for Interchangeable Milling Heads



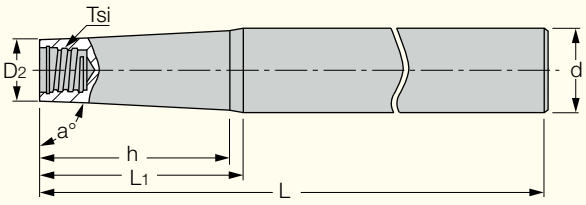
Designation	Tsi	d	D_2	Shank(2)	L	Shank m.	Kg
MM S-A-L055-W12-T05	T05	12.00	7.60	W	55.00	S	0.05
MM S-A-L065-W16-T06	T06	16.00	9.50	W	65.00	S	0.11
MM S-A-L065-W16-T08	T08	16.00	11.50	W	65.00	S	0.10
MM S-A-L070-W20-T10	T10	20.00	15.20	W	70.00	S	0.18
MM S-A-L075-W25-T12	T12	25.00	18.30	W	75.00	S	0.31
MM S-A-L100-W32-T15	T15	32.00	23.90	W	100.00	S	0.30
MM S-A-L150-C12-T05-B (1)	T05	12.00	7.60	C	150.00	S	0.12
MM S-A-L200-C16-T06-B (1)	T06	16.00	9.60	C	200.00	S	0.45
MM S-A-L250-C20-T08-B (1)	T08	20.00	11.50	C	250.00	S	0.60
MM S-A-L250-C25-T10-B (1)	T10	25.00	15.20	C	250.00	S	0.94

• Shank material (Shank m.) S-steel. • Do not apply lubricant to the threaded connection.

(1) "B" suffix - cylindrical shank which may be shortened. (2) C-Cylindrical, W-Weldon

MM S-B (85° conical shanks)

85° Conical Shanks for Interchangeable Milling Heads



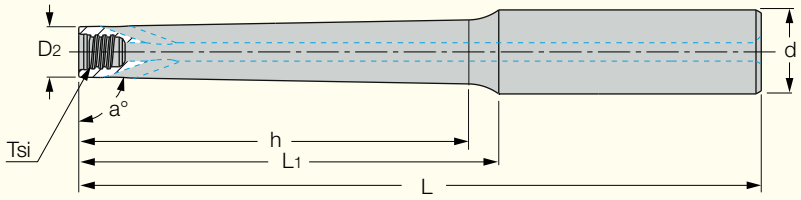
Designation	Tsi	a°	d	D_2	Shank(1)	h	L_1	L	Shank m.	Kg
MM S-B-L080-C12-T05	T05	85	12.00	7.60	C	-	25.0	80.00	S	0.06
MM S-B-L125-C16-T06	T06	85	16.00	9.60	C	31.60	34.0	125.00	S	0.26
MM S-B-L140-C20-T06-W	T06	85	20.00	9.60	C	-	60.0	140.00	W	0.63
MM S-B-L140-C16-T08	T08	85	16.00	11.50	C	19.30	22.0	140.00	S	0.22
MM S-B-L140-C20-T10	T10	85	20.00	15.20	C	-	27.5	140.00	S	0.34
MM S-B-L170-C25-T10	T10	85	25.00	15.20	C	-	56.0	170.00	S	0.16
MM S-B-L160-C25-T12	T12	85	25.00	18.30	C	-	40.0	160.00	S	0.11
MM S-B-L190-C32-T12	T12	85	32.00	18.30	C	-	80.0	190.00	S	0.56
MM S-B-L200-C32-T15	T15	85	32.00	23.90	C	-	50.0	200.00	S	0.30
MM S-B-L250-W40-T15	T15	85	40.00	23.90	W	-	100.0	250.00	S	2.05

• Shank material (Shank m.): S-steel, W-tungsten. • Do not apply lubricant to the threaded connection.

(1) C-Cylindrical, W-Weldon

MM S-D (89° conical shanks)

89° Conical Shanks for Interchangeable Milling Heads



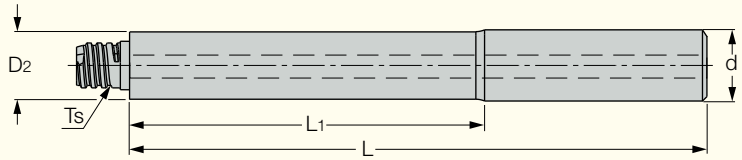
Designation	Tsi	a°	d	D_2	h	L_1	L	Shank m.	Coolant	Kg
MM S-D-L100-C12-T05	T05	89	12.00	7.60	29.50	35.0	100.00	S	N	0.15
MM S-D-L110-C12-T05-C	T05	89	12.00	7.60	54.70	60.0	110.00	C	N	0.13
MM S-D-L110-C12-T05-W-H	T05	89	12.00	7.60	55.70	60.0	110.00	W	Y	0.14
MM S-D-L130-C12-T05-C	T05	89	12.00	7.60	76.70	80.0	130.00	C	N	0.15
MM S-D-L130-C12-T05-W-H	T05	89	12.00	7.60	76.40	80.0	130.00	W	Y	0.16
MM S-D-L150-C16-T05-C	T05	89	16.00	7.60	90.10	100.0	150.00	C	N	0.02
MM S-D-L110-C12-T06-W-H	T06	89	12.00	9.60	58.80	60.0	110.00	W	Y	0.17
MM S-D-L130-C16-T06-W-H	T06	89	16.00	9.60	73.40	80.0	130.00	W	Y	0.29
MM S-D-L150-C16-T06-C	T06	89	16.00	9.60	94.10	100.0	150.00	C	N	0.11
MM S-D-L150-C16-T06-W-H	T06	89	16.00	9.60	93.80	100.0	150.00	W	Y	0.32
MM S-D-L160-C16-T06	T06	89	16.00	9.60	46.20	55.0	160.00	S	N	0.12
MM S-D-L170-C16-T06-C	T06	89	16.00	9.60	115.50	120.0	170.00	C	N	0.11
MM S-D-L170-C16-T06-W	T06	89	16.00	9.60	46.30	55.0	170.00	W	N	0.48
MM S-D-L130-C16-T08-C	T08	89	16.00	11.50	76.00	80.0	130.00	C	N	0.28
MM S-D-L130-C16-T08-W-H	T08	89	16.00	11.50	76.40	80.0	130.00	W	Y	0.32
MM S-D-L150-C16-T08-C	T08	89	16.00	11.50	96.40	100.0	150.00	C	N	0.11
MM S-D-L150-C16-T08-W-H	T08	89	16.00	11.50	96.70	100.0	150.00	W	Y	0.38
MM S-D-L170-C20-T08	T08	89	20.00	11.50	69.10	80.0	170.00	S	N	0.30
MM S-D-L170-C20-T08-C	T08	89	20.00	11.50	110.40	120.0	170.00	C	N	0.49
MM S-D-L170-C20-T08-W	T08	89	20.00	11.50	68.00	80.0	170.00	W	N	0.09
MM S-D-L170-C20-T08-W-H	T08	89	20.00	11.50	112.10	120.0	170.00	W	Y	0.53
MM S-D-L150-C20-T10-C	T10	89	20.00	15.20	96.10	120.0	150.00	C	N	0.08
MM S-D-L150-C20-T10-W-H	T10	89	20.00	15.20	96.80	100.0	150.00	W	Y	0.60
MM S-D-L170-C20-T10-C	T10	89	20.00	15.20	116.50	120.0	170.00	C	N	0.61
MM S-D-L170-C20-T10-W-H	T10	89	20.00	15.20	118.00	120.0	170.00	W	Y	0.73
MM S-D-L190-C20-T10	T10	89	20.00	15.20	72.30	80.0	190.00	S	N	0.20
MM S-D-L190-C20-T10-C	T10	89	20.00	15.20	-	140.0	190.00	C	N	0.67
MM S-D-L190-C20-T10-W-H	T10	89	20.00	15.20	-	140.0	190.00	W	Y	0.84
MM S-D-L210-C20-T10-C	T10	89	20.00	15.20	-	160.0	210.00	C	N	0.75
MM S-D-L210-C20-T10-W-H	T10	89	20.00	15.20	-	160.0	210.00	W	Y	0.93
MM S-D-L180-C25-T12-C	T12	89	25.00	18.30	114.20	120.0	180.00	C	N	0.91
MM S-D-L180-C25-T12-W-H	T12	89	25.00	18.30	114.60	120.0	180.00	W	Y	1.17
MM S-D-L200-C25-T12-W-H	T12	89	25.00	18.30	146.60	150.0	200.00	W	Y	1.36
MM S-D-L210-C25-T12	T12	89	25.00	18.30	93.40	100.0	210.00	S	N	0.66
MM S-D-L250-C25-T12-C	T12	89	25.00	18.30	135.60	140.0	250.00	C	N	1.40
MM S-D-L250-C25-160T12W-H	T12	89	25.00	18.30	157.20	160.0	250.00	W	Y	1.76
MM S-D-L250-C25-T12-W-H	T12	89	25.00	18.30	135.60	140.0	250.00	W	Y	1.80
MM S-D-L250-C32-T15	T15	89	32.00	23.90	90.10	100.0	250.00	S	N	1.35
MM S-D-L250-C32-T15-C	T15	89	32.00	23.90	143.30	150.0	250.00	C	N	2.30
MM S-D-L300-C32-T15-C	T15	89	32.00	23.90	195.70	200.0	300.00	C	N	1.20

• Shank material (Shank m.): S-steel, C-carbide, W-tungsten. • Do not apply lubricant to the threaded connection.

SHANKMASTER

TS S-A

Solid Carbide Cylindrial Shanks with Threaded Adaptation,
for Interchangeable Milling Heads



Designation	D_2	d	L_1	L	Ts	Shank(1)	Kg
TS S-A-L70-C12-T08-C	11.50	12.00	20.0	70.00	T08	C	0.25
TS S-A-L90-C12-T08-C	11.50	12.00	40.0	90.00	T08	C	0.17
TS S-A-L110-C12-T08-C	11.50	12.00	60.0	110.00	T08	C	0.07
TS S-A-L90-C16-T10-C	15.20	16.00	40.0	90.00	T10	C	0.25
TS S-A-L110-C16-T10-C	15.20	16.00	60.0	110.00	T10	C	0.33
TS S-A-L130-C16-T10-C	15.20	16.00	80.0	130.00	T10	C	0.41
TS S-A-L100-C20-T12-C	19.20	20.00	50.0	100.00	T12	C	0.50
TS S-A-L130-C20-T12-C	19.20	20.00	80.0	130.00	T12	C	0.67
TS S-A-L200-C20-T12-C	19.20	20.00	120.0	200.00	T12	C	0.97

(1) C-Cylindrical

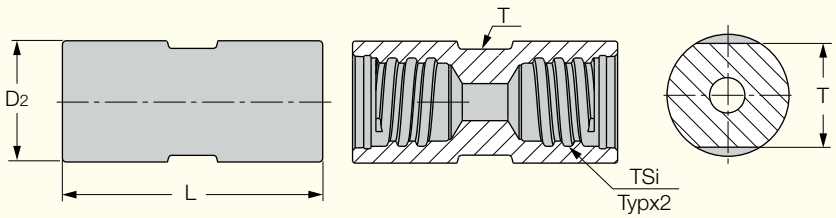
• For adaptation see page B45

SHANKMASTER • MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

TS CAB

Steel Adapters with Internal Thread on Both Sides, for Connecting MULTI-MASTER Milling Heads



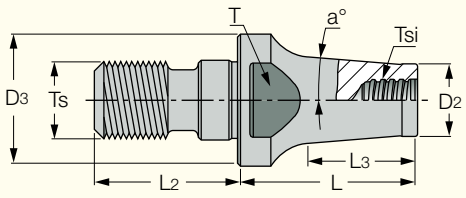
Designation	Tsi	L	D_2	T(1)	Kg
TS CAB T08T08-25/1.0-H	T08	25.00	11.50	10.0	0.02
TS CAB T10T10-35/1.4-H	T10	35.00	15.20	13.0	0.04
TS CAB T12T12-43/1.7-H	T12	43.00	18.30	16.0	0.08

(1) Clamping wrench size

• For adaptation see page B45

MM CAB

Adapters for Connecting FLEXFIT Shanks and MULTI-MASTER Milling Heads



Designation	Tsi	Ts	L	L_3	D_2	D_3	L_2	T(1)	a°	Kg
MM CAB T06M06-16/.63	T06	M06	16.00	11.60	9.30	9.70	14.50	8.0	1.5	0.01
MM CAB T06M08-16/.63	T06	M08	16.00	13.70	9.60	13.00	17.50	11.0	6	0.02
MM CAB T06M08-25/1.0	T06	M08	25.00	11.30	9.30	13.00	17.50	11.0	1.5	0.02
MM CAB T06M10-25/1.0	T06	M10	25.00	16.60	9.60	18.00	20.00	11.0	5	0.04
MM CAB T08M08-16/.63	T08	M08	16.00	5.40	11.70	13.00	17.50	11.0	11.4	0.08
MM CAB T08M08-25/1.0	T08	M08	25.00	19.50	11.70	13.00	17.50	11.0	1.5	0.03
MM CAB T08M10-20/.75	T08	M10	20.00	11.30	11.70	18.00	20.00	13.0	7	0.03
MM CAB T08M10-25/1.0	T08	M10	25.00	14.20	11.70	18.00	20.00	11.0	1.5	0.03
MM CAB T08M12-20/.75	T08	M12	20.00	9.30	11.70	21.00	22.00	13.0	7	0.05
MM CAB T08M12-25/1.0	T08	M12	25.00	12.50	11.70	21.00	22.00	13.0	1.5	0.04

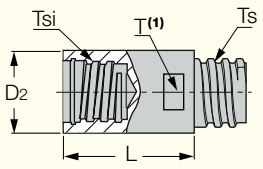
• Do not apply lubricant to the threaded connection. • For adaptation see page B45.

(1) Clamping wrench size

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM CAB-T-T

MULTI-MASTER Shank Extensions



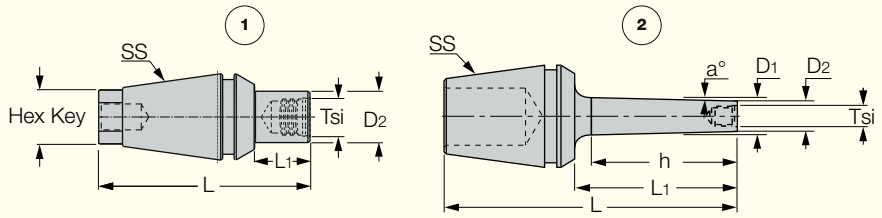
Designation	D_2	Ts	Tsi	L	T(1)	Kg
MM CAB T05T05-25/1.0-C	7.60	T05	T05	25.40	6.0	0.12
MM CAB T06T06-25/1.0-C	9.30	T06	T06	25.40	8.0	0.02
MM CAB T08T08-25/1.0-C	11.50	T08	T08	25.40	10.0	0.02
MM CAB T10T10-38/1.5-C	15.20	T10	T10	38.10	13.0	0.08
MM CAB T12T12-38/1.5-C	18.30	T12	T12	38.10	16.0	0.11
MM CAB T15T15-45/1.77-C	23.90	T15	T15	45.00	20.0	0.00

• Clamping key should be ordered separately. • For adaptation see page B45

(1) Clamping wrench size

MM S-ER

Shanks for MULTI-MASTER Solid Carbide Heads with ER Collet Adaptation



Designation	SS	Tsi	a°	D_2	D_1	h	L_1	L	Key(1)	Fig
MM S-A-H004-ER11-T05	ER11	T05	-	7.60	-	-	4.0	26.50	6.35	1
MM S-A-H10.5-ER11-T05	ER11	T05	-	7.60	-	-	10.5	33.00	6.35	1
MM S-A-H004-ER16-T05	ER16	T05	-	7.60	-	-	4.0	36.60	7.94	1
MM S-A-H004-ER16-T06	ER16	T06	-	9.00	-	-	4.0	36.60	7.94	1
MM S-A-H004-ER16-T08	ER16	T08	-	11.50	-	-	4.0	36.60	7.94	1
MM S-A-H10.5-ER16-T05	ER16	T05	-	7.60	-	-	10.5	43.10	7.94	1
MM S-A-H10.5-ER16-T06	ER16	T06	-	9.00	-	-	10.5	43.10	7.94	1
MM S-A-H013-ER16-T08	ER16	T08	-	11.50	-	-	13.0	45.60	7.94	1
MM S-A-H004-ER20-T05	ER20	T05	-	7.60	-	-	4.0	40.60	11.11	1
MM S-A-H004-ER20-T06	ER20	T06	-	9.00	-	-	4.0	40.60	11.11	1
MM S-A-H004-ER20-T08	ER20	T08	-	11.50	-	-	4.0	40.60	11.11	1
MM S-A-H004-ER20-T10	ER20	T10	-	15.20	-	-	4.0	40.60	11.11	1
MM S-A-H10.5-ER20-T05	ER20	T05	-	7.60	-	-	10.5	47.10	11.11	1
MM S-A-H10.5-ER20-T06	ER20	T06	-	9.00	-	-	10.5	47.10	11.11	1
MM S-A-H013-ER20-T08	ER20	T08	-	11.50	-	-	13.0	49.60	11.11	1
MM S-A-H016-ER20-T10	ER20	T10	-	15.20	-	-	16.0	52.60	11.11	1
MM S-A-H004-ER25-T05	ER25	T05	-	7.60	-	-	4.0	44.60	14.29	1
MM S-A-H004-ER25-T06	ER25	T06	-	9.00	-	-	4.0	44.60	14.29	1
MM S-A-H10.5-ER25-T06	ER25	T06	-	9.00	-	-	10.5	51.10	14.29	1
MM S-A-H004-ER25-T08	ER25	T08	-	11.50	-	-	4.0	44.60	14.29	1
MM S-A-H10.5-ER25-T08	ER25	T08	-	11.50	-	-	10.5	51.10	14.29	1
MM S-A-H004-ER25-T10	ER25	T10	-	15.20	-	-	4.0	44.60	14.29	1
MM S-A-H10.5-ER25-T10	ER25	T10	-	15.20	-	-	10.5	51.10	14.29	1
MM S-A-H004-ER25-T12	ER25	T12	-	18.30	-	-	4.0	44.60	14.29	1
MM S-A-H10.5-ER25-T12	ER25	T12	-	18.30	-	-	10.5	51.10	14.29	1
MM S-A-H025-ER32-T06	ER32	T06	-	9.60	10.0	18.00	25.0	65.00	-	2
MM S-B-H025-ER32-T06	ER32	T06	5	9.60	13.5	22.30	25.0	65.00	-	2
MM S-B-H050-ER32-T06	ER32	T06	5	9.60	17.9	47.30	50.0	90.00	-	2
MM S-B-H075-ER32-T06	ER32	T06	5	9.60	22.6	74.10	75.0	115.00	-	2
MM S-D-H050-ER32-T06	ER32	T06	1	9.60	11.2	45.00	50.0	90.00	-	2

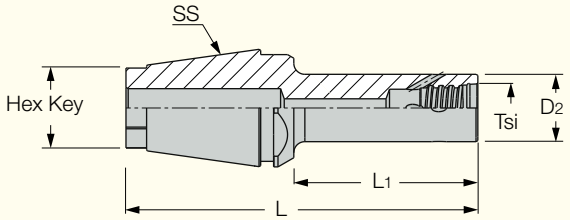
• Do not apply lubricant to the threaded connection. • For adaptation see page B45.

(1) Inch size spanners (displayed in mm)

MM S-ER-H

Shanks for MULTI-MASTER Solid Carbide Heads with ER Collet Adaptation and Coolant Holes





Designation	SS	Tsi	D_2	L_1	L	Key	Kg
MM S-A-H025-ER32-T05-H	ER32	T05	7.62	25.0	70.60	19.05	0.21
MM S-A-H040-ER32-T05-H	ER32	T05	7.62	40.0	85.60	19.05	0.21
MM S-A-H025-ER32-T06-H	ER32	T06	9.00	25.0	70.60	19.05	0.59
MM S-A-H040-ER32-T06-H	ER32	T06	9.00	40.0	85.60	19.05	0.22
MM S-A-H025-ER32-T08-H	ER32	T08	12.00	25.0	70.60	19.05	0.20
MM S-A-H050-ER32-T08-H	ER32	T08	12.00	50.0	95.60	19.05	0.20
MM S-A-H025-ER32-T10-H	ER32	T10	15.20	25.0	70.60	19.05	0.20
MM S-A-H050-ER32-T10-H	ER32	T10	15.20	50.0	95.60	19.05	0.25
MM S-A-H025-ER32-T12-H	ER32	T12	18.30	25.0	70.60	19.05	0.22
MM S-A-H050-ER32-T12-H	ER32	T12	18.30	50.0	95.60	19.05	0.22
MM S-A-H025-ER32-T15-H	ER32	T15	23.90	25.0	70.60	19.05	0.20
MM S-A-H050-ER32-T15-H	ER32	T15	23.90	50.0	95.60	19.05	0.29

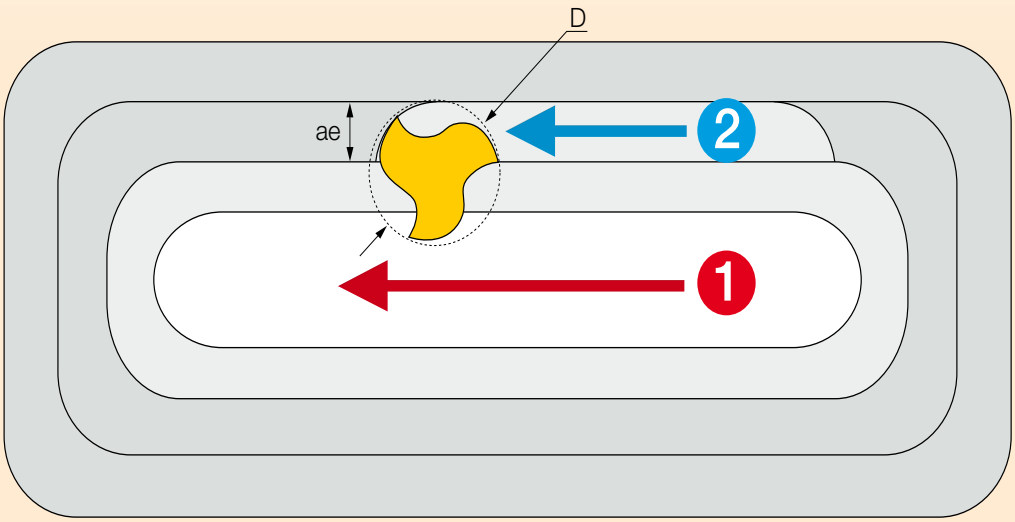
Pocket Milling

Recommended Method

1. Open the pocket in the middle
2. Proceed with shoulder milling
   Width of cut ae = 40-60% x D

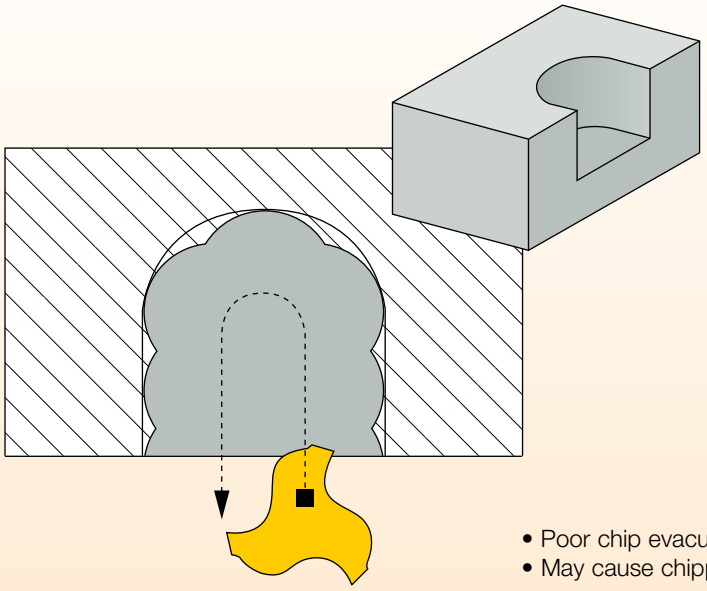
Benefits

- Better chip evacuation
- No mismatch in the corners
- Constant operation
- Less vibration
- Longer tool life



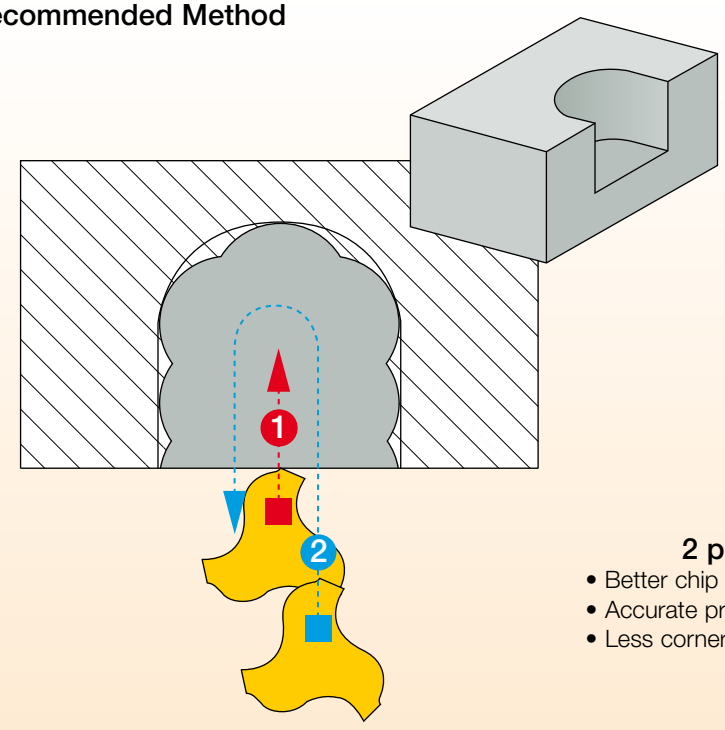
Roughing Side Pockets

Conventional Method



- Poor chip evacuation
- May cause chipping

Alternative Recommended Method

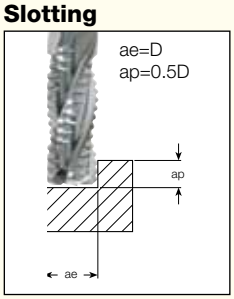


2 passes assure:

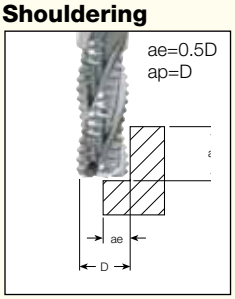
- Better chip evacuation
- Accurate profile
- Less corner vibration

Recommended Feeds for SOLIDSHRED Rougher Endmills

Slotting



Shouldering

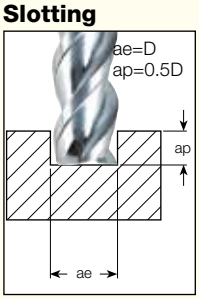


Dmm	Fz (min)	Fz (max)	Dmm	Fz (min)	Fz (max)
1	0.006	0.01	1	0.006	0.014
1.3	0.006	0.02	1.3	0.006	0.024
1.5	0.006	0.04	1.5	0.006	0.044
1.8	0.01	0.05	1.8	0.010	0.056
2	0.01	0.06	2	0.010	0.066
2.3	0.01	0.06	2.3	0.010	0.066
2.5	0.01	0.06	2.5	0.010	0.066
2.8	0.02	0.07	2.8	0.02	0.076
3	0.02	0.08	3	0.02	0.088
3.3	0.02	0.08	3.3	0.02	0.088
4	0.03	0.09	4	0.03	0.098
4.3	0.03	0.09	4.3	0.03	0.098
5	0.04	0.10	5	0.04	0.110
6	0.05	0.12	6	0.05	0.132
7	0.06	0.14	7	0.06	0.154
8	0.06	0.16	8	0.06	0.176
9	0.06	0.16	9	0.06	0.176
10	0.06	0.18	10	0.06	0.196
12	0.07	0.20	12	0.07	0.216
14	0.08	0.22	14	0.08	0.238
16	0.10	0.24	16	0.10	0.260
18	0.10	0.26	18	0.10	0.280
20	0.10	0.30	20	0.10	0.340
25	0.12	0.30	25	0.12	0.360

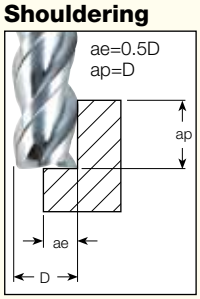
High Speed Cutting on Hard Materials (up to 60 HRc)Apply small depth of cut (0.1-0.3 mm) at 80-160 m/min

Recommended Feeds for Solid Carbide and MULTI-MASTER Endmills

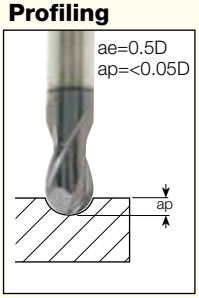
Slotting

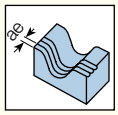


Shouldering



Profiling





Slotting			Shouldering / Profiling	
Dmm	Fz (min)	Fz (max)	Fz (min)	Fz (max)
1	0.003	0.005	0.003	0.007
1.3	0.003	0.010	0.003	0.012
1.5	0.003	0.020	0.003	0.022
1.8	0.005	0.025	0.005	0.028
2	0.005	0.030	0.005	0.033
2.3	0.005	0.030	0.005	0.033
2.5	0.005	0.030	0.005	0.030
2.8	0.010	0.035	0.010	0.038
3	0.010	0.040	0.010	0.044
3.3	0.015	0.040	0.010	0.044
4	0.015	0.045	0.015	0.049
4.3	0.020	0.045	0.015	0.049
5	0.025	0.050	0.020	0.055
6	0.030	0.060	0.025	0.066
7	0.030	0.070	0.030	0.077
8	0.030	0.080	0.030	0.088
9	0.030	0.080	0.030	0.088
10	0.035	0.090	0.030	0.098
12	0.040	0.10	0.035	0.108
14	0.050	0.11	0.04	0.119
16	0.050	0.12	0.05	0.130
18	0.050	0.13	0.05	0.140
20	0.050	0.15	0.05	0.170
25	0.060	0.15	0.06	0.180

For grade priorities for solid carbide endmills, see page C70.

Machining Data for Solid Carbide and MULTI-MASTER Endmills

ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
		>= 0.55 %C	Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron (GG)		Pearlitic/ferritic		180	15
			Pearlitic/martensitic		260	16
	Ductile cast iron (nodular) (GGG)		Ferritic		160	17
			Pearlitic		250	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolitic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

For grade priorities for solid carbide endmills, see page L15.

Solid Carbide Endmills

No.	IC900	IC903	IC300	IC08
1	260 - 280	260 - 280	210 - 220	180 - 200
2	200 - 230	200 - 230	160 - 180	140 - 160
3	160 - 220	160 - 220	130 - 180	110 - 150
4	160 - 220	160 - 220	130 - 180	110 - 150
5	140 - 180	140 - 180	110 - 140	100 - 130
6	160 - 220	160 - 220	130 - 180	110 - 150
7	120 - 180	120 - 180	100 - 140	80 - 130
8	130 - 180	130 - 180	100 - 140	90 - 130
9	140 - 180	140 - 180	110 - 140	100 - 130
10	130 - 180	130 - 180	100 - 140	90 - 130
11	70 - 120	70 - 120	60 - 100	50 - 80
12	80 - 160	80 - 160	60 - 130	60 - 110
13	60 - 150	60 - 150	50 - 120	40 - 100
14	60 - 120	60 - 120	50 - 100	40 - 80
15	80 - 260	80 - 250	60 - 210	60 - 180
16	130 - 240	130 - 240	100 - 190	90 - 170
17	150 - 280	150 - 270	120 - 220	100 - 200
18	90 - 280	90 - 270	70 - 220	60 - 200
19	150 - 280	150 - 270	120 - 220	100 - 200
20	140 - 240	140 - 240	110 - 190	100 - 170
21				800 - 900
22				700 - 800
23				800 - 900
24				750 - 850
25				400 - 450
26				500 - 550
27				500 - 550
28				350 - 380
29				
30				
31	20 - 40	20 - 40	20 - 30	10 - 20
32	20 - 40	20 - 30	20 - 20	10 - 20
33	20 - 50	20 - 30	20 - 20	20 - 50
34	20 - 70	20 - 30	20 - 20	20 - 50
35	30 - 70	30 - 80	20 - 60	20 - 50
36	30 - 70	30 - 80	20 - 60	20 - 30
37	30 - 70	30 - 80	20 - 60	20 - 30
38	30 - 50	30 - 60	20 - 40	40 - 60
39	30 - 40	30 - 40	20 - 30	20 - 30
40	60 - 80	70 - 90	50 - 60	65 - 75
41	30 - 50	30 - 60	20 - 40	40 - 45

MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE



FACE MILLS



Member IMC Group



HP F90AN
page **C**11

HELIPLUS-07



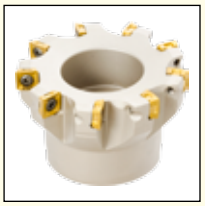
T490 FLN
pages **C**12, **C**22, **C**28

HELITANG T490 LINE



FCM/FRCM
pages **C**14, **E**24

CHAMMILL



F90SP
page **C**16

HELIQUAD



HM90 F90AP
page **C**17

HELI2000



F90LN-N11
page **C**18

TANGMILL TANGENTIAL LINE



F90SD
pages **C**19

HELIQUAD



H490 F90AX
pages **C**13, **C**21, **C**29

HELIDO 490 LINE



3M F90AX
pages **C**23, **C**33

MILL2000



F90LN-N15
page **C**25

TANGMILL TANGENTIAL LINE



F86LNX-11
pages **C**35

TANGMILL TANGENTIAL LINE



T290 FLN
page **C**15, **C**24

SUMOMILL 290 LINE



HM90 F90A
page **C**26

HELI2000



F90
page **C**30

ISCARMILL



P290 FPW
pages **C**31

MILLSHRED P290 LINE



HP F90AT-19
HP F90AT-22
pages **C**32, **C**34

HELIPLUS-19
HELIPLUS-22



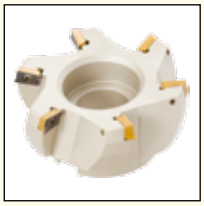
S890 FSN-13
page **C**20

HELIDO 890 LINE



F75
page **C**37

ISCARMILL



F75A
page **C**36

HELIMILL



S865 FSN-13
page **C**38

HELIDO 865 LINE



F45KT/E45KT
pages **C**41, **C**40

HELIOCTO



HOF
page **C**42

HELIOCTO



FRCM/FCM
pages **E**24, **C**14

CHAMMILL



F45WG
page **C**43

16MILL



F45NM
page **C**44

16MILL



F45E
page **C**50

ISCARMILL



FF NM
page **E**41

16FEEDMILL



F45ST
pages **C**48

ISCARMILL



S845 F45SX /SOF45
pages **C**52, **C**45, **C**47

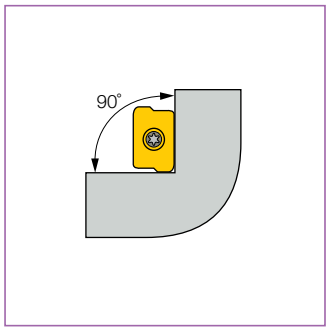
HELIDO 845 LINE

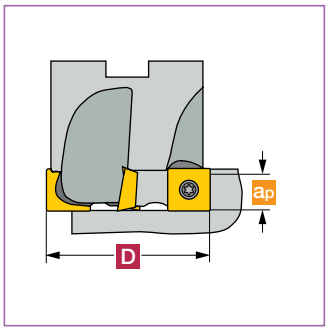


F45LN-N15
page **C**54

TANGMILL TANGENTIAL LINE

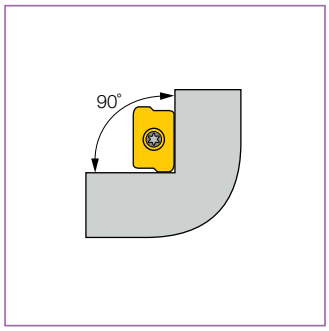
Face Mills 90°
Selection Guide

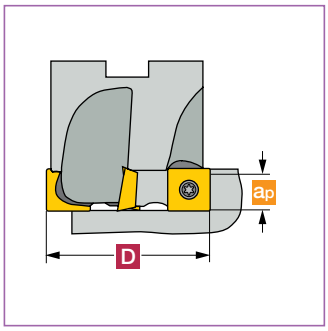




Tool	HP F90AN-07	T490 FLN-08	H490 F90AX-09	FCM	F90SP-10	T290 FLN-10	HM90 F90AP-10	F90LN-N11
ap	7.7	8	8	8.7	9.5	10	10	10
D	Number of Teeth (Effective)							
25								
32	6; 8	3; 5	4; 5			5	3; 5	
40	8; 10	4; 6	5; 6		4	6	5; 6	4; 6
50	9; 12	5;7;10	6; 7	5	4; 6	7	6; 7	5; 7
52								
63		6; 9	8; 9	6	5; 7	9	7; 9	6; 9
66								
80		10		7	5; 9	10	8; 11	8; 11
100				8	11		9; 13	9; 14
125				9			10; 16	10; 18
160								12
200								13
250								
315								
Inserts	HP AN.. 0702..	T490 LN.. 08...	H490 AN.. 09...	S90MT...	XPMT 10.. SPMT 10...	T290 LNMT 10	HM90 AP..10 AP..10	LN.. 11...
Pages	C11	C12	C13	C14	C16	C15	C17	C18

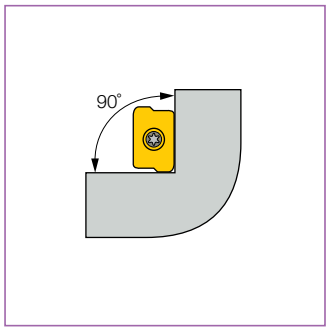
Face Mills 90°
Selection Guide

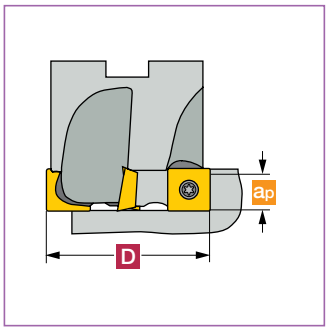


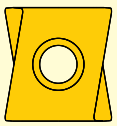
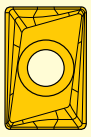
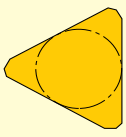
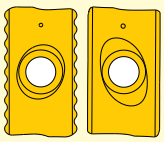
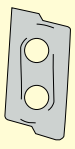
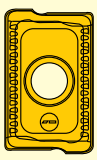
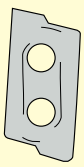


Tool	F90SD-12	H490 F90AX-12	S890 FSN-13	T490 FLN-13	3M F90AX-13	T290 FLN-15	F90LN-N15	HM90 F90A-15
ap	12	12	12	12.5	13	14	14	14.3
D	Number of Teeth (Effective)							
25								
32								
40		4		4;5	5	4		3; 4
50	3; 5	3;5	4; 5	5;6	6	5	5	3; 5
52	4; 6							
63		4;6	5; 7	6;8	7	6	5; 8	4; 6
66								
80	5; 6	5;7	7; 9	7;10	8	7	7; 10	5; 7
100	5; 8	6;9	8; 11	8;13	7		8; 12	6; 8
125	7; 9	8	9; 14	9;17			9; 15	7; 9
160	10	9	10				10; 20	8; 10
200	13	10		15			12; 25	9; 12
250							15; 30	10
315								12
Inserts	SDMT 12... SDMR 12... QDMT 12... QDCT 12...	H490 AN.. 12...	S890 SN.. 13...	T490 LNMT 13..	3M AXKT 13...	T290 LN.. 15...	LN.. 15...	HM90 AD.. 15...
Pages	C19	C21	C20	C22	C23	C24	C25	C26

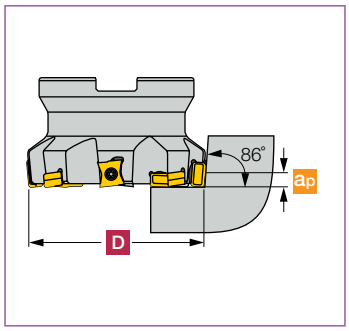
Face Mills 90°
Selection Guide

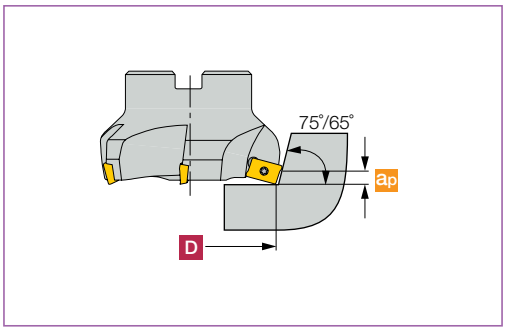


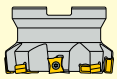
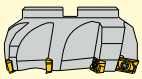
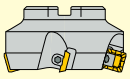
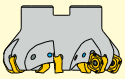
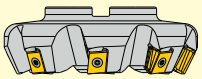
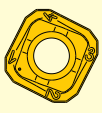
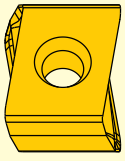


Tool	T490FLN-16	H490 F90AX-17	F90	P290 FPW	HP F90AT-19	3M F90AX-20	HP F90AT-22
ap	16	16.3	13.8; 18	18	18	20.5	21
D	Number of Teeth (Effective)						
25							
32							
40		3		4			
50	3; 4	3; 4		5	4	4	3; 4
52							
63	4; 6	4; 6	5	6	5	5	4; 5
66							
80	5; 7	5; 7	6	8	6	6	4; 6
100	6; 8	5; 8	8		7	6; 8	5; 7
125	7; 10	7; 10	8			7; 9	
160	12	8; 12	10			8; 10	
200	12	10	12			12	
250		12				14	
315		16				18	
Inserts	 T490 LNMT 16...	 H490 AN.. 17...	 TPK. 16.../22...	 P290 ACCT 1806 P290 ACKT 1806	 HP AD.. 19...	 3M AXKT 20...	 HP AD.. 22...
Pages	C28	C29	C30	C31	C32	C33	C34

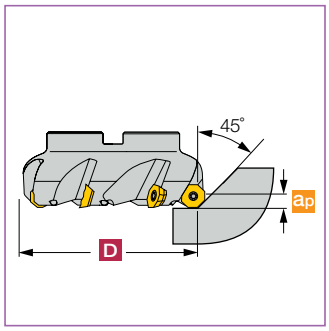
Endmills and Face Mills 86°, 75°, 65°
Selection Guide

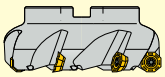
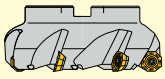
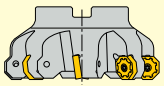
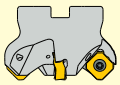
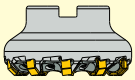




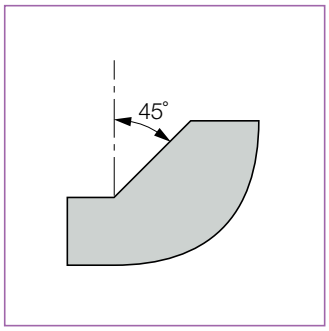
Tool	 F86LNX-11	 F75A	 F75	 S865 FSN-13	 T465 FLN-22
ap	3-10	7	9.5	6	19
D	86°	75°	75°	65°	65°
25					
32					
40					
50	6	3	4	4; 6	
52					
63	6; 8	4	5	6; 8	
66					
80	8; 10	5	6	7; 10	
100		6	8	8; 12	
125		7	8	10; 16	6; 8
160		8			7; 9
200					8; 10
250					10;12
315					
Inserts	 LN.. 11...	 HM90 AD.. 15...	 SPK. 12...	 S865 SNMU 13...	 T465 LNHT 22...
Pages	C35	C36	C37	C38	C39

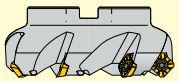
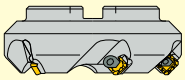
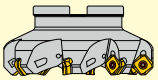
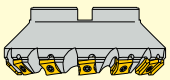
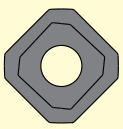
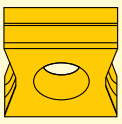
Endmills and Face Mills 45°
Selection Guide



Tool	 F45KT/ E45KT	 HOF	 F45WG	 F45NM	 SOF45	 SOF45CL
ap	2.5	4.6	5.5	5.5	3.5; 6.0	3.5; 6.0
D	Number of Teeth (Effective)					
25						
32	3					
40	4				4	
50	4	3			3; 4; 6	7
52						
63	5	4		5	4; 6; 8	10
66						
80	6	5	10	6; 8	7; 10	12
100	7	6	14	7; 10	8; 12	16
125	8	8		8; 12	10; 16	20
160		10	22	10; 15	12	
200		12	28	12	14	
250		15	36	14	16	
315		18		16	20	
Inserts	 OE.. 06... RE.. 15...	 OF.. 07... RF.. 19...	 ON.. 08...	 ON.. 08...	 ON.. 05... S845 SN.. 13...	 ON.. 05... S845 SN.. 13...
Pages	C40-41	C42	C43	C44	C45	C47

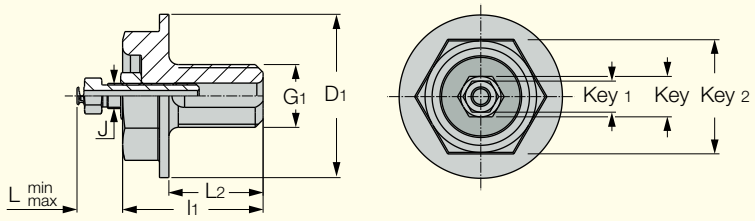
Face Mills 45°
Selection Guide



Tool	 F45ST	 F45E	 S845 F45SX-16	 F45LN-N15
ap	6.5	6.5	7.1	7.5
D	Number of Teeth (Effective)			
25	2	2		
32	3	3		
40	3		4	
50	4	4	4; 5	
52				
63	5	5	5; 7	8
66				
80	6	6	9	7; 10
100	6	6	7; 11	8; 12
125	7	6	8; 14	9; 15
160	7	8	10; 18	12; 20
200	10		12	14; 25
250	13		15	16; 30
315			19	
Inserts	 SE.T 12...	 SE.. 12...	 S845 SX.. 16...	 LN.. 15...
Pages	C48-49	C50-51	C52	C54

COOLANT SET

Clamping Screws with Adjustable Protrusion Nozzles for Shell-Type Face Mills



Designation	D_1	G_1	J	l_1	L_2	L_{min}	L_{max}	Key(1)	Key 1 (2)	Key 2 (3)
COOLANT SET SR M10X1.5-22	28.0	M10	M4	25.00	18.00	2.0	17.0	7.00	6.00	21.00
COOLANT SET SRM12X1.75-27	35.0	M12	M4	31.00	22.00	2.0	17.0	7.00	6.00	27.00
COOLANT SET SR M16X2-32	42.0	M16	M8	37.00	26.00	3.0	25.0	13.00	10.00	30.00
COOLANT SET SR M20X2.5-40	52.0	M20	M8	45.00	30.00	3.0	25.0	13.00	10.00	36.00

(1) For the nut (2) For the nozzle (3) For the screw

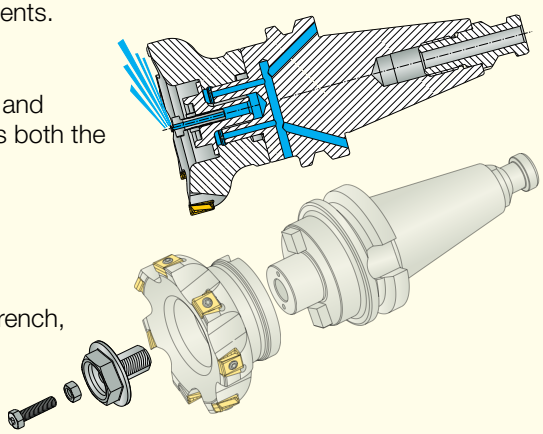
Clamping Screws with Adjustable Protrusion Nozzles for Shell-Type Face Mills

The protrusion of the nozzle screw can be easily adjusted according to countersink depth, insert size or any other application requirements. The nozzle screw position can be secured by a locking-nut.

Tests show that cutting fluid supplied through the axis of a tool and directed radially at the bottom of the tool, dramatically improves both the cooling effect and chip evacuation.

The screws are offered as sets, comprising a nozzle screw, locking screw, a locking nut and washers.

The locking nut can be tightened by a standard open-ended wrench, or preferably by an offset ring wrench (ISO 10104, DIN 838 or DIN 897 standards).

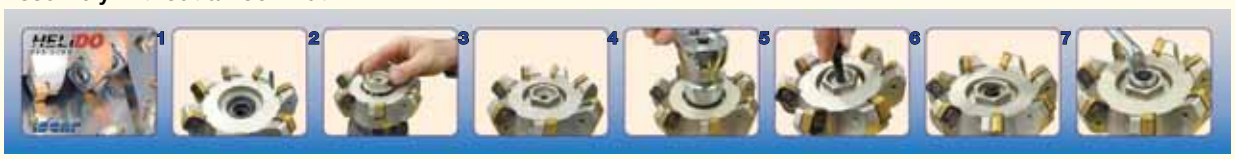


If desired, the ring wrenches can also be ordered from ISCAR:
- 7000783 Ring Wrench 10X13 mm for coolant set SR M20X2.5-40 and Coolant set SR M16X2-32
- 7000788 Ring Wrench 6X7 mm for coolant set SRM12X1.75-27 and coolant set SR M10X1.5-22.

Assembly with a Lock Nut



Assembly without a Lock Nut

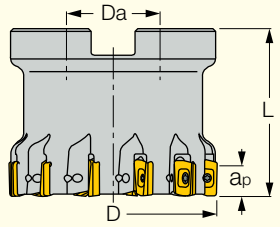


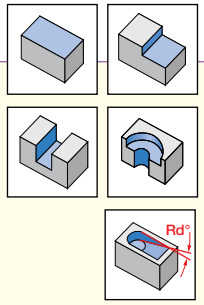
Spare Parts

Designation	Nozzle Screw
COOLANT SET SR M10X1.5-22	NOZZLE M4
COOLANT SET SRM12X1.75-27	NOZZLE M4
COOLANT SET SR M16X2-32	NOZZLE M8
COOLANT SET SR M20X2.5-40	NOZZLE M8

HP F90AN-07

90° Face Mills with HP ANKT 0702.. Inserts





Designation	D	Z	a_p	L	Da	R_d°	Arbor(1)	RPM_{max}	Kg
HP F90AN D32-06-16-07	32.00	6	7.70	35.00	16.00	1.4	A	26600	0.20
HP F90AN D32-08-16-07	32.00	8	7.70	35.00	16.00	1.4	A	26600	0.23
HP F90AN D40-08-22-07	40.00	8	7.70	40.00	22.00	1.0	B	23700	0.29
HP F90AN D40-10-22-07	40.00	10	7.70	40.00	22.00	1.0	B	23700	0.17
HP F90AN D50-09-22-07	50.00	9	7.70	40.00	22.00	0.8	B	21200	0.44
HP F90AN D50-12-22-07	50.00	12	7.70	40.00	22.00	0.8	B	21200	0.33

• Insert tightening torque: 62 Nxcm • For user guide see pages L2-57.

(1) For adaptation see page L14.

For inserts, see pages: HP ANCR 0702PNFR (K3) • HP ANKT/ANCT 0702..PN-R/PNTR (K2) • HP ANKW 070204PNTR (K2).

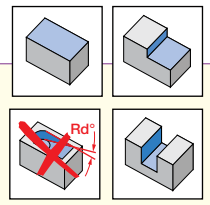
Spare Parts

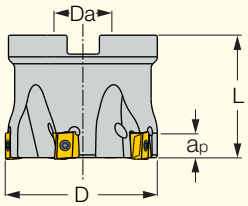
Designation	Screw	Key	Shell Locking Screw
HP F90AN D32-06-16-07	SR 34-533/L/HG	T-6/51	SR M8X20DIN912
HP F90AN D32-08-16-07	SR 34-533/L/HG	T-6/51	SR M8X20DIN912
HP F90AN D40-08-22-07	SR 34-533/L/HG	T-6/51	SR M10X25DIN912
HP F90AN D40-10-22-07	SR 34-533/L/HG	T-6/51	SR M10X25DIN912
HP F90AN D50-09-22-07	SR 34-533/L/HG	T-6/51	SR M10X25DIN912
HP F90AN D50-12-22-07	SR 34-533/L/HG	T-6/51	SR M10X25DIN912

HELITANG
T490 LINE

T490 FLN-08

90° Face Mills with Tangentially Clamped Inserts





Designation	D	Z	a_p	L	Da	Arbor[3]	Coolant	Kg
T490 FLN D032-03-16-08	32.00	3	8.00	35.00	16.00	A	Y	0.22
T490 FLN D032-05-16-08 [1]	32.00	5	8.00	35.00	16.00	A	Y	0.11
T490 FLN D040-04-16-08	40.00	4	8.00	40.00	16.00	A	Y	0.28
T490 FLN D040-06-16-08 [1]	40.00	6	8.00	40.00	16.00	A	Y	0.23
T490 FLN D050-05-22-08	50.00	5	8.00	40.00	22.00	A	Y	0.38
T490 FLN D050-07-22-08 [1]	50.00	7	8.00	40.00	22.00	A	Y	0.38
T490 FLN D050-10-22-08 [2]	50.00	10	8.00	40.00	22.00	A	N	0.34
T490 FLN D063-06-27-08	63.00	6	8.00	40.00	27.00	A	Y	0.60
T490 FLN D063-09-27-08 [1]	63.00	9	8.00	40.00	27.00	A	Y	0.63
T490 FLN D080-10-27-08	80.00	10	8.00	50.00	27.00	B	N	0.82

• When machining slots, regular pitch cutters should be used • For user guide see pages L2-57.

[1] Fine pitch [2] Extra fine pitch [3] For adaptation see page L14.

For inserts, see pages: T490 LNMT/LNHT 0804 (K38).

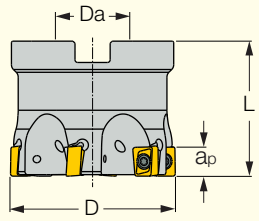
Spare Parts

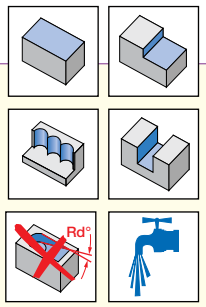
Designation	Screw	Key	Shell Locking Screw
T490 FLN D032-03-16-08	SR 10502813-HG-M	IP-7/51	SR M8X20DIN912
T490 FLN D032-05-16-08	SR 10502813-HG-M	IP-7/51	SR M8X20DIN912
T490 FLN D040-04-16-08	SR 10502813-HG-M	IP-7/51	SR M8X30DIN912
T490 FLN D040-06-16-08	SR 10502813-HG-M	IP-7/51	SR M8X30DIN912
T490 FLN D050-05-22-08	SR 10502813-HG-M	IP-7/51	SR M10X25DIN912
T490 FLN D050-07-22-08	SR 10502813-HG-M	IP-7/51	SR M10X25DIN912
T490 FLN D050-10-22-08	SR 10502813-HG-M	IP-7/51	SR M10X20DIN912
T490 FLN D063-06-27-08	SR 10502813-HG-M	IP-7/51	SR M12X25
T490 FLN D063-09-27-08	SR 10502813-HG-M	IP-7/51	SR M12X25
T490 FLN D080-10-27-08	SR 10502813-HG-M	IP-7/51	

HELIDO 490 LINE

H490 F90AX-09

90° Face Mills Carrying the H490 ANKX 09.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges





Designation	D	Z	a_p	Da	L	Arbor(1)	Kg
H490 F90AX D032-4-16-09	32.00	4	8.00	16.00	35.00	A	0.10
H490 F90AX D032-5-16-09	32.00	5	8.00	16.00	35.00	A	0.10
H490 F90AX D040-5-16-09	40.00	5	8.00	16.00	40.00	A	0.21
H490 F90AX D040-6-16-09	40.00	6	8.00	16.00	40.00	A	0.22
H490 F90AX D050-6-22-09	50.00	6	8.00	22.00	40.00	A	0.36
H490 F90AX D050-7-22-09	50.00	7	8.00	22.00	40.00	A	0.37
H490 F90AX D063-8-22-09	63.00	8	8.00	22.00	40.00	A	0.62
H490 F90AX D063-9-22-09	63.00	9	8.00	22.00	40.00	A	0.64

• For user guide see pages L2-57.

(1) For adaptation see page L14.

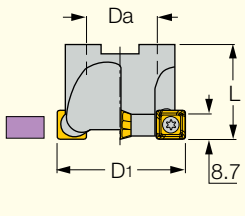
For inserts, see page: H490 ANKX/ANCX-09 (K34).

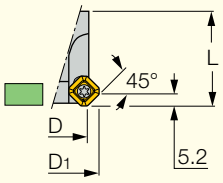
Spare Parts

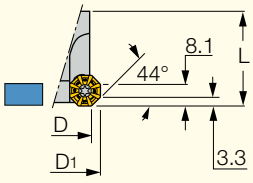
Designation	Screw	Torx Blade	Handle	Shell Locking Screw
H490 F90AX D032-4-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D032-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D040-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H490 F90AX D040-6-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H490 F90AX D050-6-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25DIN912
H490 F90AX D050-7-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25DIN912
H490 F90AX D063-8-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25DIN912
H490 F90AX D063-9-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25DIN912

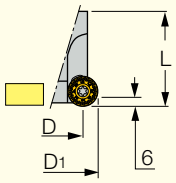
FCM

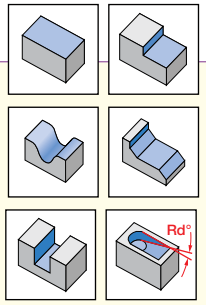
Face Mills for Four Different Insert Contours











Designation	D_1	D	H	R_d°	Z	Da	Arbor[1]	Kg	Inserts
FCM D050-22-11	50.0	–	40.0	3.9	5	22.00	A	0.30	S90MT 1106
	51.2	39.2	40.5	4.2					R90MT 1205
	51.9	39.2	40.8	4.9					R90MT 43
	50.6	43.8	40.3	4					O45MT 050505
	53.0	42	41.4	5.9					S45MT 1106
FCM D063-22-11	63.0	–	40.0	2.7	6	22.00	A	0.43	S90MT 1106
	64.2	52.2	40.5	3					R90MT 1205
	64.9	52.2	40.8	3.5					R90MT 43
	63.6	56.8	40.3	2.9					O45MT 050505
	66.0	55	41.4	4.2					S45MT 1106
FCM D080-27-11	80.0	–	50.0	1.9	7	27.00	B	0.76	S90MT 1106
	81.2	69.2	50.5	2.2					R90MT 1205
	81.9	69.2	50.8	2.6					R90MT 43
	80.6	73.8	50.3	2.1					O45MT 050505
	83.0	72	51.4	3.1					S45MT 1106
FCM D100-32-11	100.0	–	50.0	1.4	8	32.00	B	1.32	S90MT 1106
	101.2	89.2	50.5	1.7					R90MT 1205
	101.9	89.2	50.8	2					R90MT 43
	100.6	93.8	50.3	1.6					O45MT 050505
	103.0	92.0	51.4	2.3					S45MT 1106
FCM D125-40-11	125.0	–	63.0	1.1	9	40.00	B	2.46	S90MT 1106
	126.2	114.2	63.5	1.3					R90MT 1205
	126.9	114.2	63.8	1.5					R90MT 43
	125.6	118.8	63.3	1.2					O45MT 050505
	128.0	117.0	64.4	1.8					S45MT 1106

• For user guide see pages L2-57.

[1] For adaptation see page L14.

For inserts, see pages: O45MT (K69) • R90MT (K91) • S45MT (K82) • S90MT (K62).

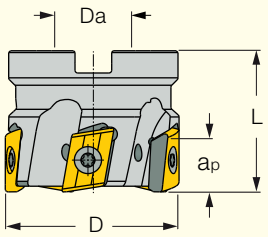
Spare Parts

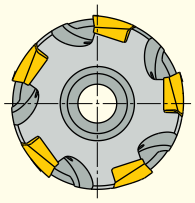
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
FCM D050-22-11	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
FCM D063-22-11	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
FCM D080-27-11	SR 14-544/S	BLD T15/M7	SW6-T	
FCM D100-32-11	SR 14-544/S	BLD T15/M7	SW6-T	
FCM D125-40-11	SR 14-544/S	BLD T15/M7	SW6-T	

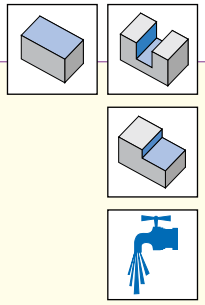
SUMOMILL
290 LINE

T290 FLN-10

90° Face Mills with T290 LNMT 1004... Tangentially Clamped Inserts







Designation	D	Z	a_p	L	Da	Arbor[1]	Kg
T290 FLN D32-05-16-10	32.00	5	9.00	35.00	16.00	A	0.30
T290 FLN D40-06-16-10	40.00	6	9.00	35.00	16.00	A	0.01
T290 FLN D50-07-22-10	50.00	7	9.00	40.00	22.00	A	0.29
T290 FLN D63-09-22-10	63.00	9	9.00	40.00	22.00	B	1.20
T290 FLN D80-10-27-10	80.00	10	9.00	50.00	27.00	B	2.50

• For user guide see pages L2-57.

[1] For adaptation see page L14.

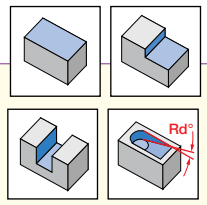
For inserts, see pages: T290 LNMT/LNHT 1004 (K37).

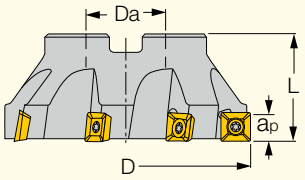
Spare Parts

Designation	Insert Screw	Torx Blade	T-Handle	Shell Locking Screw
T290 FLN D32-05-16-10	SR 10504970	BLD IP15/M7	SW6-T SHORT	SR M8X20DIN912
T290 FLN D40-06-16-10	SR 10504970	BLD IP15/M7	SW6-T SHORT	SR M8X20DIN912
T290 FLN D50-07-22-10	SR 10504970	BLD IP15/M7	SW6-T SHORT	SR M10X25DIN912
T290 FLN D63-09-22-10	SR 10504970	BLD IP15/M7	SW6-T SHORT	
T290 FLN D80-10-27-10	SR 10504970	BLD IP15/M7	SW6-T SHORT	

F90SP-10

90° Face Mills with S/X/QPMT 1004... Inserts





Designation	D[2]	Z	a_p	L	Da	R_d°	Arbor[3]	Kg
F90SP D 40-16-10	40.00	4	9.50	40.00	16.00	-	A	0.17
F90SP D 50-22-CP10	50.00	4	9.50	40.00	22.00	2.0	A	0.41
F90SP D 50-22-FP10 [1]	50.00	6	9.50	40.00	22.00	2.0	A	0.26
F90SP D 63-22-CP10	63.00	5	9.50	40.00	22.00	0.8	A	0.39
F90SP D 63-22-FP10 [1]	63.00	7	9.50	40.00	22.00	0.8	A	0.42
F90SP D 80-27-CP10	80.00	5	9.50	50.00	27.00	1.3	B	0.87
F90SP D 80-27-FP10 [1]	80.00	9	9.50	50.00	27.00	1.3	B	0.77
F90SP D100-32-FP10 [1]	100.00	11	9.50	63.00	32.00	0.8	B	1.38

• For user guide see pages L2-57.

[1] Fine pitch [2] D is 0.2 mm larger when QPMT inserts are used. [3] For adaptation see page L14.

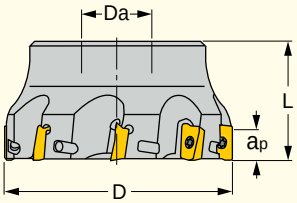
For inserts, see pages: QPMR 1004..-HQ-M (K60) • QPMT 100408PDTN (K61) • SPMT-HQ (K61) • XPMT-HQ (K62).

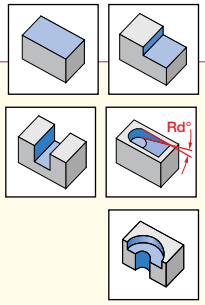
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
F90SP D 40-16-10	SR 14-544/S	BLD T15/M7	SW6-T	SR M8X25DIN912
F90SP D 50-22-CP10	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
F90SP D 50-22-FP10	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
F90SP D 63-22-CP10	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
F90SP D 63-22-FP10	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
F90SP D 80-27-CP10	SR 14-544/S	BLD T15/M7	SW6-T	
F90SP D 80-27-FP10	SR 14-544/S	BLD T15/M7	SW6-T	
F90SP D100-32-FP10	SR 14-544/S	BLD T15/M7	SW6-T	

HM90 F90AP-10

90° Face Mills with HM90 APKT 1003... Inserts





Designation	D	Z	a_p	L	Da	R_d°	RPM_{max}	Arbor(1)	Kg
HM90 F90AP D32-3-16	32.00	3	10.00	35.00	16.00	2.2	35355	A	0.10
HM90 F90AP D32-5-16	32.00	5	10.00	35.00	16.00	2.2	35355	A	0.10
HM90 F90AP D40-5-22	40.00	5	10.00	40.00	22.00	1.9	31623	A	0.19
HM90 F90AP D40-6-22	40.00	6	10.00	40.00	22.00	1.9	31623	A	0.18
HM90 F90AP D50-6-22	50.00	6	10.00	40.00	22.00	1.4	28284	A	0.30
HM90 F90AP D50-7-22	50.00	7	10.00	40.00	22.00	1.4	28284	A	0.35
HM90 F90AP D63-7-22	63.00	7	10.00	40.00	22.00	1.0	25198	B	0.49
HM90 F90AP D63-9-22	63.00	9	10.00	40.00	22.00	1.0	25198	B	0.52
HM90 F90AP D80-8-27	80.00	8	10.00	50.00	27.00	0.9	22361	B	0.93
HM90 F90AP D80-11-27	80.00	11	10.00	50.00	27.00	0.9	22631	B	0.98
HM90 F90AP D100-9-32	100.00	9	10.00	50.00	32.00	0.7	20100	B	1.00
HM90 F90AP D100-13-32	100.00	13	10.00	50.00	32.00	0.7	20100	B	1.00
HM90 F90AP D125-10-40	125.00	10	10.00	63.00	40.00	0.5	18000	B	2.81
HM90 F90AP D125-16-40	125.00	16	10.00	63.00	40.00	0.5	18000	B	3.00

• For user guide see pages L2-57.

(1) For adaptation see page L14.

For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKR 1003PDR-HM (K7) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • APKT 1003R8T-FF (K11) • APKW 100304 PDR (PCD) (K5) • HM90 APCR 100304PDFR-P/DP (K4) • HM90 APCT 1003 (K3) • HM90 APKT 1003 (K4) • HM90 APKT 1003PD-W (K11) • HM90 APKW 1003PDR (K10).

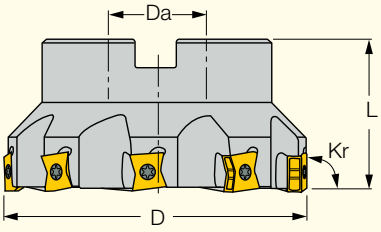
Spare Parts

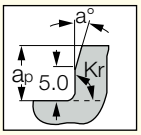
Designation	Screw	Handle	Torx Blade	Shell Locking Screw
HM90 F90AP D32-3-16	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M8X20DIN912
HM90 F90AP D32-5-16	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M8X20DIN912
HM90 F90AP D40-5-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25DIN912
HM90 F90AP D40-6-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25DIN912
HM90 F90AP D50-6-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25DIN912
HM90 F90AP D50-7-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X30
HM90 F90AP D63-7-22	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D63-9-22	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D80-8-27	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D80-11-27	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D100-9-32	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D100-13-32	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D125-10-40	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D125-16-40	SR 34-505/HG	SW4-SD	BLD T08/M7	

TANGMILL
TANGENTIAL LINE

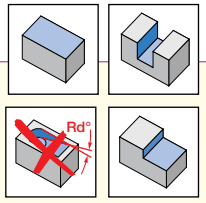
F90LN-N11

90° Face Mills with LN..1106... Tangentially Clamped Inserts





D=40, a=6°, Kr=91°
D=50, a=6°, Kr=90°
D≥63, a=5°, Kr=90°



Designation	D	Z	a_p	L	Da	Arbor[2]	Kg
F90LN D040-06-16-R/L-N11 [1]	40.00	6	10.00	40.00	16.00	A	0.21
F90LN D050-07-22-R/L-N11 [1]	50.00	7	10.00	40.00	22.00	A	0.32
F90LN D063-06-22-R/L-N11	63.00	6	10.00	40.00	22.00	B	0.47
F90LN D063-09-22-R/L-N11 [1]	63.00	9	10.00	40.00	22.00	B	0.50
F90LN D080-08-27-R/L-N11	80.00	8	10.00	50.00	27.00	B	0.97
F90LN D080-11-27-R/L-N11	80.00	11	10.00	50.00	27.00	B	1.02
F90LN D100-09-32-R/L-N11	100.00	9	10.00	50.00	32.00	B	1.38
F90LN D100-14-32-R-N11 [1]	100.00	14	10.00	50.00	32.00	B	1.76
F90LN D125-10-40-R/L-N11	125.00	10	10.00	63.00	40.00	B	2.71
F90LN D125-18-40-R-N11 [1]	125.00	18	10.00	63.00	40.00	B	3.15
F90LN D160-12-40-R/L-N11	160.00	12	10.00	63.00	40.00	C	4.66
F90LN D200-16-60-R-N11	200.00	16	10.00	63.00	60.00	C	5.84

• For user guide see pages L2-57.

[1] Fine pitch [2] For adaptation see page L14.

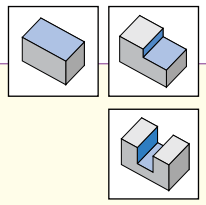
For inserts, see pages: LNAR 1106 (K42) • LNAR 1106 (PCD) (K44) • LNAR 1106PN-R-S-W (PCD) (K44) • LNAT 1106-W (K43) • LNAW-11 (CBN) (K45) • LNHT 1106 PN-N HT (K42) • LNHT 1106 PN-R HT (K41) • LNKX/LNMT 1106 (K41).

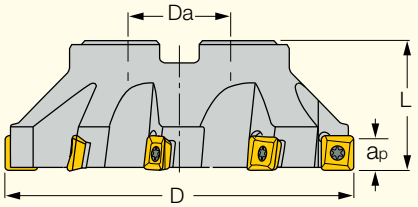
Spare Parts

Designation	Screw	Handle	Torx Blade	Shell Locking Screw
F90LN D040-04-16-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M8X30DIN912
F90LN D040-06-16-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M8X30DIN912
F90LN D050-05-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M10X25DIN912
F90LN D050-07-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M10X25DIN912
F90LN D063-06-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D063-09-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D080-08-27-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D080-11-27-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D100-09-32-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D100-14-32-R-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D125-10-40-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D125-18-40-R-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D160-12-40-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D200-16-60-R-N11	SR 34-550	SW6-SD	BLD T10/S7	

F90SD-12

90° Face Mills with S/QDM. 12... Inserts (Japanese standard)





Designation	D	Z	a_p	L	Da	Arbor[2]	Kg
F90SD D 50-22-CP12	50.00	3	11.80	40.00	22.00	A	0.27
F90SD D 50-22-12	50.00	5	11.80	40.00	22.00	A	0.26
F90SD D 63-22-CP12	63.00	4	11.80	40.00	22.00	A	0.38
F90SD D 63-22-12	63.00	6	11.80	40.00	22.00	A	0.42
F90SD D 80-27-CP12	80.00	5	11.80	50.00	27.00	B	0.73
F90SD D80-27-12 [1]	80.00	6	11.80	50.00	27.00	B	0.86
F90SD D100-32-CP12	100.00	5	11.80	50.00	32.00	B	1.07
F90SD D100-32-12 [1]	100.00	8	11.80	50.00	32.00	B	1.42
F90SD D125-40-CP12	125.00	7	11.80	63.00	40.00	B	2.17
F90SD D125-40-12 [1]	125.00	9	11.80	63.00	40.00	B	2.65
F90SD D160-40-12 [1]	160.00	10	11.80	63.00	40.00	C	3.77
F90SD D200-60-12 [1]	200.00	13	11.80	63.00	60.00	C	6.70

• For user guide see pages L2-57.

[1] Optional: SDMT 12T3.. inserts with TSD 12T3M seat [2] For adaptation see page L14.

For inserts, see pages: QDCT-PDN (K64) • QDMT 1205..PDTN-M (K64) • SDMR-HQ (K63) • SDMT-PDN-RM (K63) • SDMT-PDR-HQ (K67).

Spare Parts

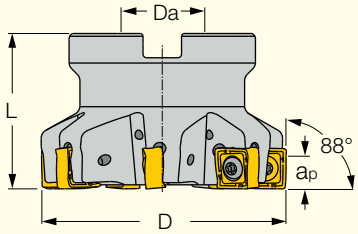
Designation	Screw	Torx Blade	T-Handle	Seat	Seat 1	Seat Screw	Seat Key	Shell Locking Screw
F90SD D 50-22-CP12	SR 34-510	BLD T15/M7	SW6-T	TSD 12R				SR M10X25DIN912
F90SD D 50-22-12	SR 14-544/S	BLD T15/M7	SW6-T					SR M10X25DIN912
F90SD D 63-22-CP12	SR 34-510	BLD T15/M7	SW6-T	TSD 12R				SR M10X25DIN912
F90SD D 63-22-12	SR 14-544/S	BLD T15/M7	SW6-T					SR M10X25DIN912
F90SD D 80-27-CP12	SR 34-510	BLD T15/M7	SW6-T	TSD 12R				
F90SD D80-27-12	SR 34-510	BLD T15/M7	SW6-T	TSD 1205N	TSD 12T3N*	SR TC-602	HW 4.0	
F90SD D100-32-CP12	SR 34-510	BLD T15/M7	SW6-T	TSD 12R				
F90SD D100-32-12	SR 34-510	BLD T15/M7	SW6-T	TSD 1205N	TSD 12T3N*	SR TC-602	HW 4.0	
F90SD D125-40-CP12	SR 34-510	BLD T15/M7	SW6-T	TSD 12R				
F90SD D125-40-12	SR 34-510	BLD T15/M7	SW6-T	TSD 1205N	TSD 12T3N*	SR TC-602	HW 4.0	
F90SD D160-40-12	SR 34-510	BLD T15/L7	SW6-T	TSD 1205N	TSD 12T3N*	SR TC-602	HW 4.0	
F90SD D200-60-12	SR 34-510	BLD T15/L7	SW6-T	TSD 1205N		SR TC-602	HW 4.0	

* Optional, should be ordered separately

HELIDO 890 LINE

S890 FSN-13

88° Face Mills Carrying Inserts with 8 Cutting Edges



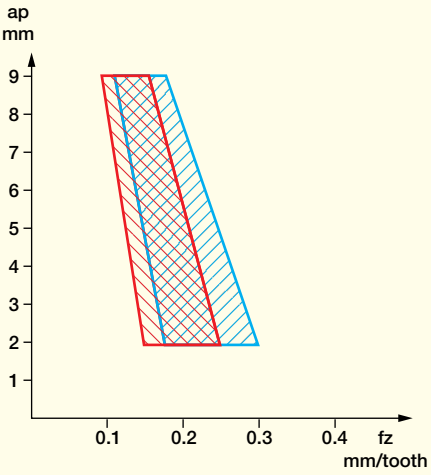
Designation	D(2)	Z	a_p	L	Da	Arbor(2)	Kg
S890 FSN D050-04-22-R13	50.00	4	9.00	40.00	22.00	A	0.28
S890 FSN D050-05-22-R13 (1)	50.00	5	9.00	40.00	22.00	A	0.29
S890 FSN D063-05-22-R13	63.00	5	9.00	40.00	22.00	A	0.39
S890 FSN D063-07-22-R13 (1)	63.00	7	9.00	40.00	22.00	B	0.39
S890 FSN D080-07-27-R13	80.00	7	9.00	50.00	27.00	B	0.74
S890 FSN D080-09-27-R13 (1)	80.00	9	9.00	50.00	27.00	B	0.74
S890 FSN D100-08-32-R13	100.00	8	9.00	50.00	32.00	B	1.25
S890 FSN D100-11-32-R13 (1)	100.00	11	9.00	50.00	32.00	B	1.27
S890 FSN D125-09-40-R13	125.00	9	9.00	63.00	40.00	B	2.29
S890 FSN D125-14-40-R13 (1)	125.00	14	9.00	63.00	40.00	B	2.29
S890 FSN D160-10-40-R13	160.00	10	9.00	63.00	40.00	C	4.49

• For user guide see pages L2-57.

(1) Fine pitch (2) For adaptation see page L14.

For inserts, see page: S890 SNMU 1305PN... (K82).

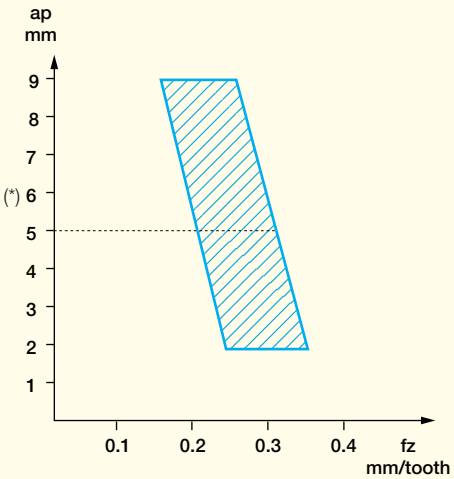
Steel Machining
D.O.C. / Feed Recommendations



for S890 SNMU 1305PNR-MM inserts

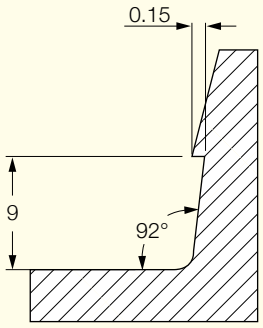
for S890 SNMU 1305PNTR inserts

Cast Iron Machining
D.O.C. / Feed Recommendations



(*) Maximum recommended D.O.C. for S890 SNMU 1305PNTN insert

Mismatch as a function of tool diameter
Tool dia. 50-125





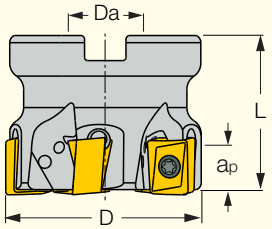
Spare Parts

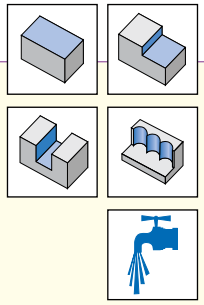
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
S890 FSN D050-04-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X25DIN912
S890 FSN D050-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X25DIN912
S890 FSN D063-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X25DIN912
S890 FSN D063-07-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X25DIN912
S890 FSN D080-07-27-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S890 FSN D080-09-27-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S890 FSN D100-08-32-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S890 FSN D100-11-32-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S890 FSN D125-09-40-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S890 FSN D125-14-40-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	

HELIDO 490 LINE

H490 F90AX-12

90° Face Mills Carrying H490 ANKX 12.. Double-Sided, Rectangular Inserts with 4 Helical Cutting Edges





Designation	D	Z	a_p	L	Da	Arbor(1)	R_d°(2)	Coolant	Kg
H490 F90AX D040-4-16-12	40.00	4	12.00	40.00	16.00	A	1.5	Y	0.20
H490 F90AX D050-3-22-12	50.00	3	12.00	40.00	22.00	A	1.5	Y	0.32
H490 F90AX D050-5-22-12	50.00	5	12.00	40.00	22.00	A	1.5	Y	0.32
H490 F90AX D063-4-27-12	63.00	4	12.00	50.00	27.00	A	1.5	Y	1.00
H490 F90AX D063-6-27-12	63.00	6	12.00	50.00	27.00	A	1.5	Y	0.65
H490 F90AX D080-5-27-12	80.00	5	12.00	50.00	27.00	B	-	Y	0.83
H490 F90AX D080-7-27-12	80.00	7	12.00	50.00	27.00	B	-	Y	0.84
H490 F90AX D100-6-32-12	100.00	6	12.00	50.00	32.00	B	-	Y	1.41
H490 F90AX D100-9-32-12	100.00	9	12.00	50.00	32.00	B	-	Y	3.38
H490 F90AX D125-8-40-12	125.00	8	12.00	63.00	40.00	B	-	Y	2.25
H490 F90AX D160-9-40-12	160.00	9	12.00	63.00	40.00	C	-	Y	3.89
H490 F90AX D200-10-60-12	200.00	10	12.00	63.00	60.00	C	-	Y	3.20

• For user guide see pages L2-57.

(1) For adaptation see page L14 (2) Rampdown angle is valid only when H490 ANKX1205R 15T-FF insert is used

For inserts, see pages: H490 ANKX/ANCX 1205-FF (K35) • H490 ANKX/ANCX-12 (K35).

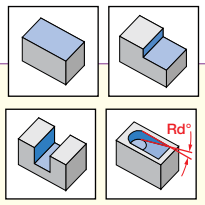
Spare Parts

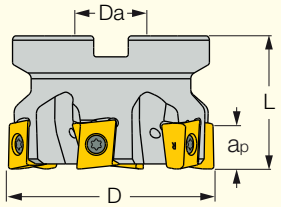
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
H490 F90AX D040-4-16-12	SR 14-544	BLD T15/M7	SW6-T	SR M8X30DIN912
H490 F90AX D050-3-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30
H490 F90AX D050-5-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30
H490 F90AX D063-4-27-12	SR 14-544	BLD T15/M7	SW6-T	SR M12X35DIN912
H490 F90AX D063-6-27-12	SR 14-544	BLD T15/M7	SW6-T	SR M12X35DIN912
H490 F90AX D080-5-27-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D080-7-27-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D100-6-32-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D100-9-32-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D125-8-40-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D160-9-40-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D200-10-60-12	SR 14-544	BLD T15/M7	SW6-T	

HELITANG
T490 LINE

T490 FLN-13

90° Face Mills Carrying Tangentially Clamped Inserts with
4 Helical, 13 mm Long Cutting Edges





Designation	D	Z	a_p	L	Da	Arbor(1)	R_d °(2)	Coolant	Kg
T490 FLN D040-04-16-R-13	40.00	4	12.50	40.00	16.00	A	2.0	Y	0.22
T490 FLN D040-05-16-R-13	40.00	5	12.50	40.00	16.00	A	2.0	Y	0.22
T490 FLN D050-05-22-R-13	50.00	5	12.50	40.00	22.00	A	1.5	Y	0.31
T490 FLN D050-06-22-R-13	50.00	6	12.50	40.00	22.00	A	1.5	Y	0.31
T490 FLN D063-06-22-R/L-13	63.00	6	12.50	40.00	22.00	A	1.1	Y	0.05
T490 FLN D063-08-22-R-13	63.00	8	12.50	40.00	22.00	A	1.1	Y	0.56
T490 FLN D080-07-27-R-13	80.00	7	12.50	50.00	27.00	B	0.9	Y	0.98
T490 FLN D080-10-27-R-13	80.00	10	12.50	50.00	27.00	B	0.9	Y	1.00
T490 FLN D100-08-32-R-13	100.00	8	12.50	50.00	32.00	B	0.7	Y	1.45
T490 FLN D100-13-32-R-13	100.00	13	12.50	50.00	32.00	B	0.7	Y	1.49
T490 FLN D125-09-40-R-13	125.00	9	12.50	63.00	40.00	B	0.5	Y	2.16
T490 FLN D125-17-40-R-13	125.00	17	12.50	63.00	40.00	B	0.5	Y	2.28
T490 FLN D200-15-60-R-13	200.00	15	12.50	63.00	60.00	B	0.5	N	5.95

• When machining slots, coarse pitch cutters should be used • For user guide see pages L2-57.

(1) For adaptation see page L14 (2) Only when T490 LNHT 1306 PNTR-RD insert is used

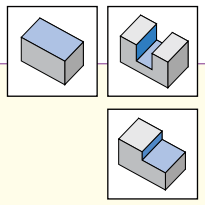
For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

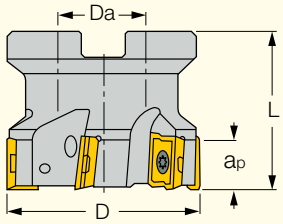
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
T490 FLN D040-04-16-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M8X30DIN912
T490 FLN D040-05-16-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M8X30DIN912
T490 FLN D050-05-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M10X25DIN912
T490 FLN D050-06-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M10X25DIN912
T490 FLN D063-06-22-R/L-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M10X25DIN912
T490 FLN D063-08-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M10X25DIN912
T490 FLN D080-07-27-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	
T490 FLN D080-10-27-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	
T490 FLN D100-08-32-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	
T490 FLN D100-13-32-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	
T490 FLN D125-09-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	
T490 FLN D125-17-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	
T490 FLN D200-15-60-R-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	

3M F90AX-13

Heavy Duty 90° Face Mills with 3M AXKT 1304.. Inserts





Designation	D	Z	a_p	L	Da	Arbor[1]	Kg
3M F90AX D040-16-13	40.00	5	12.50	40.00	16.00	A	0.18
3M F90AX D050-22-13	50.00	6	12.50	40.00	22.00	A	0.29
3M F90AX D063-22-13	63.00	7	12.50	40.00	22.00	A	0.48
3M F90AX D080-27-13	80.00	8	12.50	50.00	27.00	B	0.94
3M F90AX D100-7-32-13	100.00	7	12.50	50.00	32.00	B	1.45

• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life. • For user guide see pages L2-57.

[1] For adaptation see page L14.

For inserts, see pages: 3M AXKT 1304 (K26) • 3M AXKT 1304..R-PDRMM (K26).

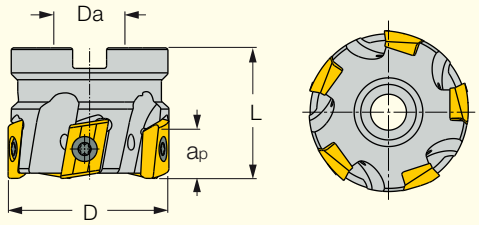
Spare Parts

Designation	Screw	Torx Blade	Handle	Shell Locking Screw
3M F90AX D040-16-13	SR 34-506/L	BLD T09/M7-SW4	SW4-SD	SR M8X25DIN912
3M F90AX D050-22-13	SR 34-506/L	BLD T09/M7-SW4	SW4-SD	SR M10X25DIN912
3M F90AX D063-22-13	SR 34-506/L	BLD T09/M7-SW4	SW4-SD	
3M F90AX D080-27-13	SR 34-506/L	BLD T09/M7-SW4	SW4-SD	
3M F90AX D100-7-32-13	SR 34-506/L	BLD T09/M7-SW4	SW4-SD	

SUMOMILL
290 LINE

T290 FLN-15

90° Face Mills with T290 LNMT 1506... Tangentially Clamped Inserts



Designation	D	Z	a_p	L	Da	Arbor(1)	Kg
T290 FLN D040-04-16-15	40.00	4	14.00	40.00	16.00	A	0.20
T290 FLN D050-05-22-15	50.00	5	14.00	40.00	22.00	A	1.40
T290 FLN D063-06-22-15	63.00	6	14.00	40.00	22.00	A	0.55
T290 FLN D080-07-27-15	80.00	7	14.00	50.00	27.00	B	2.20

• For user guide see pages L2-57.

(1) For adaptation see page L14.

For inserts, see pages: T290 LNMT/LNHT 1506 (K38).

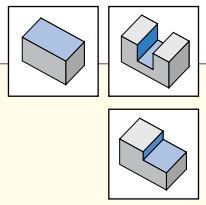
Spare Parts

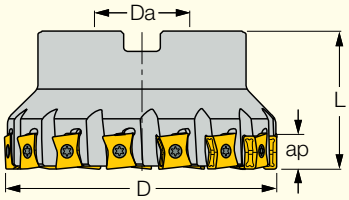
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
T290 FLN D040-04-16-15	SR 10505427	BLD IP20/S7	SW6-T	SR M8X25DIN912
T290 FLN D050-05-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X25DIN7984
T290 FLN D063-06-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X25DIN7984
T290 FLN D080-07-27-15	SR 10505427	BLD IP20/S7	SW6-T	

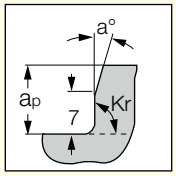
TANGMILL
TANGENTIAL LINE

F90LN-N15

90° Face Mills with LN..1506... Tangentially Clamped Inserts







D=50, a=8°, Kr=91°
D=63, a=6°, Kr=90°
D≥100, a=4.5°, Kr=90°

Designation	D	Z	L	a_p	Da	Arbor[1]	Kg
F90LN D050-05-22-R-N15	50.00	5	40.00	14.00	22.00	A	0.33
F90LN D063-05-22-R/L-N15	63.00	5	40.00	14.00	22.00	B	0.47
F90LN D063-08-22-R/L-N15	63.00	8	40.00	14.00	22.00	B	0.49
F90LN D080-07-27-R/L-N15	80.00	7	50.00	14.00	27.00	B	1.18
F90LN D080-10-27-R/L-N15	80.00	10	50.00	14.00	27.00	B	1.21
F90LN D100-08-32-R/L-N15	100.00	8	50.00	14.00	32.00	B	1.82
F90LN D100-12-32-R/L-N15	100.00	12	50.00	14.00	32.00	B	1.59
F90LN D125-09-40-R/L-N15	125.00	9	63.00	14.00	40.00	B	2.95
F90LN D125-15-40-R/L-N15	125.00	15	63.00	14.00	40.00	B	3.34
F90LN D160-10-40-R/L-N15	160.00	10	63.00	14.00	40.00	C	4.30
F90LN D160-20-40-R/L-N15	160.00	20	63.00	14.00	40.00	C	4.48
F90LN D200-12-60-R/L-N15	200.00	12	63.00	14.00	60.00	C	6.64
F90LN D200-25-60-R/L-N15	200.00	25	63.00	14.00	60.00	C	8.00
F90LN D250-15-60-R/L-N15	250.00	15	63.00	14.00	60.00	C	10.51
F90LN D250-30-60-R-N15	250.00	30	63.00	14.00	60.00	C	11.80

• Left-hand cutters are designated by a red groove • For user guide see pages L2-57.

[1] For adaptation see page L14.

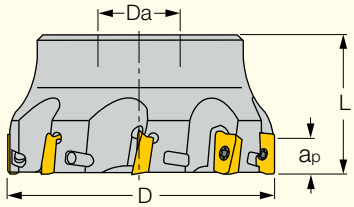
For inserts, see pages: LNAR 1506 (K49) • LNAR 1506 PN-R-S (PCD) (K50) • LNAT 1506-W (K51) • LNAT 1506..PN-N MM (K51) • LNAW-15 (CBN) (K45) • LNHW 1506 PNTN (Ceramic) (K50) • LNKX 1506 1.5X45 PN-N (K48) • LNKX 1506PN-N PL (K47) • LNKX/LNMT 1506PNTN/PN-N MM (K46) • LNMT 1506PN-R-TS (K46) • LNMT/LNHT 1506...-N HT (K49) • LNMT/LNHT 1506PN-R HT (K48) • LNMW 1506 PNTN (K47).

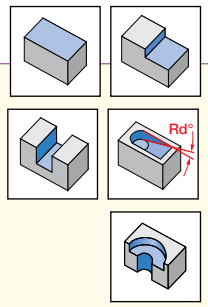
Spare Parts

Designation	Screw	T-Handle	Torx Blade	Shell Locking Screw
F90LN D050-05-22-R-N15	SR 34-535	SW6-T	BLD T15/M7	SR M10X25DIN912
F90LN D063-05-22-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D063-08-22-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D080-07-27-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D080-10-27-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D100-08-32-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D100-12-32-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D125-09-40-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D125-15-40-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D160-10-40-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D160-20-40-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D200-12-60-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D200-25-60-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D250-15-60-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D250-30-60-R-N15	SR 34-535	SW6-T	BLD T15/M7	

HM90 F90A-15

90° Face Mills with HM90 ADKT 1505... Inserts





Designation	D	Z	a_p	L	Da	R_d°	Arbor(1)	Kg
HM90 F90A D 40-3-16	40.00	3	14.30	40.00	16.00	4.0	A	0.36
HM90 F90A D 40-4-16	40.00	4	14.30	40.00	16.00	4.0	A	0.18
HM90 F90A D 50-3-22	50.00	3	14.30	40.00	22.00	2.6	A	0.31
HM90 F90A D 50-5-22	50.00	5	14.30	40.00	22.00	2.6	A	0.29
HM90 F90A D 63-4-22	63.00	4	14.30	40.00	22.00	2.0	A	0.55
HM90 F90A D 63-6-22	63.00	6	14.30	40.00	22.00	2.0	A	0.51
HM90 F90A D 80-5-27	80.00	5	14.30	50.00	27.00	0.8	B	1.05
HM90 F90A D 80-7-27	80.00	7	14.30	50.00	27.00	0.8	B	0.87
HM90 F90A D100-6-32	100.00	6	14.30	50.00	32.00	0.7	B	1.54
HM90 F90A D100-8-32	100.00	8	14.30	50.00	32.00	0.7	B	1.48
HM90 F90A D125-7-40	125.00	7	14.30	63.00	40.00	0.5	B	2.80
HM90 F90A D125-9-40	125.00	9	14.30	63.00	40.00	0.5	B	2.92
HM90 F90A D160-8-40	160.00	8	14.30	63.00	40.00	0.4	C	3.99
HM90 F90A D160-10-40	160.00	10	14.30	63.00	40.00	0.4	C	4.70
HM90 F90A D200-9-60	200.00	9	14.30	63.00	60.00	0.3	C	7.57
HM90 F90A D200-12-60	200.00	12	14.30	63.00	60.00	0.3	C	7.61
HM90 F90A D250-10-60	250.00	10	14.30	63.00	60.00	0.3	C	12.00
HM90 F90A D315-12-60	315.00	12	14.30	63.00	60.00	-	D	20.97

• For user guide see pages L2-57.

(1) For adaptation see page L14.

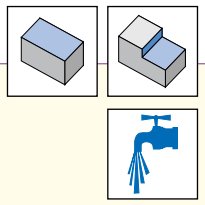
For inserts, see pages: ADCR 1505PDFR (K13) • ADCT 1505-FF (K19) • ADCT 1505PDFR-HM (K14) • ADKR 1505PD-R/L-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505-FF (K19) • ADKT 1505PD-W (K20) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • ADKT 1505PDTR-8M (K16) • ADKW (CBN) (K15) • ADKW (PCD) (K15) • ADMT 1505PDR-HS (K17) • HM90 ADCR 1505PDFR-P (K13) • HM90 ADKT 1505PD-W (K20) • HM90 ADKT/ADCT 1505 (K12) • HM90 ADKW 1505PDR (K24).

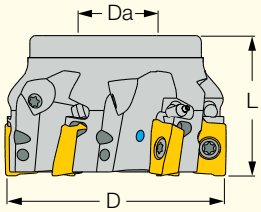
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
HM90 F90A D 40-3-16	SR 14-544/S	BLD T15/M7	SW6-T SHORT	SR M8X25DIN912
HM90 F90A D 40-4-16	SR 14-544/S	BLD T15/M7	SW6-T SHORT	SR M8X25DIN912
HM90 F90A D 50-3-22	SR 14-544/S	BLD T15/M7	SW6-T SHORT	SR M10X25DIN912
HM90 F90A D 50-5-22	SR 14-544/S	BLD T15/M7	SW6-T SHORT	SR M10X25DIN912
HM90 F90A D 63-4-22	SR 14-544	BLD T15/M7	SW6-T SHORT	SR M10X25DIN912
HM90 F90A D 63-6-22	SR 14-544	BLD T15/M7	SW6-T SHORT	SR M10X25DIN912
HM90 F90A D 80-5-27	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D 80-7-27	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D100-6-32	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D100-8-32	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D125-7-40	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D125-9-40	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D160-8-40	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D160-10-40	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D200-9-60	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D200-12-60	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D250-10-60	SR 14-544	BLD T15/M7	SW6-T SHORT	
HM90 F90A D315-12-60	SR 14-544	BLD T15/M7	SW6-T SHORT	

F90AD-SFR

Adjustable Face Mills (used mainly for PCD/CBN inserts)





Designation	D	Z	L	Da	Arbor(1)	Kg	RPM max
F90AD D050-04-22-SFR	50.00	4	40.00	22.00	A	0.30	23000
F90AD D063-04-22-SFR	63.00	4	40.00	22.00	A	0.35	20600
F90AD D063-06-22-SFR	63.00	6	40.00	22.00	A	0.48	20600
F90AD D080-06-27-SFR	80.00	6	50.00	27.00	B	0.88	18200

- These tools may be used also for regular HELI2000 AD.. 1505... inserts, for applications which require precise frontal edge adjustment.
- For user guide see pages L2-57.

(1) For adaptation see page L14.

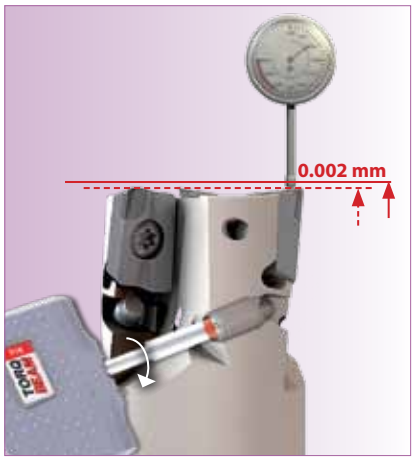
For inserts, see pages: ADKW (CBN) (K15) • ADKW (PCD) (K15).

Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
F90AD D050-04-22-SFR	SR 14-544/S	BLD T15/S7	SW6-T SHORT	SR M10X20DIN912
F90AD D063-04-22-SFR	SR 14-544/S	BLD T15/S7	SW6-T SHORT	SR M10X20DIN912
F90AD D063-06-22-SFR	SR 14-544/S	BLD T15/S7	SW6-T SHORT	SR M10X20DIN912
F90AD D080-06-27-SFR	SR 14-544/S	BLD T15/S7	SW6-T SHORT	



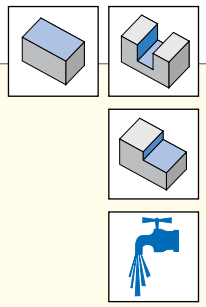


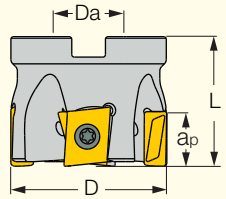


HELITANG
T490 LINE

T490 FLN-16

90° Face Mills Carrying Tangentially Clamped Inserts with
4 Helical, 16 mm Long Cutting Edges





Designation	D	Z	a_p	L	Da	Arbor[2]	Kg
T490 FLN D050-03-22-16	50.00	3	16.00	40.00	22.00	A	0.30
T490 FLN D050-04-22-16 [1]	50.00	4	16.00	40.00	22.00	A	0.31
T490 FLN D063-04-27-16	63.00	4	16.00	45.00	27.00	A	0.63
T490 FLN D063-06-27-16	63.00	6	16.00	45.00	27.00	A	0.63
T490 FLN D080-05-27-16	80.00	5	16.00	50.00	27.00	B	0.84
T490 FLN D080-07-27-16 [1]	80.00	7	16.00	50.00	27.00	B	0.90
T490 FLN D100-06-32-16	100.00	6	16.00	50.00	32.00	B	1.46
T490 FLN D100-08-32-16 [1]	100.00	8	16.00	50.00	32.00	B	1.51
T490 FLN D125-07-40-16	125.00	7	16.00	63.00	40.00	B	2.30
T490 FLN D125-10-40-16 [1]	125.00	10	16.00	63.00	40.00	B	2.50
T490 FLN D160-12-40-16	160.00	12	16.00	63.00	40.00	C	4.30
T490 FLN D200-12-60-16	200.00	12	16.00	63.00	60.00	C	5.80

• When machining slots, regular pitch cutters should be used. • For user guide see pages L2-57.

[1] Fine pitch [2] For adaptation see page L14.

For inserts, see pages: T490 LNMT/LNHT 1607 (K40).

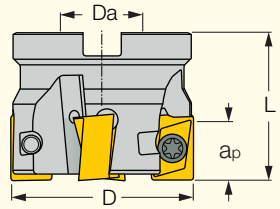
Spare Parts

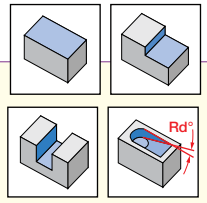
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
T490 FLN D050-03-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D050-04-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D063-04-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
T490 FLN D063-06-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
T490 FLN D080-05-27-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D080-07-27-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D100-06-32-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D100-08-32-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D125-07-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D125-10-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D160-12-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D200-12-60-16	SR 14-591	BLD T20/M7	SW6-T	

HELIDO 490 LINE

H490 F90AX-17

90° Face Mills Carrying H490 ANKX 17.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges





Designation	D	Z	a_p	L	Da	Arbor(1)	R_d°(2)	Coolant	Kg
H490 F90AX D040-3-16-17	40.00	3	16.30	40.00	16.00	A	4.4	Y	0.18
H490 F90AX D050-3-22-17	50.00	3	16.30	40.00	22.00	A	3.8	Y	0.32
H490 F90AX D050-4-22-17	50.00	4	16.30	40.00	22.00	A	3.8	Y	0.30
H490 F90AX D063-4-27-17	63.00	4	16.30	50.00	27.00	A	2.0	Y	0.63
H490 F90AX D063-6-27-17	63.00	6	16.30	50.00	27.00	A	2.0	Y	0.67
H490 F90AX D080-5-27-17	80.00	5	16.30	50.00	27.00	B	1.5	Y	0.79
H490 F90AX D080-7-27-17	80.00	7	16.30	50.00	27.00	B	1.5	Y	0.80
H490 F90AX D100-5-32-17	100.00	5	16.30	50.00	32.00	B	1.0	Y	1.38
H490 F90AX D100-8-32-17	100.00	8	16.30	50.00	32.00	B	1.0	Y	1.47
H490 F90AX D125-7-40-17	125.00	7	16.30	63.00	40.00	B	-	Y	2.23
H490 F90AX D125-10-40-17	125.00	10	16.30	63.00	40.00	B	-	Y	2.40
H490 F90AX D160-8-40-17	160.00	8	16.30	63.00	40.00	C	-	N	3.64
H490 F90AX D160-12-40-17	160.00	12	16.30	63.00	40.00	C	-	N	4.08
H490 F90AX D200-10-60-17	200.00	10	16.30	63.00	60.00	C	-	N	5.98
H490 F90AX D250-12-60-17	250.00	12	16.30	63.00	60.00	C	-	N	9.23
H490 F90AX D315-16-60-17	315.00	16	16.30	63.00	60.00	C	-	N	16.94

(1) For adaptation see page L14 (2) Rampdown angle is valid only when H490 ANKX 1706R15T-FF insert is used (tool diameter is then 1.5 mm larger).

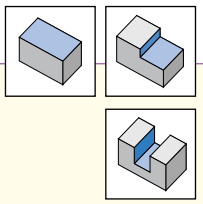
For inserts, see pages: H490 ANKX/ANCX 1706-FF (K36) • H490 ANKX/ANCX-17 (K36).

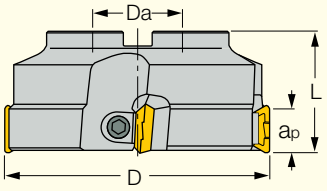
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
H490 F90AX D040-3-16-17	SR 14-591	BLD T20/M7	SW6-T	SR M8X25DIN912
H490 F90AX D050-3-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN912
H490 F90AX D050-4-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN912
H490 F90AX D063-4-27-17	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H490 F90AX D063-6-27-17	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H490 F90AX D080-5-27-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D080-7-27-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D100-5-32-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D100-8-32-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D125-7-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D125-10-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-8-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-12-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D200-10-60-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D250-12-60-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D315-16-60-17	SR 14-591	BLD T20/M7	SW6-T	

F90

90° Face Mills with TPKN/R Inserts





Designation	D	Z	L	a_p	Da	Arbor[1]	Kg	Insert
F90 D63-22	63.00	5	40.00	13.80	22.00	A	0.43	TPKR 16
F90 D080-27	80.00	6	50.00	18.00	27.00	B	0.88	TPKN/TPKR 22
F90 D100-32	100.00	8	50.00	18.00	32.00	B	1.33	TPKN/TPKR 22
F90 D125-40	125.00	8	63.00	18.00	40.00	B	3.35	TPKN/TPKR 22
F90 D160-40	160.00	10	63.00	18.00	40.00	B	4.85	TPKN/TPKR 22
F90 D200-60	200.00	12	63.00	18.00	60.00	C	8.01	TPKN/TPKR 22

• For user guide see pages L2-57.

[1] For adaptation see page L14.

For inserts, see pages: TPKN/TPKR (K34).

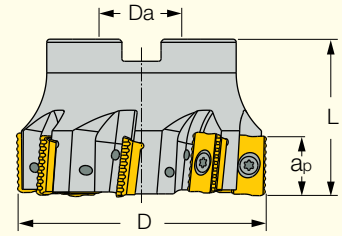
Spare Parts

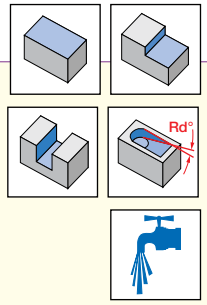
Designation	Wedge Clamp	Wedge Screw	Hex Key	Insert Pocket	Seat Screw	Seat Key	Seat Key 1
F90 D63-22	LW 35-343 T	SR 35-2011	HW 3P	NTP 32-R	SR 35-341.5	T-8/5	
F90 D080-27	LW 35-342 T	SR 35-342.3	HW 4P	NTP 43-R	SR 35-343.4		HW 2.0
F90 D100-32	LW 35-342 T	SR 35-342.3	HW 4P	NTP 43-R	SR 35-403		HW 2.0
F90 D125-40	LW 35-342 T	SR 35-342.3	HW 4P	NTP 43-R	SR 35-343.4		HW 2.0
F90 D160-40	LW 35-342 T	SR 35-342.3	HW 4P	NTP 43-R	SR 35-343.4		HW 2.0
F90 D200-60	LW 35-342 T	SR 35-342.3	HW 4P	NTP 43-R	SR 35-343.4		HW 2.0

MILLSHRED
P290 LINE

P290 FPW

90° Face Mills Carrying 18 mm Long Edge Inserts





Designation	D	a_p	Z	Da	L	Arbor(1)	Kg	R_d°
P290 FPW D040-04-16-18	40.00	18.00	4	16.00	40.00	A	0.15	1.5
P290 FPW D050-05-22-18	50.00	18.00	5	22.00	40.00	A	0.33	1.0
P290 FPW D063-06-22-18	63.00	18.00	6	22.00	40.00	A	0.54	0.8
P290 FPW D080-08-27-18	80.00	18.00	8	27.00	50.00	A	1.11	0.5

• For user guide, see pages L2-57.

(1) For adaptation see page L14

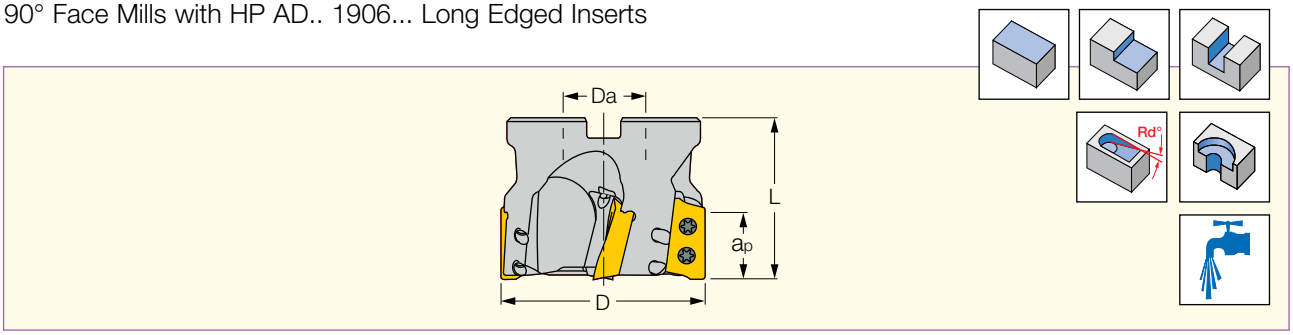
For inserts, see pages: P290 ACCT 1806 (K22) • P290 ACKT 1806 (K21).

Spare Parts

Designation	Screw	Torx Blade	T-Handle	Screw 1
P290 FPW D040-04-16-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M8X30DIN912
P290 FPW D050-05-22-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
P290 FPW D063-06-22-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X25DIN912
P290 FPW D080-08-27-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M12X30DIN912

HP F90AT-19

90° Face Mills with HP AD.. 1906... Long Edged Inserts



Designation	D	Z	a_p	L	Da	R_d°	Arbor(1)	Kg
HP F90AT D50-4-22-19	50.00	4	18.00	50.00	22.00	5.0	A	0.33
HP F90AT D63-5-27-19	63.00	5	18.00	50.00	27.00	3.5	A	0.76
HP F90AT D80-6-27-19	80.00	6	18.00	50.00	27.00	2.5	B	0.72
HP F90AT D100-7-32-19	100.00	7	18.00	50.00	32.00	2.0	B	1.60

• Insert clamping/unclamping procedure: First loosely attach the rear clamping screw, then the face screw. In the same order, tighten them both. • For user guide see pages L2-57.

(1) For adaptation see page L14.

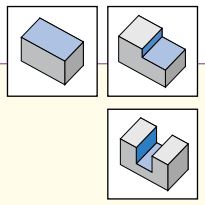
For inserts, see pages: HP ADCR 1906 (K28) • HP ADKT/ADCT 1906 (K29).

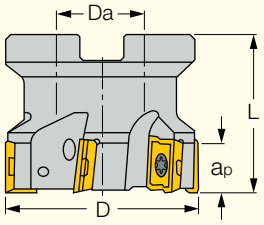
Spare Parts

Designation	Screw	Torx Blade	Handle	Shell Locking Screw
HP F90AT D50-4-22-19	SR 14-571/L	BLD T10/S7	SW6-SD	SR M10X30
HP F90AT D63-5-27-19	SR 14-571/L	BLD T10/S7	SW6-SD	SR M12X30DIN912
HP F90AT D80-6-27-19	SR 14-571/L	BLD T10/S7	SW6-SD	
HP F90AT D100-7-32-19	SR 14-571/L	BLD T10/S7	SW6-SD	

3M F90AX-20

Heavy Duty 90° Face Mills with 3M AXKT 2006.. Inserts





Designation	D	Z	a_p	L	Da	Arbor[1]	Kg
3M F90AX D050-22-20	50.00	4	20.50	50.00	22.00	A	0.34
3M F90AX D063-27-20	63.00	5	20.50	45.00	27.00	A	0.52
3M F90AX D080-27-20	80.00	6	20.50	50.00	27.00	A	0.85
3M F90AX D100-6-32-20	100.00	6	20.50	50.00	32.00	B	1.40
3M F90AX D100-32-20	100.00	8	20.50	50.00	32.00	B	1.77
3M F90AX D125-7-40-20	125.00	7	20.50	63.00	40.00	B	2.43
3M F90AX D125-40-20	125.00	9	20.50	63.00	40.00	B	2.52
3M F90AX D160-8-40-20	160.00	8	20.50	63.00	40.00	C	4.02
3M F90AX D160-40-20	160.00	10	20.50	63.00	40.00	C	4.34
3M F90AX D200-60-20	200.00	12	20.50	63.00	60.00	C	7.00
3M F90AX D250-60-20	250.00	14	20.50	63.00	60.00	C	10.53
3M F90AX D315-60-20	315.00	18	20.50	63.00	60.00	D	16.87

• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life. • For user guide see pages L2-57.

[1] For adaptation see page L14.

For inserts, see pages: 3M AXKT 2006..R-PDR (K27) • 3M AXKT-2006 (K27).

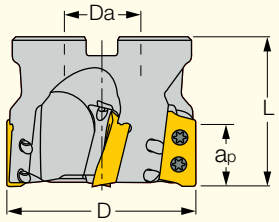
Spare Parts

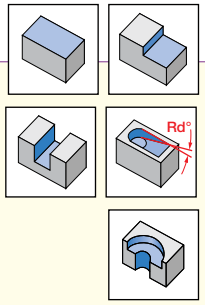
Designation	Screw	Torx Blade	T-Handle	Seat	Seat Screw	Seat Key	Shell Locking Screw
3M F90AX D050-22-20	SR 14-591	BLD T20/M7	SW6-T				SR M10X35DIN912
3M F90AX D063-27-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	SR M12X30DIN912
3M F90AX D080-27-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	SR M12X30DIN912
3M F90AX D100-6-32-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D100-32-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D125-7-40-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D125-40-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D160-8-40-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D160-40-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D200-60-20	SR 14-591	BLD T20/L7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D250-60-20	SR 14-591	BLD T20/L7	SW6-T	TSX 19R	SR TC-604	HW 5.0	
3M F90AX D315-60-20	SR 14-591	BLD T20/L7	SW6-T	TSX 19R	SR TC-604	HW 5.0	

HELIPLUS

HP F90AT-22

90° Face Mills with HP AD.. 2207... Long Edged Inserts





Designation	D	Z	a_p	L	Da	R_d°	Arbor(1)	Coolant	Kg
HP F90AT D50-3-22-22	50.00	3	21.00	50.00	22.00	5.0	A	Y	0.36
HP F90AT D50-4-22-22	50.00	4	21.00	50.00	22.00	5.0	A	N	0.33
HP F90AT D63-4-27-22	63.00	4	21.00	50.00	27.00	3.1	A	Y	0.56
HP F90AT D63-5-27-22	63.00	5	21.00	50.00	27.00	3.1	A	N	0.69
HP F90AT D80-4-27-22	80.00	4	21.00	50.00	27.00	1.8	B	Y	0.76
HP F90AT D80-6-27-22	80.00	6	21.00	50.00	27.00	1.8	B	N	0.73
HP F90AT D100-5-32-22	100.00	5	21.00	50.00	32.00	1.9	B	Y	1.69
HP F90AT D100-7-32-22	100.00	7	21.00	50.00	32.00	1.9	B	N	1.37

• Insert clamping/unclamping procedure: First loosely attach the rear clamping screw, then the face screw. In the same order, tighten them both. • For user guide see pages L2-57.

(1) For adaptation see page L14.

For inserts, see pages: HP ADCR 2207 (K30) • HP ADKT/ADCT 2207 (K29).

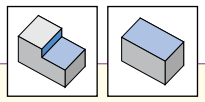
Spare Parts

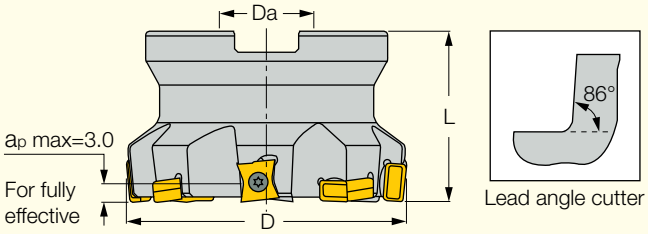
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
HP F90AT D50-3-22-22	SR 14-544	BLD T15/M7	SW6-T SHORT	SR M10X30
HP F90AT D50-4-22-22	SR 14-544	BLD T15/M7	SW6-T SHORT	SR M10X30
HP F90AT D63-4-27-22	SR 14-544	BLD T15/M7	SW6-T SHORT	SR M12X30DIN912
HP F90AT D63-5-27-22	SR 14-544	BLD T15/M7	SW6-T SHORT	SR M12X30DIN912
HP F90AT D80-4-27-22	SR 14-544	BLD T15/M7	SW6-T SHORT	
HP F90AT D80-6-27-22	SR 14-544	BLD T15/M7	SW6-T SHORT	
HP F90AT D100-5-32-22	SR 14-544	BLD T15/M7	SW6-T SHORT	
HP F90AT D100-7-32-22	SR 14-544	BLD T15/M7	SW6-T SHORT	

TANGMILL
TANGENTIAL LINE

F86LNX-11

86° Face Mills Carrying all 8 Cutting Edges of LN..1106...
Tangentially Clamped Inserts





Designation	D	Z	L	Da	Arbor[2]
F86LNX D050-06-22-R-N11 [1]	50.00	6	40.00	22.00	A
F86LNX D063-06-22-R-N11	63.00	6	40.00	22.00	A
F86LNX D063-08-22-R-N11 [1]	63.00	8	40.00	22.00	A
F86LNX D080-08-27-R-N11	80.00	8	50.00	27.00	B
F86LNX D080-10-27-R-N11 [1]	80.00	10	50.00	27.00	B

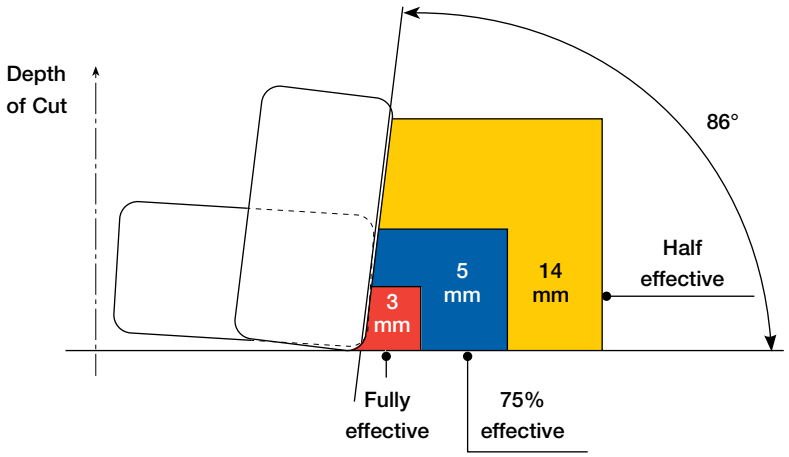
• For ap>3.0 mm, zeff is half the number indicated in the table • LNAR 1106 inserts should not be used on these cutters • F86LNX cutters enable using all 8 cutting edges of the LNKX/LNMT 1106.. inserts- 4 R.H. in the peripheral position and 4 L.H. in the frontal position • Feed should be limited to 0.25 mm/tooth.

[1] Fine pitch [2] For adaptation see page L14.

For inserts, see pages: LNAT 1106-W (K43) • LNKX/LNMT 1106 (K41).

The cutters are fully effective only up to 3 mm depth of cut.
From 3 to 14 mm depth of cut, refer to the following sketch:



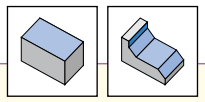


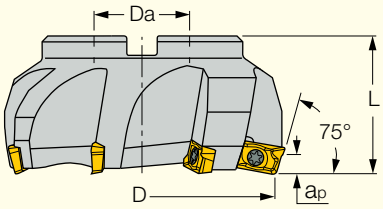
Spare Parts

Designation	Screw	Torx Blade	Handle	Shell Locking Screw
F86LNX D050-06-22-R-N11	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25DIN912
F86LNX D063-06-22-R-N11	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25DIN912
F86LNX D063-08-22-R-N11	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25DIN912
F86LNX D080-08-27-R-N11	SR 34-550	BLD T10/S7	SW6-SD	
F86LNX D080-10-27-R-N11	SR 34-550	BLD T10/S7	SW6-SD	

F75A

75° Face Mills with HM90 AD..-1505... Inserts





Designation	D	Z	a_p	Da	L	Arbor(1)	Kg
F75A D50-16-M	50.00	3	7.00	16.00	40.00	A	0.41
F75A D63-22-M	63.00	4	7.00	22.00	40.00	A	0.47
F75A D80-27-M	80.00	5	7.00	27.00	50.00	A	0.86
F75A D100-32-M	100.00	6	7.00	32.00	50.00	B	1.48
F75A D125-40-M	125.00	7	7.00	40.00	63.00	B	2.65
F75A D160-40-M	160.00	8	7.00	40.00	63.00	C	4.35

• Thinner insert ADM. 1503..mounted on TSP-15R seat • For user guide see pages L2-57.

(1) For adaptation see page L14.

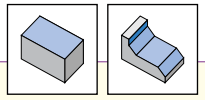
For inserts, see pages: ADCR 1505PDFR (K13) • ADCT 1505PDFR-HM (K14) • ADKR 1505PD-R/L-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • ADKT 1505PDTR-8M (K16) • ADKT 1505PDTR/L-RM (K17) • ADMT 1505PDR-HS (K17) • HM90 ADKT/ADCT 1505 (K12) • HM90 ADKW 1505PDR (K24).

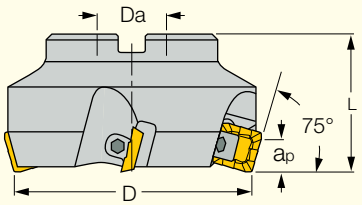
Spare Parts

Designation	Screw	Torx Blade	T-Handle
F75A	SR 14-544	BLD T15/M7	SW6-T

F75

75° Face Mills with SPKN/SPKR/SPUN 1203.. Inserts





Designation	D	Z	a_p	L	Da	Arbor[1]	Kg
F75 D50-16	50.00	4	9.50	40.00	16.00	A	0.35
F75 D63-22	63.00	5	9.50	40.00	22.00	A	0.56
F75 D80-27	80.00	6	9.50	50.00	27.00	B	1.12
F75 D100-32	100.00	8	9.50	50.00	32.00	B	1.86
F75 D125-40	125.00	8	9.50	63.00	40.00	B	3.66

• For user guide see pages L2-57.

[1] For adaptation see page L14.

For inserts, see pages: SPKN ED.. (K79) • SPKR ED..-76 (K80) • SPKR EDTR-HS (K80).

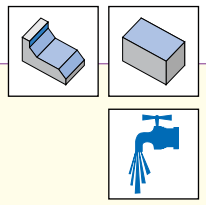
Spare Parts

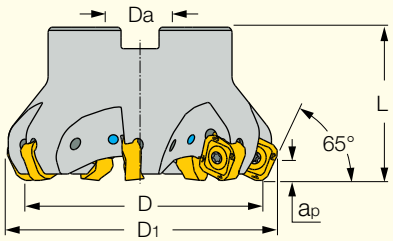
Designation	Wedge Clamp	Wedge Screw	Hex Key	Seat	Seat Screw	Seat Key	Shell Locking Screw
F75 D50-16	LW 35-343	SR 35-2011	HW 3P	NSP 42-R	SR 35-343.4	HW 2.0	SR M8X25DIN7984 12.9
F75 D63-22	LW 35-343	SR 35-2011	HW 3P	NSP 42-R	SR 35-343.4	HW 2.0	
F75 D80-27	LW 35-343	SR 35-2011	HW 3P	NSP 42-R	SR 35-343.4	HW 2.0	
F75 D100-32	LW 35-343	SR 35-2011	HW 3P	NSP 42-R	SR 35-343.4	HW 2.0	
F75 D125-40	LW 35-343	SR 35-2011	HW 3P	NSP 42-R	SR 35-343.4	HW 2.0	

HELIDO
865 LINE

S865 FSN-13

65° Face Mills Carrying Inserts with 8 Cutting Edges



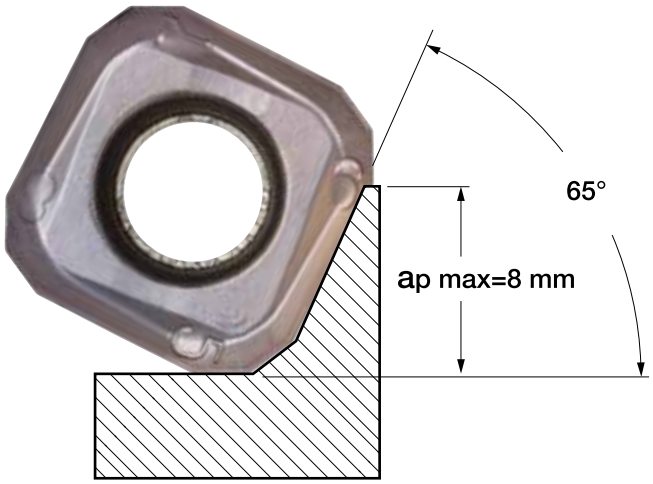


Designation	D	D_1	Z	Da	L	a_p (2)	Arbor(3)	Kg
S865 FSN D050-04-22-R13	50.00	59.7	4	22.00	40.00	6.00	A	0.36
S865 FSN D050-06-22-R13 (1)	50.00	59.7	6	22.00	40.00	6.00	A	0.36
S865 FSN D063-06-22-R13	63.00	72.7	6	22.00	40.00	6.00	A	0.51
S865 FSN D063-08-22-R13 (1)	63.00	72.7	8	22.00	40.00	6.00	A	0.50
S865 FSN D080-07-27-R13	80.00	89.7	7	27.00	50.00	6.00	B	1.65
S865 FSN D080-10-27-R13 (1)	80.00	89.7	10	27.00	50.00	6.00	B	0.93
S865 FSN D100-08-32-R13	100.00	109.7	8	32.00	50.00	6.00	B	1.37
S865 FSN D100-12-32-R13 (1)	100.00	109.7	12	32.00	50.00	6.00	B	1.64
S865 FSN D125-10-40-R13	125.00	134.7	10	40.00	63.00	6.00	B	2.82
S865 FSN D125-16-40-R13 (1)	125.00	134.7	16	40.00	63.00	6.00	B	2.83

• For user guide see pages L2-57.

(1) Fine pitch (2) Depth of cut on steel with coarse pitch cutters and on cast iron with fine pitch cutters may be increased to 8 mm. (3) For adaptation see page L14.

For inserts, see: S865 SNMU 1305ZNTR (K67).

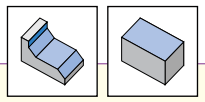


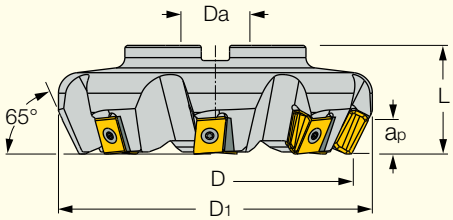
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
S865 FSN D050-04-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X20DIN912
S865 FSN D050-06-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X20DIN912
S865 FSN D063-06-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X20DIN912
S865 FSN D063-08-22-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X20DIN912
S865 FSN D080-07-27-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S865 FSN D080-10-27-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S865 FSN D100-08-32-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S865 FSN D100-12-32-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S865 FSN D125-10-40-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	
S865 FSN D125-16-40-R13	SR 11800745	BLD IP15/S7	SW6-T SHORT	

T465 FLN-22

65° Face Mills Carrying Tangentially Clamped Inserts with
4 Helical, 22 mm Long Cutting Edges





Designation	D	D_1	Da	a_p	Z	L	Kg	Arbor(1)
T465 FLN D125-06-40-R-22	125.00	143.3	40.00	19.00	6	63.00	3.87	B
T465 FLN D125-08-40-R-22	125.00	143.3	40.00	19.00	8	63.00	4.51	B
T465 FLN D160-07-40-R-22	160.00	178.4	40.00	19.00	7	63.00	5.17	C
T465 FLN D160-09-40-R-22	160.00	178.4	40.00	19.00	9	63.00	5.38	C
T465 FLN D200-08-60-R-22	200.00	218.0	60.00	19.00	8	63.00	8.76	C
T465 FLN D200-10-60-R-22	200.00	218.0	60.00	19.00	10	63.00	8.31	C
T465 FLN D250-10-60-R-22	250.00	268.3	60.00	19.00	10	63.00	13.65	C
T465 FLN D250-12-60-R-22	250.00	268.3	60.00	19.00	12	63.00	13.39	C
T465 FLN D315-12-60-R-22	315.00	333.0	60.00	19.00	12	80.00	24.49	C

• For user guide see pages L2-57.

(1) For adaptation see page L14.

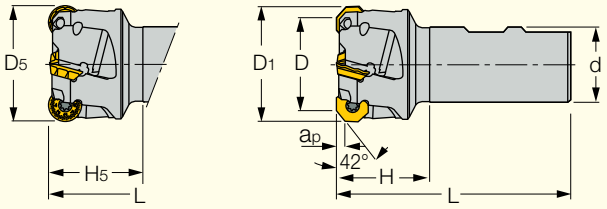
For inserts, see pages: T465 LNHT 2212 (K54).

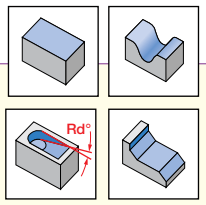
Spare Parts

Designation	Screw	T-Handle	Torx Blade
T465 FLN-22	SR 10507547	SW6-T	BLD IP25/S7

E45KT

45° Endmills, Carrying Octagonal or Round Inserts





Designation	D	D_1	D_5 (1)	Z	H	H_5 (1)	L	d	a_p	R_d°	R_d°$_5$ (1)	Shank (2)	Kg
E45KT D32-W25-R06	32.00	41.0	42.70	3	39.00	39.50	95.00	25.00	2.50	7.5	10.0	W	0.22
E45KT D40-W32-R06	40.00	49.0	50.70	4	40.00	40.50	100.00	32.00	2.50	6.0	7.6	W	0.65

• For adaptation see page L13 • For insert OE..-06 ap=2.5 mm. For insert RE..-15 ap=7.9 mm • For user guide see pages L2-57.

(1) Dimensions with REMT 15 round inserts. (2) C-Cylindrical, W-Weldon

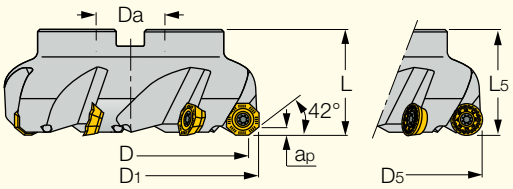
For inserts, see pages: OECR (K69) • OEMT 060405 (K70) • OEMW-AETN (K70) • REMT-76 (K92) • REMW (K92).

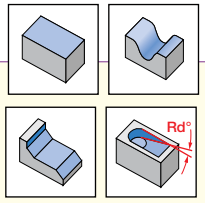
Spare Parts

Designation	Screw	Key
E45KT	SR 14-544/S	T-15/51

F45KT

45° Face Mills, Carrying Octagonal or Round Inserts





Designation	D	D_1	D_5 (1)	Z	a_p	L	L_5 (1)	Da	R_d°	$R_{d\,5}$° (1)	Arbor (2)	Kg
F45KT D050-22-R06	50.00	59.4	60.70	4	2.50	40.00	40.50	22.00	4.2	5.7	A	0.34
F45KT D063-22-R06	63.00	72.4	73.70	5	2.50	40.00	40.50	22.00	3.2	4.0	A	0.48
F45KT D080-27-R06	80.00	89.4	90.70	6	2.50	50.00	50.50	27.00	2.5	2.9	B	0.98
F45KT D100-32-R06	100.00	109.4	110.70	7	2.50	50.00	50.50	32.00	1.9	2.2	B	1.49
F45KT D125-40-R06	125.00	134.4	135.70	8	2.50	63.00	63.50	40.00	1.4	1.6	B	2.94

• For user guide see pages L2-57.

(1) Dimensions with REMT 15 round inserts. (2) For adaptation see page L14.

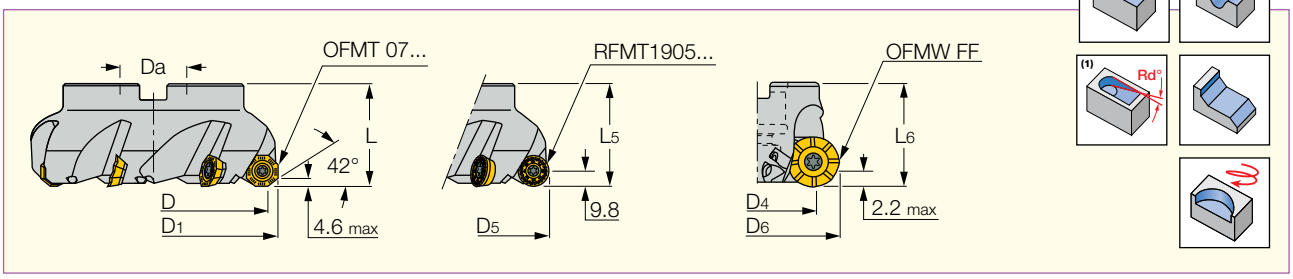
For inserts, see pages: OECR (K69) • OEMT 060405 (K70) • OEMW-AETN (K70) • REMT-76 (K92) • REMW (K92).

Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
F45KT D050-22-R06	SR 14-544	BLD T15/M7	SW6-T	SR M10X25DIN912
F45KT D063-22-R06	SR 14-544	BLD T15/M7	SW6-T	SR M10X25DIN912
F45KT D080-27-R06	SR 14-544	BLD T15/M7	SW6-T	
F45KT D100-32-R06	SR 14-544	BLD T15/M7	SW6-T	
F45KT D125-40-R06	SR 14-544	BLD T15/M7	SW6-T	

HOF

Face Mills Carrying Octagonal, Round and High Feed Segmented Radius Inserts



Designation	D	D_1	L	D_5 (1)	L_5 (1)	$R_{d°5}$ (1)	D_4	D_6 (2)	L_6 (2)	Z	Da	Arbor (3)	Kg
HOF D050-03-22-R07	50.00	62.5	40.00	63.30	40.50	9.0	44.80	64.00	40.60	3	22.00	A	0.29
HOF D063-04-22-R07	63.00	75.5	40.00	76.30	40.50	6.0	57.80	77.00	40.60	4	22.00	A	0.48
HOF D080-05-27-R07	80.00	92.5	50.00	93.30	50.50	4.5	92.50	94.00	50.60	5	27.00	B	0.92
HOF D100-06-32-R07	100.00	112.5	50.00	113.30	50.50	3.0	94.80	114.00	50.60	6	32.00	B	1.33
HOF D125-08-40-R07	125.00	137.5	63.00	138.30	63.50	2.5	119.80	139.00	63.60	8	40.00	B	2.72
HOF D160-10-40-R07	160.00	172.5	63.00	173.30	63.50	1.9	154.80	174.00	63.60	10	40.00	C	3.83
HOF D200-12-60-R07	200.00	212.5	63.00	213.30	63.50	1.5	194.80	214.00	63.60	12	60.00	C	7.00
HOF D250-15-60-R07	250.00	262.5	63.00	263.30	63.50	1.2	244.80	264.00	63.60	15	60.00	C	19.97
HOF D315-18-60-R07	315.00	327.5	80.00	328.30	80.50	0.9	309.80	329.00	80.60	18	60.00	C	20.95

• Helical interpolation is applicable up to and including 100 mm diameter • ap change according to insert • For user guide see pages L2-57.

(1) Dimensions with RFMT 19 round inserts. (2) Dimensions with FF OFMW inserts. (3) For adaptation see page L14.

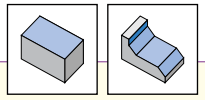
For inserts, see pages: OFCR/OFCT-AEN/AETN (K72) • OFCT/OFCR-RW/AER (Wiper) (K72) • OFMT 07 (K71) • OFMW-AETN (K71) • OFMW-FF (K73) • RFMT 1905-76 (K95) • RFMW 1905 (K95).

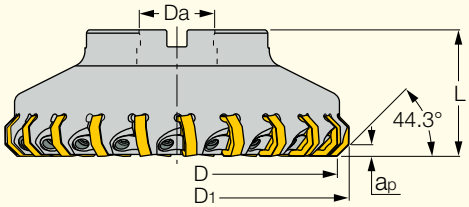
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Seat	Seat Screw	Seat Key	Shell Locking Screw
HOF D050-03-22-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X8TL180	HW 2.0	SR M10X25DIN912
HOF D063-04-22-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X10TL180	HW 2.0	SR M10X25DIN912
HOF D080-05-27-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X8TL180	HW 2.0	
HOF D100-06-32-R07	SR 14-591/H	BLD T20/M7	SW6-T	THOF-07R	SR M2.5X10TL180	HW 2.0	
HOF D125-08-40-R07	SR 14-591/H	BLD T20/M7	SW6-T	THOF-07R	SR M2.5X10TL180	HW 2.0	
HOF D160-10-40-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10TL180	HW 2.0	
HOF D200-12-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10TL180	HW 2.0	
HOF D250-15-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10TL180	HW 2.0	
HOF D315-18-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10TL180	HW 2.0	

F45WG

45° Face Mills, Carrying Octagonal ONHU/MU 0806... Inserts with 16 Cutting Edges





Designation	D	D_1	a_p	Z	L	Da	Arbor(1)	Kg
F45WG D080-10-27-FX-R08	80.00	92.0	5.50	10	50.00	27.00	B	1.12
F45WG D100-14-32-FX-R08	100.00	112.0	5.50	14	50.00	32.00	B	1.63
F45WG D125-18-40-FX-R08	125.00	137.0	5.50	18	63.00	40.00	B	2.96
F45WG D160-22-40-FX-R08	160.00	172.0	5.50	22	63.00	40.00	C	4.58
F45WG D200-28-60-FX-R08	200.00	212.0	5.50	28	63.00	60.00	C	8.32
F45WG D250-36-60-FX-R08	250.00	262.0	5.50	36	63.00	60.00	C	10.38
F45WG D315-44-60-FX-R08	315.00	327.0	5.50	44	80.00	60.00	C	19.85

• Note: Recommended wedge clamping torque: 5.5-6.0 Nxm • For user guide see pages L2-57.

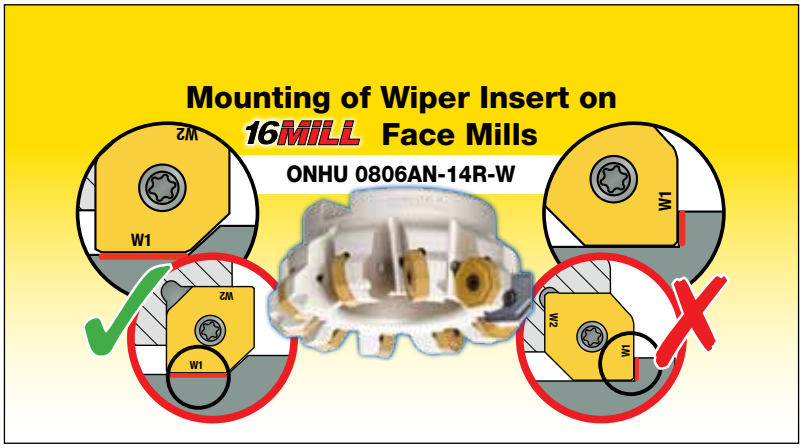
(1) For adaptation see page L14.

For inserts, see pages: ONHQ-TN (K84) • ONHU 0806-N-PL (K84) • ONHU 0806AN-*-W (K85) • ONHU/ONMU 080608 AN-N-HP (K85) • ONHU/ONMU-08-TN-MM (K83) • ONHU/ONMU-08-TN/HL (K83).

Wiper Inserts

Wiper inserts are used on face mill cutters, providing improved surface finish and thus eliminating the use of other finishing cutters.

ONHU 0806AN-14R-W, mounted on **F45WG** and **F45NM** milling cutters. This insert provides **4 right-hand** wiper edges.



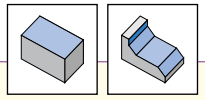
Mounting instructions have been included in each insert package, in order to avoid incorrect clamping orientation. Only correct mounting will provide high surface finish!

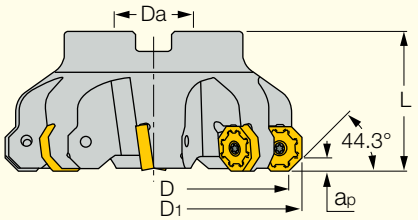
Spare Parts

Designation	Wedge Clamp	Right-Left Screw	Torx Blade	T-Handle
F45WG	LW 35-475/M	SR 118-069	BLD IP20/S7	SW6-T

F45NM

45° Face Mills, Carrying Octagonal ONHU/MU 0806... Inserts with 16 Cutting Edges





Designation	D	D_1	Z	a_p	L	Da	Arbor(1)	Kg
F45NM D063-05-22-R08	63.00	75.0	5	5.50	40.00	22.00	A	0.46
F45NM D080-06-27-R08	80.00	92.0	6	5.50	50.00	27.00	B	0.96
F45NM D080-08-27-R08	80.00	92.0	8	5.50	50.00	27.00	B	0.90
F45NM D100-07-32-R08	100.00	112.0	7	5.50	50.00	32.00	B	1.65
F45NM D100-10-32-R08	100.00	112.0	10	5.50	50.00	32.00	B	1.39
F45NM D125-08-40-R08	125.00	137.0	8	5.50	63.00	40.00	B	2.93
F45NM D125-12-40-R08	125.00	137.0	12	5.50	63.00	40.00	B	2.17
F45NM D160-10-40-R08	160.00	172.0	10	5.50	63.00	40.00	C	4.54
F45NM D160-15-40-R08	160.00	172.0	15	5.50	63.00	40.00	C	4.17
F45NM D200-12-60-R08	200.00	212.0	12	5.50	63.00	60.00	C	7.98
F45NM D250-14-60-R08	250.00	262.0	14	5.50	63.00	60.00	C	9.00
F45NM D315-16-60-R08	315.00	327.0	16	5.50	80.00	60.00	C	17.70

- Wiper inserts are used on face mill cutters, providing improved surface finish, thus eliminating the use of other finishing cutters
- For user guide see pages L2-57.

(1) For adaptation see page L14.

For inserts, see pages: ONHQ-TN (K84) • ONHU 0806-N-PL (K84) • ONHU 0806AN-*-W (K85) • ONHU/ONMU 080608 AN-N-HP (K85) • ONHU/ONMU-08-TN-MM (K83) • ONHU/ONMU-08-TN/HL (K83).

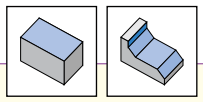
Spare Parts

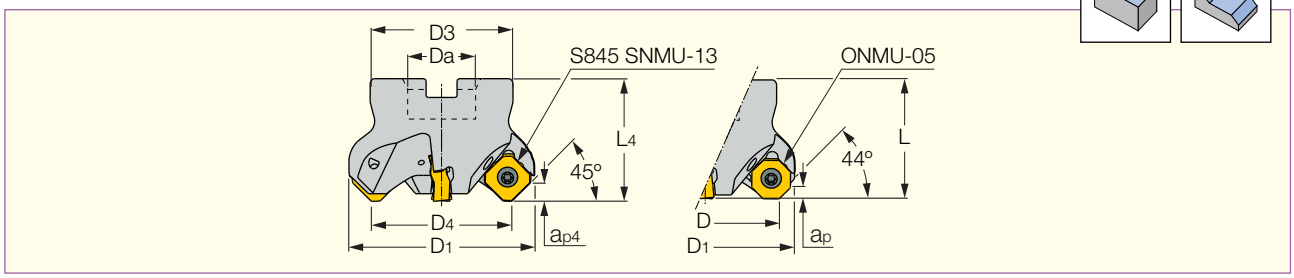
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
F45NM D063-05-22-R08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25DIN912
F45NM D080-06-27-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D080-08-27-R08	SR 11800771	BLD IP15/S7	SW6-T SHORT	
F45NM D100-07-32-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D100-10-32-R08	SR 11800771	BLD IP15/S7	SW6-T SHORT	
F45NM D125-08-40-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D125-12-40-R08	SR 11800771	BLD IP15/S7	SW6-T SHORT	
F45NM D160-10-40-R08	SR 14-591/H	BLD T20/L7	SW6-T	
F45NM D160-15-40-R08	SR 11800771	BLD IP15/M7	SW6-T SHORT	
F45NM D200-12-60-R08	SR 14-591/H	BLD T20/L7	SW6-T	
F45NM D250-14-60-R08	SR 14-591/H	BLD T20/L7	SW6-T	
F45NM D315-16-60-R08	SR 14-591/H	BLD T20/L7	SW6-T	

HELIDO
845 LINE

SOF45

45° Face Mills, Carrying Square or Octagonal Double-Sided Inserts with 8/16 Cutting Edges





Designation	D	D_1	Z	L	a_p	Da	D_3	D_4	L_4	a_{p4}	Arbor[1]	Coolant	Kg
SOF45 8/16-D040-04-22R	40.00	50.4	4	40.00	3.50	22.00	45.00	37.65	41.2	6.00	A	Y	0.29
SOF45 8/16-D050-03-22R	50.00	60.4	3	40.00	3.50	22.00	48.00	47.65	41.2	6.00	A	Y	0.38
SOF45 8/16-D050-04-22R	50.00	60.4	4	40.00	3.50	22.00	48.00	47.65	41.2	6.00	A	Y	0.39
SOF45 8/16-D050-06-22R	50.00	60.4	6	40.00	3.50	22.00	48.00	47.65	41.2	6.00	A	Y	0.37
SOF45 D050-04-22-R13	52.35	62.8	4	38.80	3.50	22.00	48.00	50.00	40.0	6.00	A	Y	0.38
SOF45 8/16-D063-04-22R	63.00	73.4	4	40.00	3.50	22.00	48.00	60.65	41.2	6.00	A	Y	0.57
SOF45 8/16-D063-06-22R	63.00	73.4	6	40.00	3.50	22.00	48.00	60.65	41.2	6.00	B	N	0.47
SOF45 8/16-D063-08-22R	63.00	73.4	8	40.00	3.50	22.00	48.00	60.65	41.8	6.00	B	N	0.46
SOF45 D063-06-22-R13	65.35	75.8	6	38.80	3.50	22.00	48.00	63.00	40.0	6.00	B	Y	0.49
SOF45 8/16-D080-07-27R	80.00	90.4	7	50.00	3.50	27.00	70.00	77.65	51.2	6.00	B	N	1.02
SOF45 8/16-D080-10-27R	80.00	90.4	10	50.00	3.50	27.00	70.00	77.65	51.2	6.00	B	N	1.23
SOF45 D080-07-27-R13	82.35	90.4	7	48.80	3.50	27.00	70.00	80.00	50.0	6.00	B	Y	1.00
SOF45 8/16-D100-08-32R	100.00	110.4	8	50.00	3.50	32.00	70.00	97.65	51.2	6.00	B	N	1.38
SOF45 8/16-D100-12-32R	100.00	110.4	12	50.00	3.50	32.00	70.00	97.65	51.2	6.00	B	N	1.34
SOF45 D100-08-32-R13	102.35	112.8	8	48.80	3.50	32.00	65.00	100.00	50.0	6.00	B	Y	1.49
SOF45 8/16-D125-10-40R	125.00	135.6	10	63.00	3.50	40.00	85.00	122.65	64.2	6.00	B	N	2.63
SOF45 8/16-D125-16-40R	125.00	135.6	16	63.00	3.50	40.00	85.00	122.65	64.2	6.00	B	N	2.55
SOF45 D125-10-40-R13	127.35	137.8	10	61.80	3.50	40.00	82.00	125.00	63.0	6.00	B	Y	2.65
SOF45 8/16-D160-12-40R	160.00	170.4	12	63.00	3.50	40.00	92.00	157.65	64.2	6.00	C	N	3.34
SOF45 8/16-D200-14-60R	200.00	210.4	14	63.00	3.50	60.00	135.00	197.65	64.2	6.00	C	N	5.81
SOF45 8/16-D250-16-60R	250.00	260.4	16	63.00	3.50	60.00	137.00	247.65	64.2	6.00	C	N	8.15
SOF45 8/16-D315-20-60R	315.00	325.4	20	80.00	3.50	60.00	222.00	312.65	81.2	6.00	C	N	19.07

• For user guide see pages C46, L2-57.

[1] For adaptation see page L14.

For inserts, see pages: ONHU 0505-W (K68) • ONHU/ONMU-05 (K68) • S845 SNHU 1305-W (K65) • S845 SNMU/SNHU-13 (K65).

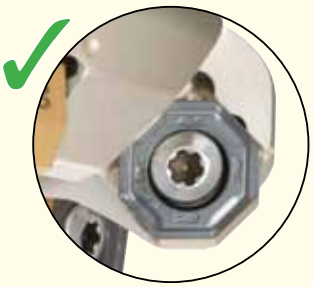
Spare Parts

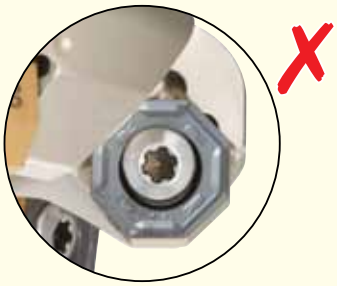
Designation	Screw	Torx Blade	T Handle	Shell Locking Screw
SOF45 8/16-D040-04-22R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	SR M10X25DIN912
SOF45 8/16-D050-03-22R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	SR M10X20DIN912
SOF45 8/16-D050-04-22R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	SR M10X20DIN912
SOF45 8/16-D050-06-22R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	SR M10X20DIN912
SOF45 D050-04-22-R13	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	SR M10X20DIN912
SOF45 8/16-D063-04-22R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	SR M10X20DIN912
SOF45 8/16-D063-06-22R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D063-08-22R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 D063-06-22-R13	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D080-07-27R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D080-10-27R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 D080-07-27-R13	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D100-08-32R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D100-12-32R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 D100-08-32-R13	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D125-10-40R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D125-16-40R	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 D125-10-40-R13	SR 11800745	BLD IP15/S7[1]	SW6-T SHORT	
SOF45 8/16-D160-12-40R	SR 11800745	BLD IP15/M7[1]	SW6-T SHORT	
SOF45 8/16-D200-14-60R	SR 11800745	BLD IP15/M7[1]	SW6-T SHORT	
SOF45 8/16-D250-16-60R	SR 11800745	BLD IP15/M7[1]	SW6-T SHORT	
SOF45 8/16-D315-20-60R	SR 11800745	BLD IP15/M7[1]	SW6-T SHORT	

[1] IMPORTANT: Use only Torx Plus keys.

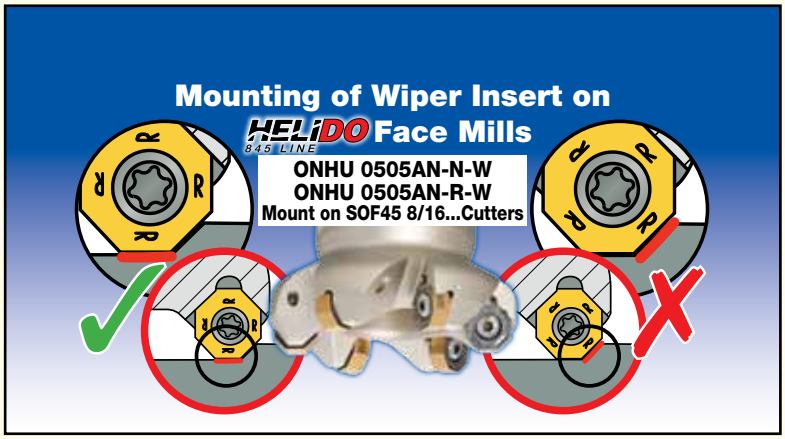
Wiper Inserts

Wiper inserts are used on face mill cutters, providing improved surface finish, and thus eliminating the use of other finishing cutters.

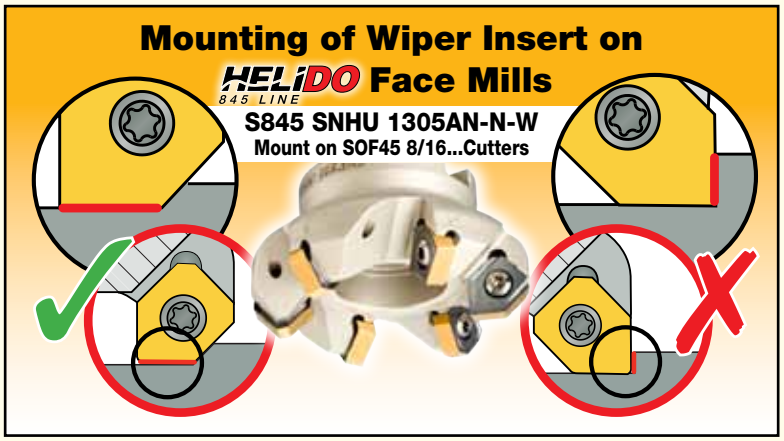




- **ONHU 0505AN-R-W,** mounted on standard **SOF45** milling cutters.
  This insert provides 8 right-hand wiper edges.
- **ONHU 0505AN-N-W,** mounted on **SOF45** milling cutters.
  This insert provides **4 right-hand** wiper edges to be used on standard tools and **4 left-hand** wiper edges to be used on **special left-hand SOF45** cutters.



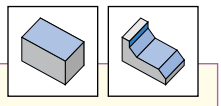
- **S845 SNHU 1305AN-N-W,** mounted on **SOF45** milling cutters when the square S845 SNMU/HU 1305AN... inserts are used.
  This insert provides **2 right-hand** and **2 left-hand** wiper edges.

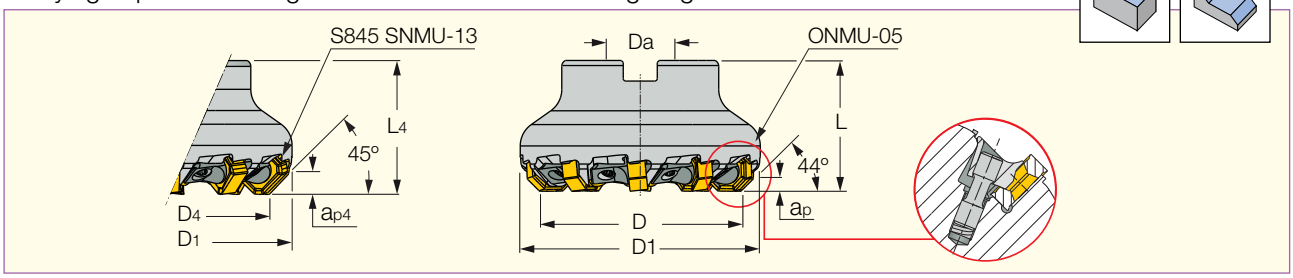


HELIDO
845 LINE

SOF45CL

45° Extra Fine Pitch Face Mills with Wedge Clamped Inserts,
Carrying Square or Octagonal Inserts with 8/16 Cutting Edges





Designation	D	D_1	Z	L	a_p	Da	D_4	L_4	a_{p4}	Arbor[1]	Kg
SOF45CL 8/16 D050-07-22R	50.00	60.4	7	40.00	3.50	22.00	47.65	41.2	6.00	A	0.47
SOF45CL 8/16 D063-10-22R	63.00	73.4	10	40.00	3.50	22.00	60.65	41.2	6.00	B	0.56
SOF45CL 8/16 D080-12-27R	80.00	90.4	12	50.00	3.50	27.00	77.65	51.2	6.00	B	1.06
SOF45CL 8/16 D100-16-32R	100.00	110.4	16	50.00	3.50	32.00	97.65	51.2	6.00	B	1.78
SOF45CL 8/16 D125-20-40R	125.00	135.6	20	63.00	3.50	40.00	122.65	64.2	6.00	B	2.86

• For user guide see pages C46, L2-57.

[1] For adaptation see page L14.

For inserts, see pages: ONHU 0505-W (K68) • ONHU/ONMU-05 (K68) • S845 SNHU 1305-W (K65) • S845 SNMU/SNHU-13 (K65).

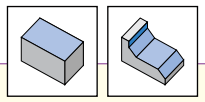
Spare Parts

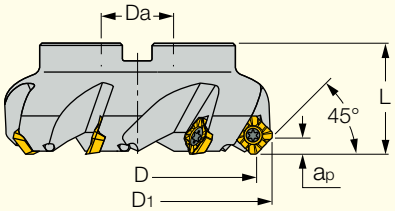
Designation	Right-Left Screw	Wedge Clamp	Torx Blade	T-Handle	Shell Locking Screw
SOF45CL 8/16 D050-07-22R	SR 11800866	CL ARM-08 I	BLD IP15/S7[1]	SW6-T SHORT	SR M10X20DIN912
SOF45CL 8/16 D063-10-22R	SR 11800866	CL ARM-08 I	BLD IP15/S7[1]	SW6-T SHORT	
SOF45CL 8/16 D080-12-27R	SR 11800866	CL ARM-08 I	BLD IP15/S7[1]	SW6-T SHORT	
SOF45CL 8/16 D100-16-32R	SR 11800866	CL ARM-08 I	BLD IP15/S7[1]	SW6-T SHORT	
SOF45CL 8/16 D125-20-40R	SR 11800866	CL ARM-08 I	BLD IP15/S7[1]	SW6-T SHORT	

[1] IMPORTANT: Use only Torx Plus keys.

F45ST

45° Screw Clamped Face Mills with SEK/MT 12... Inserts





Designation	D	D_1	Z	a_p	L	Da	Arbor(1)	Kg
F45ST D040-22	40.00	50.0	3	6.50	40.00	22.00	A	0.30
F45ST D050-22	50.00	63.1	4	6.50	40.00	22.00	A	0.35
F45ST D063-22	63.00	75.0	5	6.50	40.00	22.00	A	0.54
F45ST D080-27	80.00	90.9	6	6.50	50.00	27.00	B	1.08
F45ST D100-32	100.00	110.0	6	6.50	50.00	32.00	B	1.53
F45ST D125-40	125.00	135.0	7	6.50	63.00	40.00	B	2.67
F45ST D160-40	160.00	170.7	7	6.50	63.00	40.00	C	4.04
F45ST D200-60	200.00	211.7	10	6.50	63.00	60.00	C	7.69
F45ST D250-60	250.00	263.7	13	6.50	63.00	60.00	C	10.46

• SE..1204 inserts are mounted directly on the cutter • SE..12T3 optional thinner inserts are mounted on a seat - TSE 12T3-N
• For user guide see pages L2-57.

(1) For adaptation see page L14.

For inserts, see pages: SEHT-AFN (K76) • SEHW-AFTN (K74) • SEKT-AF-R (K73) • SEKT-AFTN (K75) • SEMT 12**AFTN-76 (K76) • SEMT 1204AF-R-HS (K74) • SEMW 1204AFTN (K75).

Spare Parts

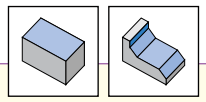
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw	Hex Key	Screw 1	Seat	Seat Screw	Seat Key
F45ST D040-22	SR 14-536/S	BLD T20/M7	SW6-T	SR M10X25DIN7984	HW 7.0				
F45ST D050-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*
F45ST D063-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*
F45ST D080-27	SR 34-523	BLD T15/M7	SW6-T			SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*
F45ST D100-32	SR 34-523	BLD T15/M7	SW6-T			SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*
F45ST D125-40	SR 34-523	BLD T15/M7	SW6-T			SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*
F45ST D160-40	SR 34-523	BLD T15/M7	SW6-T			SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*
F45ST D200-60	SR 34-523	BLD T15/L7	SW6-T			SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*
F45ST D250-60	SR 34-523	BLD T15/L7	SW6-T			SR 14-601*	TSE 12T3-N(1)*	SR TC-606(1)*	HW 3.5(1)*

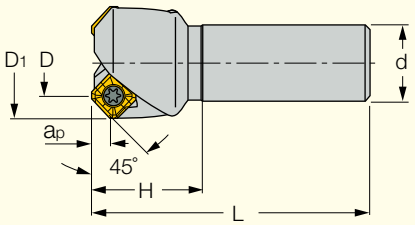
* Optional, should be ordered separately

(1) Optional for insert SE..12T3

F45ST (endmill)

45° Screw Clamped Endmills with SEK/MT 12... Inserts





Designation	D	D_1	Z	H	L	a_p	d	Shank(1)	Kg
F45ST D025-W20	25.00	37.0	2	28.0	92.00	6.50	20.00	W	0.26
F45ST D032-W25	32.00	44.7	3	32.0	100.00	6.50	25.00	W	0.44

• SE..1204 inserts are mounted directly on the cutter. • SE..12T3 optional thinner inserts are mounted on a seat - TSE 12T3-N.
• For user guide see pages L2-57.

(1) W-Weldon

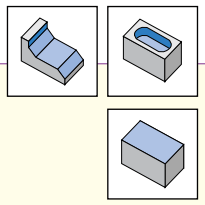
For inserts, see pages: SEHT-AFN (K76) • SEHW-AFTN (K74) • SEKT-AF-R (K73) • SEKT-AFTN (K75) • SEMT 12**AFTN-76 (K76) • SEMT 1204AF-R-HS (K74) • SEMW 1204AFTN (K75).

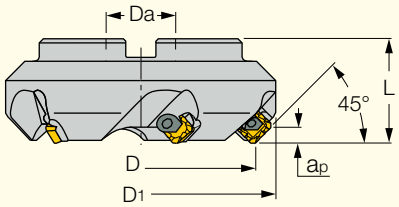
Spare Parts

Designation	Screw	Key	Torx Blade	T-Handle
F45ST D025-W20	SR 14-536/S	T-20/51		
F45ST D032-W25	SR 14-536/S		BLD T20/M7	SW6-T

F45E

45° Face Mills with SEKN/R 12... Inserts





Designation	D	D_1	Z	a_p	L	Da	Arbor(1)	Kg
F45E D 50-22	50.00	67.3	4	6.50	43.00	22.00	A	0.68
F45E D 63-22	63.00	81.2	5	6.50	40.00	22.00	A	0.74
F45E D 80-27	80.00	98.2	6	6.50	50.00	27.00	B	1.33
F45E D100-32	100.00	118.0	6	6.50	50.00	32.00	B	2.31
F45E D125-40	125.00	143.0	6	6.50	63.00	40.00	B	3.31
F45E D160-40	160.00	178.0	8	6.50	63.00	40.00	C	5.22

• For user guide see pages L2-57.

(1) For adaptation see page L14.

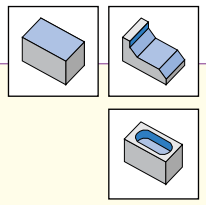
For inserts, see pages: SEAN-AF.. (K77) • SEKN-AF.. (K77) • SEKR-AF-N-42 (K78) • SEKR-AF..-76 (K78) • SEKR-AFTR-HS (K79).

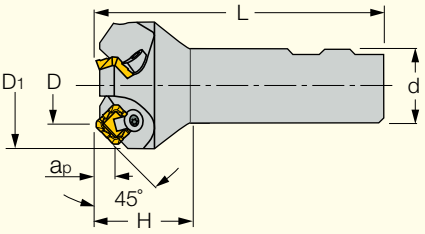
Spare Parts

Designation	Insert Pocket	Seat Screw	Seat Key	Wedge Clamp	Wedge Screw	Key	Shell Locking Screw	Hex Key
F45E D 50-22	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P	SR M10X25DIN7984	HW 7.0
F45E D 63-22	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P	SR M10X25DIN7984	HW 7.0
F45E D 80-27	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D100-32	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D125-40	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D160-40	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		

F45E (endmill)

45° Endmills with SEKN/R 12... Inserts





Designation	D	D_1	H	L	Z	a_p	d	Shank(1)	Kg
F45E D 25-C20	25.00	38.4	32.0	92.00	2	6.50	20.00	C	0.52
F45E D 32-W25	32.00	45.4	32.0	100.00	3	6.50	25.00	W	0.42

• For user guide see pages L2-57.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: SEAN-AF.. (K77) • SEKN-AF.. (K77) • SEKR-AF-N-42 (K78) • SEKR-AF..-76 (K78) • SEKR-AFTR-HS (K79).

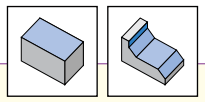
Spare Parts

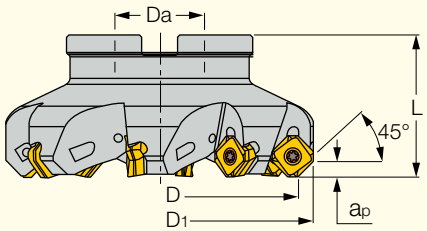
Designation	Key	Wedge (set)
F45E (Endmill)	HW 2.5P	LC 35-2633 SET

HELIDO
845 LINE

S845 F45SX-16

45° Face Mills Carrying Economical Inserts with 8 Helical Right-Hand Cutting Edges



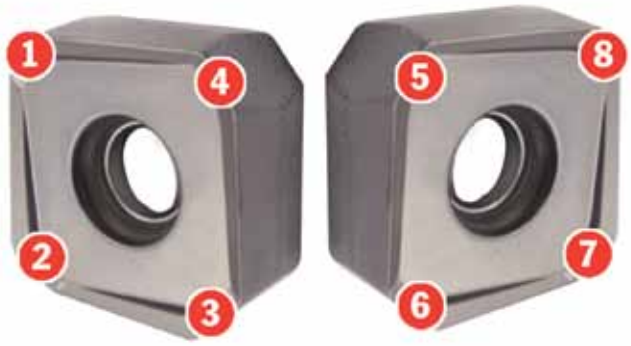


Designation	D	D_1	Z	a_p	L	Da	Arbor[2]	Kg	Coolant
S845 F45SX D040-04-16-R16 [1]	40.00	54.8	4	7.15	45.00	16.00	A	0.56	Y
S845 F45SX D050-04-22-R16	50.00	64.8	4	7.15	45.00	22.00	A	0.46	Y
S845 F45SX D050-05-22-R16 [1]	50.00	64.8	5	7.15	45.00	22.00	A	0.25	Y
S845 F45SX D063-05-22-R16	63.00	77.8	5	7.15	45.00	22.00	B	0.90	Y
S845 F45SX D063-07-22-R16 [1]	63.00	77.9	7	7.15	45.00	22.00	A	0.89	Y
S845 F45SX D080-09-27-R16 [1]	80.00	93.1	9	7.15	50.00	27.00	B	1.00	Y
S845 F45SX D100-11-32-R16 [1]	100.00	114.6	11	7.15	50.00	32.00	B	1.65	Y
S845 F45SX D100-07-32-R16	100.00	114.8	7	7.15	50.00	32.00	B	1.62	Y
S845 F45SX D125-08-40-R16	125.00	139.8	8	7.15	63.00	40.00	B	2.67	Y
S845 F45SX D125-14-40-R16 [1]	125.00	139.8	14	7.15	63.00	40.00	B	2.72	Y
S845 F45SX D160-10-40-R16	160.00	174.8	10	7.15	63.00	40.00	C	4.16	N
S845 F45SX D160-18-40-R16 [1]	160.00	174.8	18	7.15	63.00	40.00	C	4.30	N
S845 F45SX D200-12-60-R16	200.00	214.8	12	7.15	63.00	60.00	C	5.83	N
S845 F45SX D250-15-60-R16	250.00	264.8	15	7.15	63.00	60.00	C	8.54	N
S845 F45SX D315-19-60 R16	315.00	329.8	19	7.15	63.00	60.00	C	14.52	N

- Wiper inserts are used on face mill cutters, providing improved surface finish, thus eliminating the use of other finishing cutters.
- For user guide see pages C53, L2-57.

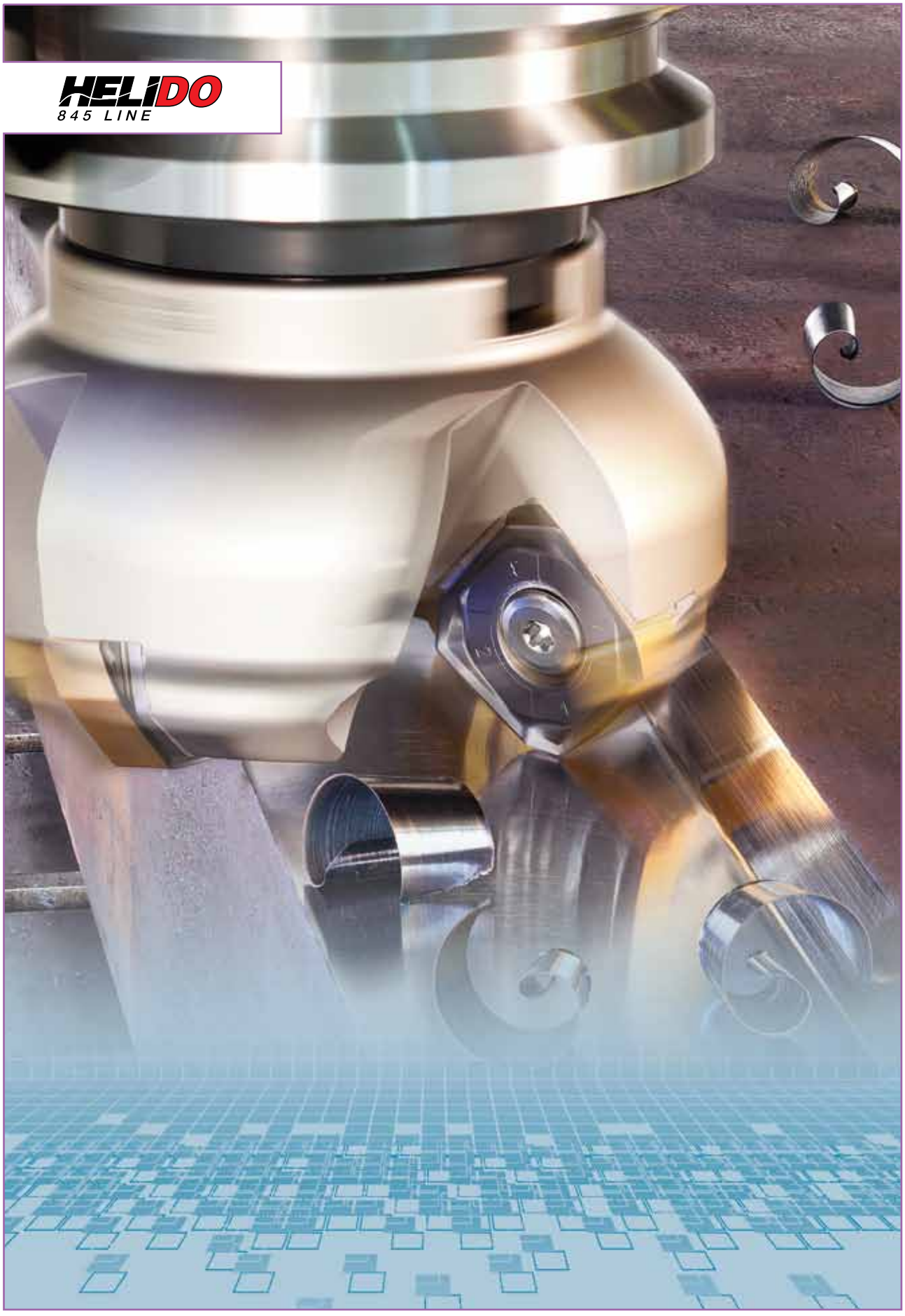
[1] Fine pitch cutters, recommended for machining cast iron. and for machining steel - up to 4 mm D.O.C. [2] For adaptation see page L14.

For inserts, see pages: S845 SXHU 1606-W (K66) • S845 SXMU/SXCU-16 (K66).



Spare Parts

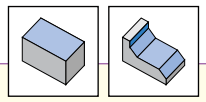
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
S845 F45SX D040-04-16-R16	SR 14-591	BLD T20/M7	SW6-T	SR M8X25DIN912
S845 F45SX D050-04-22-R16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D050-05-22-R16	SR 14-591-M	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D063-05-22-R16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D063-07-22-R16	SR 14-591-M	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D080-09-27-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D100-11-32-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D100-07-32-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D125-08-40-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D125-14-40-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D160-10-40-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D160-18-40-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D200-12-60-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D250-15-60-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D315-19-60 R16	SR 14-591	BLD T20/M7	SW6-T	

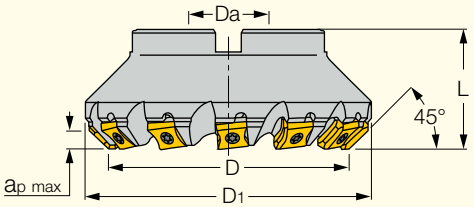

HELIDO
845 LINE

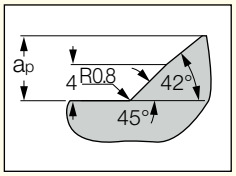
TANGMILL
TANGENTIAL LINE

F45LN-N15

45° Face Mills with LN..1506... Tangentially Clamped Inserts







45° Lead Angle Cutter

Designation	D	D_1	Z	L	a_p	Da	Arbor[1]	Kg
F45LN D063-08-22-R-N15	63.00	83.0	8	40.00	7.50	22.00	B	0.80
F45LN D080-07-27-R/L-N15	80.00	100.0	7	50.00	7.50	27.00	B	1.56
F45LN D080-10-27-R/L-N15	80.00	100.0	10	50.00	7.50	27.00	B	1.64
F45LN D100-08-32-R/L-N15	100.00	120.0	8	50.00	7.50	32.00	B	2.09
F45LN D100-12-32-R/L-N15	100.00	120.0	12	50.00	7.50	32.00	B	2.16
F45LN D125-09-40-R/L-N15	125.00	145.0	9	63.00	7.50	40.00	B	3.07
F45LN D125-15-40-R/L-N15	125.00	145.0	15	63.00	7.50	40.00	B	3.22
F45LN D160-12-40-R/L-N15	160.00	180.0	12	63.00	7.50	40.00	C	4.50
F45LN D160-20-40-R-N15	160.00	180.0	20	63.00	7.50	40.00	C	3.44
F45LN D200-14-60-R/L-N15	200.00	220.0	14	63.00	7.50	60.00	C	3.44
F45LN D200-25-60-R-N15	200.00	220.0	25	63.00	7.50	60.00	C	8.20
F45LN D250-16-60-R-N15	250.00	270.0	16	63.00	7.50	60.00	C	11.35
F45LN D250-30-60-R-N15	250.00	270.0	30	63.00	7.50	60.00	C	10.90

• Note: left-hand cutters are designated by a red groove • For user guide see pages L2-57.

[1] For adaptation see page L14.

For inserts, see pages: LNAT 1506AN-W (K54) • LNHW 1506 ANTN (Ceramic) (K53) • LNKX 150608AN-N PL (K52) • LNKX/LNMT 150608ANTN MM (K52) • LNMW 150608 ANTN (K53).

Spare Parts

Designation	Screw	Torx Blade	T-Handle
F45LN D063-08-22-R-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D080-07-27-R/L-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D080-10-27-R/L-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D100-08-32-R/L-N15	SR 34-535	BLD T15/M7	SW6-T SHORT
F45LN D100-12-32-R/L-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D125-09-40-R/L-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D125-15-40-R/L-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D160-12-40-R/L-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D160-20-40-R-N15	SR 34-535	BLD T15/M7	SW6-T SHORT
F45LN D200-14-60-R/L-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D200-25-60-R-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D250-16-60-R-N15	SR 34-535	BLD T15/M7	SW6-T
F45LN D250-30-60-R-N15	SR 34-535	BLD T15/M7	SW6-T

EXTENDED FLUTE CUTTERS



Member IMC Group



HP ANK
page **D**5

HELIPLUS



T490 LNK/LNM
pages **D**5-8

HELITANG T490 LINE



APK
page **D**8

HELIMILL



SPK
pages **D**9-10, **D**17-18

HELIQUAD



SDK
pages **D**18-19

HELIQUAD



3M AXK
pages **D**10-11

MILL2000



P290
page **D**13

MILLSHRED P290 LINE



T490 SM
page **D**14

HELITANG T490 LINE



H490 SM
page **D**15

HELIDO 845 LINE



ADK
page **D**12

HELIMILL



SM
page **D**17

HELIMILL

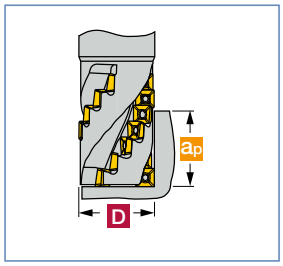


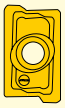
3M SM
page **D**16

MILL2000

ISCARMILL

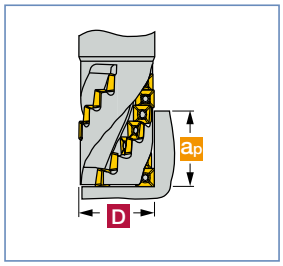
90° Extended Flute Mills
Selection Guide



Tool	HP ANK-07	T490 LNM-08	T490 LNK-13	APK-FE	SPK	3M AXK-13	ADK
D	ap / Flutes						
16	21/1; 14/2						
20	21/2; 28/2	15/2		29/1			
25	28/3	30/2		37/2		24/2	
32	35/4	38/3		46/2	35/2	36/2; 36/3	25/2
40			36/2; 48/3	55/3	51/2; 43/3	36/3; 48/4	38/2
50			48/3; 58/4		52/2; 52/3; 103/2	58/5	51/3; 101/2
63							64/3
80							89/3
100							113/4
Inserts	 HP AN.. 07...	 T490 LN.T 08...	 T490 LN.. 13...	 AP.. 10...	 SOMT 10... XOMT 10.. QOMT 10..	 3M AXKT 13...	 HM AD.. 15... AD.. 15...
Page	**D**5	**D**5	**D**6	**D**8	**D**9-10	**D**10-11	**D**12

ISCARMILL

90° Extended Flute Mills
Selection Guide

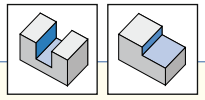


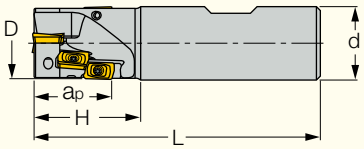
Tool	P290	T490 SM-13	H490 SM-17	3M SM	SPK-FT	SDK-FT	SM
D	ap / Flutes						
40	53/3, 71/3, 90/3	24/2; 36/3		35/3			
50	36/4, 53/4, 71/4, 104/4, 160/3	36/2; 36/3; 47/4		35/4	43/2, 61/2		25/3
63	53/5, 71/5	58/5, 70/5	46/3, 58/3	39/4		53/3, 63/3	38/4
80		58/5	46/4	38/5		64/3, 85/3	38/5
100		47/7	61/5	38/6		105/4	38/6
125							38/7
160				57/8			
Inserts	P290 AC...T	T490 LN.. 08...	H490 AN.. 17...	3M AXKT 13... 3M AXKT 20...	SOMT 10... XOMT 10.. QOMT 10..	SDMT 12...	HM AD.. 15... AD.. 15...
Page	**D**13	**D**14	**D**15	**D**16	**D**17, **D**20-21	**D**17-19, **D**21-22	**D**20

HELIPLUS

HP ANK-07

Extended Flute Endmills with HP ANK-07... Inserts





Designation	D	Z	Flute	a_p	H	L	d	Shank(1)	Kg
HP ANK D16-14-02-W16-7	16.00	4	2	14.60	25.00	75.00	16.00	W	0.13
HP ANK D20-21-02-W20-7	20.00	6	2	21.60	30.00	80.00	20.00	W	0.16
HP ANK D20-28-02-W20-7	20.00	8	2	28.60	40.00	90.00	20.00	W	0.23
HP ANK D25-28-03-W25-7	25.00	12	3	28.60	40.00	100.00	25.00	W	0.32
HP ANK D32-35-04-W32-7	32.00	20	4	35.50	45.00	110.00	32.00	W	0.59

(1) W-Weldon

For inserts, see pages: HP ANCR 0702PNFR (K3) • HP ANKT/ANCT 0702..PN-R/PNTR (K2) • HP ANKW 070204PNTR (K2).

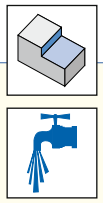
Spare Parts

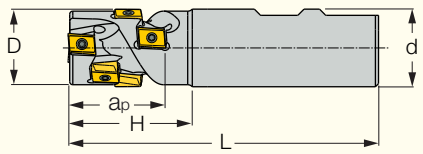
Designation	Screw	Key
HP ANK-07	SR 34-533/L/HG	T-6/51

HELITANG
T490 LINE

T490 LNM-08

Extended Flute Endmills with T490 LNMT/HT 08... Tangentially Clamped Inserts





Designation	D	Flute	Z	a_p	L	H	d	Shank(1)	Kg
T490 LNM D20-15-2-W20-08C	20.00	2	4	15.00	80.00	30.00	20.00	W	0.16
T490 LNM D25-30-2-W25-08C	25.00	2	8	30.00	100.00	40.00	25.00	W	0.31
T490 LNM D32-38-3-W32-08C	32.00	3	15	38.00	110.00	45.00	32.00	W	0.56

(1) W-Weldon

For inserts, see pages: T490 LNMT/LNHT 0804 (K38).

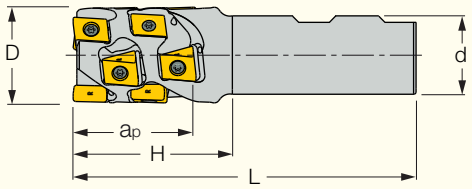
Spare Parts

Designation	Screw	Key
T490 LNM-08	SR 10502813-HG-M	IP-7/51

HELITANG
T490 LINE

T490 LNK-13

Extended Flute Endmills with T490 LNMT/HT 13... Tangentially Clamped Inserts



Designation	D	Z	Flute	a_p	H	L	d	Shank(1)	Kg
T490 LNK-D40-36-2-C32-13	40.00	6	2	36.00	50.00	120.00	32.00	C	0.72
T490 LNK-D40-36-2-W32-13	40.00	6	2	36.00	50.00	115.00	32.00	W	0.68
T490 LNK-D40-48-3-C32-13	40.00	12	3	48.00	65.00	140.00	32.00	C	0.80
T490 LNK-D40-48-3-W32-13	40.00	12	3	48.00	65.00	125.00	32.00	W	0.70
T490 LNK-D50-47-3-W40-13	50.00	12	3	47.00	55.00	135.00	40.00	W	1.24
T490 LNK-D50-59-4-W40-13	50.00	20	4	59.00	65.00	135.00	40.00	W	1.21

(1) C-Cylindrical, W-Weldon

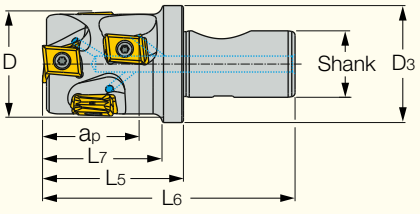
For inserts, see pages, T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

Spare Parts

Designation	Screw	Torx Blade	T-Handle
T490 LNK-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT

T490 LNK-13-CF

Extended Flute Endmills with CLICKFIT Shanks, Carrying T490 LNMT/HT 1306...
Tangentially Clamped Inserts



Designation	D	Flute	Z	a_p	L_7	L_5	L_6	D_3	Shank	Kg
T490 LNK-D40-36-2-CF4-13	40.00	2	6	36.00	44.00	53.00	95.00	44.00	CF4	0.25
T490 LNK-D40-48-3-CF4-13	40.00	3	12	48.00	58.00	68.00	110.00	44.00	CF4	0.58
T490 LNK-D50-47-3-CF4-13	50.00	3	12	47.00	-	63.00	105.00	44.00	CF4	0.85
T490 LNK-D50-59-4-CF4-13	50.00	4	20	59.00	-	73.00	115.00	44.00	CF4	0.82

For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

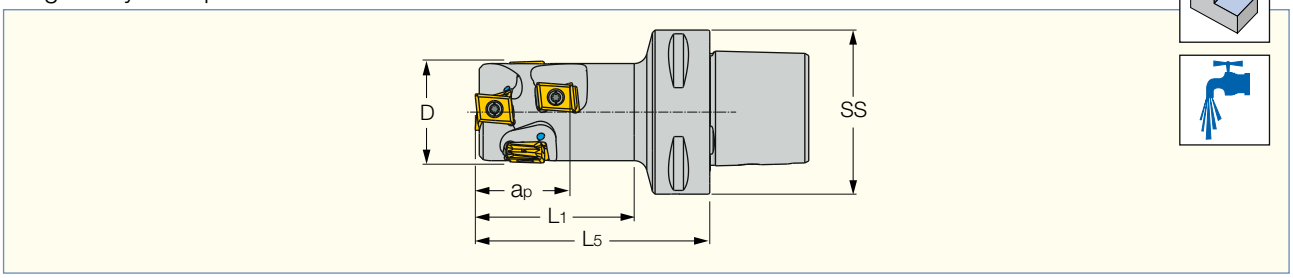
For CLICKFIT shanks, see ISCAR Tool Holding Systems catalog.

Spare Parts

Designation	Screw	Torx Blade	T-Handle
T490 LNK-CF-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT

T490 LNK-13-C#

Extended Flute Endmills with CAMFIX Shanks, Carrying T490 LNMT/HT 13...
Tangentially Clamped Inserts



Designation	D	ap	Zeff	Z	L1	L5	SS	Kg
T490 LNKD40-36-2-L90C6-13	40.00	36.00	2	6	64.0	90.00	63	0.32
T490 LNKD50-47-3L100C6-13	50.00	47.00	3	12	76.0	100.00	63	0.62

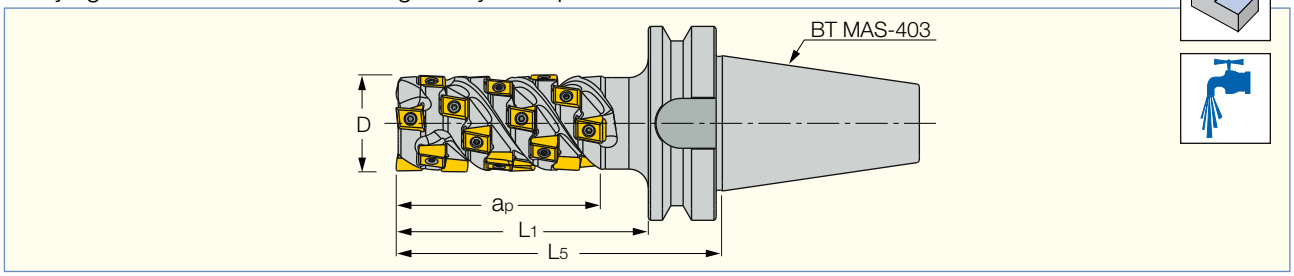
For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

Spare Parts

Designation	Screw	Torx Blade	T-Handle
T490 LNK-13-C#	SR 34-535-SN	BLD T15/S7	SW6-T SHORT

T490 LNK-13-BT

Extended Flute Endmills with BT MAS-403 Tapered Shanks,
Carrying T490 LNMT/HT 13... Tangentially Clamped Inserts



Designation	D	ap	Zeff	Z	L1	L5	SS	Kg
T490LNK-D50-059-4-BT50-13	50.00	59.00	4	20	80.0	120.00	BT50	4.36
T490LNK-D50-105-3-BT50-13	50.00	105.00	3	27	130.0	168.00	BT50	4.97
T490LNK-D63-082-4-BT50-13	63.00	82.00	4	28	100.0	145.00	BT50	5.50
T490LNK-D63-117-4-BT50-13	63.00	117.00	4	40	149.0	188.00	BT50	6.14
T490LNK-D80-128-4-BT50-13	80.00	128.00	4	44	159.0	200.00	BT50	8.25

For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

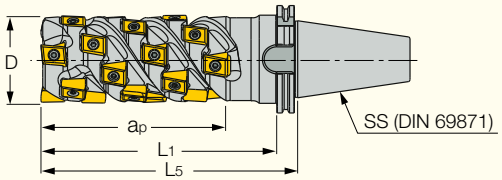
Spare Parts

Designation	Screw	T-Handle	Torx Blade
T490LNK-D50-059-4-BT50-13	SR 34-535-SN	SW6-T SHORT	BLD T15/S7
T490LNK-D50-105-3-BT50-13	SR 34-535-X-HG	SW6-T SHORT	BLD T15/S7
T490LNK-D63-082-4-BT50-13	SR 34-535-SN	SW6-T SHORT	BLD T15/S7
T490LNK-D63-117-4-BT50-13	SR 34-535-SN	SW6-T SHORT	BLD T15/S7
T490LNK-D80-128-4-BT50-13	SR 34-535-SN	SW6-T SHORT	BLD T15/S7

HELITANG
T490 LINE

T490 LNK-13-INT

Extended Flute Endmills with DIN69871 Tapered Shanks,
Carrying T490 LNMT/HT 13... Tangentially Clamped Inserts



Designation	D	a_p	Zeff	Z	L_1	L_5	SS	Kg
T490LNKD63-081-4-INT50-13	63.00	81.00	4	28	104.0	126.10	50	4.35
T490LNKD63-117-4-INT50-13	63.00	117.00	4	40	168.0	188.00	50	5.50
T490LNKD80-128-4-INT50-13	80.00	128.00	4	44	163.0	200.00	50	7.92

For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

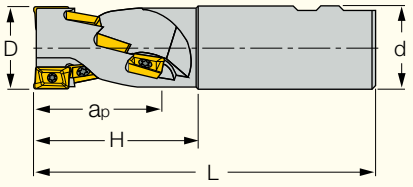
Spare Parts

Designation	Screw	T-Handle	Torx Blade
T490 LNK-13-INT	SR 34-535-SN	SW6-T SHORT	BLD T15/S7

HELIMILL

APK-FE

Extended Flute Endmills with APKT/R-10... Inserts



Designation	D	Z	Flute	a_p	H	L	d	Shank(1)	R_d°	Kg
APK D20-28-W20-FE	20.00	4	1	29.00	36.00	87.00	20.00	W	4.0	0.17
APK D25-36-W25-FE	25.00	8	2	37.00	47.00	105.00	25.00	W	4.0	0.31
APK D32-45-W32-FE	32.00	12	2	46.00	55.00	115.00	32.00	W	1.4	0.57
APK D40-50-W32-FE	40.00	18	3	55.00	65.00	125.00	32.00	W	1.3	0.79

• Inserts with the large corner radii can be mounted only in the face positions of the cutter

(1) W-Weldon

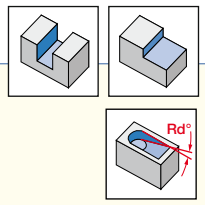
For inserts, see pages: APCR 1003PDFR-P (K6) • APCT 1003PDR-HM (K6) • APKT 1003..##TR-RM (K9) • APKT 1003..R (K10) • APKT 1003PDR-HM (K7) • APKT 1003PDTR-76 (K9) • APKT 1003PDTR-8M (K8) • APKT 1003PDTR/L-RM (K8) • HM90 APCR 100304PDFR-P/DP (K4).

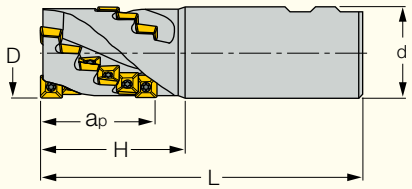
Spare Parts

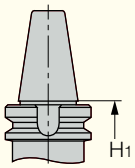
Designation	Screw	Key
APK D20-28-W20-FE	SR 34-505/HG	T-8/53
APK D25-36-W25-FE	SR 34-505/MHG	T-8/53
APK D32-45-W32-FE	SR 34-505/LHG	T-8/51
APK D40-50-W32-FE	SR 34-505/LHG	T-8/53

SPK

Extended Flute Endmills with S/XPMT / QPMR 10... Inserts







BT MAS

Designation	D	Z	Flute	H	H_1	a_p	L	d	Shank(1)	R_d°	Kg
SPK D32-35-C32-10	32.00	8	2	50.00	-	35.00	120.00	32.00	C	2.0	0.67
SPK D32-35-W32-10	32.00	8	2	50.00	-	35.00	130.00	32.00	W	2.0	0.60
SPK D40-50-C32-10	40.00	12	2	65.00	-	51.00	130.00	32.00	C	1.5	0.87
SPK D40-50-W32-CP10	40.00	12	2	61.00	-	52.00	130.00	32.00	W	1.5	0.71
SPK D40-42-W32-10	40.00	15	3	55.00	-	43.00	125.00	32.00	W	1.5	0.71
SPK D50-50-W32-CP10	50.00	12	2	65.00	-	52.00	130.00	32.00	W	1.5	1.06
SPK D50-50-W40-10	50.00	18	3	65.00	-	52.00	140.00	40.00	W	1.5	1.31
SPK D50-100-BT50-10	50.00	24	2	128.00	165.0	103.00	267.00	-	BT	1.5	4.90
SPK D50-100-W42-10	50.00	24	2	115.00	-	103.00	210.50	42.00	W	1.5	1.64

(1) C-Cylindrical, W-Weldon, BT-BT tappered shank

For inserts, see pages: QPMT 100408PDTN (K61) • SPMT-HQ (K61) • XPMT-HQ (K62).

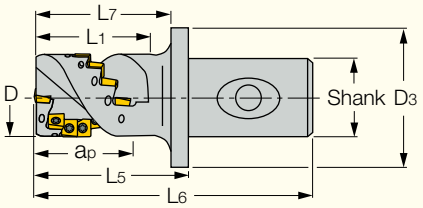
Spare Parts

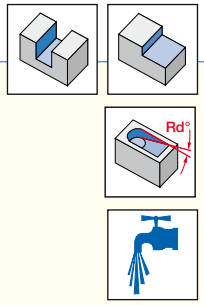
Designation	Screw	Key	Torx Blade	Handle
SPK D32-35-C32-10	SR 14-544/S		BLD T15/M7	SW6-SD
SPK D32-35-W32-10	SR 14-544/S		BLD T15/M7	SW6-SD
SPK D40-50-C32-10	SR 14-544/S	T-15/51	BLD T15/M7	SW6-SD
SPK D40-50-W32-CP10	SR 14-544/S	T-15/51		
SPK D40-42-W32-10	SR 14-544/S		BLD T15/M7	SW6-SD
SPK D50-50-W32-CP10	SR 14-544/S		BLD T15/M7	SW6-SD
SPK D50-50-W40-10	SR 14-544/S		BLD T15/M7	SW6-SD
SPK D50-100-BT50-10	SR 14-544/S		BLD T15/M7	SW6-SD
SPK D50-100-W42-10	SR 14-544/S	T-15/51		

ISOMILL • CLICKFIT

SPK-CF

Extended Flute Endmills with CLICKFIT Shanks, Carrying S/XPMT / QPMR 10... Inserts





Designation	D	Z	Flute	a_p	L_1	L_7	L_5	L_6	R_d°	D_3	Shank	Kg
SPK D32-35-CF4	32.00	8	2	35.00	48.0	50.00	58.00	100.00	2.0	44.00	CF4	0.55
SPK D40-42-CF4	40.00	15	3	42.00	57.0	60.00	68.00	110.00	1.5	44.00	CF4	1.81

For inserts, see pages: QPMT 100408PDTN (K61) • SPMT-HQ (K61) • XPMT-HQ (K62).

For CLICKFIT shanks, see ISCAR Tool Holding Systems catalog.

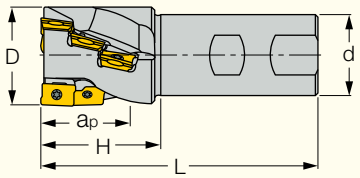
Spare Parts

Designation	Handle	Screw	Torx Blade	T-Handle	Key
SPK D32-35-CF4	SW6-SD	SR 14-544/S	BLD T15/M7	SW6-T	
SPK D40-42-CF4	SW6-SD	SR 14-544/S	BLD T15/M7		T-15/51

MILL2000

3M AXK-13

Heavy Duty Extended Flute Endmills with 3M AXKT 1304... Inserts



Designation	D	Z	Flute	a_p	H	L	d	Shank(1)	Kg
3M AXK D25-25-2-W25-13	25.00	4	2	24.00	35.00	100.00	25.00	W	0.31
3M AXK D32-36-2-C32-13	32.00	6	2	36.00	50.00	120.00	32.00	C	0.63
3M AXK D32-36-2-W32-13	32.00	6	2	36.00	50.00	110.00	32.00	W	0.65
3M AXK D32-36-3-C32-13	32.00	9	3	36.00	50.00	120.00	32.00	C	0.60
3M AXK D32-36-3-W32-13	32.00	9	3	36.00	50.00	110.00	32.00	W	0.54
3M AXK D40-36-3-C32-13	40.00	9	3	36.00	45.00	120.00	32.00	C	0.84
3M AXK D40-48-4-C32-13	40.00	16	4	48.50	55.00	130.00	32.00	C	0.78
3M AXK D40-48-4-W32-13	40.00	16	4	48.50	55.00	120.00	32.00	W	0.80
3M AXK D50-60-5-W40-13	50.00	25	5	60.50	65.00	140.00	40.00	W	1.50
3M AXK D50-60-5-W42-13	50.00	25	5	58.70	65.00	155.00	42.00	W	1.71

• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life.

(1) C-Cylindrical, W-Weldon

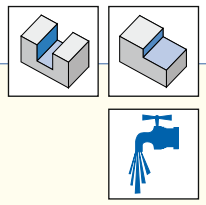
For inserts, see pages: 3M AXKT 1304 (K26) • 3M AXKT 1304..R-PDRMM (K26).

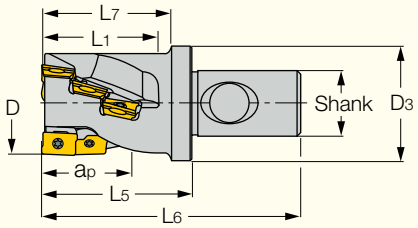
Spare Parts

Designation	Screw	Torx Blade	T-Handle
3M AXK-13	SR 34-506/L	BLD T09/M7	SW6-T SHORT

3M AXK-CF-13

Heavy Duty Extended Flute Endmills with CLICKFIT Shanks,
Carrying 3M AXKT 1304... Inserts





Designation	D	Flute	Z	a_p	L_1	L_7	L_5	L_6	D_3	Shank	Kg
3M AXK D25-25-2-CF4-13	25.00	2	4	24.50	34.0	40.00	48.00	90.00	44.00	CF4	0.41
3M AXK D32-36-2-CF4-13	32.00	2	6	36.50	44.0	50.00	58.00	100.00	44.00	CF4	0.43
3M AXK D40-48-4-CF4-13	40.00	4	16	48.50	57.0	60.00	68.00	110.00	44.00	CF4	0.69

• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life.

For inserts, see pages: 3M AXKT 1304 (K26) • 3M AXKT 1304..R-PDRMM (K26).

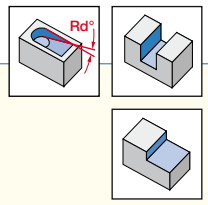
For CLICKFIT shanks, see ISCAR Tool Holding Systems catalog.

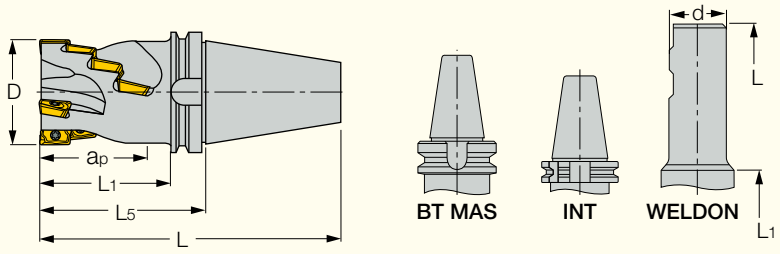
Spare Parts

Designation	Screw	Torx Blade	T-Handle
3M AXK-CF-13	SR 34-506/L	BLD T09/M7	SW6-T SHORT

ADK

Extended Flute Cutters with ADKT/R-15... Inserts





Designation	D	Z	Flute	a_p	L	L_1	L_5	d	Shank(1)	R_d°	Kg
ADK D 32- 25-W32	32.00	4	2	25.00	108.00	48.0	-	32.00	W	2.5	0.53
ADK D 40- 38-W32	40.00	6	2	38.00	115.00	50.0	-	32.00	W	2.0	0.66
ADK D 45- 50-W32	45.00	8	2	51.00	122.00	62.0	-	32.00	W	0.0	0.72
ADK D 50- 50-W32	50.00	12	3	51.00	122.00	52.7	-	32.00	W	0.9	0.85
ADK D 50- 50-W40	50.00	12	3	51.00	135.00	55.0	-	40.00	W	0.9	1.20
ADK D 50-100-W40	50.00	16	2	101.00	192.00	110.0	-	40.00	W	0.9	1.80
ADK D50-100-BT50	50.00	16	2	101.00	265.00	128.0	164.00	-	BT50	0.9	3.00
ADK D63-63-BT50	63.00	18	3	64.00	237.00	100.0	135.00	-	BT50	0.6	5.30
ADK D63-63-INT50	63.00	18	3	64.00	222.00	100.0	120.00	-	INT50	0.6	4.39
ADK D80-85-BT50	80.00	24	3	89.00	254.00	117.0	152.00	-	BT50	0.5	7.06
ADK D80-85-INT50	80.00	24	3	89.00	235.00	113.0	133.00	-	INT50	0.5	9.00
ADK D100-110-BT50	100.00	40	4	113.00	286.00	149.0	184.00	-	BT50	0.4	10.55

(1) W-Weldon, BT-BT tappered shank, INT-DIN69871 shank

For inserts, see pages: ADCR 1505PDFR (K13) • ADCT 1505PDFR-HM (K14) • ADKR 1505PD-R/L-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • ADKT 1505PDTR-8M (K16) • ADKT 1505PDTR/L-RM (K17) • ADMT 1505PDR-HS (K17) • HM90 ADKT/ADCT 1505 (K12) • HM90 ADKW 1505PDR (K24).

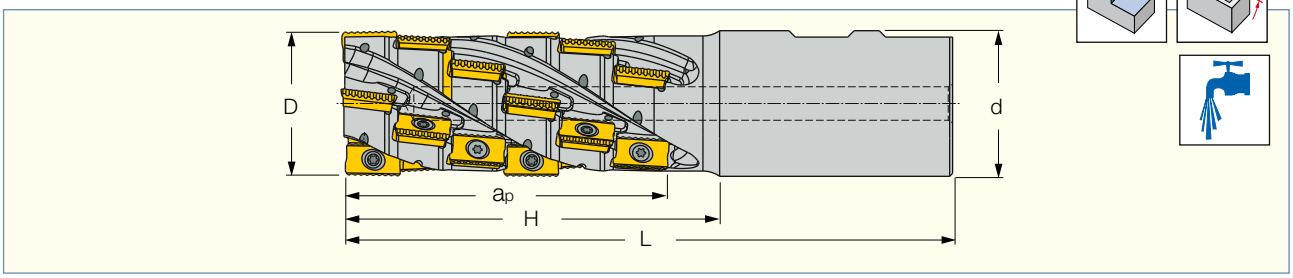
Spare Parts

Designation	Screw	Torx Blade	T-Handle
ADK D 32- 25-W32	SR 14-544/S	BLD T15/M7	SW6-T
ADK D 40- 38-W32	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D 45- 50-W32	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D 50- 50-W32	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D 50- 50-W40	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D 50-100-W40	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D50-100-BT50	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D63-63-BT50	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D63-63-INT50	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D80-85-BT50	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D80-85-INT50	SR 14-544/S	BLD T15/M7	SW6-T SHORT
ADK D100-110-BT50	SR 14-544/S	BLD T15/M7	SW6-T SHORT

MILLSHRED
P290 LINE

P290 ACK-18

Extended Flute Endmills



Designation	D	ap	Flute	Z	H	L	d	Rd°	Kg
P290 ACK D40-3-53-W32-18	40.00	53.00	3	9	80.00	140.00	32.00	1.5	0.87
P290 ACK D40-3-71-W40-18	40.00	71.00	3	12	95.00	165.00	40.00	1.5	1.14
P290 ACK D40-3-90-W40-18	40.00	90.00	3	15	115.00	185.00	40.00	1.5	1.23
P290 ACK D50-4-53-W40-18	50.00	53.00	4	12	80.00	150.00	40.00	1.0	1.37
P290 ACK D50-4-105-W50-18	50.00	105.00	4	24	130.00	210.00	50.00	1.0	2.48
P290 ACK D50-3-160-W50-18	50.00	160.00	3	27	185.00	265.00	50.00	1.0	2.83
P290 ACK D63-5-71-W50-18	63.00	71.00	5	20	95.00	175.00	50.00	0.8	2.58

• Note: recommended ae up to 0.2xD.

For inserts, see pages: P290 ACCT 1806 (K22) • P290 ACKT 1806 (K21).

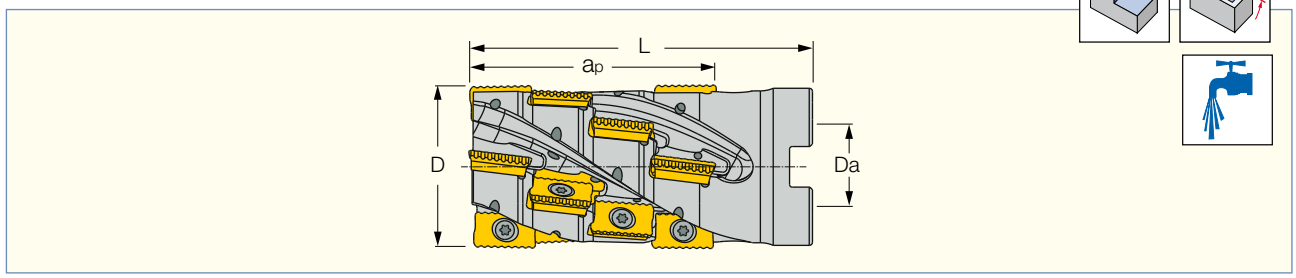
Spare Parts

Designation	Screw	Torx Blade	T-Handle
P290 ACK-18	SR 14-544/S	BLD T15/M7	SW6-T

MILLSHRED
P290 LINE

P290 SM

Extended Flute Shell Mills



Designation	D	ap	Flute	Z	L	Da	Rd°	Kg
P290 SM D050-04-36-22-18	50.00	36.00	4	8	65.00	22.00	1.0	0.00
P290 SM D050-04-53-22-18	50.00	53.00	4	12	80.00	22.00	1.0	0.00
P290 SM D050-04-71-27-18	50.00	71.00	4	16	105.00	27.00	1.0	0.00
P290 SM D063-05-53-27-18	63.00	53.00	5	15	80.00	27.00	0.8	1.01
P290 SM D063-05-71-27-18	63.00	71.00	5	20	100.00	27.00	0.8	0.00

• Note: recommended ae up to 0.2xD.

For inserts, see pages: P290 ACCT 1806 (K22) • P290 ACKT 1806 (K21).

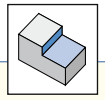
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Screw 1
P290 SM D050-04-36-22-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X50
P290 SM D050-04-53-22-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X60DIN912
P290 SM D050-04-71-27-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M12X70DIN912
P290 SM D063-05-53-27-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M12X70DIN912
P290 SM D063-05-71-27-18	SR 14-544/S	BLD T15/M7	SW6-T	SR M12X70DIN912

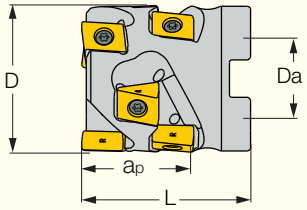
HELITANG
T490 LINE

T490 SM-13

Extended Flute Shell Mills with T490 LNMT/HT 1306... Tangentially Clamped Inserts







Designation	D	a_p	L	Flute	Z	Da	Arbor[2]	Kg
T490 SM-D40-24-2-22-13	40.00	24.00	50.00	2	4	22.00	A	0.24
T490 SM-D40-36-3-22-13	40.00	36.00	62.00	3	9	22.00	A	0.29
T490 SM-D50-36-2-27-13	50.00	36.00	56.00	2	6	27.00	A	0.38
T490 SM-D50-36-3-27-13	50.00	35.90	56.00	3	9	27.00	A	0.39
T490 SM-D50-47-4-27-13	50.00	47.00	68.00	4	16	27.00	A	0.49
T490 SM-D63-36-4-27-13	63.00	36.00	60.00	4	12	27.00	A	0.79
T490 SM-D63-59-5-27-13	63.00	59.00	80.00	5	25	27.00	A	1.08
T490 SM-D80-58-5-32-13	80.00	58.00	75.00	5	25	32.00	A	1.73
T490 SM-D80-70-5-32-13	80.00	70.00	111.00	5	30	32.00	A	2.63
T490 SM-D100-59-6-40-13	100.00	59.00	86.00	6	30	40.00	A	3.12
T490 SM D125-47-7-40-13 [1]	125.00	47.00	68.00	7	28	40.00	A	3.27

[1] There are no coolant holes in this tool [2] For adaptation see page L13.

For inserts, see pages: T490 LNAR 1306 (K40) • T490 LNMT/LNHT 1306 (K39).

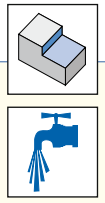
Spare Parts

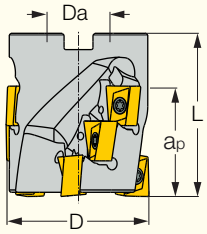
Designation	Screw	Torx Blade	T-Handle	Screw 1
T490 SM-D40-24-2-22-13	SR 34-535/L10.5-SN	BLD T15/S7	SW6-T SHORT	SR M10X40DIN912
T490 SM-D40-36-3-22-13	SR 34-535/L10.5-SN	BLD T15/S7	SW6-T SHORT	SR M10X50
T490 SM-D50-36-2-27-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	BH M12X45UNI5931 12.9
T490 SM-D50-36-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	BH M12X45UNI5931 12.9
T490 SM-D50-47-4-27-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M12X60DIN912
T490 SM-D63-36-4-27-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M12X50DIN912
T490 SM-D63-59-5-27-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M12X70DIN912
T490 SM-D80-58-5-32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M16X55DIN912
T490 SM-D80-70-5-32-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M16X90DIN912
T490 SM-D100-59-6-40-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	SR M20X60DIN912
T490 SM D125-47-7-40-13	SR 34-535-SN	BLD T15/S7	SW6-T SHORT	

HELIDO 490 LINE

H490 SM-17

Extended Flute Shell Mills Carrying H490 ANKX 17.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges





Designation	D	Z	Flute	a_p	L	Da	Arbor[1]	Kg
H490 SM D063-48-3-27-17C	63.00	9	3	46.50	70.00	27.00	A	0.86
H490 SM D063-60-3-27-17C	63.00	12	3	58.50	70.00	27.00	A	1.47
H490 SM D080-48-4-32-17C	80.00	12	4	46.50	70.00	32.00	A	1.56
H490 SM D100-64-5-40-17C	100.00	20	5	61.50	85.00	40.00	A	3.00

[1] For adaptation see page L13.

For inserts, see pages: H490 ANKX/ANCX-17 (K36).

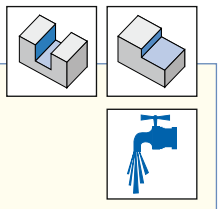
Spare Parts

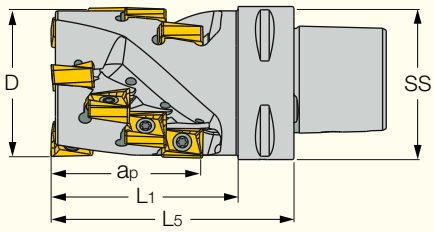
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
H490 SM D063-48-3-27-17C	SR 14-591	BLD T20/M7	SW6-T	SR M12X50DIN912
H490 SM D063-60-3-27-17C	SR 14-591	BLD T20/M7	SW6-T	SR M12X60DIN912
H490 SM D080-48-4-32-17C	SR 14-591	BLD T20/M7	SW6-T	SR M16X40DIN912
H490 SM D100-64-5-40-17C	SR 14-591	BLD T20/M7	SW6-T	SR M20X60DIN912

HELIDO • CAMFIX 490 LINE

H490 ANKD-C#

Extended Flute Endmills with CAMFIX Shanks, Carrying H490 ANKX 17... Double-Sided Rectangular Inserts





Designation	D	a_p	Flute	Z	L_1	L_5	SS	Kg
H490 ANKD63-60-3-17L100C6	63.00	61.00	3	12	77.0	100.00	63	1.91

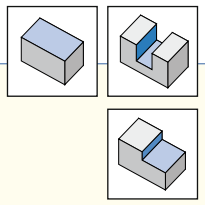
For inserts, see pages: H490 ANKX/ANCX-17 (K36).

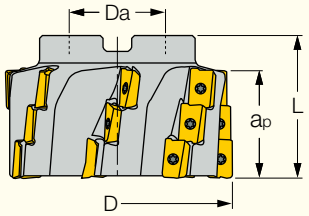
Spare Parts

Designation	Screw	Torx Blade	T-Handle
H490 ANKD-C#	SR 14-591	BLD T20/M7	SW6-T

3M SM

Heavy Duty Extended Flute Shell Mills with 3M AXKT 1304.../2006... Inserts





Designation	D	Z	Flute	a_p	L	Da	Arbor(1)	Kg	Insert
3M SM D040-36-3-22-13	40.00	9	3	35.00	65.00	22.00	A	0.35	3M AXKT 13
3M SM D050-36-4-22-13	50.00	12	4	35.00	60.00	22.00	A	0.53	3M AXKT 13
3M SM D063-40-4-27-20	63.00	8	4	39.00	65.00	27.00	A	0.82	3M AXKT 20
3M SM D080-40-5-32-20	80.00	10	5	38.00	65.00	32.00	A	1.39	3M AXKT 20
3M SM D100-40-6-40-20	100.00	12	6	38.00	65.00	40.00	B	2.12	3M AXKT 20
3M SM D160-60-8-60-20	160.00	24	8	57.00	85.00	60.00	C	5.90	3M AXKT 20

• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life.

(1) For adaptation see page L13.

For inserts, see pages: 3M AXKT 1304 (K26) • 3M AXKT 1304..R-PDRMM (K26) • 3M AXKT 2006..R-PDR (K27) • 3M AXKT-2006 (K27).

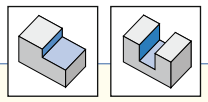
Spare Parts

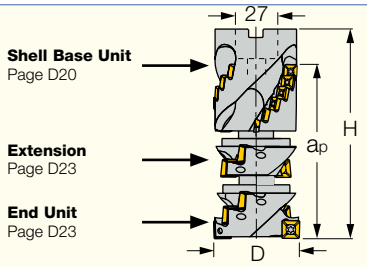
Designation	Screw	Torx Blade	T-Handle	Seat	Seat Screw	Seat Key	Shell Locking Screw
3M SM D040-36-3-22-13	SR 34-506/L	BLD T09/M7	SW6-T SHORT				SR M10X50
3M SM D050-36-4-22-13	SR 34-506/L	BLD T09/M7	SW6-T SHORT				
3M SM D063-40-4-27-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R(1)	SR TC-604	HW 5.0	
3M SM D080-40-5-32-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R(1)	SR TC-604	HW 5.0	
3M SM D100-40-6-40-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R(1)	SR TC-604	HW 5.0	
3M SM D160-60-8-60-20	SR 14-591	BLD T20/M7	SW6-T	TSX 19R(1)	SR TC-604	HW 5.0	

(1) For insert corner radii greater than 3.2 mm, use TSX 20-S-R

SPK D50-FT/A (modular)

50 mm Diameter

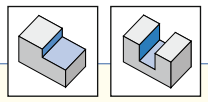


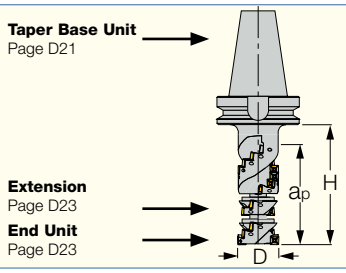


Shell Base Unit	Extension	End Unit	a_p	H	Face Inserts Zeff	Z	Assembly Screw
SPK D50-44-27-FT/A			44	75	2	10	SR M12-70M
		SM D50-18-FT/E	60	92	2	14	SR M12-80M
		SM D50-26-FT/F	70	100	2	16	SR M12-90M
	SE D50-18-FT/G	SM D50-18-FT/E	80	108	2	18	SR M12-100M
	SE D50-18-FT/G	SM D50-26-FT/F	90	117	2	20	SR M12-100M

SPK D50-FT/B (modular)

50 mm Diameter

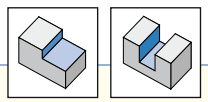


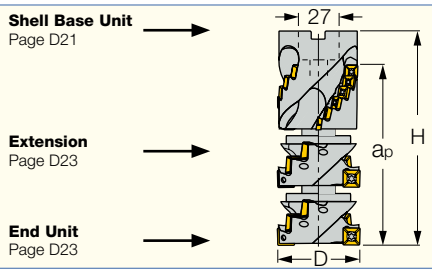


Taper Base Unit	Extension	End Unit	a_p	H	Face Inserts Zeff	Z	Assembly Screw
SPK D50-60-BT50-FT/B SPK D50-60-INT50-FT/B			60	86	2	14	
		SM D50-18-FT/E	78	103	2	18	SR M1/2-40M
		SM D50-26-FT/F	86	111	2	20	SR M1/2-50M
	SE D50-18-FT/G	SM D50-18-FT/E	96	119	2	22	SR M1/2-60M
	SE D50-18-FT/G	SM D50-26-FT/F	105	127	2	24	SR M1/2-70M

SDK D63-FT/A

63 mm Diameter

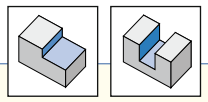




Shell Base Unit	Extension	End Unit	a_p	H	Face Inserts Zeff	Z	Assembly Screw
SDK D63-53-27-FT/A			53	76	3	15	SR M12X60
		SM D63-22-FT/E	76	98	3	24	SR M12X90
		SM D63-33-FT/F	85	108	3	27	SR M12X90
	SE D63-22-FT/G	SM D63-22-FT/E	95	119	3	30	SR M12X110
	SE D63-33-FT/H	SM D63-22-FT/E	106	130	3	33	SR M12X120
	SE D63-33-FT/H	SM D63-33-FT/F	117	140	3	36	SR M12X120

SDK D63-FT/B (modular)

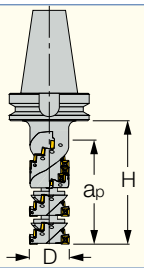
63 mm Diameter



Taper Base Unit
Page D22

Extension
Page D23

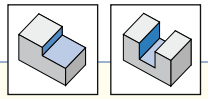
End Unit
Page D23



Taper Base Unit	Extension Unit	End Unit	a_p	H	Face Inserts Zeff	Z	Assembly Screw
SDK D63-63-BT50-FT/B SDK D63-63-INT50-FT/B			63	88	3	18	
		SM D63-22-FT/E	85	109	3	27	SR M12X55
		SM D63-33-FT/F	95	120	3	30	SR M12X55
	SE D63-22-FT/G	SM D63-22-FT/E	106	130	3	33	SR M12X70
	SE D63-22-FT/G	SM D63-33-FT/F	117	141	3	36	SR M12X70
	SE D63-33-FT/H	SM D63-33-FT/F	129	152	3	39	SR M12X80

SDK D80-FT/A (modular)

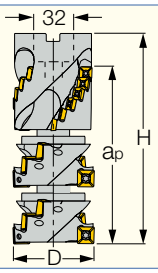
80 mm Diameter



Shell Base Unit
Page D21

Extension
Page D23

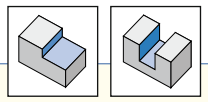
End Unit
Page D23

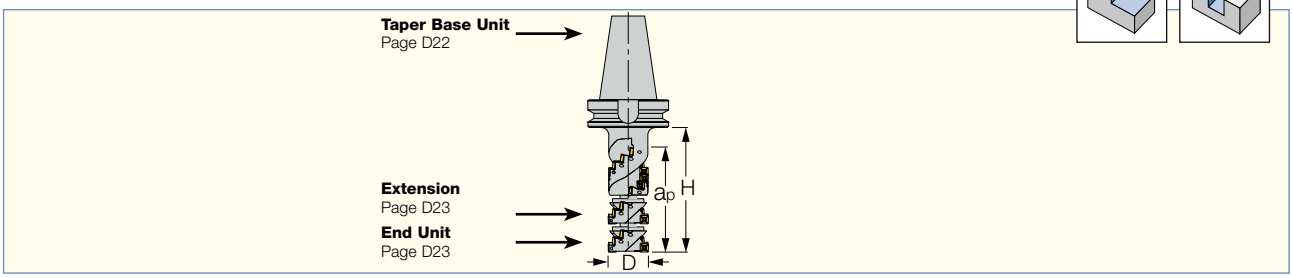


Shell Base Unit	Extension	End Unit	a_p	H	Face Inserts Zeff	Z	Assembly Screw
SDK D80-64-32-FT/A			64	98	3	18	SR M16X80
		SM D80-22-FT/E	85	120	3	27	SR M16X110
		SM D80-33-FT/F	96	130	3	30	SR M16X110
	SE D80-22-FT/G	SM D80-22-FT/E	105	141	3	33	SR M16X130
	SE D80-33-FT/H	SM D80-22-FT/E	115	151	3	36	SR M16X140
	SE D80-33-FT/H	SM D80-33-FT/F	127	162	3	39	SR M16X140

SDK D80-FT/B (modular)

80 mm Diameter

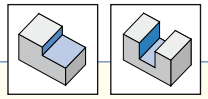


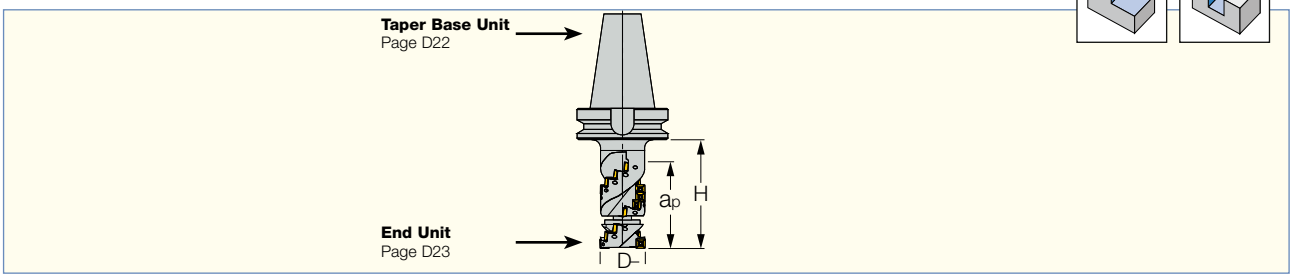


Taper Base	Extension	End Unit	ap	H	Face Inserts Zeff	Z	Assembly Screw
SDK D80-85-BT50-FT/B SDK D80-85-INT50-FT/B			85	109	3	24	
		SM D80-22-FT/E	107	130	3	33	SR M16X55
		SM D80-33-FT/F	115	141	3	36	SR M16X55
	SE D80-22-FT/G	SM D80-22-FT/E	126	152	3	39	SR M16X80
	SE D80-22-FT/G	SM D80-33-FT/F	137	162	3	42	SR M16X80
	SE D80-33-FT/H	SM D80-33-FT/F	147	172	3	45	SR M16X90

SDK D100-FT/B (modular)

100 mm Diameter



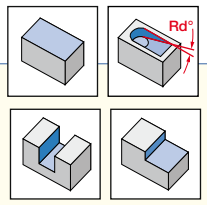


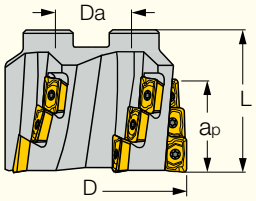
Taper Base Unit	End Unit	ap	H	Face Inserts Zeff	Z	Assembly Screw
SDK-D100-105-BT50-FT/B SDK-D100-105-INT50-FT/B		105	132	4	40	
	SM D100-22-FT/E	126	155	4	52	SR M20X60
	SM D100-44-FT/F	148	175	4	60	SR M20X80

HELIMILL

SM

Extended Flute Shell Mills with HM90 ADKT 1505... Inserts





Designation	D	Z	Flute	a_p	L	Da	R_d°	Arbor(1)	Kg
SM D50-25-27-M	50.00	6	3	25.00	56.00	27.00	0.9	A	0.40
SM D63-38-27-M	63.00	12	4	38.00	60.00	27.00	0.7	A	0.93
SM D80-38-32-M	80.00	15	5	38.00	60.00	32.00	0.6	B	1.21
SM D100-38-40-M	100.00	18	6	38.00	60.00	40.00	0.4	B	1.80
SM D125-38-40-M	125.00	21	7	38.00	60.00	40.00	0.3	B	2.56

(1) For adaptation see page L13.

For inserts, see pages: ADCR 1505PDFR (K13) • ADCT 1505PDFR-HM (K14) • ADKR 1505PD-R/L-HM (K14) • ADKT 1505**R/L-HM (K18) • ADKT 1505PDR/L-HM (K16) • ADKT 1505PDTR-76 (K18) • ADKT 1505PDTR-8M (K16) • ADKT 1505PDTR/L-RM (K17) • ADMT 1505PDR-HS (K17) • HM90 ADKT/ADCT 1505 (K12) • HM90 ADKW 1505PDR (K24).

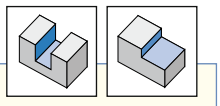
Spare Parts

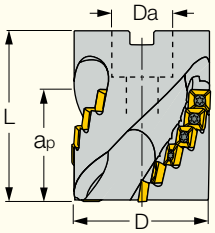
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
SM D50-25-27-M	SR 14-544/S	BLD T15/M7	SW6-T	SR M12X50DIN912
SM D63-38-27-M	SR 14-544/S	BLD T15/M7	SW6-T	
SM D80-38-32-M	SR 14-544/S	BLD T15/M7	SW6-T	
SM D100-38-40-M	SR 14-544/S	BLD T15/M7	SW6-T	
SM D125-38-40-M	SR 14-544/S	BLD T15/M7	SW6-T	

HELIQUAD

SPK Shell Mill-FT/A

Basic Units of Modular Extended Flute Shell Mills with S/XPMT-10 Inserts





Designation	D	a_p	L	Da	Flute	Z face	Z	Arbor(1)	Kg
SPK D50-44-27-FT/A	50.00	43.00	75.00	27.00	2	2	10	A	0.63

(1) For adaptation see page L13.

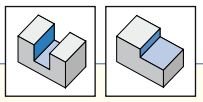
For inserts, see pages: QPMT 100408PDTN (K61) • SPMT-HQ (K61) • XPMT-HQ (K62).

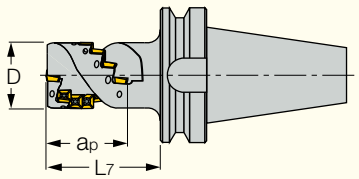
Spare Parts

Designation	Handle	Screw	Torx Blade	T-Handle
SPK Shell Mill-FT/A	SW6-SD	SR 14-544/S	BLD T15/M7	SW6-T

SPK BT/INT-FT/B

Basic Units of Modular Extended Flute Endmills with S/XPMT-10 Inserts





Designation	D	a_p	L_7	Flute	Z face	Z	Shank (1)	Kg
SPK D50-60BT50FT/B	50.00	61.00	86.00	2	2	14	BT50	4.82
SPK D50-60INT50-FT/B	50.00	61.00	86.00	2	2	14	INT50	3.50

For inserts, see pages: QPMT 100408PDTN (K61) • SPMT-HQ (K61) • XPMT-HQ (K62).

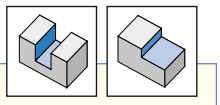
(1) BT-BT tappered shank, INT-DIN69871 shank

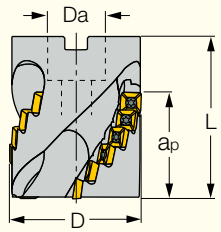
Spare Parts

Designation	Handle	Screw	Torx Blade	Cover
SPK BT/INT-FT/B	SW6-SD	SR 14-544/S	BLD T15/M7	PG D50

SDK Shell Mill-FT

Basic Units of Modular Extended Flute Shell Mills Carrying S/QDMT 1205... Inserts





Designation	D	a_p	L	Da	Flute	Z face	Z	Arbor(1)	Kg
SDK D63-53-27-FT/A	63.00	53.00	76.20	27.00	3	3	15	A	0.82
SDK D80-64-32-FT/A	80.00	64.00	98.00	32.00	3	3	18	A	2.30

(1) For adaptation see page L13.

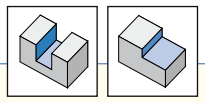
For inserts, see pages: QDCT-PDN (K64) • QDMT 1205..PDTN-M (K64) • SDMR-HQ (K63) • SDMT-PDR-HQ (K67).

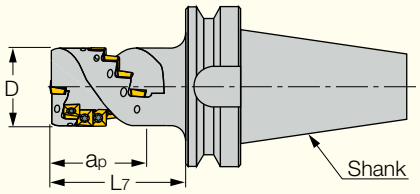
Spare Parts

Designation	Screw	Screw 1	Torx Blade	T-Handle	Cover	Screw 2
SDK D63-53-27-FT/A	SR 14-544/S	SR M3X12DIN963A-8.8	BLD T15/M7	SW6-T	PG D63	
SDK D80-64-32-FT/A	SR 14-544/S		BLD T15/M7	SW6-T	PG D80	SR 14-544

SDK BT/INT-FT

Basic Units of Modular Extended Flute Endmills Using S/QDMT 1205... Inserts





Designation	D	a_p	L_7	Flute	Z face	Z	Shank (1)	Kg
SDK D63-63-BT50-FT/B	63.00	63.00	88.00	3	3	18	BT50	4.75
SDK D63-63-INT50-FTB	63.00	63.00	88.00	3	3	18	INT50	3.76
SDK D80-85-BT50-FT/B	80.00	85.00	109.00	3	3	24	BT50	6.28
SDK D80-85-INT50FT/B	80.00	85.00	109.00	3	3	24	INT50	5.06
SDK D100-105INT50-FT	100.00	105.00	132.00	4	4	40	INT50	7.14

For inserts, see pages: QDCT-PDN (K64) • QDMT 1205..PDTN-M (K64) • SDMR-HQ (K63) • SDMT-PDR-HQ (K67).

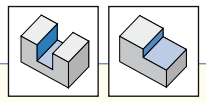
(1) BT-BT tappered shank, INT-DIN69871 shank

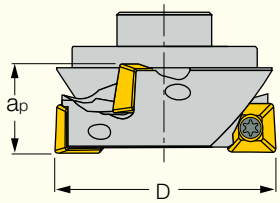
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Cover	Screw 1
SDK D63-63-BT50-FT/B	SR 14-544/S	BLD T15/M7	SW6-T	PG D63	SR M3X12DIN963A-8.8
SDK D63-63-INT50-FTB	SR 14-544/S	BLD T15/M7	SW6-T	PG D63	SR M3X12DIN963A-8.8
SDK D80-85-BT50-FT/B	SR 14-544/S	BLD T15/M7	SW6-T	PG D80	SR 14-544
SDK D80-85-INT50FT/B	SR 14-544/S	BLD T15/M7	SW6-T	PG D80	SR 14-544
SDK D100-105INT50-FT		BLD T15/M7	SW6-T	PG D100	SR 14-544

SM-FT

End Units for Modular Extended Flute Cutters





Designation	D	a_p	Flute	Z face	Z	Kg
SM D50-18-FT/E	50.00	18.00	2	2	4	0.14
SM D50-26-FT/F	50.00	27.00	2	2	6	0.50
SM D63-22-FT/E (1)	63.00	22.00	3	6	9	0.22
SM D63-33-FT/F-I (1)	63.00	33.00	3	6	12	0.39
SM D80-22-FT/E	80.00	22.00	3	6	9	0.49
SM D80-33-FT/F	80.00	33.00	3	6	12	1.40
SM D100-22-FT/E	100.00	22.00	4	4	12	0.77
SM D100-44-FT/F	100.00	44.00	4	4	20	1.42

• Inserts: S/Q/XPMT 10 for D=50 • S/QDMT 1205 for D≥63

(1) Not suitable for slot milling

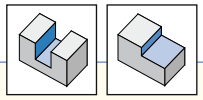
For inserts, see pages: QDCT-PDN (K64) • QDMT 1205..PDTN-M (K64) • QPMT 100408PDTN (K61) • SDMT-PDR-HQ (K67) • SPMT-HQ (K61) • XPMT-HQ (K62).

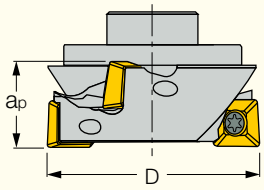
Spare Parts

Designation	T-Handle	Torx Blade	Screw	Key
SM D50-18-FT/E			SR 14-544/S	
SM D50-26-FT/F			SR 14-544/S	
SM D63-22-FT/E			SR 14-544/S	
SM D63-33-FT/F-I			SR 14-544/S	T-15/51-BE
SM D80-22-FT/E			SR 14-544/S	
SM D80-33-FT/F	SW6-T	BLD T15/M7	SR 14-544/S	
SM D100-22-FT/E			SR 14-544/S	
SM D100-44-FT/F	SW6-T	BLD T15/M7	SR 14-544/S	

SE-FT

Extension Units for Modular Extended Flute Cutters





Designation	D	a_p	Flute	Z	Z face	Kg
SE D50-18-FT/G	50.00	18.00	2	4	2	0.50
SE D63-22-FT/G	63.00	22.00	3	6	-	0.28
SE D63-33-FT/H	63.00	33.00	3	9	-	0.32
SE D80-22-FT/G	80.00	22.00	3	6	-	0.51
SE D80-33-FT/H	80.00	33.00	3	9	-	0.80

• Inserts: S/Q/XPMT 10 for D=50 • S/QDMT 1205 for D≥63

For inserts, see pages: QDMT 1205..PDTN-M (K64) • QPMT 100408PDTN (K61) • SDMR-HQ (K63) • SPMT-HQ (K61) • XPMT-HQ (K62).

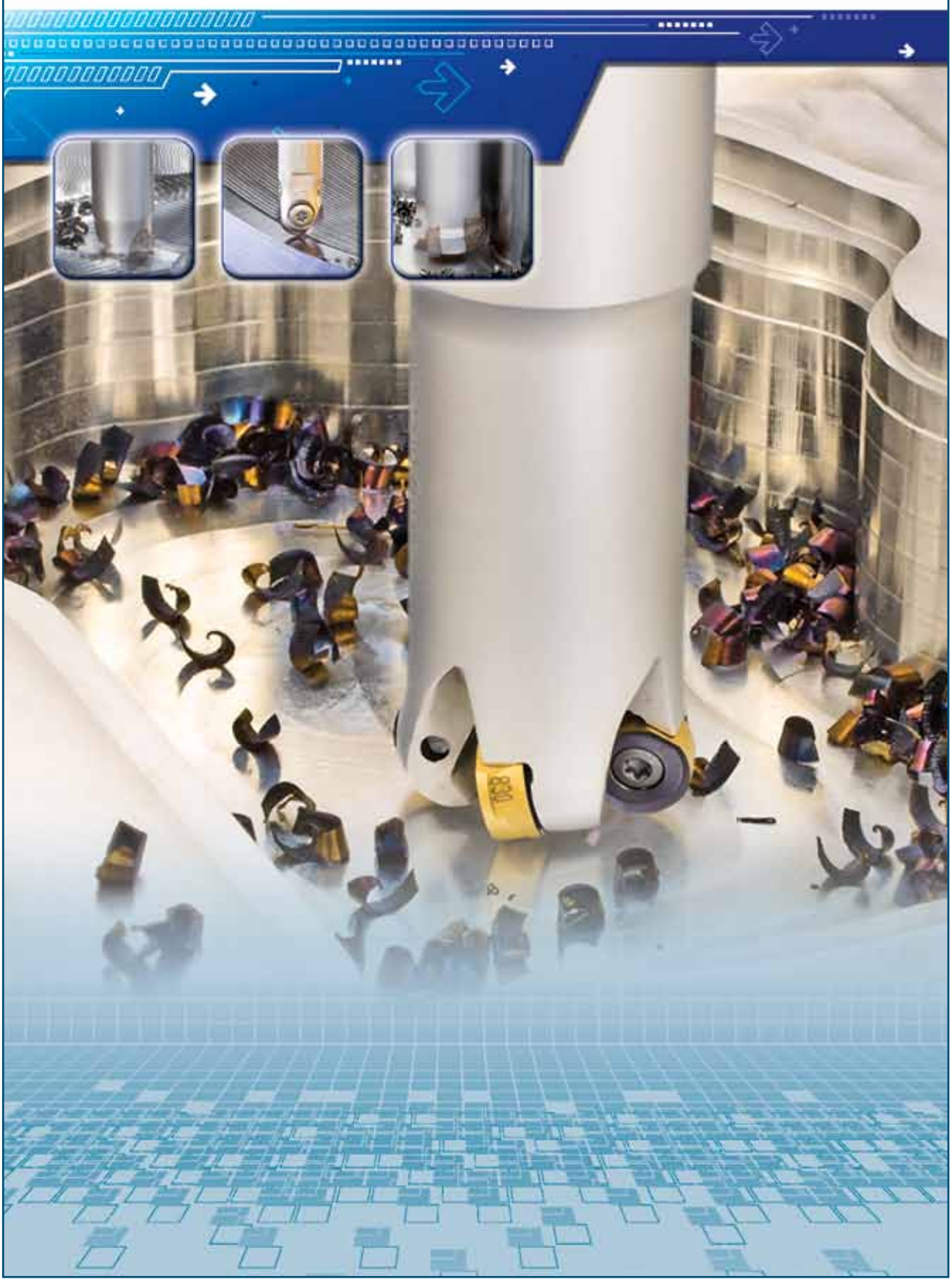
Spare Parts

Designation	T-Handle	Torx Blade	Screw
SE D50-18-FT/G			SR 14-544/S
SE D63-22-FT/G	SW6-T	BLD T15/M7	SR 14-544/S
SE D63-33-FT/H			SR 14-544/S
SE D80-22-FT/G			SR 14-544/S
SE D80-33-FT/H			SR 14-544/S

MILLSHRED
P290 LINE

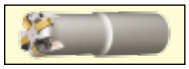
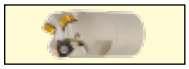


PROFILING TOOLS AND FLEXFIT

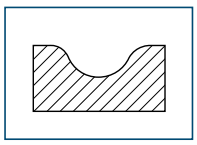


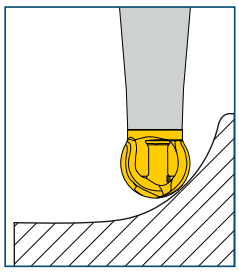
Member IMC Group

PROFILING TOOLS

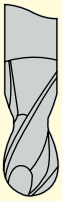
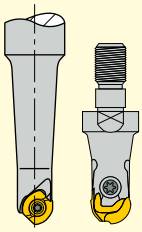
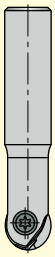
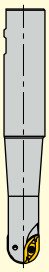
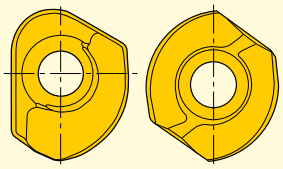
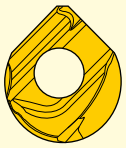
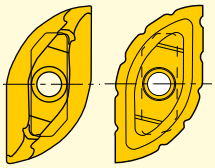
Type	Page	
Ball Nose Endmills	**E7**	
TORMILL - Toroidal Endmills and Face Mills	**E18**	
Round Cornered Cutters	**E22**	
MILLSHRED	**E25**	
HELIDO ROUND H400 Line	**E28**	
FEEDMILL	**E32**	
FLEXFIT Adaptation System	**E43**	

PROFILING TOOLS

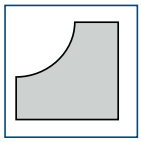


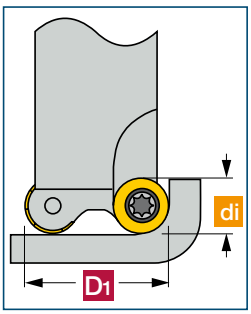


Ball Nose Selection Guide

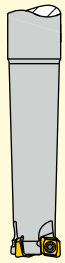
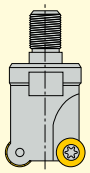
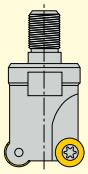
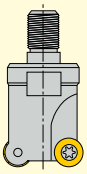
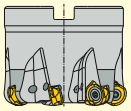
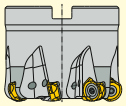
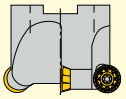
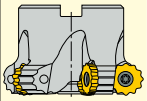
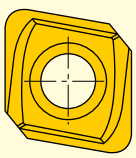
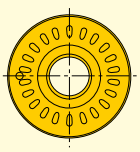
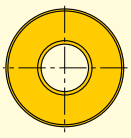
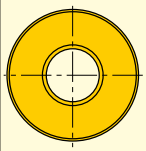
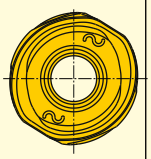
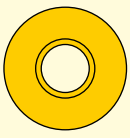
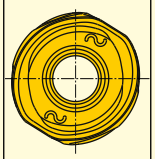
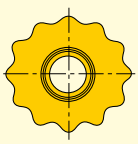
Tool / D	EB...Solid Carbide	CM D... CDP D...	HCM D.. HCM-M HCM-MM TS-HCM	BCM
				
0.4-7	●			
8	●	●		
9	●			
10	●	●	●	
12	●		●	●
12.7	●		●	●
16	●		●	●
20	●		●	●
25	●		●	●
30				●
32				●
40				●
50				●
Inserts		 CR D080..	 HBF-QF HBR-QF HCR	 BCR
Page	**Solid Carbide and MULTI-MASTER catalog**	**E**7-8	**E**8-14	**E**15-17

PROFILING TOOLS





Endmills and Face Mills with Round Insert Selection Guide

Tool	Toroidal  E93CN	 ER	 ER	 ER	 H400 FR-10 H400 ER-10 ER	 H400 ER-12 H400 FR-12 E/FRCM E/FRW	 H400 FR-16 E/FRCM FRW ER	 FRW
Di / D1		**5**	**7**	**8**	**10**	**12**	**16**	**20**
8		●						
10								
12		●						
15			●					
16	●			●				
20	●		●		●			
25	●			●	●	●		
32					●	●	●	
35	●				●			
40					●	●	●	
42	●				●			
50					●	●	●	
52	●					●	●	
63						●	●	
66	●					●	●	
80	●					●	●	●
100							●	●
125							●	●
160								●
Inserts	 CNHT ENHT	 RXCR 05...	 RXCW 07... RXCR 07...	 RXCW 08... RXCR 08...	 H400 RNHU 10... RXCW 10... RXCR 10... RXMT 10...	 RCMT 12... RCCW 12... RCCT 12... R90MT 12... H400 RNHU 12...	 H400 RNHU 16... RCMW 16... RCCW 16...	 RCCW 20... RCMW 20...
Page	**E**18-21	**E**22-23	**E**22-23	**E**22-23	**E**22-23 **E**28-30	**E**25-27 **E**29-30	**E**22, **E**24, **E**27, **E**31	**E**27

FLEXFIT expands application possibilities with **BALLPLUS** for the die and mold industry.
FLEXFIT uses the regular **HELIBALL CR** inserts for the range of 8 to 10 mm, and the **BALLPLUS - HBR**, **HCR** and **HBF** inserts for the range of 12 to 25 mm.
The **HCM...-Q** tools use the **HBF** inserts for precision finishing applications.

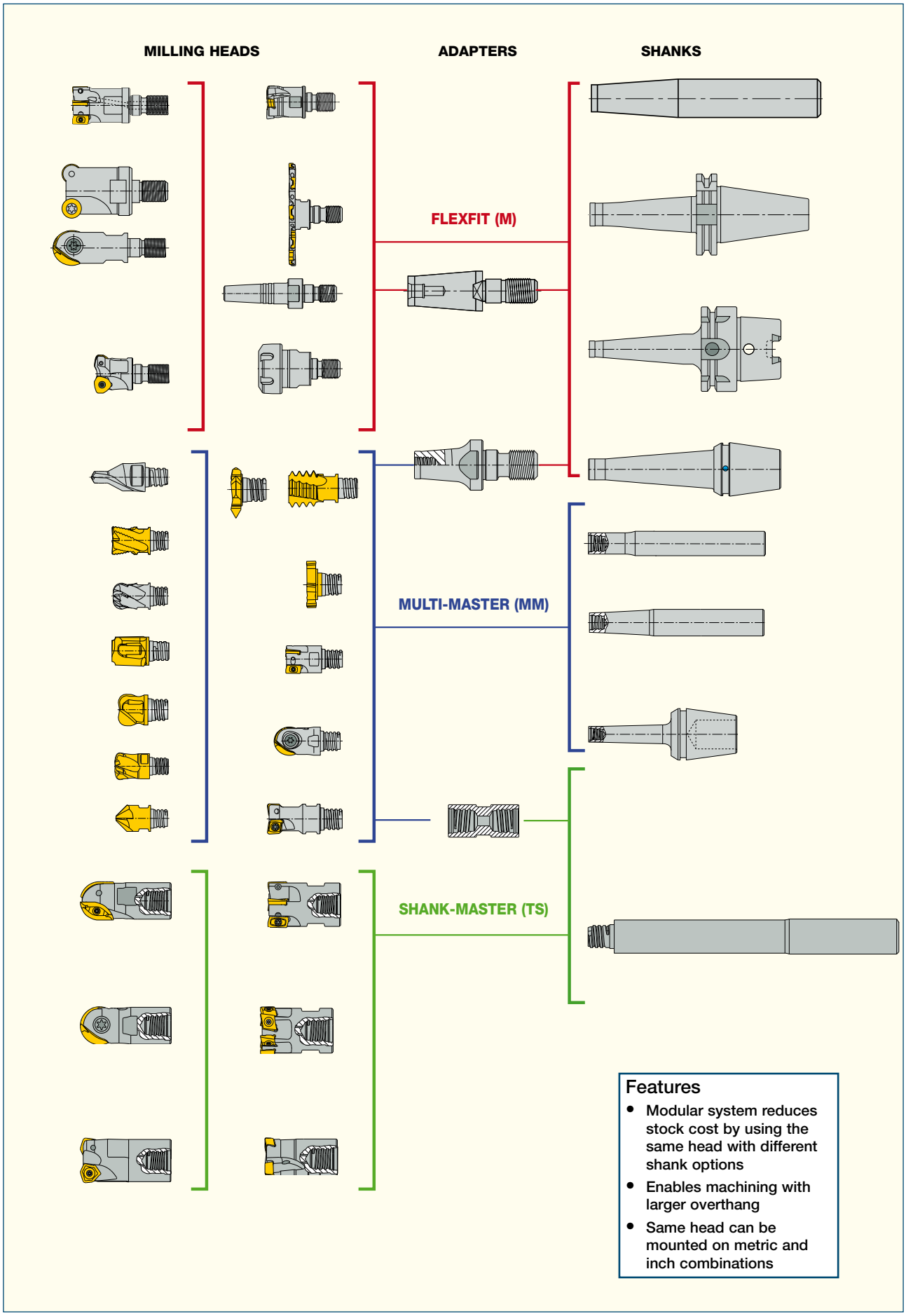
Features

- Enables machining with large overhang
- Both metric and inch size inserts can be mounted on the same head, provided that they are close in size
- Modular system reduces stock cost by using the same head with various shank options
- A variety of inserts can be mounted on the same tool (HBR, HBR, HCR, HCD, HCC, HCF, HTR, HFF)





MULTI-MASTER, SHANK-MASTER and FLEXFIT
Connection Options

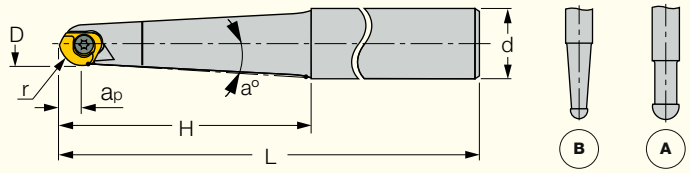


Features

- Modular system reduces stock cost by using the same head with different shank options
- Enables machining with larger overthang
- Same head can be mounted on metric and inch combinations

CM D08

Ball Nose Endmills D=8 mm



Designation	D	r(1)	a_p	H	L	a°	d	Shank(2)	Type	Kg
CM D08-A-W12	8.00	4.00	5.50	25.00	80.00	0	12.00	W	A	0.06
CM D08-B-C12	8.00	4.00	5.50	45.00	120.00	3	12.00	C	B	0.09

(1) Radius generated on workpiece (2) C-Cylindrical, W-Weldon

For inserts, see pages: CR-D8 (K96).

Parts for Assembly

Milling Head	Adapter	Shank	Assembly Dimensions						
			D	H	L	a°	d	Shank	Style
CDP D08-M06	--	S M06-L60-C10	8	43	83	3.2	10	C	B
		S M06-L105-C12	8	83	128	2.8	12	C	B
		S M06-L125-C16	8	83	148	2.8	16	C	B
	CAB M06 M08	S M08-L73-C16	8	78	126	3.2	16	C	B
		S M08-L128-C16	8	133	181	3.2	16	C	B
		S M08-L170-C20	8	119	223	3.2	20	C	B

For milling heads, see page E8.
For shanks & adapters, see page E43.
For user guide, see pages E52-56.

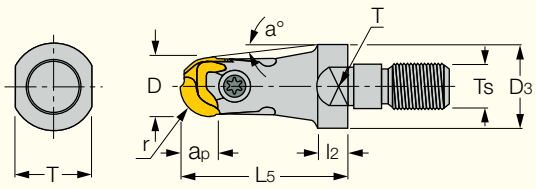
Spare Parts

Designation	Screw	Key
CM D08	SR 34-508	T-7/51

HELIBALL • FLEXFIT

CDP D-M

Ball Nose Endmills with FLEXFIT Threaded Adaptation



Designation	D	r	D_3	a_p	L_5	Ts	l_2	a°	T(1)	Kg	Insert
CDP D08-M06	8.00	4.00	9.70	5.50	23.00	M06	2.0	5.5	8.0	0.01	CR D080

• For user guide, see pages E52-56.

(1) Clamping wrench size

For inserts, see pages: CR-D8 (K96).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

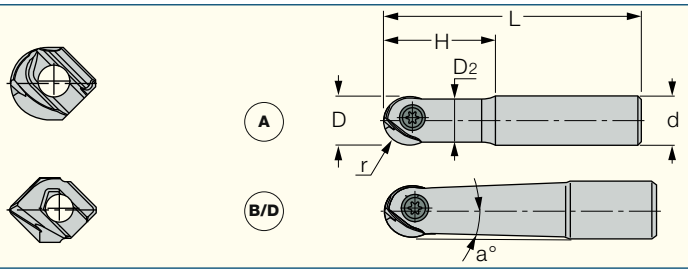
Spare Parts

Designation	Screw	Key
CDP D08-M06	SR 34-508	T-7/51

BALLPLUS

HCM D10

Ball Nose Multifunction Endmills D=10 mm



Designation	D	r	H	L	d	Shank	a°	D_2	Type	Shank m.	Kg
HCM D10-A-L090-C10	10.00	5.00	25.00	90.00	10.00	C	-	9.20	A	S	0.05
HCM D10-B-L125-C16	10.00	5.00	40.00	125.00	16.00	C	6	-	B	S	0.32
HCM D10-D-L150-C12	10.00	5.00	50.00	150.00	12.00	C	1.8	-	D	S	0.12

• The dimensions are for HBR insert • For user guide, see pages E52-56.

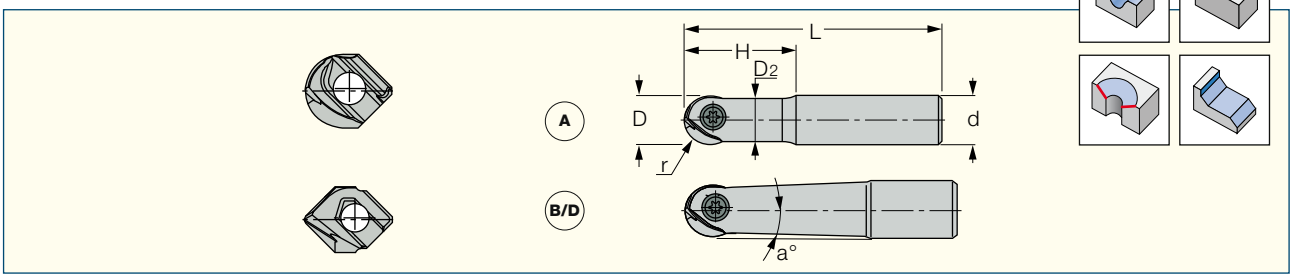
For inserts, see pages: HBR-QF (K97) • HCR (K98).

Spare Parts

Designation	Torx Blade	T-Handle
HCM D10	BLD T15/S7	SW6-T SHORT

HCM D12

Ball Nose Multifunction Endmills D=12 mm



Designation	D	r	H	L	d	Shank(1)	a°	D_2	Type	Kg
HCM D12-A-L120-C12	12.00	6.00	30.00	120.00	12.00	C	-	10.60	A	0.10
HCM D12-B-L160-C20	12.00	6.00	50.00	160.00	20.00	C	5	-	B	0.32
HCM D12-D-L160-C16	12.00	6.00	60.00	160.00	16.00	C	1	-	D	0.21

• The dimensions are for HBR insert • For user guide, see pages E52-56.

(1) C-Cylindrical

For inserts, see pages: HBF-QF (K97) • HBR-QF (K97) • HCD-QF (K99) • HCR (K98).

Parts for Assembly

Milling Head	Adapter	Shank	Assembly Dimensions						
			D	H	L	a°	d	Shank	Inserts
HCM D12/.50-M6	CAB M06M08	S M08-L73-C16	12	81	129	1.5	16	C	HBR HBF HCR HCD
		S M08-L128-C16	12	136	184	0.9	16	C	
		S M08-L170-C20	12	123	226	2	20	C	
HCM D12/.50-M8	––	S M08-L73-C16	12	51	99	4	16	C	
		S M08-L128-C16	12	106	154	4	16	C	
		S M08-L170-C20	12	93	196	4	20	C	
HCM D12/.50-M8	CAB M08M10	S M10-L80-C20	12	96	146	4	20	C	
		S M10-L130-C20	12	146	196	4	20	C	
		S M10-L200-C25	12	123	266	4	25	C	

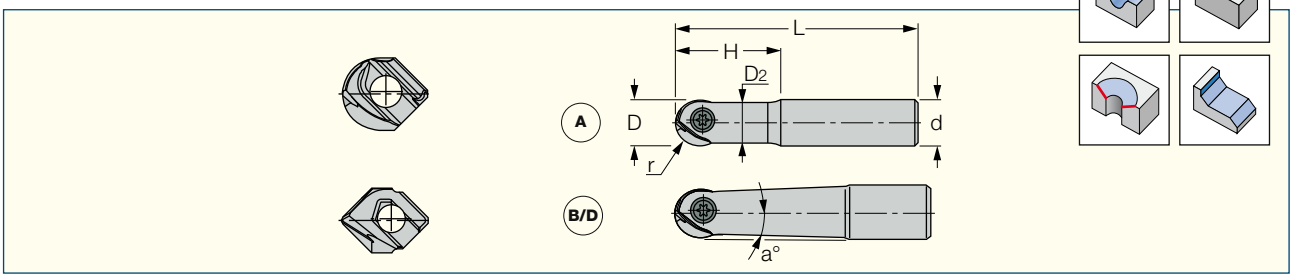
For milling heads, see page E13.
For shanks & adapters, see page E43.
For user guide, see pages E52-56.

Spare Parts

Designation	Screw	Torx Blade	T-Handle
HCM D12	SR 34-540	BLD T15/S7	SW6-T

HCM D16

Ball Nose Multifunction Endmills D=16 mm



Designation	D	H	L	d	Shank(1)	a°	D_2	Kg	Type
HCM D16-A-L130-C16	16.00	36.00	130.00	16.00	C	-	14.40	0.18	A
HCM D16-B-L160-C25	16.00	60.00	160.00	25.00	C	5	-	0.49	B
HCM D16-D-L160-C20	16.00	65.00	160.00	20.00	C	1	-	0.32	D

• The dimensions are for HBR insert • For user guide, see pages E52-56.

(1) C-Cylindrical

For inserts, see pages: HBF-QF (K97) • HBR-QF (K97) • HCD-QF (K99) • HCR (K98).

Parts for Assembly

Milling Head	Adapter	Shank	Assembly Dimensions						
			D	H	L	a°	d	Shank	Inserts
HCM D16/.62-M8	––	S M8-L73-C16	16	55	103	—	16	C	HBR HBF HCR HCD
		S M8-L128-C16	16	110	158	—	16	C	
		S M8-L170-C20	16	97	200	0.96	20	C	
HCM D16/.62-M8	CAB M08M10	S M10-L80-C20	16	100	150	1.24	20	C	
		S M10-L130-C20	16	150	200	0.8	20	C	
		S M10-L200-C25	16	127	270	2.16	25	C	
HCM D16/.62-M10		S M10-L80-C20	16	60	110	2.5	20	C	
		S M10-L130-C20	16	110	160	2.5	20	C	
		S M10-L200-C25	16	87	230	3.26	25	C	
HCM D16/.62-M10	CAB M10M12	S M12-L86-C25	16	105	161	2.65	25	C	
		S M12-C32-L200	16	153	275	3.157	32	C	

For milling heads, see page E13.

For shanks & adapters, see page E43.

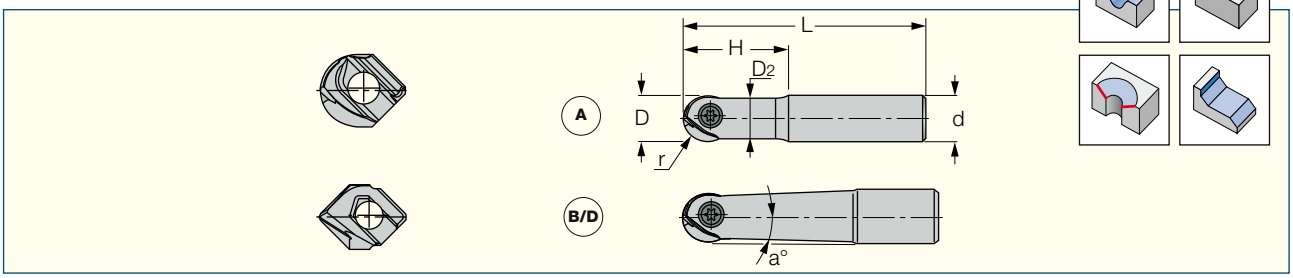
For user guide, see pages E52-56.

Spare Parts

Designation	Screw	Torx Blade	T-Handle
HCM D16	SR 10503579	BLD T20/S7	SW6-T

HCM D20

Ball Nose Multifunction Endmills D=20 mm



Designation	D	H	L	d	Shank(1)	a°	D_2	Kg	Type
HCM D20-A-L150-C20	20.00	60.00	150.00	20.00	C	-	18.00	0.32	A
HCM D20-D-L200-C25	20.00	90.00	200.00	25.00	C	1	-	0.61	D

• The dimensions are for HBR insert • For user guide, see pages E52-26.

(1) C-Cylindrical

For inserts, see pages: HBF-QF (K97) • HBR-QF (K97) • HCD-QF (K99) • HCR (K98).

Parts for Assembly

Milling Head	Adapter	Shank	Assembly Dimensions						
			D	H	L	a°	d	Shank	Inserts
HCM D20/.75-M10	––	S M10-L80-C20	20	67	117	–	20	C	HBR HBF HCR HCD
		S M10-L130-C20	20	117	167	–	20	C	
		S M10-L200-C25	20	94	237	1.7	25	C	
HCM D20/.75-M10	CAB M10M12	S M12-L86-C25	20	112	168	1.4	25	C	
		S M12-L200-C32	20	160	282	2.3	32	C	
HCM D20/.75-M12	––	S M12-L86-C25	20	67	123	3.0	25	C	
		S M12-L200-C32	20	115	237	3.3	32	C	

For milling heads, see page E13.

For shanks & adapters, see page E43.

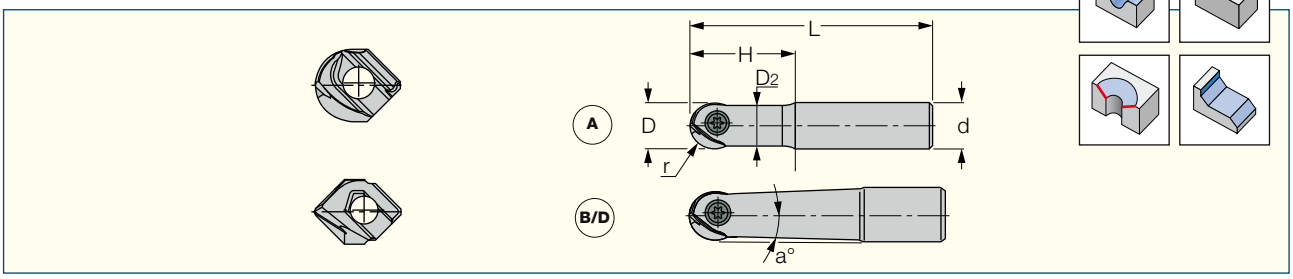
For user guide, see pages E52-56.

Spare Parts

Designation	Screw	Torx Blade	T-Handle
HCM D20	SR 1052964	BLD T25/S7	SW6-T

HCM D25

Ball Nose Multifunction Endmills D=25 mm



Designation	D	H	L	d	Shank(1)	a°	D_2	Kg	Type
HCM D25-A-L170-C25	25.00	70.00	170.00	25.00	C	-	22.00	0.55	A
HCM D25-D-L250-C32	25.00	125.00	250.00	32.00	C	1.8	-	1.20	D

• The dimensions are for HBR insert • For user guide, see pages E52-56.

(1) C-Cylindrical

For inserts, see pages: HBF-QF (K97) • HBR-QF (K97) • HCD-QF (K99) • HCR (K98).

Parts for Assembly

Milling Head	Adapter	Shank	Assembly Dimensions						
			D	H	L	a°	d	Shank	Inserts
HCM D25/1.0-M12	CAB M12M16	S M16-L95 C32	25	131	191	1.8	32	C	HBR HBF
		S M16-L230 C32	25	146	326	1.5	32	C	HCR
HCM D25/1.0-M16	–	S M16-L95 C32	25	81	141	3.5	32	C	HCD
		S M16-L230 C32	25	96	276	3.5	32	C	HCC
									HTR

For milling heads, see page E13.

For shanks & adapters, see page E43.

For user guide, see pages E52-56.

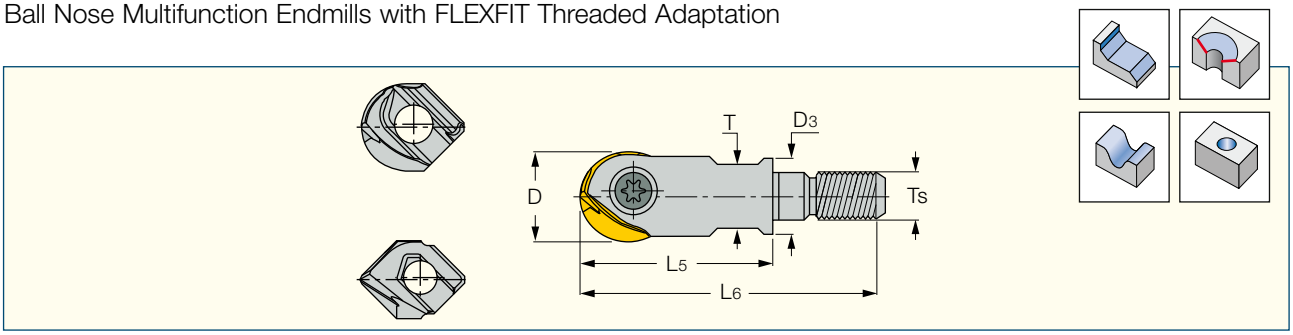
Spare Parts

Designation	Screw	Torx Blade	T-Handle
HCM D25	SR 1051666	BLD T25/S7	SW6-T

BALLPLUS • FLEXFIT

HCM-M

Ball Nose Multifunction Endmills with FLEXFIT Threaded Adaptation



Designation	D	L_5	L_6	D_3	T(1)	Ts	Kg
HCM D12/.50-M08	12.00	26.00	43.50	14.40	11.0	M08	0.02
HCM D16/.62-M08	16.00	30.00	47.50	14.40	11.0	M08	0.03
HCM D16/.62-M10	16.00	35.00	55.00	18.00	15.0	M10	0.05
HCM D20/.75-M10	20.00	37.00	57.00	18.00	15.0	M10	0.06
HCM D20/.75-M12	20.00	37.00	59.00	22.50	17.0	M12	0.17
HCM D25/1.0-M12	25.00	46.00	68.00	21.00	19.0	M12	0.11
HCM D25/1.0-M16	25.00	46.00	71.00	29.00	25.0	M16	0.16

• The dimensions are for HBR insert. • For user guide, see pages E52-56.

(1) Clamping wrench size

For inserts, see pages: HBF-QF (K97) • HBR-QF (K97) • HCD-QF (K99) • HCR (K98).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

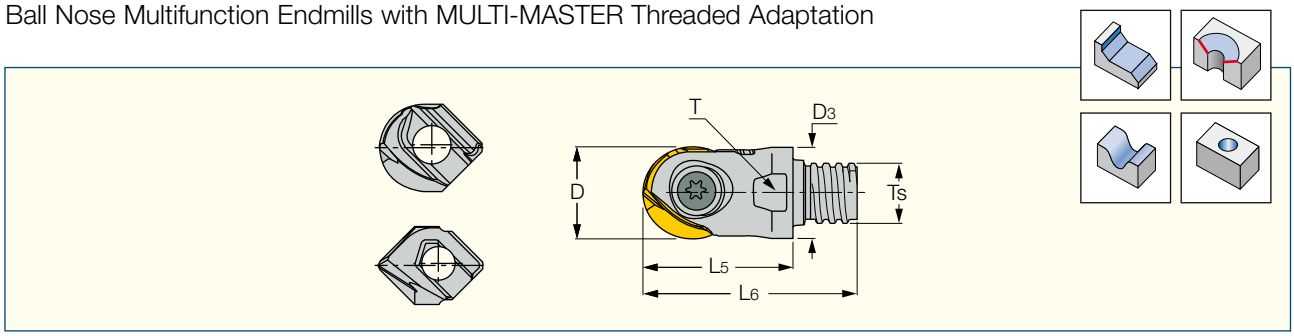
Designation	Screw	Torx Blade	T-Handle
HCM D12/.50-M08	SR 34-540	BLD T15/S7	SW6-T
HCM D16/.62-M08	SR 10503579	BLD T20/S7	SW6-T
HCM D16/.62-M10	SR 10503579	BLD T20/S7	SW6-T
HCM D20/.75-M10	SR 1052964	BLD T25/S7	SW6-T
HCM D20/.75-M12	SR 1052964	BLD T25/S7	SW6-T
HCM D25/1.0-M12	SR 1051666	BLD T25/S7	SW6-T
HCM D25/1.0-M16	SR 1051666	BLD T25/S7	SW6-T

BALLPLUS • MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

HCM-MM

Ball Nose Multifunction Endmills with MULTI-MASTER Threaded Adaptation



Designation	D	L_6	L_5	D_3	Ts	T(1)	Kg
HCM D12/.50-MMT08	12.00	28.00	20.00	11.50	T08	10.0	0.01
HCM D16/.62-MMT10	16.00	36.75	25.00	15.20	T10	13.0	0.03
HCM D20/.75-MMT12	20.00	48.80	35.00	18.50	T12	15.0	0.06

• The dimensions are for HBR inserts. • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • For adaptation options, see page B45 • Do not apply lubricant to the threaded connection. • For user guide, see pages E52-56.

(1) Clamping wrench size

For inserts, see pages: HBF-QF (K97) • HBR-QF (K97) • HCD-QF (K99) • HCR (K98).

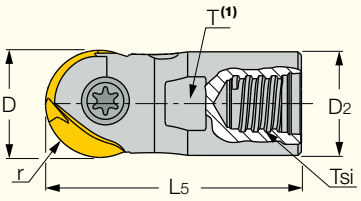
For holders, see pages: MM CAB (B73) • MM GRT (shanks) (B69) • MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

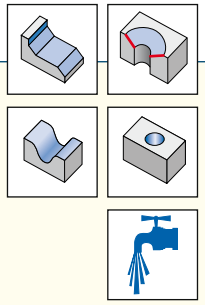
Spare Parts

Designation	Screw	Torx Blade	T-Handle
HCM D12/.50-MMT08	SR 34-540	BLD T15/S7	SW6-T
HCM D16/.62-MMT10	SR 10503579	BLD T20/S7	SW6-T
HCM D20/.75-MMT12	SR 1052964	BLD T25/S7	SW6-T

TS HCM

Ball Nose Multifunction Milling Heads with TS Threaded Adaptation





Designation	D	D_2	L_5	r	Tsi	T(1)
TS HCM D12/.50-T08	12.00	11.50	28.00	6.00	T08	10.0
TS HCM D16/.62-T10	16.00	15.20	38.00	8.00	T10	13.0
TS HCM D20/.75-T12	20.00	18.50	48.00	10.00	T12	15.0

• For user guide, see pages B45, E52-56.

(1) Clamping wrench size

For inserts, see pages: HBF-QF (K97) • HBR-QF (K97) • HCC-QF (K100) • HCD-QF (K99) • HCR (K98) • HTR-QF (K101).

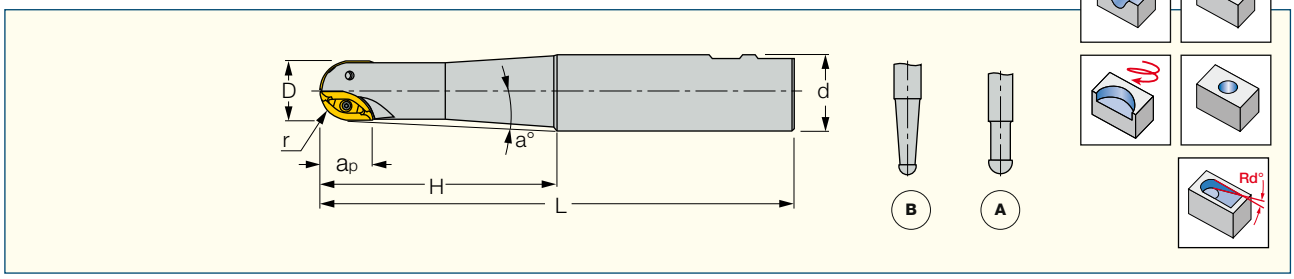
For holders, see pages: TS S-A (B72).

Spare Parts

Designation	Screw	T-Handle	Torx Blade
TS HCM D12/.50-T08	SR 34-540	SW6-T	BLD T15/S7
TS HCM D16/.62-T10	SR 10503579	SW6-T	BLD T20/S7
TS HCM D20/.75-T12	SR 1052964	SW6-T	BLD T25/S7

BCM

Ball Nose Endmills with Tangent Straight Edge Inserts for Finish Profiling



Designation	D	r	a_p	Z	L	H	d	a°	Shank(1)	Type	Insert	Coolant	Kg
BCM D12-A-C12	12.00	6.00	11.40	2	120.00	30.00	12.00	-	C	A	BCR D120	N	0.10
BCM D12-B-C16	12.00	6.00	11.40	2	160.00	60.00	16.00	2.0	C	B	BCR D120	N	0.22
BCM D16-A-C16-C	16.00	8.00	13.00	2	130.00	36.00	16.00	-	C	A	BCR D160	Y	0.16
BCM D16-B-C20-C	16.00	8.00	13.00	2	160.00	60.00	20.00	2.2	C	B	BCR D160	Y	0.30
BCM D20-A-C20-C	20.00	10.00	17.00	2	160.00	65.00	20.00	-	C	A	BCR D200	Y	0.32
BCM D20-B-C25-C	20.00	10.00	17.00	2	200.00	90.00	25.00	1.5	C	B	BCR D200	Y	0.55
BCM D25-A-W25-C	25.00	12.50	20.00	2	170.00	70.00	25.00	-	W	A	BCR D250	Y	0.51
BCM D25-B-C32-C	25.00	12.50	20.00	2	220.00	95.00	32.00	2.4	C	B	BCR D250	Y	1.20
BCM D30-A-W32-C	30.00	15.00	26.00	2	160.00	67.00	32.00	-	W	A	BCR D300	Y	0.72
BCM D30-B-W40	30.00	15.00	26.00	2	250.00	125.00	40.00	2.6	W	B	BCR D300	N	1.82
BCM D30-B-W42	30.00	15.00	26.00	2	250.00	125.00	42.00	3.1	W	B	BCR D300	N	3.00
BCM D32-A-W32-C	32.00	16.00	27.00	2	160.00	65.00	32.00	-	W	A	BCR D320	Y	0.76
BCM D32-B-W40-C	32.00	16.00	27.00	2	250.00	125.00	40.00	2.1	W	B	BCR D320	Y	1.90
BCM D40-A-W32-C	40.00	20.00	36.00	2	160.00	88.00	32.00	-	W	A	BCR D400	Y	1.00
BCM D40-B-W40-C	40.00	20.00	36.00	2	250.00	125.00	40.00	-	W	B	BCR D400	Y	2.10
BCM D50-A-W50-C	50.00	25.00	43.00	2	200.00	130.00	50.00	-	W	A	BCR D500	Y	2.42

• For user guide, see pages E52-56.

(1) C-Cylindrical, W-Weldon

For inserts, see pages: BCR (K102).

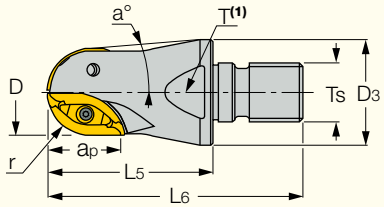
Spare Parts

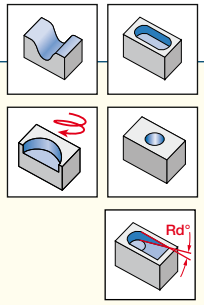
Designation	Screw	Torx Blade	T-Handle	Key
BCM D12-A-C12	SR 10503457			T-6/51
BCM D12-B-C16	SR 10503457			T-6/51
BCM D16-A-C16-C	SR 34-505/L			T-8/51
BCM D16-B-C20-C	SR 34-505/L			T-8/51
BCM D20-A-C20-C	SR 34-506/L			T-9/51
BCM D20-B-C25-C	SR 34-506/L			T-9/51
BCM D25-A-W25-C	SR 14-601	BLD T15/S7	SW6-T	
BCM D25-B-C32-C	SR 14-601	BLD T15/S7	SW6-T	
BCM D30-A-W32-C	SR 14-544	BLD T15/S7	SW6-T	
BCM D30-B-W40	SR 14-544	BLD T15/S7	SW6-T	
BCM D30-B-W42	SR 14-544	BLD T15/S7	SW6-T	
BCM D32-A-W32-C	SR 14-544	BLD T15/S7	SW6-T	
BCM D32-B-W40-C	SR 14-544	BLD T15/S7	SW6-T	
BCM D40-A-W32-C	SR 14-591/L	BLD T20/S7	SW6-T	
BCM D40-B-W40-C	SR 14-591/L	BLD T20/S7	SW6-T	
BCM D50-A-W50-C	SR 10503750	BLD T25/S7	SW6-T	

DROPMILL • FLEXFIT

BCM-M

Ball Nose Endmills with FLEXFIT Threaded Adaptation
Carrying Tangent Straight Edge Inserts for Finish Profiling





Designation	D	r	Z	a_p	L_5	L_6	Ts	D_3	Type	a°	T(1)	Kg	Insert
BCM D25-M12	25.00	12.50	2	20.00	46.00	68.00	M12	23.00	A	-	19.0	0.12	BCR D250
BCM D25-M16	25.00	12.50	2	20.00	46.00	71.00	M16	29.00	B	3.8	25.0	0.26	BCR D250
BCM D32-M16	32.00	16.00	2	26.00	53.00	78.00	M16	19.00	A	-	25.0	0.22	BCR D320

• For user guide, see pages E52-56.

(1) Clamping wrench size

For inserts, see pages: BCR (K102).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

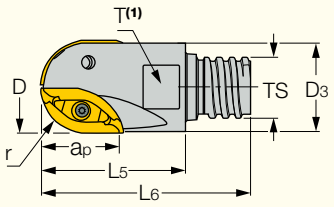
Designation	Screw	Torx Blade	T-Handle
BCM D25-M12	SR 14-601	BLD T15/S7	SW6-T
BCM D25-M16	SR 14-601	BLD T15/S7	SW6-T
BCM D32-M16	SR 14-544	BLD T15/S7	SW6-T

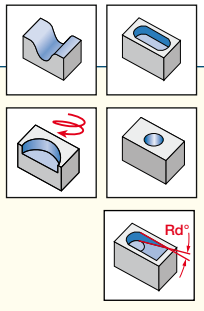
DROPMILL • MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

BCM-MM

Ball Nose Endmills with MULTI-MASTER Threaded Adaptation
Carrying Tangent Straight Edge Inserts for Finish Profiling





Designation	D	r	Z	a_p	L_6	L_5	T(1)	D_3	Ts	Kg	Insert
BCM D12-MMT08	12.00	6.00	2	9.60	28.00	20.00	10.0	11.50	T08	0.01	BCR D120
BCM D16-MMT10	16.00	8.00	2	12.70	36.80	25.00	13.0	15.20	T10	0.03	BCR D160
BCM D20-MMT12	20.00	10.00	2	17.00	48.80	35.00	15.0	18.50	T12	0.06	BCR D200

• For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages B42, B45 • Do not apply lubricant to the threaded connection. • For user guide, see pages E52-56.

(1) Clamping wrench size

For inserts, see pages: BCR (K102).

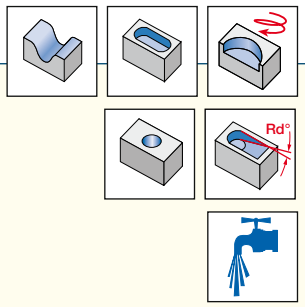
For holders, see pages: MM CAB (B73) • MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

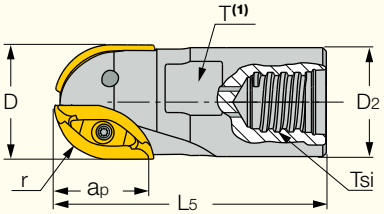
Spare Parts

Designation	Screw	Key
BCM D12-MMT08	SR 10503457	T-6/51
BCM D16-MMT10	SR 34-505/L	T-8/51
BCM D20-MMT12	SR 34-506/L	T-9/51

TS BCM

Ball Nose Milling Heads with TS Threaded Adaptation Carrying Tangent Straight Edge Inserts for Semi-Finish Profiling





Designation	D	r	D_2	L_5	Tsi	Z	a_p	T(1)	Kg	Insert
TS BCM D12-T08	12.00	6.00	11.50	28.00	T08	2	9.60	10.0	0.01	BCR D120
TS BCM D16-T10	16.00	8.00	15.20	38.00	T10	2	12.70	13.0	0.02	BCR D160
TS BCM D20-T12	20.00	10.00	18.50	48.00	T12	2	17.00	15.0	0.06	BCR D200

• For adaptation options, see page B45 • For user guide, see pages E52-56.

(1) Clamping wrench size

For inserts, see pages: BCR (K102).

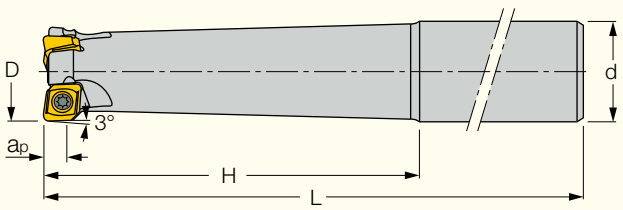
For holders, see pages: TS S-A (B72).

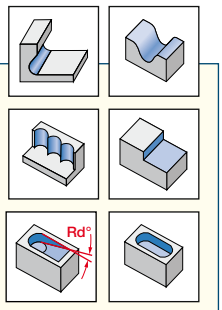
Spare Parts

Designation	Key	Screw
TS BCM D12-T08	T-6/51	SR 10503457
TS BCM D16-T10	T-8/51	SR 34-505/L
TS BCM D20-T12	T-9/51	SR 34-506/L

E93CN

Toroidal Bull Nose Endmills with CNHT...and ENHT... Inserts





Designation	D(1)	a_p	Z	H	L	R_d°	d	Shank(2)	Kg	Insert
E93CN D16-2-L100-C15-07	16.00	5.00	2	20.00	100.00	4.0	15.00	C	0.19	CNHT 07
E93CN D16-2-L110-C16-07	16.00	5.00	2	50.00	110.00	4.0	16.00	C	0.21	CNHT 07
E93CN D20-3-L140-C19-07	20.00	5.00	3	20.00	140.00	3.0	19.00	C	0.36	CNHT 07
E93CN D20-3-L160-C20-07	20.00	5.00	3	75.00	160.00	3.0	20.00	C	0.33	CNHT 07
E93CN D25-4-L160-C24-07	25.00	5.00	4	20.00	160.00	2.0	24.00	C	0.54	CNHT 07
E93CN D25-4-L180-C25-07	25.00	5.00	4	100.00	180.00	2.0	25.00	C	0.67	CNHT 07
E93CN D25-2-L180-C25-10	25.00	8.00	2	100.00	180.00	7.0	25.00	C	0.66	ENHT 10
E93CN D35-3-L200-C32-10	35.00	8.00	3	50.00	200.00	2.0	32.00	C	1.18	ENHT 10

(1) Diameter D according to insert r=1.0. For other insert radii refer to attached table (2) C-Cylindrical

For inserts, see pages: CNHT (K106) • ENHT (K107).

Spare Parts

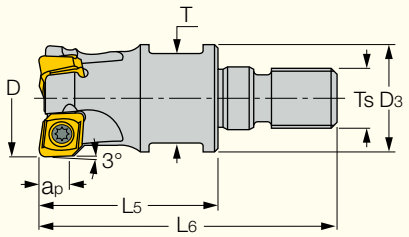
Designation	Screw	Key
E93CN D16-2-L100-C15-07	SR 34-505/LHG	T-8/53
E93CN D16-2-L110-C16-07	SR 34-505/LHG	T-8/53
E93CN D20-3-L140-C19-07	SR 34-505/LHG	T-8/53
E93CN D20-3-L160-C20-07	SR 34-505/LHG	T-8/53
E93CN D25-4-L160-C24-07	SR 34-505/LHG	T-8/53
E93CN D25-4-L180-C25-07	SR 34-505/LHG	T-8/53
E93CN D25-2-L180-C25-10	SR 34-506/L	T-9/51
E93CN D35-3-L200-C32-10	SR 34-506/L	T-9/51

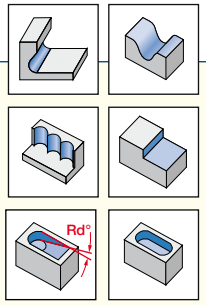
Diameter Change According to Insert Radius

R	0.8	1.0	1.5	2.0	2.5	3.0
ΔD	+0.03	0.0	-0.07	-0.14	-0.21	-0.28

E93CN-M

Bull Nose Endmills with FLEXFIT Threaded Adaptation Carrying Toroidal Inserts





Designation	D(1)	a_p	Z	L_5	L_6	Ts	R_d°	D_3	T(2)	Kg	Insert
E93CN D16-2-M08-07	16.00	5.00	2	30.00	47.50	M08	4.0	13.00	13.0	0.03	CNHT 07
E93CN D20-3-M10-07	20.00	5.00	3	30.00	50.00	M10	3.0	18.00	16.0	0.05	CNHT 07
E93CN D25-4-M12-07	25.00	5.00	4	35.00	57.00	M12	2.0	21.00	17.0	0.09	CNHT 07
E93CN D25-2-M12-10	25.00	7.00	2	35.00	57.00	M12	7.0	21.00	17.0	0.09	ENHT 10
E93CN D35-3-M16-10	35.00	8.50	3	43.00	68.00	M16	4.0	29.00	25.0	0.21	ENHT 10
E93CN D42-5-M16-10	42.00	8.50	5	43.00	68.00	M16	3.0	29.00	25.0	0.34	ENHT 10

(1) Diameter D according to insert r=1.0, For other insert radii refer to attached table (2) Clamping wrench size

For inserts, see pages: CNHT (K106) • ENHT (K107).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

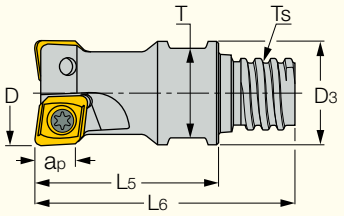
Designation	Screw	Key
E93CN D16-2-M08-07	SR 34-505/LHG	T-8/53
E93CN D20-3-M10-07	SR 34-505/LHG	T-8/53
E93CN D25-4-M12-07	SR 34-505/LHG	T-8/53
E93CN D25-2-M12-10	SR 34-506/L	T-9/51
E93CN D35-3-M16-10	SR 34-506/L	T-9/51
E93CN D42-5-M16-10	SR 34-506/L	T-9/51

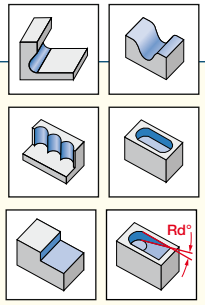
Diameter Change According to Insert Radius

R	0.8	1.0	1.5	2.0	2.5	3.0
ΔD	+0.03	0.0	-0.07	-0.14	-0.21	-0.28

E93CN-MM

Bull Nose Endmills with MULTI-MASTER Threaded Adaptation Carrying Toroidal Inserts





Designation	D(1)	Z	a_p	L_5	L_6	R_d°	Ts	D_3	T(2)	Kg
E93CN D16-2-MMT10-07	16.00	2	5.00	27.00	38.64	4.0	T10	15.00	13.0	0.03
E93CN D20-3-MMT12-07	20.00	3	5.00	27.00	41.00	3.0	T12	19.00	16.0	0.05

• For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages B42, B45.

(1) Diameter D according to insert r=1.0, For other insert radii refer to attached table (2) Clamping wrench size

For inserts, see page: CNHT (K106).

For holders, see pages: MM S-A (stepped shanks) (B68) • MM S-A (straight shanks) (B70) • MM S-B (85° conical shanks) (B70) • MM S-D (89° conical shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

Spare Parts

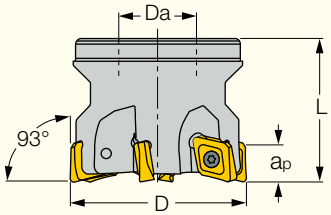
Designation	Screw	Key
E93CN-MM	SR 34-505/LHG	T-8/53

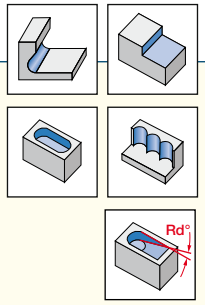
Diameter Change According to Insert Radius

R	0.8	1.0	1.5	2.0	2.5	3.0
ΔD	+0.03	0.0	-0.07	-0.14	-0.21	-0.28

F93CN

93° Face Mills with Toroidal Inserts





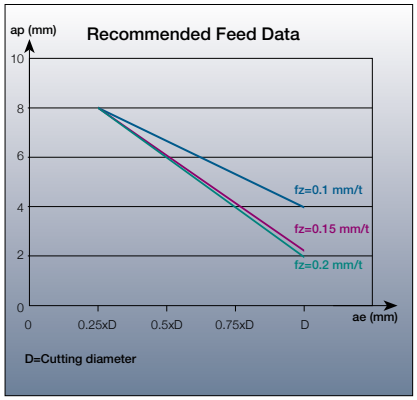
Designation	D	Z	a_p	L	Da	R_d°	Arbor(1)	Kg
F93CN D52-6-22-R-10	52.00	6	8.00	40.00	22.00	2.5	A	0.28
F93CN D66-7-22-R-10	66.00	7	8.00	40.00	22.00	1.8	A	0.67
F93CN D80-8-27-R-10	80.00	8	8.00	50.00	27.00	1.5	B	0.81

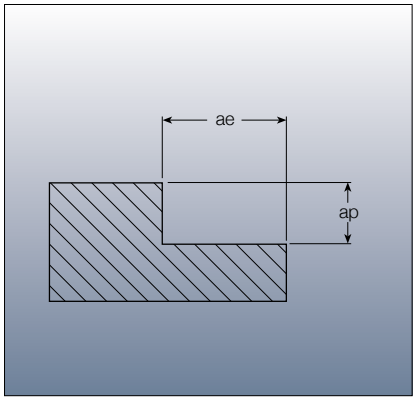
(1) For adaptation see page L14.

For inserts, see pages: ENHT (K107).

Spare Parts

Designation	Screw	Torx Blade	Handle
F93CN	SR 34-506/L	BLD T09/M7	SW6-SD





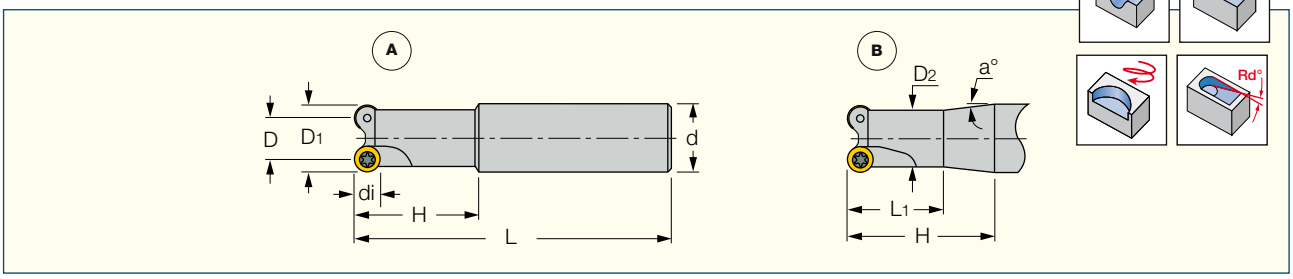


Diameter change according to insert radius

R	0.8	1.0	1.5	2.0	2.5	3.0
ΔD	+0.03	0.0	-0.07	-0.14	-0.21	-0.28

ER

Endmills with Round Inserts for Profiling and Milling of Round Corners



Designation	D1	D	di	D2	Z	H	d	Shank(1)	Rd°	a°	L	L1	Type	Kg	Insert
ER D03A08-1-C10-05	8.0	3.00	5.00	7.40	1	20.00	10.00	C	18.0	2.4	80.00	20.0	B	0.04	RXCR 05
ER D07A12-3-C12-05	12.0	7.00	5.00	11.70	3	40.00	12.00	C	6.0	-	100.00	-	A	0.08	RXCR 05
ER D08A15-2-C20-07	15.0	8.00	7.00	13.50	2	40.00	20.00	C	15.0	5	140.00	40.0	B	0.26	RXCW 07
ER D08A16-2-C16-08	16.0	8.00	8.00	13.50	2	40.00	16.00	C	27.0	-	120.00	-	A	0.16	RXCW 08
ER D17A25-3-C32-08	25.0	17.00	8.00	22.50	3	60.00	32.00	C	5.4	-	160.00	-	A	0.80	RXCW 08
ER D10A20-2-C20-10	20.0	10.00	10.00	17.90	2	60.00	20.00	C	13.0	-	160.00	-	A	0.34	RXCW/MT 10
ER D15A25-2-C25-10	25.0	15.00	10.00	22.80	2	60.00	25.00	C	6.0	-	160.00	-	A	0.54	RXCW/MT 10
ER D22A32-4-C25-10	32.0	22.00	10.00	29.90	4	40.00	25.00	C	4.0	-	160.00	-	A	0.61	RXCW/MT 10
ER D24A40-3-C32-16	40.0	24.00	16.00	30.00	3	50.00	32.00	C	20.0	-	160.00	-	A	0.90	RCMW 16

(1) C-Cylindrical

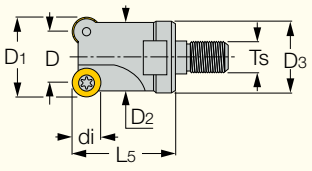
For inserts, see pages: RXCR (K90) • RXCW (K89) • RXMT 10 (K90).

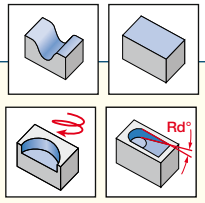
Spare Parts

Designation	Screw	Key	Torx Blade	T-Handle
ER D03A08-1-C10-05	SR 34-533/S	T-6/51		
ER D07A12-3-C12-05	SR 34-533	T-6/51		
ER D08A15-2-C20-07	SR 14-560/S	T-8/51		
ER D08A16-2-C16-08	SR 14-560/S	T-8/53		
ER D17A25-3-C32-08	SR 14-560/S	T-8/53		
ER D10A20-2-C20-10	SR 14-562/S	T-10/51		
ER D15A25-2-C25-10	SR 14-562/S	T-10/51		
ER D22A32-4-C25-10	SR 14-562	T-10/51		
ER D24A40-3-C32-16	SR 14-536		BLD T20/M7	SW6-T

ER-M

Endmills with FLEXFIT Threaded Adaptation Carrying Round Inserts for Profiling and Milling of Round Corners





Designation	D_1	D	di	D_2	Z	D_3	L_5	Ts	$Rd°$	Kg
ER D03A08-1-M06-05	8.0	3.00	5.00	7.40	1	9.70	28.00	M06	18.0	0.02
ER D05A10-2-M08-05	10.0	5.00	5.00	9.40	2	13.00	28.00	M08	28.0	0.02
ER D07A12-3-M08-05	12.0	7.00	5.00	11.40	3	13.00	28.00	M08	20.0	0.03
ER D10A15-4-M08-05	15.0	10.00	5.00	13.00	4	13.00	23.00	M08	13.0	0.03
ER D15A20-5-M10-05	20.0	15.00	5.00	18.00	5	18.00	30.00	M10	4.3	0.06
ER D08A15-3-M08-07	15.0	8.00	7.00	13.50	3	13.50	23.00	M08	15.0	0.02
ER D13A20-4-M10-07	20.0	13.00	7.00	18.00	4	18.00	30.00	M10	5.0	0.06
ER D08A16-2-M08-08	16.0	8.00	8.00	13.50	2	13.00	25.00	M08	27.0	0.02
ER D12A20-2-M10-08	20.0	12.00	8.00	17.20	2	18.00	32.00	M10	6.5	0.30
ER D10A20-2-M10-10	20.0	10.00	10.00	18.00	2	18.00	30.00	M10	28.0	0.03
ER D15A25-2-M12-10	25.0	15.00	10.00	21.00	2	21.00	35.00	M12	12.0	0.08
ER D15A25-3-M12-10	25.0	15.00	10.00	29.00	3	21.00	35.00	M12	12.0	0.09
ER D22A32-4-M16-10	32.0	22.00	10.00	29.00	4	29.00	43.00	M16	7.3	0.20
ER D25A35-4-M16-10	35.0	25.00	10.00	29.00	4	29.00	43.00	M16	5.5	0.22
ER D32A42-5-M16-10	42.0	32.00	10.00	29.00	5	29.00	43.00	M16	4.5	0.25

For inserts, see pages: R90CW (K91) • R90MT (K91) • RXCR (K90) • RXCW (K89) • RXMT 10 (K90).

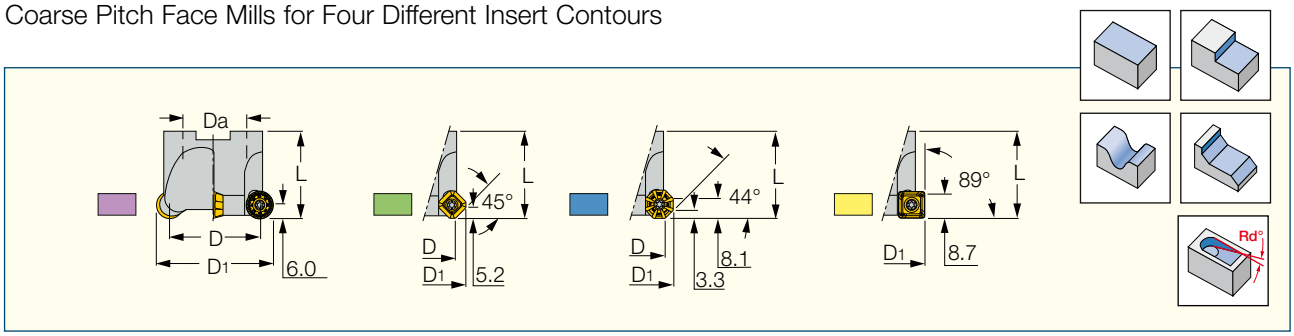
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

Designation	Screw	Key
ER D03A08-1-M06-05	SR 34-533/S	T-6/51
ER D05A10-2-M08-05	SR 34-533	T-6/51
ER D07A12-3-M08-05	SR 34-533	T-6/51
ER D10A15-4-M08-05	SR 34-533	T-6/51
ER D15A20-5-M10-05	SR 34-533	T-6/51
ER D08A15-3-M08-07	SR 14-560/S	T-8/53
ER D13A20-4-M10-07	SR 14-560/S	T-8/51
ER D08A16-2-M08-08	SR 14-560/S	T-8/53
ER D12A20-2-M10-08	SR 14-560/S	T-8/51
ER D10A20-2-M10-10	SR 14-562/S	T-10/51
ER D15A25-2-M12-10	SR 14-562/S	T-10/51
ER D15A25-3-M12-10	SR 14-562/S	T-10/51
ER D22A32-4-M16-10	SR 14-562	T-10/51
ER D25A35-4-M16-10	SR 14-562	T-10/51
ER D32A42-5-M16-10	SR 14-562	T-10/51

FRCM

Coarse Pitch Face Mills for Four Different Insert Contours



Designation	D	D_1	L	R_d°	Da	Arbor(1)	Kg	Z	Inserts
FRCM D50-22-CP12	38.0	50.0	40.0	4.3	22.00	A	0.25	4	R90MT 1205
	38.0	50.7	40.3	5.1					R90MT 43
	40.8	51.8	40.9	6.0					S45MT 1106
	42.6	49.4	39.8	4.0					O45MT 050505
	–	48.8	39.5	3.9					S90MT 1106
FRCM D52-22-CP12	50.0	52.0	40.0	4.2	22.00	A	0.25	5	R90MT 1205
	50.0	52.7	40.3	5.0					R90MT 43
	42.8	53.8	40.9	6.0					S45MT 1106
	44.6	51.4	39.8	4.0					O45MT 050505
	–	50.8	39.5	3.9					S90MT 1106
FRCM D63-22-CP12	51.0	63.0	40.0	3.2	22.00	A	0.44	5	R90MT 1205
	51.0	63.7	40.3	3.9					R90MT 43
	53.8	64.8	40.9	4.4					S45MT 1106
	55.6	62.4	39.8	3.0					O45MT 050505
	–	61.8	39.5	2.8					S90MT 1106
FRCM D66-27-CP12	54.0	66.0	40.0	3.1	27.00	A	0.54	6	R90MT 1205
	54.0	66.7	40.3	3.8					R90MT 43
	56.8	67.8	40.9	4.3					S45MT 1106
	58.5	65.4	39.8	3.0					O45MT 050505
	–	64.8	39.5	2.8					S90MT 1106
FRCM D80-27-CP12	68.0	80.0	50.0	2.5	27.00	B	0.83	6	R90MT 1205
	68.0	80.7	50.3	2.6					R90MT 43
	70.8	81.8	50.9	3.3					S45MT 1106
	72.6	79.4	49.8	2.2					O45MT 050505
	–	78.8	49.5	2.0					S90MT 1106

(1) For adaptation see page L14.

For inserts, see pages: O45MT (K69) • R90MT (K91) • S45MT (K82) • S90MT (K62).

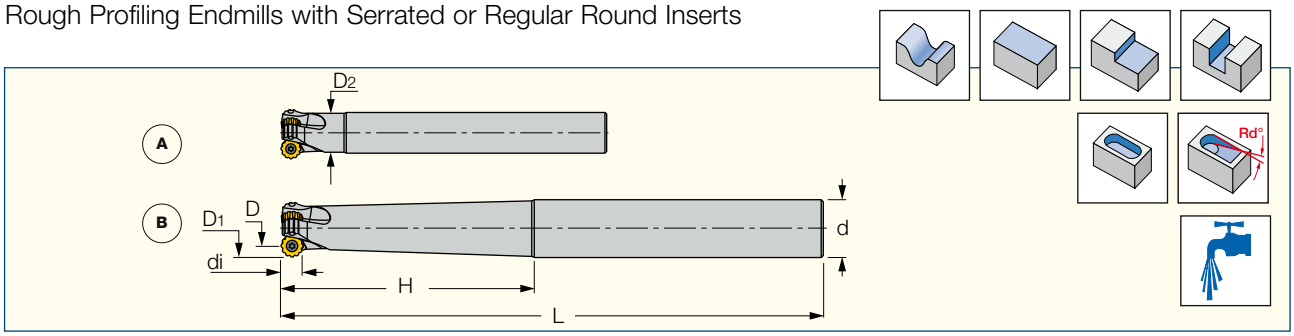
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Seat	Seat Screw	Seat Key	Shell Locking Screw
FRCM D50-22-CP12	SR 14-544/S	BLD T15/M7	SW6-T				SR M10X25DIN912
FRCM D52-22-CP12	SR 14-544/S	BLD T15/M7	SW6-T				SR M10X25DIN912
FRCM D63-22-CP12	SR 14-544	BLD T15/M7	SW6-T	TRX 12R	SR 14-560	T-8/51	SR M10X25DIN912
FRCM D66-27-CP12	SR 14-544/S	BLD T15/M7	SW6-T				
FRCM D80-27-CP12	SR 14-544	BLD T15/M7	SW6-T	TRX 12R	SR 14-560	T-8/51	

MILLSHRED
ROUND LINE

ERW

Rough Profiling Endmills with Serrated or Regular Round Inserts



Designation	D_1	D	di	Z	H	L	d	Shank(1)	D_2	R_d°	Type	Inserts
ERW D013A025-B-2-C25-12	25.0	13.00	12.00	2	50.0	180.00	25.00	C	-	2.0	B	RCMT 1206...
ERW D020A032-A-3-C25-12	32.0	20.00	12.00	3	40.0	200.00	25.00	C	24.00	7.0	A	RCCW 1206...
ERW D020A032-B-3-C32-12	32.0	20.00	12.00	3	140.0	300.00	32.00	C	-	7.0	B	RCCT 1206...
ERW D028A040-A-4-C32-12	40.0	28.00	12.00	4	50.0	250.00	32.00	C	31.00	5.0	A	

• For user guide, see pages E59-64.

(1) C-Cylindrical

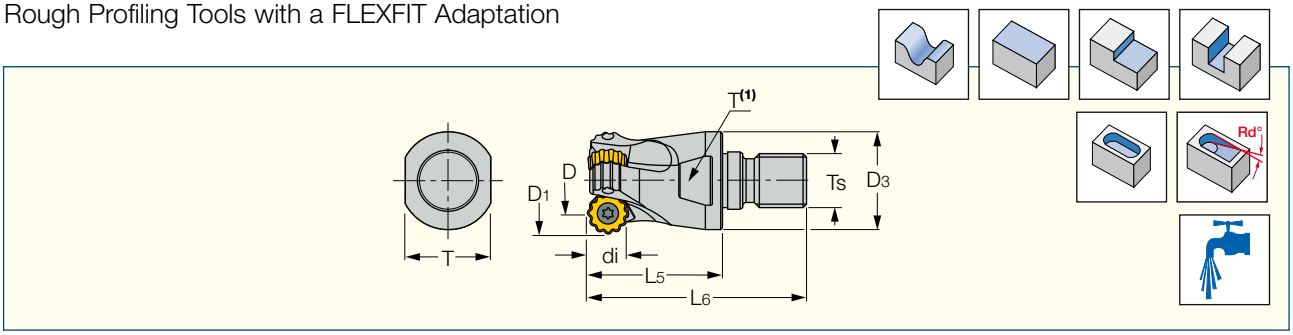
For inserts, see pages: RCMT/RCMW/RCCW-FW (K94) • RCMW/RCCW-MO (K93).

Spare Parts

Designation	Screw	T-Handle	Torx Blade
ERW	SR 14-601	SW6-T	BLD T15/S7

ERW-M

Rough Profiling Tools with a FLEXFIT Adaptation



Designation	D_1	D	di	Z	D_3	L_6	L_5	$T^{(1)}$	Ts	R_d°	Kg
ERW D013A025-2-M12-12	25.0	13.00	12.00	2	21.00	57.00	35.00	17.0	M12	2.0	0.07
ERW D020A032-3-M16-12	32.0	20.00	12.00	3	29.00	65.00	40.00	25.0	M16	7.0	0.47
ERW D028A040-4-M16-12	40.0	28.00	12.00	4	29.00	65.00	40.00	25.0	M16	5.0	0.19

• For user guide, see pages B45, E59-64.

(1) Clamping wrench size

For inserts, see pages: RCMT/RCMW/RCCW-FW (K94) • RCMW/RCCW-MO (K93).

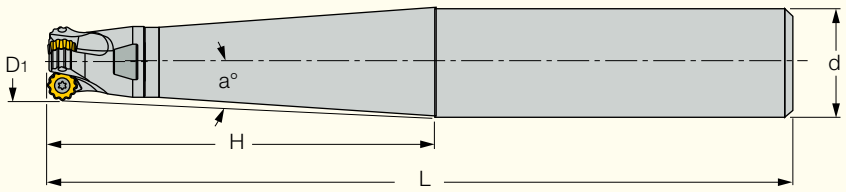
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

Designation	Screw	T-Handle	Torx Blade
ERW-M	SR 14-601	SW6-T	BLD T15/S7

ERW-M

Assembly of Button and Shredding Insert Endmills with FLEXFIT Connection

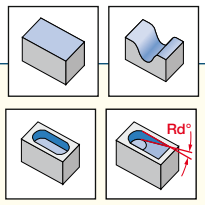


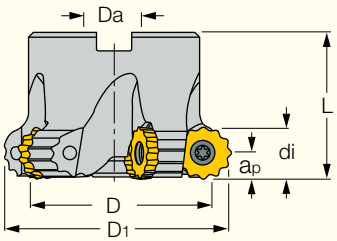
Milling Head	Adapter	Shank	Assembly Dimensions					
		D_1	H	L	a°	d	Rd°	Inserts
ERW D013A025-2-M12-12	S M12-L086-C25	25	70	126	-	25	2	RCMT 1206... RCCW 1206... RCCT 1206...
	S M12-L200-C32	25	118	240	1.8	32	2	
ERW D020A032-3-M16-12	S M16-L95-C32	32	75	85	-	32	7	
	S M16-L230-C32	32	90	220	-	32	7	
ERW D028A040-4-M16-12	S M16-L95-C32	40	75	85	-	32	5	
	S M16-L230-C32	40	90	220	-	32	5	

MILLSHRED
ROUND LINE

FRW

Rough Profiling Face Mills with Serrated or Regular Round Inserts





Designation	D_1	D	di	Z	L	Da	R_d°	a_p	Coolant	Arbor(1)	Kg	Insert
FRW D028A040-04-16-12	40.0	28.00	12.00	4	40.00	16.00	6.5	6.00	Y	A	0.15	RCMT/RCCW/RCCT 12
FRW D038A050-05-22-12	50.0	38.00	12.00	5	45.00	22.00	5.0	6.00	Y	A	0.29	RCMT/RCCW/RCCT 12
FRW D040A052-05-22-12	52.0	40.00	12.00	5	45.00	22.00	5.0	6.00	Y	A	0.31	RCMT/RCCW/RCCT 12
FRW D051A063-06-22-12	63.0	51.00	12.00	6	45.00	22.00	4.0	6.00	Y	A	0.46	RCMT/RCCW/RCCT 12
FRW D054A066-06-27-12	66.0	54.00	12.00	6	50.00	27.00	4.0	6.00	Y	A	0.69	RCMT/RCCW/RCCT 12
FRW D068A080-07-27-12	80.0	68.00	12.00	7	50.00	27.00	3.0	6.00	-	B	0.71	RCMT/RCCW/RCCT 12
FRW D034A050-04-22-16	50.0	34.00	16.00	4	54.00	22.00	11.0	8.00	Y	A	0.26	RCMT/RCCW/RCMW 16
FRW D036A052-04-22-16	52.0	36.00	16.00	4	50.00	22.00	10.0	8.00	Y	A	0.26	RCMT/RCCW/RCMW 16
FRW D047A063-05-22-16	63.0	47.00	16.00	5	45.00	22.00	7.0	8.00	Y	A	0.41	RCMT/RCCW/RCMW 16
FRW D050A066-05-22-16	66.0	50.00	16.00	5	45.00	22.00	6.0	8.00	Y	A	0.58	RCMT/RCCW/RCMW 16
FRW D050A066-05-27-16	66.0	50.00	16.00	5	50.00	27.00	6.0	8.00	Y	A	0.63	RCMT/RCCW/RCMW 16
FRW D064A080-06-27-16	80.0	64.00	16.00	6	50.00	27.00	5.0	8.00	-	B	0.65	RCMT/RCCW/RCMW 16
FRW D084A100-07-32-16	100.0	84.00	16.00	7	50.00	32.00	4.0	8.00	-	B	1.11	RCMT/RCCW/RCMW 16
FRW D109A125-07-40-16	125.0	109.00	16.00	7	63.00	40.00	3.0	8.00	-	B	2.34	RCMT/RCCW/RCMW 16
FRW D060A080-05-27-20	80.0	60.00	20.00	5	50.00	27.00	7.0	10.00	-	B	0.61	RCMT/RCMW 20
FRW D080A100-06-32-20	100.0	80.00	20.00	6	50.00	32.00	5.0	10.00	-	B	0.97	RCMT/RCMW 20
FRW D105A125-07-40-20	125.0	105.00	20.00	7	63.00	40.00	4.0	10.00	-	B	2.23	RCMT/RCMW 20
FRW D140A160-08-40-20	160.0	140.00	20.00	8	63.00	40.00	3.0	10.00	-	C	4.02	RCMT/RCMW 20

• For user guide, see pages E59-64.

(1) For adaptation see page L14.

For inserts, see pages: RCMT/RCCT-MO (K93) • RCMT/RCMW/RCCW-FW (K94) • RCMW/RCCW-MO (K93).

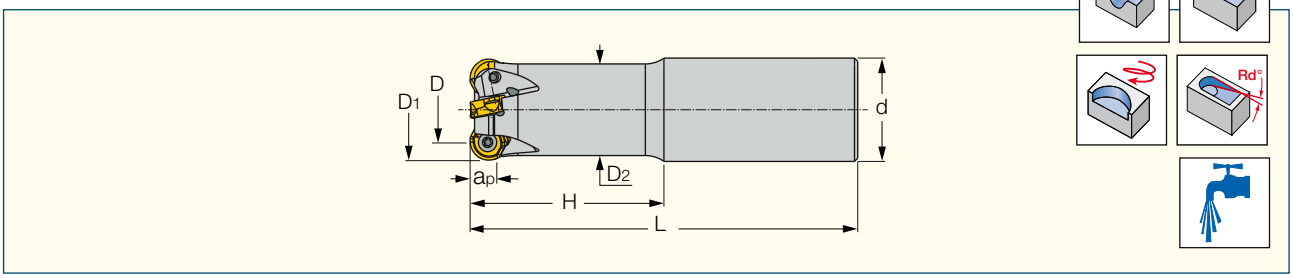
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
FRW D028A040-04-16-12	SR 14-601	BLD T15/S7	SW6-T	SR M8X25DIN912
FRW D038A050-05-22-12	SR 14-601	BLD T15/S7	SW6-T	SR M10X25DIN912
FRW D040A052-05-22-12	SR 14-601	BLD T15/M7	SW6-T	SR M10X25DIN912
FRW D051A063-06-22-12	SR 14-601	BLD T15/M7	SW6-T	SR M10X25DIN912
FRW D054A066-06-27-12	SR 14-601	BLD T15/M7	SW6-T	
FRW D068A080-07-27-12	SR 14-601	BLD T15/M7	SW6-T	
FRW D034A050-04-22-16	SR 14-536/M	BLD T20/M7	SW6-T	SR M10X30
FRW D036A052-04-22-16	SR 14-536/M	BLD T20/M7	SW6-T	SR M10X30
FRW D047A063-05-22-16	SR 14-536/M	BLD T20/M7	SW6-T	SR M10X25DIN912
FRW D050A066-05-22-16	SR 14-536/M	BLD T20/M7	SW6-T	SR M10X25DIN912
FRW D050A066-05-27-16	SR 14-536/M	BLD T20/M7	SW6-T	SR M12X30DIN912
FRW D064A080-06-27-16	SR 14-536/M	BLD T20/M7	SW6-T	
FRW D084A100-07-32-16	SR 14-536/M	BLD T20/M7	SW6-T	
FRW D109A125-07-40-16	SR 14-536/M	BLD T20/L7	SW6-T	
FRW D060A080-05-27-20	SR 14-2120	BLD IP25/M7(1)	SW6-T	
FRW D080A100-06-32-20	SR 14-2120	BLD IP25/M7(1)	SW6-T	
FRW D105A125-07-40-20	SR 14-2120	BLD IP25/L7(1)	SW6-T	
FRW D140A160-08-40-20	SR 14-2120	BLD IP25/L7(1)	SW6-T	

(1) Torx Plus

H400 ER-10

Endmills Carrying Double-Sided Inserts with Four 5 mm Radius Cutting Edges



Designation	D_1	D	D_2	Z	a_p	H	L	d	Shank(1)	R_d°	Kg	Insert
H400 ER D20-2-060-C20-10	20.0	10.00	17.50	2	7.50	60.0	160.00	20.00	C	-	0.33	H400 RNHU 1004
H400 ER D25-3-060-C25-10	25.0	15.00	21.60	3	7.50	60.0	120.00	25.00	C	5.8	0.35	H400 RNHU 1004
H400 ER D32-5-060-C32-10	32.0	22.00	29.60	5	7.50	60.0	120.00	32.00	C	3.8	0.59	H400 RNHU 1004

(1) C-Cylindrical

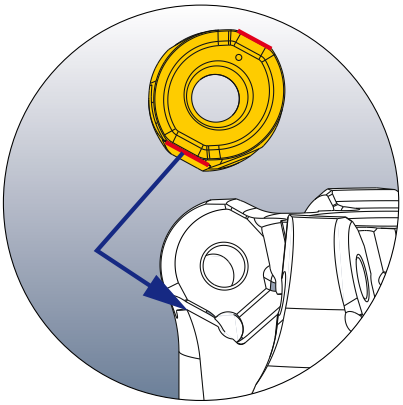
For adaptation see L13

For inserts, see pages: H400 RNHU (K96).

Spare Parts

Designation	Screw	Key
H400 ER-10	SR 10508600	T-9/51

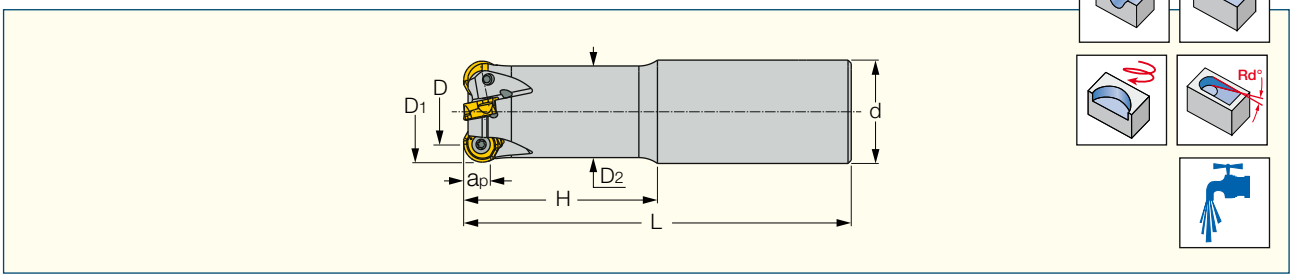
Insert Clamping Orientation



HELIDO
ROUND H400 LINE

H400 ER-12

Endmills Carrying Double-Sided Inserts with Four 6 mm Radius Cutting Edges



Designation	D_1	D	D_2	Z	a_p	H	L	d	Shank(1)	R_d°	Kg	Insert
H400 ER D25-2-060-C25-12	25.0	13.00	21.60	2	8.70	60.0	120.00	25.00	C	5.6	0.20	H400 RNHU 1205
H400 ER D32-4-060-C32-12	32.0	20.00	28.40	4	8.70	60.0	120.00	32.00	C	5.6	0.58	H400 RNHU 1205
H400 ER D40-5-060-C32-12	40.0	28.00	31.50	5	8.70	60.0	150.00	32.00	C	3.7	0.89	H400 RNHU 1205

(1) C-Cylindrical

For adaptation see L13

For inserts, see pages: H400 RNHU (K96).

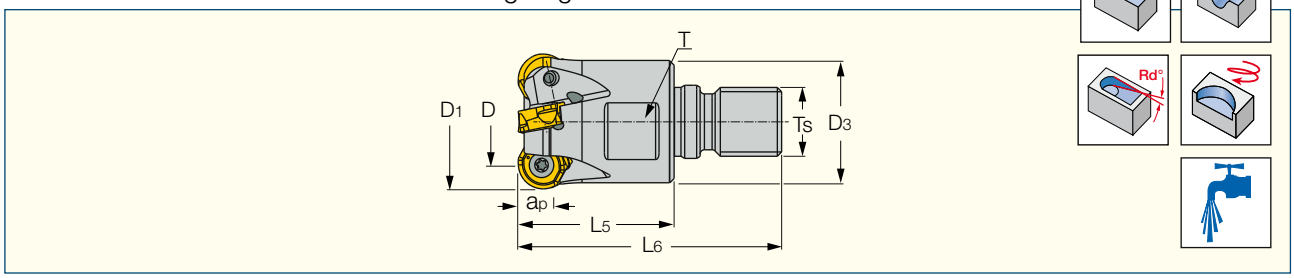
Spare Parts

Designation	Screw	Key
H400 ER-12	SR 14-571	T-10/51

HELIDO • FLEXFIT
ROUND H400 LINE

H400 ER-M

Endmills with FLEXFIT Threaded Connection, Carrying Double-Sided Inserts with Four Radii Cutting Edges



Designation	D_1	D	D_3	Z	a_p	L_5	L_6	T(1)	R_d°	Ts	Kg	Insert
H400 ER D20-2-M10-10	20.0	10.00	16.60	2	7.50	25.00	45.00	15.0	-	M10	0.04	H400 RNHU 1004
H400 ER D25-3-M12-10	25.0	15.00	21.00	3	7.50	28.00	50.00	19.0	5.8	M12	0.07	H400 RNHU 1004
H400 ER D32-5-M16-10	32.0	22.00	29.60	5	7.50	35.00	60.00	25.0	3.8	M16	0.17	H400 RNHU 1004
H400 ER D25-2-M12-12	25.0	13.00	21.60	2	8.70	28.00	50.00	19.0	5.6	M12	0.07	H400 RNHU 1205
H400 ER D32-4-M16-12	32.0	20.00	28.40	4	8.70	35.00	60.00	25.0	5.6	M16	0.15	H400 RNHU 1205
H400 ER D40-5-M16-12	40.0	28.00	29.00	5	8.70	35.00	60.00	25.0	3.7	M16	0.27	H400 RNHU 1205

(1) Clamping wrench size

For inserts, see pages: H400 RNHU (K96).

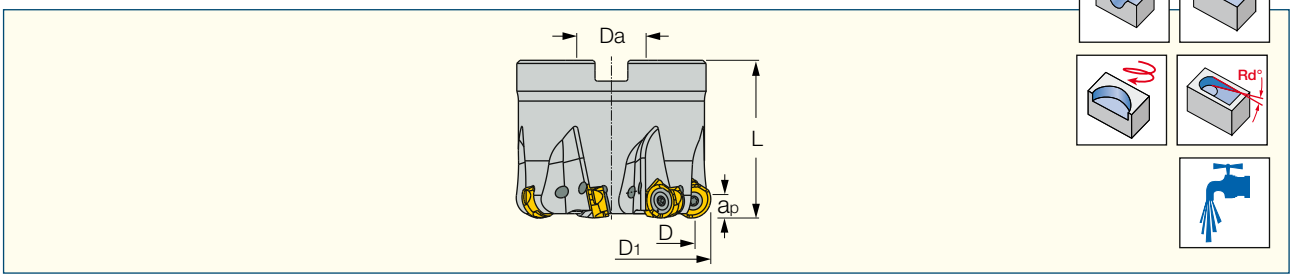
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

Designation	Screw	Key
H400 ER D20-2-M10-10	SR 10508600	T-9/51
H400 ER D25-3-M12-10	SR 10508600	T-9/51
H400 ER D32-5-M16-10	SR 10508600	T-9/51
H400 ER D25-2-M12-12	SR 14-571	T-10/51
H400 ER D32-4-M16-12	SR 14-571	T-10/51
H400 ER D40-5-M16-12	SR 14-571	T-10/51

H400 FR-10

Face Mills Carrying Double-Sided Inserts with Four 5 mm Radius Cutting Edges



Designation	D1	D	Z	ap	L	Da	Rd°	Arbor(1)	Kg	Insert
H400 FR D040-06-16-10	40.0	30.00	6	7.50	35.00	16.00	2.6	A	0.18	H400 RNHU 1004
H400 FR D050-07-22-10	50.0	40.00	7	7.50	40.00	22.00	1.9	A	0.33	H400 RNHU 1004

(1) For adaptation see page L14.

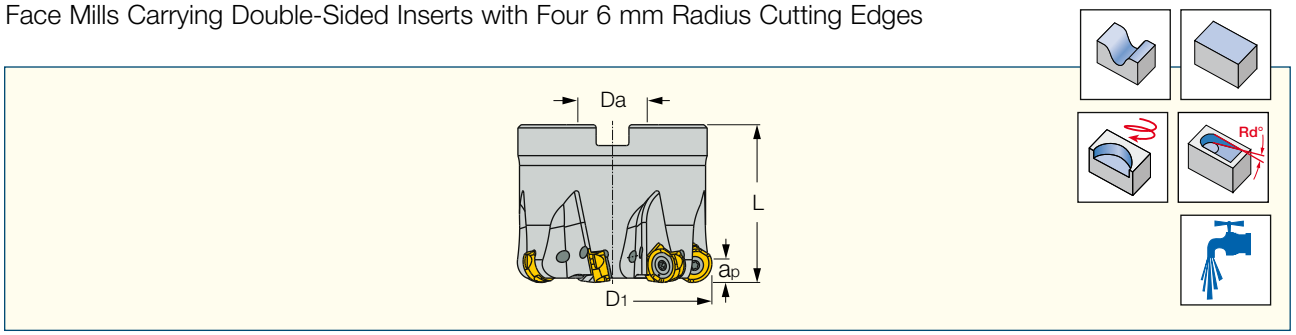
For inserts, see pages: H400 RNHU (K96).

Spare Parts

Designation	Screw	Key	Shell Locking Screw
H400 FR D040-06-16-10	SR 10508600	T-9/51	SR M8X25DIN912
H400 FR D050-07-22-10	SR 10508600	T-9/51	SR M10X25DIN912

H400 FR-12

Face Mills Carrying Double-Sided Inserts with Four 6 mm Radius Cutting Edges



Designation	D1	D	Z	ap	L	Da	Rd°	Arbor(1)	Kg	Insert
H400 FR D040-05-16-12	40.0	28.00	5	8.70	40.00	16.00	3.7	A	0.20	H400 RNHU 1205
H400 FR D050-06-22-12	50.0	38.00	6	8.70	50.00	22.00	2.6	A	0.40	H400 RNHU 1205
H400 FR D052-06-22-12	52.0	40.00	6	8.70	50.00	22.00	2.5	A	0.42	H400 RNHU 1205
H400 FR D063-07-22-12	63.0	51.00	7	8.70	50.00	22.00	1.9	A	0.62	H400 RNHU 1205
H400 FR D066-07-27-12	66.0	54.00	7	8.70	50.00	27.00	1.8	A	0.78	H400 RNHU 1205
H400 FR D080-08-27-12	80.0	68.00	8	8.70	50.00	27.00	1.5	A	1.05	H400 RNHU 1205

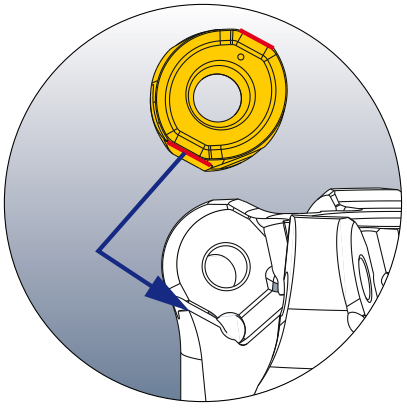
(1) For adaptation see page L14

For inserts, see page: H400 RNHU (K96).

Spare Parts

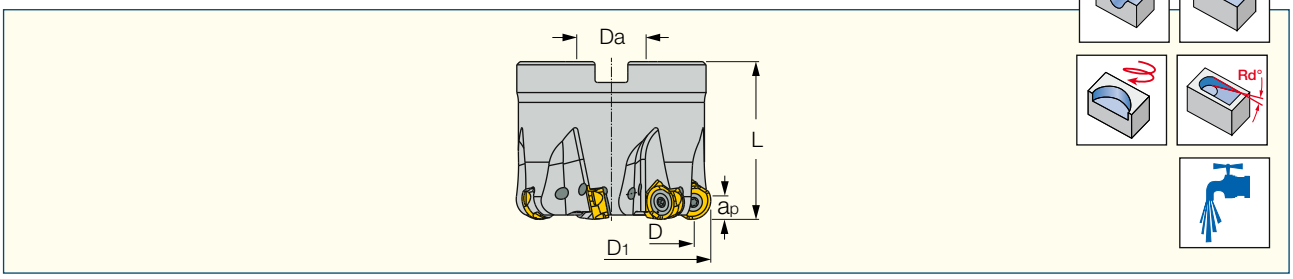
Designation	Screw	Key	Shell Locking Screw
H400 FR D040-05-16-12	SR 14-571	T-10/51	SR M8X25DIN912
H400 FR D050-06-22-12	SR 14-571	T-10/51	SR M10X25DIN912
H400 FR D052-06-22-12	SR 14-571	T-10/51	SR M10X25DIN912
H400 FR D063-07-22-12	SR 14-571	T-10/51	SR M10X25DIN912
H400 FR D066-07-27-12	SR 14-571	T-10/51	SR M12X30DIN912
H400 FR D080-08-27-12	SR 14-571	T-10/51	SR M12X30DIN912

Insert Clamping Orientation



H400 FR-16

Face Mills Carrying Double-Sided Inserts with Four 8 mm Radius Cutting Edges

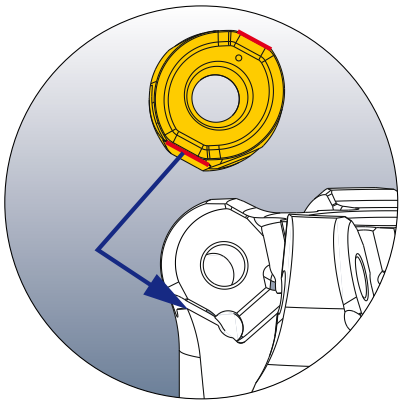


Designation	D_1	D	Z	a_p	L	Da	R_d°	Arbor(1)	Kg	Insert
H400 FR D050-05-22-16	50.0	34.00	5	12.00	50.00	22.00	3.3	A	0.42	H400 RNHU 1606
H400 FR D063-06-22-16	63.0	47.00	6	12.00	50.00	22.00	2.5	A	0.74	H400 RNHU 1606
H400 FR D066-06-27-16	66.0	50.00	6	12.00	50.00	27.00	2.3	A	0.80	H400 RNHU 1606
H400 FR D080-07-27-16	80.0	64.00	7	12.00	50.00	27.00	1.8	A	0.92	H400 RNHU 1606
H400 FR D100-09-32-16	100.0	84.00	9	12.00	49.60	32.00	1.3	A	0.10	H400 RNHU 1606
H400 FR D125-11-40-16	125.0	109.00	11	12.00	55.00	40.00	1.0	A	3.08	H400 RNHU 1606

(1) For adaptation see page L14.

For inserts, see page: H400 RNHU (K96).

Insert Clamping Orientation

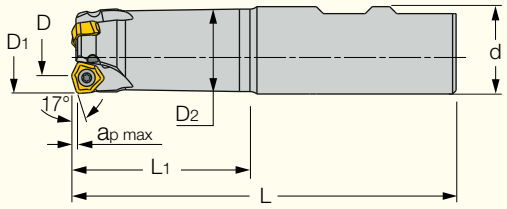


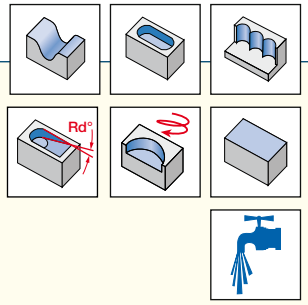
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
H400 FR D050-05-22-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M10X25DIN912
H400 FR D063-06-22-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M10X25DIN912
H400 FR D066-06-27-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M12X30DIN912
H400 FR D080-07-27-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M12X30DIN912
H400 FR D100-09-32-16	SR 14-591/H	BLD T20/M7	SW6-T	
H400 FR D125-11-40-16	SR 14-591/H	BLD T20/M7	SW6-T	

FF EWX-04

Fast Feed Endmills Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D_1	D	Z	L_1	L	$a_{p\ max}$	d	D_2	Shank(1)	R_d°	Kg
FF EWX D16-2-030-C16-04	16.0	8.60	2	30.0	113.00	0.80	16.00	14.90	C	5.0	0.28
FF EWX D16-2-030-W16-04	16.0	8.60	2	30.0	81.00	0.80	16.00	14.90	W	5.0	0.19
FF EWX D16-2-050-W20-04	16.0	8.60	2	50.0	109.00	0.80	20.00	14.90	W	5.0	0.19
FF EWX D16-2-070-C20-04	16.0	8.60	2	70.0	159.00	0.80	20.00	14.90	C	5.0	0.28
FF EWX D16-2-080-W20-04	16.0	8.60	2	80.0	139.00	0.80	20.00	14.90	W	5.0	0.22
FF EWX D20-3-040-W20-04	20.0	12.60	3	40.0	93.00	0.80	20.00	18.90	W	4.8	0.19
FF EWX D20-3-050-C20-04	20.0	12.60	3	50.0	133.00	0.80	20.00	18.90	C	4.8	0.28
FF EWX D20-3-060-W20-04	20.0	12.60	3	60.0	113.00	0.80	20.00	18.90	W	4.8	0.23
FF EWX D20-3-100-C20-04	20.0	12.60	3	100.0	183.00	0.80	20.00	18.90	C	4.8	0.28
FF EWX D20-3-100-W20-04	20.0	12.60	3	100.0	153.00	0.80	20.00	18.90	W	4.8	0.33

• Insert radius for programming r=1.9 mm • For user guide see pages E57-58

(1) C-Cylindrical, W-Weldon

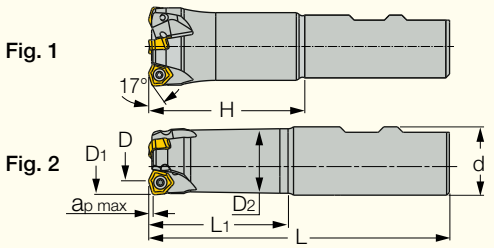
For inserts, see page: H600 WXCU 04 (K88).

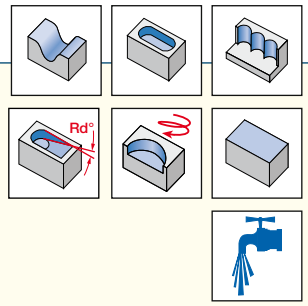
Spare Parts

Designation	Screw	Key
FF EWX-04	SR M2.5X6-T7-60	T-7/51

FF EWX-05

Fast Feed Endmills, Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D_1	D	Z	L_1	H	L	$a_{p\ max}$	d	Shank(1)	R_d°	Fig	Kg
FF EWX D25-3-050-W25-05	25.0	15.00	3	50.0	53.00	110.00	1.00	25.00	W	5.0	2	0.34
FF EWX D25-3-060-C25-05	25.0	15.00	3	60.0	63.00	145.00	1.00	25.00	C	5.0	2	0.47
FF EWX D25-3-080-W25-05	25.0	15.00	3	80.0	83.00	140.00	1.00	25.00	W	5.0	2	0.44
FF EWX D25-3-120-C25-05	25.0	15.00	3	120.0	123.00	205.00	1.00	25.00	C	5.0	2	0.65
FF EWX D25-3-120-W25-05	25.0	15.00	3	120.0	123.00	180.00	1.00	25.00	W	5.0	2	0.56
FF EWX D32-4-040-C25-05	32.0	22.00	4	-	40.00	180.00	1.00	25.00	C	4.0	1	0.63
FF EWX D32-4-060-W25-05	32.0	22.00	4	60.0	63.00	120.00	1.00	25.00	W	4.0	1	0.44
FF EWX D32-4-060-W32-05	32.0	22.00	4	-	63.00	125.00	1.00	32.00	W	4.0	2	0.64
FF EWX D32-4-070-C32-05	32.0	22.00	4	70.0	73.00	155.00	1.00	32.00	C	4.0	2	0.81
FF EWX D32-4-100-W25-05	32.0	22.00	4	-	100.00	160.00	1.00	25.00	W	4.0	1	0.60
FF EWX D32-4-100-W32-05	32.0	22.00	4	100.0	103.00	165.00	1.00	32.00	W	4.0	2	0.84
FF EWX D32-4-120-C32-05	32.0	22.00	4	120.0	123.00	205.00	1.00	32.00	C	4.0	2	1.05
FF EWX D32-4-150-W32-05	32.0	22.00	4	150.0	153.00	215.00	1.00	32.00	W	4.0	2	1.09
FF EWX D40-5-E50-C32-05	40.0	30.00	5	-	50.00	300.00	1.00	32.00	C	2.8	1	1.00
FF EWX D40-5-L50-C32-05	40.0	30.00	5	-	50.00	250.00	1.00	32.00	C	2.8	1	1.40
FF EWX D40-5-S50-C32-05	40.0	30.00	5	-	50.00	150.00	1.00	32.00	C	2.8	1	0.85
FF EWX D40-5-060-W32-05	40.0	30.00	5	-	60.00	125.00	1.00	32.00	W	2.8	1	0.72
FF EWX D40-5-200-W40-05	40.0	30.00	5	200.0	203.00	275.00	1.00	40.00	W	2.8	2	0.50

• apmax=1 mm; fzmax=1 mm/t; r=2.3 mm for programming • For user guide see pages E57-58

(1) C-Cylindrical, W-Weldon

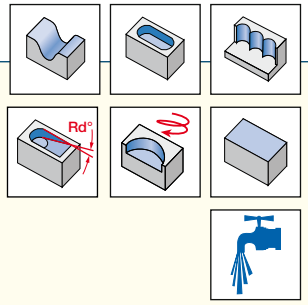
For inserts, see page: H600 WXCU 05 (K88).

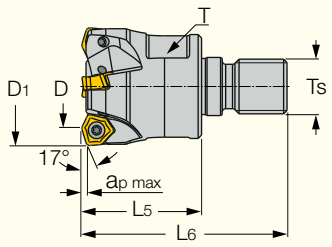
Spare Parts

Designation	Screw	Key
FF EWX-05	SR 10508600	T-9/51

FF EWX-M-04

Fast Feed Endmills with FLEXFIT Threaded Connection, Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D_1	D	Z	$a_{p\ max}$	L_5	L_6	Ts	R_d°	Kg	T(1)
FF EWX D20-3-M10-04	20.0	12.60	3	0.80	25.00	45.00	M10	4.8	0.05	15.0
FF EWX D25-4-M12-04	25.0	17.60	4	0.80	30.00	52.00	M12	3.3	0.09	19.0

• Insert radius for programming r=1.9 mm • For user guide see pages E57-58

(1) Clamping wrench size

For inserts, see page: H600 WXCU 04 (K88).

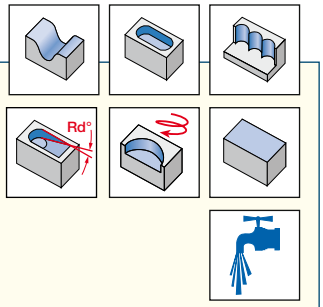
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

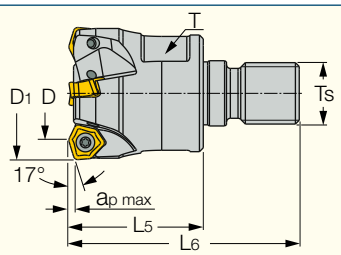
Spare Parts

Designation	Screw	Key
FF EWX-M-04	SR M2.5X6-T7-60	T-7/51

FF EWX-M-05

Fast Feed Endmills with FLEXFIT Threaded Connection, Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D_1	D	Z	$a_{p\ max}$	L_5	L_6	Ts	R_d°	Kg	T(1)
FF EWX D25-3-M12-05	25.0	15.00	3	1.00	30.00	52.00	M12	5.0	0.09	19.0
FF EWX D32-4-M16-05	32.0	22.00	4	1.00	35.00	60.00	M16	4.0	0.17	25.0
FF EWX D35-4-M16-05	35.0	25.00	4	1.00	35.00	60.00	M16	3.5	0.19	25.0
FF EWX D40-5-M16-05	40.0	30.00	5	1.00	40.00	65.00	M16	2.8	0.26	25.0

• apmax=1 mm; fzmax=1 mm/t; r=2.3 mm for programming • For user guide see pages E57-58

(1) Clamping wrench size

For inserts, see page: H600 WXCU 05 (K88).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

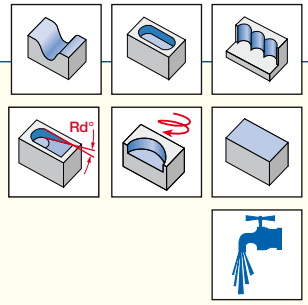
Spare Parts

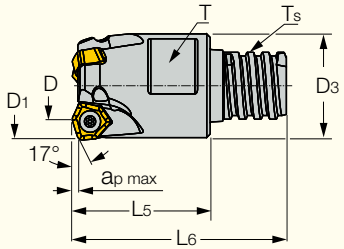
Designation	Screw	Key
FF EWX-M-05	SR 10508600	T-9/51

HELIDO • MULTI-MASTER
600 UPFEED LINE — INDEXABLE SOLID CARBIDE LINE

FF EWX-MM-04

Fast Feed Endmills with MULTI-MASTER Threaded Connection,
Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D_1	D	Z	D_3	Ts	L_5	L_6	T(1)	$a_{p\ max}$	R_d°	Kg
FF EWX D16-2-MMT10-04	16.0	8.60	2	15.20	T10	19.50	31.25	12.0	0.80	5.0	0.02
FF EWX D20-3-MMT12-04	20.0	12.60	3	18.80	T12	25.00	38.80	15.0	0.80	4.8	0.05

• Insert radius for programming r=1.9 mm • For user guide see pages: B45, E57-58

(1) Clamping wrench size (should be ordered separately).

For inserts, see page: H600 WXCU 04 (K88).

For holders, see pages: MM S-A (Stepped Shanks) (B68) • MM S-A (Straight Shanks) (B70) • MM S-B (85° Conical Shanks) (B70) • MM S-D (89° Conical Shanks) (B71) • MM S-ER (B74) • MM S-ER-H (B74) • MM TS-A (B69) • TS CAB (B72).

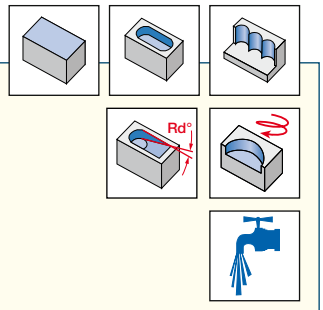
Spare Parts

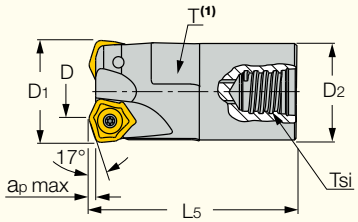
Designation	Screw	Key
FF EWX-MM-04	SR M2.5X6-T7-60	T-7/51

HELIDO • SHANKMASTER
600 UPFEED LINE

TS FF EWX

Fast Feed Milling Heads, Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D_1	D	Z	D_2	L_5	T(1)	Tsi	$a_{p\ max}$	Kg	R_d°
TS FF EWX D16-2-T10-04	16.0	8.60	2	15.20	32.00	12.0	T10	0.80	0.03	5.0
TS FF EWX D20-3-T12-04	20.0	12.60	3	18.50	40.00	15.0	T12	0.80	0.01	4.8

(1) Clamping wrench size

• For user guide see pages E57-58

For inserts, see page: H600 WXCU 04 (K88).

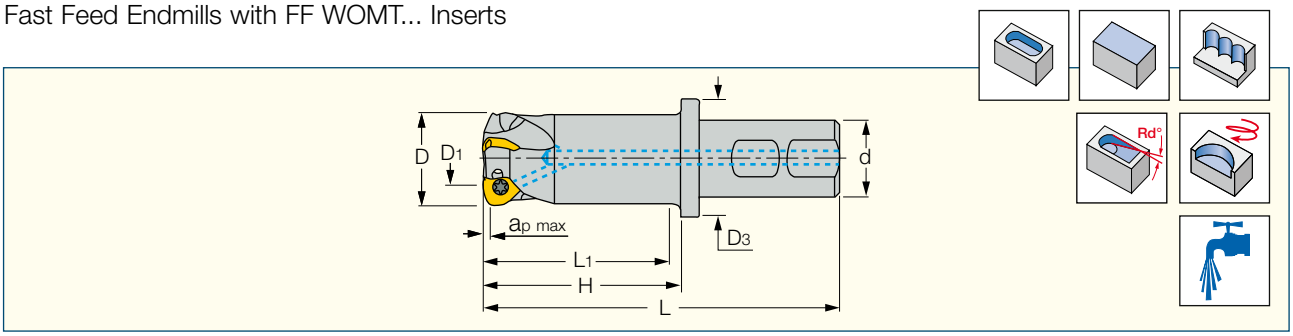
For holders, see page: TS S-A (B72).

Spare Parts

Designation	Screw	Key
TS FF EWX	SR M2.5X6-T7-60	T-7/51

FF EW

Fast Feed Endmills with FF WOMT... Inserts



Designation	D_1	$a_{p\ max}$	D	Z	H	L_1	L	D_3	d	Shank(1)	R_d°	Nxcm	Kg	Insert
FF EW D25-050-W25-06-C	25.0	1.50	11.00	2	53.00	-	118.00	-	25.00	W	5.0	200	0.37	FF WO.. 06
FF EW D25-080-C24-06-C	25.0	1.50	11.00	2	81.40	-	180.00	-	24.00	C	5.0	200	0.61	FF WO.. 06
FF EW D25-080-C25-06-C	25.0	1.50	11.00	2	83.00	-	180.00	-	25.00	C	5.0	200	0.64	FF WO.. 06
FF EW D25-080-W25-06-C	25.0	1.50	11.00	2	83.00	-	148.00	-	25.00	W	5.0	200	0.46	FF WO.. 06
FF EW D25-120-C24-06-C	25.0	1.50	11.00	2	121.40	-	220.00	-	24.00	C	5.0	200	0.75	FF WO.. 06
FF EW D32-060-W25-06-C	32.0	1.50	18.00	3	63.00	-	128.00	30.40	25.00	W	4.0	200	0.59	FF WO.. 06
FF EW D32-100-C32-06-C	32.0	1.50	18.00	3	103.00	-	230.00	-	32.00	C	4.0	200	1.38	FF WO.. 06
FF EW D32-100-W25-06-C	32.0	1.50	18.00	3	103.00	-	168.00	30.40	25.00	W	4.0	200	0.73	FF WO.. 06
FF EW D40-100-W32-09-C	40.0	2.00	19.20	3	100.00	97.0	167.50	50.00	32.00	W	5.0	500	1.25	FF WO.. 09
FF EW D40-150-W32-09-C	40.0	2.00	19.20	3	150.00	147.0	217.50	50.00	32.00	W	5.0	500	1.20	FF WO.. 09
FF EW D40-200-W32-09-C	40.0	2.00	19.20	3	200.00	197.0	267.50	50.00	32.00	W	5.0	500	2.01	FF WO.. 09

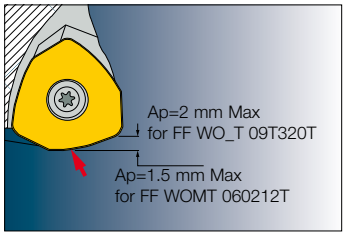
• For adaptation see page L12 • For user guide, see pages E57-58.

(1) C-Cylindrical, W-Weldon

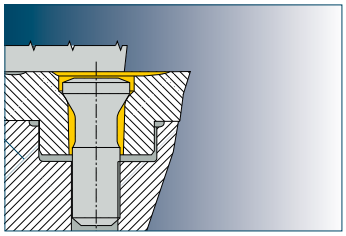
For inserts, see pages: FF WOMT/WOCT (K86) • FF WOMW (K86).

Spare Parts

Designation	Screw	Key	Torx Blade	T-Handle
FF EW D25-050-W25-06-C	SR 34-506/M	T-9/51		
FF EW D25-080-C24-06-C	SR 34-506/M	T-9/51		
FF EW D25-080-C25-06-C	SR 34-506/M	T-9/51		
FF EW D25-080-W25-06-C	SR 34-506/M	T-9/51		
FF EW D25-120-C24-06-C	SR 34-506/M	T-9/51		
FF EW D32-060-W25-06-C	SR 34-506/M	T-9/51		
FF EW D32-100-C32-06-C	SR 34-506/M	T-9/51		
FF EW D32-100-W25-06-C	SR 34-506/M	T-9/51		
FF EW D40-100-W32-09-C	SR 34-535		BLD T15/S7	SW6-T
FF EW D40-150-W32-09-C	SR 34-535		BLD T15/S7	SW6-T
FF EW D40-200-W32-09-C	SR 34-535		BLD T15/S7	SW6-T



Cutting forces are directed axially towards the spindle, enabling cutting at very high feeds with high stability and no vibrations.

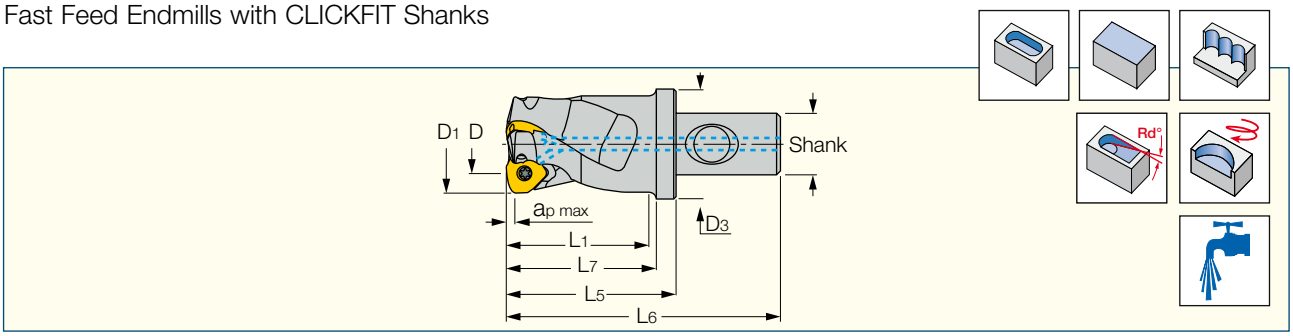


A cylinder at the bottom of the insert provides very rigid clamping, absorbing most of the forces usually exerted on the clamping screw.

FEEDMILL • CLICKFIT

FF EW-CF

Fast Feed Endmills with CLICKFIT Shanks



Designation	D_1	$a_{p\ max}$	D	Z	L_1	L_7	L_5	L_6	D_3	R_d°	Shank	Nxcm	Kg	Insert
FF EW D25-050-CF4-06-C	25.0	1.50	11.00	2	50.0	54.00	62.00	104.00	44.00	5.0	CF4	200	0.38	FF WO.. 06
FF EW D25-080-CF4-06-C	25.0	1.50	11.00	2	80.0	84.00	92.00	134.00	44.00	5.0	CF4	200	0.54	FF WO.. 06
FF EW D32-060-CF4-06-C	32.0	1.50	18.00	3	60.0	64.00	72.00	114.00	44.00	4.0	CF4	200	0.53	FF WO.. 06
FF EW D32-100-CF4-06-C	32.0	1.50	18.00	3	100.0	104.00	112.00	154.00	44.00	4.0	CF4	200	0.83	FF WO.. 06
FF EW D32-120-CF4-06-C	32.0	1.50	18.00	3	120.0	124.00	132.00	174.00	44.00	4.0	CF4	200	0.94	FF WO.. 06
FF EW D40-080-CF4-06-C	40.0	1.50	26.00	4	80.0	84.00	92.00	134.00	44.00	2.5	CF4	200	0.94	FF WO.. 06
FF EW D40-120-CF4-06-C	40.0	1.50	26.00	4	120.0	124.00	132.00	174.00	44.00	2.5	CF4	200	0.48	FF WO.. 06
FF EW D40-200-CF4-06-C	40.0	1.50	26.00	4	200.0	204.00	212.00	254.00	44.00	2.5	CF4	200	1.92	FF WO.. 06
FF EW D40-060-CF4-09-C	40.0	2.00	19.20	3	57.0	60.00	68.00	110.00	44.00	5.0	CF4	500	0.53	FF WO.. 09

• For user guide, see pages E57-58.

For inserts, see pages: FF WOMT/WOCT (K86) • FF WOMW (K86).

For CLICKFIT shanks, see ISCAR Tool Holding Systems catalog.

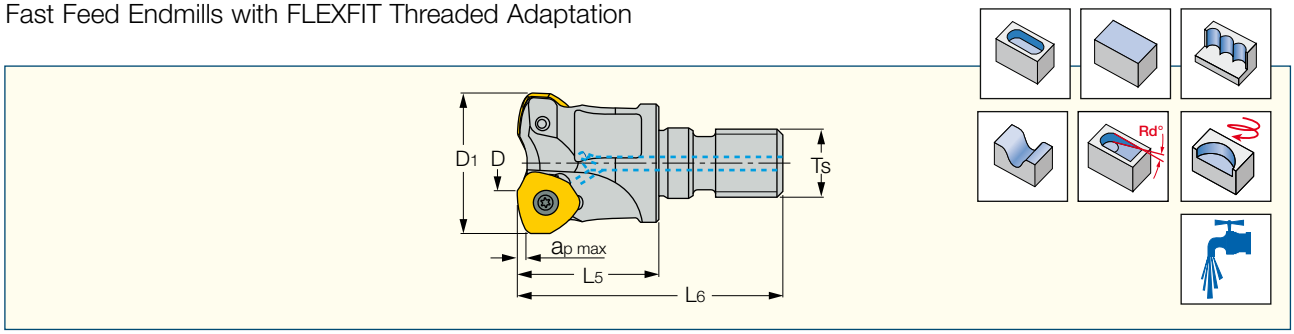
Spare Parts

Designation	Screw	Key	Torx Blade	T-Handle
FF EW D25-050-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D25-080-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D32-060-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D32-100-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D32-120-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D40-080-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D40-120-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D40-200-CF4-06-C	SR 34-506/M	T-9/51		
FF EW D40-060-CF4-09-C	SR 34-535		BLD T15/S7	SW6-T

FEEDMILL • FLEXFIT

FF EW-M

Fast Feed Endmills with FLEXFIT Threaded Adaptation



Designation	D_1	D	Z	$a_{p\ max}$	Ts	L_5	L_6	R_d°	Nxcm	Kg	Insert
FF EW D25-M12-06-C	25.0	11.00	2	1.50	M12	25.00	47.00	5.0	200	0.05	FF WO.. 06
FF EW D32-M16-06-C	32.0	18.00	3	1.50	M16	35.00	60.00	4.0	200	0.16	FF WO.. 06
FF EW D35-M16-06-C	35.0	21.00	3	1.50	M16	35.00	60.00	3.5	200	0.30	FF WO.. 06
FF EW D40-M16-06-C	40.0	26.00	4	1.50	M16	40.00	65.00	2.5	200	0.29	FF WO.. 06

• For user guide, see pages E57-58

For inserts, see pages: FF WOMT/WOCT (K86) • FF WOMW (K86).

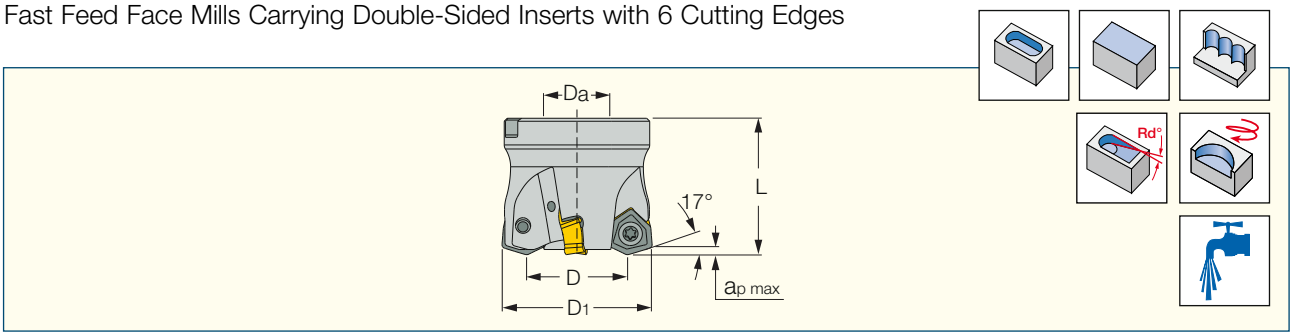
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

Designation	Screw	Key
FF EW-M	SR 34-506/M	T-9/51

FF FWX-05

Fast Feed Face Mills Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	D	D1	Z	L	ap max	Da	Arbor(1)	Rd°	Kg
FF FWX D040-05-16-05	30.10	40.0	5	35.00	1.00	16.00	A	2.8	0.19
FF FWX D050-06-22-05	40.10	50.0	6	40.00	1.00	22.00	A	2.0	0.35
FF FWX D052-06-22-05	42.10	52.0	6	40.00	1.00	22.00	A	1.9	0.83

• apmax=1 mm; fzmax=1 mm/t; r=2.3 mm for programming • For user guide see pages E57-58

(1) For adaptation see page L14

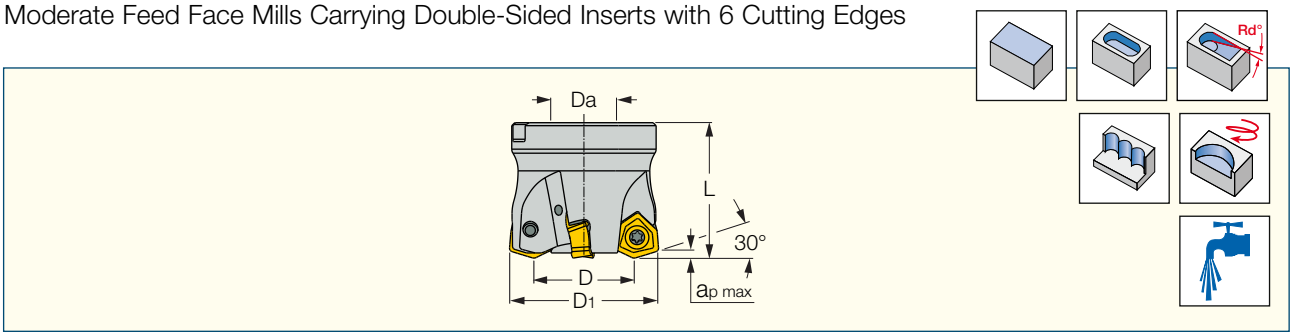
For inserts, see pages: H600 WXCU 05 (K88).

Spare Parts

Designation	Screw	Key	Shell Locking Screw
FF FWX D040-05-16-05	SR 10508600	T-9/51	SR M8X25DIN912
FF FWX D050-06-22-05	SR 10508600	T-9/51	SR M10X25DIN912
FF FWX D052-06-22-05	SR 10508600	T-9/51	SR M10X25DIN912

MF FWX-05

Moderate Feed Face Mills Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	D	D1	Z	L	ap max	Da	Arbor(1)	Rd°	Kg
MF FWX D040-05-16-05	30.60	40.0	5	35.00	2.00	16.00	A	1.4	0.17
MF FWX D050-06-22-05	40.50	50.0	6	40.00	2.00	22.00	A	1.0	0.01
MF FWX D052-06-22-05	42.50	52.0	6	40.00	2.00	22.00	A	1.0	0.01
MF FWX D063-08-22-05	53.50	63.0	8	40.00	2.00	22.00	A	0.8	0.41

• Insert radius of H600 WXCU 05T3...for programming r=3.1 mm

(1) For adaptation see page L14

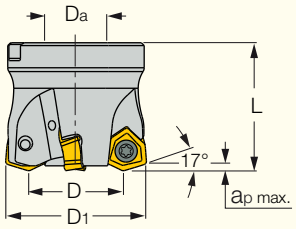
For inserts, see page: H600 WXCU 05 (K88).

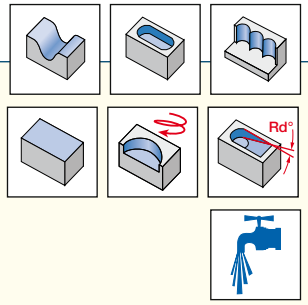
Spare Parts

Designation	Key	Screw	Screw 1
MF FWX D040-05-16-05	T-9/51	SR M8X25DIN912	SR 10508600
MF FWX D050-06-22-05	T-9/51	SR M10X25DIN912	SR 10508600
MF FWX D052-06-22-05	T-9/51	SR M10X25DIN912	SR 10508600
MF FWX D063-08-22-05	T-9/51	SR M10X25DIN912	SR 10508600

FF FWX-08

Fast Feed Face Mills Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D	D_1	Z	L	$a_{p\ max}$	Da	Arbor(1)	R_d°	Kg
FF FWX D050-04-22-08	34.00	50.0	4	45.00	2.00	22.00	A	4.8	0.34
FF FWX D052-04-22-08	36.00	52.0	4	45.00	2.00	22.00	A	4.5	0.37
FF FWX D063-05-22-08	47.00	63.0	5	45.00	2.00	22.00	A	3.3	0.61
FF FWX D063-05-27-08	47.00	63.0	5	50.00	2.00	27.00	A	3.3	0.66
FF FWX D066-05-22-08	50.00	66.0	5	45.00	2.00	22.00	A	3.1	0.85
FF FWX D066-05-27-08	50.00	66.0	5	50.00	2.00	27.00	A	3.1	0.92
FF FWX D080-06-32-08	64.00	80.0	6	55.00	2.00	32.00	A	2.3	1.25
FF FWX D100-07-32-08	84.00	100.0	7	50.00	2.00	32.00	B	1.7	1.42
FF FWX D125-09-40-08	109.00	125.0	9	55.00	2.00	40.00	B	1.3	2.35

• apmax=2 mm; fzmax=2 mm/t; r=3.3 mm for programming • For user guide see pages E57-58

(1) For adaptation see page L14

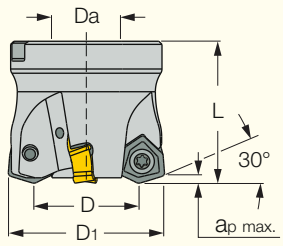
For inserts, see pages: H600 WXCU 08 (K89).

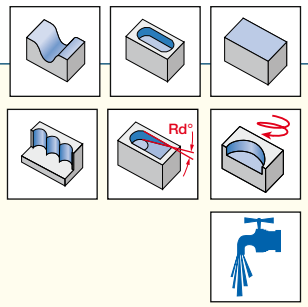
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
FF FWX D050-04-22-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25DIN912
FF FWX D052-04-22-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25DIN912
FF FWX D063-05-22-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25DIN912
FF FWX D063-05-27-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M12X30DIN912
FF FWX D066-05-22-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25DIN912
FF FWX D066-05-27-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M12X30DIN912
FF FWX D080-06-32-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M16X30
FF FWX D100-07-32-08	SR 14-591/H	BLD T20/M7	SW6-T	
FF FWX D125-09-40-08	SR 14-591/H	BLD T20/L7	SW6-T	

MF FWX-08

Moderate Feed Face Mills, Carrying Double-Sided Inserts with 6 Cutting Edges





Designation	D	D_1	Z	L	$a_{p\ max}$	Da	Arbor(1)	R_d°	Kg
MF FWX D050-04-22-08	34.70	50.0	4	45.00	3.50	22.00	A	2.5	0.32
MF FWX D063-05-27-08	47.70	63.0	5	50.00	3.50	27.00	A	1.7	0.62
MF FWX D066-05-27-08	50.70	66.0	5	50.00	3.50	27.00	A	1.7	0.82
MF FWX D080-06-32-08	64.70	80.0	6	55.00	3.50	32.00	A	1.2	1.14
MF FWX D100-07-32-08	84.70	100.0	7	50.00	3.50	32.00	B	0.9	1.37
MF FWX D125-09-40-08	109.70	125.0	9	55.00	3.50	40.00	B	0.7	2.62

• apmax=3.5 mm; fzmax=0.6 mm/t; r=4.7 mm for programming

(1) For adaptation see page L14

For inserts, see pages: H600 WXCU 08 (K89).

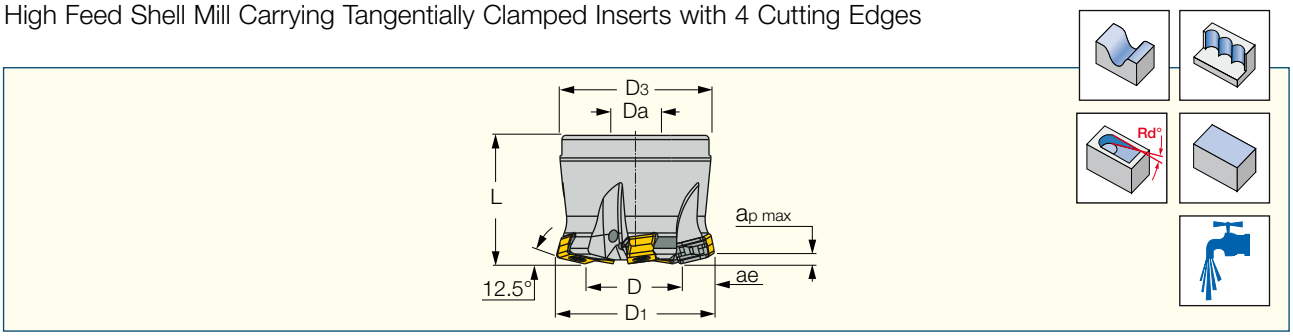
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
MF FWX D050-04-22-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25DIN912
MF FWX D063-05-27-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M12X30DIN912
MF FWX D066-05-27-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M12X30DIN912
MF FWX D080-06-32-08	SR 14-591/H	BLD T20/S7	SW6-T	SR M16X30
MF FWX D100-07-32-08	SR 14-591/H	BLD T20/M7	SW6-T	
MF FWX D125-09-40-08	SR 14-591/H	BLD T20/L7	SW6-T	

HELITANG
UPFEED LINE

FTP-LN10

High Feed Shell Mill Carrying Tangentially Clamped Inserts with 4 Cutting Edges



Designation	D_1	D	Da	Z	D_3	L	$R_d°$(1)	Arbor(2)	a_e	$a_{p\ max}$	Kg
FTP D040-4-16-R-LN10	40.0	22.00	16.00	4	38.00	40.00	2.0	A	8.0	1.80	0.47
FTP D050-5-22-R-LN10	50.0	32.00	22.00	5	47.00	40.00	1.4	A	8.0	1.80	0.33
FTP D052-05-22-R-LN10	52.0	34.00	22.00	5	47.00	40.00	1.4	A	8.0	1.80	0.32
FTP D063-6-27-R-LN10	63.0	45.00	27.00	6	59.00	50.00	1.0	A	8.0	1.80	0.70

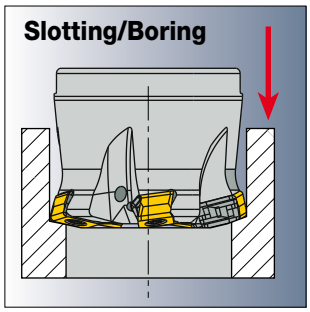
• For application details see below • Radius for programming R=3.4 mm

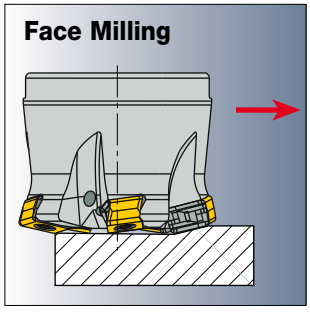
(1) Valid only when FTP LNHT 1006... inserts are used. (2) For adaptation see page L14

For inserts, see pages: FTP LNHT 1006 (K104) • HTP LNHT 1006 (K104).

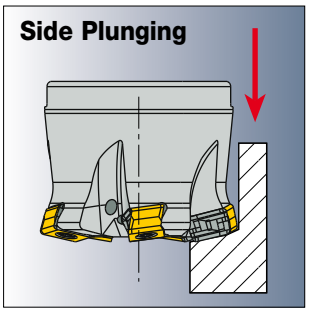
Spare Parts

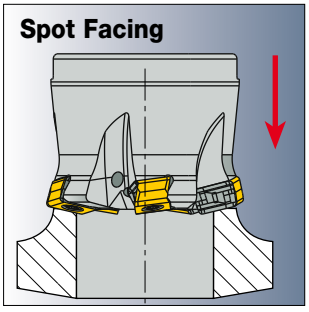
Designation	Screw	Torx Blade	Handle	Shell Locking Screw
FTP D040-4-16-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M8X30DIN912
FTP D050-5-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25DIN912
FTP D052-05-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25DIN912
FTP D063-6-27-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M12X30C



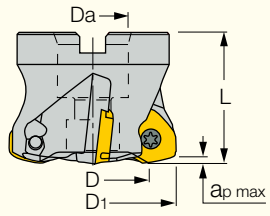


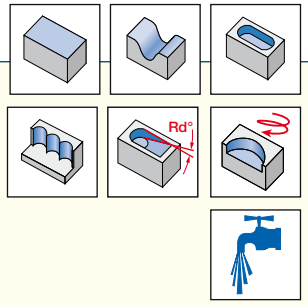






FF FW
Fast Feed Face Mills





Designation	D_1	D	Z	L	$a_{p\ max}$	Da	R_d°	Arbor(1)	Nxcm	Kg	Insert
FF FW D40-16-06-C	40.0	26.00	4	35.00	1.50	16.00	2.5	A	200	0.16	FF WO.. 06
FF FW D50-22-06-C	50.0	36.00	5	40.00	1.50	22.00	2.0	A	200	0.45	FF WO.. 06
FF FW D52-22-06-C	52.0	38.00	5	40.00	1.50	22.00	1.9	A	200	0.47	FF WO.. 06
FF FW D50-22-09-C	50.0	29.20	4	50.00	2.00	22.00	4.0	A	500	0.33	FF WO.. 09
FF FW D52-22-09-C	52.0	31.20	4	40.00	2.00	22.00	4.0	A	500	0.26	FF WO.. 09
FF FW D63-22-09-C	63.0	42.20	5	40.00	2.00	22.00	3.0	A	500	0.48	FF WO.. 09
FF FW D63-27-09-C	63.0	42.20	5	50.00	2.00	27.00	3.0	A	500	0.76	FF WO.. 09
FF FW D66-22-09-C	66.0	45.20	5	40.00	2.00	22.00	2.8	A	500	0.70	FF WO.. 09
FF FW D66-27-09-C	66.0	45.20	5	50.00	2.00	27.00	2.8	A	500	0.64	FF WO.. 09
FF FW D80-32-09-C	80.0	59.20	5	50.00	2.00	32.00	2.0	A	500	0.97	FF WO.. 09
FF FW D100-32-09-C	100.0	79.20	6	50.00	2.00	32.00	1.5	B	500	1.32	FF WO.. 09
FF FW D125-40-09-C	125.0	104.20	7	63.00	2.00	40.00	1.0	B	500	2.80	FF WO.. 09

• The CP (Coarse Pitch) tools were designed to run 2.5 mm/tooth at 2 mm DOC, while the regular pitch cutter run at 3.5 mm/tooth at 1 mm DOC.

• For user guide see pages E57-58

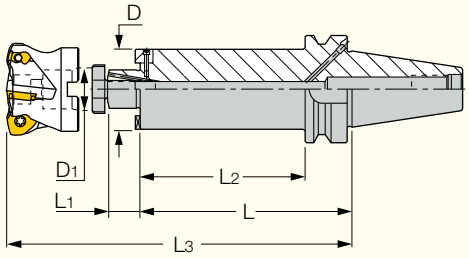
(1) For adaptation see page L14

For inserts, see: FF WOMT-CS (K87) • FF WOMT/WOCT (K86) • FF WOMW (K86).

Spare Parts

Designation	Screw	Torx Blade	T-Handle	Key	Shell Locking Screw
FF FW D40-16-06-C	SR 34-506/M			T-9/51	SR M8X25DIN912
FF FW D50-22-06-C	SR 34-506/M			T-9/51	SR M10X25DIN912
FF FW D52-22-06-C	SR 34-506/M			T-9/51	SR M10X25DIN912
FF FW D50-22-09-C	SR 34-535	BLD T15/S7	SW6-T		SR PS 118-0273
FF FW D52-22-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M10X25DIN912
FF FW D63-22-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M10X25DIN912
FF FW D63-27-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M12X30DIN912
FF FW D66-22-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M10X25DIN912
FF FW D66-27-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M12X30DIN912
FF FW D80-32-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M16X30
FF FW D100-32-09-C	SR 34-535	BLD T15/M7	SW6-T		
FF FW D125-40-09-C	SR 34-535	BLD T15/L7	SW6-T		

BT50 SEM-C
ISO 3937 Extra Long Shell Mill Holders
with Coolant Holes and BT MAS-403 Tapered Shanks

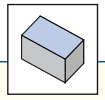


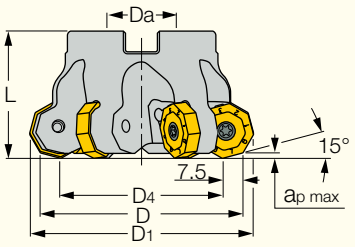
Designation	D_1	D	L_1	L_2	L	L_3	M
BT50 SEM 22x48x220C	22	48	19	182	220	260	M10
BT50 SEM 22x61x320C	22	61	19	282	320	360	M10
BT50 SEM 27x61x320C	27	61	21	282	320	370	M12
BT50 SEM 32x78x390C	32	78	24	352	390	440	M16

If coolant through flange option is required, the plug screw must be removed from the flange cooling hole (use a 2 mm hex key).

FF NM

Fast Feed Face Mills, Carrying Octagonal ONHU/MU 0806... Inserts with 16 Cutting Edges





Designation	D	D_1	D_4	Z	$a_{p\ max}$	L	Da	Arbor(1)	Kg
FF NM D080-06-27-R08	80.00	88.0	64.50	6	2.00	50.00	27.00	A	0.84

(1) For adaptation see page L14.

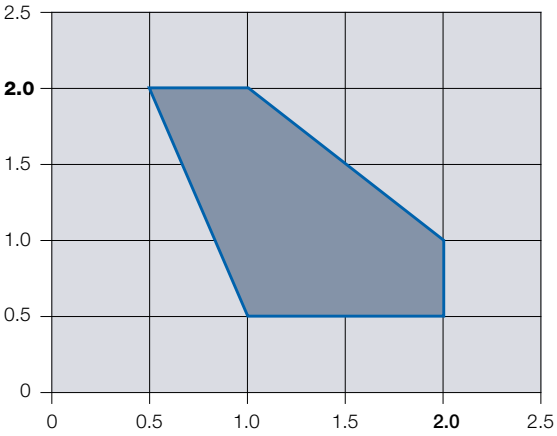
For inserts, see pages: ONHU/ONMU-08-TN-MM (K83) • ONHU/ONMU-08-TN/HL (K83).

Spare Parts

Designation	Screw	Torx Blade	T-Handle
FF NM	SR 14-591/H	BLD T20/S7	SW6-T

Recommended Application Range

Ap[mm]



Width of Cut (ae) = 56 mm

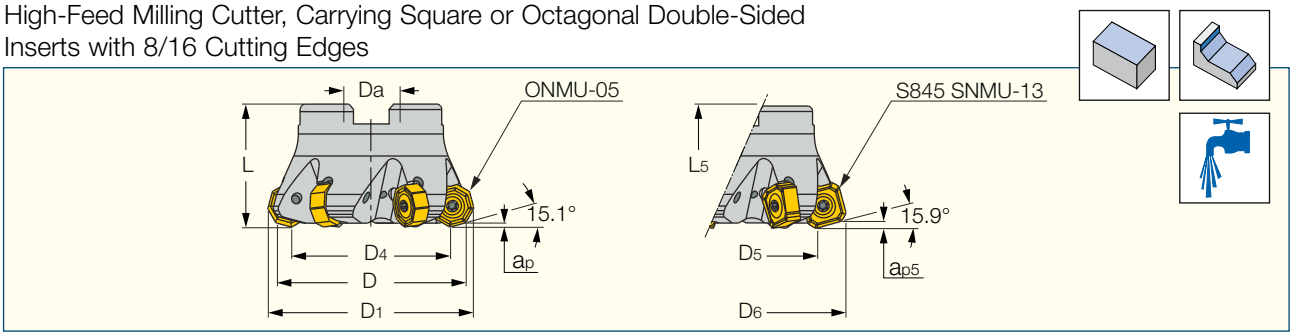
Cutting Data Recommendation

Material	Vc [m/min]
Steel AISI 4340/34CrNiMO6	120-150
Nodular cast iron GGG 50	170

HELIDO
845 LINE

FF SOF

High-Feed Milling Cutter, Carrying Square or Octagonal Double-Sided Inserts with 8/16 Cutting Edges



Designation	D_1	D	D_4	a_p	L	D_6	D_5	a_{p5}	L_5	Da	Z	Arbor(1)	R_d°	Kg
FF SOF 8/16-D063-06-22R	68.4	63.00	52.60	1.20	40.00	69.20	49.50	2.20	40.40	22.00	6	B	1.0	0.30
FF SOF 8/16 D080-07-27R	85.4	80.00	69.60	1.20	40.00	86.20	66.50	2.20	40.40	27.00	7	B	0.9	1.22
FF SOF 8/16 D100-08-32R	105.4	100.00	89.60	1.20	50.00	106.20	86.50	2.20	50.40	32.00	8	B	0.7	1.73

(1) For adaptation see page L14.

For inserts, see pages: ONHU/ONMU-05 (K68) • S845 SNMU/SNHU-13 (K65).

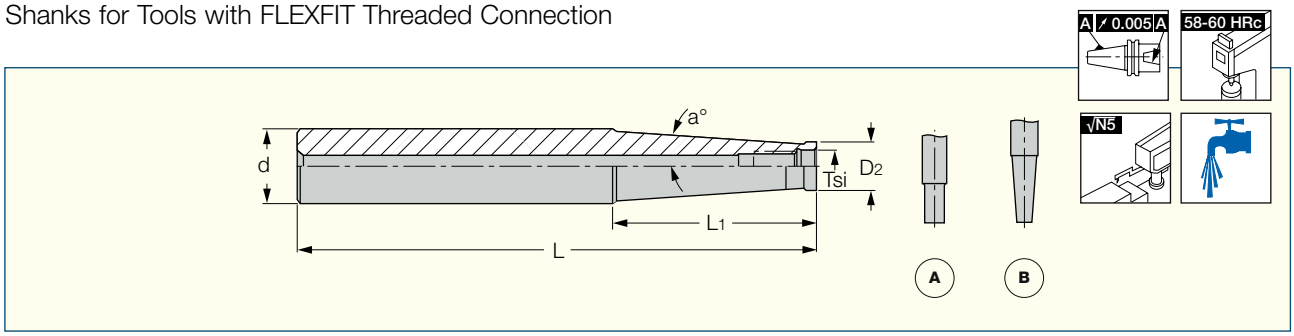
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Screw 1
FF SOF 8/16-D063-06-22R	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M10X25DIN912
FF SOF 8/16 D080-07-27R	SR 11800745	BLD IP15/S7	SW6-T SHORT	SR M12X30DIN912
FF SOF 8/16 D100-08-32R	SR 11800745	BLD IP15/S7	SW6-T SHORT	

Straight Shank • FLEXFIT

S M

Shanks for Tools with FLEXFIT Threaded Connection



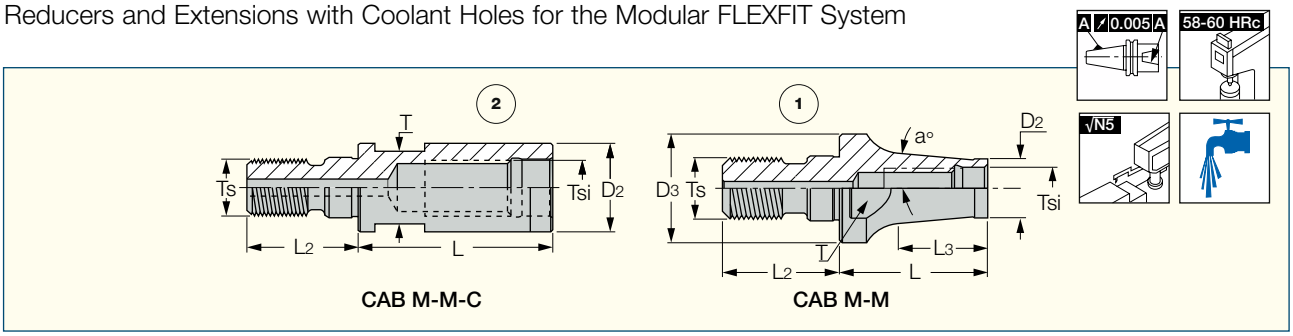
Designation	L	L_1	d	Shank	D_2	a°	Tsi	Type	Kg
S M06-L60 C10	60.00	20.0	10.00	C	9.70	0	M06	A	0.04
S M06-L105-C12	105.00	60.0	12.00	C	9.70	1.2	M06	B	0.07
S M06-L125-C16	125.00	60.0	16.00	C	9.70	3.3	M06	B	0.13
S M08-L73 C16	73.00	25.0	16.00	C	13.00	0	M08	A	0.09
S M08-L128-C16	128.00	80.0	16.00	C	13.00	0.9	M08	B	0.15
S M08-L170-C20	170.00	66.8	20.00	C	13.00	3.3	M08	B	0.33
S M10-L80 C20	80.00	30.0	20.00	C	18.00	0	M10	A	0.16
S M10-L130-C20	130.00	80.0	20.00	C	18.00	0.6	M10	B	0.25
S M10-L200-C25	200.00	57.2	25.00	C	19.00	3.3	M10	B	0.66
S M12-L86-C25	86.00	30.0	25.00	C	21.00	5.1	M12	A	0.27
S M12-L200-C32	200.00	78.0	32.00	C	21.00	4.4	M12	B	1.02
S M16-L95-C32	95.00	35.0	32.00	C	29.00	1.7	M16	A	0.49
S M16-L230-C32	230.00	50.0	32.00	C	29.00	1.8	M16	B	1.31

• For FLEXFIT adaptation options, see pages B45, E46

FLEXFIT

CAB M-M (FLEXFIT)

Reducers and Extensions with Coolant Holes for the Modular FLEXFIT System

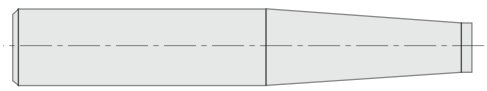


Designation	Ts	Tsi	D_2	L	L_3	D_3	L_2	T(1)	Fig	a°	Kg
CAB M06M08	M08	M06	9.70	30.00	24.80	13.00	17.50	9.5	1	5.7	0.18
CAB M08M08-C	M08	M08	13.00	30.00	-	-	17.50	9.6	2	-	0.02
CAB M08M10	M10	M08	13.00	40.00	33.40	18.00	20.20	15.0	1	5.2	0.07
CAB M10M10-C	M10	M10	18.00	35.00	-	-	20.00	15.0	2	-	0.06
CAB M10M12	M12	M10	18.00	45.00	36.40	21.00	22.00	22.0	1	2.5	0.09
CAB M12M12-C	M12	M12	15.80	40.00	-	-	22.00	17.0	2	-	0.08
CAB M12M16	M16	M12	21.00	50.00	42.50	29.00	25.00	25.0	1	6.3	0.18
CAB M16M16-C	M16	M16	29.00	40.00	-	-	25.00	25.0	2	-	0.16

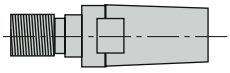
• For adaptation options, see pages B45, E46.

(1) Clamping wrench size

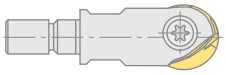
SHANK



CAB...

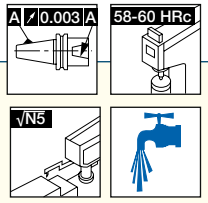


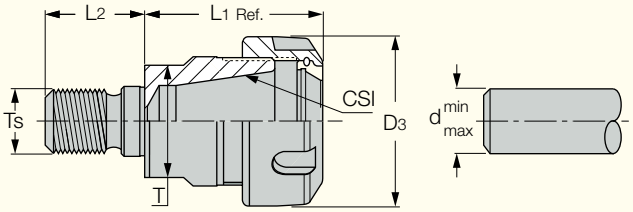
HCM-M



CDP ER-M

DIN 6499 ER Collet Chucks with Threaded FLEXFIT Adaptations

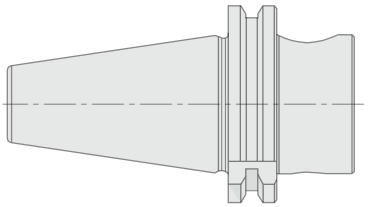




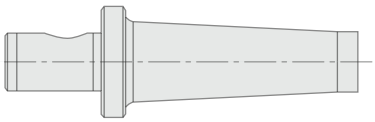
Designation	CSI	d min	d max	L_1	L_2	D_3	Ts	T	Kg
CDP ER11 M10 M	ER11	0.5	7.0	27.0	20.00	16.00	M10	15.0	0.03
CDP ER11 M12 M	ER11	0.5	7.0	27.0	22.00	16.00	M12	17.0	0.04
CDP ER16 M10 M	ER16	0.5	10.0	38.1	20.00	22.00	M10	17.0	0.05
CDP ER16 M12 M	ER16	0.5	10.0	37.1	22.00	22.00	M12	17.0	0.06
CDP ER16 M16	ER16	0.5	10.0	36.6	25.00	28.00	M16	25.0	0.10
CDP ER20 M16	ER20	1.0	13.0	45.5	25.00	34.00	M16	25.0	0.15
CDP ER25 M16	ER25	1.0	16.0	44.5	25.00	42.00	M16	28.0	0.15

• For adaptation options see pages B45, E46.

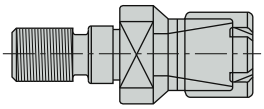
SHANK



S M...-CF4



CDP

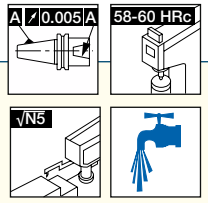


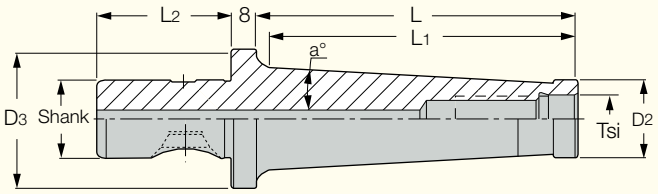
Spare Parts

Designation	Mini ER Nut	ER Nut
CDP ER11 M10 M	NUT ER11 MINI	
CDP ER11 M12 M	NUT ER11 MINI	
CDP ER16 M10 M	NUT ER16 MINI	
CDP ER16 M12 M	NUT ER16 MINI	
CDP ER16 M16		NUT ER16 TOP
CDP ER20 M16		NUT ER20 TOP
CDP ER25 M16		NUT ER25 TOP

S M-CF

CLICKFIT to FLEXFIT Adapters

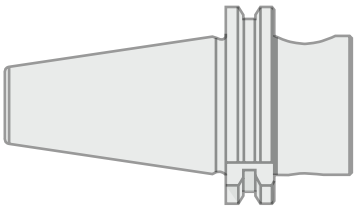




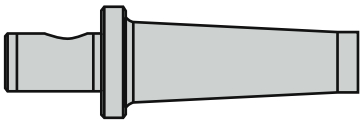
Designation	D_2	L	L_1	Tsi	Shank	D_3	L_2	a°	Kg
S M12-L85/3.30-CF4	21.00	85.00	81.3	M12	CF4	44.00	42.00	4.4	0.23
S M12-L140/5.50-CF4	21.00	140.00	139.1	M12	CF4	44.00	42.00	4.4	1.08
S M16-L130/5.11-CF4	29.00	130.00	126.8	M16	CF4	44.00	42.00	2.6	0.23
S M16-L170/6.70-CF4	29.00	170.00	168.6	M16	CF4	44.00	42.00	2	1.30

• For adaptation options see pages B45, E46.

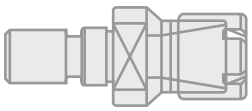
SHANK

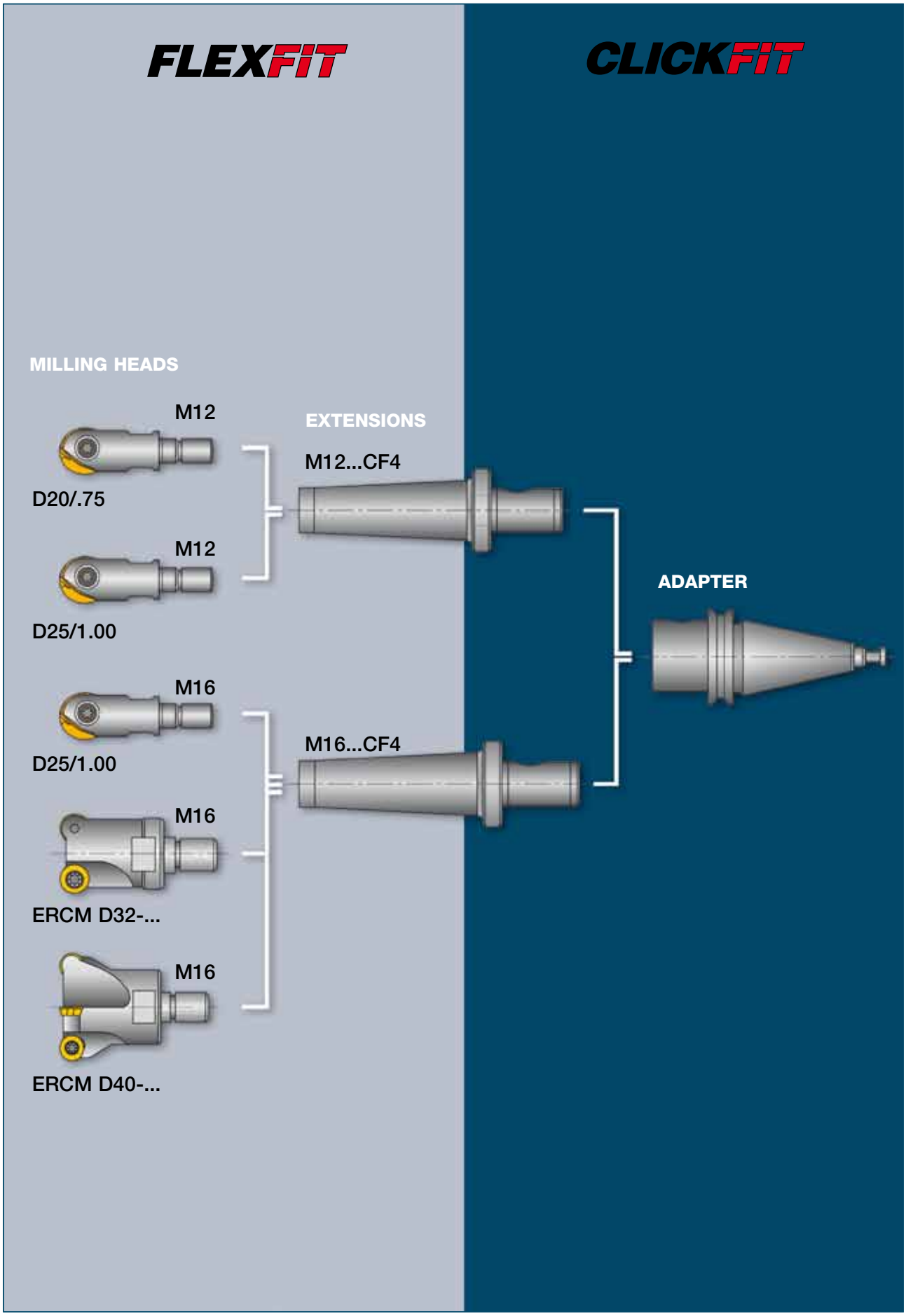


SM...CF4



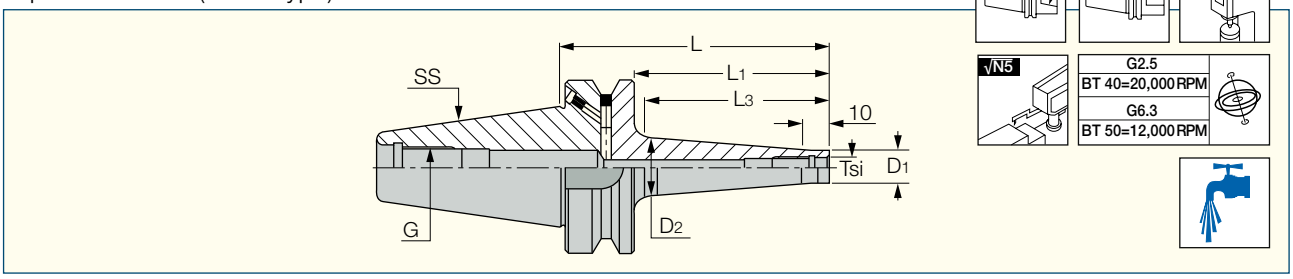
CDP...




FLEXFIT
CLICKFIT
MILLING HEADS
M12
D20/.75
M12
D25/1.00
EXTENSIONS
M12...CF4
ADAPTER
M16
D25/1.00
M16
ERCM D32-...
M16...CF4
M16
ERCM D40-...

BT-ODP (FLEXFIT)

FLEXFIT Threaded Adaptation with Integral BT MAS-403 Tapered Shanks (AD/B Type)



Designation	SS	Tsi	D_1	D_2	L	L_1	L_3	G	Kg
BT40 ODP 6X 66 (1)	40	M06	9.8	13.00	66.00	39.0	30.00	M16	0.98
BT40 ODP 6X106 (1)	40	M06	9.8	23.00	106.00	79.0	70.00	M16	1.08
BT40 ODP 8X 66 (1)	40	M08	13.0	15.00	66.00	30.0	30.00	M16	0.99
BT40 ODP 8X106 (1)	40	M08	13.0	23.00	106.00	70.0	70.00	M16	1.09
BT40 ODP10X 66 (1)	40	M10	18.0	20.00	66.00	30.0	30.00	M16	1.03
BT40 ODP10X106 (1)	40	M10	18.0	28.00	106.00	79.0	70.00	M16	1.80
BT40 ODP12X 66 (1)	40	M12	21.0	24.00	66.00	39.0	30.00	M16	1.05
BT40 ODP12X106 (1)	40	M12	21.0	31.00	106.00	79.0	70.00	M16	1.23
BT40 ODP16X 66 (1)	40	M16	29.0	28.60	66.00	39.0	-	M16	1.06
BT40 ODP16X106 (1)	40	M16	29.0	34.00	106.00	79.0	70.00	M16	1.33
BT50 ODP 12X 94 (2)	50	M12	23.0	30.00	94.00	56.0	50.00	M24	3.85
BT50 ODP 12X144 (2)	50	M12	23.0	40.00	144.00	106.0	100.00	M24	4.25
BT50 ODP 12X194 (2)	50	M12	23.0	40.00	194.00	156.0	150.00	M24	4.22
BT50 ODP 12X244 (2)	50	M12	23.0	46.00	244.00	206.0	200.00	M24	5.10
BT50 ODP 16X 94 (2)	50	M16	29.0	34.00	94.00	56.0	50.00	M24	3.80
BT50 ODP 16X144 (2)	50	M16	29.0	40.00	144.00	106.0	100.00	M24	4.19
BT50 ODP 16X194 (2)	50	M16	29.0	55.00	194.00	156.0	150.00	M24	4.60
BT50 ODP 16X244 (2)	50	M16	29.0	60.00	244.00	206.0	200.00	M24	5.60

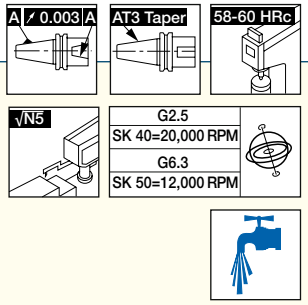
• For adaptation see pages B45, E46 • The coolant passages in the B type flange are blocked with screws which can be removed when required.

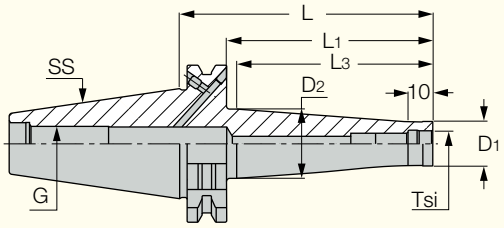
(1) Balanced to G2.5/20,000 RPM. (2) Balanced to G6.3/12,000 RPM.

DIN69871 • FLEXFIT

DIN69871-ODP

FLEXFIT Threaded Connection Shanks with Integral DIN69871 Form ADB Taper Adaptation





Designation	SS	Tsi	D_1	D_2	L	L_1	L_3	G	Kg
DIN69871 40 ODP 6X58 (1)	40	M06	9.8	13.00	58.00	38.9	32.00	M16	0.82
DIN69871 40 ODP 6X98 (1)	40	M06	9.8	23.00	98.00	78.9	74.00	M16	0.91
DIN69871 40 ODP 8X58 (1)	40	M08	13.1	15.00	58.00	38.9	32.00	M16	0.82
DIN69871 40 ODP 8X98 (1)	40	M08	13.1	23.00	98.00	78.9	74.00	M16	0.92
DIN69871 40 ODP10X58 (1)	40	M10	18.0	20.00	58.00	38.9	32.00	M16	0.86
DIN69871 40 ODP10X98 (1)	40	M10	18.0	28.00	98.00	78.9	74.00	M16	1.01
DIN69871 40 ODP12X58 (1)	40	M12	21.0	24.00	58.00	38.9	34.00	M16	0.88
DIN69871 40 ODP12X98 (1)	40	M12	21.0	31.00	98.00	78.9	75.00	M16	1.07
DIN69871 40 ODP16X58 (1)	40	M16	29.0	28.60	58.00	38.9	33.00	M16	0.91
DIN69871 40 ODP16X98 (1)	40	M16	29.0	34.00	98.00	78.9	75.00	M16	1.16
DIN69871 50 ODP12X 78 (2)	50	M12	23.0	30.00	78.00	58.9	50.00	M24	2.74
DIN69871 50 ODP12X128 (2)	50	M12	23.0	40.00	128.00	108.9	100.00	M24	3.14
DIN69871 50 ODP12X178 (2)	50	M12	23.0	40.00	178.00	158.9	150.00	M24	4.60
DIN69871 50 ODP12X228 (2)	50	M12	23.0	46.00	228.00	208.9	200.00	M24	4.21
DIN69871 50 ODP16X 78 (2)	50	M16	29.0	34.00	78.00	58.9	50.00	M24	2.95
DIN69871 50 ODP16X128 (2)	50	M16	29.0	40.00	128.00	108.9	100.00	M24	3.20
DIN69871 50 ODP16X178 (2)	50	M16	29.0	55.00	178.00	158.9	150.00	M24	4.08
DIN69871 50 ODP16X228 (2)	50	M16	29.0	55.00	228.00	208.9	200.00	M24	4.80

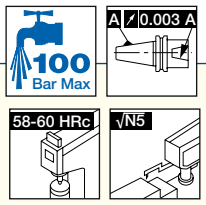
• For adaptation see pages B45, E46.

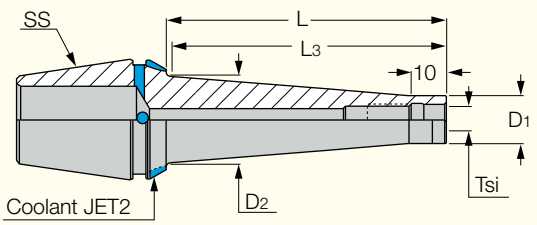
(1) Balanced to G2.5/25,000 RPM. (2) Balanced to G6.3/12,000 RPM.

ER Collet • FLEXFIT

ER-ODP

FLEXFIT Threaded Adaptation with Integral ER Collet for Use in ER Collet Chucks

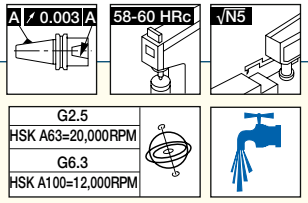


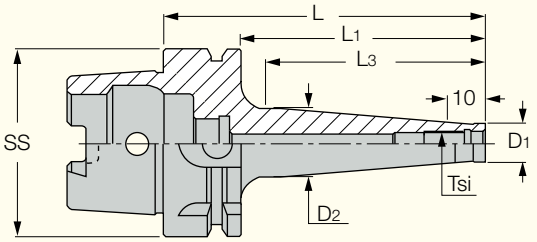


Designation	SS	Tsi	D_1	D_2	L	L_3	Kg
ER32 ODP M 6X25	ER32	M06	9.8	14.00	25.00	22.00	0.15
ER32 ODP M 6X50	ER32	M06	9.8	20.00	50.00	48.00	0.19
ER32 ODP M 6X75	ER32	M06	9.8	23.00	75.00	74.00	0.24
ER32 ODP M 8X25	ER32	M08	13.1	15.00	25.00	22.00	0.15
ER32 ODP M 8X50	ER32	M08	13.1	23.00	50.00	49.00	0.21
ER32 ODP M 8X75	ER32	M08	13.1	23.00	75.00	74.00	0.26
ER32 ODP M10X25	ER32	M10	18.0	20.00	25.00	23.00	0.17
ER32 ODP M10X50	ER32	M10	18.0	24.00	50.00	49.00	0.24
ER32 ODP M12X25	ER32	M12	21.0	24.00	25.00	24.00	0.18
ER32 ODP M12X50	ER32	M12	21.0	24.00	50.00	49.00	0.26

HSK A-ODP (FLEXFIT)

Threaded Adaptations (FLEXFIT) with HSK DIN69893/A Taper Shanks





Designation	SS	Tsi	D_1	D_2	L	L_1	L_3	Kg
HSK A 63 ODP 6X 59 (1)	63	M06	9.8	11.50	59.00	33.0	25.00	0.66
HSK A 63 ODP 6X109 (1)	63	M06	9.8	23.00	109.00	83.0	75.00	0.74
HSK A 63 ODP 8X 59 (1)	63	M08	13.1	15.00	59.00	33.0	25.00	0.68
HSK A 63 ODP 8X109 (1)	63	M08	13.1	23.00	109.00	83.0	75.00	0.76
HSK A 63 ODP10X 59 (1)	63	M10	18.0	20.00	59.00	33.0	25.00	0.70
HSK A 63 ODP10X109 (1)	63	M10	18.0	28.00	109.00	83.0	75.00	0.87
HSK A 63 ODP12X 59 (1)	63	M12	21.0	24.00	59.00	33.0	25.00	0.72
HSK A 63 ODP12X109 (1)	63	M12	21.0	31.00	109.00	83.0	75.00	0.93
HSK A 63 ODP16X 59 (1)	63	M16	29.0	34.60	59.00	33.0	25.00	0.79
HSK A 63 ODP16X109 (1)	63	M16	29.0	34.00	109.00	83.0	75.00	1.06
HSK A 100 ODP12X 87 (2)	100	M12	23.0	30.00	87.00	58.0	50.00	2.23
HSK A 100 ODP12X137 (2)	100	M12	23.0	30.00	137.00	108.0	100.00	2.00
HSK A 100 ODP12X187 (2)	100	M12	23.0	40.00	187.00	158.0	150.00	4.00
HSK A 100 ODP12X237 (2)	100	M12	23.0	46.00	237.00	208.0	200.00	4.50
HSK A 100 ODP16X 87 (2)	100	M16	29.0	31.50	87.00	58.0	50.00	2.20
HSK A 100 ODP16X137 (2)	100	M16	29.0	41.50	137.00	108.0	100.00	2.68
HSK A 100 ODP16X187 (2)	100	M16	29.0	55.00	187.00	158.0	150.00	3.59
HSK A 100 ODP16X237 (2)	100	M16	29.0	55.00	237.00	208.0	200.00	4.52

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately).

(1) Balanced to G2.5/20,000 RPM. (2) Balanced to G6.3/12,000 RPM.

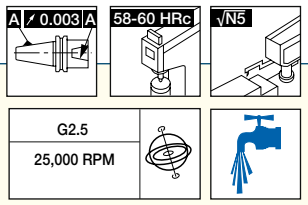
Spare Parts

Designation	Cooling Tube	Wrench
HSK A 63 ODP 6X 59	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP 6X109	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP 8X 59	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP 8X109	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP10X 59	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP10X109	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP12X 59	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP12X109	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP16X 59	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 63 ODP16X109	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK A 100 ODP12X 87	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A 100 ODP12X137	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A 100 ODP12X187	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A 100 ODP12X237	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A 100 ODP16X 87	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A 100 ODP16X137	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A 100 ODP16X187	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A 100 ODP16X237	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, should be ordered separately

HSK E-ODP (FLEXFIT)

Threaded Adaptations (FLEXFIT) with HSK DIN69893/E Taper Shanks



Designation	SS	Tsi	D_1	D_2	L	L_1	L_3	Kg
HSK E 40 ODP10X 53	40	M10	18.0	20.00	53.00	33.0	25.00	0.26
HSK E 40 ODP10X103	40	M10	18.0	28.00	103.00	83.0	75.00	0.30
HSK E 40 ODP12X 53	40	M12	21.0	24.00	53.00	33.0	25.00	0.28
HSK E 40 ODP12X103	40	M12	21.0	31.00	103.00	83.0	75.00	0.51
HSK E 50 ODP10X 59	50	M10	18.0	20.00	59.00	33.0	25.00	0.46
HSK E 50 ODP10X109	50	M10	18.0	28.00	109.00	83.0	75.00	0.64
HSK E 50 ODP12X 59	50	M12	21.0	24.00	59.00	33.0	25.00	0.48
HSK E 50 ODP12X109	50	M12	21.0	31.00	109.00	83.0	75.00	0.71
HSK E 50 ODP16X 59	50	M16	29.0	34.00	59.00	33.0	25.00	0.56
HSK E 50 ODP16X109	50	M16	29.0	34.00	109.00	83.0	75.00	0.85
HSK E 63 ODP10X 59	63	M10	18.0	20.00	59.00	33.0	25.00	0.75
HSK E 63 ODP10X109	63	M10	18.0	28.00	109.00	83.0	75.00	0.96
HSK E 63 ODP12X 59	63	M12	21.0	24.00	59.00	33.0	25.00	0.77
HSK E 63 ODP12X109	63	M12	21.0	31.00	109.00	83.0	75.00	0.96
HSK E 63 ODP16X 59	63	M16	29.0	34.00	59.00	33.0	25.00	0.72
HSK E 63 ODP16X109	63	M16	29.0	34.00	109.00	83.0	75.00	1.10

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately). • Balanced to G2.5/25,000 RPM.
• ISCAR can not guarantee an unbalance value less than 1 gr x mm.

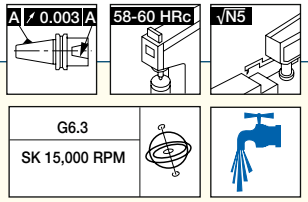
Spare Parts

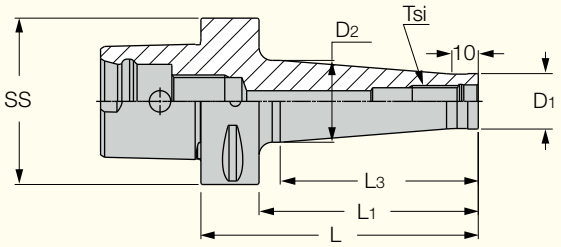
Designation	Cooling Nozzle	Cooling Tube	Wrench
HSK E 40 ODP10X 53		COOLING TUBE HSK A 40*	WRENCH COOL TUBE HSK 40*
HSK E 40 ODP10X103		COOLING TUBE HSK A 40*	WRENCH COOL TUBE HSK 40*
HSK E 40 ODP12X 53		COOLING TUBE HSK A 40*	WRENCH COOL TUBE HSK 40*
HSK E 40 ODP12X103		COOLING TUBE HSK A 40*	WRENCH COOL TUBE HSK 40*
HSK E 50 ODP10X 59		COOLING TUBE HSK A 50*	WRENCH COOL TUBE HSK 50*
HSK E 50 ODP10X109		COOLING TUBE HSK A 50*	WRENCH COOL TUBE HSK 50*
HSK E 50 ODP12X 59		COOLING TUBE HSK A 50*	WRENCH COOL TUBE HSK 50*
HSK E 50 ODP12X109		COOLING TUBE HSK A 50*	WRENCH COOL TUBE HSK 50*
HSK E 50 ODP16X 59		COOLING TUBE HSK A 50*	WRENCH COOL TUBE HSK 50*
HSK E 50 ODP16X109		COOLING TUBE HSK A 50*	WRENCH COOL TUBE HSK 50*
HSK E 63 ODP10X 59	EZ 62	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK E 63 ODP10X109	EZ 62	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK E 63 ODP12X 59		COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK E 63 ODP12X109	EZ 62	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK E 63 ODP16X 59	EZ 62	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*
HSK E 63 ODP16X109	EZ 62	COOLING TUBE HSK A 63*	WRENCH COOL TUBE HSK 63*

* Optional, should be ordered separately

C#-ODP (FLEXFIT)

FLEXFIT Threaded Connection Shanks with CAMFIX (ISO 26623-1) Exchangeable, Tapered Adaptations





Designation	SS	Tsi	D_2	D_1	L	L_1	L_3
C4 ODP 10X 53	40	M10	23.00	18.0	53.00	33.0	23.00
C4 ODP 12X 53	40	M12	26.00	21.0	53.00	33.0	23.00
C4 ODP 16X 53	40	M16	34.00	29.0	53.00	33.0	23.00
C5 ODP 10X 53	50	M10	19.50	18.0	53.00	33.0	25.00
C5 ODP 10X103	50	M10	28.00	18.0	103.00	83.0	75.00
C5 ODP 12X 53	50	M12	23.50	21.0	53.00	33.0	25.00
C5 ODP 12X103	50	M12	31.00	21.0	103.00	83.0	75.00
C5 ODP 16X 53	50	M16	34.00	29.0	53.00	33.0	25.00
C5 ODP 16X103	50	M16	36.00	29.0	103.00	83.0	75.00
C6 ODP 10X 55	63	M10	19.50	18.0	55.00	33.0	25.00
C6 ODP 10X105	63	M10	28.00	18.0	105.00	83.0	75.00
C6 ODP 10X130	63	M10	32.00	18.0	130.00	108.0	100.00
C6 ODP 12X 55	63	M12	23.50	21.0	55.00	33.0	25.00
C6 ODP 12X105	63	M12	31.00	21.0	105.00	83.0	75.00
C6 ODP 12X130	63	M12	36.00	21.0	130.00	108.0	100.00
C6 ODP 16X 55	63	M16	34.00	29.0	55.00	33.0	25.00
C6 ODP 16X105	63	M16	34.00	29.0	105.00	83.0	75.00
C6 ODP 16X130	63	M16	41.00	29.0	130.00	108.0	100.00

• Balanced to G6.3/15,000 RPM.

Machining Parameters

Effective Diameter

When machining with BALLPLUS cutters, usually the tool is only partially in contact with the workpiece material.
Due to the spherical nose shape, when the depth of cut is less than the radius of the tool, the **Effective Diameter (Deff)** is less than the tool's diameters (D) as shown in figures below.
As the cutting speed (Vc) is calculated using the cutting diameters, the Effective Diameter (Deff) should be used in the calculations instead of the nominal diameter of the tool (D).
Values for the Effective Diameter can be found in Table 1 on the following pages, or they can be calculated from the equation in the figures below.

Chip Thinning Factor

Due to the spherical form of the cutter nose, the chip has a variable thickness. This means that the Feed (fz) has to be increased by the Chip Thinning Factor (TF) in order to achieve the required metal removal rate, otherwise the cutter will rub the material instead of cutting it.
The Chip Thinning Factor (TF) can be found in Table 1.

Fig. a

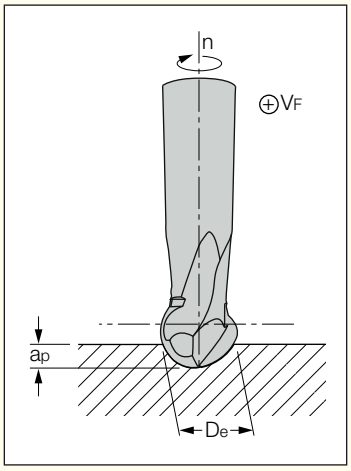


Fig. b

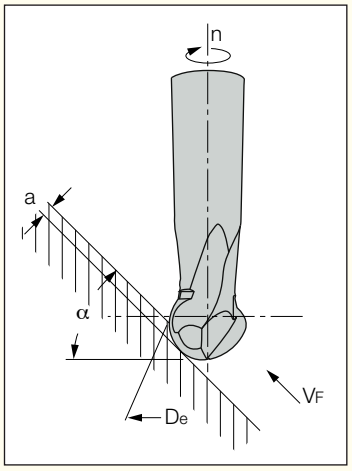
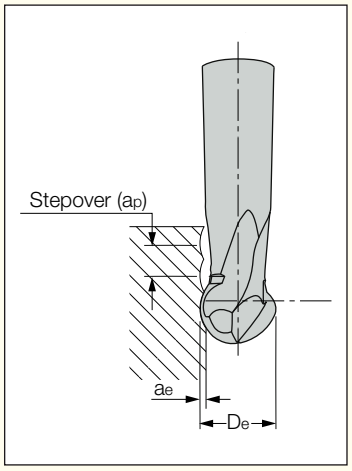


Fig. c



Effective Diameter for Ball Nose Milling Cutters

Cutting Path	Fig.	Effective Diameter De	Notes
The cutter axis is normal to a machined surface	a)	$2\times\sqrt{(D\times ap-ap^2)}$	
Ramping, milling inclined surfaces	b)	$(D-2\times a)\times\sin\alpha+2\times\sqrt{(D\times a-a^2)}\times\cos\alpha$*	$\approx D\times\sin\alpha$**
Milling straight walls	c)	D	

* α - ramping angle, a - machining allowance (stock to be removed) per pass.
** The simplified equation is often used for estimating effective diameter. In many cases it gives a more or less suitable result. Nevertheless, this equation should be applied for rough calculation only due to the truncation error that can be a source of serious inaccuracy.

Table 1
Effective Diameter and Chip Thinning Factor

Effective Cutting Diameter De, mm, and Chip Thinning Factor TF for Ball Nose Milling Cutters

ap, mm	Nominal Tool Diameter D, mm															
	Ø4		Ø5		Ø6		Ø7		Ø8		Ø10		Ø12		Ø16	
	De	TF	De	TF	De	TF	De	TF	De	TF	De	TF	De	TF	De	TF
0.2	1.7	2.3	1.9	2.5	2.1	2.8	2.3	3	2.5	3.2	2.8	3.6	3.1	3.9	3.5	4.5
0.3	2.1	1.9	2.4	2.1	2.6	2.3	2.8	2.5	3	2.6	3.4	2.9	3.7	3.2	4.3	3.7
0.5	2.6	1.5	3	1.7	3.3	1.8	3.6	1.9	3.9	2.1	4.3	2.3	4.8	2.5	5.6	2.9
0.7	3	1.3	3.5	1.4	3.8	1.5	4.2	1.7	4.5	1.8	5.1	1.9	5.6	2.1	6.5	2.4
1	3.5	1.1	4	1.2	4.5	1.3	4.9	1.4	5.3	1.5	6	1.7	6.6	1.8	7.7	2.1
2	4	1	4.9	1	5.6	1.1	6.3	1.1	6.9	1.1	8	1.2	8.9	1.3	10.6	1.5
3	–	–	–	–	6	1	6.9	1	7.7	1	9.1	1.1	10.4	1.1	12.5	1.3
4	–	–	–	–	–	–	–	–	8	1	9.8	1	11.3	1.1	13.8	1.1
5	–	–	–	–	–	–	–	–	–	–	10	1	11.8	1	14.8	1.1
6	–	–	–	–	–	–	–	–	–	–	–	–	12	1	15.5	1
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15.9	1
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16	1

Fze=fzxTF TF=Chip Thinning Factor Fze= Effective Programmed Feed fz=Feed

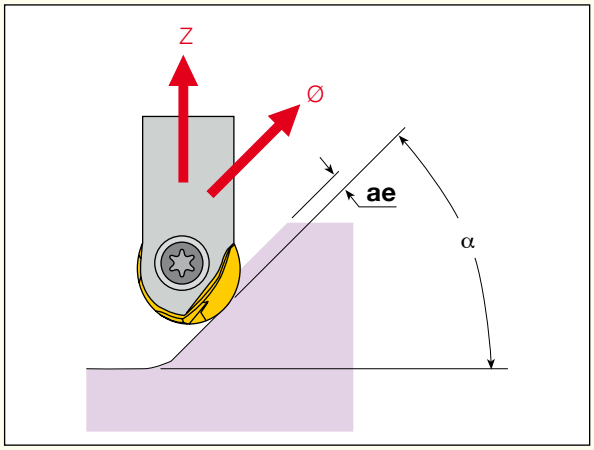
Effective Cutting Diameter De, mm, and Chip Thinning Factor TH for Ball Nose Milling Cutters (continued)

ap, mm	Nominal Tool Diameter D, mm									
	Ø20		Ø25		Ø32		Ø40		Ø50	
	De	TF	De	TF	De	TF	De	TF	De	TF
0.3	4.9	4.1	5.4	4.6	6.2	5.2	6.9	5.8	7.7	6.5
0.5	6.2	3.2	7	3.6	7.9	4	8.9	4.5	9.9	5
1	8.7	2.3	9.8	2.5	11.1	2.9	12.5	3.2	14	3.6
3	14.3	1.4	16.2	1.5	18.6	1.7	21	1.9	23.7	2.1
5	17.3	1.1	20	1.2	23.2	1.4	26.4	1.5	30	1.7
8	19.6	1	23.3	1.1	27.7	1.1	32	1.2	36.7	1.4
10	20	1	24.5	1	29.7	1.1	34.6	1.1	40	1.2
12	–	–	25	1	30.1	1	36.7	1.1	42.7	1.2
16	–	–	–	–	32	1	39.2	1	46.6	1.1
20	–	–	–	–	–	–	40	1	49	1
25	–	–	–	–	–	–	–	–	50	1

Fze=fzxTF

Ramp-up Angle vs. Radial Depth of Cut

Ramp-up can be performed within a limited depth of cut of ap.
There are two ways to define the depth of cut:
ae - radial depth of cut or
az - axial depth of cut (see next page)
which is easier to program.

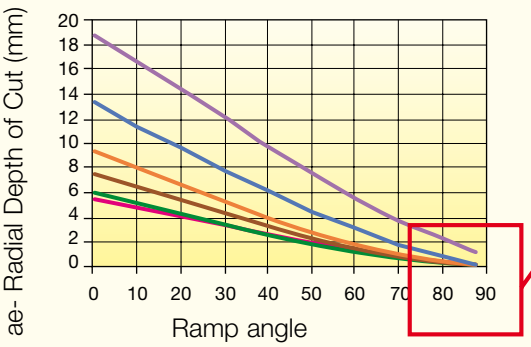


ae - Radial Depth of Cut for Each Cutter Diameter vs. Ramp-up Angle (table presentation)

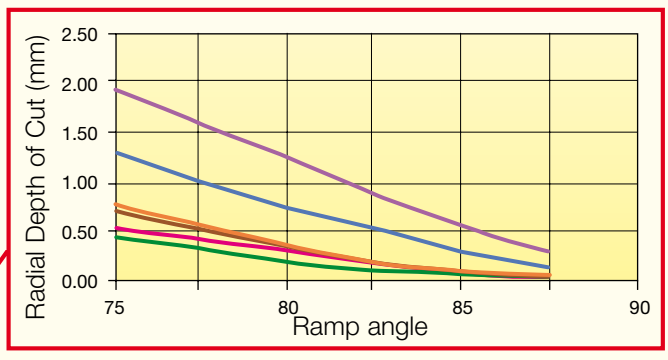
Ramp-Up Angle	Cutter Diameter					
	ø8	ø10	ø12	ø16	ø20	ø25
0°	5.50	6.00	7.50	9.40	13.40	18.30
15°	4.41	4.67	5.90	7.28	10.70	14.87
30°	3.30	3.37	4.30	5.21	7.94	11.27
45°	2.23	2.17	2.82	3.33	5.33	7.76
60°	1.29	1.17	1.55	1.77	3.04	4.57
75°	0.52	0.43	0.59	0.63	1.22	1.93
85°	0.15	0.11	0.15	0.15	0.33	0.55
87.5°	0.07	0.05	0.07	0.07	0.16	0.26

ae - Radial Depth of Cut for Each Cutter Diameter vs. Ramp-up Angle (graphical presentation)

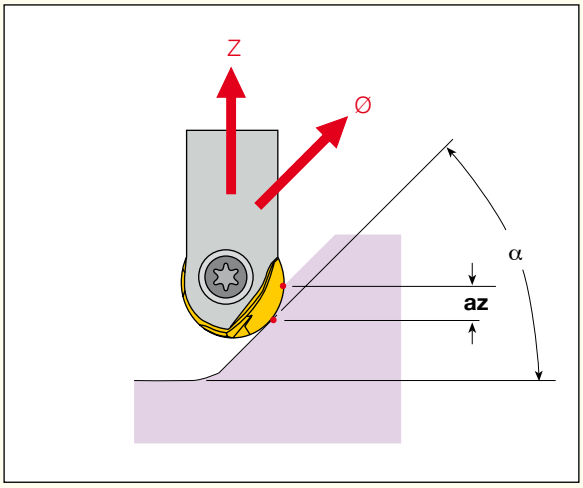
α from 00 to 87.50



α from 750 to 87.50



Ramp-up Angle vs. Axial Depth of Cut

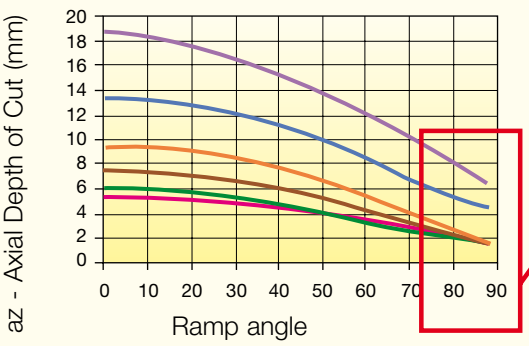


az - Axial Depth of Cut for Each Cutter Diameter vs. Ramp-up Angle (table presentation)

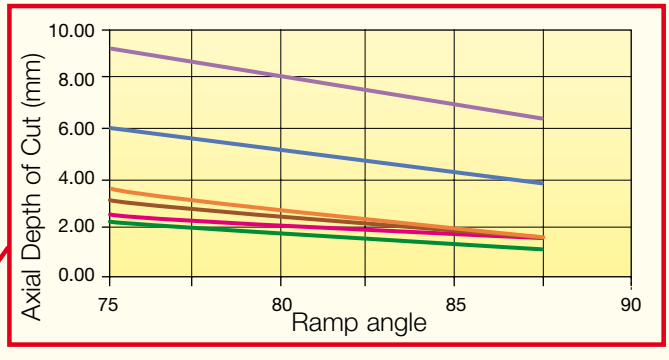
Ramp-Up Angle	Cutter Diameter						
		ø8	ø10	ø12	ø16	ø20	ø25
	0°	5.50	6.00	7.50	9.40	13.40	18.30
	15°	5.36	5.83	7.30	9.13	13.06	78.87
	30°	4.96	5.33	6.70	8.33	12.06	16.63
	45°	4.33	4.54	5.74	7.06	10.47	14.64
	60°	3.50	3.50	4.50	5.40	8.40	12.05
	75°	2.54	2.29	3.05	3.47	5.99	9.04
	85°	1.85	1.44	2.02	2.10	4.27	6.89
	87.5°	1.67	1.22	1.76	1.75	3.84	6.35

az - Axial Depth of Cut for Each Cutter Diameter vs. Ramp-up Angle (graphical presentation)

α from 0⁰ to 87.5⁰



α from 75⁰ to 87.5⁰



Machining Parameters Calculation Examples

Ball Nose Cutters of 8 and 25 mm Diameters

User Data

D [mm] – Tool Diameter
z – Number of Effective Teeth
ap [mm] – Depth of Cut
fz [mm/t] – Feed per Tooth
Vc [m/min] –Cutting Speed

Calculated Data

n [RPM] –Revolution per Minute
fza [mm/t]–Actual Feed - for programming
Vf [mm/min]–Actual Table Feed - for programming

Based on the Diameter D and the Depth of Cut ap, the result is get the Effective Cutting Diameter Deff and the Thinning Factor TF.

Calculations

Revolutions per Minute: $n=Vcx1000/\pi$ x Deff
Actual Feed: fza=fz/TF
Actual Table Feed: Vf=fza x z x

Example 1:

D = 8 mm
z = 1 effective
ap= 1.2 mm
fz = 0.10 mm/t
Vc= 120 m/min

From Table 1:

Deff= 5.71 mm
TF= 0.71

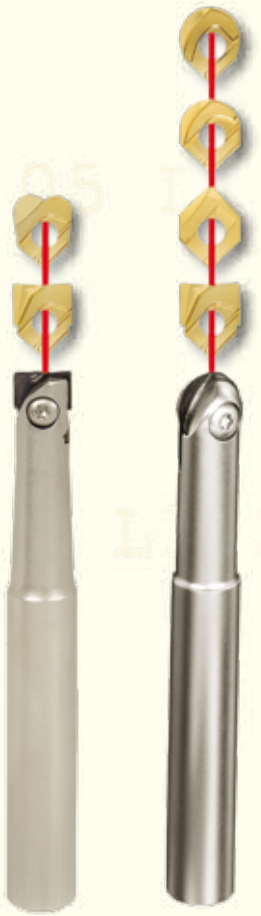
n = 120 x 1000/3.14x5.71=6693 RPM
fza= 0.10/0.71=0.14 mm/t
Vf= 0.14 x 1 x 6693=973 mm/min

Example 2:

D = 25 mm
z = 2 effective
ap= 2.8 mm
fz = 0.10 mm/t
Vc= 120 m/min

From Table 1:

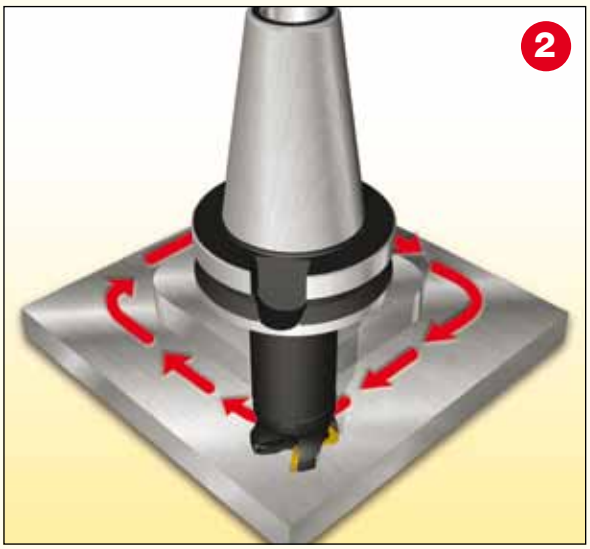
Deff= 15.77 mm
TF= 0.63
n = 120 x 1000/3.14x15.77=2423 RPM
fza= 0.10/0.63=0.16 mm/t
Vf= 0.16 x 2 x 2423=775 mm/min



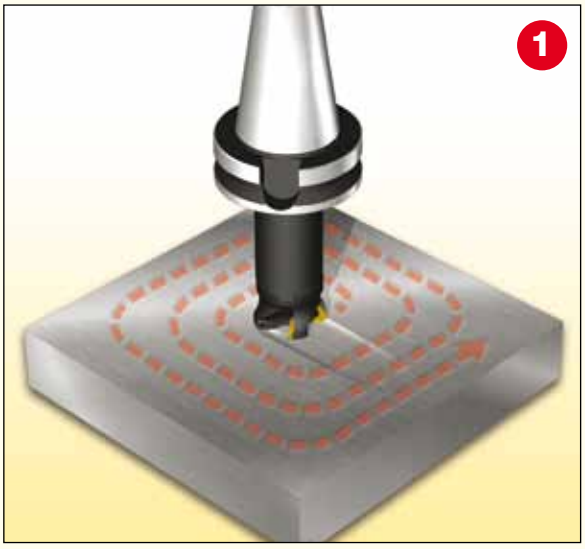
Machining Instructions

Machining Next to a Shoulder





Machining a Cavity



Ramping down



Due to running the tools at high feeds, when performing sharp direction changes it is recommended to machine in curving routes, in a larger radius than the external radius of the cutter. This procedure will avoid inertial overshooting.

Fast Feed Milling

Machining Examples

Tool: FF EW D32-60-W25-06-C **Insert: FF WOMT 060212T** **Grade: IC928**
Workpiece: SAE 4340 HRc 26-28
Vc = 180 m/min
Fz = 0.93 mm/tooth
Ap = 1.0 mm
b = 11.0 mm
P = 6 kW
Tool life = 60 min
Metal removal rate = 87.5 cm^3/min

Tool: FF EW D25-50-W25-06-C **Insert: FF WOMT 060212T** **Grade: IC910**
Workpiece: SAE 4340 HRc 26-28
Vc = 180 m/min
Fz = 1.7 mm/tooth
Ap = 1.0 mm
b =10.5 mm
P = 4 kW
Tool life = 60 min
Metal removal rate = 81.9 cm^3/min

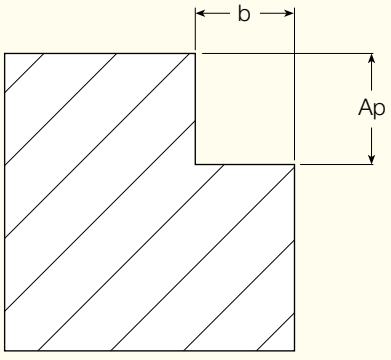
Tool: FF FW D52-22-09 **Insert: FF WOMT 09T320T** **Grade: IC90A8**
Workpiece: P20 HRc 48-52
Vc = 180 m/min
Fz = 1.7 mm/tooth
Ap = 1.5 mm
b = 30 mm
P = 17 kW
Tool life = 40 min
Metal removal rate = 337.3 cm^3/min

Tool: FF FW D52-22-09 **Insert: FF WOMT 09T320T** **Grade: IC928**
Workpiece: P20 HRc 31-35
Vc = 180 m/min
Fz = 1.7 mm/tooth
Ap = 1.5 mm
b = 30 mm
P = 16.5 kW
Tool life = 30 min
Metal removal rate = 337.3 cm^3/min

Tool: FF FW D52-22-09 **Insert: FF WOMT 09T320T** **Grade: IC910**
Workpiece: SAE 4340 HRc 26-28
Vc = 180 m/min
Fz = 1.7 mm/tooth
Ap = 1.5 mm
b = 30 mm
P = 15 kW
Tool life = 40 min
Metal removal rate = 337.3 cm^3/min

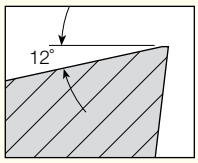
Tool: FF FW D52-22-09 **Insert: FF WOMT 09T320T** **Grade: IC910**
Workpiece: SAE 4340 HRc 26-28
Vc = 180 m/min
Fz = 3.4 mm/tooth
Ap = 1.5 mm
b = 30 mm
P = 23 kW
Tool life = 30 min
Metal removal rate = 674.6 cm^3/min

Tool: FF FW D52-22-09 **Insert: FF WOMT 09T320T** **Grade: IC910, IC908**
Workpiece: STAWAX HB 130-150
Vc = 120 m/min
Fz = 1.2 mm/tooth
Ap = 1.5 mm
b = 30 mm
P = 7.7 kW
Tool life = 40 min
Metal removal rate = 158.7 cm^3/min



Machining Recommendations

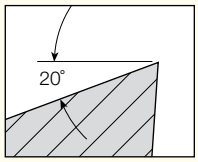
- Excellent tool stability
- Chips split into small pieces
- Optimal chip flow with easy evacuation, even from deep cavities
- High tooth load capability, up to 8 mm depth-of-cut, which will significantly reduce machining time
- Small cutting forces - therefore the required machining power is low
- 4 indexing options when using the SHREDMILL insert and 8 when using the round one
- Available are several chipformers and rake configurations, designed for a large variety of workpiece materials





RCMT 1607-FW

Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15, ST37, 1.0401	4	150	0.3	✓✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High alloy steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & die steel	280-370	1.2379,1.2311	3	150	0.3	✓✓
Stainless steel	150-270	1.4404,316,321	-	-	-	-
Grey cast iron	200-250	GG25,GRADE220	5	150-180	0.3	✓
S.G. iron	180-250	GGG60,SNG600/3	5	110-150	0.3	✓
Titanium	450-500	TiAl4Mo4Sn4Si0.5	4	50	0.2	✓
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened die steel	38-42 HRc	1.2344,1.2379	3	120	0.2	✓
Hardened die steel	48-52 HRc	1.2762,1.1545	-	-	-	-



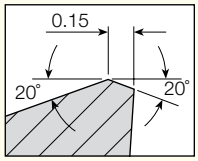


RCMT 1607-FW-F20

Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	3	150	0.3	✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	-	-	-	-
High alloy steel	200-260	X20Cr13,1.4923	-	-	-	-
Tool & die steel	280-370	1.2379,1.2311	-	-	-	-
Stainless steel	150-270	1.4306,304, 1.4404,316	6	100	0.1	✓✓
Grey cast iron	200-250	GG25,GRADE220	-	-	-	-
S.G. iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	6	850	0.4	✓✓
Hardened die steel	38-42 HRc	1.2344,1.2379	-	-	-	✓
Hardened die steel	48-52 HRc	1.2762,1.1545	-	-	-	-

✓✓ Most Recommended
✓ Secondary option

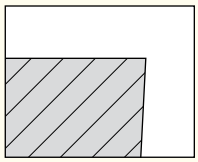
Machining Recommendations





RCMT 1607 FW-T20

Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	3	150	0.3	✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	3	150	0.3	✓
High alloy steel	200-260	X20Cr13,1.4923	-	-	-	-
Tool & die steel	280-370	1.2379,1.2311	-	-	-	-
Stainless steel	150-270	1.4031, 420	6	120	0.2	✓✓
Grey cast iron	200-250	GG25,GRADE220	-	-	-	-
S.G. iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened die steel	38-42 HRc	1.2344,1.2379	-	-	-	-
Hardened die steel	48-52 HRc	1.2762,1.1545	-	-	-	-



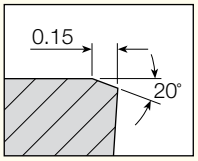


RCCW 1607-FW

Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	4	150	0.3	✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High alloy steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & die steel	280-370	1.2379,1.2311	4	150	0.3	✓✓
Stainless steel	150-270	1.4404,316,321	-	-	-	-
Grey cast iron	200-250	GG25,GRADE220	-	-	-	-
S.G. iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened die steel	38-42 HRc	1.2344,1.2379	4	120	0.2	✓
Hardened die steel	48-52 HRc	1.2762,1.1545	-	-	-	-

✓✓ Most Recommended
✓ Secondary option

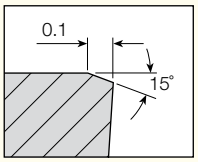
Machining Recommendations





RCMW 1607-T-FW

Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	-	-	-	-
Low alloy steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓
High alloy steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & die steel	280-370	1.2379,1.2311	3	150	0.3	✓✓
Stainless steel	150-270	1.4404,316,321	-	-	-	-
Grey cast iron	200-250	GG25,GRADE220	5	150-180	0.3	✓✓
S.G. iron	180-250	GGG60,SNG600/3	5	110-150	0.3	✓✓
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Alumnum	75-130	G-AlSi12	-	-	-	-
Hardened die steel	38-42 HRc	1.2344,1.2379	-	-	-	-
Hardened die steel	48-52 HRc	1.2762,1.1545	-	-	-	-



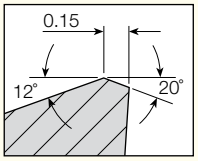


RCMW 1607-T-FPW

Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	4	150	0.3	✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High alloy steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & die steel	280-370	1.2379,1.2311	4	150	0.3	✓✓
Stainless steel	150-270	1.4404,316,321	-	-	-	-
Grey cast iron	200-250	GG25,GRADE220	-	-	-	-
S.G. iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened die steel	38-42 HRc	1.2344,1.2379	4	120	0.25	✓✓
Hardened die steel	48-52 HRc	1.2762,1.1545	4	80	0.1	✓✓

✓✓ Most Recommended
✓ Secondary option

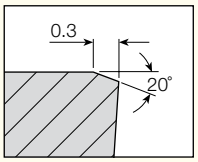
Machining Recommendations





RCMT 1607MO

Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	4	180	0.3	✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	4	180	0.3	✓✓
High alloy steel	200-260	X20Cr13,1.4923	4	180	0.3	✓✓
Tool & die steel	280-370	1.2379,1.2311	-	-	-	-
Stainless steel	150-270	1.4031, 420	6	120	0.3	✓✓
Grey cast iron	200-250	GG25,GRADE220	-	-	-	-
S.G. iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened die steel	38-42 HRc	1.2344,1.2379	-	-	-	-
Hardened die steel	48-52 HRc	1.2762,1.1545	-	-	-	-





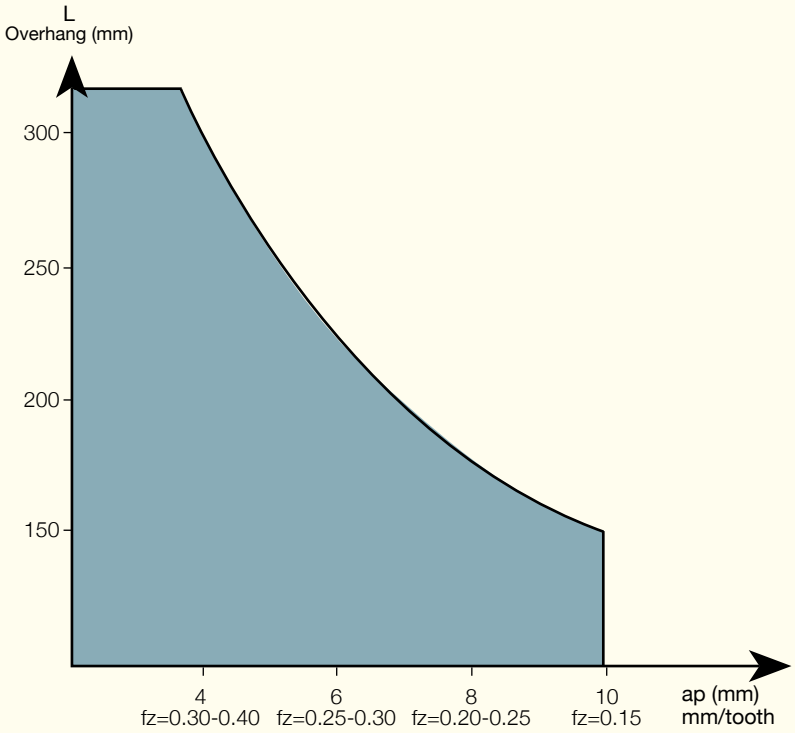
RCMW 1607MO

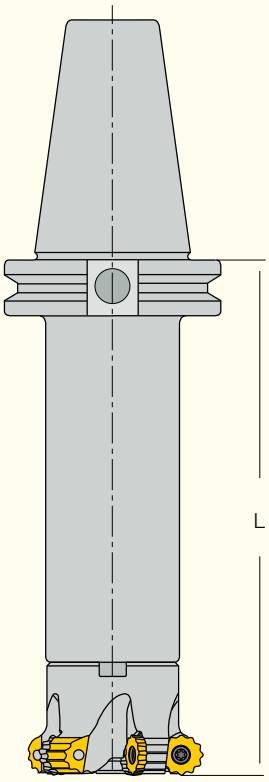
Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	Vc (m/min)	Fz (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	-	-	-	-
Low alloy steel	170-220	CK45,1.1231,16MnCr5	2	180	0.7	✓✓
High alloy steel	200-260	X20Cr13,1.4923	2	180	0.7	✓✓
Tool & die steel	280-370	1.2379,1.2311	2	150	0.5	✓✓
Stainless steel	150-270	1.4404,316,321	-	-	-	-
Grey cast iron	200-250	GG25,GRADE220	2	300	0.7	✓✓
S.G. iron	180-250	GGG60,SNG600/3	2	220	0.5	✓✓
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened die steel	38-42 HRc	1.2344,1.2379	2	150	0.4	✓
Hardened die steel	48-52 HRc	1.2762,1.1545	-	-	-	-

✓✓ Most Recommended
✓ Secondary option

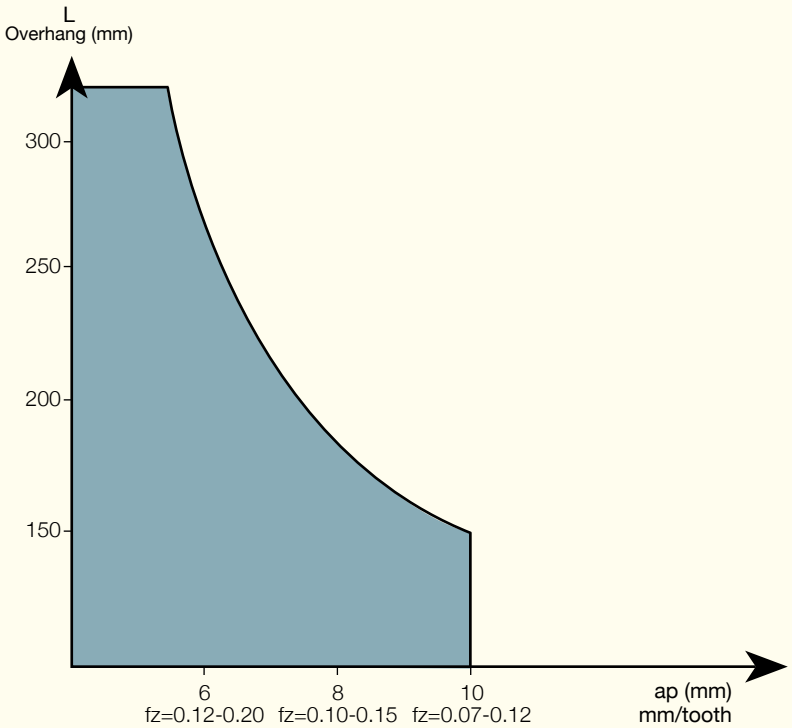
Feed Limit Recommendations as a Function of Overhang and Depth of Cut

Carbon and Alloy Steel

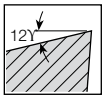
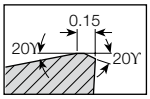
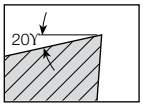
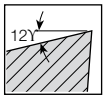
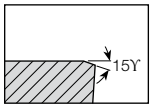


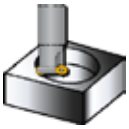
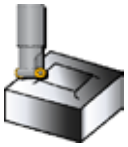
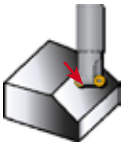


Stainless Steel



Insert Selection Guide

Insert Designation	RCMT...FW	RCMT...FW-T20	RCMT...FW-F20	RCCT...MO	RCCW...MO
RC...1206					
Geometry / Workpiece	 Positive rake face	 Positive rake face with T-Land	 Positive rake face sharp edge	 Positive rake face	 Flat top face with a T-Land
Alloy steel	VVV	V	V	V	VVV
Mold steel	VVV	V	V	V	VVV
Grey cast iron	VV				VVV
Stainless steel		VVV(1)	VVV(2)	VVV	
Aluminum			VVV	VV	
High temp. alloys	V		VV	VVV	
Hardened mold steel (45 HRc max)	V				V

Applications							
							
	Helical Interpolation	Shouldering	Contour Milling	Ramping Down	Plunging	Profiling	Pocket Milling

(1) Recommended for martensitic stainless steel
(2) Recommended for austenitic stainless steel

V Least recommended
VV Second option
VVV Most recommended

PLUNGING CUTTERS



Member IMC Group

ISCAR offers several plunger options which were designed for deep cavities and high shoulder milling. The tools are very effective and economical for deep machining of slots, straight and sloped walls which require very long tool overhang. The main feature of the plunger tools is that the loads on the machine, tool and workpiece are mainly axial, avoiding bending moments. It is recommended to use horizontal machines with an abundant coolant stream when machining deep cavities. Horizontal tool and cavity orientation allow gravity to enhance chip removal.

HTP

TANGPLUNGE HTP plungers carry tangentially clamped inserts on the frontal face of the tools, featuring high durability and excellent cutting performance. The tools are available with 3 insert size options: HTP LNHT 0604, HTP LNHT 1006 and HTP LNHT 1606. They all have coolant holes for efficient edge flushing and chip evacuation.
The HTP LNHT … tangentially clamped right-hand inserts feature four cutting edges, with a positive rake face for reduced forces during machining and high chip removal. The insert orientation on the tool results in excellent machined surface flatness.

The integral shank tools are available as endmills with integral shank FLEXFIT and SHANKMASTER, which have a threaded connection modular shank option in a diameter range of 16-40 mm. They are also available as shell mills in in a diameter range of 40-100 mm. The shell mill plungers can also be used for general side milling applications.

PH

Center cutting plunger that uses a very strong, double-ended insert with 4 cutting edges. The tools have a cylindrical or a CLICKFIT shank option. In case of vertical machining, the PH-A plunger (which has a spiral, drill-like flute) is recommended. This tool type evacuates chips effectively.

PLX

Side plunger equipped with standard XCMT 120408TR inserts, featuring a maximum width of cut - ae = 11 mm for plunging and a maximum depth of cut - ap = 9 mm for tangential milling. Each insert has two cutting edges. The tool is multifunctional for rough plunging operations and light milling or semi-finishing.
With the PLX cutter – with an overhang of up to 3-3.5xD – there is no need for angular retractions. (This is normally done in order to avoid insert breakage and scratching the walls of the workpiece during retract pass). The PLX cutter enables faster retraction from the workpiece and significantly reduces machining time and failure. There is no need to apply any special CNC programming for the retract pass. Operations with very long overhangs are performed by the PLX cutters with only 45° angular retractions. No other cutters will function under such long overhang conditions.
The PLX cutters have a 17° angle built into the insert, which reduces the radial cutting forces and prevents insert breakage. The cutters also have high tooth density, which means that the PLX cutters can run very fast.
All PLX cutters are manufactured with coolant holes for better chip evacuation.





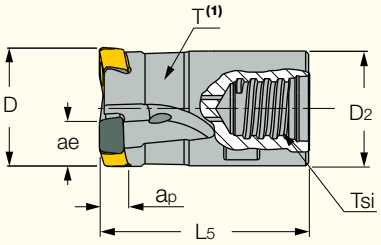
P	M	K	N	S	H
✓	✓	✓		✓	

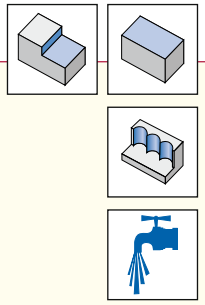
P	M	K	N	S	H
✓		✓			✓

P	M	K	N	S	H
✓	✓			✓	✓

TS HTP

Side Plungers with SHANK-MASTER Threaded Connection Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	D	Z	D_2	L_5	a_e	a_p	Tsi	T(1)	Kg
TS HTP D17/.67-2-T10-LN06	17.00	2	15.20	30.00	4.5	2.50	T10	13.0	0.03
TS HTP D21/.83-3-T12-LN06	21.00	3	19.20	35.00	5.0	2.50	T12	16.0	0.05

(1) Clamping wrench size • For user guide, see pages F11-17.

For inserts, see page: HTP LNHT 0604 (K103).

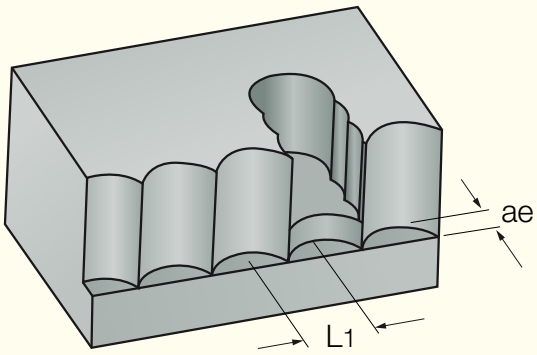
For holders, see page: TS S-A (B72).

Spare Parts

Designation	Key	Screw
TS HTP	T-8/53	SR 14-560-HG



Table 1: Side step as a function of width of plunge



	Cutter Diameter (mm)		
	16	20	25
ae - Width of plunge (mm)	L1max - Step (effective diameter)		
1	7.75	8.72	9.80
2	10.58	12.00	13.56
3	12.49	14.28	16.25
4	13.86	16.00	18.33
5	14.83	17.32	20.00

The relationship between the maximal step $L1_{max}$ and the width of plunge ae is given by the following formula:

$$L1_{max} = 2x\sqrt{Dxae-ae^2}$$

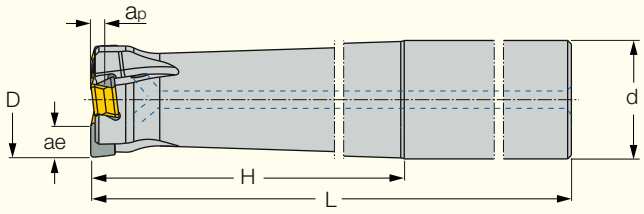
D: cutter diameter

TANGPLUNGE
PLUNGING LINE

HTP-LN06

Side Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	D	d	Z	a_e	a_p	L	H	Shank(1)	Kg
HTP D016-2-L120-C16-LN06	16.00	16.00	2	4.5	2.50	120.00	32.00	C	0.17
HTP D020-3-L150-C20-LN06	20.00	20.00	3	5.0	2.50	150.00	40.00	C	0.33
HTP D025-3-L150-C25-LN06	25.00	25.00	3	5.0	2.50	150.00	50.00	C	0.51
HTP D025-4-L130-C25-LN06	25.00	25.00	4	5.0	2.50	130.00	50.00	C	0.44

(1) C-Cylindrical • For user guide, see pages F11-17.

For inserts, see page: HTP LNHT 0604 (K103).

Spare Parts

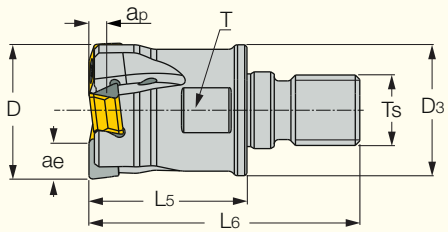
Designation	Key	Screw
HTP-LN06	T-8/53	SR 14-560-HG

TANGPLUNGE • FLEXFIT
PLUNGING LINE

HTP-M-LN06

Side Plungers with FLEXFIT Threaded Connection Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	D	a_e	a_p	Z	L_6	L_5	D_3	Ts	T(1)	Kg
HTP D16/.62-2-M08-LN06	15.95	4.5	2.50	2	47.50	30.00	13.00	M08	10.0	0.03
HTP D20-3-M10-LN06	20.00	5.0	2.50	3	50.00	30.00	18.00	M10	15.0	0.06
HTP D25/1.00-3-M12-LN06	25.20	5.0	2.50	3	57.00	35.00	21.00	M12	17.0	0.10

(1) Clamping wrench size • For user guide, see pages F11-17.

For inserts, see page: HTP LNHT 0604 (K103).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

Spare Parts

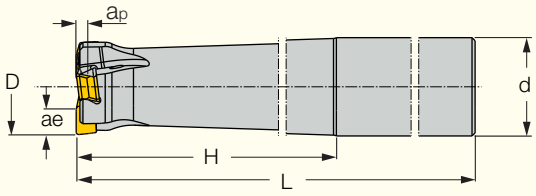
Designation	Key	Screw
HTP-M-LN06	T-8/53	SR 14-560-HG

TANGPLUNGE
PLUNGING LINE

HTP-LN10

Side Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	D	d	Z	a_e	a_p	L	H	Shank(1)	Kg
HTP D025-2-L200-C25-LN10	25.00	25.00	2	7.0	3.00	200.00	120.00	C	0.64
HTP D032-3-L190-C25-LN10	32.00	25.00	3	8.0	3.00	190.00	50.00	C	0.68
HTP D032-3-L210-C32-LN10	32.00	32.00	3	8.0	3.00	210.00	120.00	C	1.1
HTP D032-3-L210-W32-LN10	32.00	32.00	3	8.0	3.00	210.00	120.00	W	1.1
HTP D040-4-L250-C32-LN10	40.00	32.00	4	8.0	3.00	250.00	50.00	C	1.5

• For user guide, see pages F11-17

(1) C-Cylindrical, W-Weldon

For inserts, see page: HTP LNHT 1006 (K104).

Spare Parts

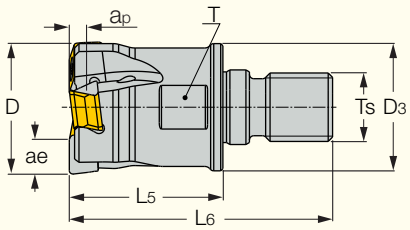
Designation	Screw	Torx Blade	Handle
HTP-LN10	SR 34-550	BLD T10/S7	SW6-SD

TANGPLUNGE • FLEXFIT
PLUNGING LINE

HTP-M-LN10

Side Plungers with FLEXFIT Threaded Connection Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	D	a_e	a_p	Z	L_6	L_5	D_3	Ts	T(1)	Kg
HTP D025-2-M12-LN10	25.00	7.0	3.00	2	57.00	35.00	21.00	M12	17.0	0.09
HTP D032-3-M16-LN10	32.00	8.0	3.00	3	60.00	35.00	29.00	M16	25.0	0.17
HTP D035-3-M16-LN10	35.00	8.0	3.00	3	68.00	43.00	29.00	M16	25.0	0.22
HTP D042-4-M16-LN10	42.00	8.0	3.00	4	68.00	43.00	29.00	M16	25.0	0.26

• For user guide, see pages F11-17.

(1) Clamping wrench size

For inserts, see page: HTP LNHT 1006 (K104).

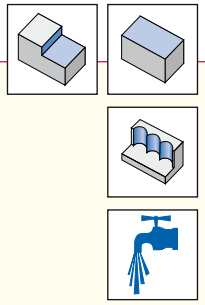
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

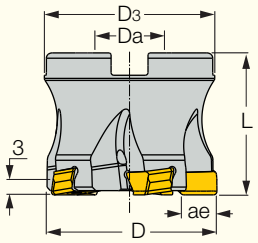
Spare Parts

Designation	Screw	Torx Blade	Handle
HTP-M-LN10	SR 34-550	BLD T10/S7	SW6-SD

HTP-R-LN10

Shell Mill Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	D	a_e	D_3	Z	Da	L	Arbor(1)	Kg
HTP D040-4-16-R-LN10	40.00	8.0	38.00	4	16.00	40.00	A	0.20
HTP D050-5-22-R-LN10	50.00	8.0	48.00	5	22.00	40.00	A	0.31
HTP D052-5-22-R-LN10	50.00	8.0	48.00	5	22.00	40.00	A	0.34

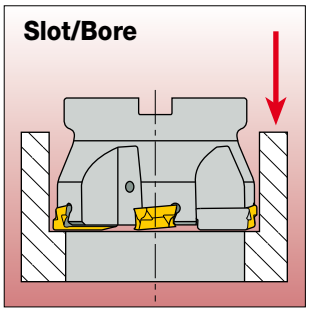
• For user guide, see pages F11-17.

(1) For adaptation see page L13.

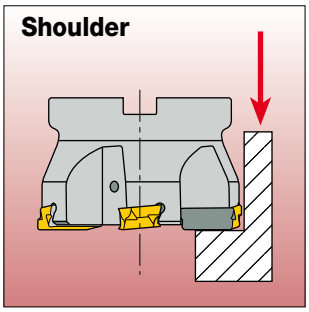
Spare Parts

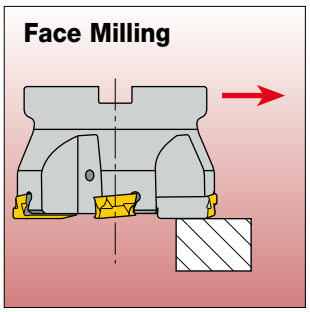
Designation	Screw	Torx Blade	Handle	Shell Locking Screw
HTP D040-4-16-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M8X30DIN912 12.9
HTP D050-5-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25C(1)
HTP D052-5-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25C(1)

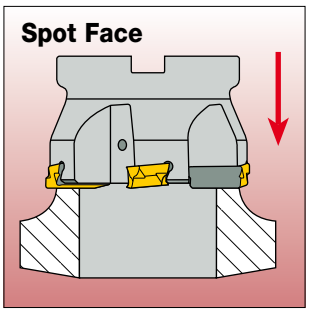
(1) The screw has a coolant hole





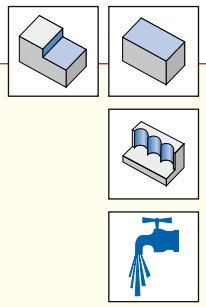


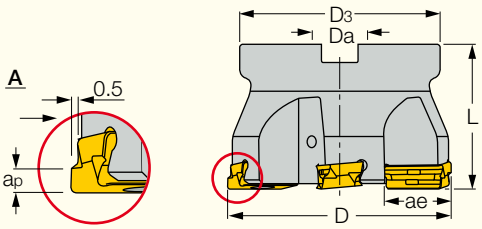




HTP-R-LN16

Shell Mill Plungers Carrying Tangentially Clamped Inserts with4 Cutting Edges





Designation	D	D_3	Z	L	Da	a_e	a_p	Arbor(1)	Kg
HTP D050-04-22-R-LN16	50.00	48.00	4	50.00	22.00	13.0	3.00	A	0.38
HTP D052-04-22-R-LN16	52.00	48.00	4	50.00	22.00	13.0	3.00	A	0.39
HTP D063-05-27-R-LN16	63.00	59.00	5	50.00	27.00	14.0	3.00	A	0.53
HTP D066-05-27-R-LN16	66.00	62.00	5	50.00	27.00	14.0	3.00	A	0.60
HTP D080-06-27-R-LN16	80.00	65.00	6	50.00	27.00	14.0	3.00	A	0.82
HTP D080-06-32-R-LN16	80.00	72.00	6	50.00	32.00	14.0	3.00	A	0.89
HTP D100-07-32-R-LN16	100.00	78.00	7	50.00	32.00	14.0	3.00	B	1.28

• For user guide, see pages F11-17.

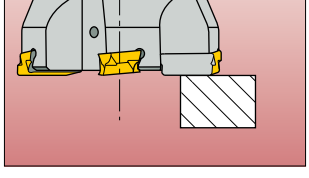
(1) For adaptation see page L13.

For inserts, see pages: HTP LNHT 1606 (K105).

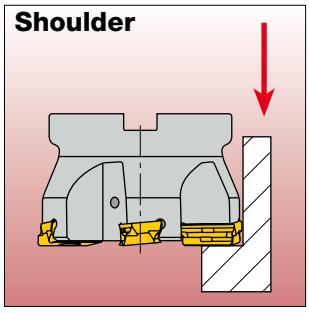
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw	Shell Locking Screw 1
HTP D050-04-22-R-LN16	SR 34-535	BLD T15/S7	SW6-T SHORT	SR PS 118-0271C(1)	
HTP D052-04-22-R-LN16	SR 34-535	BLD T15/S7	SW6-T SHORT	SR PS 118-0271C(1)	
HTP D063-05-27-R-LN16	SR 34-535	BLD T15/S7	SW6-T SHORT		SR M12X30C(1)
HTP D066-05-27-R-LN16	SR 34-535	BLD T15/S7	SW6-T SHORT		SR M12X30C(1)
HTP D080-06-27-R-LN16	SR 34-535	BLD T15/S7	SW6-T SHORT		SR M12X30C(1)
HTP D080-06-32-R-LN16	SR 34-535	BLD T15/S7	SW6-T SHORT		SR M16X40C(1)
HTP D100-07-32-R-LN16	SR 34-535	BLD T15/S7	SW6-T SHORT		

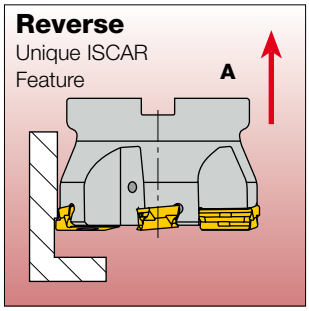
(1) The screw has a coolant hole

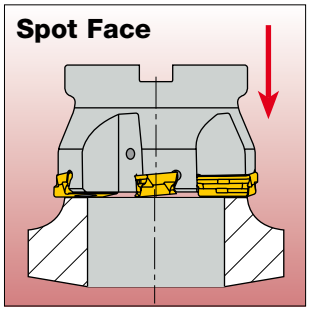






Rear Cutting Edge

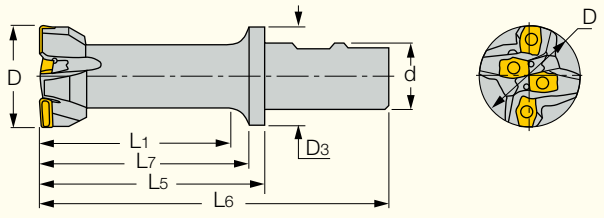


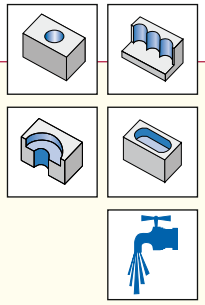


Fz max = 0.3 mm/tooth

PH

High Productivity Center Cutting Plungers with PLHT 1305-PDX Inserts





Designation	D	L_1	L_7	Zeff	Z	d	D_3	Shank(1)	L_5	L_6	Kg
PH D40-H090-W32-13	40.00	90.0	105.70	1	2	32.00	48.60	W	113.70	173.70	0.97
PH D50-H100-W32-13	50.00	100.0	103.00	2	4	32.00	48.60	W	111.00	171.00	1.12

• For user guide, see pages F11-17.

(1) W-Weldon

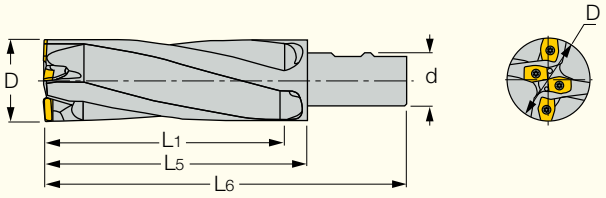
For inserts, see pages: PLHT (K103).

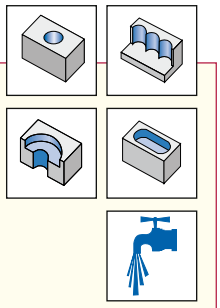
Spare Parts

Designation	Screw	Key
PH	SR 14-562XL	T-10/51

PH-A

High Productivity Center Cutting Plungers with Spiral Flutes Carrying PLHT 1305-PDX Inserts





Designation	D	L_1	Zeff	Z	d	Shank(1)	L_5	L_6	Kg
PH D50-H140-A-W32-13	50.00	140.0	2	4	32.00	W	160.00	220.00	1.43
PH D63-H140-A-W40-13	63.00	140.0	2	6	40.00	W	160.00	230.00	2.36

• For user guide, see pages F11-17.

(1) W-Weldon

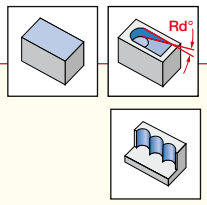
For inserts, see pages: PLHT (K103).

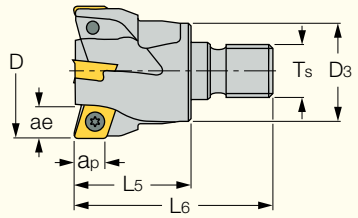
Spare Parts

Designation	Screw	Key
PH-A	SR 14-562XL	T-10/51

PLX-M

Side Plungers with FLEXFIT Threaded Adaptation Carrying XCMT 120408TR Inserts





Designation	D	Z	a_e(1)	L_5	L_6	D_3	a_p	Ts	R_d°	Kg
PLX D32-M16-12	32.00	3	11.0	35.00	60.00	30.40	9.00	M16	8.6	0.16
PLX D40-M16-12	40.00	4	11.0	35.00	60.00	29.00	9.00	M16	6.8	0.29

• No internal coolant • For user guide, see pages F11-17.

(1) Maximum side plunge

For inserts, see page: XCMT-TR (K102).

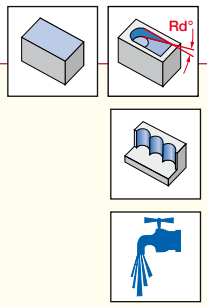
For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43) • S M-CF (E45).

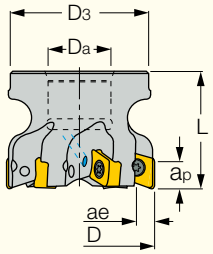
Spare Parts

Designation	Screw	Torx Blade	T-Handle
PLX-M	SR 34-510/L11.7	BLD T15/S7	SW6-T

PLX

Side Shell Mill Plungers with XCMT 120408TR Inserts





Designation	D	D_3	Z	Da	L	a_e(1)	a_p	R_d°	Arbor(2)	Kg
PLX D52-22-12	52.00	50.00	6	22.00	40.00	11.0	9.00	4.9	A	0.43
PLX D66-22-12	66.00	64.00	7	22.00	40.00	11.0	9.00	3.5	A	0.70
PLX D80-32-12	80.00	68.00	8	32.00	50.00	11.0	9.00	2.8	A	1.07

• With holes for internal coolant • For user guide, see pages F11-17.

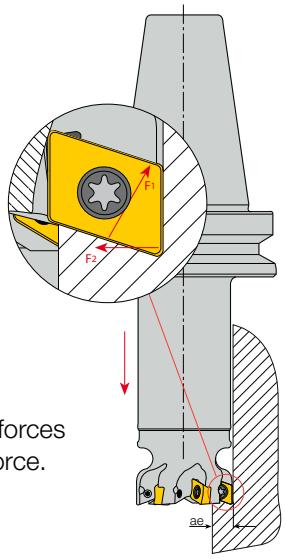
(1) Maximum side plunge (2) For adaptation see page L13.

For inserts, see pages: XCMT-TR (K102).

Spare Parts

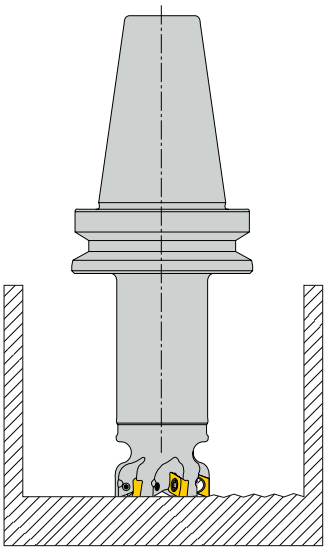
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
PLX D52-22-12	SR 34-510/L11.7	BLD T15/S7	SW6-T	SR M10X25DIN912
PLX D66-22-12	SR 34-510/L11.7	BLD T15/M7	SW6-T	SR M10X25DIN912
PLX D80-32-12	SR 34-510/L11.7	BLD T15/M7	SW6-T	SR M16X30

Plunging



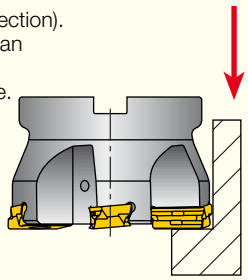
Balanced cutting forces reduce bending force.

Finishing Cut

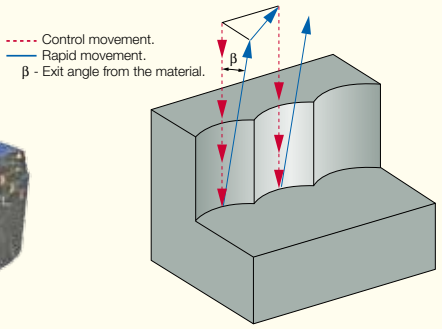


Recommended Cutting Conditions for Side Plunging

Plunging Cycle:
Step 1- Plunge in (axially-Z direction).
Step 2- Back stroke (rapid) at an angle β≥2°.
Step 3- Move to the next cycle.







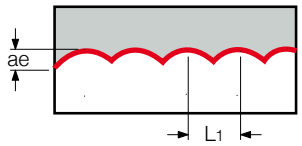
TANGPLUNGE - SIDE PLUNGING

Workpiece material						Insert HTP LN... type	Carbide grade for inserts	Cutting speed Vc, m/min	Feed Fz, m/min	Coolant
ISO class / DIN/ISO 513	Description	ISCAR mat. group*	Typical representstive: AISI/SAE/ ASTM	Typical representstive: DIN W.-Nr.	Hardness, HB					
P	Non-alloy steel	4	1060	1.1221	180-200	...ER	IC830/ IC928	80-130	0.12-0.15	Air blow
	Low alloy steel	8	4340	1.6582	260-300			80-120	0.1-0.15	
	Low alloy steel	9	3135	1.571	HRC 35-40*			80-120	0.08-0.15	
	High alloy steel	10	H13	1.2344	200-220			80-100	0.08-0.12	
M	Martensitic s.s.	12	420	1.4021	200	...ER	IC830/ IC330/ IC328	80-100	0.08-0.12	Air blow/ wet
	Austenitic s.s.	14	304L	1.4306	200			60-80	0.08-0.1	Wet (emulsion)
K	Grey cast iron	16	Class 40	0.6025 (GG25)	250	...ER	IC810/ IC910	150-200	0.12-0.2	Air blow
	Nodular cast iron	17	Class 65-45-12	0.7050 (GGG50)	200			100-180	0.1-0.17	
S	Ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.07-0.1	Wet (emulsion)
	Ti alloys	37	Ti6Al4V (Grade 5)	3.7164	HRC 34-36			35-40	0.07-0.1	
H	Hardened steel	38	4340	1.6582	HRC 45 max	...ETR	IC808/ IC908	70-100	0.08-0.1	Air blow

The table data refer to a cutter overhang up to 4D (D-the diameter of a cutter)
* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered

Table 1: L1 as a function of width of cut and cutter diameter

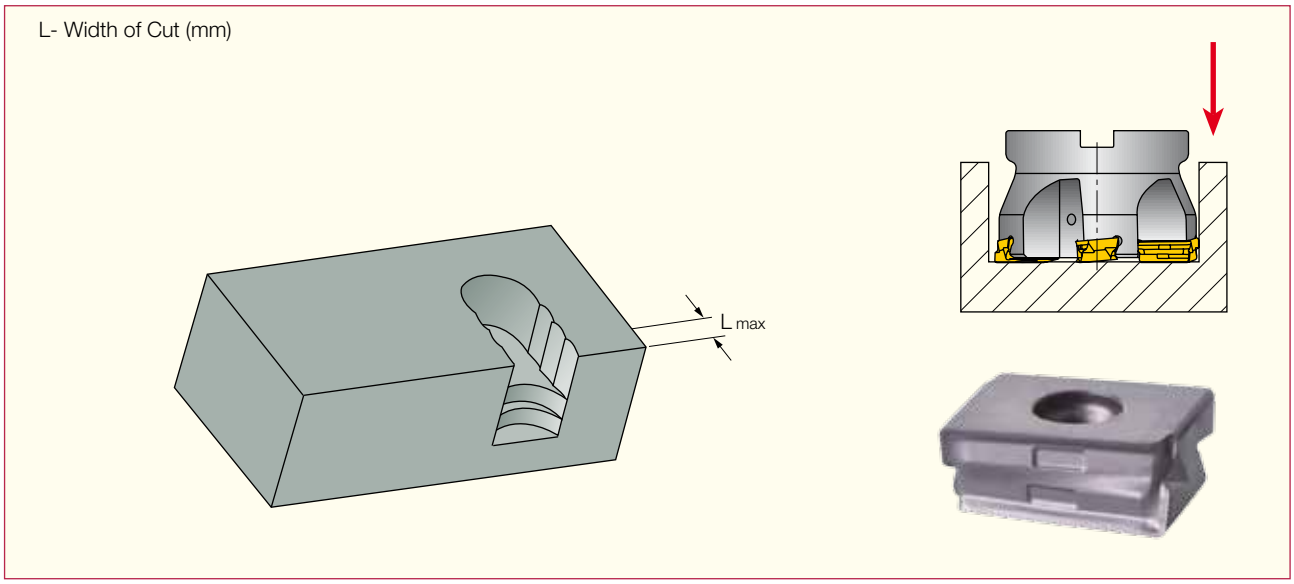
$L1max = 2x\sqrt{Dxae-ae^2}$



L1- Side step over
ae- Width of plunge

ae - Width of plunge (mm)	Cutter Diameter (mm)					
	50	52	63	66	80	100
	L1max - Step (effective diameter)					
1	14.0	14.3	15.75	16.1	17.8	19.9
3	23.8	24.3	26.8	27.5	30.4	34.1
5	30.0	30.6	34.0	34.9	38.7	43.6
6	32.5	33.2	37.0	37.9	42.1	47.5
7	34.7	35.5	39.6	40.6	45.2	51.0
8	36.6	37.5	41.9	43.0	48.0	54.3
9	38.5	39.3	43.10	45.3	50.5	57.2
10	40.0	41.0	46.0	47.3	52.9	60.0
11	41.4	42.5	47.8	49.2	55.1	62.6
12	42.7	43.8	49.5	50.9	57.1	65.0
13	43.8	45.0	51.0	52.5	59.0	67.3
14	-	-	52.4	53.9	60.8	69.4

Recommended Cutting Conditions for Slot Plunging



TANGPLUNGE - SLOT PLUNGING

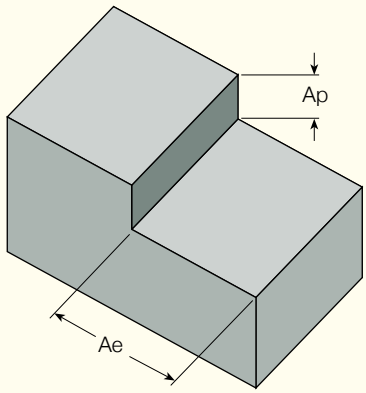
Workpiece material						Insert HTP LN... type	Carbide grade for inserts	Cutting speed Vc, m/min	Feed Fz, m/min	Coolant
ISO class / DIN/ ISO 513	Description	ISCAR mat. group*	Typical representstive: AISI/ SAE/ ASTM	Typical representstive: DIN W.-Nr.	Hardness, HB					
P	Non-alloy steel	4	1060	1.1221	180-200	...ER	IC830/ IC928	80-120	0.1-0.15	Air blow
	Low alloy steel	8	4340	1.6582	260-300			80-120	0.1-0.12	
	Low alloy steel	9	3135	1.571	HRC 35-40*			80-120	0.08-0.12	
	High alloy steel	10	H13	1.2344	200-220			80-100	0.08-0.1	
M	Martensitic s.s.	12	420	1.4021	200	...ER	IC830/ IC330/ IC328	80-100	0.08-0.1	Air blow/ wet
	Austenitic s.s.	14	304L	1.4306	200			60-80	0.08-0.1	Wet (emulsion)
K	Grey cast iron	16	Class 40	0.6025 (GG25)	250	...ER	IC810/ IC910	150-200	0.12-0.18	Air blow
	Nodular cast iron	17	Class 65-45-12	0.7050 (GGG50)	200			100-180	0.1-0.15	
S	Ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.07-0.09	Wet (emulsion)
	Ti alloys	37	Ti6Al4V (Grade 5)	3.7164	HRC 34-36			35-40	0.07-0.09	
H	Hardened steel	38	4340	1.6582	HRC 45 max	...ETR	IC808/ IC908	70-100	0.08-0.09	Air blow

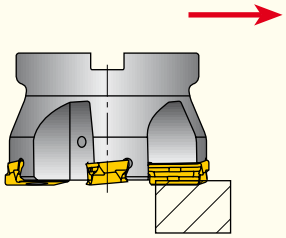
The table data refer to a cutter overhang up to 4D (D-the diameter of a cutter)

* ISCAR material group in accordance with VDI 3323 standard

** Quenched and tempered

Recommended Cutting Conditions for Face Milling







TANGPLUNGE - FACE MILLING

Workpiece material						Insert HTP LN... type	Carbide grade for inserts	Cutting speed Vc, m/min	Feed Fz, m/min	Coolant
ISO class			Typical representstive							
DIN/ ISO 513	Description	ISCAR mat. group*	AISI/SAE/ ASTM	DIN W.-Nr.	Hardness, HB					
P	Non-alloy steel	4	1060	1.1221	180-200	...ER	IC830/ IC928	80-120	0.1-0.2	Air blow
	Low alloy steel	8	4340	1.6582	260-300			80-120	0.1-0.18	
	Low alloy steel	9	3135	1.571	HRC 35-40*			80-120	0.1-0.15	
	High alloy steel	10	H13	1.2344	200-220			80-100	0.08-0.15	
M	Martensitic s.s.	12	420	1.4021	200	...ER	IC830/ IC330/ IC328	80-100	0.08-0.15	Air blow/ wet
	Austenitic s.s.	14	304L	1.4306	200			60-80	0.08-0.1	Wet (emulsion)
K	Grey cast iron	16	Class 40	0.6025 (GG25)	250	...ER	IC810/ IC910	150-200	0.12-0.2	Air blow
	Nodular cast iron	17	Class 65-45-12	0.7050 (GGG50)	200			100-180	0.1-0.18	
S	Ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.08-0.12	Wet (emulsion)
	Ti alloys	37	Ti6Al4V (Grade 5)	3.7164	HRC 34-36			35-40	0.08-0.12	
H	Hardened steel	38	4340	1.6582	HRC 45 max	...ETR	IC808/ IC908	70-100	0.08-0.1	Air blow

The table data refer to a cutter overhang up to 4xD and the maximal width of cut Ae=0.7xD (D-the diameter of a cutter)
The maximal depth of cut Ap is 2.5 mm for hardened steel and 3 mm for other material groups
* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered

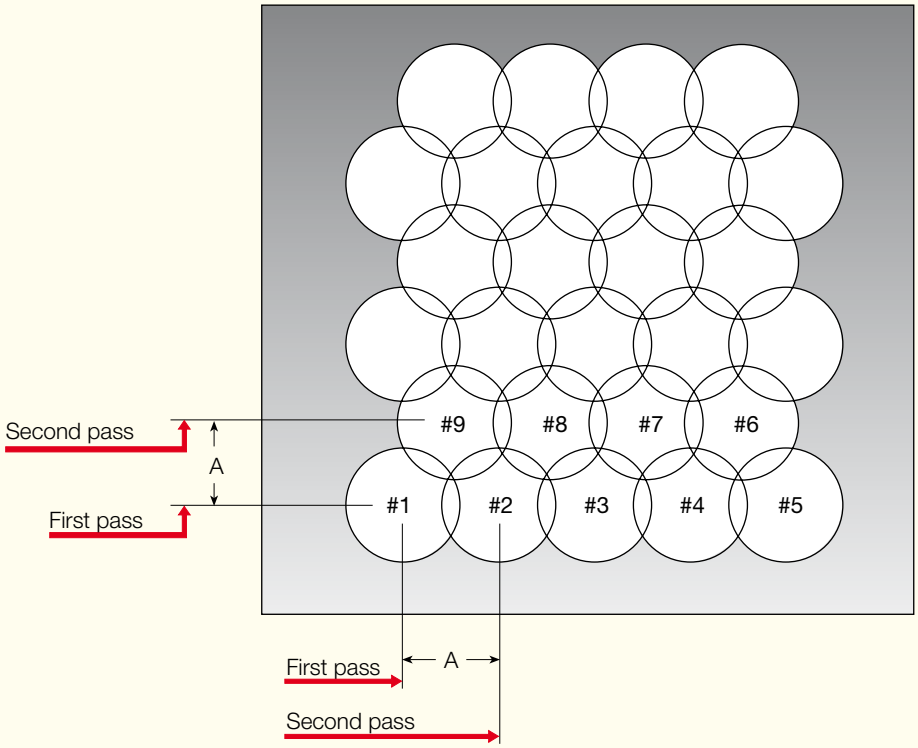
Recommended pattern for the use of PH...- type plunger tools

1) First hole - drilling mode, see Sketch 1.
2) Second and following overlapping by a pitch of 0.5d < A < 0.8d, see Sketch 1.
3) For overlap between pass 1 and 2, see Sketch 2.

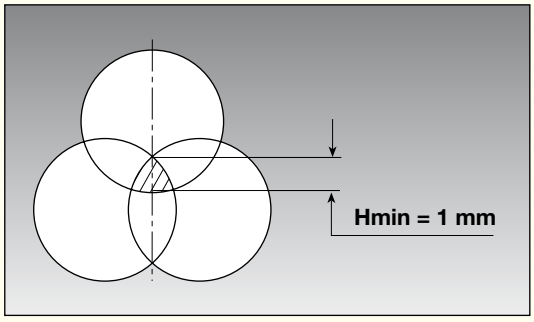
Cutting conditions

For alloy steel SAE 4340, P20, using carbide grade IC328
Vc = 150 m/min
fz = 0.05 - 0.07 mm/flute

Sketch 1



Sketch 2

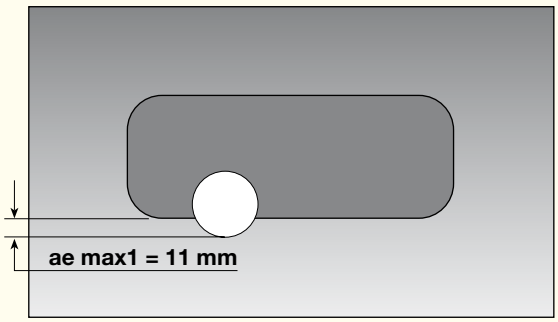


Recommended pattern for the PLX...- type plungers

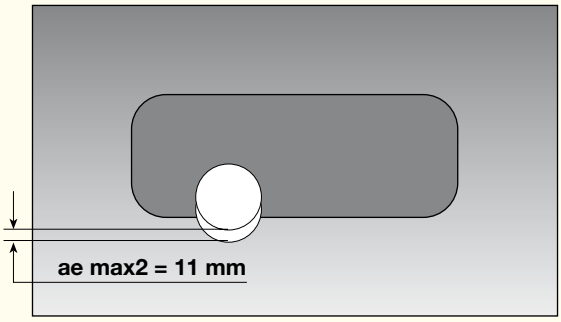
1) Maximum width ae for each pass should not excede 11 mm, see Sketches #1 through #3.
2) Total width of penetration should not exceed **A<0.7D**, see Sketch #3.
3) ae for additional lateral side steps have an 11 mm maximum, see Sketch #4.

Cutting Conditions:
For alloy steel SAE 4340, P20. 30 to 32 Rc, using carbide grade IC328
Vc = 150 m/min
fz = 0.12 - 0.15 mm/tooth

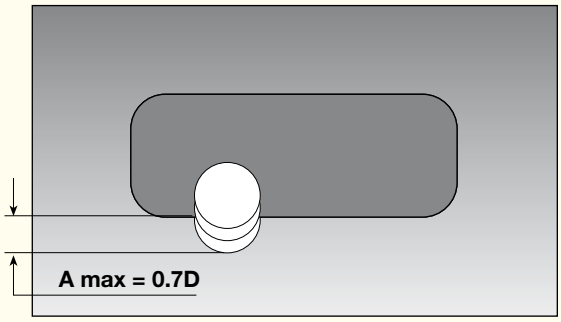
Sketch 1



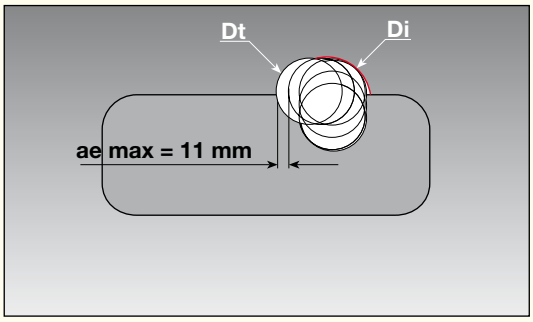
Sketch 2



Sketch 3



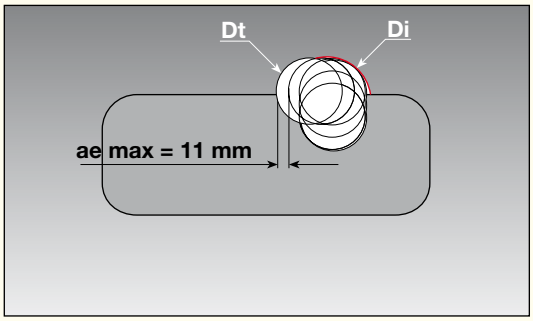
Sketch 4



When plunging starts from a pre-drilled hole, the initial diameter of the hole **Di** should be larger than the plunger diameter **Dt**.

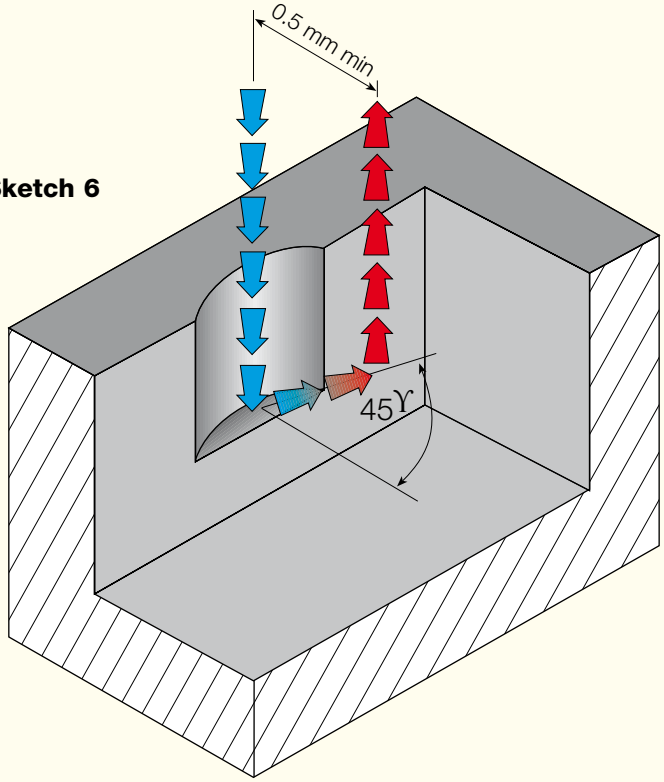
Sketch 5

Di > Dt



Note: After each axial plunge stroke, move 45° from the horizontal a distance of at least 0.5 mm. Only after this move can you move up and away for a rapid exit.
See Sketch 6.

Sketch 6



The **PLH**...- type (trepanning) plungers have a hollow center. This requires a specific pattern so the column that remains after each plunge is removed completely and smoothly.

The coordinates in Table 1 produce the pattern shown in Sketch 7.
This provides the optimal results for the **PLH D75-27-13** type plunger (outer diameter of 75 mm, inner diameter of 24 mm).

Sketch 7

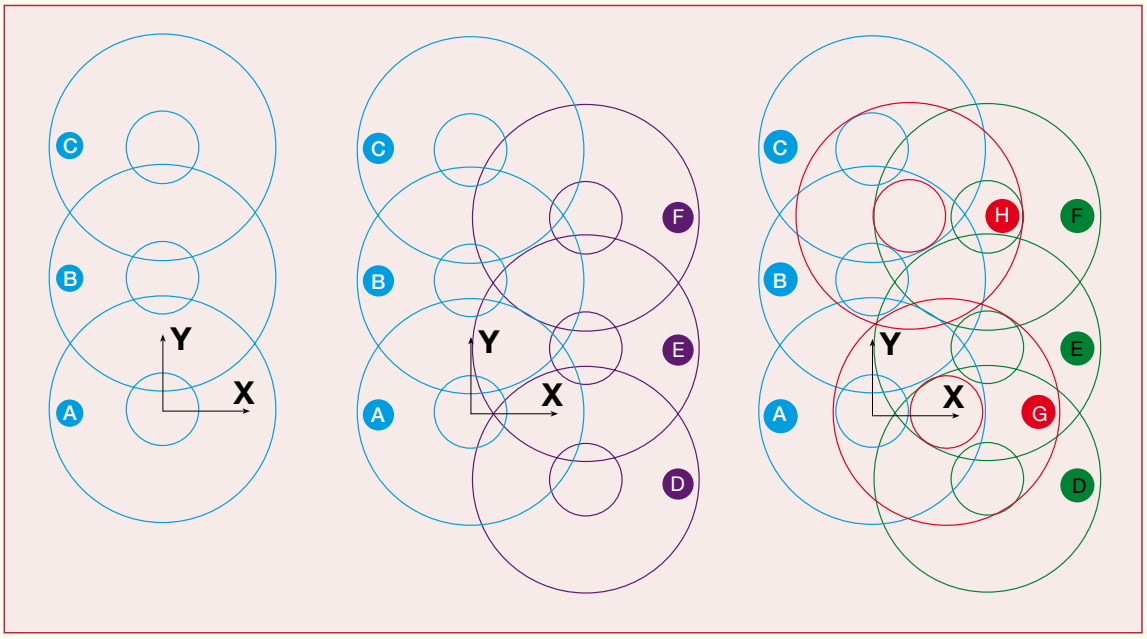


Table 1

Hole	X	Y
A	0.0000	0.0000
B	0.0000	43.300
C	0.0000	86.601
D	37.125	-21.650
E	37.125	21.650
F	37.125	64.951
G	24.750	0.0000
H	12.375	64.951

ISCARPLUNGER



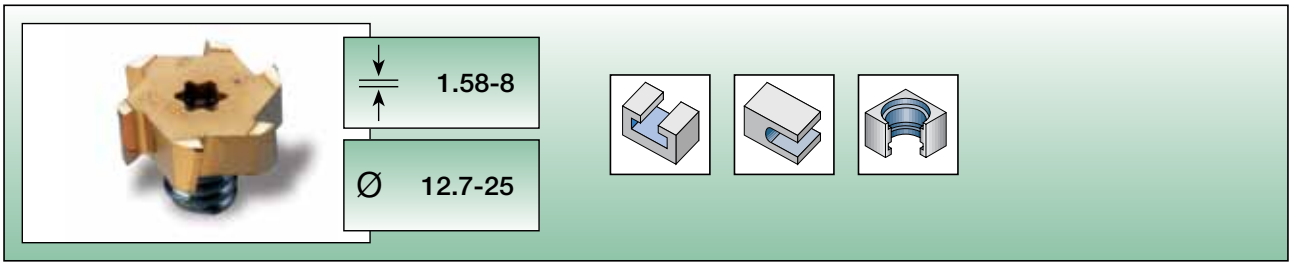
SLOTTING CUTTERS



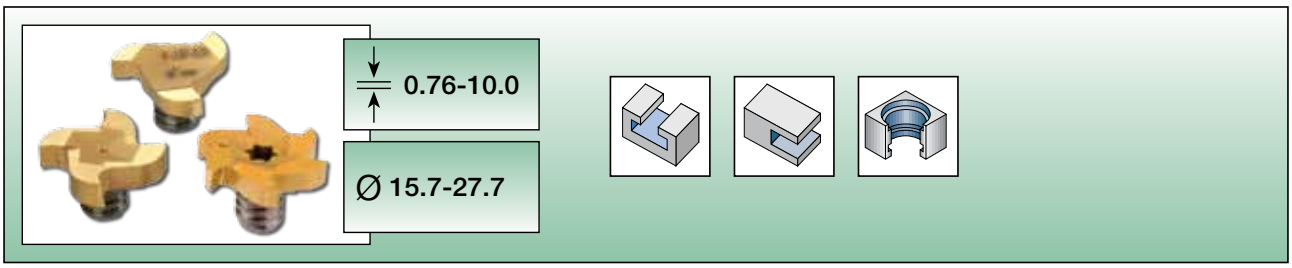
Member IMC Group

Application Range

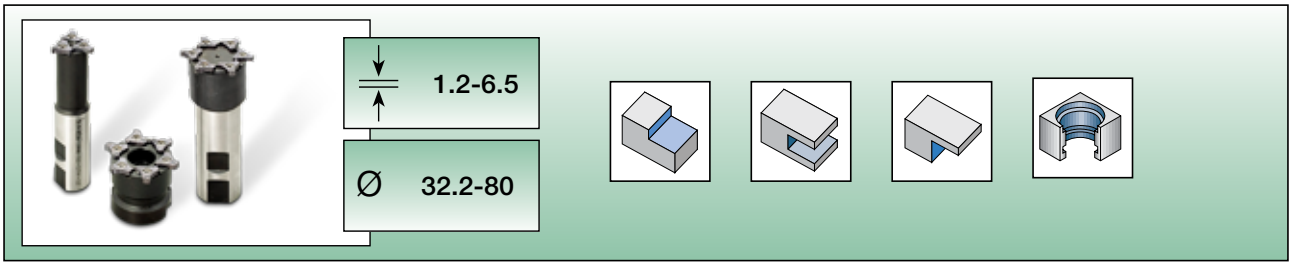
MM TS- pages G5-8



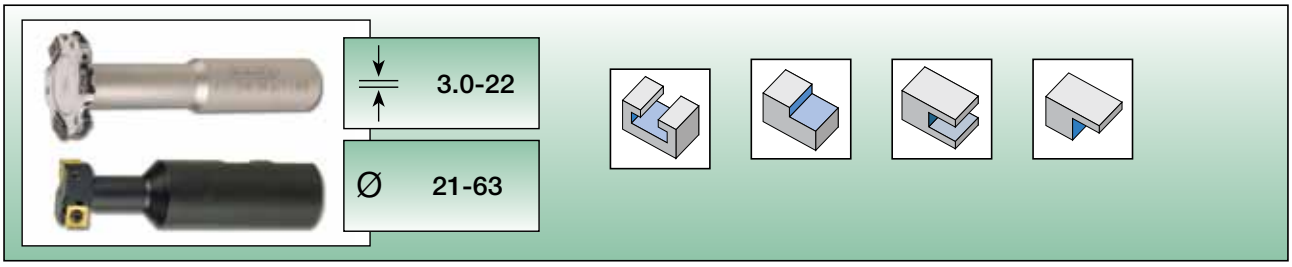
MM GRIT- pages G9-10



TRIB - pages G11-12



ETS T-Slot - pages G15-20



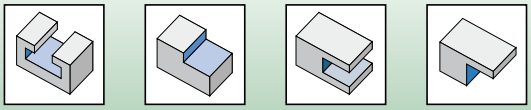
Application Range

FDN - pages **G**22-31



6-25

Ø 50-250

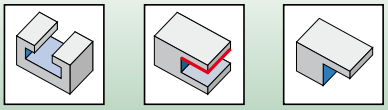


FST - page **G**40



12-16

Ø 100-200

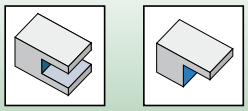


SDN - pages **G**32-39



3-25

Ø 63-250

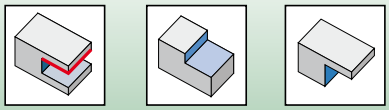


SSB...R/L- pages **G**40-41



12-24

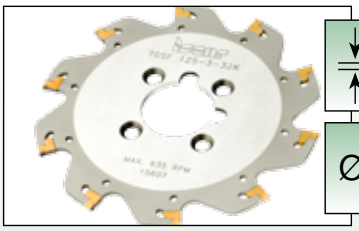
Ø 100-200



Application Range

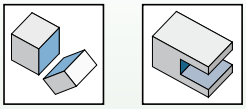
GM/SGSF/SGSA / TGSF - pages G44-49

TGSF



2-4

Ø 50-160



SGSA



2.7-4.5

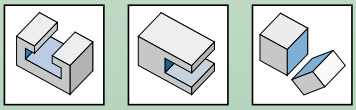
Ø 32-125

SGSF

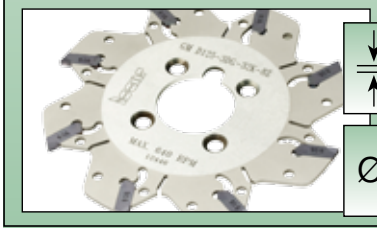


1.4-6.4

Ø 50-425



GM-DG



2.7-4.35

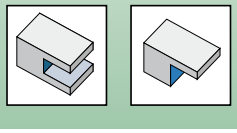
Ø 100-200

SGSF with Drive Flange



2.4-6.4

Ø 80-425

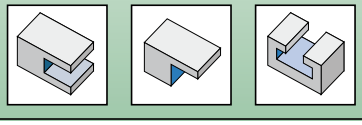


SGSF with Drive Shank S; SW -

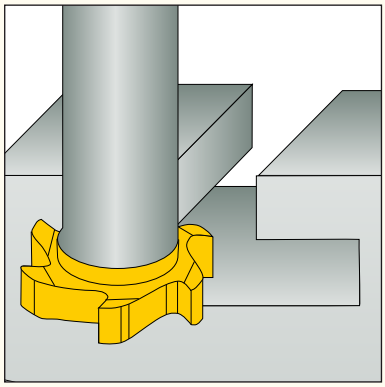


1.5-6.4

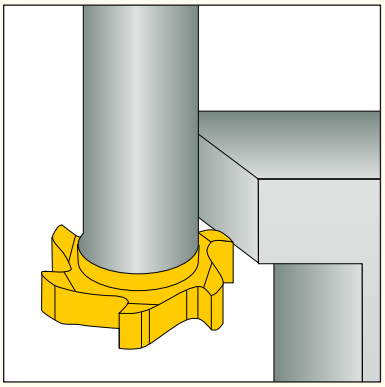
Ø 50-160



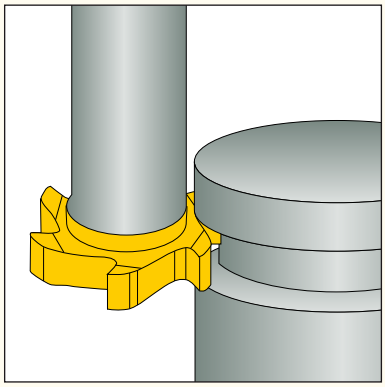
Typical Applications



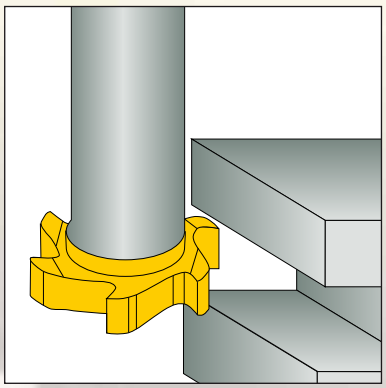
T Slot



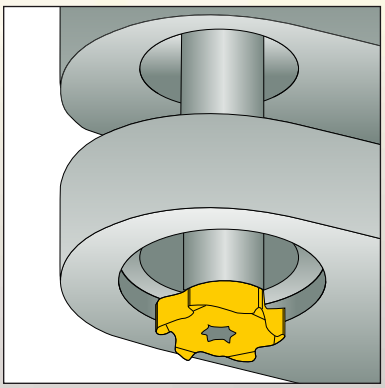
Bottom Deburring



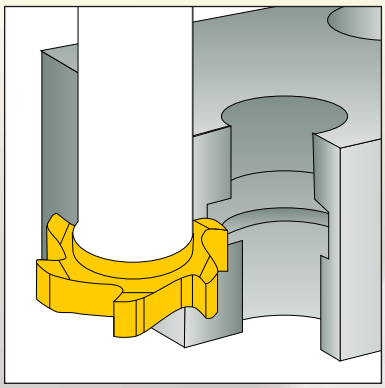
Circular Groove



Straight Groove



Bottom Circular Groove

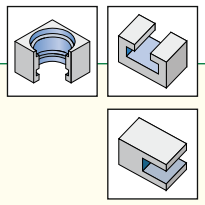


Internal Circular Groove

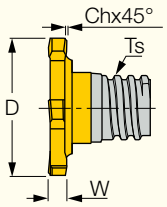


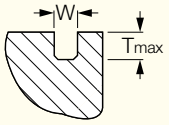
MM TS-N

Interchangeable Solid Carbide T-Slot Milling Heads with Chamfered Corners









Designation	Dimensions						IC328
	$D_{-0.05}$	Z	$W^{\pm 0.02}$	T_{max}	Ch	Ts	
MM TS.500-N062P-06T05	12.70	6	1.58	2.25	0.15	T05	●
MM TS.500-N078P-06T05	12.70	6	1.98	2.25	0.15	T05	●
MM TS135-N20P-06T05	13.50	6	2.00	2.65	0.20	T05	●
MM TS135-N25P-06T05	13.50	6	2.50	2.65	0.20	T05	●

- For tightening torques and clamping instructions, see page B42.
- Do not apply lubricant to the threaded connection
- For shanks, see pages B68-71.
- For user guide, see pages G58-59.

Spare Parts

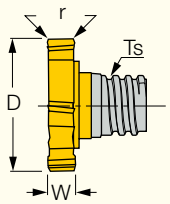
Designation	Key
MM TS-N	T-20/3*

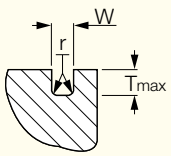
* Optional, should be ordered separately

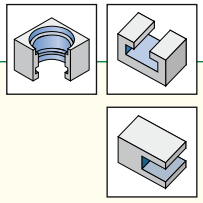
MM TS-H

Interchangeable Solid Carbide T-Slot Milling Heads with Various Corner Radius









Designation	Dimensions D-0.05	Z	W±0.02	Tmax	r	Ts	IC328	Key
MM TS135-H30D-06T05	13.50	6	3.00	2.65	0.40	T05	●	T-20/3*
MM TS135-H40D-06T05	13.50	6	4.00	2.65	0.40	T05	●	T-20/3*
MM TS165-H40A-06T05	16.50	6	4.00	4.25	0.20	T05	●	T-20/3*
MM TS160-H20D-06T06	16.00	6	2.00	3.00	0.40	T06	●	T-20/3*
MM TS160-H30D-06T06	16.00	6	3.00	3.00	0.40	T06	●	T-25/3*
MM TS160-H40D-06T06	16.00	6	4.00	3.00	0.40	T06	●	T-25/3*
MM TS165-H20D-06T06	16.50	6	2.00	3.25	0.40	T06	●	T-20/3*
MM TS165-H30D-06T06	16.50	6	3.00	3.25	0.40	T06	●	T-25/3*
MM TS165-H40D-06T06	16.50	6	4.00	3.25	0.40	T06	●	T-25/3*
MM TS195-H60A-06T06	19.50	6	6.00	4.45	0.20	T06	●	T-25/3*
MM TS225-H60A-06T06	22.50	6	6.00	5.95	0.20	T06	●	T-25/3*
MM TS195-H40D-06T08	19.50	6	4.00	3.45	0.40	T08	●	T-30/3 L*
MM TS195-H50D-06T08	19.50	6	5.00	3.45	0.40	T08	●	T-30/3 L*
MM TS195-H60D-06T08	19.50	6	6.00	3.45	0.40	T08	●	T-30/3 L*
MM TS225-H40D-06T08	22.50	6	4.00	4.90	0.40	T08	●	T-40/3 L*
MM TS225-H50D-06T08	22.50	6	5.00	4.95	0.40	T08	●	T-40/3 L*
MM TS225-H60D-06T08	22.50	6	6.00	4.95	0.40	T08	●	T-40/3 L*
MM TS225-H80D-06T08	22.50	6	8.00	4.95	0.40	T08	●	T-40/3 L*
MM TS250-H50D-06T08	25.00	6	5.00	5.90	0.40	T08	●	T-50/3 L*
MM TS250-H60D-06T08	25.00	6	6.00	5.90	0.40	T08	●	T-50/3 L*
MM TS250-H80D-06T08	25.00	6	8.00	5.90	0.40	T08	●	T-50/3 L*
MM TS250-H50D-06T10	25.00	6	5.00	4.30	0.40	T10	●	T-50/3 L*
MM TS250-H60D-06T10	25.00	6	6.00	4.30	0.40	T10	●	T-50/3 L*
MM TS250-H80D-06T10	25.00	6	8.00	4.30	0.40	T10	●	T-50/3 L*

• For tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection

• For shanks, see pages B68-71.

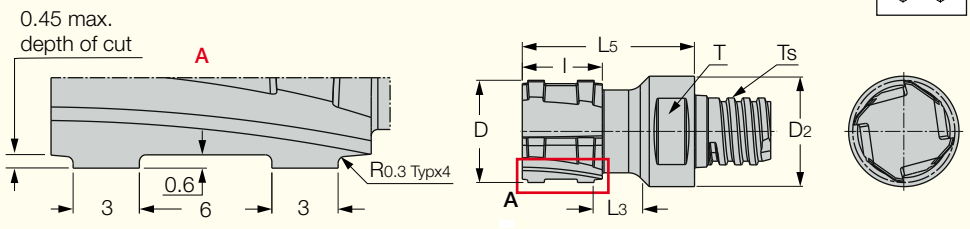
• For user guide, see pages G58-59.

* Optional, should be ordered separately

MM TS-DG

Double-Groove Internal Grooving Heads with Threaded Connection, for Tube Sheets of Heat Exchangers





Designation	Dimensions									IC908
	D_4[1]	Z	D	Ts	L_5	L_3	l	D_2	T[2]	
MM TS155-04T10-8238	15.88	4	15.50	T10	30.20	8.40	14.10	16.00	13.0	●
MM TS185-04T12-8239	19.05	4	18.50	T12	31.20	8.80	14.50	20.00	16.0	●
MM TS245-04T15-8240	25.40	4	24.50	T15	37.40	11.00	14.40	23.90	20.0	●

• For shanks, see pages B68-71 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection. • For user guide, see pages G58-59.

[1] For minimum tube outer diameter (inch sizes). [2] Clamping wrench size (to be ordered separately).

Spare Parts

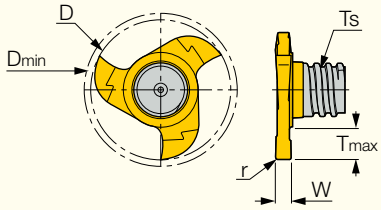
Designation	Wrench
MM TS155-04T10-8238	MM KEY 13X8*
MM TS185-04T12-8239	MM KEY 16X9*
MM TS245-04T15-8240	MM KEY 20*

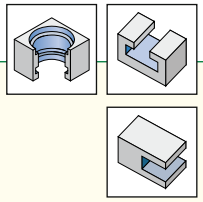
* Optional, should be ordered separately

MM GRIT-16K/18P

Interchangeable Solid Carbide Small Diameter Groove Milling Heads







Designation	Dimensions							IC528
	D	W±0.02	Z	r	Tmax	D min(2)	Ts	
MM GRIT 16K-1.50-0.10	15.70	1.50	3	0.10	2.80	16.00	T06	●
MM GRIT 16P-1.50-0.10	15.70	1.50	3	0.10	2.80	16.00	T06	●
MM GRIT 16K-1.57-0.20	15.70	1.57	3	0.20	2.80	16.00	T06	●
MM GRIT 16K-2.00-0.20	15.70	2.00	3	0.20	2.80	16.00	T06	●
MM GRIT 16P-2.20-1.10	15.70	2.20	3	1.10	2.80	16.00	T06	●
MM GRIT 16K-2.39-0.20	15.70	2.39	3	0.20	2.80	16.00	T06	●
MM GRIT 16K-2.50-0.20	15.70	2.50	3	0.20	2.80	16.00	T06	●
MM GRIT 16K-3.00-0.20	15.70	3.00	3	0.20	2.80	16.00	T06	●
MM GRIT 16P-3.00-0.20	15.70	3.00	3	0.20	2.80	16.00	T06	●
MM GRIT 16K-3.17-0.20	15.70	3.17	3	0.20	2.80	16.00	T06	●
MM GRIT 18K-1.20-0.05 (1)	17.70	1.20	3	0.05	3.80	18.00	T06	●
MM GRIT 18P-1.20-0.60	17.70	1.20	3	0.60	3.80	18.00	T06	●
MM GRIT 18K-1.40-0.05 (1)	17.70	1.40	3	0.05	3.80	18.00	T06	●
MM GRIT 18K-1.50-0.10	17.70	1.50	3	0.10	3.80	18.00	T06	●
MM GRIT 18K-1.57-0.20	17.70	1.57	3	0.20	3.80	18.00	T06	●
MM GRIT 18K-1.70-0.05 (1)	17.70	1.70	3	0.05	3.80	18.00	T06	●
MM GRIT 18K-2.00-0.20	17.70	2.00	3	0.20	3.80	18.00	T06	●
MM GRIT 18P-2.00-1.00	17.70	2.00	3	1.00	3.80	18.00	T06	●
MM GRIT 18P-2.20-1.10	17.70	2.20	3	1.10	3.80	18.00	T06	●
MM GRIT 18K-2.39-0.20	17.70	2.39	3	0.20	3.80	18.00	T06	●
MM GRIT 18K-2.50-0.20	17.70	2.50	3	0.20	3.80	18.00	T06	●
MM GRIT 18K-3.00-0.20	17.70	3.00	3	0.20	3.80	18.00	T06	●
MM GRIT 18P-3.00-1.50	17.70	3.00	3	1.50	3.80	18.00	T06	●
MM GRIT 18K-3.17-0.20	17.70	3.17	3	0.20	3.80	18.00	T06	●

• Recommended for O-rings and retaining rings. • MM EGR clamping key is supplied with each MM GRT... shank. • Modification options on request. • Do not apply lubricant to the threaded connection. • Tightening torque: 1000 N x cm • For clamping instructions, see page B42 • For shanks, see pages B68-71.

• For user guide, see pages G58-59.

• K-For general steel machining.

• P-Positive geometry for soft and gummy materials.

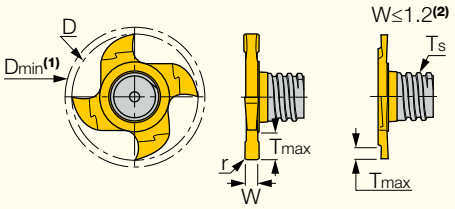
(1) For circle clips according to DIN 471/472 and ANSI B27.7M (2) Minimum bore diameter

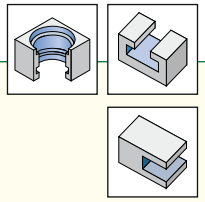
* Optional, should be ordered separately

MM GRIT-22K/P,28K

Interchangeable Solid Carbide Small Diameter Groove Milling Heads







Designation	Dimensions D	W±0.02	Z	r	Tmax	D min(2)	Ts	IC528	Clamping Key
MM GRIT 22K-0.76-0.00 (1)	21.70	0.76	4	0.00	1.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-0.86-0.00 (1)	21.70	0.86	4	0.00	1.70	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-0.96-0.00 (1)	21.70	0.96	4	0.00	1.90	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-1.00-0.05	21.70	1.00	4	0.05	2.00	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-1.00-0.05	21.70	1.00	4	0.05	2.00	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-1.20-0.05 (1)	21.70	1.20	4	0.05	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-1.40-0.05 (1)	21.70	1.40	4	0.05	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-1.57-0.00	21.70	1.57	4	0.00	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-1.70-0.10 (1)	21.70	1.70	4	0.10	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-1.70-0.10 (1)	21.70	1.70	4	0.10	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-1.95-0.20 (1)	21.70	1.95	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-2.00-0.20	21.70	2.00	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-2.00-0.20	21.70	2.00	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-2.25-0.20 (1)	21.70	2.25	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-2.39-0.20	21.70	2.39	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-2.50-0.20	21.70	2.50	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-2.50-0.20	21.70	2.50	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-2.75-0.20 (1)	21.70	2.75	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-3.00-0.20	21.70	3.00	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-3.00-0.20	21.70	3.00	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-3.17-0.20	21.70	3.17	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-3.25-0.20 (1)	21.70	3.25	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-3.81-0.20	21.70	3.81	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-4.00-0.20	21.70	4.00	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-3.98-0.20	21.70	3.98	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-4.00-0.20	21.70	4.00	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22P-4.00-2.00	21.70	4.00	4	2.00	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-4.25-0.20 (1)	21.70	4.25	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-4.25-1.20 (1)	21.70	4.25	4	1.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-4.75-0.20	21.70	4.75	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-5.25-0.20 (1)	21.70	5.25	4	0.20	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 22K-6.00-3.00	21.70	6.00	4	3.00	4.50	22.00	T08	●	MM EGR 20-22*
MM GRIT 28K-2.50-0.2	27.70	2.50	6	0.20	6.00	28.00	T10	●	T-40/3 L*
MM GRIT 28K-5.25-0.2	27.70	5.25	6	0.20	6.00	28.00	T10	●	T-40/3 L*
MM GRIT 28K-10.0-0.2	27.70	10.00	6	0.20	6.00	28.00	T10	●	T-40/3 L*

• Recommended for O-rings and retaining rings. • MM EGR 20-22 clamping key is supplied with each MM GRT... shank. Tightening torque: 1500 N x cm • MM GRIT 28 clamping key should be ordered separately, tightening torque: 2800 N x cm • Modification options on request. • Do not apply lubricant to the threaded connection. • For clamping instructions, see page B42 • For user guide, see pages G58-59 • For shanks, see pages B68-71.

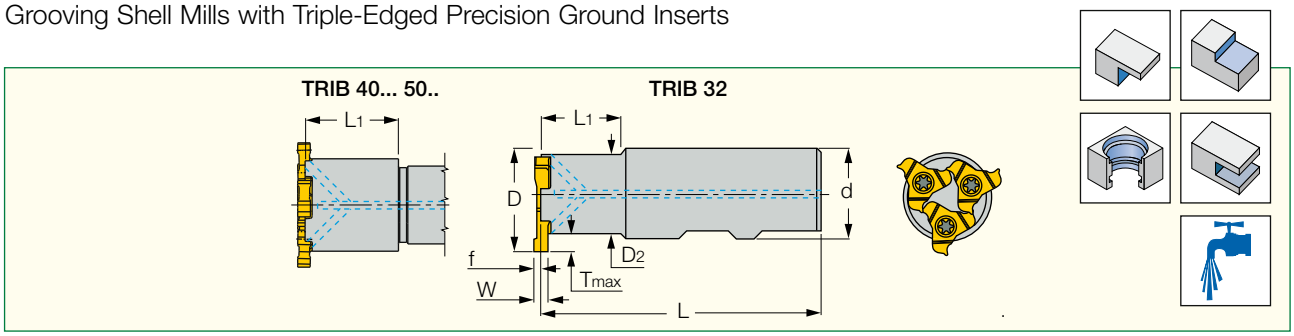
(1) For circle clips according to DIN471/472 and ANSI B27.7M (2) Minimum bore diameter.

* Optional, should be ordered separately

- K-For general steel &cast iron machining.
- P-Positive geometry for soft and gummy materials

TRIB

Grooving Shell Mills with Triple-Edged Precision Ground Inserts



Designation	D	W min	W max	D2	d	Z	L1	Shank	L	Kg
TRIB 32-25W-3Z (1)	32.20	1.20	4.00	21.70	25.00	3	52.3	W	110.00	0.34
TRIB 32-25W-3Z-B (1)	32.20	4.01	6.50	21.70	25.00	3	52.3	W	110.00	0.46
TRIB 40-25W-4Z	40.00	1.20	4.00	29.70	25.00	4	30.0	W	110.00	0.44
TRIB 40-25W-4Z-B	40.00	4.01	6.50	29.70	25.00	4	30.0	W	110.00	0.53
TRIB 50-32W-6Z	50.00	1.20	4.00	39.70	32.00	6	30.0	W	110.00	0.75

• W, Tmax, f, Refer to insert data • For inserts with W=4.01-6.50 mm, order tools with -B suffix (deeper pockets). For example: TRIB 50-32W-6Z-B

(1) Minimum bore diameter=33 mm.

For inserts, see pages: TRI (K55).

Dimensions Related to Inserts

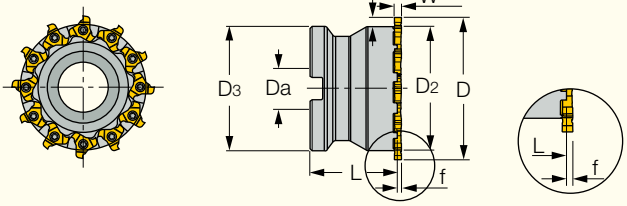
Insert	Tmax	TRIB ...Z f	TRIB ...Z-B f
TRI 16RK-1.2-0.05	4.6	0.5	
TRI 16RK-1.4-0.1	4.8	0.5	
TRI 16RK-1.5-0.1	4.8	0.5	
TRI 16RK-1.7-0.1	4.8	0.5	
TRI 16RK-1.95-0.15	4.8	0.5	
TRI 16RK-2.0-0.2	4.8	0.5	
TRI 16RK-2.25-0.15	4.8	0.75	
TRI 16RK-2.75-0.15	4.8	1.39	
TRI 16RK-3.0-0.2	4.8	1.39	
TRI 16RK-3.25-0.15	4.8	1.39	
TRI 16RK-4.0-0.2	4.8	2.43	
TRI 16RK-4.25-0.15	4.8		0.95
TRI 16RK-5.0-0.2	4.8		2.15
TRI 16RK-5.25-0.15	4.8		2.15
TRI 16RK-6.0-0.2	4.8		3.15

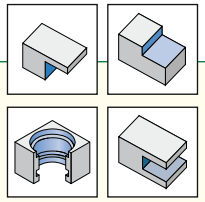
Spare Parts

Designation	Screw	Torx Blade	T-Handle
TRIB 32-25W-3Z	SR 16-236 08223	BLD T15/S7	SW6-T
TRIB 32-25W-3Z-B	SR 16-236	BLD T15/S7	SW6-T
TRIB 40-25W-4Z	SR 16-236 08223	BLD T15/S7	SW6-T
TRIB 40-25W-4Z-B	SR 16-236	BLD T15/S7	SW6-T
TRIB 50-32W-6Z	SR 16-236 08223	BLD T15/S7	SW6-T

TRIB-SM

Grooving Shell Mills with Triple-Edged Precision Ground Inserts





Designation	D	W min	W max	Da	D2	D3	Z	L	Kg
TRIB 50-22SM 6Z	50.00	1.20	4.00	22.00	39.70	39.70	6	39.00	0.24
TRIB 50-22SM 6Z-B	50.00	4.00	6.50	22.00	39.70	39.70	6	39.00	0.24
TRIB 63-22SM 8Z	63.00	1.20	4.00	22.00	52.70	40.00	8	39.00	0.40
TRIB 63-22SM 8Z-B	63.00	4.01	6.50	22.00	52.70	40.00	8	39.00	0.27
TRIB 80-27SM 11Z	80.00	1.20	4.00	27.00	69.70	69.70	11	49.00	0.40
TRIB 80-27SM 11Z-B	80.00	4.01	6.50	27.00	69.70	69.70	11	49.00	0.95

- W, Tmax, f, Refer to insert data
- For inserts with W=4.01-6.50 mm, order tools with -B suffix (deeper pockets). For example: TRIB 63-22SM-8Z-B
- For adaptation see page L13.

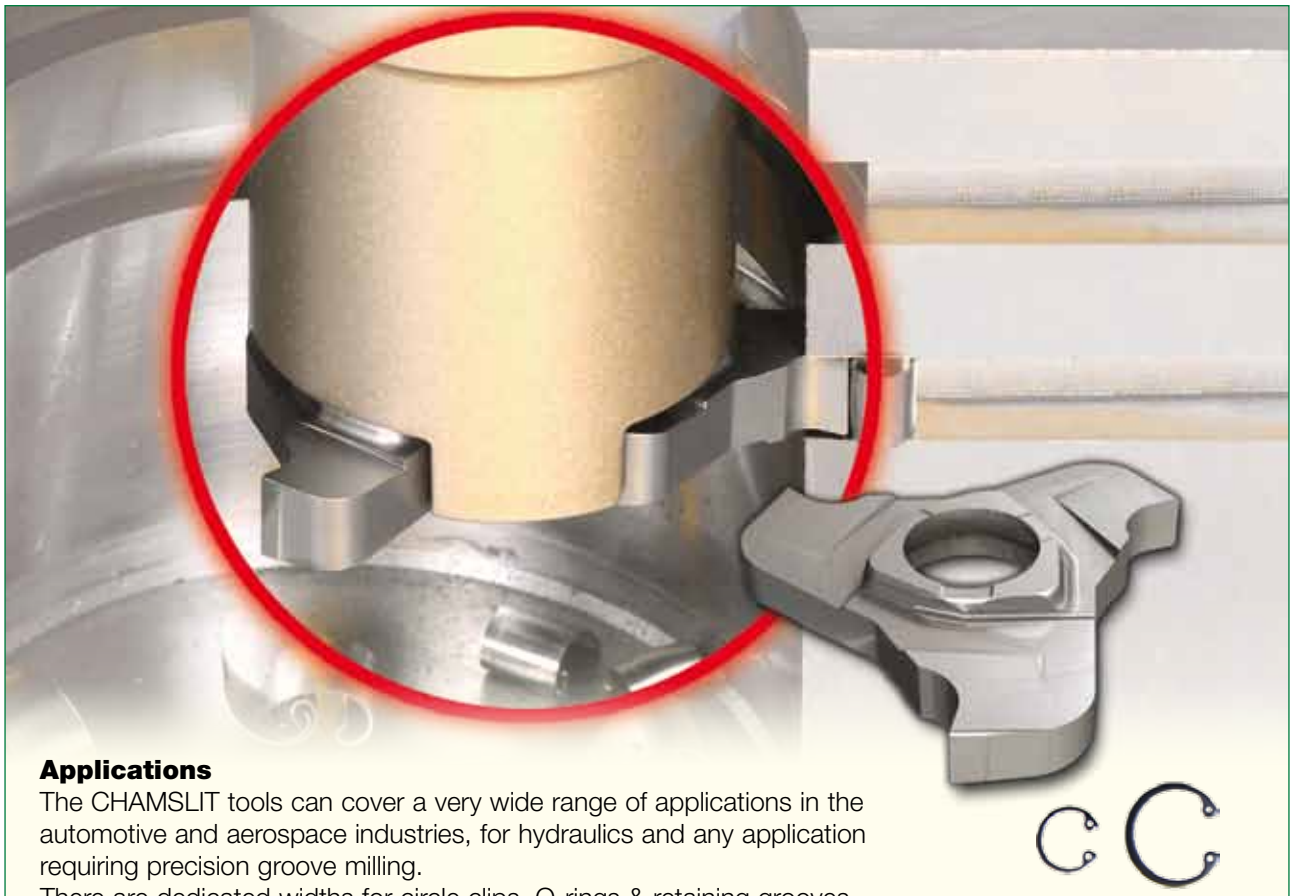
For inserts, see pages: TRI (K55).

Dimensions Related to Inserts

Insert	Tmax	TRIB ...Z f	TRIB ...Z-B f
TRI 16RK-1.2-0.05	4.6	0.5	
TRI 16RK-1.4-0.1	4.8	0.5	
TRI 16RK-1.5-0.1	4.8	0.5	
TRI 16RK-1.7-0.1	4.8	0.5	
TRI 16RK-1.95-0.15	4.8	0.5	
TRI 16RK-2.0-0.2	4.8	0.5	
TRI 16RK-2.25-0.15	4.8	0.75	
TRI 16RK-2.75-0.15	4.8	1.39	
TRI 16RK-3.0-0.2	4.8	1.39	
TRI 16RK-3.25-0.15	4.8	1.39	
TRI 16RK-4.0-0.2	4.8	2.43	
TRI 16RK-4.25-0.15	4.8		0.95
TRI 16RK-5.0-0.2	4.8		2.15
TRI 16RK-5.25-0.15	4.8		2.15
TRI 16RK-6.0-0.2	4.8		3.15

Spare Parts

Designation	Screw	T-Handle	Torx Blade
TRIB 50-22SM 6Z	SR 16-236 08223	SW6-T	BLD T15/S7
TRIB 50-22SM 6Z-B	SR 16-236	SW6-T	BLD T15/S7
TRIB 63-22SM 8Z	SR 16-236 08223	SW6-T	BLD T15/S7
TRIB 63-22SM 8Z-B	SR 16-236	SW6-T	BLD T15/S7
TRIB 80-27SM 11Z	SR 16-236 08223	SW6-T	BLD T15/S7
TRIB 80-27SM 11Z-B	SR 16-236	SW6-T	BLD T15/S7

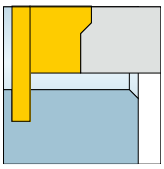


Applications

The CHAMSLIT tools can cover a very wide range of applications in the automotive and aerospace industries, for hydraulics and any application requiring precision groove milling.
There are dedicated widths for circle clips, O-rings & retaining grooves.

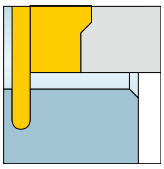
Standard

Square groove

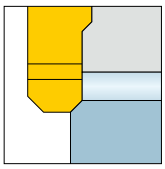


On Request

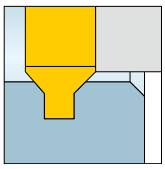
Round groove



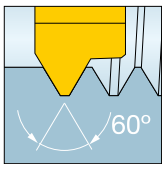
Chamfer



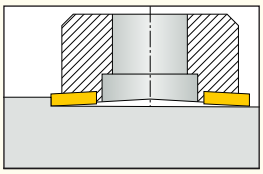
Groove & Chamfers



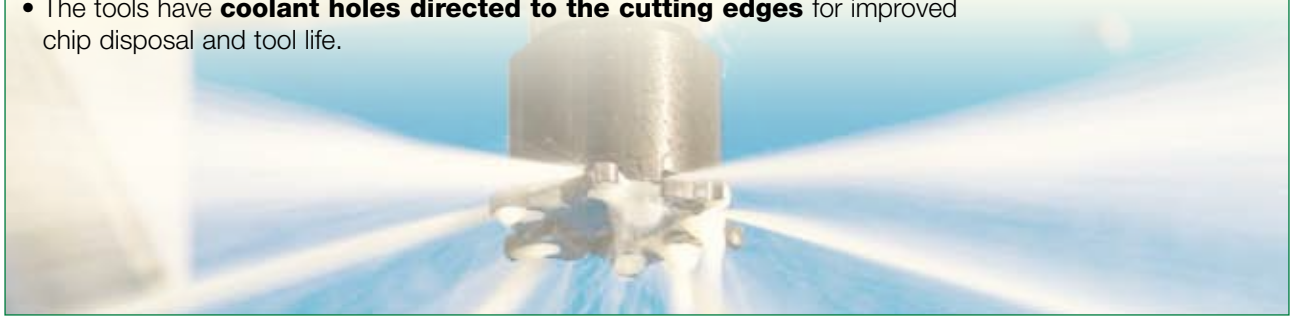
Thread Profile



Advantages



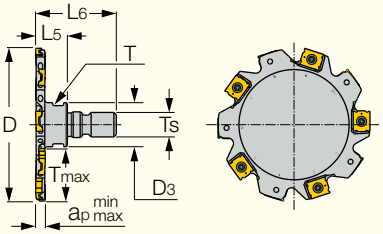
- An economical insert with 3 strong cutting edges.
- A very rigid tool with screw clamped inserts, can be used at high feed rates.
- High tooth density
- In case of a broken insert corner, the tool may still function using the remaining inserts, without damaging the tool.
- A single tool may be used for 1.2 to 4.01 mm insert width range.
- If an insert corner breaks, the 2 remaining corners on the insert still can be used.
- The tool can machine next to workpiece button (for shallow face machining).
- The inserts sit slightly tilted in the pocket, to achieve bottom relief.
- The tools have **coolant holes directed to the cutting edges** for improved chip disposal and tool life.




ETS
FDN
SDN
FSB
FST
SSB

ETS-LN08-M

Grooving and Slitting Cutters with FLEXFIT Threaded Adaptation



Designation	D	$a_{p\ min}$	$a_{p\ max}$	T_{max}	D_3	Ts	L_5	L_6	Z	Zeff	T(1)
ETS D032-03-LN08-M08	32.00	3.00 (2)	3.00 (2)	9.30	13.00	M08	13.00	30.50	4	2	10.0
ETS D032-04-LN08-M08	32.00	4.00 (4)	4.50 (3)	9.30	13.00	M08	13.00	30.50	4	2	10.0
ETS D040-03-LN08-M08	40.00	3.00 (2)	3.00 (2)	13.00	13.00	M08	13.00	30.50	6	3	10.0
ETS D040-04-LN08-M08	40.00	4.00 (4)	4.50 (3)	13.00	13.00	M08	13.00	30.50	6	3	10.0
ETS D050-03-LN08-M10	50.00	3.00 (2)	3.00 (2)	15.50	18.00	M10	13.00	33.00	8	4	16.0
ETS D050-04-LN08-M10	50.00	4.00 (4)	4.50 (3)	15.50	18.00	M10	13.00	33.00	8	4	16.0
ETS D063-03-LN08-M10	63.00	3.00 (2)	3.00 (2)	22.00	18.00	M10	13.00	33.00	10	5	16.0
ETS D063-04-LN08-M10	63.00	4.00 (4)	4.50 (3)	22.00	18.00	M10	13.00	33.00	10	5	16.0

• For user guide, see pages G17-19.

(1) Clamping wrench size (2) Use LNET 0818.. insert with SR 114-018-L2.50 screw (3) Use LNET 0826.. insert with SR 114-018-L3.40 screw (4) Use LNET 0828.. insert with SR 114-018-L3.40 screw

For inserts, see page: LNET 08 (K56).

For holders, see pages: BT-ODP (FLEXFIT) (E47) • C#-ODP (FLEXFIT) (E51) • CAB M-M (FLEXFIT) (E43) • DIN69871-ODP (E48) • ER-ODP (E48) • HSK A-ODP (FLEXFIT) (E49) • HSK E-ODP (FLEXFIT) (E50) • S M (E43).

Cutter Designation	a_p	Inserts
ETS D...-03-..-LN08	3	LNET 081804-TN-N
ETS D...-04-..-LN08	4	LNET 082604-TN-N
	4.5	LNET 082804-TN-N

Spare Parts

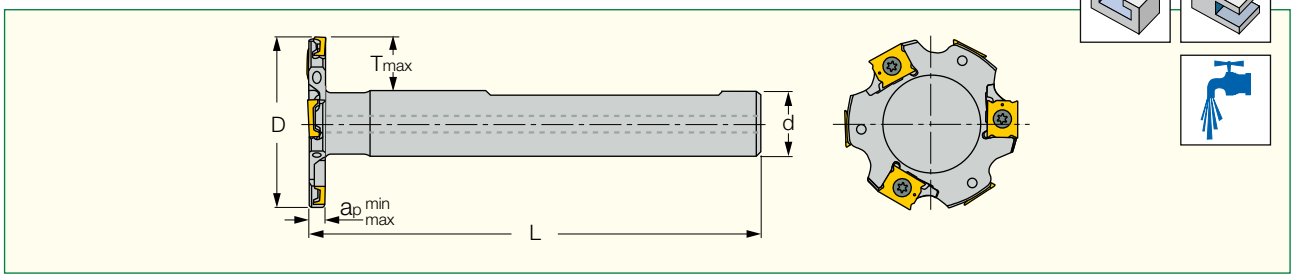
Designation	Screw	Key	Key 1	Wrench
ETS D032-03-LN08-M08	SR 114-018-L2.50	T-6/3-L	T-6/5	MM KEY 10X7*
ETS D032-04-LN08-M08	SR 114-018-L3.40	T-6/3-L	T-6/5	MM KEY 10X7*
ETS D040-03-LN08-M08	SR 114-018-L2.50	T-6/3-L	T-6/5	MM KEY 10X7*
ETS D040-04-LN08-M08	SR 114-018-L3.40	T-6/3-L	T-6/5	MM KEY 10X7*
ETS D050-03-LN08-M10	SR 114-018-L2.50	T-6/3-L	T-6/5	MM KEY 16X9*
ETS D050-04-LN08-M10	SR 114-018-L3.40	T-6/3-L	T-6/5	MM KEY 16X9*
ETS D063-03-LN08-M10	SR 114-018-L2.50	T-6/3-L	T-6/5	MM KEY 16X9*
ETS D063-04-LN08-M10	SR 114-018-L3.40	T-6/3-L	T-6/5	MM KEY 16X9*

* Optional, should be ordered separately

MINI-TANGSLOT

ETS-LN08

Grooving and Slitting Cutters



Designation	D	$a_{p\ min}$	$a_{p\ max}$	T_{max}	d	Shank	L	Z	Zeff	Kg
ETS D032-03-W16-LN08	32.00	3.00 (2)	3.00 (2)	7.90	16.00	W	90.00	4	2	0.14
ETS D032-04-W16-LN08	32.00	4.00 (3)	4.50 (7)	7.90	16.00	W	90.00	4	2	0.14
ETS D032-05-W16-LN08	32.00	5.00 (4)	5.50 (8)	7.90	16.00	W	90.00	4	2	0.14
ETS D032-06-W16-LN08	32.00	6.00 (5)	6.50 (9)	7.90	16.00	W	90.00	4	2	0.14
ETS D032-07-W16-LN08 (1)	32.00	7.00 (6)	7.50 (10)	7.90	16.00	W	90.00	4	2	0.14
ETS D040-03-W16-LN08	40.00	3.00 (2)	3.00 (2)	11.90	16.00	W	104.00	6	3	0.16
ETS D040-04-W16-LN08	40.00	4.00 (3)	4.50 (7)	11.90	16.00	W	104.00	6	3	0.16
ETS D040-05-W16-LN08	40.00	5.00 (4)	5.50 (8)	11.90	16.00	W	104.00	6	3	0.16
ETS D040-06-W16-LN08	40.00	6.00 (5)	6.50 (9)	11.90	16.00	W	104.00	6	3	0.17
ETS D040-07-W16-LN08 (1)	40.00	7.00 (6)	7.50 (10)	11.70	16.00	W	104.00	6	3	0.17
ETS D050-03-W20-LN08	50.00	3.00 (2)	3.00 (2)	14.90	20.00	W	110.00	8	4	0.26
ETS D050-04-W20-LN08	50.00	4.00 (3)	4.50 (7)	14.90	20.00	W	110.00	8	4	0.27
ETS D050-05-W20-LN08	50.00	5.00 (4)	5.50 (8)	14.90	20.00	W	110.00	8	4	0.28
ETS D050-06-W20-LN08	50.00	6.00 (5)	6.50 (9)	14.90	20.00	W	110.00	8	4	0.28
ETS D050-07-W20-LN08 (1)	50.00	7.00 (6)	7.50 (10)	14.70	20.00	W	110.00	8	4	0.29
ETS D063-03-W20-LN08	63.00	3.00 (2)	3.00 (2)	21.40	20.00	W	110.00	10	5	0.28
ETS D063-04-W20-LN08	63.00	4.00 (3)	4.50 (7)	21.40	20.00	W	110.00	10	5	0.29
ETS D063-05-W20-LN08	63.00	5.00 (4)	5.50 (8)	21.40	20.00	W	110.00	10	5	0.30
ETS D063-06-W20-LN08	63.00	6.00 (5)	6.50 (9)	21.40	20.00	W	110.00	10	5	0.32
ETS D063-07-W20-LN08 (1)	63.00	7.00 (6)	7.50 (10)	21.20	20.00	W	110.00	10	5	0.34

• Adjustable overhang design • For user guide, see pages G17-19.

((1) For ap=7.5 use LNET 084204-TN-N insert with SR 114-018-L5.30-HG screw (2) Use LNET 0818.. insert with SR 114-018-L2.50 screw (3) Use LNET 0826.. insert with SR 114-018-L3.40 screw (4) Use LNET 0830.. insert with SR 114-018-L4.40 screw (5) Use LNET 0835.. insert with SR 114-018-L5.30-HG (6) Use LNET 0840.. insert with SR 114-018-L5.30-HG (7) Use LNET 0828.. insert with SR 114-018-L3.40 screw (8) Use LNET 0832.. insert with SR 114-018-L4.40 screw (9) Use LNET 0837.. insert with SR 114-018-L5.30-HG (10) Use LNET 0842.. insert with SR 114-018-L5.30-HG

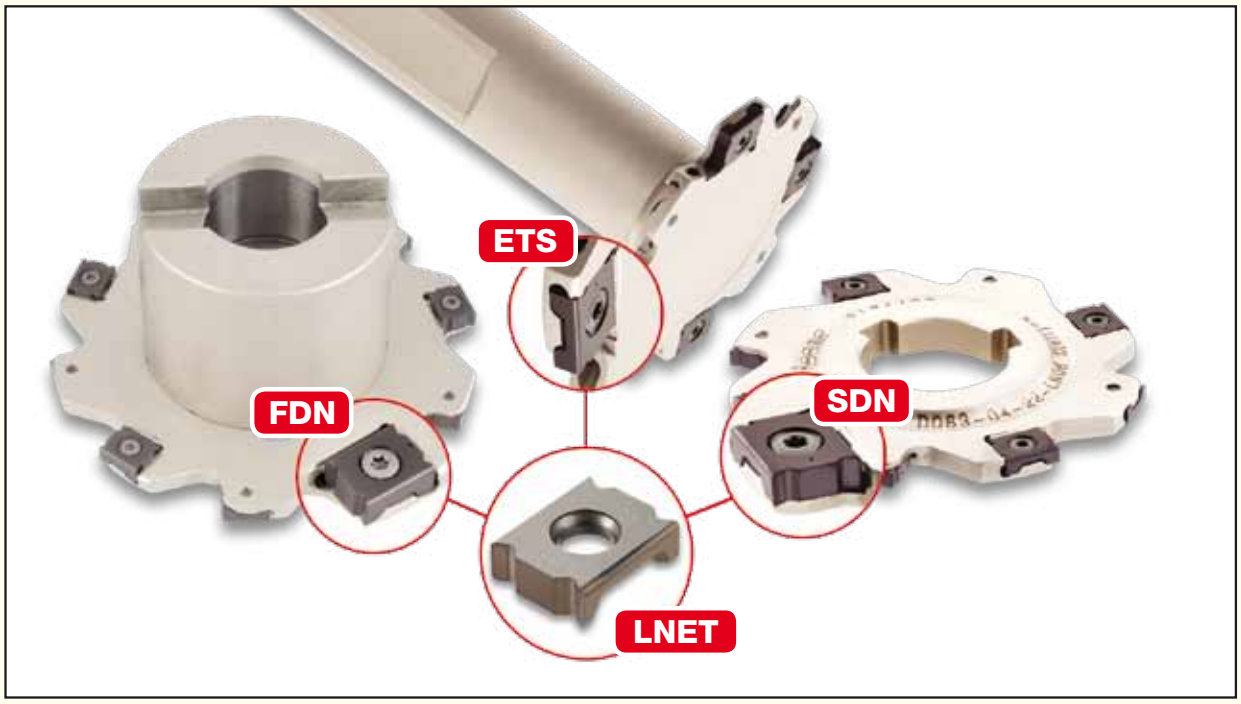
For inserts, see pages: LNET 08 (K56).

Spare Parts

Designation	Screw	Key	Key 1
ETS D032-03-W16-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D032-04-W16-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D032-05-W16-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D032-06-W16-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D032-07-W16-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5
ETS D040-03-W16-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D040-04-W16-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D040-05-W16-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D040-06-W16-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D040-07-W16-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5
ETS D050-03-W20-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D050-04-W20-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D050-05-W20-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D050-06-W20-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D050-07-W20-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5
ETS D063-03-W20-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D063-04-W20-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D063-05-W20-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D063-06-W20-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D063-07-W20-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5

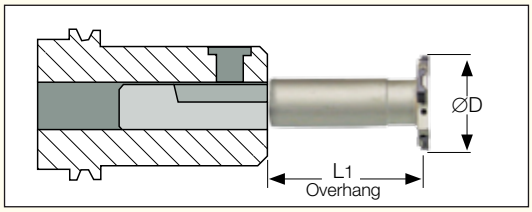
Cutter Designation	a_p	Insert
...D...-03-..-LN08	3	LNET 081804-TN-N
...D...-04-..-LN08	4	LNET 082604-TN-N
	4.5	LNET 082804-TN-N
...D...-05-..-LN08	5	LNET 083004-TN-N
	5.5	LNET 083204-TN-N
...D...-06-..-LN 08	6	LNET 083504-TN-N
	6.5	LNET 083704-TN-N
...D...-07..-LN08	7	LNET 084004-TN-N
	7.5	LNET 084204-TN-N

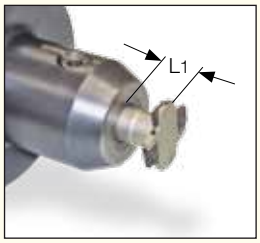
1

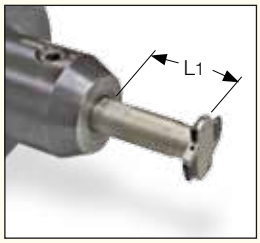


2 Setting the Overhang

ETS..- T-type Slotting Cutters			
Designation	D	L1 Overhang	
		Min	Max
ETS D32	32	20	49
ETS D40	40	34	63
ETS D50	50	27	66
ETS D63	63	27	66





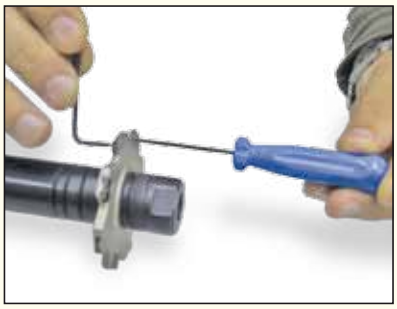


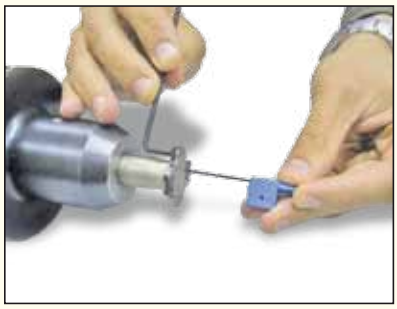
3 Lubrication - Important!

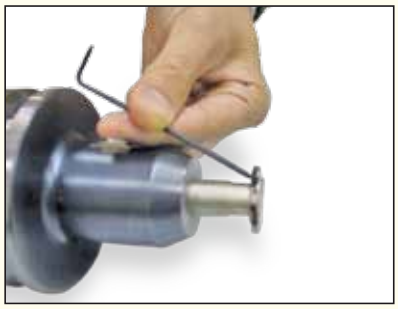
For every indexing, lubricate screws before mounting. Grease should cover the screw's thread and cone head.



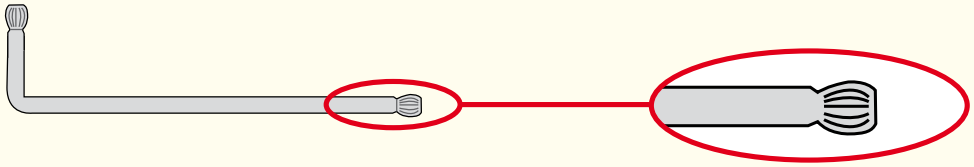
4 Indexing

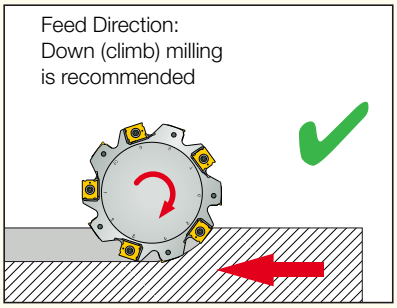




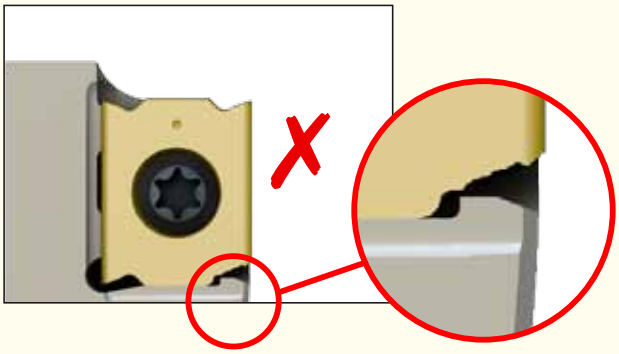


L -type key is added to the cutter package. It has a ball shape on the end of its longer side.





Do not clamp insert with a broken corner in the outer bottom position.



5 Tightening Torque

60-70 N x cm

6 Tightening



Use the short side for tightening and initial release



Use the long side for quick driving and release

7 With of cut -

fot ap=3 - 6.5mm - use the following table

ap	Insert	Screw	Key
3.00	LNET 081804-TN-N	SR 114-018-L2.50	T-6/5 T-6/5-L
4.00	LNET 082604-TN-N	SR 114-018-L3.40	
4.50	LNET 082804-TN-N		
5.00	LNET 083004-TN-N	SR 114-018-L4.40	
5.50	LNET 083204-TN-N	SR 114-018-L4.40	
6.00	LNET 083504-TN-N	SR 114-018-L5.30	
6.50	LNET 083704-TN-N		

Important note:
To avoid indexing problems, insert clamping screws and keys should be replaced on a regular basis according to their wear.

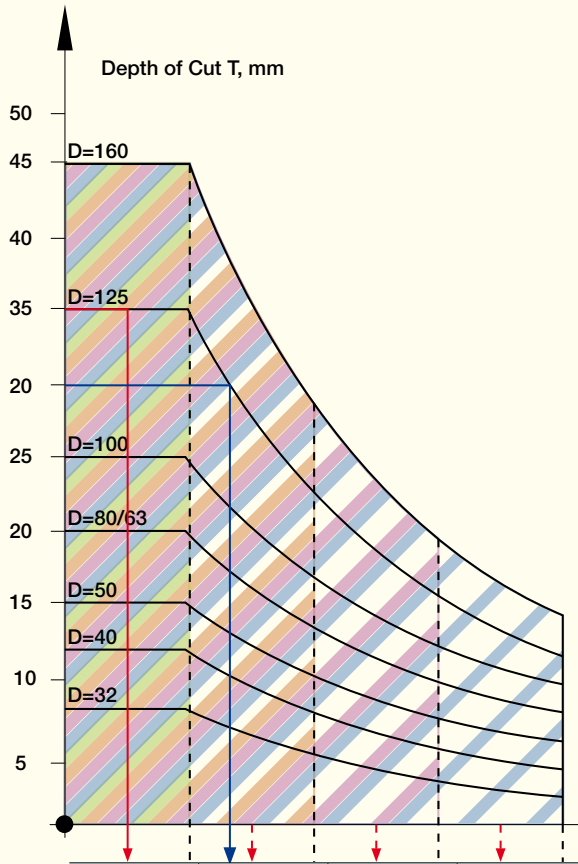
8 Recommended Cutting Speed

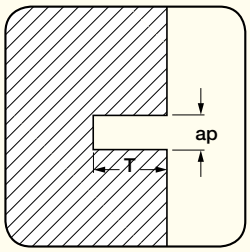
ISO class DIN/ISO 513	Description	Workpiece Material: Typical example AISI/SAE/ASTM	DIN W.-Nr.	Hardness, HB	ISCAR mat. group**	Cutting speed Vc, m/min	Insert	Grade	Coolant
P	Non-alloy steel	1020	1.0402	130-180	1	130-200	LN....08	IC928	Air blow
	Alloy steel	4340	1.6582	260-300	8	120-170	LN....08	IC928	
	Alloy steel	3135	1.5710	HRC 35-40*	9	100-120	LN....08	IC928	
	High alloy steel	H13	1.2344	200-220	10	100-150	LN....08	IC928	
M	Martensitic s.s.	420	1.4021	200	12	100-140	LN....08	IC928	Air blow
	Austenitic s.s.	304L	1.4306	200	14	70-120	LN....08	IC928	Wet (emulsion)
	Austenitic s.s.	316L	1.4404	140	14	80-120	LN....08	IC928	
K	Grey cast iron	Class 40	0.6025 (GG25)	250	16	180-230	LN....08	IC910	Air blow
	Nodular cast iron	Class 65-45-12	0.7050 (GGG50)	200	17	150-200	LN....08	IC910	
S	High temp. alloys	AMS R56400	3.7165 (Ti6Al4V)	HRC 40-45	37	35-45	LN....08	IC928	Wet (emulsion)

* Quenched and tempered
** ISCAR material group in accordance with VDI 3323 standard

9 MINI-TANGSLOT

Recommended feed per tooth for ETS-LN08, ADN-LN08 and FDN-LN08 slotting cutters using LN.. 08... inserts For ap=3 - 6.5 mm





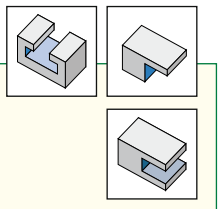
For slotting cutters with ap less than 4 mm, reduce the recommended feed by 40%.
* For slotting cutters with ap=4.0 mm-4.99 mm, reduce the recommended feed by 25%.

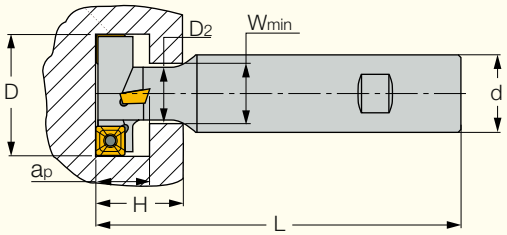
Example
Material - Alloy steel SAE 4340
D = 125 mm
T = 20 mm
ap = 4 mm
Fz = 0.2x0.75*
= 0.15 mm/t

D = 125 mm
T = 35 mm
ap = 6 mm
Fz = 0.15 mm/t

Fz				Description	AISI / SAE / ASTM (DIN W.-Nr.)	ISCAR mat. group	DIN/ ISO
				Workpiece material			
0.17	0.22	0.27	0.32	Non-alloy steel	1020 (DIN 1.0402)	1	P
0.15	0.2	0.25	0.3	Alloy steel	4340 (DIN 1.6582)	8	
0.1	0.13	0.15	0.2	Alloy steel	3135 (DIN 1.5710)	9	
0.1	0.13	0.16	0.22	High alloy steel	H13 (DIN 1.2344)	10	
0.13	0.16	0.2	0.25	Martensitic s.s	420 (DIN 1.4021)	12	M
0.1	0.13	0.16	0.22	Austenitic s.s	316L (DIN 1.4404)	14	
0.2	0.25	0.3	0.35	Grey cast iron	Class 40 (DIN 0.6025) (GG25)	16	K
0.15	0.2	0.25	0.3	Nodular cast iron	Class 65-45-12 (DIN 0.7050) (GGG50)	17	
0.1	0.13	0.16	0.22	High temp. alloys	AMS R56400 (DIN 3.7165)	37	S

ETS
T-Slot Endmills





Designation	D	Z	Zeff	D_2	W min	a_p	H	L	d	Shank	Kg	Insert
ETS D21-9-W16-06	21.10	2	1	10.80	12.00	8.85	26.90	90.00	16.00	W	0.11	
ETS D25-11-W16-06	24.80	4	2	12.80	14.00	10.80	23.70	90.00	16.00	W	0.12	XOMT 06../QOMT
ETS D25-11-W25-06	24.80	4	2	12.80	14.00	10.80	24.40	120.00	25.00	W	0.36	
ETS D32-14-W32-10	31.70	2	1	16.70	18.00	13.85	40.00	120.00	32.00	W	0.53	XPMT 10...
ETS D32-14-W16-10	31.70	4	2	16.16	18.00	13.85	52.00 (1)	90.00	16.00	W	0.13	XPMT 10...
ETS D32-16-W32-A10	31.70	4	2	16.80	18.00	15.85	39.00	110.00	32.00	W	0.48	APKT 1003 PDTR/L
ETS D40-18-W32-10	39.70	4	2	20.70	22.00	17.85	50.00	130.00	32.00	W	0.61	XPMT 10..
ETS D48-22-W32-15	48.50	4	2	26.00	27.00	21.85	51.30	130.00	32.00	W	0.73	ADKT 1505 PDR/L

• For user guide, see pages G66-68.

(1) Adjustable overhang design. Hmin=19, Hmax=52.

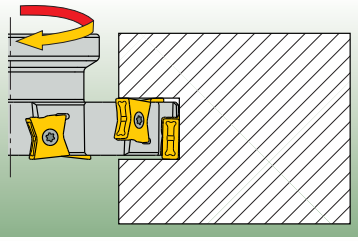
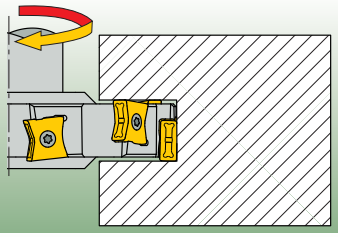
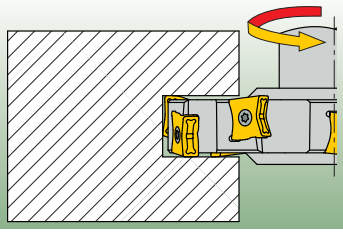
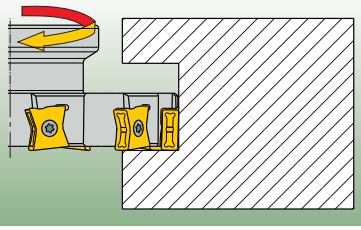
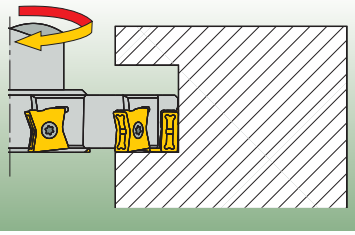
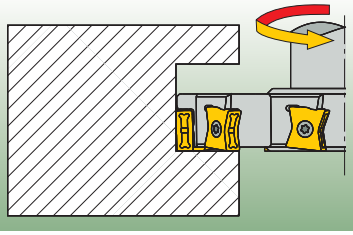
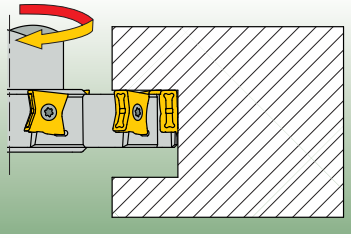
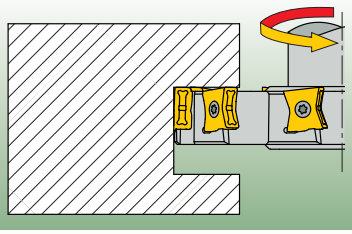
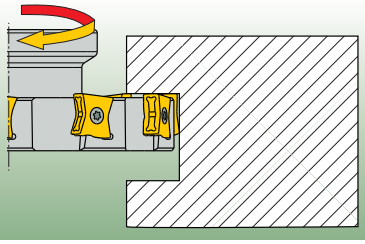
For inserts, see pages: ADKT 1505PDR/L-HM (K16) • APKT 1003PDTR/L-RM (K8) • QOMT-HQ (K59) • XOMT-HQ (K60) • XPMT-HQ (K62).

Spare Parts

Designation	Screw	Key
ETS D21-9-W16-06	SR 34-508/L	T-7/51
ETS D25-11-W16-06	SR 34-508/L	T-7/51
ETS D25-11-W25-06	SR 34-508/L	T-7/51
ETS D32-14-W32-10	SR 14-544/S	T-15/51
ETS D32-14-W16-10	SR 14-506	T-15/51
ETS D32-16-W32-A10	SR 34-505/L	T-8/53
ETS D40-18-W32-10	SR 14-544/S	T-15/51
ETS D48-22-W32-15	SR 14-544/S	T-15/51

Face and Slot Milling Cutters

Cutter Types for Right- and Left-Hand, Top and Bottom Milling

	Right-Hand Spindle Rotation	Left-Hand Spindle Rotation
Full Side Flange Type (Pages G22-31)	 **FDN...-R**	
Full Side Disk Type (Pages G32-39)	 **SDN**	 **SDN**
Half Side - Bottom Flange Type	 **FSB...-R**	
Half Side - Bottom Disk Type (Pages G40-41)	 **SSB...-R**	 **SSB...-L**
Half Side - Top Disk Type (Pages G40-41)	 **SSB...-L**	 **SSB...-R**
Half Side - Top Flange Type (Page G40)	 **FST...-R**	

Ordering Examples

Integral Pocket Cutter

FDN D125-**10**-27-LN12
Cutter diameter: 125 mm
Slot width: **10.00** mm

Adjustable Cutter with Cartridges

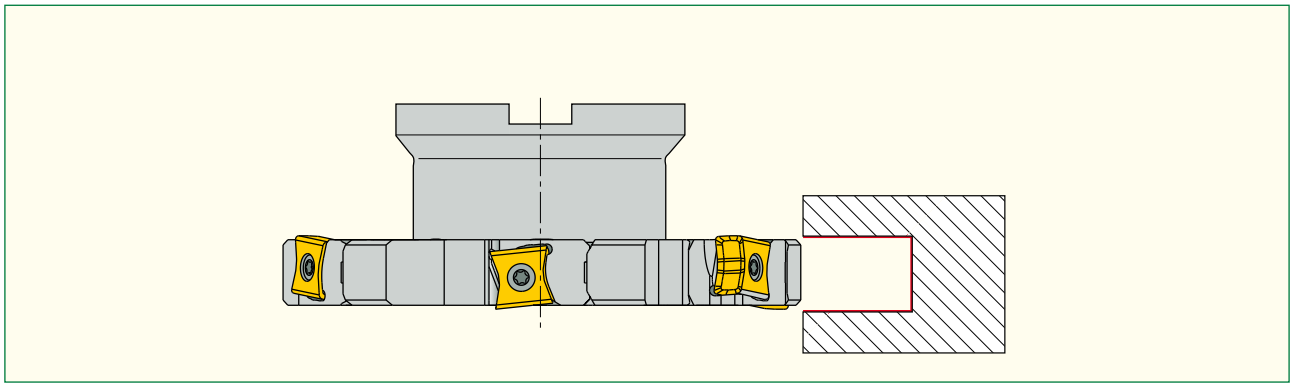
FDN D100-**0810**-32-CALN12
Cutter diameter: 100 mm
Slot width range: **8.00-10.5** mm

Pre-adjusted Specific Width

(The cutter will be set to **9.52** mm).
FDN D125-**09.52**-40-CALN12
Cutter diameter: 125 mm
Slot width: **9.52** mm (The cutter can be adjusted to a width of **8.0-10.5** mm)

FDN

Full Slot Flange Type



Tool Diameter							Width of Cutter																				Type of Insert	
63	80	100	125	160	200	250	3	4	4.5	5	5.5	6	6.5	7	8	8.5	9	10	10.5	12	13	14	14.6	16	18	18.9	20	25	25.6		
●	●	●					✓																						LNET 081804	
●	●	●						✓																					LNET 082604	
●	●	●							✓																				LNET 082804	
●	●	●								✓																			LNET 083004	
●	●	●									✓																		LNET 083204	
●	●	●										✓																	LNET 083504	
●	●	●											✓																LNET 083704	
	●	●	●											✓															LNET 1240	
				●											✓														LNET 1245	
				●												✓													LNET 1248	
	●	●	●	●	●	●												✓											LNET 1255	
	●	●	●	●	●	●													✓										LNET 1257	
		●	●	●	●	●																							LNET 12...	
	●	●													✓														XOMT 0602...	
		●	●															✓											QOMT 060208	
			●	●	●															✓									XPMT 1004...	
																													QPMT 1004...	
			●																✓(1)										QPMT 1004...	
			●	●	●																			✓					QPMT 1004...	
																													XPMT 1004...	
				●															✓(1)										QPMT 1004...	
				○																	✓			✓						
				○	○																				✓				QDMT 1205...	
					○	○																				✓			QDCT 1205	
			●	●	●	●																							LNKX 1506	

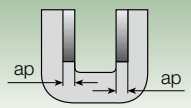
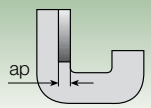
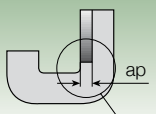
● Without seat

○ With seat

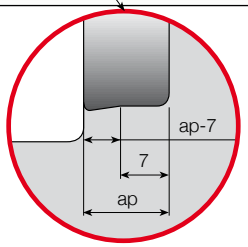
● With adjustable cartridges

(1) Fully effective with adjustable cartridges

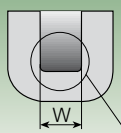
Single or Double-Face Milling Configuration Guide for FDN/SDN/SSB/FST/FSB... CALN15 Cutters

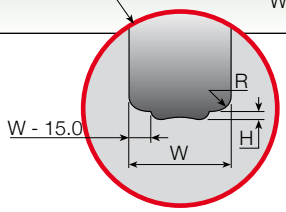
Designation	Number of[1] Cutting Edges	Bottom Flatness ap≤7 H (mm)	Bottom Flatness ap=14 H (mm)	Application	Half Side Tools Axial Depth of Cut ap (mm)
				Double Face MIlling	
LNKX 1506...	4R+4L	Flat	0.65		Stock=0-14
LNMT 1506...	4R+4L	Flat	0.65		Stock=0-14
LNAT 1506...	4R+4L	Flat	0.4-0.65		Stock=0-14[1]
HT insert - N[2]	2R+2L	Flat	Flat		Stock=0-14
				Half Side Milling	
LNKX 1506...	4R	Flat	0.65		Stock=0-14
LNMT 1506...	4R	Flat	0.65		Stock=0-14
LNAT 1506...	4R	Flat	0.4-0.65		Stock=0-14[1]
HT insert-R[3]	4R	Flat	Flat		Stock=0-14[1]
				Half Side Milling	
LNKX 1506...	4L	Flat	0.65		Stock=0-14
LNMT 1506...	4L	Flat	0.65		Stock=0-14
LNAT 1506...	4L	Flat	0.4-0.65		Stock=0-14[1]
HT insert - N[2]	4L	Flat	Flat		Stock=0-14[1]

[1] Use of 8 cutting edges (4R+4L) is possible only when ap≤7 mm, otherwise 4 cutting edges (2R+2L) can be used.



Configuration Guide for Full Slot FDN/SDN... CALN15 Cutters

Designation	Number of Cutting Edges	Bottom Slot Flatness H (mm)	Insert Radius R (mm)	Application	Half Side Tools Axial Depth of Cut W (mm)
LNKX 1506...	2R+2L	0.65	0.8		W=18.9-25.6
LNMT 1506...	2R+2L	0.65	0.8		W=18.9-25.6
LNAT 150616PN-N-HM	2R+2L	0.55	1.6		W=18.9-25.6
LNAT 150625PN-N-NM	2R+2L	0.45	2.5		W=18.9-24.5
LNAT 150632PN-N-NM	2R+2L	0.40	3.2		W=18.9-23.2
LNAT 150640PN-N-NM	2R+2L	0.65	4.0		W=18.9-25.6
HT insert-N[2]	2R+2L	Flat	0.8		W=18.9-25.6



[2] HT insert - N R.H./L.H.



Page K49

LNKX 1506... LNMT 1506... R.H./L.H.



Pages K46-47, K50

[3] HT insert - R R.H. only



Page K48

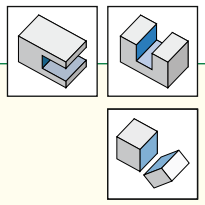
[1] Max ap for radius inserts

LNAT 150616..=12.80
LNAT 150625..=12.25
LNAT 150632..=11.60
LNAT 150640..=14.00

Page K51

FDN-LN08

Full Slot Shell Mill Cutters with LNET 08... Tangentially Mounted Inserts



Designation	D	$a_{p\ min}$	$a_{p\ max}$	T_{max}	Z	Zeff	H	L	D_3	Da	Arbor	Kg
FDN D063-03-16-LN08	63.00	3.00 (1)	3.00 (1)	14.50	8	4	25.00	35.00	38.40	16.00	A	0.35
FDN D063-04-16-LN08	63.00	4.00 (2)	4.50 (5)	14.50	8	4	25.00	35.00	38.40	16.00	A	0.35
FDN D063-05-16-LN08	63.00	5.00 (3)	5.50 (6)	14.50	8	4	25.00	35.00	38.40	16.00	A	0.36
FDN D063-06-16-LN08	63.00	6.00 (4)	6.50 (7)	14.50	8	4	25.00	35.00	38.40	16.00	A	0.38
FDN D080-03-22-LN08	80.00	3.00 (1)	3.00 (1)	22.50	10	5	28.00	40.00	45.00	22.00	A	0.41
FDN D080-04-22-LN08	80.00	4.00 (2)	4.50 (5)	22.50	10	5	28.00	40.00	45.00	22.00	A	0.31
FDN D080-05-22-LN08	80.00	5.00 (3)	5.50 (6)	22.50	10	5	28.00	40.00	45.00	22.00	A	0.45
FDN D080-06-22-LN08	80.00	6.00 (4)	6.50 (7)	22.50	10	5	28.00	40.00	45.00	22.00	A	0.47
FDN D100-03-27-LN08	100.00	3.00 (1)	3.00 (1)	26.00	12	6	28.50	40.00	55.00	27.00	B	0.68
FDN D100-04-27-LN08	100.00	4.00 (2)	4.50 (5)	26.00	12	6	28.50	40.00	55.00	27.00	B	0.46
FDN D100-05-27-LN08	100.00	5.00 (3)	5.50 (6)	26.00	12	6	28.50	40.00	55.00	27.00	B	0.51
FDN D100-06-27-LN08	100.00	6.00 (4)	6.50 (7)	26.00	12	6	28.50	40.00	55.00	27.00	B	0.55

(1) Use LNET 0818.. insert with SR 114-018-L2.50 screw (2) Use LNET 0826.. insert with SR 114-018-L3.40 screw (3) Use LNET 0830.. insert with SR 114-018-L4.40 screw (4) Use LNET 0835.. insert with SR 114-018-L5.30 screw (5) Use LNET 0828.. insert with SR 114-018-L3.40 screw (6) Use LNET 0832.. insert with SR 114-018-L4.40 screw (7) Use LNET 0837.. insert with SR 114-018-L5.30 screw

For inserts, see page: LNET 08 (K56).

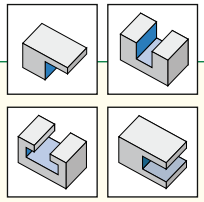
Cutter Designation	a_p	Inserts
FDN D...-03-...LN08	3	LNET 081804-TN-N
FDN D...-04-...LN08	4	LNET 082604-TN-N
	4.5	LNET 082804-TN-N
FDN D...-05-...LN08	5	LNET 083004-TN-N
	5.5	LNET 083204-TN-N
FDN D...-06-...LN08	6	LNET 083504-TN-N
	6.5	LNET 083704-TN-N

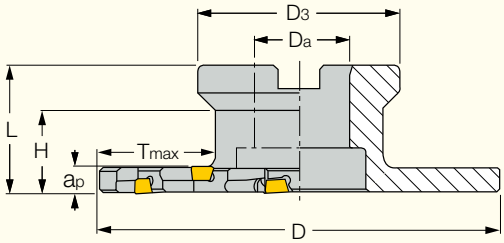
Spare Parts

Designation	Screw	Key	Key 1	Shell Locking Screw
FDN D063-03-16-LN08	SR 114-018-L2.50	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D063-04-16-LN08	SR 114-018-L3.40	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D063-05-16-LN08	SR 114-018-L4.40	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D063-06-16-LN08	SR 114-018-L5.30	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D080-03-22-LN08	SR 114-018-L2.50	T-6/5	T-6/3-L	SR M10X25DIN912
FDN D080-04-22-LN08	SR 114-018-L3.40	T-6/5	T-6/3-L	SR M10X25DIN912
FDN D080-05-22-LN08	SR 114-018-L4.40	T-6/5	T-6/3-L	SR M10X25DIN912
FDN D080-06-22-LN08	SR 114-018-L5.30	T-6/5	T-6/3-L	SR M10X25DIN912
FDN D100-03-27-LN08	SR 114-018-L2.50	T-6/5	T-6/3-L	
FDN D100-04-27-LN08	SR 114-018-L3.40	T-6/5	T-6/3-L	
FDN D100-05-27-LN08	SR 114-018-L4.40	T-6/5	T-6/3-L	
FDN D100-06-27-LN08	SR 114-018-L5.30	T-6/5	T-6/3-L	

FDN-LN12

Full Slot Cutters with LNET 12... Tangentially Mounted Inserts





Designation	D	Z	Zeff	Da	D3	T_{max}	H	L	Arbor[4]	Kg	ap	Inserts
FDN D080-07-22-LN12[1]	80.00	8	4	22.00	45.00	22.00	28.20	40.00	A	0.40	7.0 8.0 8.5	LNET 1240.. LNET 1245... LNET 1248..
FDN D080-10-22-LN12[2]	80.00	8	4	22.00	45.00	22.00	28.20	40.00	A	0.40	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D100-07-27-LN12[1]	100.00	10	5	27.00	55.00	25.00	28.50	40.00	B	0.44	7.0 8.0 8.5	LNET 1240.. LNET 1245.. LNET 1248...
FDN D100-10-27-LN12[2]	100.00	10	5	27.00	55.00	25.00	28.50	40.00	B	0.61	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D125-07-32-LN12[1]	125.00	12	6	32.00	65.00	34.50	32.00	45.00	B	0.60	7.0 8.0 8.5	LNET 1240.. LNET 1245.. LNET 1248...
FDN D125-10-32-LN12[2]	125.00	12	6	32.00	65.00	34.50	32.00	45.00	B	1.30	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D160-10-40-LN12[2]	160.00	16	8	40.00	80.00	44.00	33.50	50.00	B	1.76	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D200-08-40-LN12[3]	200.00	20	10	40.00	92.00	51.50	49.50	50.00	C	2.63	8.0 8.5 9.0 10.0	LNET 1245.. LNET 1248.. LNET 1250... LNET 1255..
FDN D200-10-40-LN12[2]	200.00	20	10	40.00	92.00	51.50	49.50	50.00	C	2.95	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D250-10-60-LN12[2]	250.00	26	13	40.00	132.00	56.50	62.50	63.00	C	5.91	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...

• Slot width depends on the selected insert width. • Each tool is supplied with screws for the thinnest specified insert. • Please verify use of correct screw for the insert being used. • ap in 6.0-7.0 and 10.5-14.0 mm range is available on request. • For user guide, see next page.

[1] For ap=7.0 use screw SR 14-500-5.9 • For ap=8.0 use screw SR 14-500-L6.5 • For ap=8.5 use screw SR 14-500-7.0. [2] For ap=10.0 and 10.5 use screw SR 14-500-L8.5 • For ap=12.0 use screw SR 14-500-L10.0. [3] For ap=8.0 and 8.5 use screw SR 14-500-7.0 • For ap=9.0 use screw SR 14-500-L8.0 • For ap=10.0 use screw SR 14-500-L8.5 • For ap=12.0 use screw SR 14-500-L10.0. [4] For adaptation see page G72.

For inserts, see pages: LNET 12-TN (K57) • LNET 12-TN-MM (K58) • LNET 12..-30X1-N (K58).

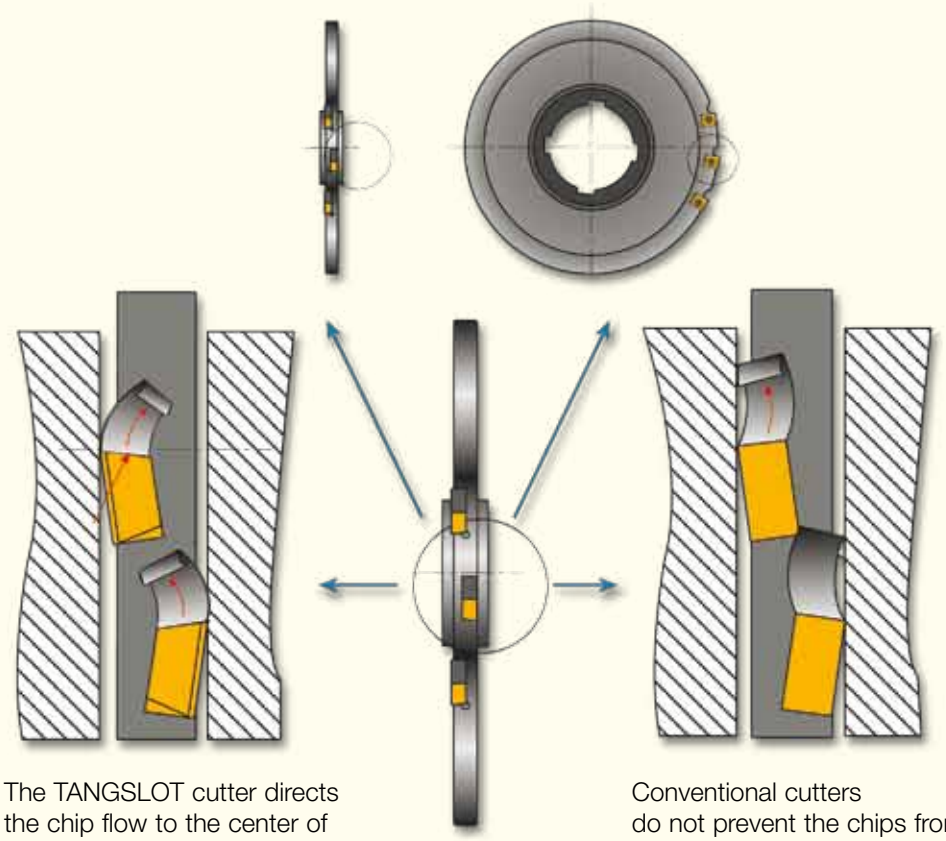
Screw vs. Insert in use

Insert	Screw	Key	Key	Key
LENT 1240...	SR 14-500-L5.9	T-15/3	T-15/51-BE	
LENT 1245...	SR 14-500-L6.5	T-15/3	T-15/51-BE	
LENT 1245...	SR 14-500-L7.0	T-15/3	T-15/51-BE	RATCHET
LENT 1248...	SR 14-500-L7.0	T-15/3	T-15/51-BE	WRENCH KEY
LENT 1250...	SR 14-500-L8.0	T-15/3	T-15/51-BE	
LENT 1255...	SR 14-500-L8.5	T-15/3	T-15/51-BE	
LENT 1257...	SR 14-500-L8.5	T-15/3	T-15/51-BE	
LENT 1265...	SR 14-500-L10	T-15/3	T-15/51-BE	



Each cutter is supplied with a screwdriver for use on the insert screws. The screwdriver is for loosening and tightening the clamping screws. However, when space is limited, such as on the cutter side that is close to the machine spindle or in narrow gaps on gang mill assemblies, an optional ratchet wrench will be supplied.

Optimal Chip Deflection Prevents Scratches on the Side Walls

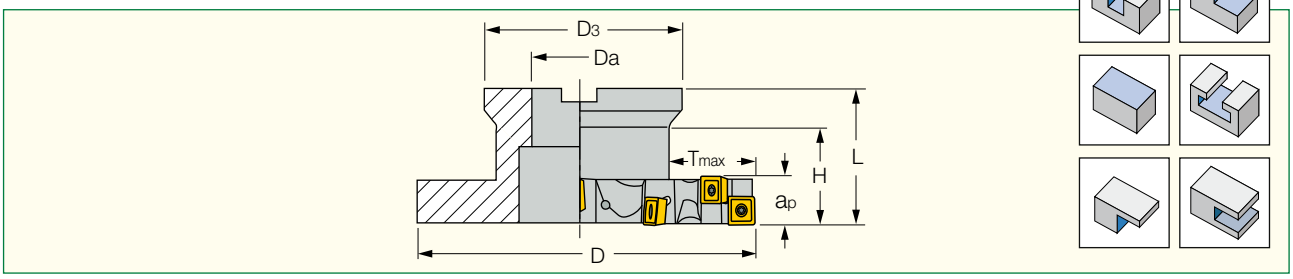


The TANGSLOT cutter directs the chip flow to the center of the slot, protecting the integrity of the side surfaces.

Conventional cutters do not prevent the chips from scratching the sidewalls.

FDN

Full Slot, Flange-Type Slotting Cutters



Designation	D	a_p	Z	Zeff	T_{max}	Da	D_3	H	L	Arbor(2)	Kg	Insert
FDN D080-08-22-R06	80.00	8.00	14	7	22.70	22.00	45.00	28.10	40.00	A	0.59	X/QOMT 06..
FDN D100-08-27-R06	100.00	8.00	16	8	26.40	27.00	55.00	28.80	40.00	B	0.52	X/QOMT 06..
FDN D100-10-27-R06	100.00	10.00	16	8	26.50	27.00	55.00	29.50	40.00	B	0.59	X/QOMT 06..
FDN D125-10-32-R06	125.00	10.00	20	10	35.50	32.00	65.00	32.00	45.00	B	0.94	X/QOMT 06..
FDN D125-12-32-R10	125.00	12.00	14	7	35.50	32.00	65.00	32.00	45.00	B	1.00	X/QPMT 10..
FDN D125-16-32-R10	125.00	16.00	14	7	34.00	32.00	65.00	37.00	50.00	B	1.24	X/QPMT 10..
FDN D160-12-40-R10	160.00	12.00	16	8	46.90	40.00	80.00	33.50	50.00	B	1.76	X/QPMT 10..
FDN D160-16-40-R10	160.00	16.00	16	8	46.50	40.00	80.00	43.50	60.00	B	2.18	X/QPMT 10..
FDN D200-12-40-R10	200.00	12.00	22	11	54.00	40.00	92.00	-	50.00	C	2.98	X/QPMT 10..
FDN D160-13-40-R12 (1)	160.00	13.00	14	7	46.50	40.00	80.00	33.50	50.00	B	1.84	QDMT 12../QDCT 12..
FDN D160-16-40-R12	160.00	16.00	14	7	46.90	40.00	80.00	43.50	60.00	B	2.01	QDMT 12../QDCT 12..
FDN D160-18-40-R12	160.00	18.00	12	6	47.00	40.00	80.00	43.50	60.00	B	2.25	QDMT 12../QDCT 12..
FDN D200-18-40-R12	200.00	18.00	16	8	54.00	40.00	92.00	50.00	50.00	C	3.20	QDMT 12../QDCT 12..
FDN D200-20-40-R12	200.00	20.00	16	8	62.00	40.00	92.00	41.00	63.00	E	3.43	QDMT 12../QDCT 12..
FDN D250-20-60-R12	250.00	20.00	22	11	60.00	60.00	130.00	50.00	63.00	C	7.08	QDMT 12../QDCT 12..

• For user guide, see pages G67-70.

(1) Fully effective (2) For adaptation see page G72.

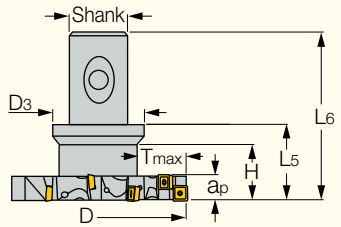
For inserts, see pages: QDCT-PDN (K64) • QDMT 1205..PDTN-M (K64) • QOMT-HQ (K59) • QPMT 100408PDTN (K61) • XOMT-HQ (K60) • XPMT-HQ (K62).

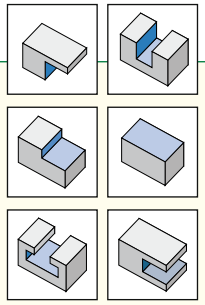
Spare Parts

Designation	Screw	Key	Punch	Torx Blade	T-Handle	Shell Locking Screw
FDN D080-08-22-R06	SR 34-514	T-7/51				
FDN D100-08-27-R06	SR 34-514	T-7/51				
FDN D100-10-27-R06	SR 34-514	T-7/51				
FDN D125-10-32-R06	SR 34-514	T-7/51				
FDN D125-12-32-R10	SR 14-544/S	T-15/51				
FDN D125-16-32-R10	SR 14-544/S	T-15/51				
FDN D160-12-40-R10	SR 14-544/S	T-15/51				
FDN D160-16-40-R10	SR 14-544/S	T-15/51				
FDN D200-12-40-R10	SR 14-544/S	T-15/51				
FDN D160-13-40-R12	SR 34-510	TSD 12-N	PN 3-4	BLD T15/M7	SW6-T	
FDN D160-16-40-R12	SR 14-544	TSD 12-N	PN 3-4	BLD T15/M7	SW6-T	
FDN D160-18-40-R12	SR 34-510	TSD 12-N	PN 3-4	BLD T15/M7	SW6-T	
FDN D200-18-40-R12	SR 34-510	TSD 12-N	PN 3-4	BLD T15/L7	SW6-T	
FDN D200-20-40-R12	SR 34-510	TSD 12-N	PN 3-4	BLD T15/L7	SW6-T	SR M12X30DIN912
FDN D250-20-60-R12	SR 34-510	TSD 12-N	PN 3-4	BLD T15/L7	SW6-T	

FDN-CF4

Full Slot, Flange-Type Slotting Cutters with CLICKFIT Adaptation





Designation	D	Z	a_p	T_{max}	L_6	L_5	H	D_3	Shank	Kg
FDN D050-08-CF4-06	50.00	8	8.00	13.90	90.00	48.00	32.00	44.00	CF4	0.44
FDN D063-08-CF4-06	63.00	10	8.00	18.90	90.00	48.00	33.00	44.00	CF4	0.50

• For user guide, see pages G67-70.

For inserts, see pages: QOMT-HQ (K59) • XOMT-HQ (K60).

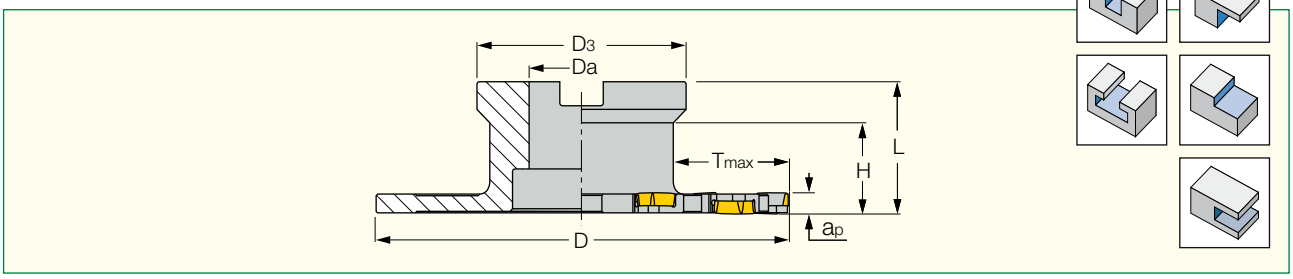
For CLICKFIT shanks: see ISCAR Tool Holding Systems catalog.

Spare Parts

Designation	Screw	Key
FDN-CF4	SR 34-514	T-7/51

FDN-CALN12

Full Slot, Adjustable Slotting Cutters with Cartridges Carrying LNET 12 Inserts



Designation	D	Z	Zeff	Da	D3	Tmax	Hmin	Hmax	L min	L max	Kg	Inserts	Width Range of [ap]
FDN D100-0608-27R-CALN12	100.00	6	3	27.00	55.00	26.00	28.4	29.5	40.0	41.1	0.48	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D100-0810-27R-CALN12	100.00	6	3	27.00	55.00	26.00	30.2	31.5	42.0	43.2	0.54	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D100-1014-27R-CALN12	100.00	6	3	27.00	55.00	26.00	32.0	34.0	44.5	46.5	0.47	LNET 1265...	10.5-12.2
												LNET 1277...	11.9-14.6
FDN D125-0608-32R-CALN12	125.00	8	4	32.00	65.00	34.00	30.2	31.3	45.0	46.1	0.80	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D125-0810-32R-CALN12	125.00	8	4	32.00	65.00	34.00	32.0	33.3	47.0	48.2	1.36	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D125-1014-32R-CALN12	125.00	8	4	32.00	65.00	34.00	33.7	35.8	49.5	51.5	1.47	LNET 1265...	10.5-12.2
												LNET 1277...	11.9-14.6
FDN D160-0608-40R-CALN12	160.00	12	6	40.00	80.00	44.00	29.6	30.7	45.0	46.1	1.29	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D160-0810-40R-CALN12	160.00	12	6	40.00	80.00	44.00	29.5	30.7	45.0	46.2	1.46	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D160-1014-40R-CALN12	160.00	12	6	40.00	80.00	44.00	31.2	33.2	47.5	49.5	2.15	LNET 1265...	10.5-12.2
												LNET 1277...	11.9-14.6
FDN D200-0608-40R-CALN12	200.00	16	8	40.00	92.00	51.00			45.0	46.1	2.20	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D200-0810-40R-CALN12	200.00	16	8	40.00	92.00	51.00			45.0	46.2	2.20	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D200-1014-40R-CALN12	200.00	16	8	40.00	92.00	51.00			45.0	47.0	2.40	LNET 1265...	10.5-12.2
												LNET 1277...	11.9-14.6
FDN D250-0608-60R-CALN12	250.00	20	10	60.00	132.00	56.00			48.0	49.1	5.32	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D250-0810-60R-CALN12	250.00	20	10	60.00	132.00	56.00			48.0	49.2	4.64	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D250-1014-60R-CALN12	250.00	20	10	60.00	132.00	56.00			48.0	50.0	6.23	LNET 1265...	10.5-12.2
												LNET 1277...	11.9-14.6

• Slot width depends on the selected insert width. Please verify use of correct screw for the insert being used. • For adaptation see page G72.
• For cartridges see page G42.

(1) For ap=6.0 use screw SR 14-500-L4.9 • For ap=6.5 use screw SR 14-500-L5.3 • For ap=7.0 use screw=SR 14-500-L5.9. (2) For ap=8.0 use screw SR 14-500-L6.7 • For ap=8.4 use screw SR 14-500-L7.0 • For ap=8.9 use screw SR 14-500-L7.5. (3) For ap=10.5 use screw SR 14-500-L9.0 • For ap=11.9 use screw SR 14-500-L9.0.

For inserts, see pages: LNET 12-TN (K57) • LNET 12-TN-MM (K58) • LNET 12..-30X1-N (K58).

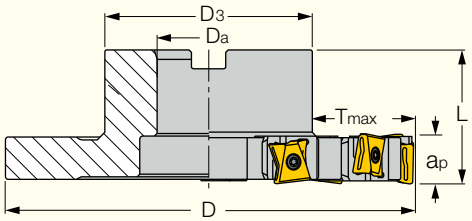
Spare Parts

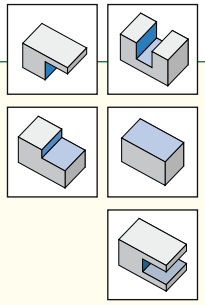
Designation	Insert	Insert Screw	Cartridge	Blade	Locking Screw	Cartridge Key
FDN-CALN12	LNET 1235...	SR 14-500-L4.9	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	Ratchet wrench key
	LNET 1240...	SR 14-500-L5.3	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	
	LNET 1245...	SR 14-500-L5.9	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	
	LNET 1248...	SR 14-500-L6.7	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1250...	SR 14-500-L7.0	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1255...	SR 14-500-L7.5	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1265..	SR 14-500-L9.0	CA 1014 R/L-LNET12	T-15/51-BE	SR 14-500-L8.5	
	LNET 1277..	SR 14-500-L9.0	CA 1014 R/L-LNET12	T-15/51-BE	SR 14-500-L8.5	

TANGMILL
TANGENTIAL LINE

FDN-CALN15

Full Slot, Adjustable Slotting Cutters with Cartridges Carrying LN.. 1506... Inserts (18.9-25.6 mm width range)





Designation	$a_{p\ min}$(1)	$a_{p\ max}$	T_{max}	D	Da	Z	Zeff	D_3	L	Kg
FDN D125-1925-32R-CALN15	18.90	25.60	30.00	125.00	32.00	8	4	65.00	40.00	1.25
FDN D160-1925-40R-CALN15	18.90	25.60	40.00	160.00	40.00	10	5	80.00	50.00	2.61
FDN D200-1925-40R-CALN15	18.90	25.60	54.00	200.00	40.00	14	7	92.00	50.00	0.39
FDN D250-1925-60R-CALN15	18.90	25.60	59.00	250.00	60.00	16	8	132.00	50.00	1.25

• Each cutter body can be changed into full slot, bottom or top milling configuration, by mounting the cartridges accordingly. • For adaptation see page G72
• For cartridge details, see page G42.

(1) The cutter will be set to the minimum of the width range, unless a specific width will be requested by the user.

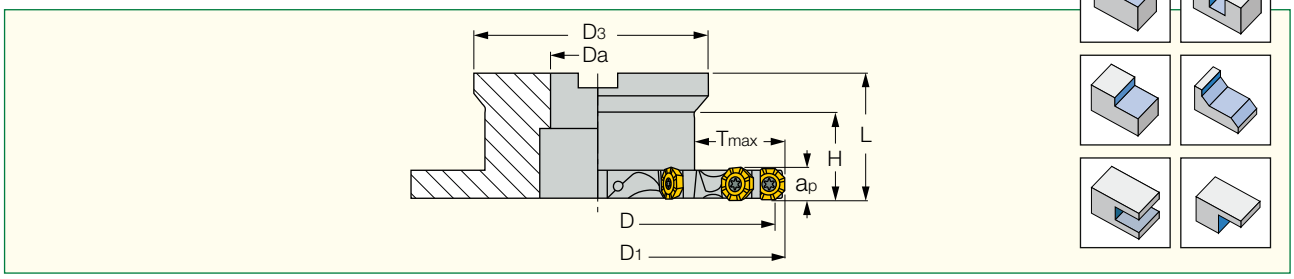
For inserts, see pages: LNKX 1506PN-N PL (K47) • LNKX/LNMT 1506PNTN/PN-N MM (K46) • LNMT/LNHT 1506...-N HT (K49) • LNMW 1506 PNTN (K47).

Spare Parts

Designation	Cartridge	Cartridge 1
FDN-CALN15	CA90 1928-L-LN15	CA90 1928-R-LN15

FDN-CM

Full Width Slotting Cutters, Flanged Type with Round and Octagonal Inserts



Tool Diameter						Width of Cutter			Type of Insert
80	100	125	160	200	250	11.7	12.1	12.8	
●	●	●				✓	✓	✓	R90MT 1205 O45MT 050505 R90MT 43

● Without seat

Designation	Z	Zeff		Dimensions D1	D	ap	Tmax	Da	D3	H	L	Arbor Style(2)	Kg
FDN CM-D080-12-22-FE(1)	6	6	●	80.51	68.60	12.15	23.25						
			●	100.51	88.60	12.15	26.7	22	45	28.2	40	A	0.35
			●	125.51	113.60	12.15	35.25						
FDN CM-D100-12-27-FE(1)	8	8	●	100.51	88.60	12.15	26.75						
			●	100.00	92.77	11.70	26.50	27	55	28.5	40	B	0.57
			●	101.20	88.50	12.85	27.10						
FDN CM-D125-12-32-FE(1)	10	10	●	125.51	113.60	12.15	35.25						
			●	125.00	117.77	11.70	35.00	32	65	32.0	45	B	0.94
			●	126.20	113.50	12.85	35.60						

(1) Fully effective cutter. (2) For adaptation see page G72.

● R90MT 1205 ● O45MT 050505 ● R90MT 43

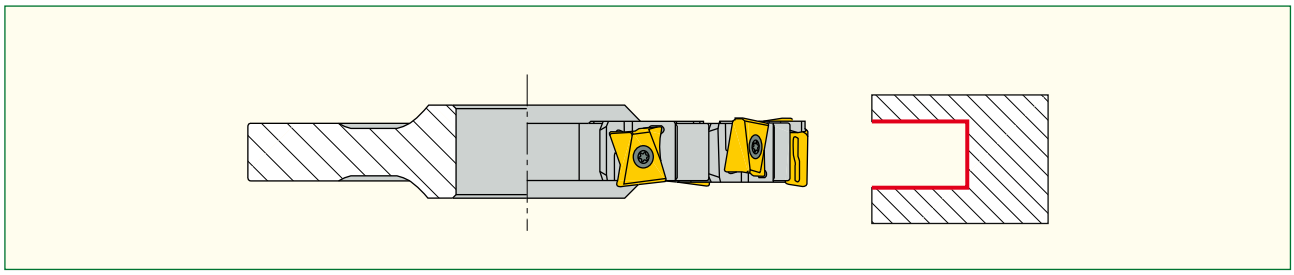
For inserts, see pages: O45MT (K69) • R90CW (K91) • R90MT (K91).

Spare Parts

Designation	Screw	Torx Blade	T-Handle
FDN-CM	SR 14-544/S	BLD T15/M7	SW6-T

SDN

Full Slot Disk Type



Tool Diameter							Width of Cutter																					Type of Insert
63	80	100	125	160	200	250	3	4	4.5	5	5.5	6	6.5	7	8	8.5	9	10	10.5	12	13	14	14.6	16	18	18.9	19.5	20	25	25.6	
●	●	●	●				✓																								LNET 081804
●	●	●	●	●				✓																							LNET 082604
●	●	●	●	●					✓																						LNET 082804
●	●	●	●							✓																					LNET 083004
●	●	●	●								✓																				LNET 083204
●	●	●	●									✓																			LNET 083504
●	●	●	●											✓																	LNET 083704
	●	●	●	●	●	●						✓																			LNET 1235
	●	●	●											✓																	LNET 1240
					●	●									✓																	LNET 1245
					●	●										✓																LNET 1248
	●	●	●	●	●	●											✓															LNET 1250
	●	●	●	●	●	●												✓														LNET 1255
	●	●	●	●	●	●													✓													LNET 1257
	●	●	●	●	●	●														✓												LNET 1265
		●	●	●	●	●																✓	✓									LNET 1277
		●	●	●	●	●																										LNET 12...CA
	●	●													✓																	XOMT 0602...
		●	●															✓														QOMT 060208
			●																	✓												XPMT 1004...
			●																													QPMT 1004...
			●																✓													QPMT 1004...
				●																✓				✓								QPMT 1004...
				●																				✓								XPMT 1004...
				◐																				✓	✓			✓				QDMT 1205...
					◐																			✓	✓			✓				QDCT 1205
		●	●	●	●	●																■	■	■	■	■	■				LNKX 1106 CA
			●	●	●	●																			■	■	■	■	■	■	■	LNKX 1506 CA

● Without seat

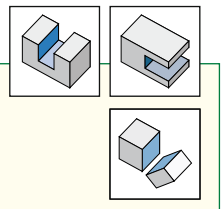
◐ With seat

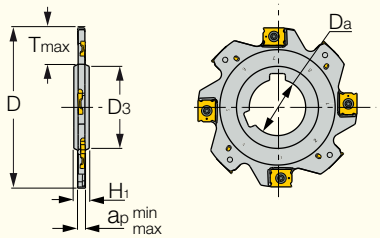
● With adjustable cartridges

MINI-TANGSLOT

SDN-LN08

Disk Type Grooving and Slitting Cutters





Designation	D	Da	$a_{p\ min}$	$a_{p\ max}$	D_3	T_{max}	H_1	Z	Zeff
SDN D063-03-22-LN08	63.00	22.00	3.00 (1)	3.00 (1)	32.00	14.80	6.0	8	4
SDN D063-04-22-LN08	63.00	22.00	4.00 (2)	4.50 (4)	32.00	14.80	6.0	8	4
SDN D063-05-22-LN08	63.00	22.00	5.00 (3)	5.50 (5)	32.00	14.80	7.0	8	4
SDN D080-03-22-LN08	80.00	22.00	3.00 (1)	3.00 (1)	34.00	22.00	6.0	10	5
SDN D080-04-22-LN08	80.00	22.00	4.00 (2)	4.50 (4)	34.00	22.00	6.0	10	5
SDN D080-05-22-LN08	80.00	22.00	5.00 (3)	5.50 (5)	34.00	22.00	7.0	10	5
SDN D100-03-27-LN08	100.00	27.00	3.00 (1)	3.00 (1)	42.00	27.00	8.0	12	6
SDN D100-04-27-LN08	100.00	27.00	4.00 (2)	4.50 (4)	42.00	27.00	8.0	12	6
SDN D100-05-27-LN08	100.00	27.00	5.00 (3)	5.50 (5)	42.00	26.50	10.0	12	6
SDN D125-03-32-LN08	125.00	32.00	3.00 (1)	3.00 (1)	48.00	36.50	8.0	16	8
SDN D125-04-32-LN08	125.00	32.00	4.00 (2)	4.50 (4)	48.00	36.00	8.0	16	8
SDN D125-05-32-LN08	125.00	32.00	5.00 (3)	5.50 (5)	48.00	36.00	10.0	16	8
SDN D160-04-40-LN08	160.00	40.00	4.00 (2)	4.50 (4)	56.00	48.60	10.0	20	10

• For user guide, see pages G17-19.

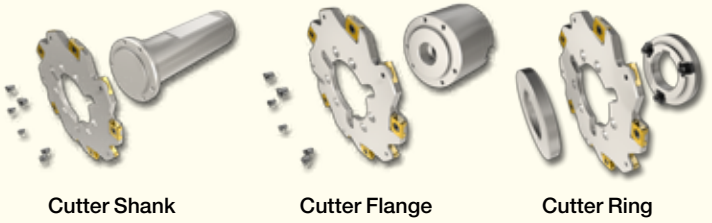
(1) Use LNET 0818.. insert with SR 114-018-L2.50 screw (2) Use LNET 0826.. insert with SR 114-018-L3.40 screw (3) Use LNET 0830.. insert with SR 114-018-L4.40 screw (4) Use LNET 0828.. insert with SR 114-018-L3.40 screw (5) Use LNET 0832.. insert with SR 114-018-L4.40 screw

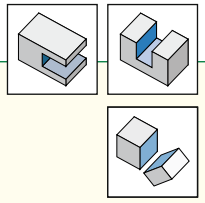
For inserts, see page: LNET 08 (K56).

Cutter Designation	a_p	Insert	Screw	Key	Key 1
SDN D...-03...-LN08	3.0	LNET 081804-TN-N	SR 114-018-L2.50	T-6/3-L	T-6/51
SDN D...-04...-LN08	4.0	LNET 082604-TN-N	SR 114-018-L3.40	T-6/3-L	T-6/51
	4.5	LNET 082804-TN-N	SR 114-018-L3.40	T-6/3-L	T-6/51
SDN D...-05...-LN08	5.0	LNET 083004-TN-N	SR 114-018-L4.40	T-6/3-L	T-6/51
	5.5	LNET 083204-TN-N	SR 114-018-L4.40	T-6/3-L	T-6/51

SDN-FLX-LN08

Disk Type Grooving and Slitting Cutters





Designation	D	Da	$a_{p\ min}$	$a_{p\ max}$	Z	Zeff
SDN D100-03-FLX-LN08	100.00	39.00	3.00 (1)	3.00 (1)	12	6
SDN D100-04-FLX-LN08	100.00	39.00	4.00 (2)	4.50 (5)	12	6
SDN D100-05-FLX-LN08	100.00	39.00	5.00 (3)	5.50 (6)	12	6
SDN D100-06-FLX-LN08	100.00	39.00	6.00 (4)	6.50 (7)	12	6
SDN D125-04-FLX-LN08	125.00	48.00	4.00 (2)	4.50 (5)	16	8
SDN D125-05-FLX-LN08	125.00	48.00	5.00 (3)	5.50 (6)	16	8
SDN D125-06-FLX-LN08	125.00	48.00	6.00 (4)	6.50 (7)	16	8
SDN D160-03-FLX-LN08	160.00	48.00	3.00 (1)	3.00 (1)	20	10
SDN D160-04-FLX-LN08	160.00	48.00	4.00 (2)	4.50 (5)	20	10
SDN D160-05-FLX-LN08	160.00	48.00	5.00 (3)	5.50 (6)	20	10
SDN D160-06-FLX-LN08	160.00	48.00	6.00 (4)	6.50 (7)	20	10

(1) Use LNET 0818.. insert with SR 114-018-L2.50 screw (2) Use LNET 0826.. insert with SR 114-018-L3.40 screw (3) Use LNET 0830.. insert with SR 114-018-L4.40 screw (4) Use LNET 0835.. insert with SR 114-018-L5.30 screw (5) Use LNET 0828.. insert with SR 114-018-L3.40 screw (6) Use LNET 0832.. insert with SR 114-018-L4.40 screw (7) Use LNET 0837.. insert with SR 114-018-L5.30 screw

For inserts, see page: LNET 08 (K56).

Spare Parts

Designation	Screw	Key	Key 1
SDN D100-03-FLX-LN08	SR 114-018-L2.50	T-6/51	T-6/3-L
SDN D100-04-FLX-LN08	SR 114-018-L3.40	T-6/51	T-6/3-L
SDN D100-05-FLX-LN08	SR 114-018-L4.40	T-6/51	T-6/3-L
SDN D100-06-FLX-LN08	SR 114-018-L5.30	T-6/51	T-6/3-L
SDN D125-04-FLX-LN08	SR 114-018-L3.40	T-6/51	T-6/3-L
SDN D125-05-FLX-LN08	SR 114-018-L4.40	T-6/51	T-6/3-L
SDN D125-06-FLX-LN08	SR 114-018-L5.30	T-6/51	T-6/3-L
SDN D160-03-FLX-LN08	SR 114-018-L2.50	T-6/51	T-6/3-L
SDN D160-04-FLX-LN08	SR 114-018-L3.40	T-6/51	T-6/3-L
SDN D160-05-FLX-LN08	SR 114-018-L4.40	T-6/51	T-6/3-L
SDN D160-06-FLX-LN08	SR 114-018-L5.30	T-6/51	T-6/3-L

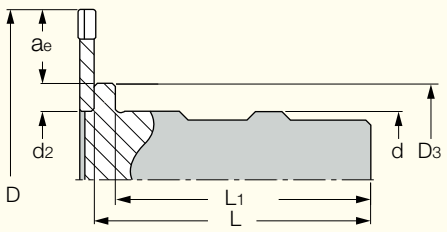
Adaptation Options



Designation	Cutter Ring	Cutter Flange	Cutter Shank
SDN D100...	22-39 27-39	22-39-B 32-39-B	W32-29
SDN D125.../ SDN D160...	22-48 27-48 32-48 32-48	27-48-B 32-48-A 40-48-A	

Cutter Shank

Driving Shanks for SDN-FLX-LN08 Slitting Cutters



Designation	d_2	d	D_3	L	L_1	Kg	D(1)	a_e(2)
CUTTER SHANK W32-39	39.00	32.00	55.00	110.00	100.0	0.83	-	-

(1) Reference dimension (2) Reference dimension for D=100 mm.

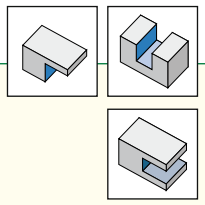
Spare Parts

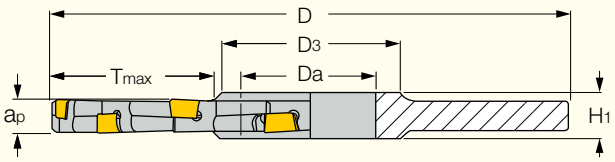
Designation	Screw	T-Handle	Torx Blade
Cutter Shank	SR 34-510/L11.5	SW6-T	BLD T15/S7

TANGSLOT

SDN-LN12

Full Slot Disk Type Slotting Cutters, Carrying LNET 12 Tangentially Mounted Inserts





Designation	Z	Zeff	D	Da	Tmax	D3	H1	Kg	ap	Inserts
SDN D080-07-27-LN12(1)	8	4	80.00	27.00	17.00	41.0	12.0	0.78	7.0	LNET 1240..
									8.0	LNET 1245..
									8.5	LNET 1248..
SDN D080-10-27-LN12(2)	8	4	80.00	27.00	17.00	41.0	12.0	0.21	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265...
SDN D100-07-32-LN12(1)	10	5	100.00	32.00	24.00	47.0	12.0	0.51	7.0	LNET 1240..
									8.0	LNET 1245..
									8.5	LNET 1248..
SDN D100-10-32-LN12(2)	10	5	100.00	32.00	24.00	47.0	12.0	0.50	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265...
SDN D125-07-40-LN12(1)	12	6	125.00	40.00	31.00	55.0	14.0	0.49	7.0	LNET 1240..
									8.0	LNET 1245..
									8.5	LNET 1248..
SDN D125-10-40-LN12(2)	12	6	125.00	40.00	31.00	55.0	14.0	0.60	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265...
SDN D160-10-40-LN12(2)	16	8	160.00	40.00	50.00	55.0	14.0	1.10	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265...
SDN D200-08-50-LN12(3)	20	10	200.00	50.00	62.50	70.0	12.0	1.75	8.0	LNET 1245..
									8.5	LNET 1248..
									9.0	LNET 1250..
									10.0	LNET 1255..
SDN D200-10-50-LN12(2)	20	10	200.00	50.00	62.50	69.0	14.0	1.90	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265...
SDN D250-08-50-LN12(3)	26	13	250.00	50.00	87.00	84.0	12.0	3.06	8.0	LNET 1245..
									8.5	LNET 1248..
									9.0	LNET 1250..
									10.0	LNET 1255..
SDN D250-08-60-LN12(3)	26	13	250.00	60.00	80.30	84.0	12.0	2.22	8.0	LNET 1245..
									8.5	LNET 1248..
									9.0	LNET 1250..
									10.0	LNET 1255..
SDN D250-10-50-LN12(2)	26	13	250.00	50.00	87.00	84.0	14.0	2.13	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265...
SDN D250-10-60-LN12(2)	26	13	250.00	60.00	80.00	84.0	14.0	2.83	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265...

• Each tool is supplied with screws for the thinnest specified insert. Please verify use of the correct screw for the insert being used. • For more than one insert option, slot width depends on the selected insert width. • For user guide, see pages G26 • Gang-mill assembly SDN and left-hand SSB cutters feature two keyways. It is recommended to assemble gang-mills with alternating keyway position. This practice reduces vibration.

(1) For ap=7.0, LNET 1240..screw SR 14-500-5.9 • ap=8.0, LNET 1245..screw SR14-500-6.5 • ap=8.5, LNET1248..screw SR 14-500-7.0 (2) For ap=10.0, LNET 1255..screw SR 14-500-8.5 • ap=10.5, LNET 1257..screw SR 14-500-8.5 • ap=12.0, LNET 1265..screw SR-L10.0 (3) For ap=8.0, LNET 1245..screw SR 14-500-7.0 • ap=9.0, LNET1250..screw SR 14-500-8.0 • ap=10,0 LNET1255..screw SR-L 14-500-8.5

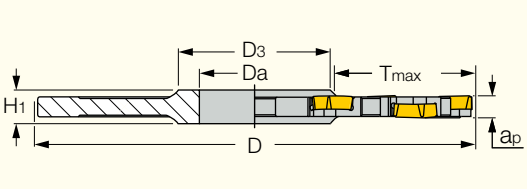
For inserts, see pages: LNET 12-TN (K57) • LNET 12-TN-MM (K58) • LNET 12..-30X1-N (K58).

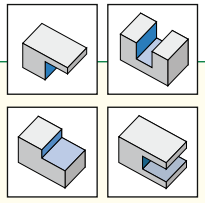
Designation	Insert	Screw	Key (1)	Key
SDN-LN12	LNET 1240...	SR 14-500-L5.9	Ratchet wrench key	T-15/51-BE
	LNET 1245 D=80-125	SR 14-500-L6.5		T-15/51-BE
	LNET 1245 D=160-200	SR 14-500-L7.0		T-15/51-BE
	LNET 1248...	SR 14-500-L7.0		T-15/51-BE
	LNET 1250...	SR 14-500-L8.0		T-15/51-BE
	LNET 1255...	SR 14-500-L8.5		T-15/51-BE
	LNET 1257...	SR 14-500-L8.5		T-15/51-BE
	LNET 1265...	SR 14-500-L10		T-15/51-BE

(1) Should be ordered separately. It is not supplied with the tool.

SDN-CALN12

Full Slot Disk Type Slotting Cutters with Cartridges Carrying LNET 12...
Tangentially Mounted Inserts





Designation	D	Z	Zeff	Da	D_3	T_{max}	H_1	Kg	Inserts	Width of Range [ap]
SDN D100-0608-27-CALN12	100.00	6	3	27.00	42.0	25.00	16.0	0.63	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D100-0810-27-CALN12	100.00	6	3	27.00	42.0	25.00	18.0	0.82	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5
SDN D100-1014-27-CALN12	100.00	6	3	27.00	42.0	25.00	20.0	0.48	LNET 1265... LNET 1277...	10.5-12.2 11.9-14.6
SDN D125-0608-40-CALN12	125.00	8	4	40.00	55.0	32.00	12.0	0.48	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D125-0810-40-CALN12	125.00	8	4	40.00	55.0	32.00	14.0	0.95	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5
SDN D125-1014-40-CALN12	125.00	8	4	40.00	55.0	32.00	18.0	0.48	LNET 1265... LNET 1277...	10.5-12.2 11.9-14.6
SDN D160-0608-40-CALN12	160.00	12	6	40.00	55.0	50.00	12.0	1.11	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D160-0810-40-CALN12	160.00	12	6	40.00	55.0	50.00	14.0	0.48	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5
SDN D160-1014-40-CALN12	160.00	12	6	40.00	55.0	50.00	18.0	1.61	LNET 1265... LNET 1277...	10.5-12.2 11.9-14.6
SDN D200-0608-50-CALN12	200.00	16	8	50.00	70.0	63.00	12.0	1.50	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D200-0810-50-CALN12	200.00	16	8	50.00	70.0	63.00	14.0	1.70	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5
SDN D200-1014-50-CALN12	200.00	16	8	50.00	70.0	63.00	18.0	0.48	LNET 1255... LNET 1255...	10.5-12.2 11.9-14.6

• For user guide, see page G26. For cartridge details, see page G42.

For inserts, see pages: LNET 12-TN (K57) • LNET 12-TN-MM (K58) • LNET 12..-30X1-N (K58).

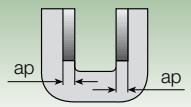
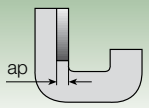
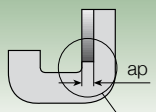
Spare Parts

Designation	Insert	Insert Screw	Cartridge	Blade	Cartridge Locking Screw	Cartridge Key
SDN-CALN12	LNET 1235...	SR 14-500-L4.9	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	Ratchet wrench key
	LNET 1240...	SR 14-500-L5.3	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	
	LNET 1245...	SR 14-500-L5.9	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	
	LNET 1248...	SR 14-500-L6.7	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1250...	SR 14-500-L7.0	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1255...	SR 14-500-L7.5	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1265..	SR 14-500-L9.0	CA 1014 R/L-LNET12	T-15/51-BE	SR 14-500-L8.5	
	LNET 1277..	SR 14-500-L9.0	CA 1014 R/L-LNET12	T-15/51-BE	SR 14-500-L8.5	

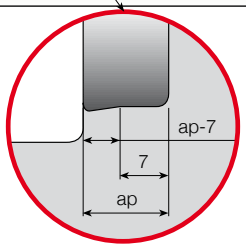
Inserts

LNHT 1106...HT inserts should be used if a straight groove or shoulder are needed.
When using the other inserts, the machined surface is grooved, due to the butterfly insert shape.

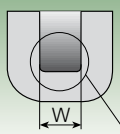
Side Wall Flatness Depending on the Inserts Being Used

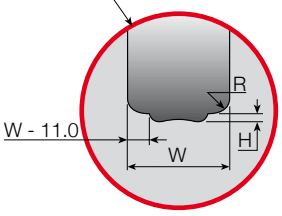
Designation	Number of Cutting Edges	Side Flatness ap5 H (mm)	Side Flatness ap=10 H (mm)	Application	Half Side Tools Axial Depth of Cut ap (mm)
LNHT 1106...				**Double Face MIlling**	
LNKX 1106...	4R+4L	Flat	0.45		Stock=0-10
LNMT 1106...	4R+4L	Flat	0.45		Stock=0-10
HT insert - N[1]	2R+2L	Flat	Flat		Stock=0-10
LNHT 1106...				**Half side Milling**	
LNKX 1106...	4R	Flat	0.45		Stock=0-10
LNMT 1106...	4R	Flat	0.45		Stock=0-10
HT insert-R[2]	4R	Flat	Flat		Stock=0-10
LNHT 1106...				**Half side milling**	
LNKX 1106...	4L	Flat	0.45		Stock=0-10
LNMT 1106...	4L	Flat	0.45		Stock=0-10
HT insert - N[1]	2L	Flat	Flat		Stock=0-10

[1] Use of 8 cutting edges (4R+4L) is possible only when ap≤5 mm, otherwise 4 cutting edges (2R+2L) can be used.

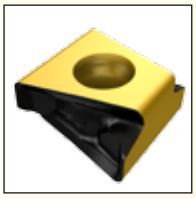


Configuration Guide for Full Slot FDN/SDN... CALN11 Cutters

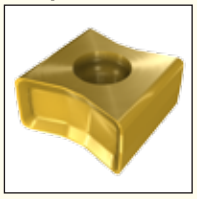
Designation	Number of Cutting Edges	Bottom Slot Flatness H (mm)	Insert Radius R (mm)	Application	Half Side Tools Axial Depth of Cut W (mm)
LNHT 1106...					
LNKX 1106...	2R+2L	0.45	0.8		W=14-19.5
LNMT 1106...	2R+2L	0.45	0.8		W=14-19.5
HT insert-N[1]	2R+2L	Flat	0.8		W=14-19.5



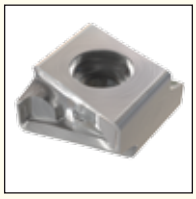
[1] LNHT insert - N R.H./L.H.



LNKX 1106... LNMT 1106... R.H./L.H.



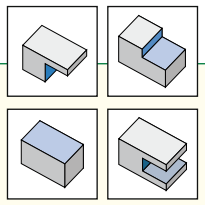
[2] LNHT insert - R R.H. only

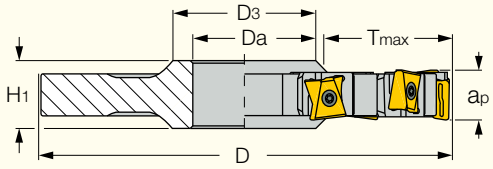


TANGMILL
TANGENTIAL LINE

SDN-CALN11

Full Slot, Disk Type Slotting Cutters with Cartridges Carrying Tangentially Mounted LN.. 1106.. Inserts





Designation	$a_{p\ min}$(1)	$a_{p\ max}$	T_{max}	D	Da	Z	Zeff	D_3	H_1	Kg
SDN D100-1419-27-CALN11	14.00	19.50	26.80	100.00	27.00	6	3	42.00	20.0	0.58
SDN D125-1419-40-CALN11	14.00	19.50	31.50	125.00	40.00	8	4	56.00	20.0	0.90
SDN D160-1419-40-CALN11	14.00	19.50	48.00	160.00	40.00	10	5	56.00	22.0	1.51
SDN D200-1419-50-CALN11	14.00	19.50	61.00	200.00	50.00	14	7	70.00	22.0	4.75
SDN D250-1419-60-CALN11	14.00	19.50	78.00	250.00	60.00	16	8	85.00	26.0	14.99

• Each cutter body can be changed into full slot, bottom or top milling configuration, by mounting the cartridges accordingly. • Half of the inserts are used on right-hand cartridges and half on left-hand cartridges. • Gang-mill assembly SDN and left-hand SSB cutters feature two keyways. It is recommended to assemble gang-mills with alternating keyway position. This practice reduces vibration. • For cartridge details, see page G42.

(1) The cutter will be set to the minimum of the width range, unless a specific width will be requested

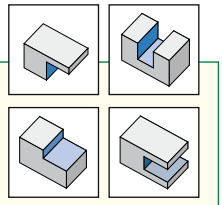
For inserts, see pages: LNHT 1106 PN-N HT (K42) • LNHT 1106 PN-R HT (K41) • LNKX/LNMT 1106 (K41).

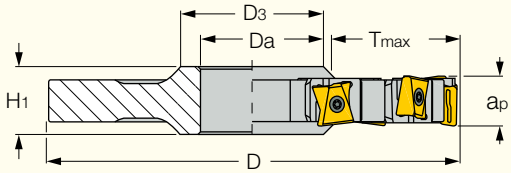
Spare Parts

Designation	Cartridge	Cartridge 1
SDN-CALN11	CA90 1419-L-LN11	CA90 1419-R-LN11

SDN-CALN15

Full Slot, Disk Type Slotting Cutters with Cartridges Carrying Tangentially Mounted LN.. 1506.. Inserts





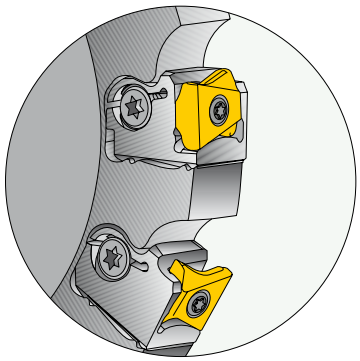
Designation	$a_{p\ min}$(1)	$a_{p\ max}$	T_{max}	D	Da	Z	Zeff	D_3	H_1	Kg
SDN D125-1925-40-CALN15	18.90	25.60	34.00	125.00	40.00	8	4	56.00	26.0	1.13
SDN D160-1925-40-CALN15	18.90	25.60	52.00	160.00	40.00	10	5	56.00	26.0	1.90
SDN D200-1925-50-CALN15	18.90	25.60	65.00	200.00	50.00	14	7	70.00	26.0	3.02
SDN D250-1925-60-CALN15	18.90	25.60	82.00	250.00	60.00	16	8	85.00	26.0	4.20

• Each cutter body can be changed into full slot, bottom or top milling configuration, by mounting the cartridges accordingly. • Half of the inserts are used on right-hand cartridges and half on left-hand cartridges. • Gang-mill assembly SDN and left-hand SSB cutters feature two keyways. It is recommended to assemble gang-mills with alternating keyway position. This practice reduces vibration. • For cartridge details, see page G42.

(1) The cutter will be set to the minimum of the width range, unless a specific width will be requested by the user.

For inserts, see pages: LNKX 1506PN-N PL (K47) • LNKX/LNMT 1506PNTN/PN-N MM (K46) • LNMT/LNHT 1506...-N HT (K49) • LNMW 1506 PNTN (K47).

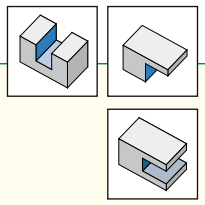
Designation	Cartridge	Cartridge 1
SDN-CALN15	CA90 1928-L-LN15	CA90 1928-R-LN15

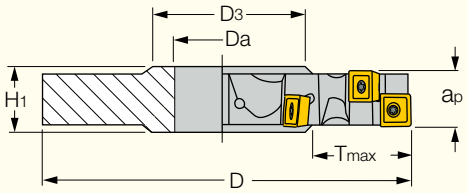


SDN-CALN

SDN

Full Slot Disk Type Slotting Cutters





Designation	D	a_p	Z	Zeff	T_{max}	Da	D_3	H_1	Insert
SDN D080-08-27-06	80.00	8.00	12	6	17.00	27.00	41.00	12.0	X/QOMT 06...
SDN D100-08-32-06	100.00	8.00	14	7	24.00	32.00	47.00	12.0	
SDN D100-10-32-06	100.00	10.00	14	7	24.00	32.00	47.00	14.0	
SDN D125-10-40-06	125.00	10.00	16	8	30.40	40.00	55.00	14.0	
SDN D125-12-40-10	125.00	12.00	12	6	33.00	40.00	55.00	16.0	X/QPMT 10...
SDN D160-12-40-10	160.00	12.00	14	7	50.00	40.00	55.00	16.0	
SDN D160-16-40-10	160.00	16.00	14	7	50.00	40.00	55.00	20.0	
SDN D160-16-40-12	160.00	16.00	12	6	50.00	40.00	55.00	20.0	QDMT 12... QDCT 12...
SDN D200-16-50-12	200.00	16.00	14	7	63.00	50.00	69.00	20.0	
SDN D200-18-50-12	200.00	18.00	14	7	50.00	50.00	69.00	24.0	
SDN D200-20-50-12	200.00	20.00	14	7	63.00	50.00	69.00	26.0	

• For user guide, see pages G67-71.

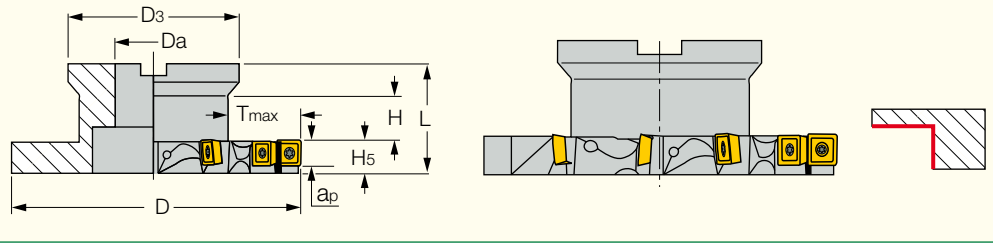
For inserts, see pages: QDCT-PDN (K64) • QDMT 1205..PDTN-M (K64) • QOMT-HQ (K59) • QPMT 100408PDTN (K61) • XOMT-HQ (K60) • XPMT-HQ (K62).

Spare Parts

Designation	Screw	Key	Seat	Punch	Torx Blade	T-Handle
SDN D080-08-27-06	SR 34-514	T-7/51				
SDN D100-08-32-06	SR 34-514	T-7/51				
SDN D100-10-32-06	SR 34-514	T-7/51				
SDN D125-10-40-06	SR 34-514	T-7/51				
SDN D125-12-40-10	SR 14-544/S	T-15/51				
SDN D160-12-40-10	SR 14-544/S	T-15/51				
SDN D160-16-40-10	SR 14-544/S	T-15/51				
SDN D160-16-40-12	SR 34-510		TSD 12-N	PN 3-4	BLD T15/M7	SW6-T
SDN D200-16-50-12	SR 34-510		TSD 12-N	PN 3-4	BLD T15/L7	SW6-T
SDN D200-18-50-12	SR 34-510		TSD 12-N	PN 3-4	BLD T15/L7	SW6-T
SDN D200-20-50-12	SR 34-510		TSD 12-N	PN 3-4	BLD T15/M7	SW6-T

FST

Top-Side Cutting, Flanged Type Slotting Cutters



Designation	D	a_p	Z	Zeff	T_{max}	Da	D_3	H	H_5	L	Arbor[1]	Inserts
FST D100-12-27-R10	100.00	9.00	11	11	25.00	27.00	55.00	17.50	12.00	40.00	B	
FST D125-12-32-R10	125.00	9.00	13	13	34.00	32.00	65.00	20.00	12.00	45.00	B	QPMT 10
FST D160-14-40-R10	160.00	9.00	15	15	46.50	40.00	80.00	21.00	14.00	50.00	B	XPMT 10
FST D200-14-40-R10	200.00	9.00	21	21	54.00	40.00	92.00	36.00	14.00	50.00	C	

[1] For adaptation see pages G67-72.

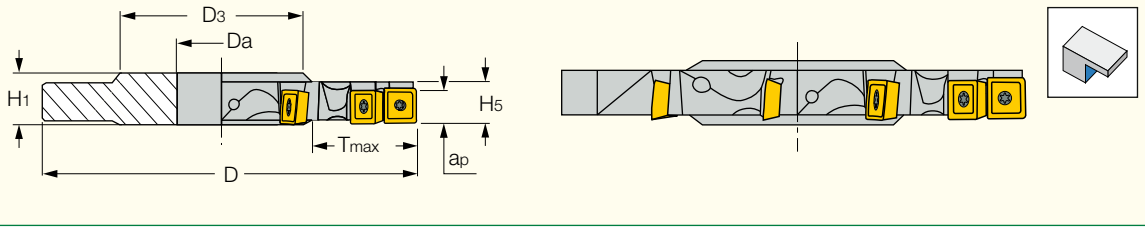
For inserts, see pages: QPMT 100408PDTN (K61) • XPMT-HQ (K62).

Spare Parts

Designation	Screw	Key
FST	SR 14-544/S	T-15/51

SSB

Single-Side Cutting, Disk Type Slotting Cutters



Tool Diameter						Width of Cutter										Type of Insert
80	100	125	160	200	250	8	10	12	14	16	17.5	18	20	22	24	25	
	●	●						✓									QPMT 1004 XPMT 1004 SPMT 1004 (For R.H.. cut only)
			●							✓							
●	●	●	●											✓			LNKX 1506 LNMT 1506 LNHT 1506...HT
				●											✓		

● Without seat

Designation	a_p	D	Z	Zeff	T_{max}	Da	D_3	H_5	H_1	Inserts
SSB D100-12-32-R/L10	9.00	100.00	9	9	26.00	32.00	47.00	12.00	16.0	QPMT 1004...
SSB D125-12-40-R/L10	9.00	125.00	11	11	35.00	40.00	55.00	12.00	16.0	XPMT 1004...
SSB D160-16-40-R/L10	9.00	160.00	13	13	52.00	40.00	55.00	16.00	20.0	SPMT 1004...[1]

For inserts, see pages: QPMT 100408PDTN (K61) • SPMT-HQ (K61) • XPMT-HQ (K62).

[1] SPMT 1004... for R.H./ tools only

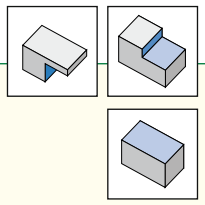
Spare Parts

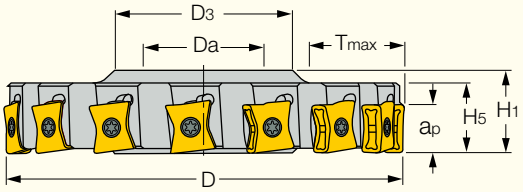
Designation	Screw	Key
SSB	SR 14-544/S	T-15/51

TANGMILL
TANGENTIAL LINE

SSB-LN15-R/L

Single-Side Cutting, Disk Type Slotting Cutters

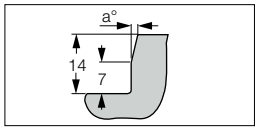




Designation	D	Z	T_{max}	a_p	Da	D_3	H_5	H_1	Kg
SSB D080-22-27-LN15-R/L	80.00	10	18.00	14.00	27.00	42.00	22.00	24.0	0.56
SSB D100-22-32-LN15-R/L	100.00	12	26.00	14.00	32.00	48.00	22.00	26.0	0.95
SSB D125-22-40-LN15-R/L	125.00	15	35.00	14.00	40.00	56.00	22.00	26.0	1.51
SSB D160-22-40-LN15-R/L	160.00	20	52.00	14.00	40.00	56.00	22.00	26.0	2.92
SSB D200-24-50-LN15-R/L	200.00	25	65.00	14.00	50.00	70.00	24.00	28.0	4.66

• Note: Left-hand cutters are designated by a yellow groove.

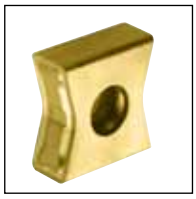
For inserts, see pages: LNAT 1506-W (K51) • LNAT 1506..PN-N MM (K51) • LNAW-15 (CBN) (K45) • LNHW 1506 PNTN (Ceramic) (K50) • LNKX 1506 1.5X45 PN-N (K48) • LNKX 1506PN-N PL (K47) • LNKX/LNMT 1506PNTN/PN-N MM (K46) • LNMT/LNHT 1506...-N HT (K49) • LNMT/LNHT 1506PN-R HT (K48) • LNMW 1506 PNTN (K47).



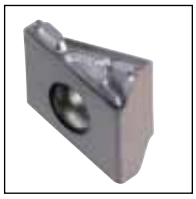
90° lead angle cutter
For D=80 lead angle cutter $_a$=6°
For D≥100 lead angle cutter $_a$=4.5°



LNMT 1506PTNT-HT R.H./L.H.



LNKX 1506... LNMT 1506... R.H./L.H.



LNMT 1506PN-R-HT R.H. only

Gang-Mill Assembly

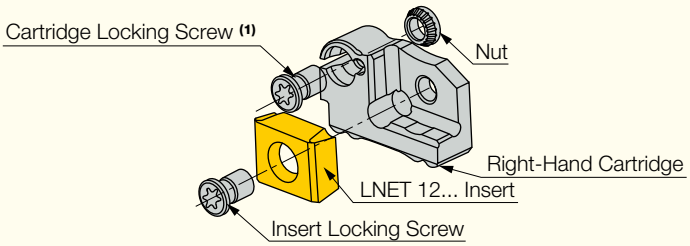
SDN and left-hand SSB cutters feature two keyways. It is recommended to assemble gang-mills with alternating keyway position. This practice reduces vibration.

Spare Parts

Designation	Screw	Torx Blade	T-Handle
SSB-LN15-R/L	SR 34-535	BLD T15/M7	SW6-T SHORT

TANGSLOT

CA 0608-R/L-LNET 12



Cartridge	Cartridge Locking Screw	Nut	Width of Cut Min.	Insert Max.	Insert Designation	Clamping Screw
CA 0608-R/L-LNET 12	SR 14-500-L4.5	NUT M4-2.2	6.00	6.50	LNET 1235...	SR 14-500/L4.9
			6.50	7.20	LNET 1240...	SR 14-500/L5.3
			7.00	8.20	LNET 1245..	SR 14-500/L5.9
CA 0810-R/L-LNET 12	SR 14-500-L6.1	NUT M4-2.2	8.00	8.70	LNET 1248..	SR 14-500/L6.7
			8.40	9.20	LNET 1250..	SR 14-500/L7.0
			8.90	10.5	LNET 1255..	SR 14-500/L7.5
CA 1014-R/L-LNET 12	SR 14-500-L8.5	NUT M4-2.2	10.5	12.2	LNET 1265..	SR 14-500/L9.0
			11.9	14.6	LNET 1277..	

Each insert size should be ordered with its appropriate screw.

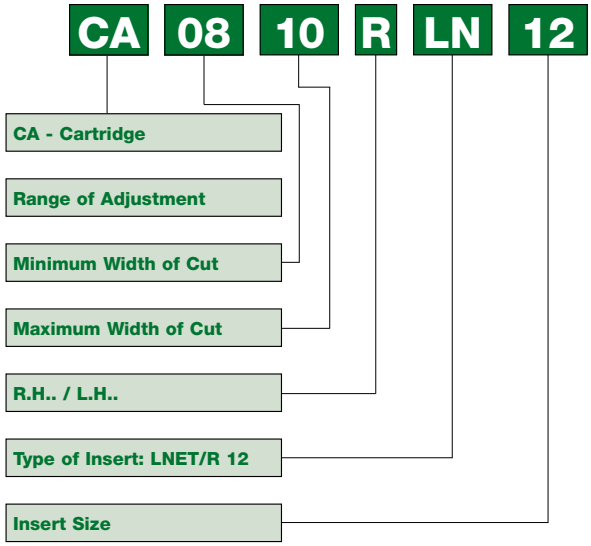
When changing insert size a new screw has to be ordered.

Keys:

Torx T-15/51-BE

Ratchet wrench key

(1) Tightening torque: 4.5 ÷ 5Nxm

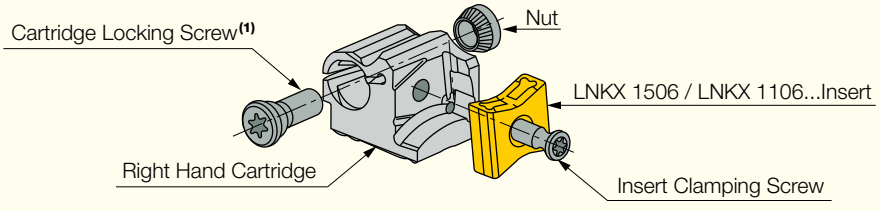


TANGMILL

TANGENTIAL LINE

CA90-R/L-LN11/15 Mill Cartr.

Adjustable Cartridge for SDN and FDN-CALN11/CALN15



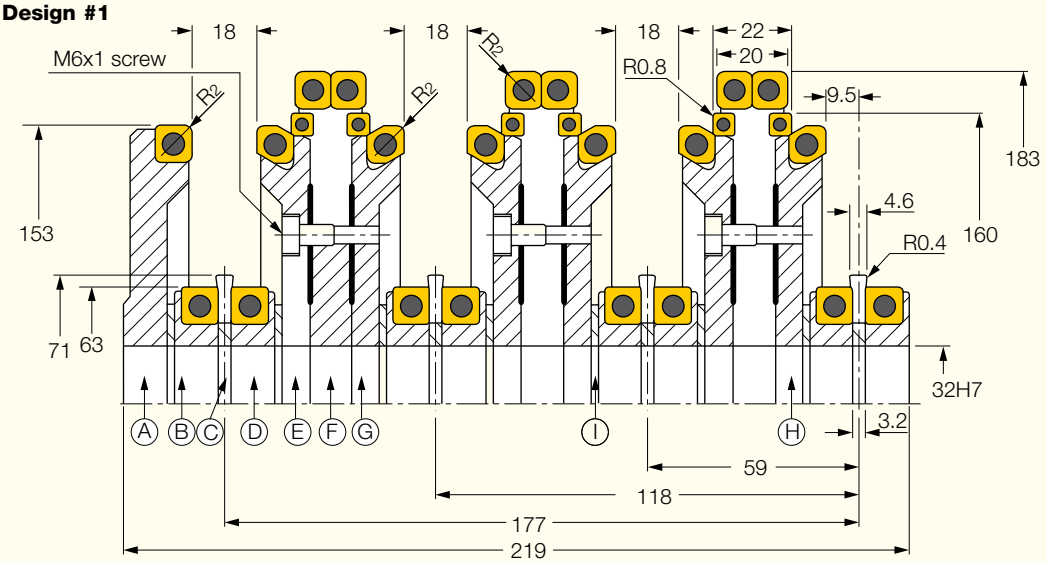
Spare Parts

Designation	Torx Blade	Torx Blade 1	Screw	Cartridge Screw	Nut	T-Handle
CA90 1419-R/L-LN11	BLD T10/S7	BLD IP25/S7	SR 34-550	SR 14-2120/L11.2(1)	NUT M5-4.5	SW6-T-H
CA90 1928-R/L-LN15	BLD T15/S7	BLD IP25/S7	SR 34-535	SR 14-2120(1)	NUT M5-4.5	SW6-T-H

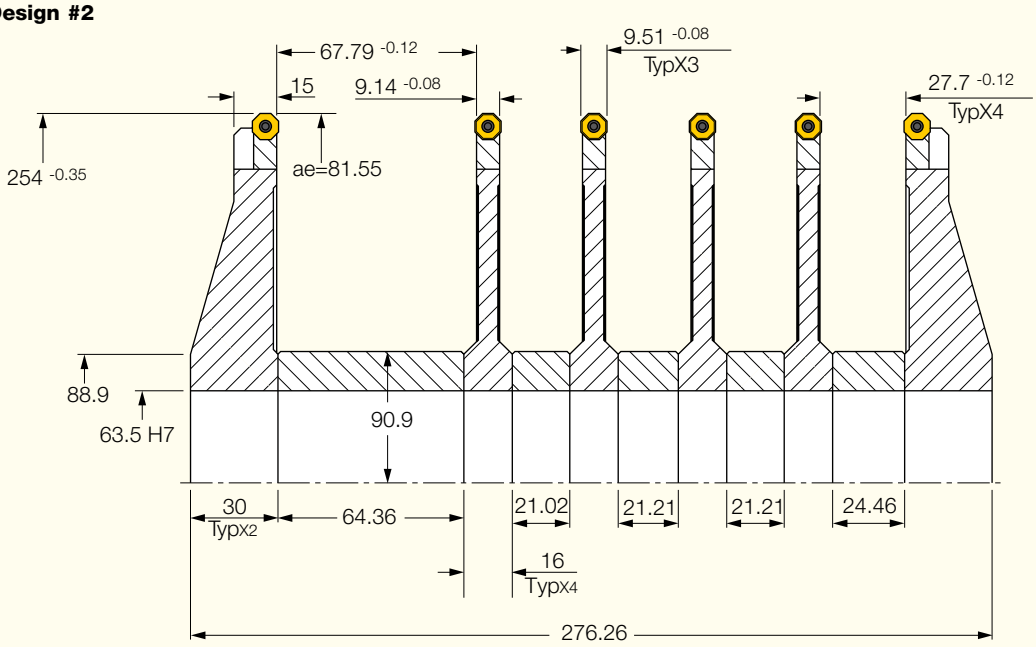
(1) Tightening torque:16 Nxm

Examples From the Industry

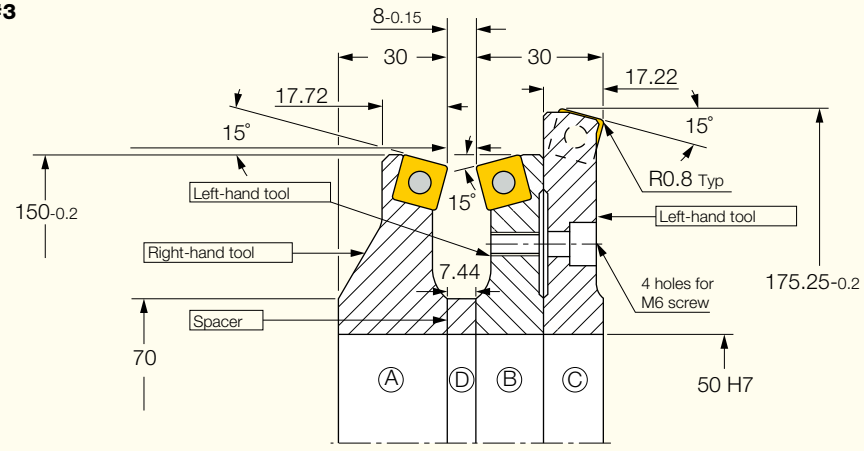
Example Design #1



Example Design #2

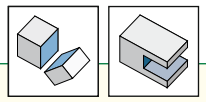


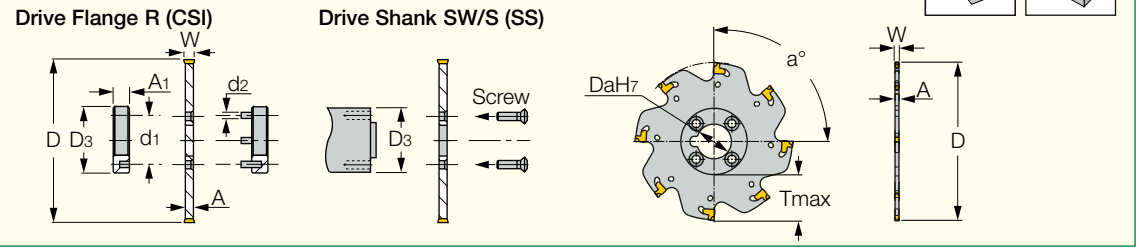
Example Design #3



TGSF

Slitting Cutters with TANG-GRIP Inserts





Designation	W	D	Z	A	Da	T_{max}	RPM max	a°	D_3	A_2	SS	CSI	Insert
TGSF 50-2-8KR	2.00	50.00	5	1.65	8.00	10.00	1600	90	28.00	2.5	-	-	TAG 2
TGSF 63-2-10KR	2.00	63.00	6	1.65	10.00	14.50	1260	90	32.00	2.5	-	-	TAG 2
TGSF 80-2-22KR	2.00	80.00	8	1.65	22.00	19.00	1000	90	40.00	2.5	-	-	TAG 2
TGSF 100-2-22KR	2.00	100.00	11	1.65	22.00	29.00	800	90	40.00	2.5	-	-	TAG 2
TGSF 125-2-32KR	2.00	125.00	13	1.65	22.00	34.00	640	90	55.00	2.5	-	-	TAG 2
TGSF 50-3-8K	3.00	50.00	4	2.50	8.00	10.00	6300	90	-	-	-	-	TAG 3
TGSF 63-3-10K	3.00	63.00	5	2.50	10.00	14.50	5000	90	-	-	-	-	TAG 3
TGSF 80-3-22K	3.00	80.00	7	2.50	22.00	19.00	3900	90	-	-	-	-	TAG 3
TGSF 100-3-22K (1)	3.00	100.00	8	2.50	22.00	29.00	4470	90	-	-	SW32-40	R 22-46	TAG 3
TGSF 125-3-32K	3.00	125.00	10	2.50	32.00	34.00	3820	90	-	-	S32-55	R 32-55	TAG 3
TGSF 160-3-32K	3.00	160.00	12	2.50	32.00	52.00	3000	90	-	-	S32-55	R 32-55	TAG 3
TGSF 63-4-10K	4.00	63.00	-	-	10.00	-	5000	90	-	-	-	-	TAG 4
TGSF 80-4-22K	4.00	80.00	-	-	22.00	-	3900	90	-	-	-	-	TAG 4
TGSF 100-4-22K (1)	4.00	100.00	8	3.30	22.00	29.00	6000	90	-	-	SW32-40	R 22-46	TAG 4
TGSF 125-4-32K	4.00	125.00	10	3.30	32.00	34.00	3800	90	-	-	S32-55	R 32-55	TAG 4
TGSF 160-4-40K	4.00	160.00	12	3.30	40.00	39.00	3000	90	-	-	S40-80	R 40-80	TAG 4

• For drive flange set dimensions, refer to Drive Flange R

(1) Tmax=26 when used with drive flange. D3=46 when used with drive flange.

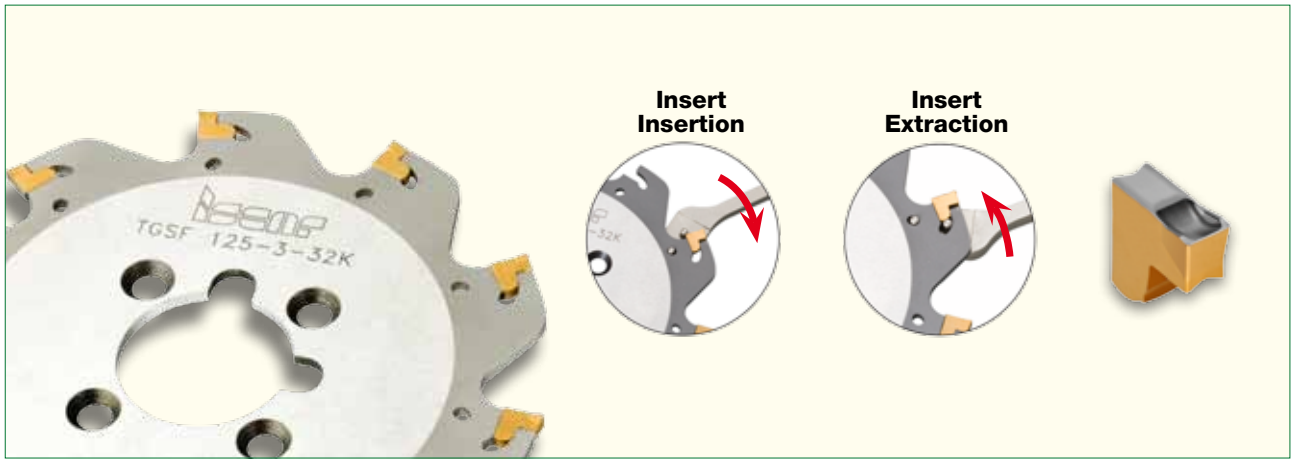
For inserts, see pages: TAG N-A (G45) • TAG N-C/W/M (G45) • TAG N-J/JS/JT (G46) • TAG N-UT (G46).

For holders, see pages: R (Drive Flange Set) (G50).

Spare Parts

Designation	Extractor	Extractor 1	Extractor 2
TGSF 50-2-8KR	ETG 2-SH-T*		
TGSF 63-2-10KR		ETG 2*	
TGSF 80-2-22KR		ETG 2*	
TGSF 100-2-22KR		ETG 2*	
TGSF 125-2-32KR		ETG 2*	
TGSF 50-3-8K			ETG 3-4-SH*
TGSF 63-3-10K			ETG 3-4-SH*
TGSF 80-3-22K			ETG 3-4-SH*
TGSF 100-3-22K			ETG 3-4-SH*
TGSF 125-3-32K			ETG 3-4-SH*
TGSF 160-3-32K			ETG 3-4-SH*
TGSF 63-4-10K			ETG 3-4-SH*
TGSF 80-4-22K			ETG 3-4-SH*
TGSF 100-4-22K			ETG 3-4-SH*
TGSF 125-4-32K			ETG 3-4-SH*
TGSF 160-4-40K			ETG 3-4-SH*

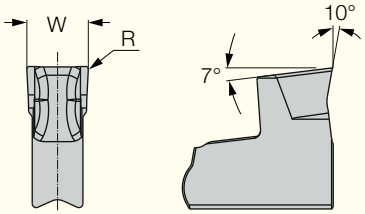
* Optional, should be ordered separately

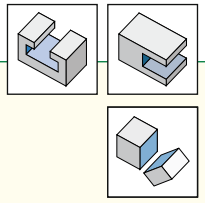


TAG N-A

Parting and Grooving Single-Ended Insert for Machining Aluminum







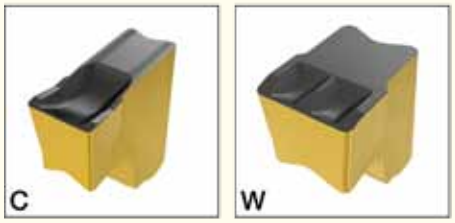
Designation	Dimensions W±0.04	Dimensions R±0.05	IC20	Recommended Machining Data f groove (mm/rev)
TAG N2A	2.10	0.20	●	0.02-0.10
TAG N3A	3.05	0.20	●	0.03-0.14
TAG N4A	4.05	0.24	●	0.03-0.16

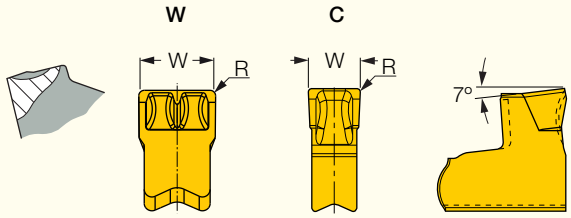
• For cutting speed recommendations and user guide, see pages G60-65.

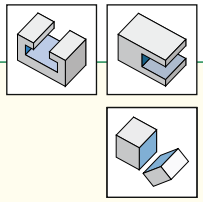
For tools, see page: TGSF (G44).

TAG N-C/W/M

Parting and Grooving Single-Ended Insert for Parting Bars, Hard Materials and Tough Applications







Designation	Dimensions W	Dimensions W±toler	Dimensions R±0.04	Tough ↔ Hard IC830	IC928	IC30N	IC808	IC908	IC20	IC807	Recommended Machining Data f groove (mm/rev)
TAG N2C	2.00	0.05	0.20	●		●	●		●		0.05-0.16
TAG N2.4C	2.40	0.04	0.16	●			●				0.06-0.18
TAG N3CB (1)	3.00	0.05	0.35	●			●				0.12-0.30
TAG N3C	3.05	0.05	0.20	●	●	●	●	●	●	●	0.10-0.25
TAG N3M (2)	3.05	0.05	0.20	●				●			0.06-0.18
TAG N3W	3.05	0.05	0.20	●				●			0.10-0.25
TAG N4C	4.00	0.05	0.24	●	●		●	●	●	●	0.10-0.30
TAG N4CB (1)	4.00	0.05	0.40	●				●			0.10-0.33
TAG N4M (2)	4.00	0.05	0.24	●				●			0.06-0.20
TAG N4W	4.00	0.05	0.24	●				●			0.10-0.30

• Feed values for grade IC20 should be decreased by 50% • For cutting speed recommendations and user guide, see pages G60-65.

(1) Larger corner radii for interrupted-cut and high feed applications. (2) Similar to C-type, but with a modified edge. Improved chip control at medium feeds.

For tools, see page: TGSF (G44).

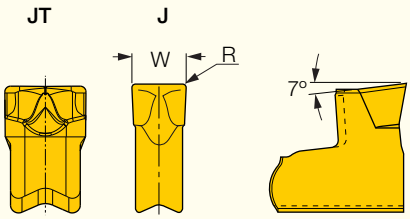
TANG-GRIP
PARTING LINE

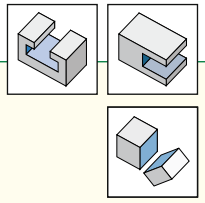
TAG N-J/JS/JT

Parting and Grooving Single-Ended Insert, for Soft Materials









Designation	Dimensions W±0.04	Dimensions R±0.05	Tough ↔ Hard IC830	IC928	IC808	IC908	IC20	IC807	Recommended Machining Data f groove (mm/rev)
TAG N2JS (1)	2.00	0.02	●		●				0.03-0.08
TAG N2J	2.00	0.20	●		●		●		0.04-0.12
TAG N2JT	2.00	0.20	●	●	●	●			0.04-0.10
TAG N3JS (1)	3.05	0.02	●		●				0.04-0.10
TAG N3J	3.05	0.20	●	●	●	●	●	●	0.04-0.16
TAG N3JT	3.05	0.20	●		●	●			0.05-0.18
TAG N4J	4.00	0.24	●	●	●	●		●	0.04-0.18
TAG N4JT	4.05	0.24	●		●	●			0.06-0.20

• JT chipformer has the basic positive configuration of the J-type and a reinforced negative frontal edge. Most suitable for soft materials at low to medium feeds. The JS-type has sharp corners. • For cutting speed recommendations and user guide, see pages G60-65.

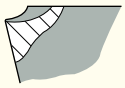
(1) Sharp corners

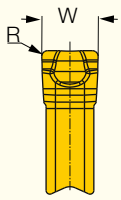
For tools, see page: TGSF (G44).

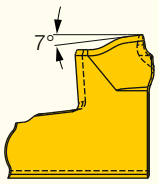
TAG N-UT

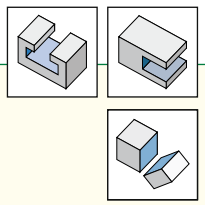
Parting and Grooving Single-Sided Insert, for Low Feeds on Cr-Ni Alloys, Ductile Materials and Low Carbon Steel











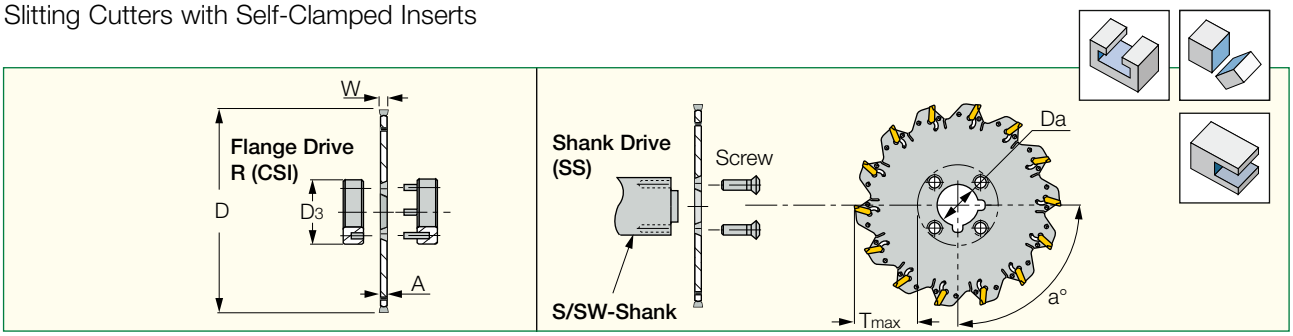
Designation	Dimensions W±0.04	Dimensions R±0.04	Tough ↔ Hard IC830	IC808	IC908	Recommended Machining Data f groove (mm/rev)
TAG N2UT	2.00	0.20	●	●	●	0.03-0.10
TAG N3UT	3.00	0.30	●	●		0.04-0.12
TAG N4UT	4.00	0.30			●	0.05-0.15

• For cutting speed recommendations and user guide, see pages G60-65.

For tools, see page: TGSF (G44).

GM-DG

Slitting Cutters with Self-Clamped Inserts



Designation	W min	W max	D	Z	Da	A	Tmax	RPM max	a°	SS	CSI	Inserts
GM D100-3DG-22K (1)	2.70	3.35	100.00	6	22.00	2.40	29.00	800	90	SW 32-40	R 22-46	Single-ended:
GM D125-3DG-32K (2)	2.70	3.35	125.00	8	32.00	2.40	34.00	640	0	S 32-55	R 32-55	GIM 3C/3/3J/3.2, GIMY..
GM D160-3DG-32K	2.70	3.35	160.00	10	32.00	2.40	39.00	500	90	S 32-55	R 32-55	Double-ended:(3)
GM D200-3DG-40K	2.70	3.35	200.00	14	40.00	2.40	59.00	400	90	S 40-80	R 40-80	for Tmax=12.5mm
GM D100-4DG-22K (1)	3.36	4.35	100.00	6	22.00	3.20	29.00	800	90	SW 32-40	R 22-46	Single-ended:
GM D125-4DG-32K	3.36	4.35	125.00	8	32.00	3.20	34.00	640	0	S 32-55	R 32-55	GIM 4C/4/4J, GIMY..
GM D160-4DG-40K	3.36	4.35	160.00	10	40.00	3.20	39.00	500	90	S 40-80	R 40-80	Double ended:(3)
GM D200-4DG-40K	3.36	4.35	200.00	14	40.00	3.20	59.00	400	90	S 40-80	R 40-80	for Tmax=12.5mm

• D3 refers to SW/S drive shanks and R drive flange set. • Maximum RPM may not be exceeded. • For user guide, see pages G55-57, G60-65.

(1) Tmax=26 when used with drive flange. D3=46 when used with drive flange. (2) Only one key slot.

For inserts: GIM-C (G51) • GIM-J (G51) • GIM-W (G52)

For inserts: GIMY • GIP • GIP (Full Radius) • GIP-E • GIP-E (Full Radius) • GIPA (Radius W=3-6) Refer to ISCAR Groove-Turn Tools catalog.

For holders, see pages: R (Drive Flange Set) (G50) • SW/S (G50).

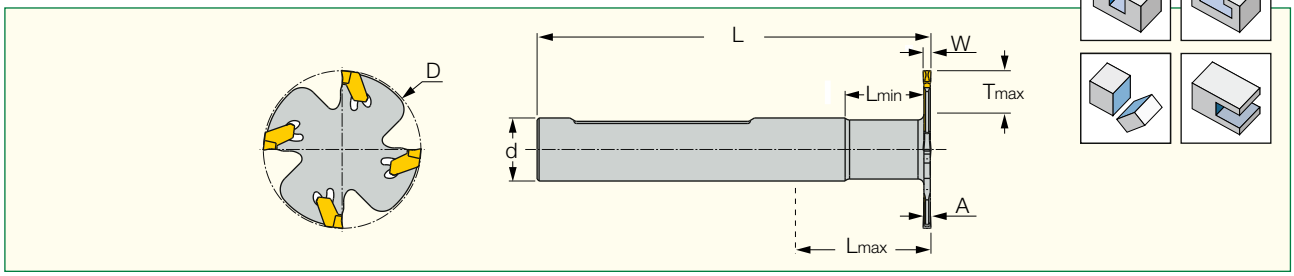
Spare Parts

Designation	Extractor
GM-DG	EDG 44A*

* Optional, should be ordered separately

SGSF-W

Grooving and Slitting Cutters with Integral Weldon Shanks



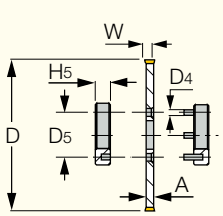
Designation	W min	W max	D	d	Tmax	Z	A	L min(1)	L max(1)	L	Insert	Kg
SGSF 32-1.6-W16	1.50	1.79	32.00	16.00	7.00	3	1.32	20.0	49.0	100.00	GSFN/U 1.6	0.20
SGSF 40-1.6-W16	1.50	1.79	32.00	16.00	7.00	3	1.32	20.0	49.0	100.00	GSFN/U 1.6	0.00
SGSF 32-2-W16	1.80	2.69	40.00	16.00	11.00	4	1.62	34.0	63.0	100.00	GSFN/U 2.0	0.20
SGSF 40-2-W16	1.80	2.69	40.00	16.00	11.00	4	1.62	34.0	63.0	100.00	GSFN/U 2.0	0.20

• For user guide, see pages G55-57, G60-65.

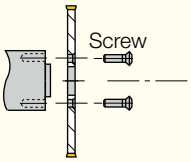
(1) **Standard GSFN 2.4 mm inserts are not suitable for this tool. For suitable tool, see specific pocket size. For inserts, see pages**: GSFN (G53) • GSFU (G53).

SGSA

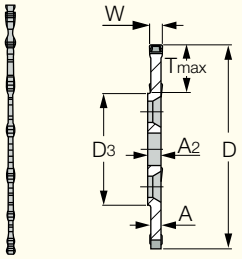
Slitting Cutters, with GSAN Self-Clamped Inserts

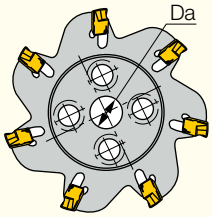


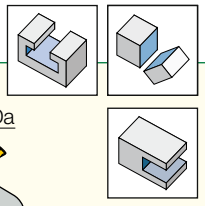
Flange Drive R (CSI)



Shank Drive (SS)







Designation	W min	W max	D	Z	Da	A_2	A	T_{max}	RPM max	D_3	SS	CSI	Insert
SGSA 32-3	2.70	3.53	32.00	4	8.00	4.0	2.40	5.50	2400	18.20	SW 20	-	GSAN-3
SGSA 40-3-6K	2.70	3.53	40.00	5	6.00	3.2	2.40	8.00	2000	21.00	SW 25-23	-	GSAN-3
SGSA 50-3-8K	2.70	3.53	50.00	7	8.00	3.2	2.40	10.50	1600	27.00	SW 25-28	-	GSAN-3
SGSA 80-3-22K-10Z-FP	2.70	3.53	80.00	10	22.00	2.4	2.40	16.00	995	-	SW 32-40	R 22-46	GSAN-3
SGSA 100-3-22K-12Z-FP	2.70	3.53	100.00	12	22.00	2.4	2.40	20.00	795	-	SW 32-40	R 22-46	GSAN-3
SGSA 125-3-32K-16Z-FP	2.70	3.53	125.00	16	32.00	2.4	2.40	25.00	635	-	SW 32-55	R 32-55	GSAN-3
SGSA 32-4	3.54	4.52	32.00	4	8.00	4.0	3.20	5.50	2400	18.20	SW 20	-	GSAN-4
SGSA 40-4-6K	3.54	4.52	40.00	5	6.00	3.2	3.20	8.00	2000	21.00	SW 25-23	-	GSAN-4
SGSA 50-4-8K	3.54	4.52	50.00	7	8.00	3.2	3.20	10.50	1600	-	SW 25-28	-	GSAN-4
SGSA 80-4-22K-10Z-FP	3.54	4.52	80.00	10	22.00	3.2	3.20	16.00	995	-	SW 32-40	R 22-46	GSAN-4
SGSA 100-4-22K-12Z-FP	3.54	4.52	100.00	12	22.00	3.2	3.20	20.00	795	-	SW 32-40	R 22-46	GSAN-4
SGSA 125-4-32K-16Z-FP	3.54	4.52	125.00	16	32.00	3.2	3.20	25.00	635	-	SW 32-55	R 32-55	GSAN-4

• For H5, D5, D4, refer to SW/S drive shanks and R drive flange set • Maximum RPM may not be exceeded • For user guide, see pages G55-57, G60-65.

For inserts, see page: GSAN (G52).

For holders, see pages: R (Drive Flange Set) (G50) • SW/S (G50).

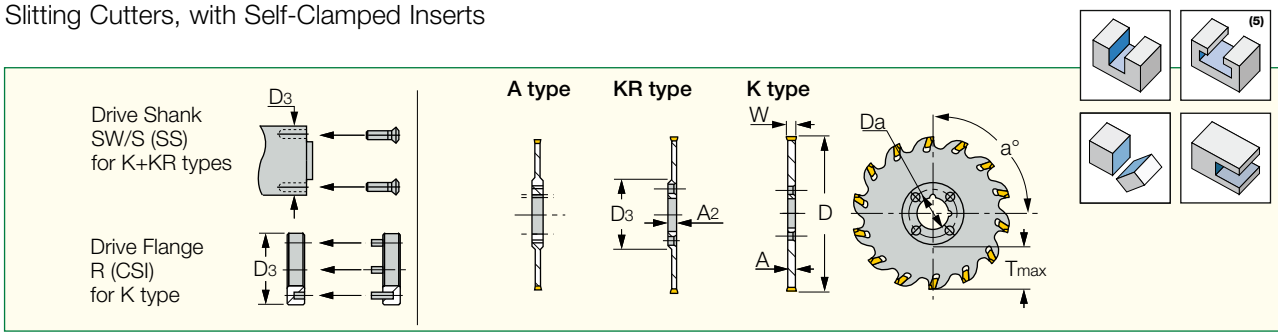
Spare Parts

Designation	Extractor
SGSA	ESG 2

SELF-GRIP

SGSF

Slitting Cutters, with Self-Clamped Inserts



Designation	D	W min	W max	Tmax	Z	A	A2	Da	RPM max	a°	Style/d	D3	SS	CSI	Insert	Extractor
SGSF 76-1.4-22A	76.00	1.34	1.34	18.00	8	1.10	2.4	22.00	1050	112.5	A	39.00	0	0	GSFU	
SGSF 100-1.4-22A	100.00	1.34	1.34	25.00	10	1.10	2.4	22.00	800	90	A	49.00	0	0	GSFU	
SGSF 125-1.4-27A	125.00	1.34	1.34	25.00	12	1.10	2.4	27.00	640	75	A	74.00	0	0	GSFU	
SGSF 50-1.6-8KR	50.00	1.50	1.79	10.00	5	1.24	2.4	8.00	1600	0	KR	28.00	SW 25-28	0	GSFU,GSFN	
SGSF 63-1.6-10KR	63.00	1.50	1.79	14.00	6	1.24	2.4	10.00	1260	0	KR	32.00	SW 25-32	0	GSFU,GSFN	
SGSF 76-1.6-22A	76.00	1.50	1.79	18.00	8	1.24	2.4	22.00	1050	112.5	A	39.00	0	0	GSFU,GSFN	
SGSF 100-1.6-22A	100.00	1.50	1.79	30.00	10	1.24	2.4	22.00	800	90	A	39.00	0	0	GSFU,GSFN	
SGSF 125-1.6-27A	125.00	1.50	1.79	32.00	12	1.24	2.4	27.00	640	75	A	60.00	0	0	GSFU,GSFN	ESG 1.4-2
SGSF 50-2-8KR (1)	50.00	1.80	2.69	10.00	5	1.60	2.4	8.00	1600	0	KR	28.00	SW 25-28	0	GSFU,GSFN	
SGSF 63-2-10KR (1)	63.00	1.80	2.69	15.00	6	1.60	2.4	10.00	1260	0	KR	32.00	SW 25-32	0	GSFU,GSFN	
SGSF 76-2-22A (1)	76.00	1.80	2.69	18.00	8	1.60	2.4	22.00	1050	112.5	A	39.00	0	0	GSFU,GSFN	
SGSF 80-2-22KR (1)	80.00	1.80	2.69	20.00	8	1.60	2.4	22.00	1000	0	KR	40.00	SW 32-40	0	GSFU,GSFN	
SGSF 100-2-22A (1)	100.00	1.80	2.69	30.00	10	1.60	2.4	22.00	800	90	A	39.00	0	0	GSFU,GSFN	
SGSF 100-2-22KR (1)	100.00	1.80	2.69	29.00	10	1.60	2.4	22.00	800	0	KR	40.00	SW 32-40	0	GSFU,GSFN	
SGSF 125-2-27A (1)	125.00	1.80	2.69	32.00	12	1.60	2.4	27.00	640	75	A	60.00	0	0	GSFU,GSFN	
SGSF 125-2-32KR (1)	125.00	1.80	2.69	34.00	12	1.60	2.4	32.00	640	0	KR	55.00	S 32-55	0	GSFU,GSFN	
SGSF 80-2.4-22A	80.00	2.38	2.40	20.00	6	1.90	2.4	22.00	1000	90	A	39.00	0	0	GSFN	ESG 11
SGSF 100-2.4-22K	100.00	2.38	2.40	26.00	6	1.90	2.4	22.00	800	90	K	46.00	0	R 22-46	GSFN	ESG 11
SGSF 125-2.4-32K (2)	125.00	2.38	2.40	34.00	8	1.90	2.4	32.00	640	0	K	55.00	0	R 32-55	GSFN	ESG 11
SGSF 160-2.4-32K	160.00	2.38	2.40	52.00	10	1.90	2.4	32.00	500	90	K	55.00	0	R 32-55	GSFN	ESG 11
SGSF 50-3-8K	50.00	2.70	3.53	10.00	4	2.40	2.4	8.00	1600	0	K	28.00	SW 25-28	0	GSFU,GSFN	ESG 11
SGSF 63-3-10K	63.00	2.70	3.53	15.00	5	2.40	2.4	10.00	1260	0	K	32.00	SW 25-32	0	GSFU,GSFN	ESG 11
SGSF 80-3-22K (3)	80.00	2.70	3.53	19.00	6	2.40	2.4	22.00	1000	0	K	40.00	SW 32-40	R 22-46	GSFU,GSFN	ESG 11
SGSF 100-3-22K (4)	100.00	2.70	3.53	29.00	6	2.40	2.4	22.00	800	90	K	40.00	SW 32-40	R 22-46	GSFU,GSFN	ESG 11
SGSF 125-3-27K	125.00	2.70	3.53	34.00	8	2.40	2.4	27.00		0	K	-	0	0	GSFU,GSFN	ESG 11
SGSF 125-3-32K (2)	125.00	2.70	3.53	34.00	8	2.40	2.4	32.00	640	0	K	55.00	S 32-55	R 32-55	GSFU,GSFN	ESG 11
SGSF 160-3-32K	160.00	2.70	3.53	52.00	10	2.40	2.4	32.00	500	90	K	55.00	S 32-55	R 32-55	GSFU,GSFN	ESG 11
SGSF 160-3-40K	160.00	2.70	3.53	39.00	10	2.40	2.4	40.00	500	90	K	80.00	S 40-80	R 40-80	GSFU,GSFN	ESG 11
SGSF 200-3-40K	200.00	2.70	3.54	59.00	14	2.40	2.4	40.00	400	90	K	80.00	0	R 40-80	GSFU,GSFN	ESG 11
SGSF 250-3-40K	250.00	2.70	3.53	84.00	18	2.40	2.4	40.00	320	90	K	80.00	0	R 40-80	GSFU,GSFN	ESG 11
SGSF 50-4-8K	50.00	3.54	4.52	10.00	4	3.20	3.2	8.00	1600	0	K	28.00	SW 25-28	0	GSFN	ESG 11
SGSF 63-4-10K	63.00	3.54	4.52	15.00	5	3.20	3.2	10.00	1260	0	K	32.00	SW 25-32	0	GSFN	ESG 11
SGSF 80-4-22K (3)	80.00	3.54	4.52	19.00	6	3.20	3.2	22.00	1000	0	K	40.00	SW 32-40	R 22-46	GSFN	ESG 11
SGSF 100-4-22K (4)	100.00	3.54	4.52	26.00	6	3.20	3.2	22.00	800	90	K	40.00	SW 32-40	R 22-46	GSFN	ESG 11
SGSF 125-4-32K (2)	125.00	3.54	4.52	34.00	8	3.20	3.2	32.00	640	0	K	55.00	S 32-55	R 32-55	GSFN	ESG 11
SGSF 160-4-40K	160.00	3.54	4.52	39.00	10	3.20	3.2	40.00	500	90	K	80.00	S 40-80	R 40-80	GSFN	ESG 11
SGSF 200-4-40K	200.00	3.54	4.52	59.00	14	3.20	3.2	40.00	400	90	K	80.00	0	R 40-80	GSFN	ESG 11
SGSF 250-4-40K	250.00	3.54	4.52	84.00	18	3.20	3.2	40.00	320	90	K	80.00	0	R 40-80	GSFN	ESG 11
SGSF 350-4M-50K-38Z	350.00	3.54	4.52	119.00	38	3.20	3.2	50.00	230	0	K	110.00	0	R 50-110	GSFN	ESG 11
SGSF 425-4M-50K-38Z	425.00	3.54	4.52	140.00	38	3.20	3.2	50.00	190	0	K	110.00	0	R 50-110	GSFN	ESG 11
SGSF 80-5-22K (3)	80.00	4.53	5.50	19.00	6	4.00	4.0	22.00	1000	90	K	40.00	SW 32-40	R 22-46	GSFN	ESG 11
SGSF 100-5-22K (4)	100.00	4.53	5.50	29.00	6	4.00	5.0	22.00	800	90	K	40.00	SW 32-40	R 22-46	GSFN	ESG 11
SGSF 125-5-32K (2)	125.00	4.53	5.50	34.00	8	4.00	4.0	32.00	640	0	K	55.00	S 32-55	R 32-55	GSFN	ESG 11
SGSF 160-5-40K	160.00	4.53	5.50	39.00	10	4.00	4.0	40.00	500	90	K	80.00	S 40-80	R 40-80	GSFN	ESG 11
SGSF 200-5-40K	200.00	4.53	5.50	59.00	14	4.00	4.0	40.00	400	90	K	80.00	0	R 40-80	GSFN	ESG 11
SGSF 250-5-40K	250.00	4.53	5.50	84.00	18	4.00	4.0	40.00	320	90	K	80.00	0	R 40-80	GSFN	ESG 11
SGSF 125-6-32K (2)	125.00	5.51	6.50	34.00	8	5.20	5.2	32.00	640	90	K	55.00	S 32-55	R 32-55	GSFN	ESG 1
SGSF 160-6-40K	160.00	5.51	6.50	39.00	10	5.20	5.2	40.00	500	90	K	80.00	S 40-80	R 40-80	GSFN	ESG 1
SGSF 200-6-40K	200.00	5.51	6.50	59.00	14	5.20	5.2	40.00	400	90	K	80.00	0	R 40-80	GSFN	ESG 1
SGSF 250-6-40K	250.00	5.51	6.50	84.00	18	5.20	5.2	40.00	320	90	K	80.00	0	R 40-80	GSFN	ESG 1
SGSF 315-6-40K	315.00	5.51	6.50	117.00	22	5.20	5.2	40.00	250	90	K	80.00	0	R 40-80	GSFN	ESG 1
SGSF 350-6-50K	350.00	5.51	6.50	119.00	26	5.20	5.2	50.00	230	90	K	110.00	0	R 50-110	GSFN	ESG 1

• Only the K and KR type cutters feature 4 driving holes around the central hole, they may be driven by the R drive shanks • Refer to SW/S drive shanks and R driving flange set • Maximum RPM may not be exceeded • For user guide, see pages G55-57, G60-65.

(1) Standard GSFN 2.4 mm (.095") inserts are not suitable for this tool. For suitable tool, see specific pocket size. (2) Only one key slot. (3) Tmax=16, D3=46 when used with drive flange. (4) Tmax=26, D3=46 when used with drive flange.

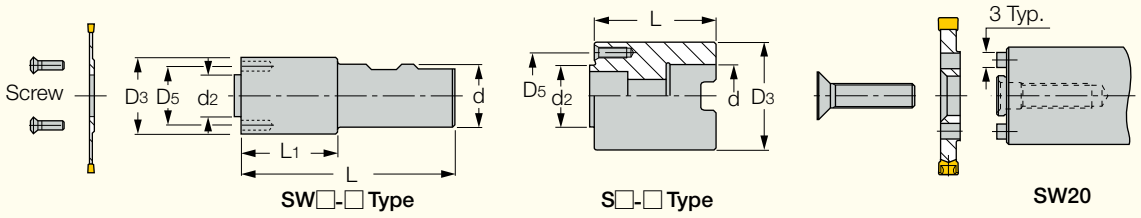
For inserts, see pages: GSFN (G53) • GSFU (G53).

For holders, see pages: R (Drive Flange Set) (G50) • SW/S (G50).

SELF-GRIP

SW/S

Drive Shanks for SELF-GRIP Slitting Cutters



Designation	d	D_3	d_2	D_5	L_1	L	Kg
SW 20	20.00	20.00	8.00	14.40	-	100.00	0.24
SW 25-23	25.00	23.00	6.00	13.60	25.0	110.00	0.40
SW 25-28	25.00	28.00	8.00	18.00	25.0	110.00	0.43
SW 25-32	25.00	32.00	10.00	22.00	25.0	110.00	0.47
SW 32-40	32.00	40.00	22.00	32.00	30.0	120.00	0.84
S 32-55	32.00	55.00	32.00	45.00	-	60.00	0.82
S 40-80	40.00	80.00	40.00	63.00	-	60.00	1.81

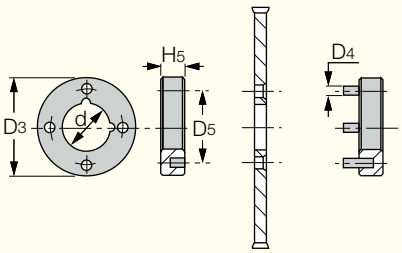
For tools, see pages: GM-DG (G47) • SGSA (G48) • SGSF (G49).

Spare Parts

Designation	Screw	Torx Blade	T-Handle	Key	Key 1
SW 20	SR M5X20DIN7991				HW 3.0
SW 25-23	SR 34-510			T-15/5	
SW 25-28	SR 76-961			T-15/5	
SW 25-32	SR 76-961			T-15/5	
SW 32-40				T-15/5	
S 32-55	SR 76-943	BLD T20/M7	SW6-T		
S 40-80	SR 76-944				HW 6.0

R (drive flange set)

Drive Flange Set for SELF-GRIP Slitting Cutters



Designation	d	D_3	D_5	D_4	H_5	CSI
R 22-46	22.00	46.00	32.00	5.00	10.00	R 22-46
R 32-55	32.00	55.00	45.00	6.00	10.00	R 32-55
R 40-80	40.00	80.00	63.00	11.00	12.00	R 40-80
R 50-110	50.00	110.00	80.00	14.00	14.00	R 50-110

For tools, see pages: GM-DG (G47) • SGSA (G48) • SGSF (G49) • TGSF (G44).

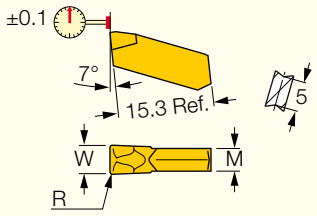
Spare Parts

Designation	Pin
R 22-46	PIN D5X15.6
R 32-55	PIN D6X15.6
R 40-80	PIN D11X16.5
R 50-110	PIN D14X19.9

GIM-J

Utility Single-Sided Parting and Grooving Insert, for Soft Materials, Parting of Tubes and Small Diameters





Designation	Dimensions W±0.05	R±0.02	M	Tough ↔ Hard IC328	IC54	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 3J	3.00	0.22	2.4	●	●	●	●	●	0.08-0.15
GIM 4J	4.00	0.25	3.2	●		●	●	●	0.08-0.18

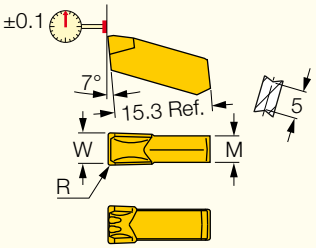
• For cutting speed recommendations, see pages G64-65.

For tools, see page: GM-DG (G47).

GIM-C

Parting and Grooving Single-Sided Insert, for Parting Bars, Hard Materials and Tough Applications





Designation	Dimensions W±0.05	R±0.02	M	Tough ↔ Hard IC328	IC54	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 3C	3.00	0.22	2.4	●	●	●	●	●	0.15-0.25
GIM 4C	4.00	0.25	3.4				●	●	0.15-0.25

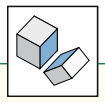
• For cutting speed recommendations, see pages G64-65.

For tools, see page: GM-DG (G47).

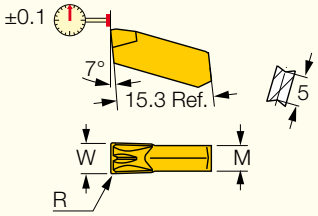
CUT-GRIP

GIM-W

Parting and Grooving Single-Sided Inserts with Central Ridged Chipformer and Reinforced Edge for Alloy Steel







Designation	Dimensions W±0.05	R±0.02	M	Tough ↔ Hard IC328	IC54	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 3	3.00	0.25	2.4	●	●	●	●	●	0.10-0.18
GIM 3.2	3.20	0.22	2.4	●	●	●	●	●	0.10-0.20
GIM 4	4.00	0.25	3.2	●	●	●	●	●	0.15-0.20

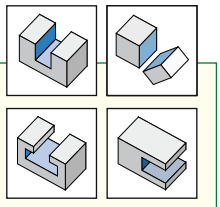
• For cutting speed recommendations, see pages G64-65.

For tools, see page: GM-DG (G47).

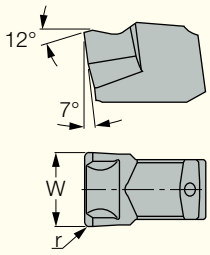
SELF-GRIP

GSAN

SELF-GRIP Slitting Inserts







Designation	Dimensions W	r	Tough ↔ Hard IC328	IC908
GSAN 3	3.00	0.20	●	●
GSAN 4	4.00	0.24	●	

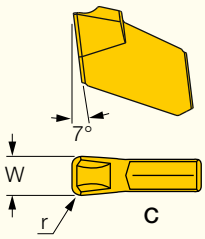
For tools, see pages: SGSA (G48).

SELF-GRIP

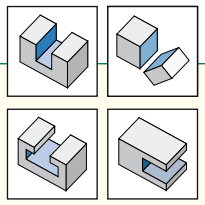
GSFN

SELF-GRIP Slitting Inserts









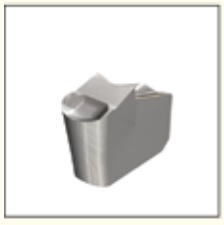
Designation	Dimensions W	Dimensions r	Tough ↔ Hard IC328	IC928	IC250	IC308	IC908	IC20
GSFN 1.6	1.60	0.16	●	●	●		●	●
GSFN 2	2.00	0.20	●	●	●		●	●
GSFN 2.4J	2.39	0.20	●	●			●	
GSFN 2.4	2.41	0.20	●	●			●	●
GSFN 3J	3.00	0.25	●	●			●	●
GSFN 3	3.02	0.20	●	●	●	●	●	●
GSFN 3.2	3.20	0.22	●	●	●		●	●
GSFN 4J	4.02	0.30		●			●	
GSFN 4C	4.04	0.24					●	
GSFN 4	4.04	0.30	●	●			●	●
GSFN 4.8J	4.78	0.25	●				●	
GSFN 4.8	4.80	0.25	●		●		●	●
GSFN 4.8-1.52	4.80	1.52	●					
GSFN 5	4.98	0.26	●	●	●		●	●
GSFN 5.2-1.5	5.22	1.50	●					
GSFN 5.98	5.98	0.20	●					
GSFN 6C	6.35	0.50	●	●	●		●	
GSFN 6	6.37	0.50	●					●

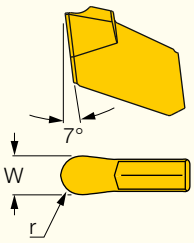
• Tolerance:W±0.05

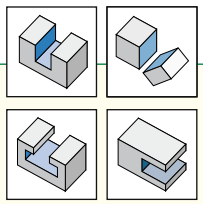
For tools, see pages: SGSF (G49) • SGSF-W (G47).

GSFU

Slitting and Grooving Full Radius Inserts







Designation	Dimensions W	Dimensions r	Tough ↔ Hard IC328	IC250	IC20
GSFU 1.4	1.34	0.67	●		
GSFU 1.6	1.61	0.80	●		●
GSFU 1.7	1.73	0.85		●	●
GSFU 2.2	2.16	1.11	●	●	●
GSFU 3	3.02	1.50	●	●	●

• Tolerance:W±0.05

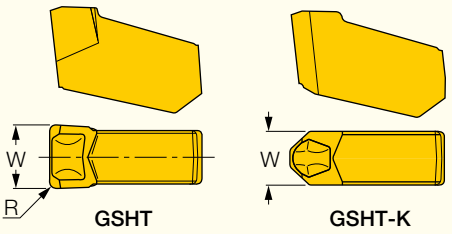
For tools, see pages: SGSF (G49) • SGSF-W (G47).

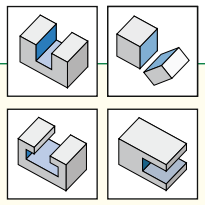
SELF-GRIP

GSHT

Slitting Inserts, for Specially Tailored Heavy-Duty Slitting Cutters

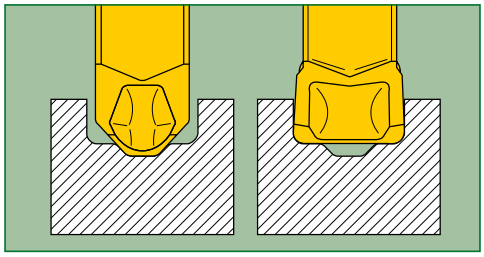






Designation	Dimensions W	Dimensions r	Tough ↔ Hard IC328	IC928	IC908
GSHT 6K [1]	5.40	-	●		●
GSHT 6	6.35	0.50	●		●
GSHT 7	7.00	0.50		●	
GSHT 8	8.00	0.50		●	

[1] To be used in combination with GSHT regular inserts (6-8 mm), for half effective cutter configuration.



Inserts for heavy duty applications for use on specially tailored cutters, diameter range: 250-1470 mm.
Chamfered inserts, GSHT-6K, can be used in a half-effective configuration to reduce overload, eliminate chatter, and improve chip flow.

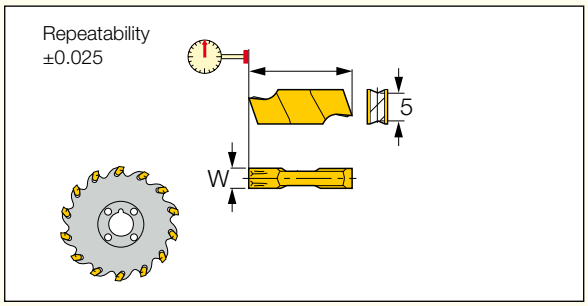
Specially Tailored Inserts for Grooving



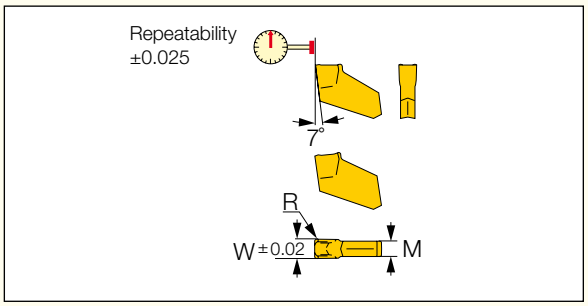
Possible insert width for each cutter's seat size

W±0.02 Range	Seat GSFN	M
1.50-1.79	1.6	1.1
1.80-2.69	2	1.6
2.70-3.53	3	2.4
3.54-4.52	4	3.2
4.53-5.50	5	4.1
5.51-6.50	6	5.2

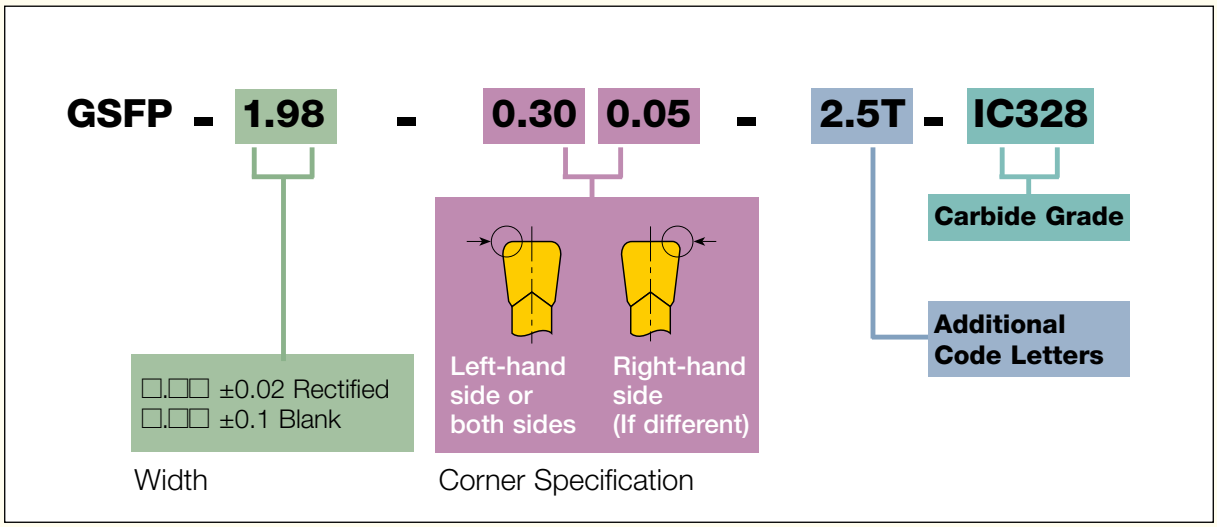
GIPI



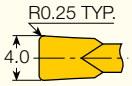
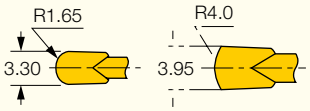
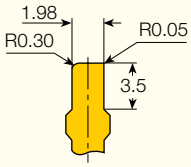
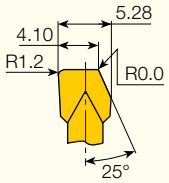
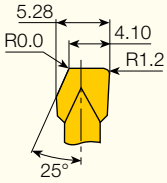
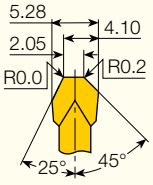
GSFP



Designation for Specially Tailored Inserts



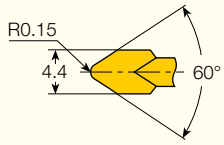
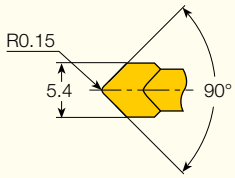
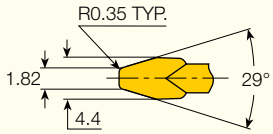
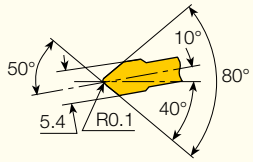
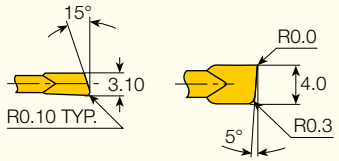
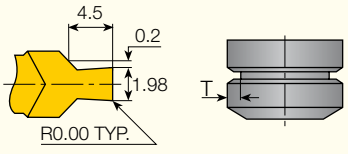
Specially Tailored Inserts for Grooving

Examples	Designation
	**E1** **GSFP-4.00-0.25**
	**E2** **GSFP-3.95-4.00**
	**E3** **GSFP-1.98-0.3-0.05-3.5T**
	**E4A** **GSFP-5.28-1.20-0.00-25A4.10**
	**E4B** **GSFP-5.28-25A4.10-0.00-1.20**
	**E5** **GSFP-5.28A4.10-0.00-0.20-45A2.05**

A – Chamfer
Preceding digits: Chamfer angle to center line

A – Followed by digits - representing the nominal width location of chamfer

Specially Tailored Inserts for Grooving

Examples	Designation	
	**E7** **GIP-4.4-MT-0.15**	**MT** – Metric thread 60° **MT**□ – With corner radius □ **WT** – Whitworth thread 55° **WT**□ – With corner radius □
	**E8** **GSFP-5.4-90V0.15**	**V** – V shape inclusive angle (Blank width 5.4 not rectified)
	**E9** **GSFP-4.40-29V1.82K-0.35**	**K** – Frontal straight width of trapezoid (Width 4.40 rectified)
	**E10** **GIP-5.4-80V0.10-10RS**	**V** shape 80° at 10° slant angle (Blank width 5.4 not recitifed)
	**E13** **GSFP-4.00-0.00-0.30-5LA**	**LA** – Lead angle - Left-hand **RA** – Lead angle - Right-hand
	**E14** **GIP-1.98-0.00-4.50T0.20B** **GFP-1.98-0.00-4.50T0.20B**	**T** – Depth of groove (nominal) **B** – Break corners width of chamfers, 45° Note: Blank width > 2B+W

When ordering inserts, include carbide grade with designation.

Machining Data for MULTI-MASTER Groove Milling Heads

ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.(1)
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
		>= 0.55 %C	Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron (GG)		Ferritic		160	15
			Pearlitic		250	16
	Ductile cast iron (nodular) (GGG)		Pearlitic/ferritic		180	17
			Pearlitic/martensitic		260	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolitic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

(1) For workpiece materials list, see pages L22-57.

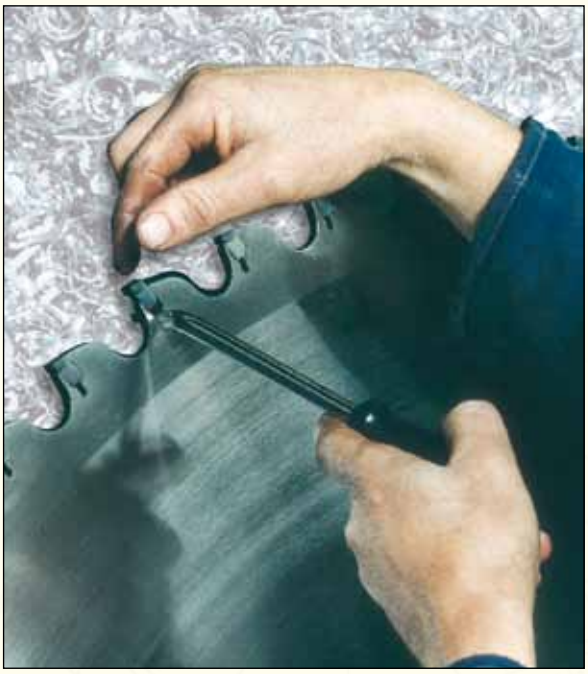
MM-TS			MM-GRIT K-TYPE			MM-GRIT P-TYPE		
Speed	Feed		Speed	Feed mm/t		Speed	Feed mm/t	
V m/min	Fz (min)	Fz (max)	V m/min	Fz (min)	Fz (max)	V m/min	Fz (min)	Fz (max)
110-140	0.08	0.20	110-160	0.05	0.15	-	-	-
100-120	0.08	0.18	100-150	0.05	0.15	-	-	-
70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
60-80	0.08	0.15	60-80	0.05	0.15	-	-	-
100-120	0.08	0.15	110-150	0.05	0.15	-	-	-
90-120	0.08	0.15	100-120	0.05	0.15	-	-	-
80-110	0.08	0.15	70-110	0.05	0.15	-	-	-
70-100	0.05	0.12	70-100	0.05	0.15	-	-	-
60-80	0.05	0.18	60-80	0.05	0.15	-	-	-
55-70	0.08	0.15	55-70	0.05	0.15	-	-	-
100-130	0.06	0.12	100-130	0.03	0.15	100-130	0.03	0.10
100-120	0.08	0.15	100-130	0.03	0.15	100-130	0.03	0.10
80-120	0.05	0.10	90-120	0.03	0.12	90-120	0.03	0.10
160-220	0.10	0.20	160-220	0.03	0.12	-	-	-
120-200	0.10	0.15	120-200	0.03	0.12	-	-	-
100-140	0.10	0.20	-	-	-	-	-	-
80-100	0.10	0.15	-	-	-	-	-	-
180-250	0.10	0.20	180-250	0.03	0.15	-	-	-
160-220	0.10	0.15	160-220	0.03	0.15	-	-	-
800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
-	-	-	-	-	-	600-1000	0.05	0.15
-	-	-	-	-	-	500-1000	0.05	0.15
-	-	-	-	-	-	200-400	0.05	0.15
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	30-40	0.02	0.12	-	-	-
25-35	0.05	0.12	25-40	0.02	0.12	-	-	-
25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
40-60	0.05	0.12	25-40	-	-	-	0.01	0.12
40-60	0.05	0.12	40-60	-	-	-	0.05	0.12
40-60	0.05	0.10	40-60	-	-	-	0.05	0.10

Insert Assembly

Manually place an insert into a seat and tap into position using a plastic hammer. Seats must be swarf-free and clean (air blown) prior to assembly.
The F-Cut:
Fixed location stopper controls insert runout.



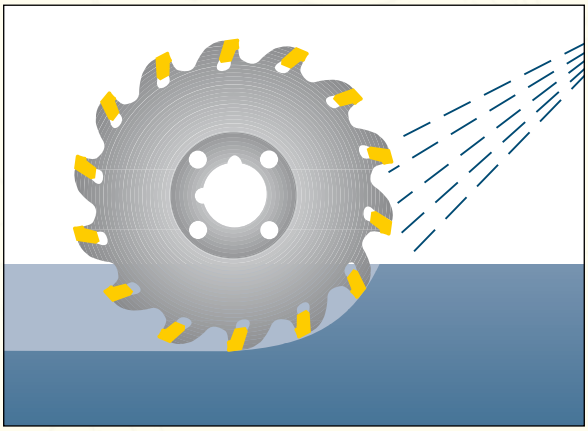
Insert Assembly



Insert Disassembly

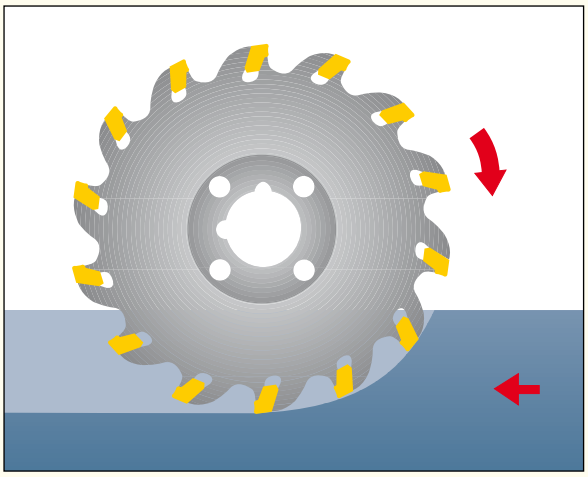
Coolant

A continuous, copious coolant flow is especially advantageous on stainless steel and is recommended for most types of steel.



Feed Direction

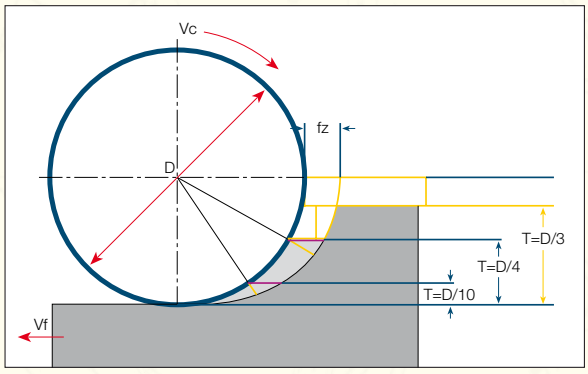
Down (climb) milling is recommended.
Up milling or plunging are possible.
(In down milling or plunging, backlash should be eliminated.)



Defining Actual Feed

Actual feed fz and vf decrease as depth of cut decreases. Therefore, recommended feed (fz) can be increased as shown in the table.

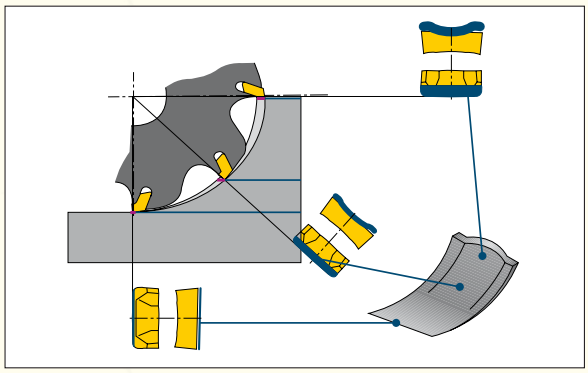
T/D	1/6	1/8	1/10	1/20
Increase recommended feed by	15%	30%	45%	100%



Chip Thickness as a Function of D.O.C. to Diameter Ratio

Chip Formation in Slot Milling

Chip shape is a function of depth of cut.
Down milling starts with large chip section, and exits with reduced chip selection. Down milling is recommended for improved tool life under stable conditions.



Stacked Cutters[1]

Milling Wider Slots with Two Stacked Cutters

1. In accordance with the required width of cut (W1+W2), choose the recommended SGSF cutter combination (A, B, or C) from the table on the next page.
2. The diameters and coupling holes must fit properly.
3. All cutters (with the exception of ø125 mm type) have two key slots enabling staggered stacking.
4. Maximum value of shim ΔS (see table below) refers to maximum size of ΔS1+ΔS2 defined for a complete overlap of radii. When a projection is allowed at the bottom of the groove, ΔS1 and ΔS2 may be increased theoretically up to the corner size of the insert.
5. Pins of the driving flange set should be lengthened to ensure contact length of at least 8 mm into one flange and 3 mm into the other.
6. When coupling cutters W=6.35, a shim (S) of 0.16 mm minimum thickness must be used.
7. The tolerance of effective widths is up to±0.2 mm. Due to the accumulation of tolerances, a step of 0.1 mm may occur at the groove bottom.

Insert Width and Possible Modification

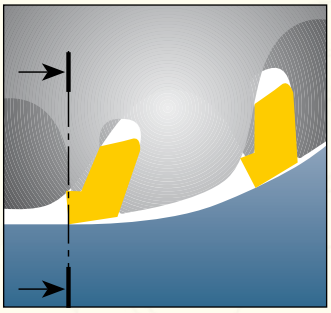
See sketches on next page

W	A	R	ΔA max	ΔS max
2.40	2.40	0.16	0.33	—
3.00	2.40	0.20	0.24	0.10
3.18	2.40	0.22	0.24	0.17
4.05	3.20	0.24	0.32	0.19
4.78	4.00	0.28	0.40	0.11
5.00	4.00	0.28	0.40	0.22
5.20	4.00	1.50	0.40	—
6.35	5.20	0.50	—(1)	0.13

ΔA max - Maximum possible side ground for each cutter
ΔS max - Maximum possible shim width for each cutter
W, W1, W2 - Normal width of insert

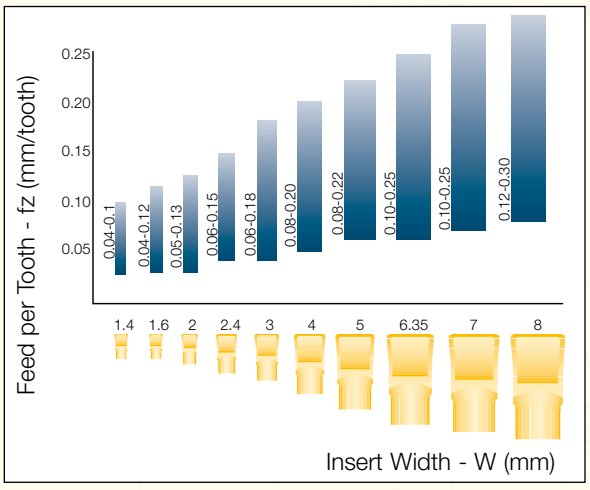
[1] Only cutters with 160-250 diameter sizes can be stacked.

Requires modification of cutter.
Note: Tables on this page and the next apply only to standard SELF-GRIP inserts which appear in this catalog. The number of options increases with the use of specially tailored inserts.

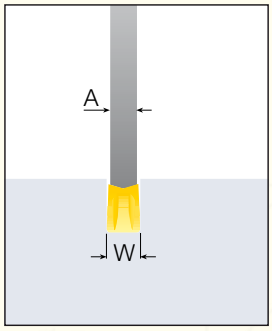


Milling Wider Slots with Stacked, Double Cutters

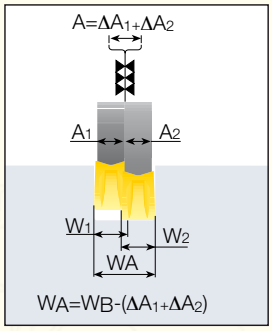
Feed Range per Insert Size



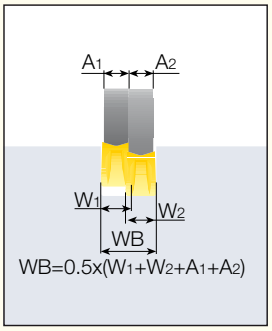
The recommended values refer to C-type chipformer, for J-type reduce feed by 30%.



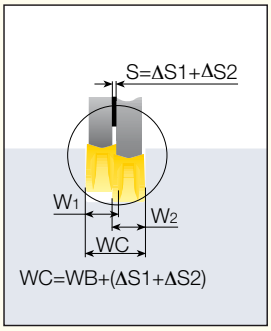
Single cutter, standard



A - Double cutters with modified body thicknesses stacked for smaller widths



B - Unmodified, stacked double cutters of nominal width

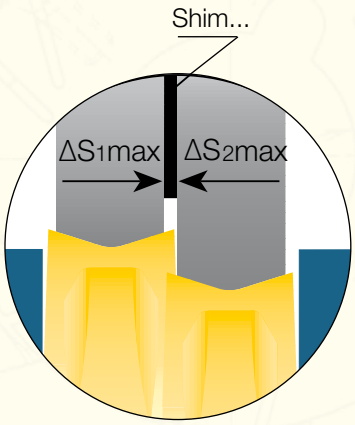


C - Stacked, double cutters with spacer for larger widths

Table 1: Effective Width of Cut

W_1	W_2	W_A			W_B	W_C [1]
2.40	2.40	4.14	-	4.48	—	—
3.00	2.40	4.53	-	5.04	—	—
3.00	3.00	4.92	-	5.39	5.40	5.43-5.60
3.18	2.40	4.62	-	5.18	5.19	—
3.18	3.00	5.01	-	5.48	5.49	5.52-5.76
3.18	3.18	5.10	-	5.57	5.58	5.61-5.92
4.05	2.40	5.38	-	6.02	6.03	—
4.05	3.00	5.77	-	6.32	6.33	6.36-6.62
4.05	3.18	5.86	-	6.41	6.42	6.45-6.78
4.05	4.05	6.61	-	7.24	7.25	7.28-7.63
4.78	2.40	6.06	-	6.74	—	—
4.78	3.00	6.45	-	7.08	7.09	7.12-7.30
4.78	3.18	6.54	-	7.17	7.18	7.21-7.46
4.78	4.05	7.30	-	8.01	8.02	8.05-8.32
4.78	4.78	7.98	-	8.77	8.78	8.81-9.00
5.00	2.40	6.17	-	6.89	6.90	6.93-7.12
5.00	3.00	6.56	-	7.19	7.20	7.23-7.52
5.00	3.18	6.65	-	7.28	7.29	7.32-7.68
5.00	4.05	7.41	-	8.12	8.13	8.16-8.54
5.00	4.78	8.09	-	8.88	8.89	8.92-9.22
5.00	5.00	8.2	-	8.99	9.00	9.03-9.44
5.20	5.00	8.3	-	8.42	—	—
6.35	3.00	—	—		8.64-8.71	
6.35	3.18	—	—		8.73-8.87	
6.35	4.05	—	—		9.56-9.72	
6.35	4.78	—	—		10.33-10.41	
6.35	5.00	—	—		10.44-10.63	
6.35	6.35	—	—		11.71-11.81	

[1] The higher values in the width-of-cut range shown provide complete overlap of corner radii.
ΔA max - Maximum possible side ground for each cutter
ΔS max - Maximum possible shim width for each cutter
W, W1, W2 - Normal width of insert



Machining Data for Slitting with SELF-GRIP and TANGSLIT Cutters

ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.(1)
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
		>= 0.55 %C	Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron		Ferritic		160	15
			Pearlitic		250	16
	Ductile cast iron (nodular)		Pearlitic/ferritic		180	17
			Pearlitic/martensitic		260	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolitic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

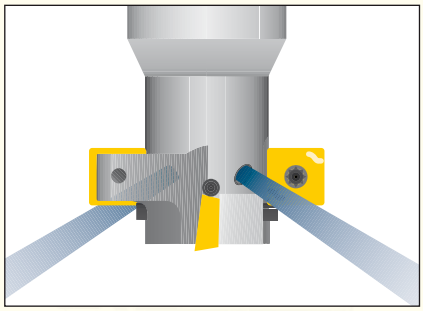
For machining aluminum, use IC20; maximum cutting speed corresponds to the maximum RPM indicated on the cutter.
A - First choice B - Second choice
Recommendations are for normal machining conditions.
If excessive wear occurs, select insert with higher hardness.
If chipping or breakage occurs, select insert with more toughness.

(1) For workpiece materials list, see pages L22-57.

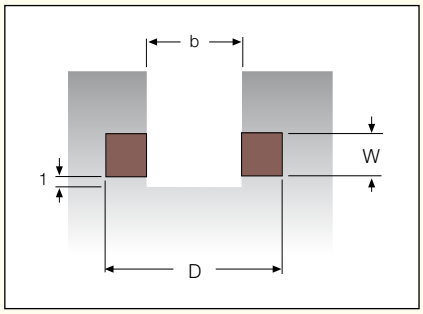
Recommended Cutting Speed (m/min)

Coated			Uncoated
IC328	**IC928**	**IC908**	**IC20**
A 80-150	A 80-160	B 120-220	
A 80-130	A 80-180	B 120-200	
A 80-130	A 80-180	B 120-200	
A 60-110	A 70-150	B 100-170	
A 60-100	A 70-160	B 100-180	
A 80-140	A 70-160	B 120-190	
A 60-120	A 70-140	B 100-180	
A 60-120	A 70-140	B 100-180	
A 60-110	A 70-110	B 80-120	
A 60-80	A 70-90	B 80-120	
A 50-70	A 50-80	B 60-100	
50-110	60-140	70-180	
50-100	60-120	60-160	
50-100	60-120	60-160	
		115-140	95-110
		90-120	70-100
		90-140	70-110
		70-100	55-80
		115-140	95-110
		90-120	70-100
			250max
			250max
			250max
			250max
			250max
			250max
			250max
			250max
		40-50	30-40
		30-40	20-30
		30-40	20-30
		30-40	20-30
		20-30	15-25
		30-40	15-25
		30-40	20-30
		25-50	
		30-40	
		50-60	10-20
		30-50	

ETS - Recommended Machining Conditions and Cooling Features



Cutter body has internal coolant shank hole and nozzles for each flute.
For T-slot applications, coolant supply through spindle or by swivel joint is recommended.



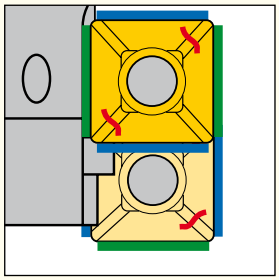
Basic application:
T-slot milling with pre-slot preparation.
The recommendations ensure excellent swarf exhaust, high reliability of tool and insert, long tool life and optimal productivity.

Designation	Code	SAE/AISI 4340 40NiCrMo5	Nodular Grey Cast Iron (DIN GGG 50) (DIN GGG 60)	øD	W	b
ETS D21-9-..06	Vc fz	120 0.05÷0.10	120÷140 0.08÷0.12	21	8.9	12
ETS D25-11-..06	Vc fz	120 0.05÷0.12	120÷140 0.08÷0.15	25	10.9	14
ETS D32-14-..10	Vc fz	120 0.05÷0.15	120÷140 0.08÷0.15	32	13.9	18
ETS D40-18-..10	Vc fz	120 0.05÷0.15	120÷140 0.08÷0.15	40	17.9	22
ETS D48-22-..15	Vc fz	120 0.10÷0.15	150÷170 0.10÷0.15	48	21.9	28

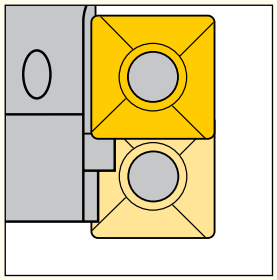
Insert Positioning on ETS

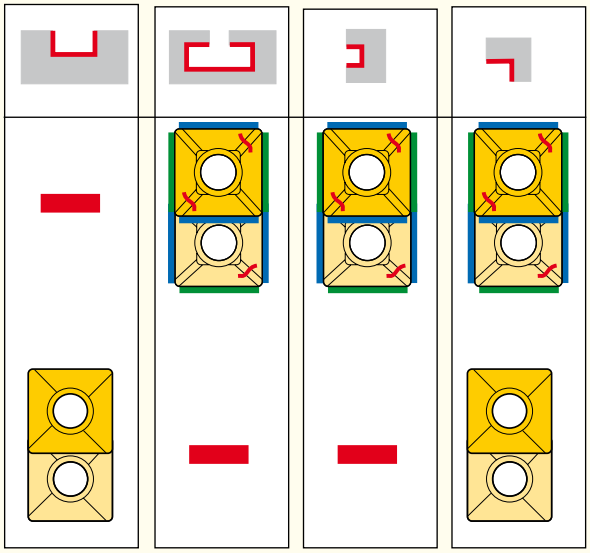
ETS

XOMT/XPMT



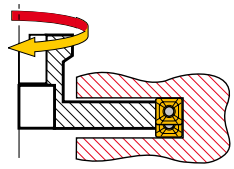
SOMT/SPMT



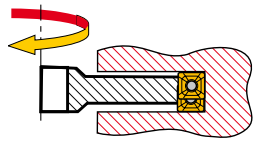


Insert Mounting on FDN/SDN Slotting Cutters & ETS

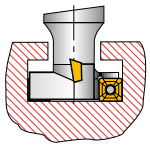
FDN



SDN



ETS



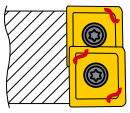
Insert Types by Number of Indexable Cutting Edges

2xR + 2xL	x4
 XOMT 0602	 SOMT 060208-TN
 XPMT 1004	 QPMT 1004
	 QDMT 1205

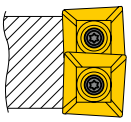
Slot Milling Cutters

Insert Mounting on FDN/SDN Slotting Cutters and ETS

ETS/FDN/SDN...-06 ETS/FDN/SDN...-10	XOMT 0602... XPMT 1004...

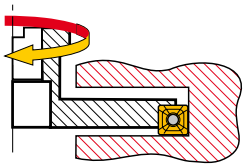


FDN-R06/SDN-06 FDN-R10/SDN-10 FDN-R12/SDN-12	SOMT/QOMT 060208 QPMT 1004... QDMT 1205...

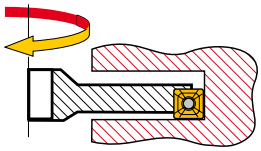


Insert Mounting on FSB/SSB & Slotting Cutter Sets

FSB...-R



SSB...-R



Insert Types by Number of Indexable Cutting Edges



2xR + 2xL



XPMT 1004



x4



SPMT 1004



QPMT 1004

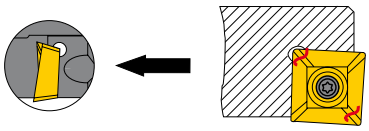


QDMT 1205

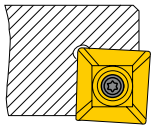
Slot Milling Cutters

Insert Mounting on FSB/SSB Slotting Cutters

FSB-...-R10 SSB-...-R10	XPMT 1004... (HQ) XPMT 1004... (HQ)

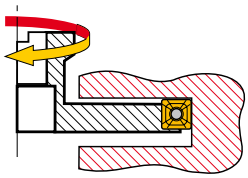


FSB/SSB-...-R10 FSB/SSB-...-R10 FSB/SSB-...-R12	SPMT 1004... (HQ) QPMT 1004... (HQ) QDMT 1205... (HQ)

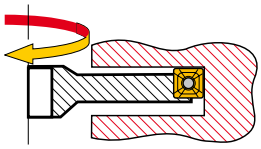


Insert Mounting on FST and SSB Slotting Cutters

FST...-R



SSB...-L



Insert Types by Number of Indexable Cutting Edges



2xR + 2xL



XPMT 1004



x4



QPMT 1004

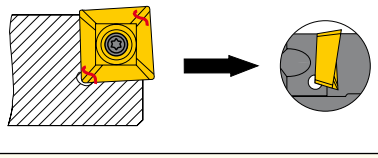


QDMT 1205

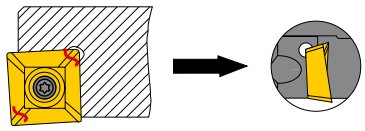
Slot Milling Cutters

Insert Mounting of FST and SSB Slotting Cutters

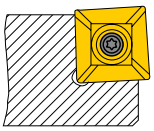
FST-...-R10	XPMT 1004...



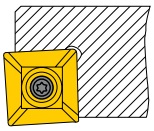
SSB-...-L10	XPMT 1004... (HQ)



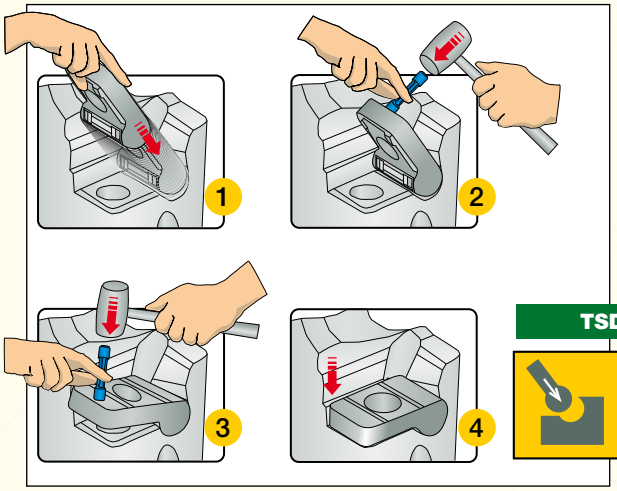
FST-...-R10 FST-...-R12	QPMT 1004... QDMT 1205...



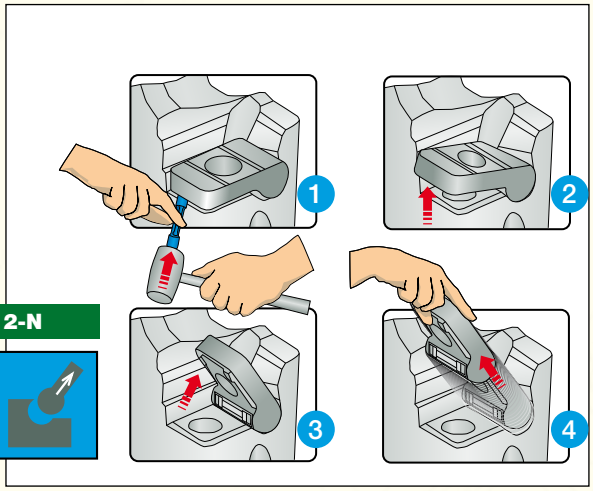
SSB-...-L10 SSB-...-L12	QPMT 1004... (HQ) QDMT 1205... (HQ)



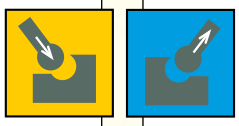
Assembly



Disassembly



TSD-12-N



Insert Geometry Recommendation

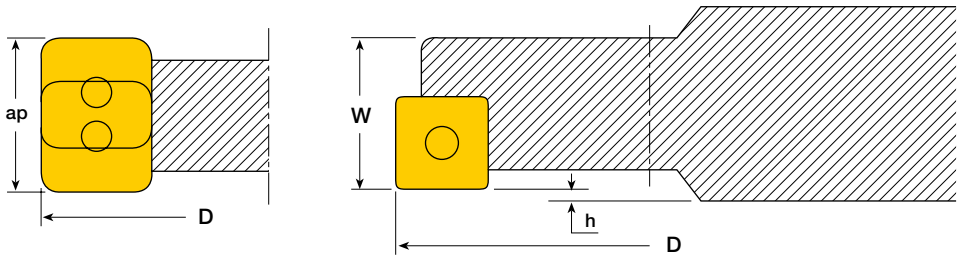
Machining Condition			
	Light	**Medium**	**Heavy**
Insert geometry	XOMT 06... XPMT 10...	SOMT 06.../QOMT 060208 QPMT 10...	QPMT 10... QDMT 12-RM

Limiting Conditions for Fully Effective Cutters (FDN & SDN):

In case of fully effective cutters use only QPMT 1004.. inserts.
It is recommended to machine short and shallow grooves:
ae<0.15D for L>0.35D
ae - Depth of groove
L - Length of groove
D - Cutter diameter

Slot Milling Cutters

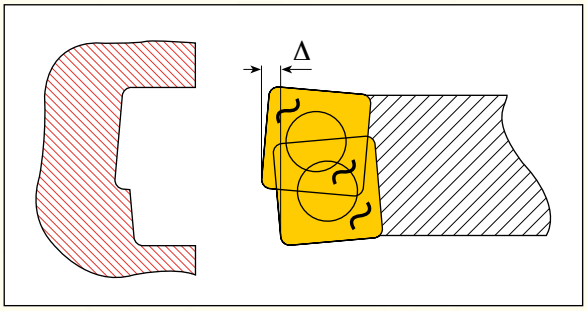
Tolerances



D - Tool diameter
ap - Width of cut
w - Width of cutter
h - Distance between inserts and hub

Tool Designation / Inserts	D FDN • FST FSB • SDN • SSB	ap SDN • FDN	w SSB • FST • FSB	h SSB
ADKT 1505-PDR-HM ADKT 1505-PDL-HM	±0.20	+0.02 -0.12	±0.15	±0.03
All others	±0.20	+0.1 -0.2	±0.3	±0.08
LNET 12... with Integral Tools LNET 12...	±0.1	±0.05		
LNMT 1506... HT LNHT 1506... HT Tools with Cartridges	±0.2	±0.03		
LNKX 1506... with Integral Tools	±0.2			±0.03

Maximum Mismatch Values



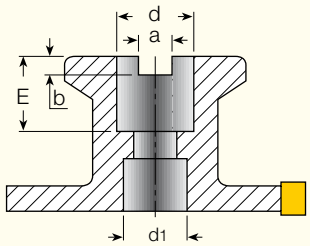
Insert	XOMT	SOMT	XPMT	QPMT	QDMT	QDCT	ADKT	LNET12[1]	LNMT...H LNHT...HT[2]
Δ	0.12	0.15	0.14	0.15	0.09	0.07	0.14	0.07	0.09

[1] Integral tools
[2] Tools with cartridges
All of the dimensions according to standard inserts.

Slot Milling Cutters

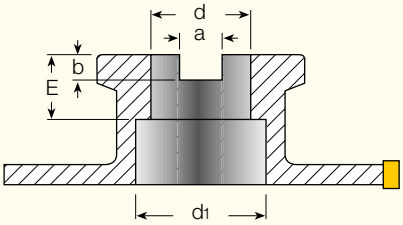
Arbor Hole Styles and Dimensions

Style A



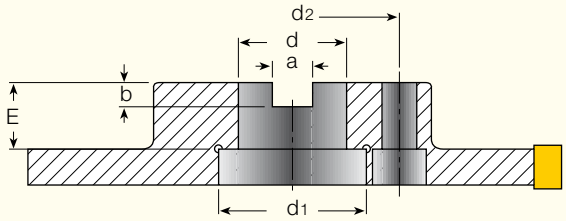
d	E	d1	a	b
16	18	14	8.4	5.6
22	20	18	10.4	6.5
27	22	20	12.4	7.0
32	25	27	14.4	8.1

Style B



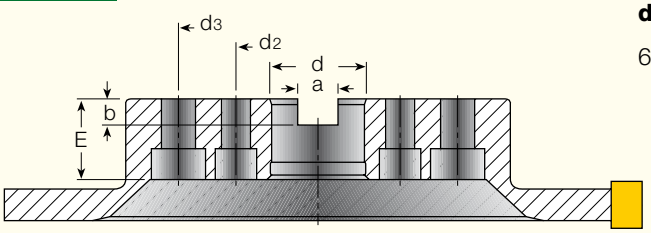
d	E	d1	a	b
22	20	29	10.9	6.5
27	28	36	12.4	7.0
32	30	43	14.4	8.0
40	33	53	16.4	9.0

Style C



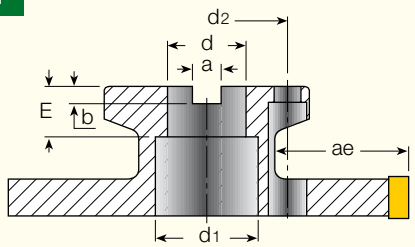
d	E	d1	d2	a	b
40	33	55	6 6.7	16.4	9.0
60	45	90	101.6	25.7	14.0

Style D



d	E	d2	d3	a	b
60	45	101.6	177.8	25.7	14.0

Style E



d	E	d1	d2	a	b
40	33	55	66.7	16.4	9.0
60	45	63	101.6	25.7	14.0

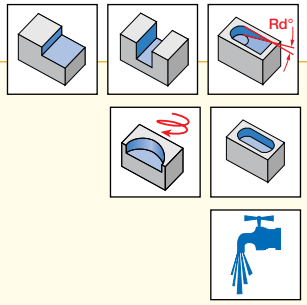
CUTTERS FOR ALUMINUM

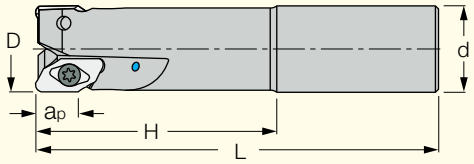


Member IMC Group

HM90 EAL-16

Long Reach Endmills for Machining Aluminum, with HM90 APCR 1605 Inserts





Designation	D	Z	a_p (1)	H	L	d	Shank(2)	RPM_{max}	R_d°	Kg
HM90 EAL-D25-C24L180-16	25.00	1	15.80	-	180.00	24.00	C	7000	25.9	0.56
HM90 EAL-D25-C25L125-16	25.00	1	15.80	69.00	125.00	25.00	C	7000	25.9	0.48
HM90 EAL-D25-C25L200-16	25.00	1	15.80	65.00	200.00	25.00	C	7000	25.9	0.75
HM90 EAL-D32-C31L220-16	32.00	2	15.80	-	220.00	31.00	C	45643	22.4	1.13
HM90 EAL-D32-C32L150-16	32.00	2	15.80	90.00	150.00	32.00	C	45643	22.4	0.74
HM90 EAL-D32-C32L200-16	32.00	2	15.80	80.00	200.00	32.00	C	45643	22.4	1.02
HM90 EAL-D32C32L150-50-16	32.00	2	15.80	50.00	150.00	32.00	C	45643	22.4	0.86
HM90 EAL-D40-C32L150-16	40.00	2	15.80	85.00	150.00	32.00	C	36809	16.9	1.01
HM90 EAL-D40-C32L220-16	40.00	2	15.80	45.00	220.00	32.00	C	36809	16.9	1.42
HM90 EAL-D40-C40L250-16	40.00	2	15.80	80.00	250.00	40.00	C	36809	16.9	2.11
HM90 EAL-D50-C32L150-16	50.00	3	15.80	85.00	150.00	32.00	C	29000	11.2	1.35
HM90 EAL-D50-C50L250-16	50.00	3	15.80	90.00	250.00	50.00	C	29000	11.2	2.17

• Insert tightening torque: 600 Nxcm • HM90 APCR 1605..R-P inserts with corner radii larger than 4.5 mm should be used only on BR tools. • For user guide, see page H17.

(1) D.O.C. changes according to insert radius. ap 15.8 is the value for HM90 APCR 160520R-P. (2) C-Cylindrical

For inserts, see page: HM90 APCR 1605..R-P (K31).

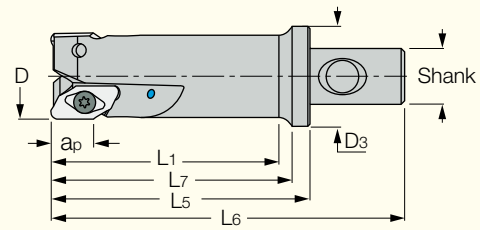
Spare Parts

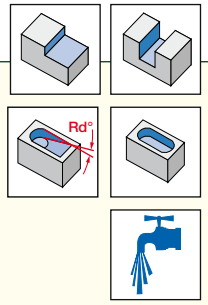
Designation	Screw	Torx Blade	T-Handle
HM90 EAL-D25-C24L180-16	SR 14-592SM	BLD T20/S7	SW6-T
HM90 EAL-D25-C25L125-16	SR 14-592SM	BLD T20/S7	SW6-T
HM90 EAL-D25-C25L200-16	SR 14-592SM	BLD T20/S7	SW6-T
HM90 EAL-D32-C31L220-16	SR 14-0180	BLD T20/S7	SW6-T
HM90 EAL-D32-C32L150-16	SR 14-0180	BLD T20/S7	SW6-T
HM90 EAL-D32-C32L200-16	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D32C32L150-50-16	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D40-C32L150-16	SR 14-0180	BLD T20/S7	SW6-T
HM90 EAL-D40-C32L220-16	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D40-C40L250-16	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D50-C32L150-16	SR 14-0180	BLD T20/S7	SW6-T
HM90 EAL-D50-C50L250-16	SR 14-0180	BLD T20/M7	SW6-T

HELIALU • CLICKFIT

HM90 EAL-CF4-16

Long Reach Endmills with CLICKFIT Adaptation for Machining Aluminum, Carrying HM90 APCR 1605... Inserts





Designation	D	Z	a_p(1)	L_1	L_7	L_5	L_6	Shank	D_3	RPM max	R_d°	Kg
HM90 EAL-D25-L90-CF4-16	25.00	1	15.80	87.0	90.50	98.50	140.50	CF4	44.00	7000	25.9	0.58
HM90 EAL-D32-L90-CF4-16	32.00	2	15.80	87.0	90.50	98.50	140.50	CF4	44.00	7000	22.4	0.75
HM90 EAL-D40-L90-CF4-16	40.00	2	15.80	87.0	90.50	98.50	140.50	CF4	44.00	7000	16.9	0.92

After the tool has been dynamically balanced to the standard specified by the manufacturer of the machine spindle, it can be rotated at the RPM specified for the equivalent cylindrical or HSK tool sizes.

• Insert tightening torque: 600 Nxcm • HM90 APCR 1605..R-P inserts with corner radii larger than 4.5 mm should be used only on BR tools • For user guide, see page H17.

(1) D.O.C. changes according to insert radius. ap 15.8 is the value for HM90 APCR 160520R-P.

For inserts, see page: HM90 APCR 1605..R-P (K31).

For CLICKFIT shanks: see ISCAR Tool Holding Systems catalog.

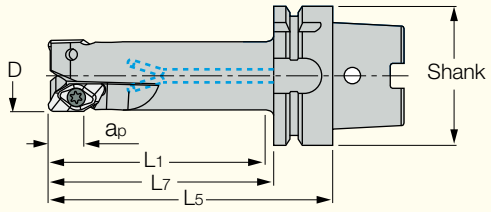
Spare Parts

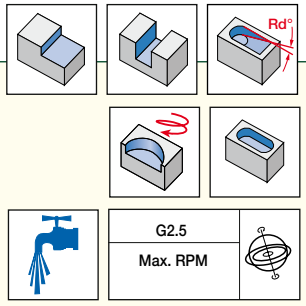
Designation	Screw	Torx Blade	T-Handle
HM90 EAL-D25-L90-CF4-16	SR 14-592SM	BLD T20/S7	SW6-T
HM90 EAL-D32-L90-CF4-16	SR 14-0180	BLD T20/S7	SW6-T
HM90 EAL-D40-L90-CF4-16	SR 14-0180	BLD T20/M7	SW6-T

HELIALU • HSK

HM90 EAL-HSK63A-16

Long Reach Endmills with Integral HSK Adaptation for Machining Aluminum, Carrying HM90 APCR 1605... Inserts





Designation	D	L_1	L_7	L_5	Z	RPM max	R_d°	Shank	a_p(1)	Kg
HM90 EAL32-L65-HSK63A-16	32.00	62.0	65.00	91.00	2	45600	22.0	HSK A 63	15.80	0.87
HM90 EAL32-L100-HSK63A-16	32.00	97.0	100.00	126.00	2	45600	22.0	HSK A 63	15.80	1.06
HM90 EAL40-L80-HSK63A-16	40.00	77.0	80.00	106.00	2	36800	16.0	HSK A 63	15.80	1.16
HM90 EAL40-L120-HSK63A-16	40.00	117.0	120.00	146.00	2	36800	16.0	HSK A 63	15.80	1.52

• Insert tightening torque: 600 Nxcm • HM90 APCR 1605..R-P inserts with corner radii larger than 4.5 mm should be used only on BR tools • A cooling tube must be used with all internal coolant HSK spindles (should be ordered separately). • Balanced to G2.5/max RPM. • For user guide, see page H17.

(1) D.O.C. changes according to insert radius, ap 15.8 is the value for HM90 APCR 160520R-P.

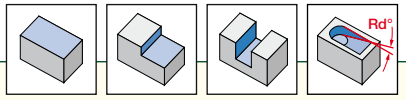
For inserts, see page: HM90 APCR 1605..R-P (K31).

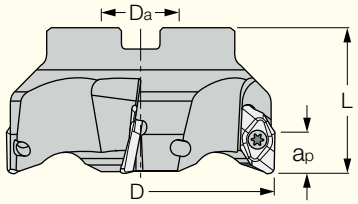
Spare Parts

Designation	Screw	Torx Blade	T-Handle
HM90 EAL-HSK63A-16	SR 14-0180	BLD T20/M7	SW6-T

HM90 FAL-16

Face Mills for Machining Aluminum, with HM90 APCR 1605... Inserts





Designation	D	Z	a_p[1]	L	Da	RPM max	$R_d°$	$R_d°_5$[2]	Arbor[3]	Kg
HM90 FAL-D050-22-16	50.00	3	15.80	45.00	22.00	29000	10.0	11.3	A	0.26
HM90 FAL-D063-27-16	63.00	3	15.80	50.00	27.00	22990	7.0	8.3	A	0.55
HM90 FAL-D080-27-16	80.00	3	15.80	50.00	27.00	18125	6.0	7.3	A	0.89
HM90 FAL-D100-32-16	100.00	4	15.80	55.00	32.00	14500	4.0	4.6	B	1.42
HM90 FAL-D125-40-16	125.00	5	15.80	63.00	40.00	11600	3.0	3.6	B	2.42

• Note: HM90 APCR 1605..R-P inserts with corner radii larger than 4.5 mm should be used only on BR tools.

[1] D.O.C. changes according to insert radius. ap 15.8 is the value for HM90 APCR 160520R-P. [2] Rd° with HM90 APCR 160520R-P insert [3] For adaptation see page L13.

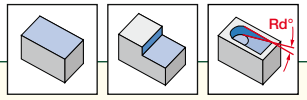
For inserts, see page: HM90 APCR 1605..R-P (K31).

Spare Parts

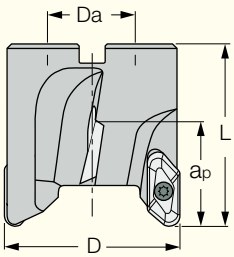
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
HM90 FAL-D050-22-16	SR 14-0180	BLD T20/M7	SW6-T	SR M10X25DIN912
HM90 FAL-D063-27-16	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25
HM90 FAL-D080-27-16	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25
HM90 FAL-D100-32-16	SR 14-0180	BLD T20/M7	SW6-T	SR M4X5DIN916
HM90 FAL-D125-40-16	SR 14-0180	BLD T20/M7	SW6-T	SR M4X5DIN916

SM-16

Extended Flute Shell Mills for Machining Aluminum,
with HM90 APCR 1605... Inserts





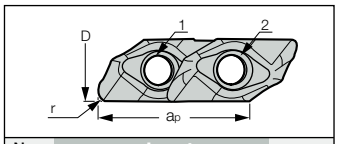


Designation	D	Z	Flute	L	a_p[1]	Da	RPM max	R_d°	Arbor[2]	Kg
SM D50-30-22-16	50.00	4	2	55.00	30.00	22.00	29000	11.0	A	0.35
SM D63-30-22-16	63.00	4	2	55.00	30.00	22.00	22130	10.0	A	0.70

• The upper insert should always have a 0.4 mm corner radius • For corner radii larger than 2 mm, (on the lower insert) cutter's pocket should be modified • Insert tightening torque: 600 Nxcm • HM90 APCR 1605..R-P inserts with corner radii larger than 4.5 mm should be used only on BR tools.

[1] D.O.C. changes according to insert radius. [2] For adaptation, see page L13.

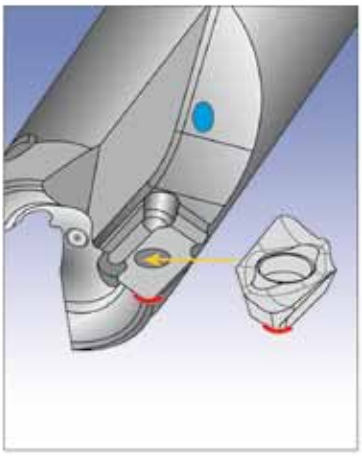
For inserts, see page: HM90 APCR 1605..R-P (K31).

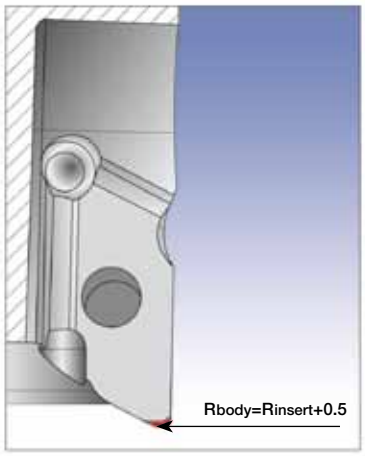


No	Insert	r
1	HM90 APCR 1605...R-P	0.4-2.0
2	HM90 APCR 160504R-P	0.4

- The upper insert (number 2) should always have a 0.4 mm corner radius
- For corner radii larger than 2 mm, (on the lower insert) cutter's pocket should be modified

HM90 EAL...16/SM-16
Modification to Basic Body





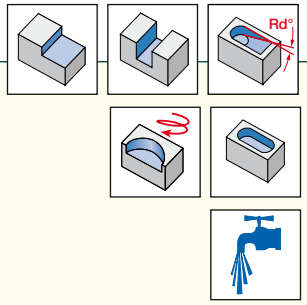
SM16: For indexable inserts with a corner radius larger than 2.0 mm, the basic body of the tool must be modified according to drawing above (can be done by ISCAR).
HM90 EAL..16: For indexable inserts with a corner radius larger than 3.2 mm, the basic body of the tool must be modified according to drawing above (can be done by ISCAR).

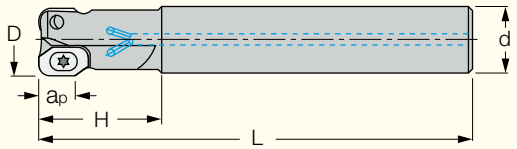
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
SM-16	SR 14-0180	BLD T20/M7	SW6-T	SR M10X30

HM90 EAL-16BR

Endmills for Machining Aluminum, Carrying HM90 APCR 1605... Inserts with Corner Radii Equal or Larger Than 5 mm





Designation	D	Z	a_p	H	L	d	Shank(1)	R_d°	RPM max	Kg
HM90 EAL-D25-C25L170-16BR	25.00	1	16.00	52.00	170.00	25.00	C	26.0	7000	0.66
HM90 EAL-D32-C32L200-16BR	32.00	2	16.00	54.00	200.00	32.00	C	22.0	38750	1.07
HM90 EAL-D40-C32L200-16BR	40.00	2	16.00	50.00	200.00	32.00	C	17.0	31250	0.48

• Note: HM90 APCR 1605..R-P inserts with corner radii smaller than 5 mm should not be used on BR tools. • Insert tightening torque: 600 Nxcm

(1) C-Cylindrical

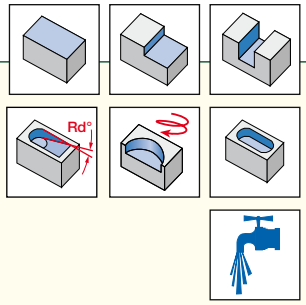
For inserts, see page: HM90 APCR 1605..R-P (K31).

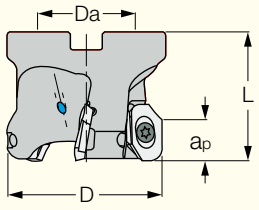
Spare Parts

Designation	Screw	Torx Blade	T-Handle
HM90 EAL-D25-C25L170-16BR	SR 14-592SM	BLD T20/M7	SW6-T
HM90 EAL-D32-C32L200-16BR	SR 14-0180	BLD T20/S7	SW6-T
HM90 EAL-D40-C32L200-16BR	SR 14-0180	BLD T20/M7	SW6-T

HM90 FAL-16BR

Face Mills for Machining Aluminum, Carrying Inserts with Corner Radii Equal or Larger Than 5 mm





Designation	D	Z	a_p	L	Da	RPM max	R_d°	Arbor(1)	Kg
HM90 FAL-D050-22-16BR	50.00	3	15.50	45.00	22.00	29000	11.0	A	0.28
HM90 FAL-D063-27-16BR	63.00	3	15.50	50.00	27.00	23000	8.0	A	0.66
HM90 FAL-D080-27-16BR	80.00	3	15.50	50.00	27.00	18000	6.0	A	0.86
HM90 FAL-D100-32-16BR	100.00	4	15.50	50.00	32.00	14500	4.0	B	0.00

• Note: HM90 APCR 1605..R-P inserts with corner radii smaller than 5 mm should not be used on BR tools. • Insert tightening torque: 600N x cm.

(1) For adaptation see page L13.

For inserts, see page: HM90 APCR 1605..R-P (K31).

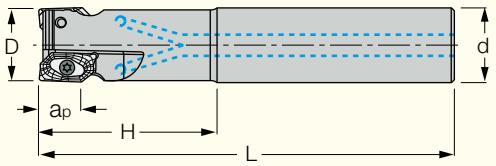
Spare Parts

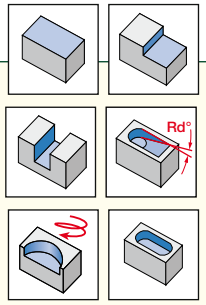
Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
HM90 FAL-D050-22-16BR	SR 14-0180	BLD T20/M7	SW6-T	SR M10X25DIN912
HM90 FAL-D063-27-16BR	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25
HM90 FAL-D080-27-16BR	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25
HM90 FAL-D100-32-16BR	SR 14-0180	BLD T20/M7	SW6-T	

HELIALU

HM90 EAL-15

Long Reach Endmills for Machining Aluminum, with HM90 AXCR 1505... Inserts





Designation	D	Z	a_p	H	L	d	Shank(1)	RPM max	R_d°	Kg
HM90 EAL-D25-C25-L140-15	25.00	2	13.50	60.00	140.00	25.00	C	37500	21.0	0.44
HM90 EAL-D32-C32-L150-15	32.00	3	13.50	70.00	150.00	32.00	C	31250	13.0	0.75
HM90 EAL-D40-C32-L160-15	40.00	3	13.50	70.00	160.00	32.00	C	26040	9.0	0.99

• Insert tightening torque: 350 Nxcm

(1) C-Cylindrical

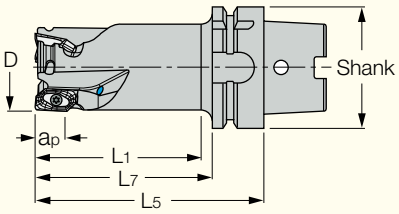
For inserts, see page: HM90 AXCR 1505 (K30).

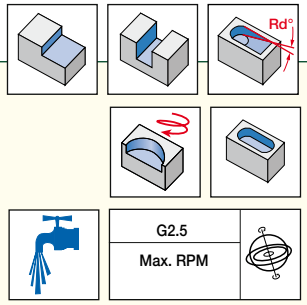
Spare Parts

Designation	Screw	Key
HM90 EAL-15	SR 14-562	T-10/51

HM90 EAL-HSK63A-15

Long Reach Endmills with Integral HSK Adaptation for Machining Aluminum, Carrying HM90 AXCR 1505... Inserts

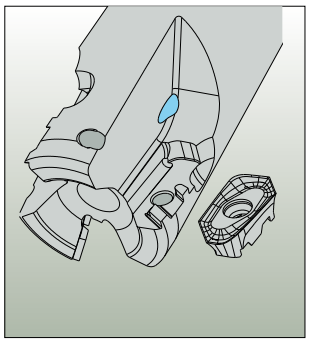


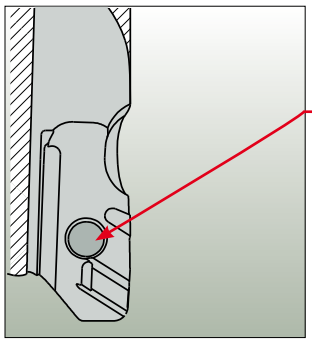


Designation	D	L_1	Z	a_p	L_7	L_5	RPM max	R_d°	Shank	Kg
HM90 EAL25-L50-HSK63A-15	25.00	45.0	2	15.00	50.00	76.00	37500	21.0	HSK A 63	0.74
HM90 EAL25-L75-HSK63A-15	25.00	70.0	2	15.00	75.00	101.00	31250	21.0	HSK A 63	0.82
HM90 EAL32-L65-HSK63A-15	32.00	60.0	3	15.00	65.00	91.00	31250	13.0	HSK A 63	0.90
HM90 EAL32-L100-HSK63A-15	32.00	95.0	3	15.00	100.00	126.00	31250	13.0	HSK A 63	1.09
HM90 EAL40-L80-HSK63A-15	40.00	75.0	3	15.00	80.00	106.00	26040	9.0	HSK A 63	1.19
HM90 EAL40-L120-HSK63A-15	40.00	115.0	3	15.00	120.00	146.00	26040	9.0	HSK A 63	1.53

• A cooling tube must be used with all internal coolant HSK spindles (should be ordered separately) • Insert tightening torque: 350 Nxcm • Balanced to G2.5/ max RPM

For inserts, see page: HM90 AXCR 1505 (K30).

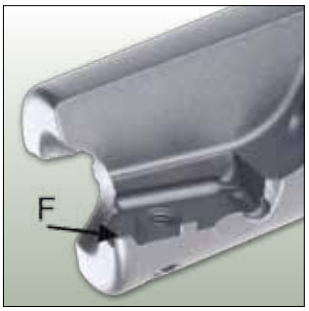




HM90 EAL...15 For indexable inserts with a corner radius larger than 4.0 mm, the basic body of the tool must be modified according to drawing above (can be done by ISCAR).

HM90 EAL...15







F - The cutting force in ramping applications

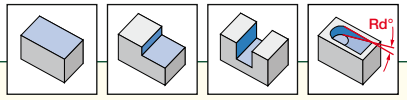
Spare Parts

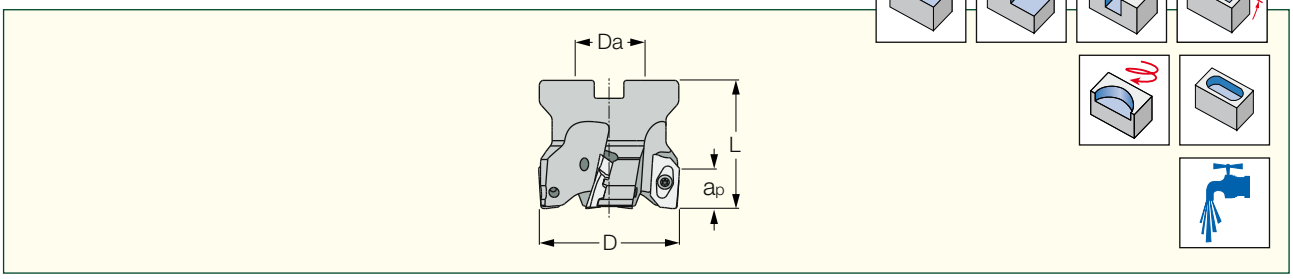
Designation	Screw	Key
HM90 EAL-HSK63A-15	SR 14-562	T-10/51

HELIALU

HM90 FAL-15

Face Mills with HM90 AXCR 1505.. Inserts for Machining Aluminum





Designation	D	Z	a_p	L	Da	Arbor(1)	RPM max	R_d°	Kg
HM90 FAL-D050-4-22-15	50.00	4	13.50	45.00	22.00	A	23000	6.5	0.31

(1) For adaptation see page L13.

For inserts, see page: HM90 AXCR 1505 (K30).

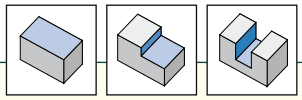
Spare Parts

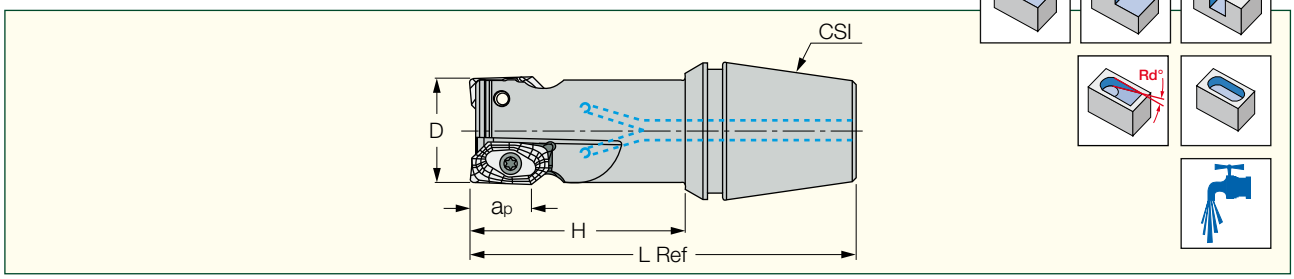
Designation	Screw	Torx Blade	Handle	Shell Locking Screw
HM90 FAL-15	SR 14-562	BLD T10/S7	SW6-SD	SR M10X25DIN912

HELIALU • ER Collet

HM90 EAL-ER

Endmills with Integral ER Collet Adaptation for Machining Aluminum





Designation	D	Z	H	L	a_p	CSI	RPM max	R_d°	Kg
HM90 EAL-D25-L50-ER32-15	25.00	2	50.00	90.00	13.50	ER32	37500	25.0	0.48

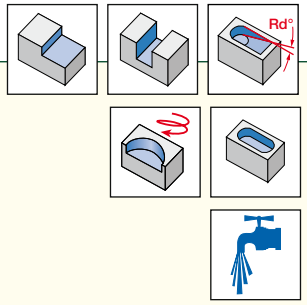
For inserts, see page: HM90 AXCR 1505 (K30).

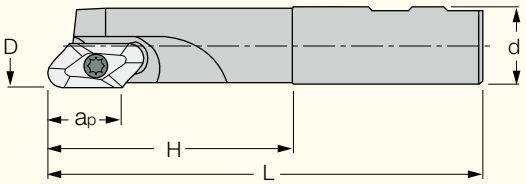
Spare Parts

Designation	Screw	Key
HM90 EAL-ER	SR 14-562	T-10/51

HM90 EAL-22

Long Reach Endmills for Machining Aluminum, with HM90 APCR 2206... Inserts





Designation	D	Z	H	L	d	Shank(1)	RPM max	Rd°	Kg	ap
HM90 EAL-D25-C25-L140-22	25.00	1	80.0	140.00	25.00	C	7000	25.0	0.50	20.50
HM90 EAL-D25-W25-L140-22	25.00	1	80.0	140.00	25.00	W	7000	25.0	0.49	20.50
HM90 EAL-D32-W32-L160-22	32.00	1	100.0	160.00	32.00	W	7000	22.0	0.88	20.50
HM90 EAL-D40-C40-L200-22	40.00	2	80.0	200.00	40.00	C	7000	14.0	1.76	20.50
HM90 EAL-D40-W40-L160-22	40.00	2	80.0	160.00	40.00	W	7000	14.0	0.87	20.50

• DOC changes according to insert radius. ap 20.5 is the value for HM90 APCR 220650. • Insert tightening torque: 600 Nxcm

(1) C-Cylindrical, W-Weldon

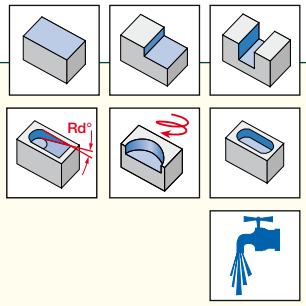
For inserts, see pages: HM90 APCR 2206..R-P (K32) • HM90 APCR 220605-CS (K33).

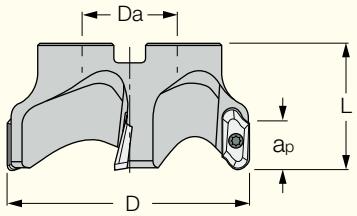
Spare Parts

Designation	Screw	Torx Blade	T-Handle
HM90 EAL-D25-C25-L140-22	SR 14-592M	BLD T20/M7	SW6-T
HM90 EAL-D25-W25-L140-22	SR 14-592M	BLD T20/M7	SW6-T
HM90 EAL-D32-W32-L160-22	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D40-C40-L200-22	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D40-W40-L160-22	SR 14-0180	BLD T20/M7	SW6-T

HM90 FAL-22

Face Mills for Machining Aluminum, with HM90 APCR 2206... Inserts





Designation	D	Z	L	Da	Rd°	ap	Arbor(1)	Kg
HM90 FAL-D050-22-22	50.00	2	55.00	22.00	10.0	20.50	A	0.34
HM90 FAL-D063-27-22	63.00	3	50.00	27.00	7.0	20.50	A	0.48
HM90 FAL-D080-27-22	80.00	3	50.00	27.00	5.0	20.50	A	0.83
HM90 FAL-D100-32-22	100.00	4	50.00	32.00	4.0	20.50	B	1.32
HM90 FAL-D125-40-22	125.00	5	50.00	40.00	3.0	20.50	B	2.14

• D.O.C. changes according to insert radius. • ap 20.5 is the value for HM90 APCR220650. • Insert tightening torque: 600 Nxcm

(1) For adaptation see page L13.

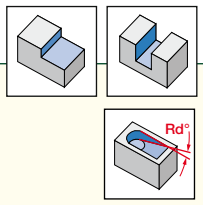
For inserts, see pages: HM90 APCR 2206..R-P (K32) • HM90 APCR 220605-CS (K33).

Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw	Key
HM90 FAL-D050-22-22	SR 14-0180	BLD T20/M7	SW6-T	SR 105-1184	HW 8.0
HM90 FAL-D063-27-22	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25	
HM90 FAL-D080-27-22	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25	
HM90 FAL-D100-32-22	SR 14-0180	BLD T20/M7	SW6-T		
HM90 FAL-D125-40-22	SR 14-0180	BLD T20/M7	SW6-T		

APK-22

Extended Flute Endmills for Machining Aluminum



Designation	D	Z	Flute	H	a_p	d	L	R_d°	Kg
APK D50-40-C32-22	50.00	4	2	60.00	40.00	32.00	150.00	10.0	1.06

• Insert tightening torque: 600 Nxcm

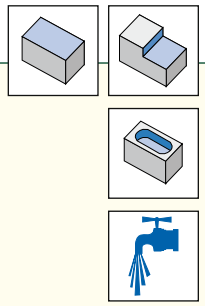
For inserts, see pages: APCR 2206..-HM (K32).

Spare Parts

Designation	Screw	Torx Blade	T-Handle
APK-22	SR 14-592XLM	BLD T20/M7	SW6-T

SM-22

Extended Flute Shell Mills for Machining Aluminum



Designation	D	Z	Flute	L	a_p	Da	Arbor(1)	R_d°	Kg
SM D63-40-27-22	63.00	4	2	75.00	40.00	27.00	A	7.0	0.83

• Use APCR 220650-HM inserts on the tool face and APCR 220605-HM in the upper pockets. • Insert tightening torque: 600 N x cm.

(1) For adaptation see page L13.

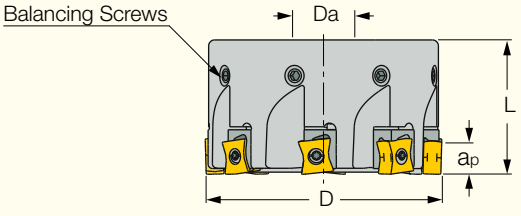
For inserts, see page: APCR 2206..-HM (K32).

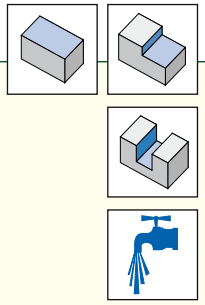
Spare Parts

Designation	Screw	Torx Blade	T-Handle	Shell Locking Screw
SM-22	SR 14-592XLM	BLD T20/M7	SW6-T	SR M12X40DIN912

F90LN-FR CA11

Adjustable 90° Face Mills (used mainly for PCD/CBN inserts)



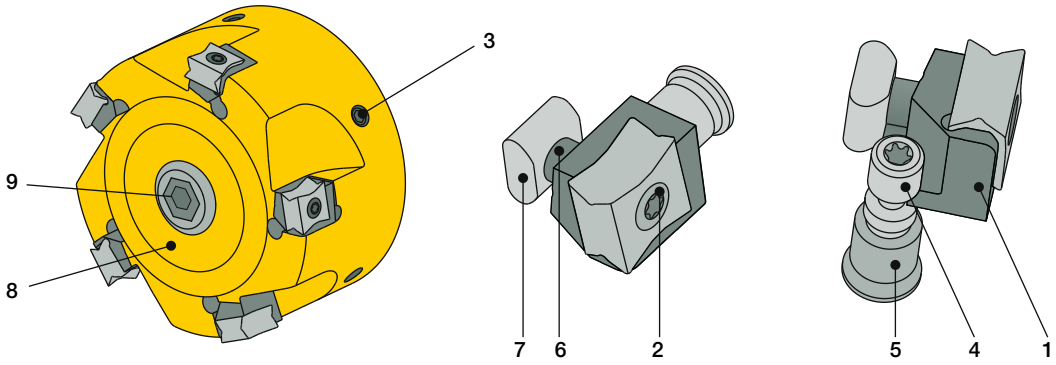


Designation	D	Z	L	Da	a_p(1)	Arbor(2)	RPM max	Kg
F90LN D050-03-16SFR CA11	50.00	3	40.00	16.00	5.00	A	24700	0.40
F90LN D050-04-16SFR CA11	50.00	4	40.00	16.00	5.00	A	24700	0.39
F90LN D063-04-22AFR CA11	63.00	4	45.00	22.00	5.00	B	22000	0.48
F90LN D063-06-22AFR CA11	63.00	6	45.00	22.00	5.00	B	22000	0.30
F90LN D080-05-27AFR CA11	80.00	5	45.00	27.00	5.00	B	19000	0.48
F90LN D080-08-27AFR CA11	80.00	8	45.00	27.00	5.00	B	19000	0.68
F90LN D100-06-32AFR CA11	100.00	6	55.00	32.00	5.00	B	15500	0.94
F90LN D100-10-32AFR CA11	100.00	10	55.00	32.00	5.00	B	15500	0.95
F90LN D125-08-40AFR CA11	125.00	8	63.00	40.00	5.00	B	13800	0.01
F90LN D125-12-40AFR CA11	125.00	12	63.00	40.00	5.00	B	13800	0.00
F90LN D160-14-40AFR CA11	160.00	14	63.00	40.00	5.00	C	12200	3.01

• The tool bodies are made from aluminum (AFR) and the 50 mm tools are made from steel (SFR).

(1) Please refer to PCD and CBN specific inserts D.O.C. recomendations. (2) For adaptation see page L13.

For inserts, see pages: LNAR 1106 (K42) • LNAR 1106 (PCD) (K44) • LNAR 1106PN-R-S-W (PCD) (K44) • LNAT 1106-W (K43) • LNAW-11 (CBN) (K45) • LNHT 1106 PN-N HT (K42) • LNHT 1106 PN-R HT (K41) • LNKX/LNMT 1106 (K41).



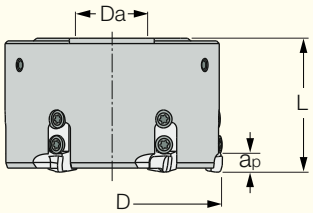
Spare Parts

Spare Parts	Designation	Part Number
Cartridge	CA 90 AL-R-LN11	1
Insert clamping screw	SR 34-550	2
Blade key	BLD T10/S7	
Handle	SW6-SD	
Balancing screw	SR M6X10 DIN 913 TUFLOK	3
Balancing screw key	HW 3.0	
Pocket axial adjustment screw	SR 11800875	4
Bushing for pocket axial adjustment screw	SR TC-604	5
Cartridge screw bushing	SR TC-873	6
Cartridge clamping nut	NUT 11800872	7

Tool	Coolant Cover #8	Coolant Cover Screw #9
F90LN D050-03-16SFR CA11	COVER CC5 D050-CA11	SR M10-35C
F90LN D050-04-16SFR CA11	COVER CC5 D050-CA11	SR M10-35C
F90LN D063-04-22AFR CA11	COVER D063-CA11	SR M10-35C
F90LN D063-06-22AFR CA11	COVER D063-CA11	SR M10-35C
F90LN D080-05-27AFR CA11	COVER D080-CA11	SR M12-35C
F90LN D080-08-27AFR CA11	COVER D080-CA11	SR M12-35C
F90LN D100-06-32AFR CA11	COVER D100-CA11	SR M16-40C
F90LN D100-10-32AFR CA11	COVER D100-CA11	SR M16-40C
F90LN D125-08-40AFR CA11	COVER D125-CA11	SR M20-40C
F90LN D125-12-40AFR CA11	COVER D125-CA11	SR M20-40C
F90LN D160-14-40AFR CA11	COVER D160-CA11	SR M20-40C

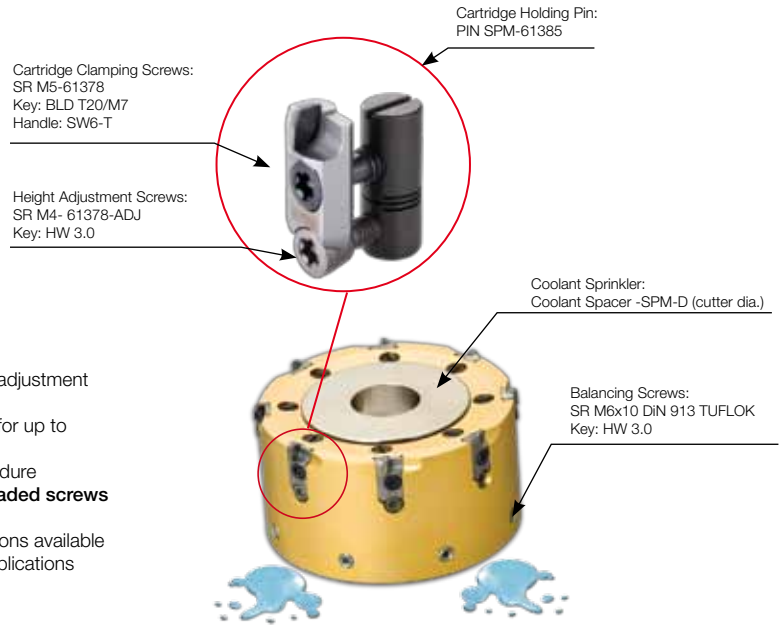
SPM-D-CA

Face Mills with Adjustable Cartridges for High Speed Machining of Aluminum Alloys, Cast Iron and Carbon Fiber



Designation	D	Z	L	Da	Kg	a_p
SPM D050-04-22R-CA	50.00	4	50.00	22.00	0.45	2.50
SPM D063-05-22R-CA	63.00	5	50.00	22.00	9.79	2.50
SPM D063-08-22R-CA	63.00	8	50.00	22.00	0.52	2.50
SPM D080-06-27R-CA	80.00	6	50.00	27.00	0.53	2.50
SPM D080-10-27R-CA	80.00	10	50.00	27.00	0.00	2.50
SPM D100-08-32R-CA	100.00	8	56.00	32.00	0.96	2.50
SPM D100-14-32R-CA	100.00	14	56.00	32.00	0.92	2.50
SPM D125-10-40R-CA	125.00	10	63.00	40.00	2.28	2.50
SPM D125-18-40R-CA	125.00	18	63.00	40.00	0.98	2.50

For inserts, see pages: CA-SPM (H14).



Features

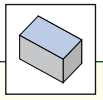
- Lightweight body
- Very few parts to assemble
- User-friendly assembly and adjustment system
- Easy axial edge positioning for up to 0.002 mm accuracy
- Convenient balancing procedure
- **Very durable, without threaded screws in the cutter body**
- Several cartridge configurations available for various materials and applications

Spare Parts

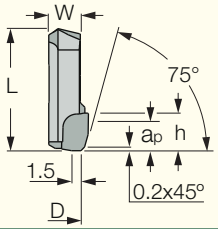
Designation	Cartridge Screw	Torx Blade	T-Handle	Key	Coolant Spacer	Side Adjustment Screw	Balancing Screw	Cartridge Holding Pin
SPM D050-04-22R-CA	SR M5-61378	BLD T20/M7	SW6-T	HW 3.0		SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385
SPM D063-05-22R-CA	SR M5-61378	BLD T20/M7	SW6-T	HW 3.0	COOLANT SPACER-SPM-D63	SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385
SPM D063-08-22R-CA	SR M5-61378	BLD T20/M7		HW 3.0	COOLANT SPACER-SPM-D63	SR M4-61378-ADJ		PIN SPM-61385
SPM D080-06-27R-CA	SR M5-61378	BLD T20/M7	SW6-T	HW 3.0	COOLANT SPACER-SPM-D80	SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385
SPM D080-10-27R-CA	SR M5-61378	BLD T20/M7		HW 3.0	COOLANT SPACER-SPM-D80	SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385
SPM D100-08-32R-CA	SR M5-61378	BLD T20/M7	SW6-T	HW 3.0	COOLANT SPACER-SPM-D100	SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385
SPM D100-14-32R-CA	SR M5-61378	BLD T20/M7		HW 3.0	COOLANT SPACER-SPM-D100	SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385
SPM D125-10-40R-CA	SR M5-61378	BLD T20/M7	SW6-T	HW 3.0	COOLANT SPACER-SPM-D125	SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385
SPM D125-18-40R-CA	SR M5-61378	BLD T20/M7	SW6-T	HW 3.0	COOLANT SPACER-SPM-D125	SR M4-61378-ADJ	SR M6X10DIN913 TL180	PIN SPM-61385

CA-SPM

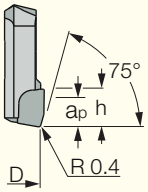
Cartridges for SPM-D-CA Face Mills



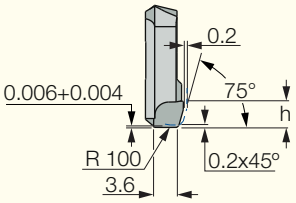
CA SPM-75RM



CA SPM-75RS0.4



CA SPM-75RW (Wiper)



Designation		L	W	h	a_p	$R_{a\,\mu\,min}$	$R_{a\,\mu\,max}$
CA-SPM-75RM	ID5	19.20	5.00	6.00	2.50	0.40	0.80
CA-SPM-75RS0.4	ID5	19.20	5.00	6.00	2.50	1.00	3.20
CA-SPM-75RW	ID5 (1)	19.20	5.00	4.20	-	0.15	0.40

(1) The wiper cartridge should protrude axially by 0.006 - 0.01 mm and it is 0.2 mm shorter in the radial direction

For tools, see page: SPM-D-CA (H13).

TOOLS FOR ALUMINUM

Following is a reference list of additional inserts for machining aluminum, using general use milling cutters

	Insert for Aluminum Designation	Insert Page	Milling Cutters Designation	Tool Page
	HP ANCR	K3	HP E90AN HP F90AN HP ANK	B15-16 C11 D5
	HM90 ADCR 1505 PDFR-P ADCR 1505PDFR-P	K13	ADK E90AC F75A HM90 F90A HM90 E90AD SM	D12 B37 C36 C26 B31 D17
	HM90 APCR 100304 P/DP APCR 1003PDFR-P	K4 K6	APK HM90 F90AP HM90 E90A	D8 C17 B23-27
	HP ADCR 1906 HP ADCR 220704 PDFR-P	K28 K30	HP E90AT HP F90AT	B34-35 C32,34
	LNAR 1106 PN-N-P LNAR 110604 PN-R-S	K44	F90LN-R/L-N11	C18
	LNAR 1505 PN-N-P LNAR 1505 PN-R-S	K49 K50	F90LN-R/L-N15	C25
	T490 LNAR 1306 PN-R-P T490 LNAR 1306 PN-R	K40	T490 ELN T490 FLN T490 LNK T490 SM	B28-29 C22 D6-8 D14
	OECR 060405AER-P	K69	F45KT E45KT	C41 C40
	OFCR 07T3-AEN OFCR 07T3-AEN-P OFCR 07T3-RW-P	K72	HOF	C42
	SEHT 1204AFN SEHT 1204AFN-P	K76	F45ST	C48
	SDMR 1205 PDR-HQ-M	K63	F90SD SE-FT SDK	C19 D20 D18-19

TOOLS FOR ALUMINUM

	Insert for Aluminum Designation	Insert Page	Milling Cutters Designation	Tool Page
	**RCMT ...-FW-F20** **RCCT 1206 MO**	**K94** **K93**	**ERW, FRW**	**E25, E27**

MULTI-MASTER and Solid Carbide Endmills for Machining Aluminum

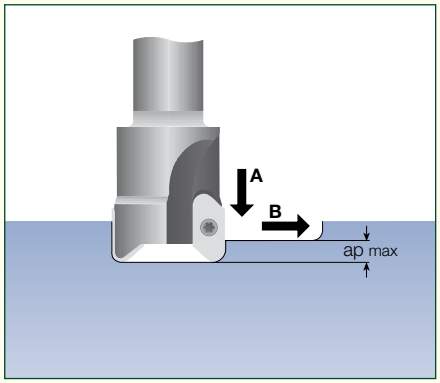
	**MM EA** **MM EA-CF** **MM EBA**	**B47** **B48** **B58**	**MM S...** **MM TS-A** **MM GRT** **TS CAB** **MM CAB** **MM S-ER...**	**B68-74**

Solid Carbide Endmills for Aluminum

	**ECA-H3-CF** **ECA-B-2** **ECA-B-3** **ECA-F-2**	**Refer to ISCAR Solid Carbide and MULTI-MASTER catalog**
	**ERC-E3** **ECR-B3-R**	

E90AL - Details of Application

Milling and Plunging, Stroke Pattern



Maximum Plunging Capability

Inserts	ap max.
HM90 AXCR 1505	4mm
HM90 APCR 1605...R-P (02R-40R)	7.7mm
HM90 APCR 1605...R-P (50R-64R)	6.0mm
HM90 APCR 2206...R-P (05R-50R)	5.8mm
HM90 APCR 2206...R-P (64R)	4.7mm

Note 1

The drilling and plunging strokes have to be at the same depth as the slotting stroke. Otherwise the hole fills with chips that impair the next stroke.

Note 2

In order to shorten swarf during plunging and drilling it is recommended to use peck feeding.

Note 3

The maximum recommended speed is 7,000 RPM. Higher speeds are possible after dynamic balancing to G2.5.

Ordering example for balanced tools:
E90AL D40-C40-L200-22-DB



Insert and Screw Set (5+5) for High Speed Machining Applications

In order to maintain high machining reliability we strongly recommend that when replacing the worn out insert, the clamping screw will be replaced as well.
Available are packages that contain 5 **HM90 APCR 1605..R-P IC28** or **HM90 AXCR 1505..R-P IC28** inserts and 5 matching screws.
These packages contain inserts with a weight tolerance of 0.02 gm.
This tight tolerance ensures maintenance of the dynamic balance of the tool after insert indexing.

HSM90 SET APCR-P

Set Designation		5 Included Inserts		5 Included Screws
HSM90 Set APCR 160502RP IC28	=	HM90 APCR 160502R-P IC28	+	SR 14-0180
HSM90 Set APCR 160504RP IC28	=	HM90 APCR 160504R-P IC28	+	SR 14-0180
HSM90 Set APCR 160505RP IC28	=	HM90 APCR 160505R-P IC28	+	SR 14-0180
HSM90 Set APCR 160508RP IC28	=	HM90 APCR 160508R-P IC28	+	SR 14-0180
HSM90 Set APCR 160516RP IC28	=	HM90 APCR 160516R-P IC28	+	SR 14-0180
HSM90 Set APCR 160520RP IC08	=	HM90 APCR 160520R-P IC08	+	SR 14-0180
HSM90 Set APCR 160520RP IC28	=	HM90 APCR 160520R-P IC28	+	SR 14-0180
HSM90 Set APCR 160525RP IC28	=	HM90 APCR 160525R-P IC28	+	SR 14-0180
HSM90 Set APCR 160530RP IC28	=	HM90 APCR 160530R-P IC28	+	SR 14-0180
HSM90 Set APCR 160532RP IC28	=	HM90 APCR 160532R-P IC28	+	SR 14-0180
HSM90 Set APCR 160540RP IC28	=	HM90 APCR 160540R-P IC28	+	SR 14-0180
HSM90 Set APCR 160550RP IC28	=	HM90 APCR 160550R-P IC28	+	SR 14-0180
HSM90 Set APCR 160560RP IC28	=	HM90 APCR 160560R-P IC28	+	SR 14-0180
HSM90 Set APCR 160564RP IC28	=	HM90 APCR 160564R-P IC28	+	SR 14-0180

HSM90 SET AXCR-P

Set Designation		5 Included Inserts		5 Included Screws
HSM90 Set AXCR 150504RP IC28	=	HM90 AXCR 150504R-P IC28	+	SR 14-562
HSM90 Set AXCR 150508RP IC28	=	HM90 AXCR 150508R-P IC28	+	SR 14-562
HSM90 Set AXCR 150520RP IC28	=	HM90 AXCR 150520R-P IC28	+	SR 14-562
HSM90 Set AXCR 150530RP IC28	=	HM90 AXCR 150530R-P IC28	+	SR 14-562
HSM90 Set AXCR 150532RP IC28	=	HM90 AXCR 150532R-P IC28	+	SR 14-562

HELIALU



THREAD MILLING TOOLS



Member IMC Group

ISCAR Thread



MTECS, MTECSH
pages **J**8-10, 16-18

SOLIDTHREAD



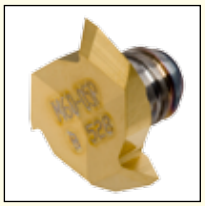
MTEC, MTECB, MTECZ, MTECQ
pages **J**3-7, 10-15, 19-24

SOLIDTHREAD



MT-...-MM
pages **J**30-31

MULTI-MASTER



MM TRD
page **J**29

MULTI-MASTER



MTSR
pages **J**26-27

MILLTHREAD



MTSRH
pages **J**32

MILLTHREAD



MTECI-A60
pages **J**28

SOLIDTHREAD



MTSR-C-SINGLE
page **J**32

MILLTHREAD



MTSR-MULTI (shell mill)
page **J**33

MILLTHREAD



MTSRH (shell mill)
page **J**34

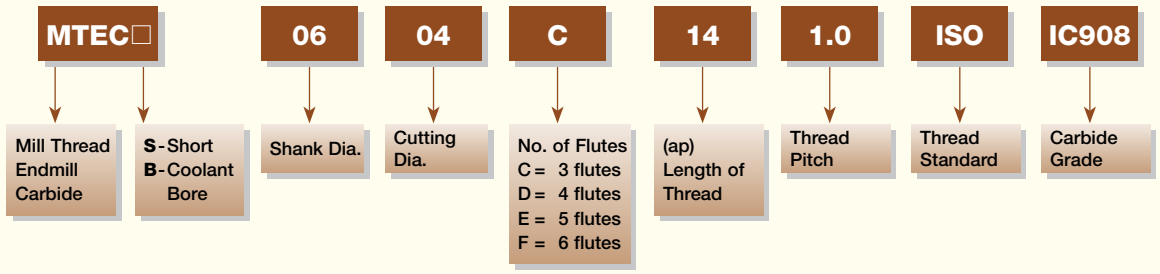
MILLTHREAD



MTSLE
page **J**34

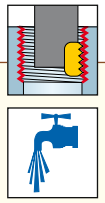
MILLTHREAD

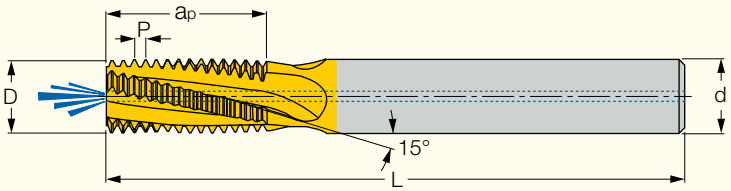
ISCAR THREAD - Solid Carbide Endmills Designation Code Key



MTECB-ISO

Solid Carbide Internal Threading Endmills with Coolant Holes for ISO Thread Profile



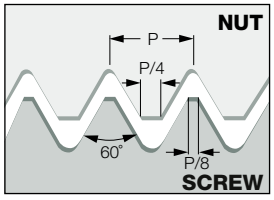


Application: General engineering

Designation	Dimensions									IC908
	Pitch	M Coarse	M Fine	d	Shank(1)	D	Flute	a_p	L	
MTECB 06038C10 0.5ISO	0.50	-	≥5	6.00	C	3.80	3	10.30	58.00	●
MTECB 06031C7 0.7ISO	0.70	M4	≥5	6.00	C	3.10	3	7.40	58.00	●
MTECB 06045C10 0.75ISO	0.75	-	≥6	6.00	C	4.50	3	10.10	58.00	●
MTECB 1010D24 0.75ISO	0.75	-	≥12	10.00	C	10.00	4	24.40	73.00	●
MTECB 06038C9 0.8 ISO	0.80	M5	≥6	6.00	C	3.80	3	9.20	58.00	●
MTECB 0606C12 1.0ISO	1.00	-	≥9	6.00	C	6.00	3	12.50	58.00	●
MTECB 0808D16 1.0ISO	1.00	-	≥10	8.00	C	8.00	4	16.50	64.00	●
MTECB 1010D24 1.0ISO	1.00	-	≥12	10.00	C	10.00	4	14.40	58.00	●
MTECB 06046C10 1.0ISO	1.00	M6	≥7	6.00	C	4.60	3	10.50	58.00	●
MTECB 06046C14 1.0ISO	1.00	M6	≥6	6.00	C	4.60	3	14.50	58.00	●
MTECB 0606C14 1.25ISO	1.25	M8	≥10	6.00	C	6.00	3	14.40	58.00	●
MTECB 0606C19 1.25ISO	1.25	M8	≥10	6.00	C	6.00	3	19.40	58.00	●
MTECB 1010D21 1.5ISO	1.50	-	≥14	10.00	C	10.00	4	21.80	73.00	●
MTECB 1616F33 1.5ISO	1.50	-	≥20	16.00	C	16.00	6	33.80	105.00	●
MTECB 1212D26 1.5ISO	1.50		≥16	12.00	C	12.00	4	26.30	84.00	●
MTECB 08078C17 1.5ISO	1.50	M10	≥12	8.00	C	7.80	3	17.00	64.00	●
MTECB 08078C24 1.5ISO	1.50	M10	≥12	8.00	C	7.80	3	24.80	64.00	●
MTECB 1009C20 1.75ISO	1.75	M12	≥12	10.00	C	9.00	3	20.10	73.00	●
MTECB 1009C28 1.75ISO	1.75	M12	≥12	10.00	C	9.00	3	28.90	73.00	●
MTECB 2020F41 2.0ISO	2.00	-	≥26	20.00	C	20.00	6	41.00	105.00	●
MTECB 1010C27 2.0ISO	2.00	M14	≥15	10.00	C	10.00	3	27.00	73.00	●
MTECB 12118D27 2.0ISO	2.00	M16	≥17	12.00	C	11.80	4	27.00	84.00	●
MTECB 12118D39 2.0ISO	2.00	M16	≥17	12.00	C	11.80	4	39.00	105.00	●
MTECB 1615E33 2.5ISO	2.50	M20	≥22	16.00	C	15.00	5	33.80	105.00	●
MTECB 1615E48 2.5ISO	2.50	M20	≥22	16.00	C	15.00	5	48.80	105.00	●
MTECB 2018D40 3.0ISO	3.00	M24	≥25	20.00	C	18.00	4	40.50	105.00	●
MTECB 2018D58 3.0ISO	3.00	M24	≥25	20.00	C	18.00	4	58.50	120.00	●
MTECB 2020D43 3.0ISO	3.00	M27	≥27	20.00	C	20.00	4	43.50	105.00	●

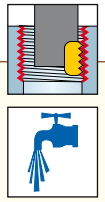
• With internal coolant hole • For user guide, see pages J48-54.

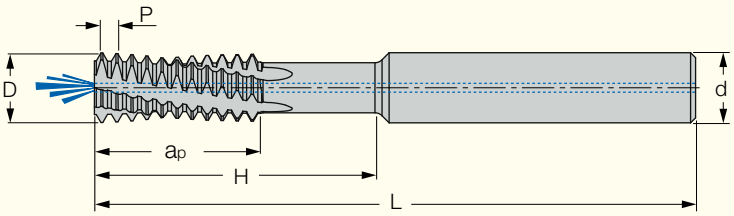
(1) C-Cylindrical



MTECQ ISO

Solid Carbide Endmills with Internal Coolant Holes and a Reduced Diameter Neck, for Deep Internal ISO Profile Threading





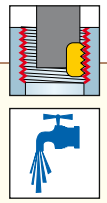
Designation	Dimensions									IC908
	Pitch	Thread	d	D	Flute	a_p	H	L	Shank[1]	
MTECQ 1010D32 1.0ISO	1.00	≥12	10.00	10.00	4	18.00	32.00	73.00	C	●
MTECQ 1212D38 1.0ISO	1.00	≥14	12.00	12.00	4	21.00	38.00	84.00	C	●
MTECQ 1616F45 1.0ISO	1.00	≥18	16.00	16.00	6	26.00	45.00	105.00	C	●
MTECQ 1010D30 1.5ISO	1.50	≥13	10.00	10.00	4	18.00	30.00	73.00	C	●
MTECQ 1212D34 1.5ISO	1.50	≥15	12.00	12.00	4	19.50	34.50	84.00	C	●
MTECQ 1616F43 1.5ISO	1.50	≥19	16.00	16.00	6	25.50	43.50	105.00	C	●
MTECQ 2020F60 1.5ISO	1.50	≥23	20.00	20.00	6	36.00	60.00	105.00	C	●
MTECQ 1212D42 2.0ISO	2.00	≥16	12.00	12.00	4	24.00	42.00	84.00	C	●
MTECQ 1616E45 2.0ISO	2.00	≥20	16.00	16.00	5	26.00	45.00	105.00	C	●
MTECQ 2020F56 2.0ISO	2.00	≥24	20.00	20.00	6	34.00	56.00	105.00	C	●
MTECQ 1616D45 3.0ISO	3.00	≥22	16.00	16.00	4	30.00	45.00	105.00	C	●
MTECQ 2020E54 3.0ISO	3.00	≥26	20.00	20.00	5	33.00	54.00	105.00	C	●
MTECQ 2020D45 3.5ISO	3.50	≥26	20.00	20.00	4	28.00	45.50	105.00	C	●
MTECQ 2525D64 4.0ISO	4.00	≥31	25.00	25.00	4	40.00	64.00	160.00	C	●

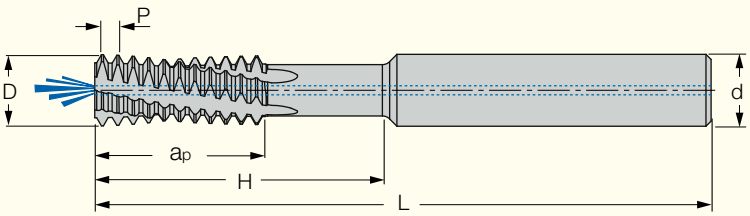
(1) C-Cylindrical

• For user guide, see pages J48-54.

MTECQ UN

Solid Carbide Endmills with Internal Coolant Holes and a Reduced Diameter Neck, for Deep Internal UN Profile Threading





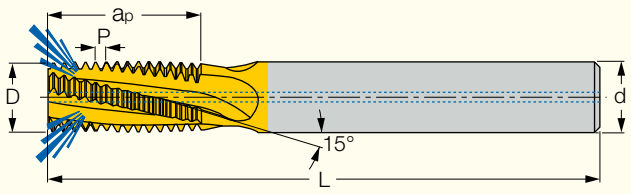
Designation	Dimensions									IC908
	TPI	Thread	d	D	Flute	a_p	H	L	Shank[1]	
MTECQ 1010D30 20UN	20.0	≥12	10.00	10.00	4	17.80	30.50	73.00	C	●
MTECQ 1212E35 20UN	20.0	≥14	12.00	12.00	5	20.30	35.60	84.00	C	●
MTECQ 1616F43 20UN	20.0	≥18	16.00	16.00	6	25.40	43.20	105.00	C	●
MTECQ 1212D35 18UN	18.0	≥15	12.00	12.00	4	19.70	35.30	84.00	C	●
MTECQ 1212D35 16UN	16.0	≥15	12.00	12.00	4	20.70	35.00	84.00	C	●
MTECQ 1616E42 16UN	16.0	≥19	16.00	16.00	5	25.40	42.90	105.00	C	●
MTECQ 2020F58 16UN	16.0	≥23	20.00	20.00	6	36.60	58.80	105.00	C	●
MTECQ 1616E45 14UN	14.0	≥20	16.00	16.00	5	25.40	45.30	105.00	C	●
MTECQ 1212D42 12UN	12.0	≥16	12.00	12.00	4	25.40	42.30	84.00	C	●
MTECQ 2020E55 12UN	12.0	≥24	20.00	20.00	5	33.90	55.10	105.00	C	●

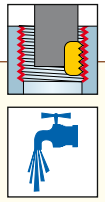
(1) C-Cylindrical

• For user guide, see pages J48-54.

MTECZ-ISO

Solid Carbide Internal Threading Endmills with Coolant Holes Located in the Flutes



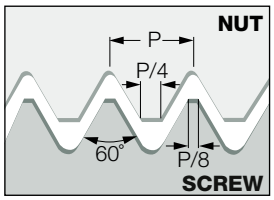


Application: General engineering

Designation	Dimensions									IC908
	Pitch	M Coarse	M Fine	d	Shank(1)	D	Flute	a_p	L	
MTECZ 0606C12 1.0ISO	1.00	-	>9	6.00	C	6.00	3	12.50	58.00	●
MTECZ 0808D16 1.0ISO	1.00	-	>10	8.00	C	8.00	4	16.50	64.00	●
MTECZ 06048C10 1.0ISO	1.00	M6	>7	6.00	C	4.80	3	10.50	58.00	●
MTECZ 0606C14 1.25ISO	1.25	M8	>10	6.00	C	6.00	3	14.40	58.00	●
MTECZ 0606C19 1.25ISO	1.25	M8	>10	6.00	C	6.00	3	19.40	58.00	●
MTECZ 1010D21 1.5ISO	1.50	-	>14	10.00	C	10.00	4	21.80	73.00	●
MTECZ 1212D26 1.5ISO	1.50	-	>16	12.00	C	12.00	4	26.30	84.00	●
MTECZ 1616E33 1.5ISO	1.50	-	>20	16.00	C	16.00	5	33.80	101.00	●
MTECZ 08078C17 1.5ISO	1.50	M10	>12	8.00	C	7.80	3	17.00	64.00	●
MTECZ 1009C20 1.75ISO	1.75	M12	>12	10.00	C	9.00	3	20.10	73.00	●
MTECZ 1009C28 1.75ISO	1.75	M12	>12	10.00	C	9.00	3	28.90	73.00	●
MTECZ 1010C27 2.0ISO	2.00	M14	>15	10.00	C	10.00	3	27.00	73.00	●
MTECZ 12118D27 2.0ISO	2.00	M16	>17	12.00	C	11.80	4	27.00	84.00	●
MTECZ 1615E33 2.5ISO	2.50	M20	>22	16.00	C	15.00	5	33.80	101.00	●

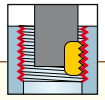
• With internal coolant hole • For user guide, see pages J48-54.

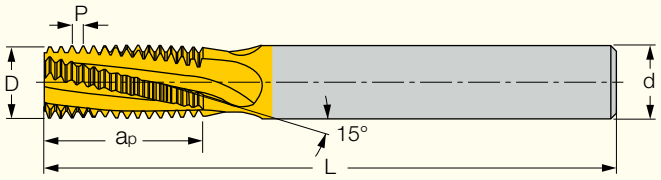
(1) C-Cylindrical



MTEC-ISO

Solid Carbide Internal Threading Endmills for ISO Thread Profile



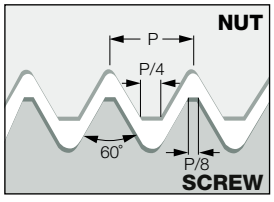


Application: General engineering

Designation	Dimensions									IC908
	Pitch	M Coarse	M Fine	d	Shank(1)	D	Flute	a_p	L	
MTEC 06038C10 0.5ISO	0.50	-	>5	6.00	C	3.80	3	10.30	58.00	●
MTEC 06022C5 0.5ISO	0.50	M3	>4	6.00	C	2.20	3	5.30	58.00	●
MTEC 06031C7 0.7ISO	0.70	M4	>5	6.00	C	3.10	3	7.40	58.00	●
MTEC 06045C10 0.75ISO	0.75	-	>6	6.00	C	4.50	3	10.00	58.00	●
MTEC 06036C9 0.8ISO	0.80	M5	>6	6.00	C	3.60	3	9.20	58.00	●
MTEC 0606C12 1.0ISO	1.00	-	>9	6.00	C	6.00	3	12.50	58.00	●
MTEC 0808D16 1.0ISO	1.00	-	>10	8.00	C	8.00	4	16.50	64.00	●
MTEC 0604C10 1.0ISO	1.00	M6	>7	6.00	C	4.00	3	10.50	58.00	●
MTEC 0604C14 1.0ISO	1.00	M6	>7	6.00	C	4.00	3	14.50	58.00	●
MTEC 0605C14 1.25ISO	1.25	M8	>10	6.00	C	5.00	3	14.40	58.00	●
MTEC 0605C19 1.25ISO	1.25	M8	>10	6.00	C	5.00	3	19.40	58.00	●
MTEC 1010D21 1.5ISO	1.50	-	>14	10.00	C	10.00	4	21.80	73.00	●
MTEC 1616F33 1.5ISO	1.50	-	>20	16.00	C	16.00	6	33.80	105.00	●
MTEC 0807C17 1.5ISO	1.50	M10	>12	8.00	C	7.00	3	17.30	64.00	●
MTEC 0807C24 1.5ISO	1.50	M10	>12	8.00	C	7.00	3	24.80	76.00	●
MTEC 0808C20 1.75ISO	1.75	M12	>14	8.00	C	8.00	3	20.10	64.00	●
MTEC 0808C28 1.75ISO	1.75	M12	>14	8.00	C	8.00	3	28.90	76.00	●
MTEC 1212D27 2.0ISO	2.00	-	>18	12.00	C	12.00	4	27.00	84.00	●
MTEC 2020F41 2.0ISO	2.00	-	>26	20.00	C	20.00	6	41.00	105.00	●
MTEC 1010C27 2.0ISO	2.00	M16	>17	10.00	C	10.00	3	27.00	73.00	●
MTEC 1010C39 2.0ISO	2.00	M16	>17	10.00	C	10.00	3	39.00	105.00	●
MTEC 1414D33 2.5ISO	2.50	M20	>22	14.00	C	14.00	4	33.80	84.00	●
MTEC 1414D48 2.5ISO	2.50	M20	>22	14.00	C	14.00	4	48.80	105.00	●
MTEC 1616C40 3.0ISO	3.00	M24	>25	16.00	C	16.00	3	40.50	105.00	●
MTEC 1616C58 3.0ISO	3.00	M24	>25	16.00	C	16.00	3	58.50	120.00	●
MTEC 2020D43 3.0ISO	3.00	M27	>28	20.00	C	20.00	4	43.50	105.00	●

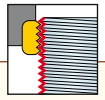
• For user guide, see pages J48-54.

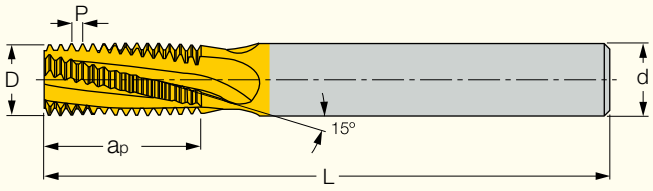
(1) C-Cylindrical



MTEC E-ISO

Solid Carbide External Threading Endmills for ISO Thread Profile



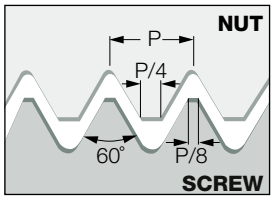


Application: General engineering

Designation	Dimensions							IC908
	Pitch	d	D	Flute	a_p	L	Shank(1)	
MTEC E 1010D16 1.0ISO	1.00	10.00	10.00	4	16.50	73.00	C	●
MTEC E 1212E20 1.0ISO	1.00	12.00	12.00	5	20.50	84.00	C	●
MTEC E 1010D16 1.25ISO	1.25	10.00	10.00	4	16.90	73.00	C	●
MTEC E 1010D15 1.5ISO	1.50	10.00	10.00	4	15.80	73.00	C	●
MTEC E 1212D20 1.5ISO	1.50	12.00	12.00	4	20.30	84.00	C	●
MTEC E 1212D20 1.75ISO	1.75	12.00	12.00	4	20.10	84.00	C	●
MTEC E 1010C17 2.0ISO	2.00	10.00	10.00	3	17.00	73.00	C	●
MTEC E 1212D21 2.0ISO	2.00	12.00	12.00	4	21.00	84.00	C	●

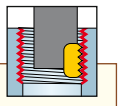
• For user guide, see pages J48-54.

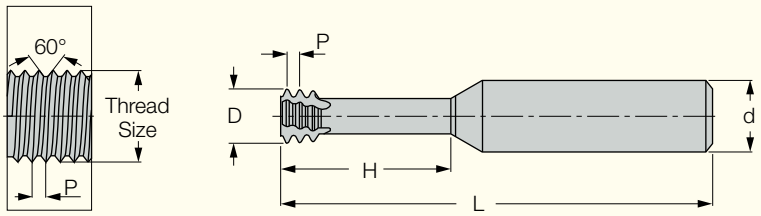
(1) C-Cylindrical



MTECS-ISO

Small Diameter Solid Carbide Internal ISO Profile Threading Endmills



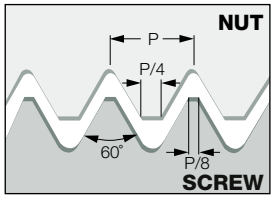


Application: General engineering

Designation	Dimensions								IC908
	Pitch	D	Thread	d	Flute	H	L	Shank[2]	
MTECS 03007C2 0.25ISO	0.25	0.72	M1	3.00	3	2.50	39.00	C	●
MTECS 03009C3 0.25ISO	0.25	0.90	M1.2	3.00	3	3.00	39.00	C	●
MTECS 03011C4 0.3ISO [1]	0.30	1.05	M1.4	3.00	3	4.00	39.00	C	●
MTECS 03012C5 0.35ISO [1]	0.35	1.20	M1.6	3.00	3	4.80	39.00	C	●
MTECS 03016C6 0.4ISO [1]	0.40	1.53	M2	3.00	3	6.00	39.00	C	●
MTECS 06016C4 0.4ISO	0.40	1.53	M2	6.00	3	4.50	58.00	C	●
MTECS 06016C4 0.4ISO-L	0.40	1.53	M2	6.00	3	4.50	105.00	C	●
MTECS 06017C5 0.45ISO	0.45	1.65	M2.2	6.00	3	5.00	58.00	C	●
MTECS 0602C5 0.45ISO	0.45	1.95	M2.5	6.00	3	5.50	58.00	C	●
MTECS 0602C5 0.45ISO-L	0.45	1.95	M2.5	6.00	3	5.50	105.00	C	●
MTECS 0602C7 0.45ISO	0.45	1.95	M2.5	6.00	3	7.50	58.00	C	●
MTECS 06024C6 0.5ISO	0.50	2.37	M3	6.00	3	6.50	58.00	C	●
MTECS 06024C6 0.5ISO-L	0.50	2.37	M3	6.00	3	6.50	105.00	C	●
MTECS 06024C9 0.5ISO	0.50	2.37	M3	6.00	3	9.50	58.00	C	●
MTECS 06024C9 0.5ISO-L	0.50	2.37	M3	6.00	3	9.50	105.00	C	●
MTECS 06054D20 0.5ISO	0.50	5.35	M6	6.00	4	20.00	58.00	C	●
MTECS 06028C10 0.6ISO	0.60	2.75	M3.5	6.00	3	10.50	58.00	C	●
MTECS 06028C7 0.6ISO	0.60	2.75	M3.5	6.00	3	7.50	58.00	C	●
MTECS 06031C12 0.7ISO	0.70	3.10	M4	6.00	3	12.50	58.00	C	●
MTECS 06031C120.7ISO-L	0.70	3.10	M4	6.00	3	12.50	105.00	C	●
MTECS 06031C9 0.7ISO	0.70	3.10	M4	6.00	3	9.00	58.00	C	●
MTECS 0808D25 0.75ISO	0.75	8.00	M10	8.00	4	25.00	64.00	C	●
MTECS 06038C12 0.8ISO	0.80	3.80	M5	6.00	3	12.50	58.00	C	●
MTECS 06038C16 0.8ISO	0.80	3.80	M5	6.00	3	16.00	58.00	C	●
MTECS 06038C160.8ISO-L	0.80	3.80	M5	6.00	3	16.00	105.00	C	●
MTECS 06047C14 1.0ISO	1.00	4.65	M6	6.00	3	14.00	58.00	C	●
MTECS 06047C20 1.0ISO	1.00	4.65	M6	6.00	3	20.00	58.00	C	●
MTECS 06047C201.0ISO-L	1.00	4.65	M6	6.00	3	20.00	105.00	C	●
MTECS 0606C18 1.25ISO	1.25	6.00	M8	6.00	3	20.00	58.00	C	●
MTECS 0606C24 1.25ISO	1.25	6.00	M8	6.00	3	24.00	58.00	C	●
MTECS 08078C23 1.5ISO	1.50	7.80	M10	8.00	3	23.00	64.00	C	●
MTECS 1009C26 1.75ISO	1.75	9.00	M12	10.00	3	26.00	73.00	C	●
MTECS 12118D35 2.0ISO	2.00	11.80	M16	12.00	4	35.00	84.00	C	●
MTECS 1615E43 2.5ISO	2.50	15.00	M20	16.00	5	43.00	105.00	C	●

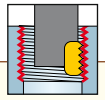
• For user guide, see pages J48-54.

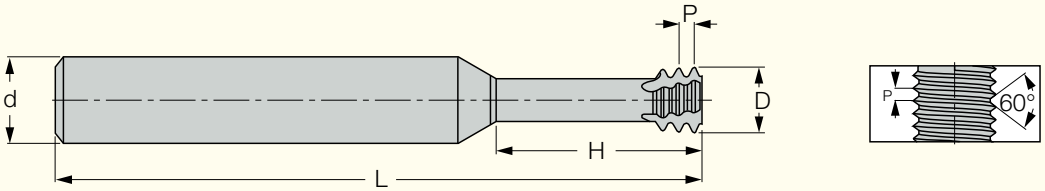
[1] Specially designed for the production of dental implants [2] C-Cylindrical



MTECSH-ISO

Small Diameter Short Left-Hand, Solid Carbide Internal ISO Profile Threading Endmills, for Hardened Steel



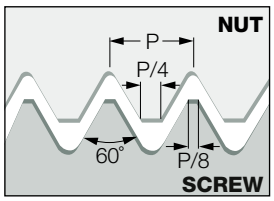


Left-hand tools (CNC code M04) • Application: General engineering

Designation	Dimensions								IC903
	Pitch	Thread	d	D	Flute	H	L	Shank[1]	
MTECSH 03011C4 0.3ISO	0.30	M1.4	3.00	1.05	3	4.00	39.00	C	●
MTECSH 03012C5 0.35ISO	0.35	M1.6	3.00	1.20	3	4.80	39.00	C	●
MTECSH 03016C6 0.4ISO	0.40	M2	3.00	1.55	3	6.00	58.00	C	●
MTECSH 06016C4 0.4ISO	0.40	M2	6.00	1.55	3	4.50	58.00	C	●
MTECSH 06017C5 0.45ISO	0.45	M2.2	6.00	1.65	3	5.00	58.00	C	●
MTECSH 0602C5 0.45ISO	0.45	M2.5	6.00	1.95	3	5.50	58.00	C	●
MTECSH 0602C7 0.45ISO	0.45	M2.5	6.00	1.95	3	7.50	58.00	C	●
MTECSH 06024C6 0.5ISO	0.50	M3	6.00	2.35	3	6.50	58.00	C	●
MTECSH 06024C9 0.5ISO	0.50	M3	6.00	2.35	3	9.50	58.00	C	●
MTECSH 06028C7 0.6ISO	0.60	M3.5	6.00	2.75	3	7.50	58.00	C	●
MTECSH 06031C12 0.7ISO	0.70	M4	6.00	3.10	3	12.50	58.00	C	●
MTECSH 06031C9 0.7ISO	0.70	M4	6.00	3.10	3	9.00	58.00	C	●
MTECSH 06038C12 0.8ISO	0.80	M5	6.00	3.80	3	12.50	58.00	C	●
MTECSH 06038C16 0.8ISO	0.80	M5	6.00	3.80	3	16.00	58.00	C	●
MTECSH 06047C14 1.0ISO	1.00	M6	6.00	4.65	3	14.00	58.00	C	●
MTECSH 06047C20 1.0ISO	1.00	M6	6.00	4.65	3	20.00	58.00	C	●
MTECSH 0606C18 1.25ISO	1.25	M8	6.00	5.95	3	18.00	58.00	C	●
MTECSH 0606C24 1.25ISO	1.25	M8	6.00	5.95	3	24.00	58.00	C	●
MTECSH 08078C23 1.5ISO	1.50	M10	8.00	7.80	3	23.00	64.00	C	●
MTECSH 1009C26 1.75ISO	1.75	M12	10.00	9.00	3	26.00	73.00	C	●
MTECSH 12118D35 2.0ISO	2.00	M16	12.00	11.80	4	35.00	84.00	C	●

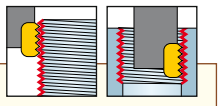
• For user guide, see pages J48-54.

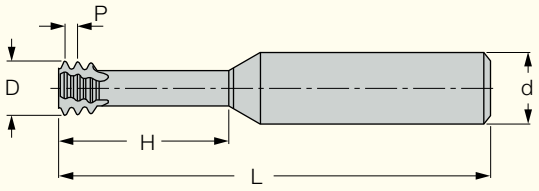
[1] C-Cylindrical



MTECS-W

Short Solid Carbide Internal or External Threading Endmills for BSP and BSF Thread Profiles



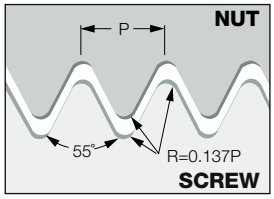


Application: General engineering fittings and pipe couplings

Designation	Dimensions TPI	BSP	d	Shank(1)	D	Flute	H	L	IC908
MTECS 08078C19 28W	28.0	G 1/8	8.00	C	7.80	3	19.50	64.00	●
MTECS 1010D30 19W	19.0	G 1/4-3/8	10.00	C	10.00	4	30.00	73.00	●
MTECS 1212D37 14W	14.0	G 1/2-7/8	12.00	C	12.00	4	37.00	84.00	●
MTECS 1616D44 11W	11.0	G>1	16.00	C	16.00	4	44.00	105.00	●

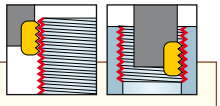
• For user guide, see pages J48-54.

(1) C-Cylindrical

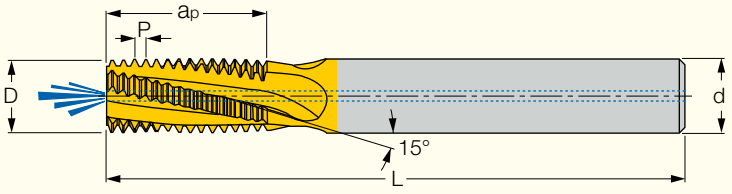


MTECB-W

Solid Carbide Internal or External Threading Endmills with Coolant Holes, for BSP Thread Profile







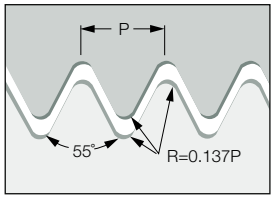
With internal coolant hole

Application: General engineering fittings and pipe couplings

Designation	Dimensions TPI	BSP	d	Shank(1)	D	Flute	ap	L	IC908
MTECB 08078C14 28W	28.0	G1/8	8.00	C	7.80	3	14.10	64.00	●
MTECB 1010D16 19W	19.0	G1/4-3/8	10.00	C	10.00	4	16.70	73.00	●
MTECB 1616E26 14W	14.0	G1/2-7/8	16.00	C	16.00	5	26.30	105.00	●
MTECB 1616D38 11W	11.0	G>1	16.00	C	16.00	4	38.10	105.00	●
MTECB 2020E47 11W	11.0	G>1	20.00	C	20.00	5	47.30	105.00	●

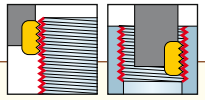
• For user guide, see pages J48-54.

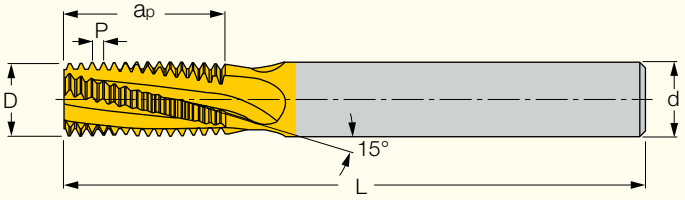
(1) C-Cylindrical



MTEC-W

Solid Carbide Threading Endmills, for Internal or External BSP Thread Profile



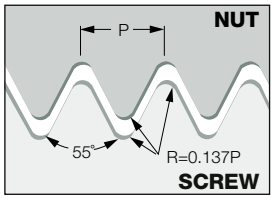


Application: General engineering fittings and pipe couplings

Designation	Dimensions TPI	BSP	d	Shank(1)	D	Flute	ap	L	IC908
MTEC 0606C9 28W	28.0	G1/8	6.00	C	6.00	3	9.50	58.00	●
MTEC 0808C14 19W	19.0	G1/4-3/8	8.00	C	8.00	3	14.00	64.00	●
MTEC 1212D19 14W	14.0	G1/2-7/8	12.00	C	12.00	4	19.30	84.00	●
MTEC 1212D26 14W	14.0	G1/2-7/8	12.00	C	12.00	4	26.30	84.00	●
MTEC 1212C24 11W	11.0	G1-G1-1/2	12.00	C	12.00	3	24.20	84.00	●
MTEC 1616D38 11W	11.0	G1-3	16.00	C	16.00	4	38.10	105.00	●
MTEC 2020E47 11W	11.0	G>1	20.00	C	20.00	5	47.30	105.00	●

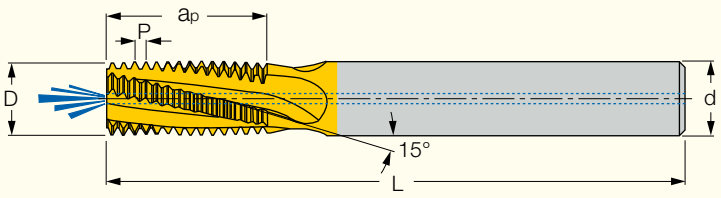
• For user guide, see pages J48-54.

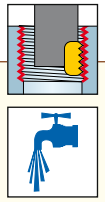
(1) C-Cylindrical



MTECB-UN

Solid Carbide Threading Endmills with Coolant Holes, for Internal UN Thread Profile



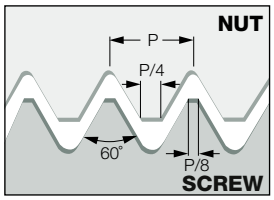


Application: General engineering

Designation	Dimensions										IC908
	TPI	UNC	UNF	UNEF	d	Shank(1)	D	Flute	a_p	L	
MTECB 06032C6 32UN	32.0	8	10	12	6.00	C	3.20	3	6.80	58.00	●
MTECB 0808D18 32UN	32.0	-	-	3/8	8.00	C	8.00	4	18.70	64.00	●
MTECB 0605C11 28UN	28.0	-	1/4	-	6.00	C	5.00	3	11.30	58.00	●
MTECB 0606C14 28UN	28.0	-	-	7/16-1/2	6.00	C	6.00	3	14.10	58.00	●
MTECB 08066C14 24UN	24.0	-	5/16	-	8.00	C	6.60	3	14.30	64.00	●
MTECB 0808D21 24UN	24.0	-	-	9/16-5/8	8.00	C	8.00	4	20.60	64.00	●
MTECB 06047C12 20UN	20.0	1/4	-	-	6.00	C	4.70	3	12.10	58.00	●
MTECB 0808C21 20UN	20.0	-	7/16	-	8.00	C	8.00	3	21.00	64.00	●
MTECB 1010D22 20UN	20.0	-	1/2	-	10.00	C	10.00	4	22.30	73.00	●
MTECB 1212E27 20UN	20.0	-	-	3/4-1	12.00	C	12.00	5	27.30	84.00	●
MTECB 06056C14 18UN	18.0	5/16	-	-	6.00	C	5.60	3	14.80	58.00	●
MTECB 12113D26 18UN	18.0	-	9/16-5/8	1-1/8_1-5/8	12.00	C	11.30	4	26.10	84.00	●
MTECB 08067C16 16UN	16.0	3/8	-	-	8.00	C	6.70	3	16.70	64.00	●
MTECB 1212D31 16UN	16.0	-	3/4	-	12.00	C	12.00	4	31.00	84.00	●
MTECB 08077C20 14UN	14.0	7/16	-	-	8.00	C	7.70	3	20.90	64.00	●
MTECB 1616E37 14UN	14.0	-	7/8	-	16.00	C	16.00	5	37.20	105.00	●
MTECB 10092C22 13UN	13.0	1/2	-	-	10.00	C	9.20	3	22.50	73.00	●
MTECB 12105C26 12UN	12.0	9/16	-	-	12.00	C	10.50	3	26.50	84.00	●
MTECB 1616E41 12UN	12.0	-	1_1-1/2	-	16.00	C	16.00	5	41.30	105.00	●
MTECB 12114C28 11UN	11.0	5/8	-	-	12.00	C	11.40	3	28.90	84.00	●
MTECB 16144D34 10UN	10.0	3/4	-	-	16.00	C	14.40	4	34.30	105.00	●
MTECB 1616C38 9UN	9.0	7/8	-	-	16.00	C	16.00	3	38.10	105.00	●
MTECB 20195D42 8UN	8.0	1	-	-	20.00	C	19.50	4	42.90	105.00	●
MTECB 2020D45 7UN	7.0	1_1/8-1_1/4	-	-	20.00	C	20.00	4	45.30	105.00	●

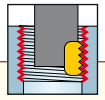
• For user guide, see pages J48-54.

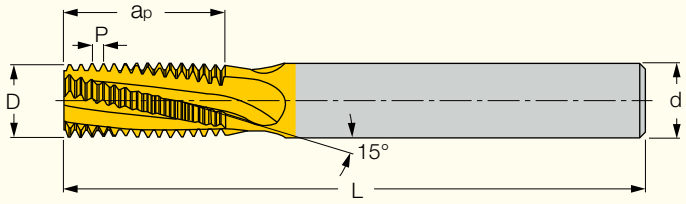
(1) C-Cylindrical



MTEC-UN

Solid Carbide Threading Endmills for Internal UN Thread Profile



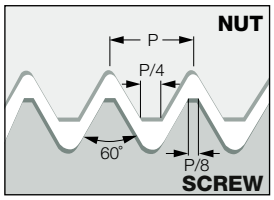


Application: General engineering

Designation	Dimensions										IC908
	TPI	UNC	UNF	UNEF	d	Shank(1)	D	Flute	a_p	L	
MTEC 06025C6 40UN	40.0	5	-	-	6.00	C	2.50	3	6.00	62.00	●
MTEC 06032C6 32UN	32.0	8	10	12	6.00	C	3.20	3	6.80	58.00	●
MTEC 0604C11 28UN	28.0	-	7/16-1/2	-	6.00	C	4.00	3	11.30	58.00	●
MTEC 0606C14 28UN	28.0	-	-	7/16-1/2	6.00	C	6.00	3	14.50	58.00	●
MTEC 0605C14 24UN	24.0	-	5/16	-	6.00	C	5.00	3	14.80	58.00	●
MTEC 0807C21 24UN	24.0	-	3/8	9/16-5/8	8.00	C	7.00	3	20.00	64.00	●
MTEC 06045C12 20UN	20.0	1/4	-	-	6.00	C	4.50	3	12.10	58.00	●
MTEC 0807C21 20UN	20.0	-	7/16-1/2	-	8.00	C	7.00	3	20.00	64.00	●
MTEC 1212E27 20UN	20.0	-	-	3/4-1	12.00	C	12.00	5	27.30	84.00	●
MTEC 0605C14 18UN	18.0	5/16	-	-	6.00	C	5.00	3	14.80	58.00	●
MTEC 1010D26 18UN	18.0	-	9/16-5/8	1-1/8_1-5/8	10.00	C	10.00	4	26.10	73.00	●
MTEC 0606C16 16UN	16.0	3/8	-	-	6.00	C	6.00	3	16.70	58.00	●
MTEC 1212D31 16UN	16.0	-	3/4	-	12.00	C	12.00	4	30.00	84.00	●
MTEC 0807C20 14UN	14.0	7/16	-	-	8.00	C	7.00	3	20.90	64.00	●
MTEC 1615E37 14UN	14.0	-	7/8	-	16.00	C	15.00	5	37.20	105.00	●
MTEC 0808C22 13UN	13.0	1/2	-	-	8.00	C	8.00	3	22.50	64.00	●
MTEC 1010C26 12UN	12.0	9/16	-	-	10.00	C	10.00	3	26.50	73.00	●
MTEC 1616E41 12UN	12.0	-	1_1-1/2	-	16.00	C	16.00	5	41.30	105.00	●
MTEC 1010C28 11UN	11.0	5/8	-	-	10.00	C	10.00	3	28.90	73.00	●
MTEC 1212C34 10UN	10.0	3/4	-	-	12.00	C	12.00	3	34.30	84.00	●
MTEC 1615C38 9UN	9.0	7/8	-	-	16.00	C	15.00	3	38.10	105.00	●
MTEC 1616C42 8UN	8.0	1.0	-	-	16.00	C	16.00	3	42.90	105.00	●
MTEC 2020D45 7UN	7.0	1_1/8-1_1/4	-	-	20.00	C	20.00	4	45.40	105.00	●

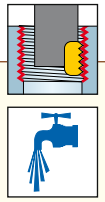
• For user guide, see pages J48-54.

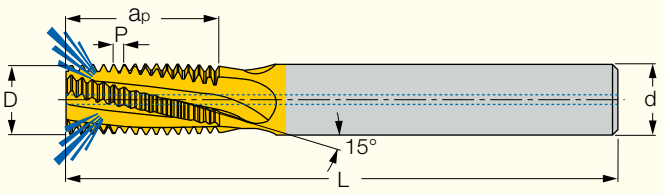
(1) C-Cylindrical



MTECZ-UN

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal UN Thread Profile



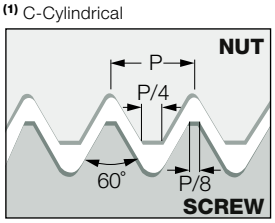


Application: General engineering

Designation	Dimensions										IC908
	TPI	UNC	UNF	UNEF	d	Shank(1)	D	Flute	a_p	L	
MTECZ 0605C11 28UN	28.0	-	1/4	-	6.00	C	5.00	3	11.30	58.00	●
MTECZ 0606C14 28UN	28.0	-	-	7/16-1/2	6.00	C	6.00	3	14.10	58.00	●
MTECZ 08066C14 24UN	24.0	-	5/16	-	8.00	C	6.60	3	14.30	64.00	●
MTECZ 0808D21 24UN	24.0	-	3/8	9/16-5/8	8.00	C	8.00	4	20.60	64.00	●
MTECZ 0808C21 20UN	20.0	-	7/16	-	8.00	C	8.00	3	21.00	64.00	●
MTECZ 1010D22 20UN	20.0	-	1/2	-	10.00	C	10.00	4	22.30	73.00	●
MTECZ 1212E27 20UN	20.0	-	-	3/4_1	12.00	C	12.00	5	27.30	84.00	●
MTECZ 06056C14 18UN	18.0	5/16	-	-	6.00	C	5.60	3	14.80	58.00	●
MTECZ 12113D26 18UN	18.0	-	9/16-5/8	1_1/8-1_5/8	12.00	C	11.30	4	26.10	84.00	●
MTECZ 08067C16 16UN	16.0	3/8	-	-	8.00	C	6.70	3	16.70	64.00	●
MTECZ 1212D31 16UN	16.0	-	3/4	-	12.00	C	12.00	4	31.00	84.00	●
MTECZ 08077C20 14UN	14.0	7/16	-	-	8.00	C	7.70	3	20.90	64.00	●
MTECZ 1616E37 14UN	14.0	-	7/8	-	16.00	C	16.00	5	37.20	101.00	●
MTECZ 10092C22 13UN	13.0	1/2	-	-	10.00	C	9.20	3	22.50	73.00	●
MTECZ 12105C26 12UN	12.0	9/16	-	-	12.00	C	10.50	3	26.50	84.00	●
MTECZ 12114C28 11UN	11.0	5/8	-	-	12.00	C	11.40	3	28.90	84.00	●
MTECZ 16144D34 10UN	10.0	3/4	-	-	16.00	C	14.40	4	34.30	101.00	●

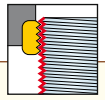
• With internal coolant hole • For user guide, see pages J48-54.

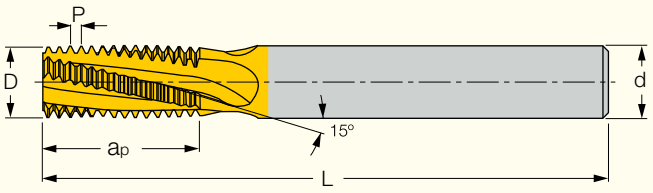
(1) C-Cylindrical



MTEC E-UN

Solid Carbide Threading Endmills with UN Form, for External Threading



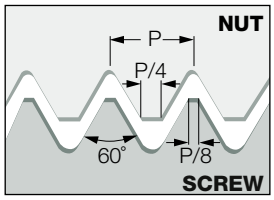


Application: General engineering

Designation	Dimensions							IC908
	TPI	d	Shank(1)	D	Flute	a_p	L	
MTEC E 1010D16 24UN	24.0	10.00	C	10.00	4	16.40	73.00	●
MTEC E 1212E21 20UN	20.0	12.00	C	12.00	5	21.00	84.00	●
MTEC E 1212D20 18UN	18.0	12.00	C	12.00	4	20.50	84.00	●
MTEC E 1212D21 16UN	16.0	12.00	C	12.00	4	21.40	84.00	●
MTEC E 1212D20 14UN	14.0	12.00	C	12.00	4	20.90	84.00	●
MTEC E 1212D20 12UN	12.0	12.00	C	12.00	4	20.10	84.00	●

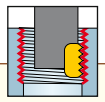
• For user guide, see pages J48-54.

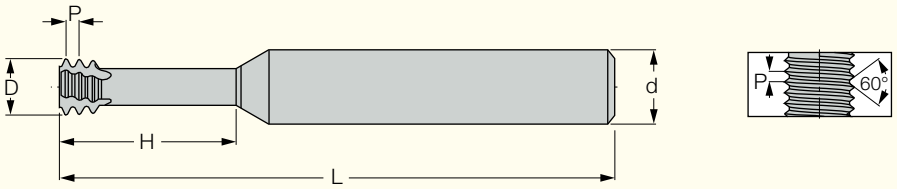
(1) C-Cylindrical



MTECS-UN

Small Diameter Solid Carbide UN Profile Threading Endmills, for Hardened Steel



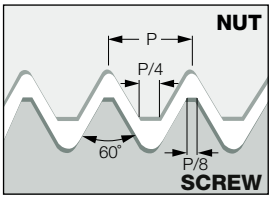


Application: General engineering

Designation	Dimensions								IC908
	TPI	UNC	UNF	d	D	Flute	L	H	
MTECS 06012C4 80UN	80.0	-	0	6.00	1.15	3	58.00	4.00	●
MTECS 03015C6 72UN (1)	72.0	-	1	3.00	1.45	3	58.00	6.00	●
MTECS 06014C3 72UN	72.0	-	1	6.00	1.45	3	58.00	3.70	●
MTECS 06014C3 64UN	64.0	1	2	6.00	1.40	3	58.00	3.80	●
MTECS 03016C6 56UN	56.0	2	3	3.00	1.65	3	39.00	6.60	●
MTECS 06016C6 56UN	56.0	2	3	6.00	1.65	3	58.00	6.60	●
MTECS 06016C6 56UN-L	56.0	2	3	6.00	1.65	3	105.00	6.60	●
MTECS 06016C4 56UN	56.0	2	3	6.00	1.65	3	58.00	4.40	●
MTECS 06019C5 48UN	48.0	3	4	6.00	1.90	3	58.00	5.20	●
MTECS 06021C6 40UN	40.0	4	-	6.00	2.10	3	58.00	6.30	●
MTECS 06021C6 40UN-L	40.0	4	-	6.00	2.10	3	105.00	6.30	●
MTECS 06024C7 40UN	40.0	5	6	6.00	2.45	3	58.00	7.00	●
MTECS 06021C8 40UN	40.0	4	-	6.00	2.10	3	58.00	8.00	●
MTECS 06021C8 40UN-L	40.0	4	-	6.00	2.10	3	105.00	8.00	●
MTECS 06024C9 40UN	40.0	5	6	6.00	2.45	3	58.00	9.60	●
MTECS 06033C9 36UN	36.0	-	8	6.00	3.30	3	58.00	9.00	●
MTECS 06025C10 32UN	32.0	6	-	6.00	2.55	3	58.00	10.50	●
MTECS 06025C10 32UN-L	32.0	6	-	6.00	2.55	3	105.00	10.50	●
MTECS 06025C7 32UN	32.0	6	-	6.00	2.55	3	58.00	7.10	●
MTECS 06025C7 32UN-L	32.0	6	-	6.00	2.55	3	105.00	7.10	●
MTECS 06032C9 32UN	32.0	8	10	6.00	3.20	3	58.00	9.50	●
MTECS 06032C9 32UN-L	32.0	8	-	6.00	3.20	3	105.00	9.50	●
MTECS 06037C10 32UN	32.0	-	10	6.00	3.70	3	58.00	10.50	●
MTECS 03025C10 32UN	32.0	6	-	3.00	2.55	3	39.00	10.50	●
MTECS 06032C12 32UN	32.0	8	10	6.00	3.20	3	58.00	12.50	●
MTECS 06032C12 32UN-L	32.0	8	-	6.00	3.20	3	105.00	12.50	●
MTECS 06037C15 32UN	32.0	-	10	6.00	3.70	3	58.00	15.00	●
MTECS 06037C15 32UN-L	32.0	-	10	6.00	3.70	3	105.00	15.00	●
MTECS 06042C11 28UN	28.0	-	12	6.00	4.20	3	58.00	11.00	●
MTECS 0605C14 28UN	28.0	-	1/4	6.00	5.00	3	58.00	14.50	●
MTECS 0605C19 28UN	28.0	-	1/4	6.00	5.00	3	58.00	19.00	●
MTECS 06035C10 24UN	24.0	10,12	-	6.00	3.50	3	58.00	10.60	●
MTECS 08066C17 24UN	24.0	-	5/16	8.00	6.60	3	64.00	17.00	●
MTECS 08066C24 24UN	24.0	-	5/16	8.00	6.60	3	64.00	24.00	●
MTECS 06047C14 20UN	20.0	1/4	-	6.00	4.75	3	58.00	14.00	●
MTECS 06047C19 20UN	20.0	1/4	-	6.00	4.75	3	58.00	19.00	●
MTECS 06047C19 20UN-L	20.0	1/4	-	6.00	4.75	3	105.00	19.00	●
MTECS 0808C25 20UN	20.0	-	7/16	8.00	8.00	3	64.00	25.00	●
MTECS 0606C17 18UN	18.0	5/16	-	6.00	6.00	3	58.00	17.00	●
MTECS 0606C23 18UN	18.0	5/16	-	6.00	6.00	3	58.00	23.00	●
MTECS 1212D35 18UN	18.0	-	5/8	12.00	12.00	4	84.00	35.00	●
MTECS 08067C22 16UN	16.0	3/8	-	8.00	6.70	3	64.00	22.00	●
MTECS 08077C25 14UN	14.0	7/16	-	8.00	7.70	3	64.00	25.00	●
MTECS 10092C27 13UN	13.0	1/2	-	10.00	9.20	3	73.00	27.50	●
MTECS 12105C31 12UN	12.0	9/16	-	12.00	10.50	3	84.00	31.50	●
MTECS 12114C34 11UN	11.0	5/8	-	12.00	11.40	3	84.00	34.50	●
MTECS 16144D41 10UN	10.0	3/4	-	16.00	14.40	4	105.00	41.50	●

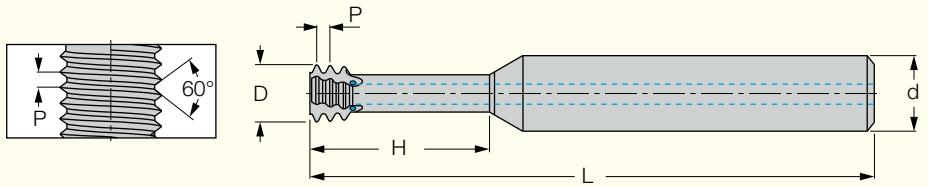
• For user guide, see pages J48-54.

(1) Specially designed for the production of dental implants



MTECS-MJ

Small Diameter Short Solid Carbide MJ-Type Profile Threading Endmills



Aerospace and automotive industries, for applications requiring high fatigue strength

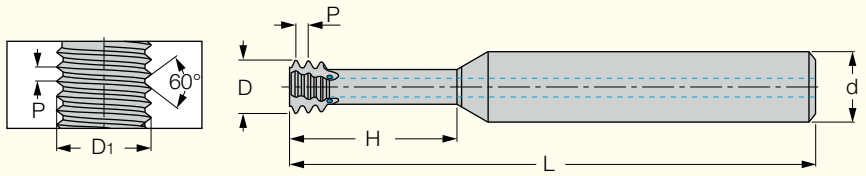
Designation	Dimensions							IC908
	Pitch	MJ size	d	D	Flute	H	L	
MTECS 06032C10 0.7MJ (1)	0.70	MJ4	6.00	3.20	3	10.00	58.00	●
MTECS 06039C12 0.8MJ (1)	0.80	MJ5	6.00	3.90	3	12.50	58.00	●
MTECS 06048C15 1.0MJ (1)	1.00	MJ6	6.00	4.80	3	15.00	58.00	●
MTECS 08061C20 1.25MJ	1.25	MJ8	8.00	6.10	3	20.00	64.00	●
MTECS 0808C25 1.5MJ	1.50	MJ10	8.00	8.00	3	25.00	64.00	●
MTECS 10092C30 1.75MJ	1.75	MJ12	10.00	9.20	3	30.00	73.00	●
MTECS 1010C35 2.0MJ	2.00	MJ14, MJ16	10.00	10.00	3	35.00	73.00	●

(1) Without coolant holes

• For user guide, see pages J48-54.

MTECS-UNJ

Small Diameter Short Solid Carbide UNJ-Type Profile Threading Endmills



Aerospace and automotive industries, for applications requiring high fatigue strength

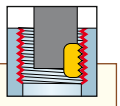
Designation	Dimensions								IC908
	TPI	UNC	UNF	d	D	Flute	H	L	
MTECS 06033C10 32UNJ (1)	32.0	8	10	6.00	3.30	3	10.50	58.00	●
MTECS 08051C16 28UNJ	28.0	-	1/4	8.00	5.10	3	16.00	64.00	●
MTECS 08067C20 24UNJ	24.0	-	5/16, 3/8	8.00	6.70	3	20.00	64.00	●
MTECS 06049C16 20UNJ (1)	20.0	1/4	-	6.00	4.90	3	16.00	58.00	●
MTECS 0808C28 20UNJ	20.0	-	7/16	8.00	8.00	3	28.00	64.00	●
MTECS 08061C20 18UNJ	18.0	5/16	-	8.00	6.15	3	20.00	64.00	●
MTECS 08069C24 16UNJ	16.0	3/8	-	8.00	6.90	3	24.00	64.00	●
MTECS 08079C25 14UNJ	14.0	7/16	-	8.00	7.90	3	25.00	64.00	●
MTECS 10094C27 13UNJ	13.0	1/2	-	10.00	9.40	3	27.50	73.00	●

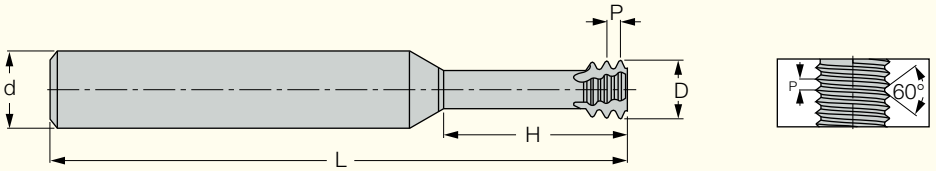
(1) Without coolant holes

• For user guide, see pages J48-54.

MTECSH-UN

Small Diameter Short Left-Hand Solid Carbide UN Profile Threading Endmills, for Hardened Steel





Left-hand tools (CNC code M04) • Application: General engineering

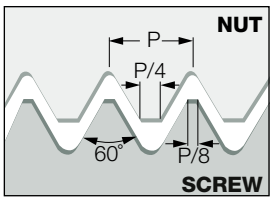
Designation	Dimensions TPI	UNC	UNF	d	Shank(1)	D	Flute	L	H	IC903
MTECSH 03015C6 72UN	72.0	-	1	3.00	C	1.45	3	39.00	6.00	●
MTECSH 06012C4 80UN	80.0	-	0	6.00	C	1.15	3	58.00	4.00	●
MTECSH 06014C3 72UN	72.0	-	1	6.00	C	1.45	3	58.00	3.70	●
MTECSH 06014C3 64UN	64.0	1	2	6.00	C	1.40	3	58.00	3.80	●
MTECSH 06016C6 56UN	56.0	2	3	6.00	C	1.65	3	58.00	6.60	●
MTECSH 06016C4 56UN	56.0	2	3	6.00	C	1.65	3	58.00	4.40	●
MTECSH 06019C5 48UN	48.0	3	4	6.00	C	1.90	3	58.00	5.20	●
MTECSH 06021C6 40UN	40.0	4	-	6.00	C	2.10	3	58.00	6.30	●
MTECSH 06024C7 40UN	40.0	5	6	6.00	C	2.45	3	58.00	7.00	●
MTECSH 06021C8 40UN	40.0	4	-	6.00	C	2.10	3	58.00	8.00	●
MTECSH 06024C9 40UN	40.0	5	6	6.00	C	2.45	3	58.00	9.60	●
MTECSH 06033C9 36UN	36.0	-	8	6.00	C	3.30	3	58.00	9.00	●
MTECSH 06025C7 32UN	32.0	6	-	6.00	C	2.55	3	58.00	7.10	●
MTECSH 06025C10 32UN	32.0	6	-	6.00	C	2.55	3	58.00	10.50	●
MTECSH 06032C9 32UN	32.0	8	-	6.00	C	3.20	3	58.00	9.50	●
MTECSH 06037C10 32UN	32.0	-	10	6.00	C	3.70	3	58.00	10.50	●
MTECSH 06032C12 32UN	32.0	8	-	6.00	C	3.20	3	58.00	12.50	●
MTECSH 06037C15 32UN	32.0	-	10	6.00	C	3.70	3	58.00	15.00	●
MTECSH 06042C11 28UN	28.0	-	12	6.00	C	4.20	3	58.00	11.00	●
MTECSH 0605C14 28UN	28.0	-	1/4	6.00	C	5.00	3	58.00	14.50	●
MTECSH 0605C19 28UN	28.0	-	1/4	6.00	C	5.00	3	58.00	19.00	●
MTECSH 06035C10 24UN	24.0	10,12	-	6.00	C	3.50	3	58.00	10.60	●
MTECSH 08066C17 24UN	24.0	-	5/16	8.00	C	6.60	3	64.00	17.00	●
MTECSH 08066C24 24UN	24.0	-	5/16	8.00	C	6.60	3	64.00	24.00	●
MTECSH 06047C14 20UN	20.0	1/4	-	6.00	C	4.75	3	58.00	14.00	●
MTECSH 06047C19 20UN	20.0	1/4	-	6.00	C	4.75	3	58.00	19.00	●
MTECSH 0808C25 20UN	20.0	-	7/16	8.00	C	8.00	3	64.00	25.00	●
MTECSH 0606C17 18UN	18.0	5/16	-	6.00	C	6.00	3	58.00	17.00	●
MTECSH 0606C23 18UN	18.0	5/16	-	6.00	C	6.00	3	58.00	23.00	●
MTECSH 1212D35 18UN	18.0	-	5/8	12.00	C	12.00	4	84.00	35.00	●
MTECSH 08067C22 16UN	16.0	3/8	-	8.00	C	6.70	3	64.00	22.00	●
MTECSH 08077C25 14UN	14.0	7/16	-	8.00	C	7.70	3	64.00	25.00	●
MTECSH 10092C27 13UN	13.0	1/2	-	10.00	C	9.20	3	73.00	27.50	●
MTECSH 12105C31 12UN	12.0	9/16	-	12.00	C	10.50	3	84.00	31.50	●
MTECSH 12114C34 11UN	11.0	5/8	-	12.00	C	11.40	3	84.00	34.50	●

• For user guide, see pages J48-54.

(1) C-Cylindrical

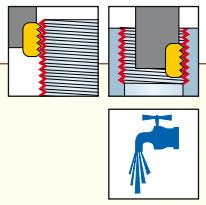
Cutting Data for Hardened Steel

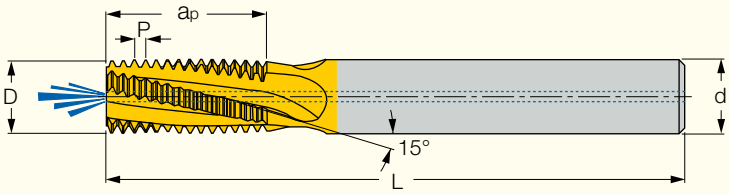
ISO	Material	Hardness HRc	Cutting Speed m/min	Feed (mm/tooth) for Cutting Diameter (mm) 1.5	2	3	4	5	6	7	8	9
H	Hardened Steels	45-50	60-70	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08
		51-55	50-60	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07
		56-62	40-50	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06



MTECB-BSPT

Solid Carbide External or Internal Threading Endmills with Coolant Holes, for BSPT Thread Profile



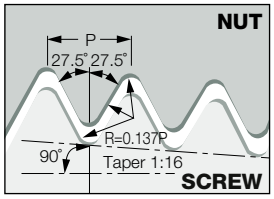


Application: General engineering fittings and pipe couplings

Designation	Dimensions								IC908
	TPI	BSPT	d	Shank(1)	D	Flute	a_p	L	
MTECB 08078C14 28BSPT	28.0	RC1/8	8.00	C	7.80	3	14.10	64.00	●
MTECB 1010D16 19BSPT	19.0	RC1/4-3/8	10.00	C	10.00	4	16.70	73.00	●
MTECB 1616E26 14BSPT	14.0	RC1/2-7/8	16.00	C	16.00	5	26.30	105.00	●
MTECB 1616D28 11BSPT	11.0	RC1-2	16.00	C	16.00	4	28.90	105.00	●

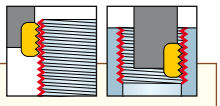
• With internal coolant hole • For user guide, see pages J48-54.

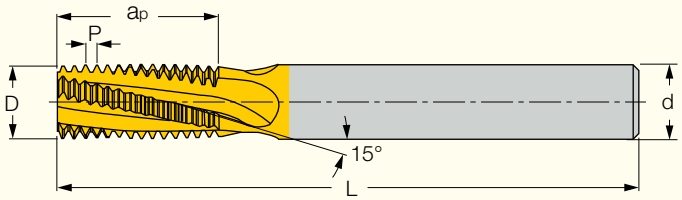
(1) C-Cylindrical



MTEC-BSPT

Solid Carbide Threading Endmills, for External or Internal BSPT Thread Profile



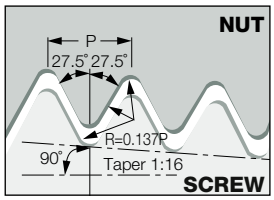


Application: General engineering fittings and pipe couplings

Designation	Dimensions								IC908
	TPI	BSPT	d	Shank(1)	D	Flute	a_p	L	
MTEC 0606C9 28BSPT	28.0	RC 1/8	6.00	C	6.00	3	9.50	58.00	●
MTEC 0808C14 19BSPT	19.0	RC 1/4-3/8	8.00	C	8.00	3	14.00	64.00	●
MTEC 1212D19 14BSPT	14.0	RC 1/2-7/8	12.00	C	12.00	4	19.10	84.00	●
MTEC 1616D28 11BSPT	11.0	RC 1-2	16.00	C	16.00	4	28.90	105.00	●

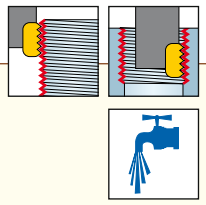
• For user guide, see pages J48-54.

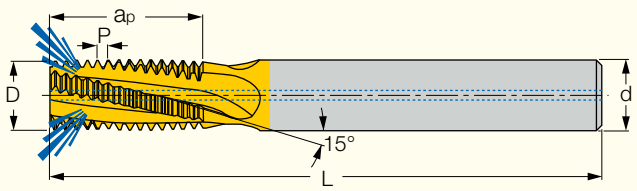
(1) C-Cylindrical



MTECZ-BSF/BSP

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal or External BSF/BSP Thread



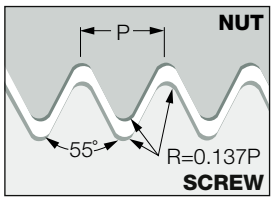


Application: General engineering fittings and pipe couplings

Designation	Dimensions								IC908
	TPI	BSP	d	Shank(1)	D	Flute	a_p	L	
MTECZ 08078C14 28W	28.0	G1/8	8.00	C	7.80	3	14.10	64.00	●
MTECZ 1010D16 19W	19.0	G1/4-3/8	10.00	C	10.00	4	16.70	73.00	●
MTECZ 1616E26 14W	14.0	G1/2-7/8	16.00	C	16.00	5	26.30	101.00	●
MTECZ 1616D38 11W	11.0	G>1	16.00	C	16.00	4	38.10	101.00	●

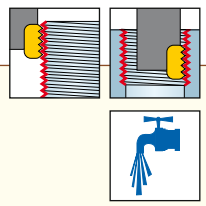
• With internal coolant hole • For user guide, see pages J48-54.

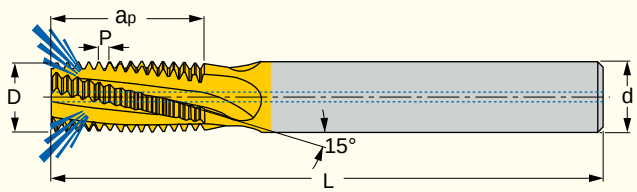
(1) C-Cylindrical



MTECZ-Whitworth

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal or External Whitworth Thread



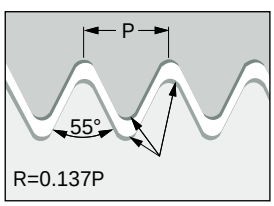


Application: General engineering fittings and pipe couplings

Designation	Dimensions							IC908
	TPI	BSW	d	D	Flute	a_p	L	
MTECZ 06046C12 20W (1)	20.0	1/4	6.00	4.60	3	12.10	58.00	●
MTECZ 06053C14 18W	18.0	5/16	6.00	5.30	3	14.80	58.00	●
MTECZ 08068C16 16W	16.0	3/8	8.00	6.80	3	16.70	64.00	●
MTECZ 10086D24 12W	12.0	1/2	10.00	8.60	4	24.40	73.00	●
MTECZ 12109D28 11W	11.0	5/8	12.00	10.90	4	28.90	84.00	●

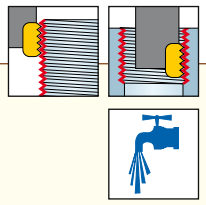
• With internal coolant hole • For user guide, see pages J48-54.

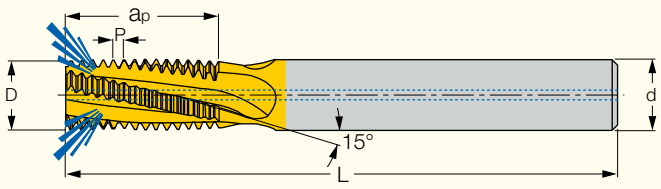
(1) Without coolant holes



MTECZ-BSPT

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal or External BSPT Thread Profile



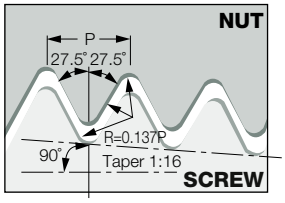


Application: General engineering fittings and pipe couplings

Designation	Dimensions								IC908
	TPI	BSPT	d	Shank(1)	D	Flute	a_p	L	
MTECZ 08078C14 28BSPT	28.0	RC1/8	8.00	C	7.80	3	14.10	64.00	●
MTECZ 1010D16 19BSPT	19.0	RC1/4-3/8	10.00	C	10.00	4	16.70	73.00	●
MTECZ 1616E26 14BSPT	14.0	RC1/2-7/8	16.00	C	16.00	5	26.30	101.00	●
MTECZ 1616D28 11BSPT	11.0	RC1-2	16.00	C	16.00	4	28.90	101.00	●

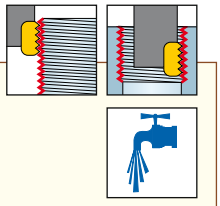
• With internal coolant hole • For user guide, see pages J48-54.

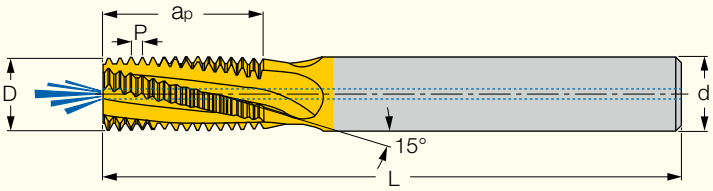
(1) C-Cylindrical



MTECB-NPT

Solid Carbide Threading Endmills with Coolant Holes, for External or Internal NPT Thread Profile



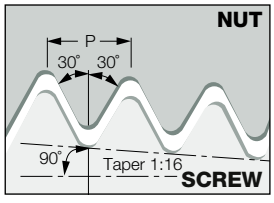


Application: Steam, gas and water pipes

Designation	Dimensions								IC908
	TPI	NPT	d	Shank(1)	D	Flute	a_p	L	
MTECB 08076C10 27NPT	27.0	1/8	8.00	C	7.60	3	10.80	64.00	●
MTECB 1010D16 18NPT	18.0	1/4-3/8	10.00	C	10.00	4	16.20	73.00	●
MTECB 16155D22 14NPT	14.0	1/2-3/4	16.00	C	15.50	4	22.70	105.00	●
MTECB 2020D29 11.5NPT	11.5	1-2	20.00	C	20.00	4	29.80	105.00	●
MTECB 2020D39 8NPT	8.0	≥2_1/2	20.00	C	20.00	4	39.70	105.00	●

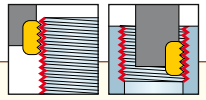
• For user guide, see pages J48-54.

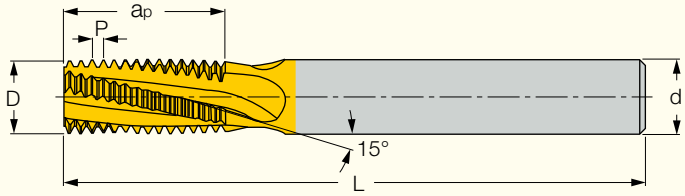
(1) C-Cylindrical



MTEC-NPT

Solid Carbide Threading Endmills, for External or Internal NNT Thread Profile



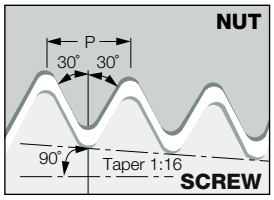


Application: Steam, gas and water pipes

Designation	Dimensions TPI	NPT	d	Shank(1)	D	Flute	ap	L	IC908
MTEC 0606C9 27NPT	27.0	1/16-1/8	6.00	C	6.00	3	9.90	58.00	●
MTEC 0808C14 18NPT	18.0	1/4-3/8	8.00	C	8.00	3	14.80	64.00	●
MTEC 1212D20 14NPT	14.0	1/2-3/4	12.00	C	12.00	4	20.90	84.00	●
MTEC 1616D27 11.5NPT	11.5	1-2	16.00	C	16.00	4	27.60	105.00	●
MTEC 2020D39 8NPT	8.0	≥2-1/2	20.00	C	20.00	4	39.70	105.00	●

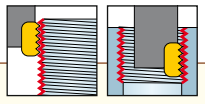
• For user guide, see pages J48-54.

(1) C-Cylindrical

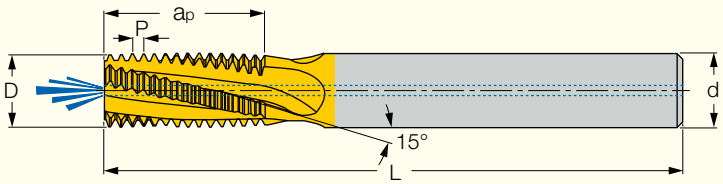


MTECB-NPTF

Solid Carbide Threading Endmills with Coolant Holes, for External or Internal NPTF Thread Profile





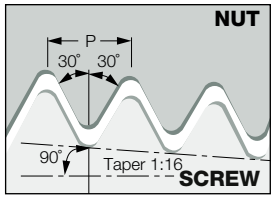


Application: Steam, gas and water pipes

Designation	Dimensions TPI	NPTF	d	Shank(1)	D	Flute	ap	L	IC908
MTECB 08076C10 27NPTF	27.0	1/8	8.00	C	7.60	3	10.80	64.00	●
MTECB 1010D16 18NPTF	18.0	1/4-3/8	10.00	C	10.00	4	16.20	73.00	●
MTECB 16155D22 14NPTF	14.0	1/2-3/4	16.00	C	15.50	4	22.70	105.00	●
MTECB 2020D29 11.5NPTF	11.5	1-2	20.00	C	20.00	4	29.80	105.00	●
MTECB 2020D39 8NPTF	8.0	≥2_1/2	20.00	C	20.00	4	39.70	105.00	●

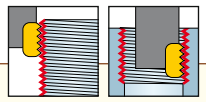
• For user guide, see pages J48-54.

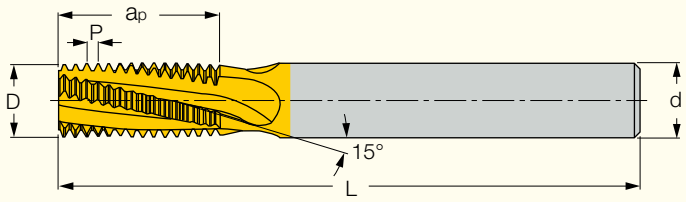
(1) C-Cylindrical



MTEC-NPTF

Solid Carbide Threading Endmills, for External or Internal NPTF Thread Profile



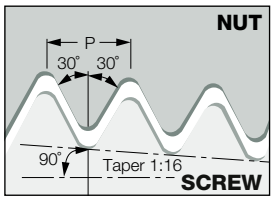


Application: Steam, gas and water pipes

Designation	Dimensions TPI	NPTF	D	Flute	a_p	L	d	Shank(1)	IC908
MTEC 0606C9 27NPTF	27.0	1/16-1/8	6.00	3	9.90	58.00	6.00	C	●
MTEC 0808C14 18NPTF	18.0	1/4-3/8	8.00	3	14.80	64.00	8.00	C	●
MTEC 1212D20 14NPTF	14.0	1/2-3/4	12.00	4	20.90	84.00	12.00	C	●
MTEC 1616D27 11.5NPTF	11.5	1-2	16.00	4	27.60	105.00	16.00	C	●
MTEC 2020D39 8NPTF	8.0	≥2-1/2	20.00	4	39.70	105.00	20.00	C	●

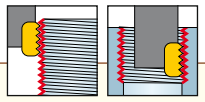
(1) C-Cylindrical

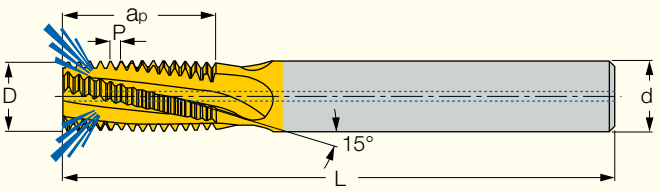
• For user guide, see pages J48-54.



MTECZ-NPT

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal or External NPT Thread Profile



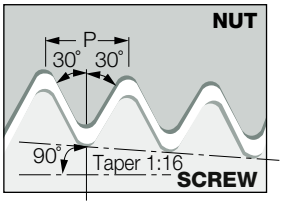


Application: General engineering fittings and pipe couplings

Designation	Dimensions TPI	NPT	d	Shank(1)	D	Flute	a_p	L	IC908
MTECZ 08076C10 27NPT	27.0	1/8	8.00	C	7.60	3	10.80	64.00	●
MTECZ 1010D16 18NPT	18.0	1/4-3/8	10.00	C	10.00	4	16.20	73.00	●
MTECZ 16155D22 14NPT	14.0	1/2-3/4	16.00	C	15.50	4	22.70	101.00	●

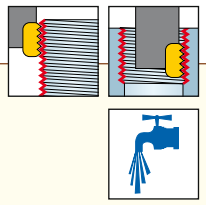
• For user guide, see pages J48-54.

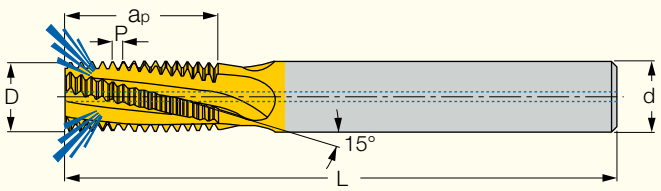
(1) C-Cylindrical



MTECZ-NPTF

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal or External NPTF Thread Profile



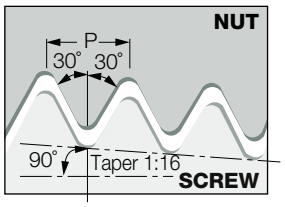


Application: General engineering fittings and pipe couplings

Designation	Dimensions								IC908
	TPI	NPTF	d	Shank(1)	D	Flute	a_p	L	
MTECZ 08076C10 27NPTF	27.0	1/8	8.00	C	7.60	3	10.80	64.00	●
MTECZ 1010D16 18NPTF	18.0	1/4-3/8	10.00	C	10.00	4	16.20	73.00	●
MTECZ 16155D22 14NPTF	14.0	1/2-3/4	16.00	C	15.50	4	22.70	101.00	●

• For user guide, see pages J48-54.

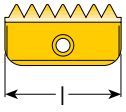
(1) C-Cylindrical



Product Identification

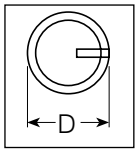
Thread Milling Inserts

MT	30	E	1.5	ISO	IC908
MILLTHREAD	Insert Size 12 14 21 30 40	E = External I = Internal □ = External + Internal	Thread Pitch	**Thread Profile** ISO UN WHIT NPT NPTF BSPT	**Carbide Grade**



Thread Mill Endmills

MT	S	R	0020	H	14	C	2
MILLTHREAD	Screw Clamping	R = Right-Hand	Cutting Diameter: 0020=20 mm	Length of Toolholder	Insert Size (l) 12 14 21 30 40	Carbide Shank	Number of Inserts



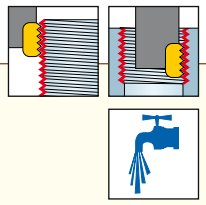
Features and Advantages of Using Thread Milling

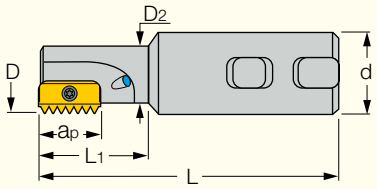
- Enables production of precision threads on CNC milling machines and machining centers using helical interpolation programs.
- For internal or external threads that are not located on the rotation axis of the part.
- For precision threading.
- Prevents chip jamming, as commonly occurs when tapping.
- Cost advantage over tapping for large diameters.
- Eliminates regrinding.
- A single insert can be used for many diameters with the same pitch, for right- or left-thread.
- Tapered threads do not require taper reaming.
- Eliminates the need to remove broken taps in holes.



MTSR

Indexable Threading Endmills





Designation	a_p	D	d	D_2	L_1	L	Shank[4]	Nxcm[5]	Kg
MTSR 0009 H12	12.00	9.50	20.00	7.50	14.0	85.00	W	128	0.17
MTSR 0010 H12 [1]	12.00	9.90	20.00	7.20	16.0	85.00	W	128	0.17
MTSR 0012 F14	14.00	12.00	20.00	8.60	20.0	75.00	W	128	0.14
MTSR 0014 H14	14.00	14.50	20.00	11.20	25.0	85.00	W	128	0.16
MTSR 0017 H14	14.00	17.00	20.00	12.80	30.0	85.00	W	128	0.17
MTSR 0018 H21 [2]	21.00	18.00	20.00	14.40	30.0	85.00	W	515	0.17
MTSR 0021 H21	21.00	21.00	20.00	15.50	40.0	94.00	W	515	0.19
MTSR 0025 K21 [3]	21.00	25.00	20.00	-	-	125.00	W	515	0.30
MTSR 0029 J30	30.00	29.00	25.00	21.70	50.0	110.00	W	1020	0.35
MTSR 0031 M30 [3]	30.00	31.00	25.00	-	-	150.00	W	1020	0.52
MTSR 0038 M30 [3]	30.00	38.00	32.00	-	-	150.00	W	1020	0.89
MTSR 0048 M40	40.00	48.00	40.00	35.00	78.0	153.00	W	1020	1.23
MTSR 0048 R40	40.00	48.00	40.00	-	-	210.00	W	1020	1.89

• Minimum bore should be one-third larger than D • All endmills are equipped with a bore for internal coolant • For user guide, see pages J48-54.

[1] For conical thread inserts: 12-18 NPT, 12-18 NPTF, 12-19 BSPT [2] Not suitable for use with the following inserts: 21 I 3.5 ISO, 21I 8 UN, 21-11 BSPT, 21-11.5 NPT, 21-11.5 NPTF [3] For long reach [4] W-Weldon [5] Recommended clamping torque

For inserts, see: MT-BSPT (J40) • MT-ISO (External) (J35) • MT-ISO (Internal) (J36) • MT-NPS (J41) • MT-NPT (J41) • MT-NPTF (J40) • MT-PG (J42) • MT-UN (External) (J38) • MT-UN (Internal) (J39) • MT-W (J37).

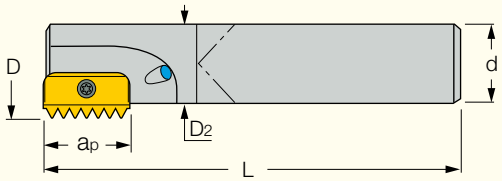
Spare Parts

Designation	Screw	Key
MTSR 0009 H12	S12	K12
MTSR 0010 H12	S12	K12
MTSR 0012 F14	S14	K14
MTSR 0014 H14	S14	K14
MTSR 0017 H14	S14	K14
MTSR 0018 H21	S21	K21
MTSR 0021 H21	S21	K21
MTSR 0025 K21	S21*	K21*
MTSR 0029 J30	S30	K30
MTSR 0031 M30	S30*	K30*
MTSR 0038 M30	S30*	K30*
MTSR 0048 M40	S40	K40
MTSR 0048 R40	S40*	K40*

* Optional, should be ordered separately

MTSR-C

Indexable Threading Endmills with Cylindrical Carbide Shanks



Designation	a_p	D	d	D_2	L	Shank(2)	Nxcm(3)	Kg
MTSR 0010 K12C (1)	12.00	9.90	8.00	8.00	125.00	C	128	0.10
MTSR 0013 H14C	14.00	13.20	10.00	10.00	110.00	C	128	0.11
MTSR 0013 J14C	14.00	13.20	10.00	10.00	150.00	C	128	0.18
MTSR 0015 K14C	14.00	15.20	12.00	12.00	175.00	C	128	0.26
MTSR 0021 K21C	21.00	21.00	16.00	16.00	130.00	C	515	0.30
MTSR 0021 M21C	21.00	21.00	16.00	16.00	200.00	C	515	0.55
MTSR 0027 S30C	30.00	27.00	20.00	20.00	270.00	C	1020	0.56

• For holders with long overhang, reduce the cutting speed and feed rate between 20 to 40% (depending on workpiece, material, pitch and overhang)
• For user guide, see pages J48-54.

(1) Without coolant hole (2) C-Cylindrical (3) Recommended clamping torque

For inserts, see: MT-BSPT (J40) • MT-ISO (External) (J35) • MT-ISO (Internal) (J36) • MT-NPS (J41) • MT-NPT (J41) • MT-NPTF (J40) • MT-PG (J42) • MT-UN (External) (J38) • MT-UN (Internal) (J39) • MT-W (J37).

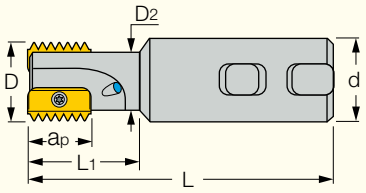
Spare Parts

Designation	Screw	Key
MTSR 0010 K12C	S12	K12
MTSR 0013 H14C	S14*	K14*
MTSR 0013 J14C	S14	K14
MTSR 0015 K14C	S14	K14
MTSR 0021 K21C	S21*	K21*
MTSR 0021 M21C	S21	K21
MTSR 0027 S30C	S30*	K30*

* Optional, should be ordered separately

MTSR-Double Insert

Double Insert Threading Endmills with Weldon Shanks



Designation	a_p	D	d	D_2	L_1	L	Shank(1)	Nxcm(2)	Kg
MTSR 0020 H14-2	14.00	20.00	20.00	16.00	41.0	93.00	W	128	0.19
MTSR 0030 J21-2	21.00	30.00	25.00	24.00	52.0	108.00	W	515	0.37
MTSR 0040 L30-2	30.00	40.00	32.00	30.00	70.0	130.00	W	1020	0.69
MTSR 0050 M40-2	40.00	50.00	40.00	38.00	78.0	153.00	W	1020	1.22

• Minimum bore should be one-third larger than D • All endmills are equipped with a bore for internal coolant • For user guide, see pages J48-54.

(1) W-Weldon (2) Recommended clamping torque

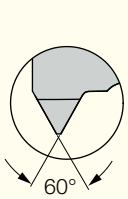
For inserts, see: MT-BSPT (J40) • MT-ISO (External) (J35) • MT-ISO (Internal) (J36) • MT-NPS (J41) • MT-NPT (J41) • MT-NPTF (J40) • MT-PG (J42) • MT-UN (External) (J38) • MT-UN (Internal) (J39) • MT-W (J37).

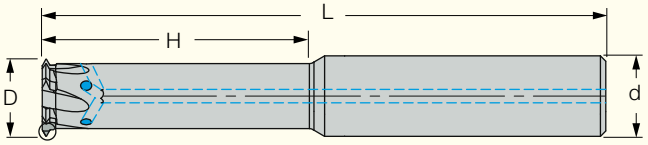
Spare Parts

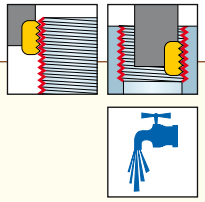
Designation	Screw	Key
MTSR 0020 H14-2	S14	K14
MTSR 0030 J21-2	S21	K21
MTSR 0040 L30-2	S30	K30
MTSR 0050 M40-2	S40	K40

MTECI-A60

60° Partial Profile Solid Carbide Thread Mills with Coolant Holes for Internal and External Threads



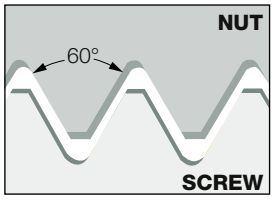




Application: General engineering

Designation	Dimensions										IC908
	Pitch In	Pitch EX	TPI Int	TPI Ext	Thread	d	D	Flute	H	L	
MTECI 0605D20 A60	0.5-0.8	0.4-0.8	56-28	64-32	≥6	6.00	5.00	4	20.00	58.00	●
MTECI 0808D28 A60	0.5-0.8	0.4-0.8	56-28	64-32	≥9	8.00	8.00	4	28.00	64.00	●
MTECI 1212E38 A60	0.5-0.8	0.4-0.8	56-28	64-32	≥13	12.00	12.00	5	38.00	84.00	●
MTECI 0808D30 A60	1.0-1.75	0.8-1.5	28-14	32-16	≥10	8.00	8.00	4	30.00	64.00	●
MTECI 1010D35 A60	1.0-1.75	0.8-1.5	28-14	32-16	≥12	10.00	10.00	4	35.00	73.00	●
MTECI 1212E39 A60	1.0-1.75	0.8-1.5	28-14	32-16	≥14	12.00	12.00	5	39.00	84.00	●
MTECI 1212E40 A60	2.0-3.0	1.75-2.5	13-8	15-10	≥16	12.00	12.00	5	40.00	84.00	●
MTECI 1614E45 A60	2.0-3.0	1.75-2.5	13-8	15-10	≥18	16.00	14.00	5	45.00	101.00	●
MTECI 1616E50 A60	2.0-3.0	1.75-2.5	13-8	15-10	≥20	16.00	16.00	5	50.00	101.00	●

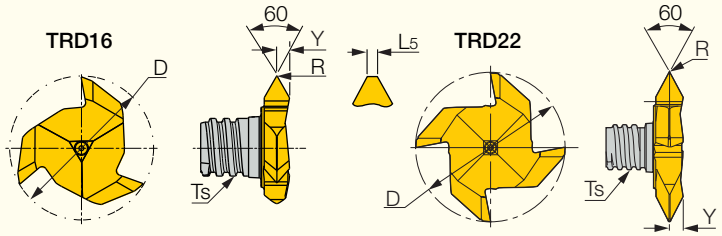
• For user guide, see pages J48-54.



MM TRD-M

Interchangeable Solid Carbide Milling Heads, for 60° Partial Profile Thread Milling





Designation	Dimensions D	Z	TPI(1)	Pitch(2)	R	L5	Y	Ts	Th	D min	Standard	IC528
MM TRD16-M60-05P-3T06	15.70	3	48.0	0.50	- (3)	0.05	1.15	T06	M20	19.05	ISO 68, DIN 13	●
MM TRD16-M60-15P-3T06	15.70	3	16.0	1.50	0.05	-	1.15	T06	M22	19.05	ISO 68, DIN 13	●
MM TRD22-M60-30P-4T08	21.70	4	8.0	3.00	0.20	-	2.80	T08	M36	31.00	ISO 68, DIN 13	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42 • Do not apply lubricant to the threaded connection.

(1) For American National Thread (ANSI B1.1.74) (2) For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) (3) flat

Spare Parts

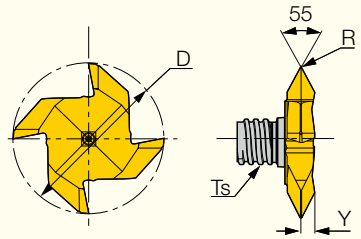
Designation	Clamping Key
MM TRD16-M60-15P-3T06	MM EGR 16-18*
MM TRD16-M60-05P-3T06	MM EGR 16-18*
MM TRD22-M60-30P-4T08	MM EGR 20-22*

* Optional, should be ordered separately

MM TRD-W

Interchangeable Solid Carbide Milling Heads, for 55° Partial Profile Thread Milling





Designation	Dimensions D	Z	R	Y	TPI max	Ts	Th	D min	Standard	IC528
MM TRD22-W55-14P-4T08	21.70	4	0.20	2.40	14	T08	G3/4	24.20	DIN ISO 228, B.S. 84	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection

Spare Parts

Designation	Clamping Key
MM TRD-W	MM EGR 20-22*

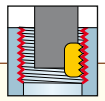
* Optional, should be ordered separately

Identification Code

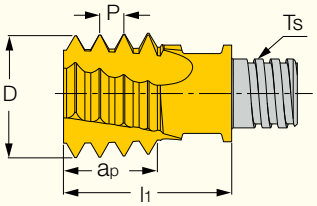
MT	10	D	6	0.75	ISO	MMT05
MULTI-MASTER Thread Mill	Cutting Dia.	No. of Flutes	Cutting Length	Pitch	Thread Profile ISO UN G (55°)	Connection Size

MT-ISO-MM

Carbide Milling Heads with a Threaded Connection for Internal ISO Metric Thread



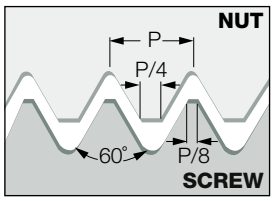


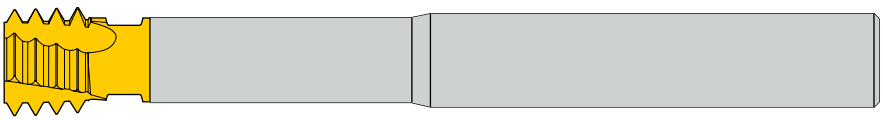


Application: General engineering

Designation	Dimensions								IC908
	Pitch	M Coarse	M Fine	D	Flute	a_p	l_1	Ts	
MT 10D6 0.75ISO-MMT05	0.75	-	≥12	10.00	4	6.00	13.35	T05	●
MT 10D6 1.0ISO-MMT05	1.00	-	≥12	10.00	4	6.00	13.35	T05	●
MT 10D6 1.5ISO-MMT05	1.50	-	≥14	10.00	4	6.00	13.35	T05	●
MT 12D7 1.5ISO-MMT06	1.50	-	≥16	12.00	4	7.50	17.05	T06	●
MT 12D8 2.0ISO-MMT06	2.00	M16	≥17	12.00	4	8.00	17.05	T06	●
MT 16F12 1.5ISO-MMT08	1.50	-	≥20	16.00	6	12.00	20.85	T08	●
MT 16E12 2.0ISO-MMT08	2.00	-	≥19	16.00	5	12.00	20.85	T08	●
MT 15E12 2.5ISO-MMT08	2.50	M20	≥22	15.40	5	12.50	20.85	T08	●
MT 16C12 3.0ISO-MMT08	3.00	M24	≥25	16.00	3	12.00	20.85	T08	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection





Clamping Wrench

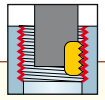


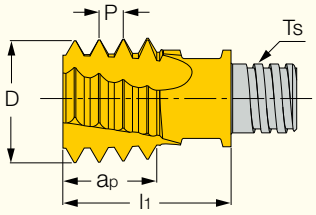
Designation	Thread Size	Key (1)	Tighening Torque (Nxcm)
MM... T05	T05	MM KEY 6x4	700
MM... T06	T06	MM KEY 8x5	1000
MM... T08	T08	MM KEY 10x7	1500

(1) Order separately

MT-UN-MM

Carbide Milling Heads with a Threaded Connection, for Internal UN Thread Profile

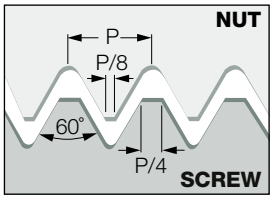




Application: General engineering

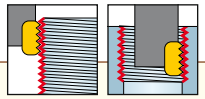
Designation	Dimensions									IC908
	TPI	UNC	UNF	UNEF	D	Flute	a_p	l_1	Ts	
MT 10D6 24UN-MMT05	24.0	-	-	9/16-5/8	10.00	4	5.30	13.35	T05	●
MT 10D6 20UN-MMT05	20.0	-	1/2	-	10.00	4	5.10	13.35	T05	●
MT 10D5 18UN-MMT05	18.0	-	9/16-5/8	1 1/8-1 5/8	10.00	4	5.60	13.35	T05	●
MT 12D8 16UN-MMT06	16.0	-	3/4	-	12.00	4	8.00	17.05	T06	●
MT 16E12 14UN-MMT08	14.0	-	7/8	-	16.00	5	12.70	20.85	T08	●
MT 16E12 12UN-MMT08	12.0	-	1-1 1/2	-	16.00	5	12.70	20.85	T08	●
MT 15D12 10UN-MMT08	10.0	3/4	-	-	15.30	4	12.70	20.85	T08	●
MT 16C11 9UN-MMT08	9.0	7/8	-	-	16.00	3	11.30	20.85	T08	●

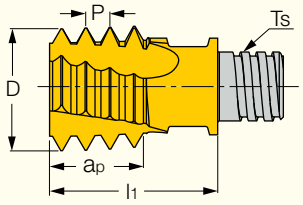
• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection



MT-W-MM

Carbide Milling Heads with a Threaded Connection, for Internal and External 55° BSW Thread Profile

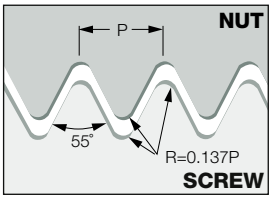




Application: General engineering fittings and pipe couplings

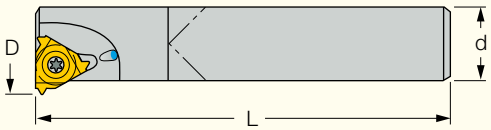
Designation	Dimensions							IC908
	TPI	BSP	D	Flute	a_p	l_1	Ts	
MT 10D6 19W-MMT05	19.0	G1/4-3/8	10.00	4	5.30	13.35	T05	●
MT 16D12 14W-MMT08	14.0	G1/2-7/8	16.00	4	12.70	20.85	T08	●
MT 16D11 11W-MMT08	11.0	G≥1	16.00	4	11.60	20.85	T08	●

• For shanks, see pages B68-74 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page B42
• Do not apply lubricant to the threaded connection



MTSR-C-SINGLE

Indexable Threading Endmills with Cylindrical Carbide Shanks, for Single Point Inserts



Designation	P_{min}	P_{max}	TPI_{max}	TPI_{min}	D	d	L	Coolant	Kg	Shank(3)	Insert
MTSR 0005 D06C (1)	0.50	1.25	48	20	6.80	5.00	63.00	N	35.00	C	06IR/IL
MTSR 0006 H08C	0.50	1.75	48	14	8.80	6.00	100.00	Y	0.06	C	08IR/IL
MTSR 0010 M11C (2)	0.50	2.00	48	11	13.20	10.00	150.00	Y	0.18	C	11IR/EL

• Minimum bore should be one-third larger than D • For user guide, see pages J48-54 • For inserts, refer to ISCAR Turning and Threading Tools catalog.

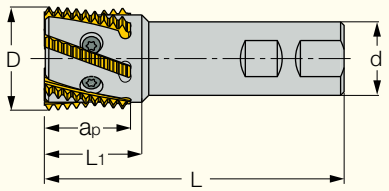
(1) Without coolant hole (2) For internal application, use internal R.H. insert • For external application, use external L.H. insert. (3) C-Cylindrical

Spare Parts

Designation	Screw	Key
MTSR 0005 D06C	SR 14-552	T-6/5
MTSR 0006 H08C	SR 14-558	T-6/5
MTSR 0010 M11C	S11	T-8/5

MTSRH (endmills)

Endmills with Coolant Holes for Helical Threading Inserts

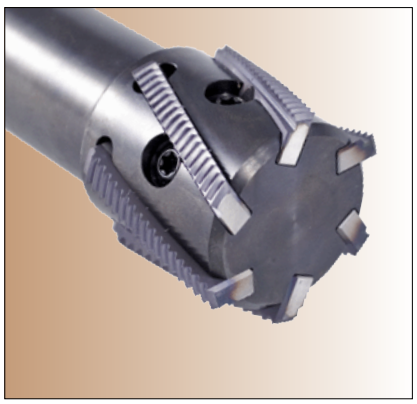


Designation	D	a_p	d	L	L_1	Z	Shank(1)	Kg	Insert
MTSRH 23-2	23.00	27.00	25.00	110.00	50.0	2	W	0.36	MTH 23
MTSRH 32-5	32.00	32.00	32.00	130.00	60.0	5	W	0.69	MTH 32
MTSRH 45-6	45.00	37.00	32.00	130.00	-	6	W	0.88	MTH 45

• Note: ISCAR can provide special contour inserts on request

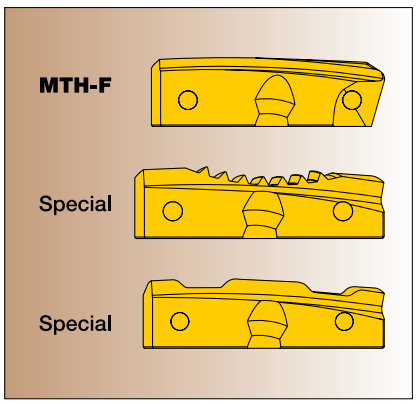
(1) W-Weldon

For inserts, see pages: MTH-BSPT (Int. & Ext.) (J45) • MTH-F (J46) • MTH-ISO (Int. & Ext.) (J43) • MTH-NPT (Int. & Ext.) (J46) • MTH-UN (Int. & Ext.) (J44) • MTH-W (Int. & Ext.) (J45).





MTSRH with **MTH-F**
Finishing Inserts



Spare Parts

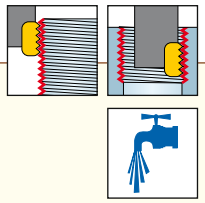
Designation	Screw	Key
MTSRH 23-2	S23	K21
MTSRH 32-5	S32	K22
MTSRH 45-6	S45X	K40

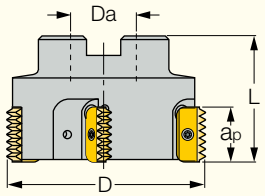
Tool Designation Code

MT	S	R	0063	C	21	–	5	–	22
MILLTHREAD	Screw Clamping	Right-Hand	Cutting Diameter	Length Code	Insert Size		Z - No. of Flutes		Bore Dia.

MTSR-MULTI (shell mill)

Thread Milling Multi-Insert Shell Mills





Designation	D	a_p	Z	Da	L	Nxcm(1)	Kg	Insert
MTSR 0063 C21-5-22	63.00	21.00	5	22.00	50.00	515	1.22	MT21
MTSR 0063 C30-4-22	63.00	30.00	4	22.00	50.00	1020	1.22	MT30
MTSR 0080 D30-4-27	80.00	30.00	4	27.00	55.00	1020	1.22	MT30
MTSR 0080 D40-4-27	80.00	40.00	4	27.00	65.00	1020	1.29	MT40
MTSR 0100 D30-4-32	100.00	30.00	4	32.00	60.00	1020	1.22	MT30
MTSR 0100 E40-4-32	100.00	40.00	4	32.00	70.00	1020	1.22	MT40

• For user guide, see pages J48-54.

(1) Recommended clamping moment

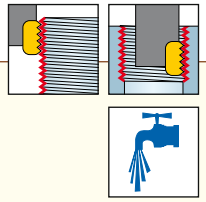
For inserts, see pages: MT-BSPT (J40) • MT-ISO (External) (J35) • MT-ISO (Internal) (J36) • MT-NPS (J41) • MT-NPT (J41) • MT-NPTF (J40) • MT-PG (J42) • MT-UN (External) (J38) • MT-UN (Internal) (J39) • MT-W (J37).

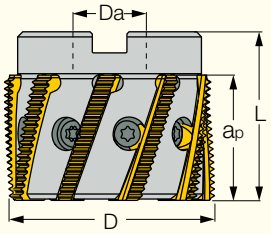
Spare Parts

Designation	Key	Screw
MTSR 0063 C21-5-22	K21	S21
MTSR 0063 C30-4-22	K30	S30
MTSR 0080 D30-4-27	K30	S30
MTSR 0080 D40-4-27	K40	S40
MTSR 0100 D30-4-32	K30	S30
MTSR 0100 E40-4-32	K40	S40

MTSRH (helical shell mill)

Shell Mills with Coolant Holes for Helical Threading Inserts



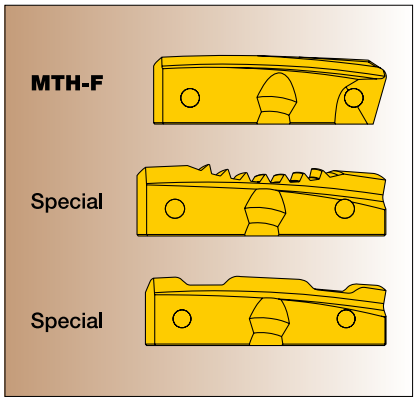


Designation	D	a_p	Da	L	Z	Kg	Insert
MTSRH 32-5M	32.00	32.00	16.00	52.00	5	0.15	MTH 32
MTSRH 45-6M	45.00	37.00	22.00	60.00	6	0.30	MTH 45
MTSRH 63-9	63.00	38.00	22.00	50.00	9	0.66	MTH 63

• Note: ISCAR can provide special contour inserts on request • For user guide, see pages J48-54.

For inserts, see pages: MTH-BSPT (Int. & Ext.) (J45) • MTH-F (J46) • MTH-ISO (Int. & Ext.) (J43) • MTH-NPT (Int. & Ext.) (J46) • MTH-UN (Int. & Ext.) (J44) • MTH-W (Int. & Ext.) (J45).



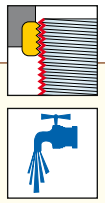


Spare Parts

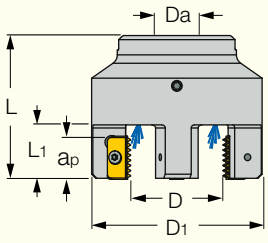
Designation	Screw	Key
MTSRH 32-5M	S32S	K22
MTSRH 45-6M	S45S	K40
MTSRH 63-9	S63	K40

MTSLE

External Multi-Tooth Threading Shell Mills







Designation	a_p	D	Da	D_1	L	L_1	Z	Insert
MTSLE 0020D21-3	21.00	20.00	22.00	58.0	65.00	25.0	3	MT21 E..
MTSLE 0030D21-3	21.00	30.00	22.00	68.0	65.00	25.0	3	MT21 E..
MTSLE 0045E21-4	21.00	45.00	27.00	83.0	70.00	25.0	4	MT21 E..

For inserts, see pages: MT-ISO (External) (J35) • MT-UN (External) (J38). • For user guide, see pages J48-54.

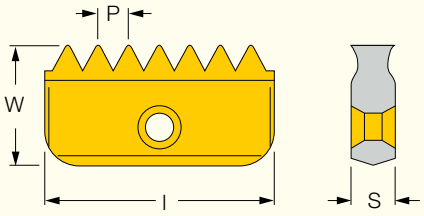
Spare Parts

Designation	Key	Screw
MTSLE	K21	S21

MT-ISO (external)

Thread Milling Inserts for External ISO Metric Profile

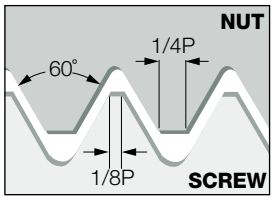




Designation	Dimensions				IC908
	l	Pitch	W	S	
MT14 E 0.75 ISO	14.00	0.75	7.90	3.20	●
MT14 E 1.00 ISO	14.00	1.00	7.90	3.20	●
MT14 E 1.25 ISO	14.00	1.25	7.90	3.20	●
MT14 E 1.50 ISO	14.00	1.50	7.90	3.20	●
MT14 E 1.75 ISO	14.00	1.75	7.90	3.20	●
MT14 E 2.00 ISO	14.00	2.00	7.90	3.20	●
MT14 E 2.50 ISO	14.00	2.50	7.90	3.20	●
MT21 E 1.00 ISO	21.00	1.00	12.60	4.80	●
MT21 E 1.50 ISO	21.00	1.50	12.60	4.80	●
MT21 E 2.00 ISO	21.00	2.00	12.60	4.80	●
MT21 E 2.50 ISO	21.00	2.50	12.80	4.80	●
MT21 E 3.00 ISO	21.00	3.00	12.80	4.80	●
MT30 E 1.50 ISO	30.00	1.50	16.70	5.60	●
MT30 E 2.00 ISO	30.00	2.00	16.70	5.60	●
MT30 E 3.00 ISO	30.00	3.00	16.70	5.60	●
MT30 E 3.50 ISO	30.00	3.50	16.70	5.60	●
MT30 E 4.00 ISO	30.00	4.00	16.70	5.60	●
MT40 E 1.50 ISO	40.00	1.50	20.80	6.40	●
MT40 E 2.00 ISO	40.00	2.00	20.80	6.40	●
MT40 E 3.00 ISO	40.00	3.00	20.80	6.40	●
MT40 E 4.00 ISO	40.00	4.00	20.80	6.40	●
MT40 E 5.00 ISO	40.00	5.00	20.80	6.40	●
MT40 E 6.00 ISO	40.00	6.00	20.80	6.40	●

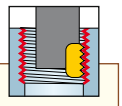
• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSLE (J34) • MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

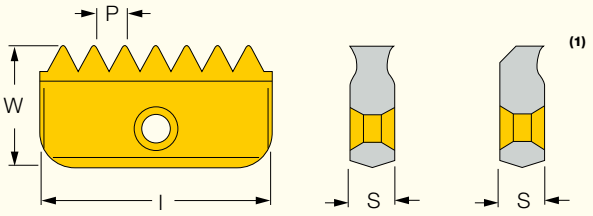


MT-ISO (internal)

Thread Milling Inserts for Internal ISO Metric Profile





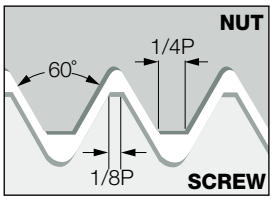


Designation	Dimensions				IC908
	l	Pitch	W	S	
MT12 I 0.50 ISO (1)	12.00	0.50	6.50	2.90	●
MT12 I 0.75 ISO (1)	12.00	0.75	6.50	2.90	●
MT12 I 1.00 ISO (1)	12.00	1.00	6.50	2.90	●
MT12 I 1.25 ISO (1)	12.00	1.25	6.50	2.90	●
MT12 I 1.50 ISO (1)	12.00	1.50	6.50	2.90	●
MT14 I 0.50 ISO	14.00	0.50	7.90	3.20	●
MT14 I 0.75 ISO	14.00	0.75	7.90	3.20	●
MT14 I 1.00 ISO	14.00	1.00	7.90	3.20	●
MT14 I 1.25 ISO	14.00	1.25	7.90	3.20	●
MT14 I 1.50 ISO	14.00	1.50	7.90	3.20	●
MT14 I 1.75 ISO	14.00	1.75	7.90	3.20	●
MT14 I 2.00 ISO	14.00	2.00	7.90	3.20	●
MT14 I 2.50 ISO	14.00	2.50	7.90	3.20	●
MT21 I 1.00 ISO	21.00	1.00	12.60	4.80	●
MT21 I 1.50 ISO	21.00	1.50	12.60	4.80	●
MT21 I 1.75 ISO	21.00	1.75	12.60	4.80	●
MT21 I 2.00 ISO	21.00	2.00	12.60	4.80	●
MT21 I 2.50 ISO	21.00	2.50	12.60	4.80	●
MT21 I 3.00 ISO	21.00	3.00	12.60	4.80	●
MT21 I 3.50 ISO	21.00	3.50	12.60	4.80	●
MT30 I 1.50 ISO	30.00	1.50	16.70	5.60	●
MT30 I 2.00 ISO	30.00	2.00	16.70	5.60	●
MT30 I 3.00 ISO	30.00	3.00	16.70	5.60	●
MT30 I 3.50 ISO	30.00	3.50	16.70	5.60	●
MT30 I 4.00 ISO	30.00	4.00	16.70	5.60	●
MT30 I 4.50 ISO	30.00	4.50	16.70	5.60	●
MT30 I 5.00 ISO	30.00	5.00	16.70	5.60	●
MT40 I 1.50 ISO	40.00	1.50	20.80	6.40	●
MT40 I 2.00 ISO	40.00	2.00	20.80	6.40	●
MT40 I 3.00 ISO	40.00	3.00	20.80	6.40	●
MT40 I 3.50 ISO	40.00	3.50	20.80	6.40	●
MT40 I 4.00 ISO	40.00	4.00	20.80	6.40	●
MT40 I 4.50 ISO	40.00	4.50	20.80	6.40	●
MT40 I 5.00 ISO	40.00	5.00	20.80	6.40	●
MT40 I 5.50 ISO	40.00	5.50	20.80	6.40	●
MT40 I 6.00 ISO	40.00	6.00	20.80	6.40	●

• For cutting speed recommendations, see pages J47-48.

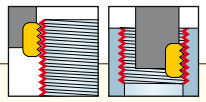
(1) Insert with one cutting edge.

For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

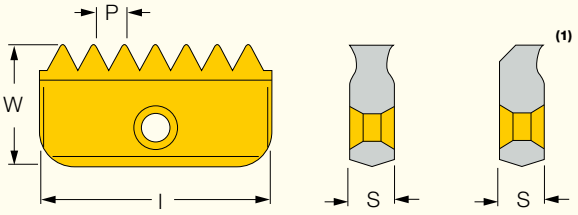


MT-W

External & Internal Whitworth (BSW, BSF, BSP) Full Profile Thread Milling Inserts, for Fittings and Pipe Couplings







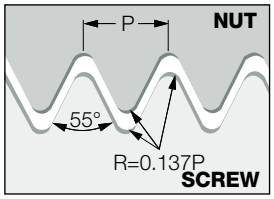
The same insert for ext. & int. thread

Designation	Dimensions TPI	l	W	S	IC908
MT12 19 W (1)	19.0	12.00	6.50	2.90	●
MT14 24 W	24.0	14.00	7.90	3.20	●
MT14 20 W	20.0	14.00	7.90	3.20	●
MT14 19 W	19.0	14.00	7.90	3.20	●
MT14 16 W	16.0	14.00	7.90	3.20	●
MT14 14 W	14.0	14.00	7.90	3.20	●
MT21 20 W	20.0	21.00	12.60	4.80	●
MT21 19 W	19.0	21.00	12.60	4.80	●
MT21 16 W	16.0	21.00	12.60	4.80	●
MT21 14 W	14.0	21.00	12.60	4.80	●
MT21 11 W	11.0	21.00	12.80	4.80	●
MT30 16 W	16.0	30.00	16.70	5.60	●
MT30 14 W	14.0	30.00	16.70	5.60	●
MT30 11 W	11.0	30.00	16.70	5.60	●
MT40 11 W	11.0	40.00	20.80	6.40	●
MT40 8 W	8.0	40.00	20.80	6.40	●

• For cutting speed recommendations, see pages J47-48.

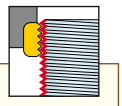
(1) Insert with one cutting edge.

For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

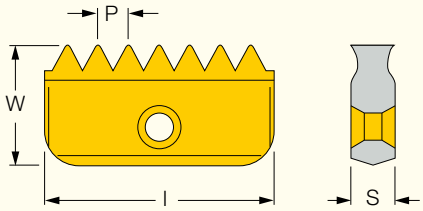


MT-UN (external)

External UN (UN, UNC,UNF,UNEF, UNS) Full Profile Thread Milling Inserts, for General Industries



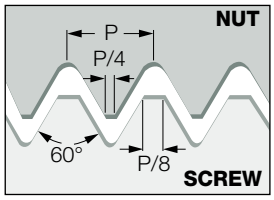




Designation	Dimensions TPI	l	W	S	IC908
MT14 E 32 UN	32.0	14.00	7.90	3.20	●
MT14 E 28 UN	28.0	14.00	7.90	3.20	●
MT14 E 24 UN	24.0	14.00	7.90	3.20	●
MT14 E 20 UN	20.0	14.00	7.90	3.20	●
MT14 E 18 UN	18.0	14.00	7.90	3.20	●
MT14 E 16 UN	16.0	14.00	7.90	3.20	●
MT14 E 14 UN	14.0	14.00	7.90	3.20	●
MT14 E 12 UN	12.0	14.00	7.90	3.20	●
MT21 E 24 UN	24.0	21.00	12.60	4.80	●
MT21 E 20 UN	20.0	21.00	12.60	4.80	●
MT21 E 18 UN	18.0	21.00	12.60	4.80	●
MT21 E 16 UN	16.0	21.00	12.60	4.80	●
MT21 E 14 UN	14.0	21.00	12.60	4.80	●
MT21 E 12 UN	12.0	21.00	12.60	4.80	●
MT21 E 10 UN	10.0	21.00	12.60	4.80	●
MT30 E 20 UN	20.0	30.00	16.70	5.60	●
MT30 E 18 UN	18.0	30.00	16.70	5.60	●
MT30 E 16 UN	16.0	30.00	16.70	5.60	●
MT30 E 14 UN	14.0	30.00	16.70	5.60	●
MT30 E 12 UN	12.0	30.00	16.70	5.60	●
MT30 E 10 UN	10.0	30.00	16.70	5.60	●
MT30 E 8 UN	8.0	30.00	16.70	5.60	●
MT30 E 6 UN	6.0	30.00	16.70	5.60	●
MT40 E 16 UN	16.0	40.00	20.80	6.40	●
MT40 E 14 UN	14.0	40.00	20.80	6.40	●
MT40 E 12 UN	12.0	40.00	20.80	6.40	●
MT40 E 10 UN	10.0	40.00	20.80	6.40	●
MT40 E 8 UN	8.0	40.00	20.80	6.40	●
MT40 E 6 UN	6.0	40.00	20.80	6.40	●

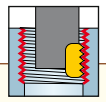
• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSLE (J34) • MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

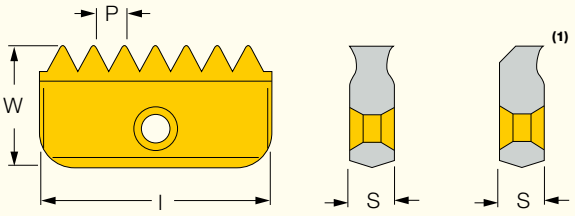


MT-UN (internal)

Thread Milling Inserts for American (UN, UNC, UNF, UNEF, UNS) Full Profile Threads for General Applications





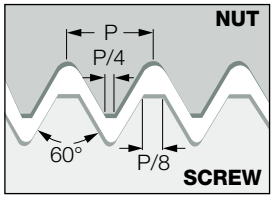


Designation	Dimensions TPI	l	W	S	IC908
MT12 I 32 UN (1)	32.0	12.00	6.50	2.90	●
MT12 I 28 UN (1)	28.0	12.00	6.50	2.90	●
MT12 I 24 UN (1)	24.0	12.00	6.50	2.90	●
MT12 I 20 UN (1)	20.0	12.00	6.50	2.90	●
MT12 I 18 UN (1)	18.0	12.00	6.50	2.90	●
MT12 I 16 UN (1)	16.0	12.00	6.50	2.90	●
MT14 I 32 UN	32.0	14.00	7.90	3.20	●
MT14 I 28 UN	28.0	14.00	7.90	3.20	●
MT14 I 27 UN	27.0	14.00	7.90	3.20	●
MT14 I 24 UN	24.0	14.00	7.90	3.20	●
MT14 I 20 UN	20.0	14.00	7.90	3.20	●
MT14 I 18 UN	18.0	14.00	7.90	3.20	●
MT14 I 16 UN	16.0	14.00	7.90	3.20	●
MT14 I 14 UN	14.0	14.00	7.90	3.20	●
MT14 I 12 UN	12.0	14.00	7.90	3.20	●
MT14 I 11 UN	11.0	14.00	7.90	3.20	●
MT14 I 10UN	10.0	14.00	7.90	3.20	●
MT21 I 24 UN	24.0	21.00	12.60	4.80	●
MT21 I 20 UN	20.0	21.00	12.60	4.80	●
MT21 I 18 UN	18.0	21.00	12.60	4.80	●
MT21 I 16 UN	16.0	21.00	12.60	4.80	●
MT21 I 14 UN	14.0	21.00	12.60	4.80	●
MT21 I 12 UN	12.0	21.00	12.60	4.80	●
MT21 I 10 UN	10.0	21.00	12.60	4.80	●
MT21 I 8 UN	8.0	21.00	12.60	4.80	●
MT21 I 7UN	7.0	21.00	12.60	4.80	●
MT30 I 20 UN	20.0	30.00	16.70	5.60	●
MT30 I 18 UN	18.0	30.00	16.70	5.60	●
MT30 I 16 UN	16.0	30.00	16.70	5.60	●
MT30 I 14 UN	14.0	30.00	16.70	5.60	●
MT30 I 12 UN	12.0	30.00	16.70	5.60	●
MT30 I 10 UN	10.0	30.00	16.70	5.60	●
MT30 I 8 UN	8.0	30.00	16.70	5.60	●
MT30 I 6 UN	6.0	30.00	16.70	5.60	●
MT30 I 5 UN	5.0	30.00	16.70	5.60	●
MT40 I 16 UN	16.0	40.00	20.80	6.40	●
MT40 I 14 UN	14.0	40.00	20.80	6.40	●
MT40 I 12 UN	12.0	40.00	20.80	6.40	●
MT40 I 10 UN	10.0	40.00	20.80	6.40	●
MT40 I 8 UN	8.0	40.00	20.80	6.40	●
MT40 I 6 UN	6.0	40.00	20.80	6.40	●
MT40 I 4.50 UN	4.5	40.00	20.80	6.40	●
MT40 I 4.00 UN	4.0	40.00	20.80	6.40	●

• For cutting speed recommendations, see pages J47-48.

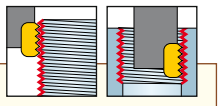
(1) Insert with one cutting edge.

For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

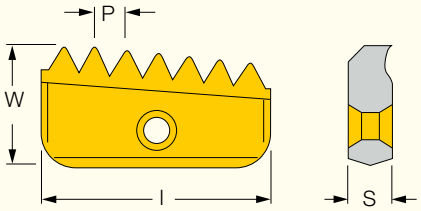


MT-NPTF

External & Internal NPTF Full Profile Thread Milling Inserts, for Steam, Gas and Water Pipes





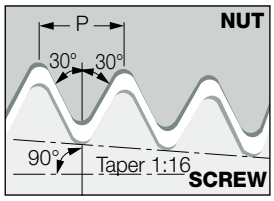


The inserts are single sided

Designation	Dimensions TPI	l	W	S	IC908
MT12 18 NPTF	18.0	12.00	6.50	2.90	●
MT14 18 NPTF	18.0	14.00	7.90	3.20	●
MT14 14 NPTF	14.0	14.00	7.90	3.20	●
MT21 14 NPTF	14.0	21.00	12.80	4.80	●
MT21 11.5 NPTF	11.5	21.00	12.60	4.80	●
MT30 11.5 NPTF	11.5	30.00	16.70	5.60	●
MT30 8 NPTF	8.0	30.00	16.70	5.60	●
MT40 11.5 NPTF	11.5	40.00	20.80	6.40	●
MT40 8 NPTF	8.0	40.00	20.80	6.40	●

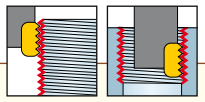
• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

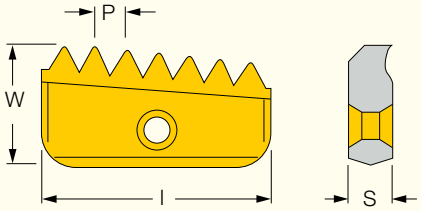


MT-BSPT

External & Internal Thread Milling Inserts for BSPT Full Profile





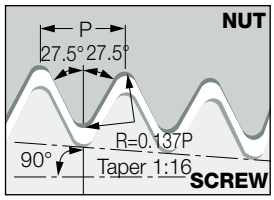


The inserts are single sided.

Designation	Dimensions TPI	l	W	S	IC908
MT12 19 BSPT	19.0	12.00	6.50	2.90	●
MT14 19 BSPT	19.0	14.00	7.90	3.20	●
MT14 14 BSPT	14.0	14.00	7.90	3.20	●
MT21 14 BSPT	14.0	21.00	12.60	4.80	●
MT21 11 BSPT	11.0	21.00	12.60	4.80	●
MT30 11 BSPT	11.0	30.00	16.70	5.60	●
MT40 11 BSPT	11.0	40.00	20.80	6.40	●

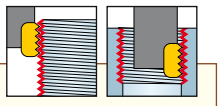
• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

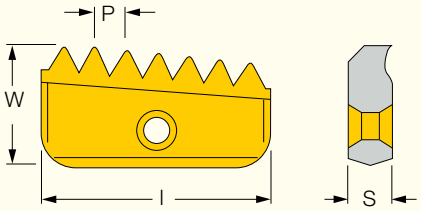


MT-NPT

External & Internal NPT Full Profile Thread Milling Inserts, for Steam, Gas and Water Pipes





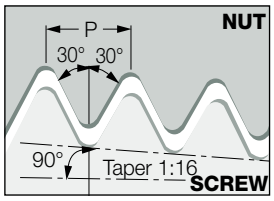


The inserts are single sided.

Designation	Dimensions TPI	l	W	S	IC908
MT12 18 NPT	18.0	12.00	6.50	2.90	●
MT14 18 NPT	18.0	14.00	7.90	3.20	●
MT14 14 NPT	14.0	14.00	7.90	3.20	●
MT21 14 NPT	14.0	21.00	12.60	4.80	●
MT21 11.5 NPT	11.5	21.00	12.60	4.80	●
MT30 11.5 NPT	11.5	30.00	16.70	5.60	●
MT30 8 NPT	8.0	30.00	16.70	5.60	●
MT40 11.5 NPT	11.5	40.00	20.80	6.40	●
MT40 8 NPT	8.0	40.00	20.80	6.40	●

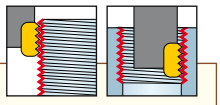
• For cutting speed recommendations, see pages J47-48.

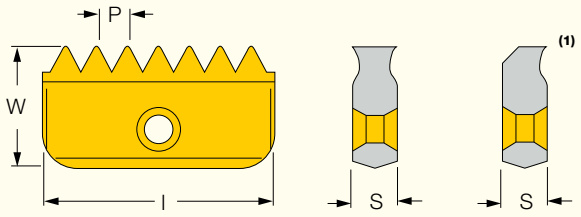
For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).



MT-NPS

External & Internal NPS Full Profile Thread Milling Inserts for Mechanical Joining and Pipe Fittings





Designation	Dimensions TPI	l	W	S	IC908
MT12 18 NPS (1)	0.0	12.00	6.30	2.90	●
MT14 18 NPS	0.0	14.00	7.50	3.10	●
MT14 14 NPS	0.0	14.00	7.50	3.10	●
MT21 14 NPS	0.0	21.00	12.00	4.70	●
MT21 11.5 NPS	0.0	21.00	12.00	4.70	●
MT30 11.5 NPS	0.0	30.00	16.00	5.51	●
MT30 8 NPS	0.0	30.00	16.00	5.51	●
MT40 11.5 NPS	0.0	40.00	20.00	6.30	●
MT40 8 NPS	0.0	40.00	20.00	6.30	●

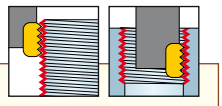
• Conical pipe thread insert are single sided. • The same insert for external & internal thread. • For cutting speed recommendations, see pages J47-48.

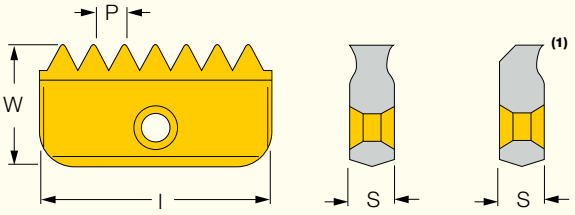
(1) Insert with one cutting edge.

For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

MT-NPSF

External & Internal NPSF Full Profile Thread Milling Inserts





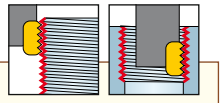
Designation	Dimensions TPI	l	W	S	IC908
MT12 18 NPSF (1)	18.0	0.47	0.25	0.11	●
MT14 18 NPSF	18.0	0.55	0.30	0.12	●
MT14 14 NPSF	14.0	0.55	0.30	0.12	●
MT21 14 NPSF	14.0	0.83	0.47	0.19	●
MT21 11.5 NPSF	11.5	0.83	0.47	0.19	●
MT30 11.5 NPSF	11.5	1.18	0.63	0.22	●
MT30 8 NPSF	8.0	1.18	0.63	0.22	●
MT40 11.5 NPSF	11.5	1.58	0.79	0.25	●
MT40 8 NPSF	8.0	1.58	0.79	0.25	●

• Conical pipe thread insert are single sided. • The same insert for external & internal thread. • For cutting speed recommendations, see pages J47-48.

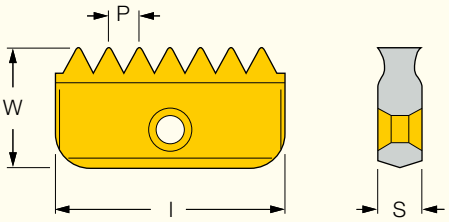
(1) Insert with one cutting edge.

MT-PG

External & Internal PG Full Profile Thread Milling Inserts (DIN 40430), for Electrical Connectors





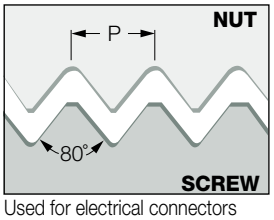


DIN 40430

Designation	Dimensions TPI	l	P_G	W	S	IC908
MT14 18 PG	18.0	14.00	PG9,11,13.5,16	7.90	3.20	●
MT21 18 PG	18.0	21.00	PG16,21,29,36,42,48	12.60	4.80	●
MT21 16 PG	16.0	21.00	PG21,29,36,42,48	12.60	4.80	●
MT30 16 PG	16.0	30.00	PG36,42,48	16.70	5.60	●

• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSR (J26) • MTSR-C (J27) • MTSR-Double Insert (J27) • MTSR-MULTI (shell mill) (J33).

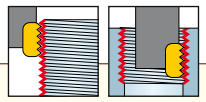


Used for electrical connectors

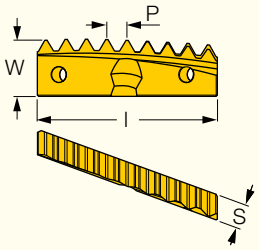
MILLTHREAD

MTH-ISO (int. & ext.)

Helical Thread Milling Inserts for ISO Metric Threads



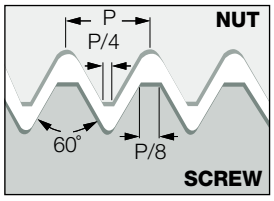




Designation	Dimensions						IC908
	l	Pitch	W	S	Int. Thread	Ext. Thread	
MTH 23 E 1.0 ISO	27.00	1.00	8.00	3.50	-	Ext.	●
MTH 23 I 1.0 ISO	27.00	1.00	8.00	3.50	≥M26	-	●
MTH 23 E 1.5 ISO	27.00	1.50	8.00	3.50	-	Ext.	●
MTH 23 I 1.5 ISO	27.00	1.50	8.00	3.50	≥M27	-	●
MTH 23 E 2.0 ISO	27.00	2.00	8.00	3.50	-	Ext.	●
MTH 23 I 2.0 ISO	27.00	2.00	8.00	3.50	≥M28	-	●
MTH 23 E 3.0 ISO	27.00	3.00	8.00	3.50	-	Ext.	●
MTH 23 I 3.0 ISO	27.00	3.00	8.00	3.50	≥M30	-	●
MTH 23 I 3.5 ISO	27.00	3.50	8.00	3.50	≥M30	-	●
MTH 23 I 4.0 ISO	27.00	4.00	8.00	3.50	≥M36	-	●
MTH 32 I 1.0 ISO	32.00	1.00	9.00	4.00	≥M34	-	●
MTH 32 E 1.5 ISO	32.00	1.50	9.00	4.00	-	Ext.	●
MTH 32 I 1.5 ISO	32.00	1.50	9.00	4.00	>M35	-	●
MTH 32 E 2.0 ISO	32.00	2.00	9.00	4.00	-	Ext.	●
MTH 32 I 2.0 ISO	32.00	2.00	9.00	4.00	≥M36	-	●
MTH 32 E 3.0 ISO	32.00	3.00	9.00	4.00	-	Ext.	●
MTH 32 I 3.0 ISO	32.00	3.00	9.00	4.00	≥M38	-	●
MTH 32 I 3.5 ISO	32.00	3.50	9.00	4.00	-	-	●
MTH 32 E 4.0 ISO	32.00	4.00	9.00	4.00	-	Ext.	●
MTH 32 I 4.0 ISO	32.00	4.00	9.00	4.00	≥M40	-	●
MTH 32 I 4.5 ISO	32.00	4.50	9.00	4.00	≥M42	-	●
MTH 32 I 5.0 ISO	32.00	5.00	9.00	4.00	≥M48	-	●
MTH 45 E 1.5 ISO	37.00	1.50	11.90	5.00	-	Ext.	●
MTH 45 I 1.5 ISO	37.00	1.50	11.90	5.00	≥M50	-	●
MTH 45 E 2.0 ISO	37.00	2.00	11.90	5.00	-	Ext.	●
MTH 45 I 2.0 ISO	37.00	2.00	11.90	5.00	≥M50	-	●
MTH 45 I 3.0 ISO	37.00	3.00	11.90	5.00	≥M52	-	●
MTH 45 I 3.5 ISO	37.00	3.50	11.90	5.00	-	-	●
MTH 45 I 4.0 ISO	37.00	4.00	11.90	5.00	≥M56	-	●
MTH 45 I 4.5 ISO	37.00	4.50	11.90	5.00	-	-	●
MTH 45 I 5.0 ISO	37.00	5.00	11.90	5.00	-	-	●
MTH 45 I 5.5 ISO	37.00	5.50	11.90	5.00	≥M56	-	●
MTH 45 I 6.0 ISO	37.00	6.00	11.90	5.00	≥M64	-	●
MTH 63 I 1.5 ISO	38.00	1.50	11.90	5.00	≥M68	-	●
MTH 63 I 2.0 ISO	38.00	2.00	11.90	5.00	≥M70	-	●
MTH 63 I 3.0 ISO	38.00	3.00	11.90	5.00	≥M70	-	●
MTH 63 I 4.0 ISO	38.00	4.00	11.90	5.00	≥M72	-	●
MTH 63 I 6.0 ISO	38.00	6.00	11.90	5.00	≥M76	-	●

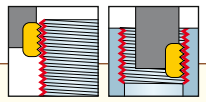
• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSRH (endmills) (J32) • MTSRH (helical shell mill) (J34).

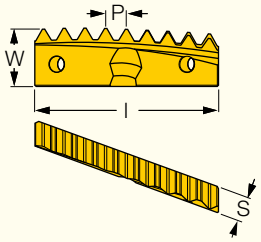


MTH-UN (int. & ext.)

Helical Thread Milling Inserts, for American Full Profile Threads for General Applications



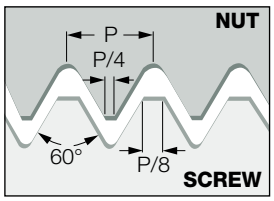




Designation	Dimensions						IC908
	TPI	l	W	S	Int. Thread	Ext. Thread	
MTH 23 I 32 UN	32.0	27.00	8.00	3.50	≥1"	-	●
MTH 23 I 24 UN	24.0	27.00	8.00	3.50	≥1"	-	●
MTH 23 E 20 UN	20.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 20UN	20.0	27.00	8.00	3.50	≥1"	-	●
MTH 23 E 18 UN	18.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 18UN	18.0	27.00	8.00	3.50	≥1_1/16"	-	●
MTH 23 E 16 UN	16.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 16 UN	16.0	27.00	8.00	3.50	≥1_1/16"	-	●
MTH 23 E 14 UN	14.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 14UN	14.0	27.00	8.00	3.50	≥1_1/8"	-	●
MTH 23 E 12 UN	12.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 12 UN	12.0	27.00	8.00	3.50	≥1_1/8"	-	●
MTH 23 E 10 UN	10.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 10 UN	10.0	27.00	8.00	3.50	≥1_1/8"	-	●
MTH 23 E 8 UN	8.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 8 UN	8.0	27.00	8.00	3.50	≥1_3/16"	-	●
MTH 23 E 7 UN	7.0	27.00	8.00	3.50	-	Ext.	●
MTH 23 I 7UN	7.0	27.00	8.00	3.50	≥1_1/4"	-	●
MTH 32 E 24 UN	24.0	32.00	9.00	4.00	-	Ext.	●
MTH 32 E 20 UN	20.0	32.00	9.00	4.00	-	Ext.	●
MTH 32 I 20UN	20.0	32.00	9.00	4.00	≥1_3/8"	-	●
MTH 32 E 18 UN	18.0	32.00	9.00	4.00	-	Ext.	●
MTH 32 I 18UN	18.0	32.00	9.00	4.00	≥1_3/8"	-	●
MTH 32 E 16 UN	16.0	32.00	9.00	4.00	-	Ext.	●
MTH 32 I 16 UN	16.0	32.00	9.00	4.00	≥1_3/8"	-	●
MTH 32 E 12 UN	12.0	32.00	9.00	4.00	-	Ext.	●
MTH 32 I 12 UN	12.0	32.00	9.00	4.00	≥1_7/16"	-	●
MTH 32 E 8 UN	8.0	32.00	9.00	4.00	-	Ext.	●
MTH 32 I 8 UN	8.0	32.00	9.00	4.00	≥1_1/2"	-	●
MTH 32 E 6 UN	6.0	32.00	9.00	4.00	-	Ext.	●
MTH 32 I 6 UN	6.0	32.00	9.00	4.00	≥1_5/8"	-	●
MTH 32 I 5 UN	5.0	32.00	9.00	4.00	≥1_3/4"	-	●
MTH 45 I 16 UN	16.0	37.00	11.90	5.00	≥2"	-	●
MTH 45 I 12 UN	12.0	37.00	11.90	5.00	≥2"	-	●
MTH 45 I 8 UN	8.0	37.00	11.90	5.00	≥2_1/4"	-	●
MTH 45 I 6 UN	6.0	37.00	11.90	5.00	≥2_1/4"	-	●
MTH 45 I 4.5 UN	4.5	37.00	11.90	5.00	≥2_1/4"	-	●
MTH 45 I 4 UN	4.0	37.00	11.90	5.00	≥2_1/2"	-	●
MTH 63 I 16 UN	16.0	38.00	11.90	5.00	≥2_3/4"	-	●
MTH 63 I 12 UN	12.0	38.00	11.90	5.00	≥2_3/4"	-	●
MTH 63 I 8 UN	8.0	38.00	11.90	5.00	≥3"	-	●
MTH 63 I 6 UN	6.0	38.00	11.90	5.00	≥3"	-	●
MTH 63 I 4 UN	4.0	38.00	11.90	5.00	≥3"	-	●

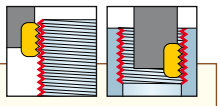
• Used for UN, UNC, UNF, UNEF and UNS thread profiles • For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSRH (endmills) (J32) • MTSRH (helical shell mill) (J34).

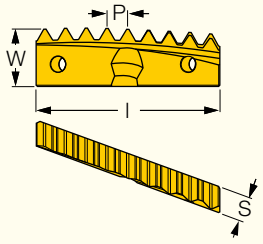


MTH-W (int. & ext.)

External & Internal Whitworth (BSW, BSF, BSP) Helical Thread Milling Inserts, for Fittings and Pipe Couplings



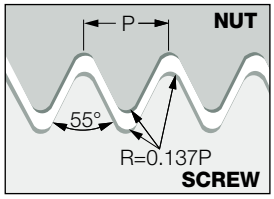




Designation	Dimensions						IC908
	TPI	l	W	S	Int. Thread	Ext.Thread	
MTH 23 14 W	14.0	27.00	8.00	3.50	G7/8"	≥G1/2"	●
MTH 23 11 W	11.0	27.00	8.00	3.50	≥G1"	≥G1"	●
MTH 32 14 W	14.0	32.00	9.00	4.00	-	≥G1/2"	●
MTH 32 11 W	11.0	32.00	9.00	4.00	≥G1_1/8"	≥G1"	●
MTH 45 11 W	11.0	37.00	11.90	5.00	≥G1_5/8"	≥G1"	●
MTH 63 11 W	11.0	38.00	11.90	5.00	≥G1_3/8"	≥G1"	●

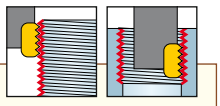
• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSRH (endmills) (J32) • MTSRH (helical shell mill) (J34).

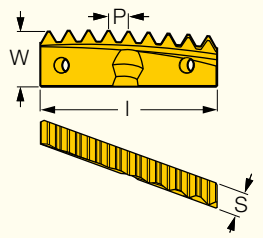


MTH-BSPT (int. & ext.)

Helical External & Internal Thread Milling Inserts for BSPT Thread, for Steam, Gas and Water Pipes



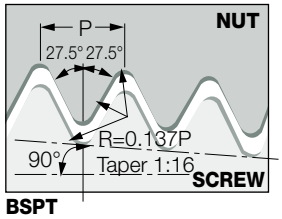




Designation	Dimensions						IC908
	TPI	l	W	S	Int. Thread	Ext.Thread	
MTH 23 11 BSPT	11.0	27.00	8.00	3.50	≥1" BSPT	≥1" BSPT	●
MTH 32 11 BSPT	11.0	32.00	9.00	4.00	≥1_1/8" BSPT	≥1" BSPT	●
MTH 45 11 BSPT	11.0	37.00	11.90	5.00	≥1_3/4" BSPT	≥1" BSPT	●
MTH 63 11 BSPT	11.0	38.00	11.90	5.00	≥2_1/2 BSPT	≥1" BSPT	●

• For cutting speed recommendations, see pages J47-48.

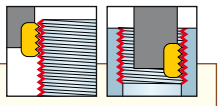
For tools, see pages: MTSRH (endmills) (J32) • MTSRH (helical shell mill) (J34).



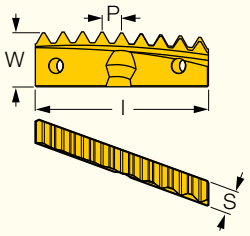
BSPT

MTH-NPT (int. & ext.)

External & Internal NPT Helical Thread Milling Inserts, for Steam, Gas and Water Pipes



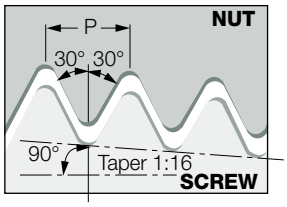




Designation	Dimensions TPI	l	W	S	Int. Thread	Ext.Thread	IC908
MTH 23 11.5 NPT	11.5	27.00	8.00	3.50	1-2" NPT	1-2" NPT	●
MTH 32 11.5 NPT	11.5	32.00	9.00	4.00	1_1/4"-2" NPT	1-2" NPT	●
MTH 45 11.5 NPT	11.5	37.00	11.90	5.00	2" NPT	1-2" NPT	●
MTH 45 8 NPT	8.0	37.00	11.90	5.00	2_1/2"-3" NPT	-	●
MTH 63 11.5 NPT	11.5	38.00	11.90	5.00	-	1-2" NPT	●
MTH 63 8 NPT	8.0	38.00	11.90	5.00	2_1/2"-3" NPT	-	●

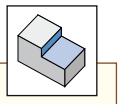
• For cutting speed recommendations, see pages J47-48.

For tools, see pages: MTSRH (endmills) (J32) • MTSRH (helical shell mill) (J34).

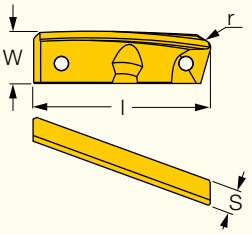


MTH-F

Helical Long Edge Finishing Inserts







Designation	Dimensions l	W	S	r	IC908
MTH 23F R0.2	27.00	8.00	3.50	0.20	●
MTH 23F R0.5	27.00	8.00	3.50	0.50	●
MTH 23F R1.0	27.00	8.00	3.50	1.00	●
MTH 32F R0.2	32.00	9.00	4.00	0.20	●
MTH 32F R0.5	32.00	9.00	4.00	0.50	●
MTH 32F R1.0	32.00	9.00	4.00	1.00	●
MTH 45F R0.2	37.00	11.90	5.00	0.20	●
MTH 45F R0.5	37.00	11.90	5.00	0.50	●
MTH 45F R1.0	37.00	11.90	5.00	1.00	●
MTH 45F R1.5	37.00	11.90	5.00	1.50	●
MTH 45F R2.0	37.00	11.90	5.00	2.00	●
MTH 63F R0.2	38.00	11.90	5.00	0.20	●
MTH 63F R0.5	38.00	11.90	5.00	0.50	●
MTH 63F R1.0	38.00	11.90	5.00	1.00	●
MTH 63F R1.5	38.00	11.90	5.00	1.50	●
MTH 63F R2.0	38.00	11.90	5.00	2.00	●

For tools, see pages: MTSRH (endmills) (J32) • MTSRH (helical shell mill) (J34).

MILLTHREAD



Machining Data for Indexable Insert Threading Tools

ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.(1)
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
		>= 0.55 %C	Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron nodular (GG)		Ferritic/pearlitic		180	15
			Pearlitic/martensitic		260	16
	Ductile cast iron (nodular) (GGG)		Ferritic		160	17
			Pearlitic		250	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolitic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		40-50 HRc	38
			Hardened		51-55 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

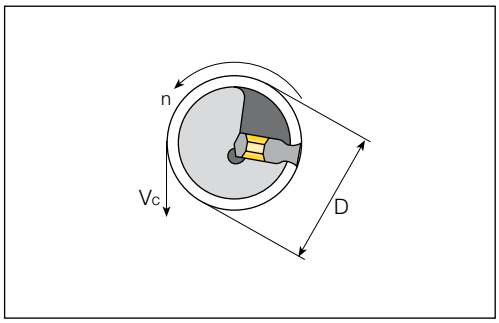
(1)For workpiece materials list, see pages L22-57

No.	Indexable Cutting speed m/min IC908
1	100-200
2	95-190
3	90-180
4	90-170
5	80-150
6	120-170
7	115-160
8	105-150
9	90-140
10	90-170
11	75-145
12	110-170
13	100-160
14	90-145
15	65-135
16	65-110
17	65-135
18	60-100
19	65-135
20	60-120
21	110-260
22	110-200
23	145-350
24	145-275
25	95-225
26	145-350
27	145-350
28	145-350
29	90-370
30	80-330
31	20-60
32	20-50
33	20-30
34	10-20
35	15-25
36	30-90
37	20-70
38	25-60
39	20-40
40	25-60
41	20-50

Calculating RPM:

Example: V=120 m/min
D=30mm

$$n = \frac{Vcx1000}{\pi xD} = \frac{120x1000}{3.14x30} = 1274 \text{ RPM}$$



Feed Rate: 0.05-0.15 mm/t

Machining Data for Solid Carbide Threading Endmills

ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.(1)
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
		>= 0.55 %C	Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron nodular (GG)		Ferritic/pearlitic		180	15
			Pearlitic/martensitic		260	16
	Ductile cast iron (nodular) (GGG)		Ferritic		160	17
			Pearlitic		250	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolitic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

(1)For workpiece materials list, see pages L22-57

Cutting Speed (m/min)	Cutting Diameter											
	Feed (mm/tooth)											
IC908	2	3	4	6	8	10	12	14	16	20	25	30
100-250	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
80-210	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
65-170												
110-180	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.1	0.12	0.15	0.18
95-160	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.1	0.12	0.15	0.18
90-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
65-200	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
70-210	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
95-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
130-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
75-100	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
110-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
70-155	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
85-100	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
120-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
75-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
70-150	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
110-140	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
120-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
110-140	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.21	0.15	0.18	0.21
160-300	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
100-400	0.05	0.06	0.07	0.09	0.1	0.11	0.12	0.13	0.15	0.18	0.22	0.25
20-80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
20-80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
55-65												
45-55												
90-105												
55-65												

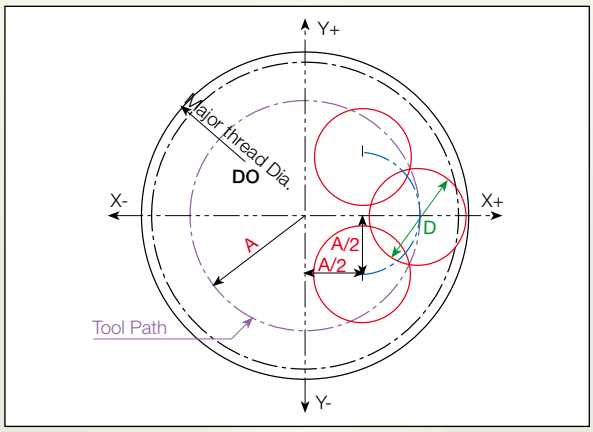
*** For cutters with long cutting flute, reduce feed rate by 40%.**

Thread Milling CNC Program for Internal Thread

Right-hand thread (climb milling) from bottom up.
Program is based on tool center.
This method of programming needs no tool radius compensation value, other than an offset for wear.

$$A = \frac{Do - D}{2}$$

A = Radius of tool path
Do = Major thread diameter
D = Cutting diameter



General Program

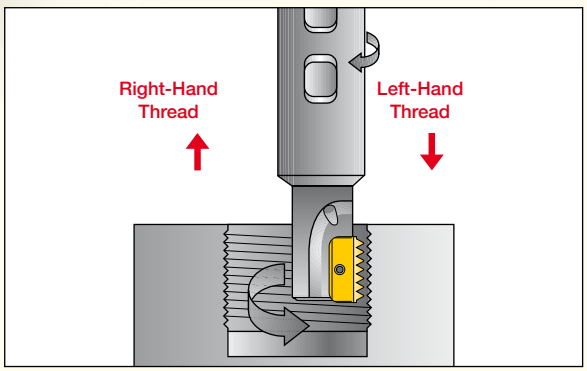
```
G90     G00 G54 G43 H1X0 Y0 Z10 S...
G00     Z-(to thread depth)
G01     G91 G41 D1 X(A/2) Y-(A/2) Z0 F...
G03     X(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G03     X0 Y0 I-(A) J0 Z(pitch)
G03     X-(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G01     G40 X-(A/2) Y-(A/2) Z0
G90     X0 Y0 Z0
```

Internal Thread

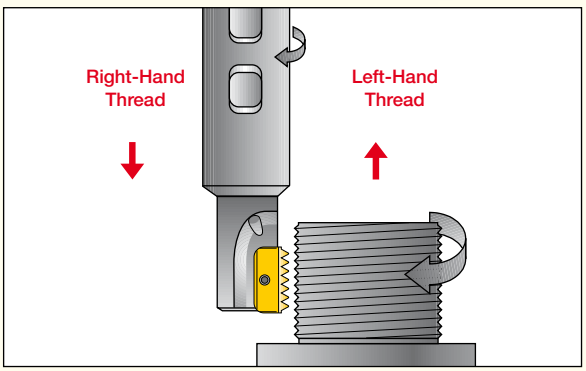
Example:M 48x2.0 IN-RH (Thread depth 25 mm)
Toolholder: MTSR0029 J30
(Cutting dia. 29 mm)
Insert: MT30 I2.0ISO
A=(Do-D)/2=(48-29)/2=9.5
A/2=4.75
(Tool compensation of radius=0)

```
G90     G0 G54 G43 G17 H1X0 Y0 Z10 S1320
G0      Z-25
G01     G91 G41 D1X 4.75 Y-4.75 Z0 F41
G03     X4.75 Y4.75 R4.75 Z0.25
G03     X0 Y0 I-9.5 J0 Z2.0
G03     X-4.75 Y4.75 R4.75 Z0.25
G01     G40 X-4.75 Y-4.75 Z0
G90     G0 X0 Y0 Z0
M30
%
```

Internal Thread



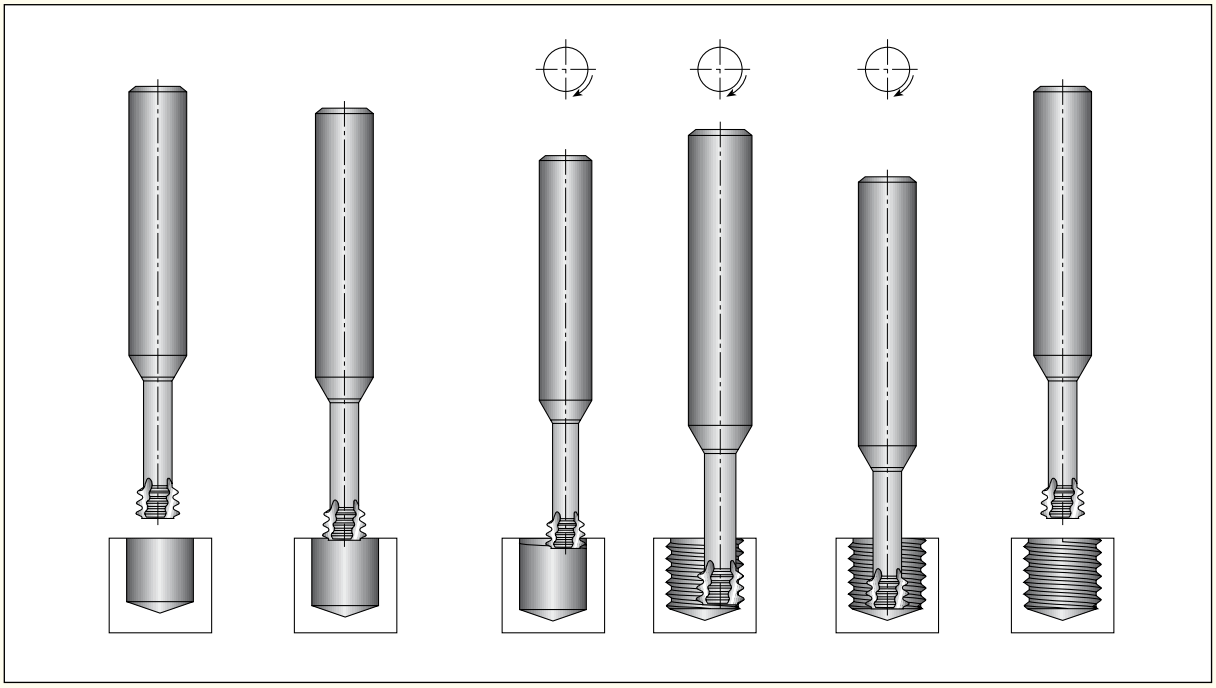
External Thread



Thread milling operation is applicable for thread cutting in non-symmetrical parts utilizing the advantage of helical interpolation programs on modern machining centers.

MTECS Small Diameter, Short Solid Carbide Thread Mills

Thread Milling - Recommended Procedure



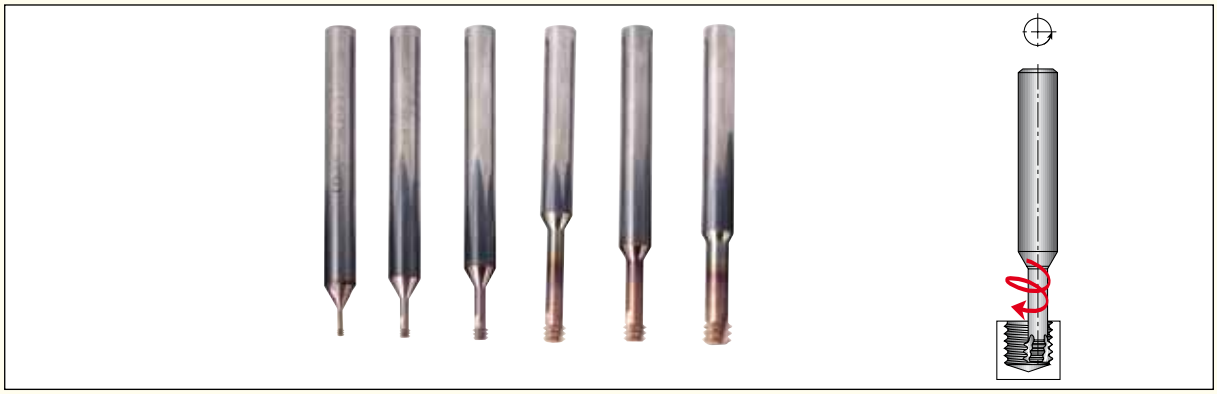
Cutting Data

ISO	Materials	Cutting Speed, m/min	Feed (mm/tooth) for Diameter (mm)												
			Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø15
P	Low & medium carbon steels	60-120	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	High carbon steels	60-90	0.04	0.05	0.06	0.08	0.09	0.1	0.12	0.13	0.14	0.14	0.16	0.17	0.18
	Alloy steels, treated steels	50-80	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
	Cast steels	70-90	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
M	Stainless steels	60-90	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.1	0.11	0.12	0.13
S	Nickel alloys, titanium alloys.	20-40	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
K	Cast iron	40-80	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
N	Aluminum	80-150	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	Synthetics, duroplastics, thermoplastics	50-200	0.1	0.11	0.12	0.14	0.16	0.18	0.19	0.19	0.19	0.19	0.19	0.2	0.2

MTECS Small Diameter, Short Solid Carbide Thread Mills

The MTECS (**M**ill **T**hread **E**ndmills **C**arbide **S**hort) solid carbide thread mills are used for the production of small internal threads. These thread mills feature a short 3-tooth cutting zone with 3 flutes and a released neck between the cutting zone and the shank.

This unique tool design offers very precise profiles and a high performance IC908 submicron carbide grade with PVD titanium aluminum nitride coating.
The very short profile exerts a low force which minimizes tool bending. This facilitates parallel and high thread precision for the entire length.



Compared to taps, the **SOLIDTHREAD** is more accurate, thread machining is substantially faster and there is no danger of a broken tap being stuck in the hole.

Thread Mill vs. Tap

Features	Solid Carbide Thread Mills	Taps
Thread surface quality	High	Medium
Thread geometry	Very accurate	Medium
Thread tolerance	4H, 5H, 6H with std. cutter	6H with standard tap, 4H with special tap
Machining time	Shorter or same as tap	Short
Machining load	Very low	High
Range of thread diameters	Wide range of diameters	Specific tap for each thread size
Right-/Left-hand threading	Same cutter	Specific tap for right- and left-hand
Geometric shape	Full profile	Partial profile

Features

- Minimum thread size: M1.4x0.3 (1.1 mm bore diameter) up to M20x2.50
- 2xD and 3xD threading lengths
- High cutting speeds
- Short cycle time
- Low cutting forces due to the short contact profile resulting in accurate and parallel thread
- Prevents oval threads near thin walls
- No more dealing with broken taps
- Reliable threading in blind holes
- Excellent performance on hardened steel, high temperature alloys and titanium.



INSERTS

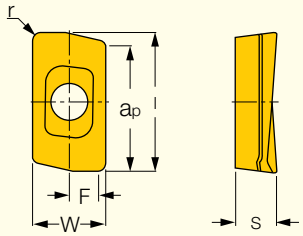


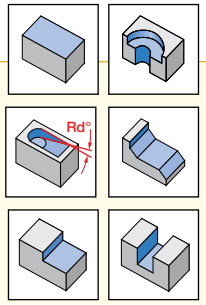
Member IMC Group

HP ANKT/ANCT 0702..PN-R/PNTR

Inserts with a 7 mm Helical Edge and Various Corner Radii for General Use



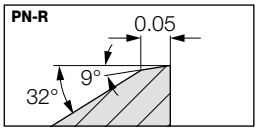




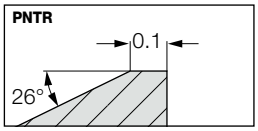
Designation	Dimensions W	a_p	F	r	l	S	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	IC950	IC5400	IC810	IC910	IC30N	IC808	IC908	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ANCT 070202 PN-R	4.50	7.70	1.50	0.20	8.70	2.60									●						2.00-7.50	0.05-0.10
HP ANCT 070204PN-R	4.50	7.70	1.40	0.40	8.70	2.60	●		●		●						●				2.00-7.50	0.05-0.10
HP ANKT 0702 PN-R	4.50	7.70	1.30	0.50	8.70	2.60		●	●	●	●		●	●	●		●	●			2.00-7.50	0.06-0.10
HP ANKT 070202PNTR	4.50	7.70	1.60	0.20	8.70	2.60			●		●										2.00-7.50	0.08-0.15
HP ANKT 0702PNTR	4.50	7.70	1.30	0.50	8.70	2.60			●		●	●			●	●		●	●	●	2.00-7.50	0.08-0.12
HP ANKT 070208PNTR	4.50	7.70	1.00	0.80	8.70	2.60				●	●						●	●			2.00-7.50	0.08-0.15
HP ANKT 070212PNTR	4.50	7.70	0.70	1.20	8.70	2.60					●							●			2.00-7.50	0.08-0.15
HP ANKT 070216PNTR	4.50	7.70	0.20	1.60	8.70	2.60					●							●			2.00-7.50	0.08-0.15

For tools, see pages: HP ANK-07 (D5) • HP E90AN-07 (B15) • HP E90AN-M-07 (B16) • HP E90AN-MM-07 (B16) • HP F90AN-07 (C11) • TS HP E90AN (B17).

For cutting speed recommendations, see pages L2-8, L16-19.



Positive rake, sharp edge, used for general applications.

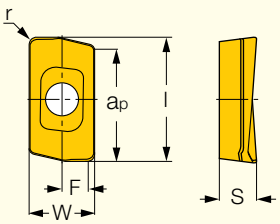


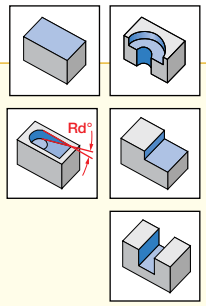
Positive rake, reinforced edge, used for general applications

HP ANKW 070204PNTR

Insert with a 7 mm Helical Edge and a Flat Rake, for Rough Machining and Hardened Steel



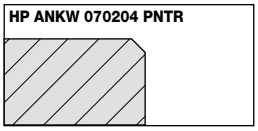




Designation	Dimensions l	a_p	S	r	F	W	Tough ↔ Hard IC928	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ANKW 070204PNTR	8.70	7.70	2.60	0.40	1.20	4.50	●	●	2.00-7.50	0.08-0.15

For tools, see pages: HP ANK-07 (D5) • HP E90AN-07 (B15) • HP E90AN-M-07 (B16) • HP E90AN-MM-07 (B16) • HP F90AN-07 (C11).

For cutting speed recommendations, see pages L2-8, L16-19.

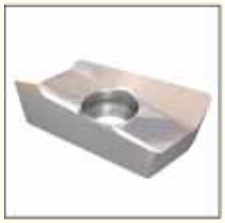


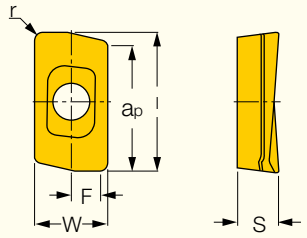
Reinforced flat rake for machining cast iron.

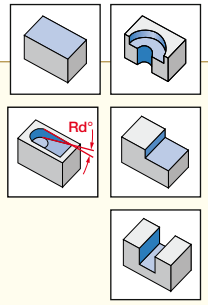
HELIPLUS

HP ANCR 0702PNFR

Inserts with a Super Positive Chipformer, Peripherally Ground for Machining Aluminum, Titanium and Magnesium



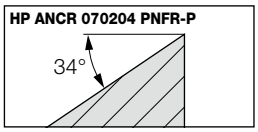




Designation	Dimensions						Tough ↔ Hard				Recommended Machining Data	
	l	a_p	S	r	F	W	IC28	IC328	IC928	IC908	a_p (mm)	f_z (mm/t)
HP ANCR 070204PNFR	8.70	7.70	2.60	0.40	1.20	4.50		●	●	●	2.00-7.50	0.07-0.20
HP ANCR 070204PNFR-P	8.70	7.70	2.60	0.40	1.20	4.50	●				2.00-7.50	0.07-0.20

For tools, see: HP ANK-07 (D5) • HP E90AN-07 (B15) • HP E90AN-M-07 (B16) • HP E90AN-MM-07 (B16) • HP F90AN-07 (C11).

For cutting speed recommendations, see pages L2-8, L16-19.

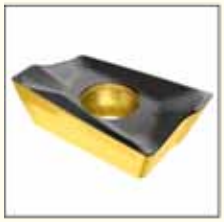


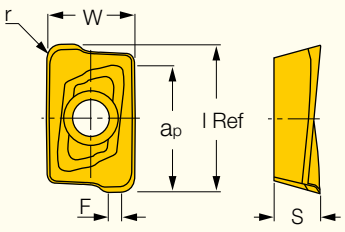
Super positive chipformer, peripherally ground, polished rake. Used for machining aluminum, titanium and magnesium.

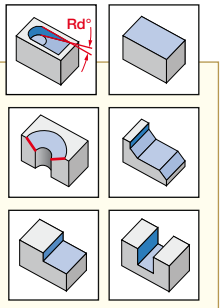
HELI2000

HM90 APCT 1003

Inserts with a Sharp Cutting Edge, for Semi-Finishing and Finishing





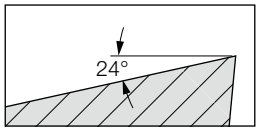


Designation	Dimensions						Tough ↔ Hard					Recommended Machining Data	
	W	r	l	S	F	a_p	IC28	IC328	IC928	IC380	IC808	a_p (mm)	f_z (mm/t)
HM90 APCT 100302R-PDR	6.96	0.20	11.66	3.53	1.90	10.10	●	●	●		●	4.00-8.00	0.06-0.12
HM90 APCT 100308-HP [1]	6.80	0.80	11.46	3.53	1.40	9.50				●	●	4.00-8.00	0.06-0.12

[1] Sharp cutting edges, high positive rake angle, excellent for milling PH high temperature alloys.

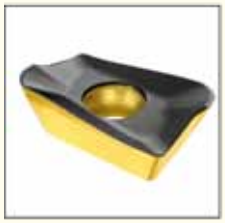
For tools, see: HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

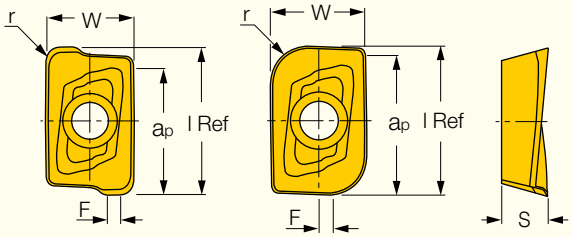
For cutting speed recommendations, see pages L2-8, L16-19.

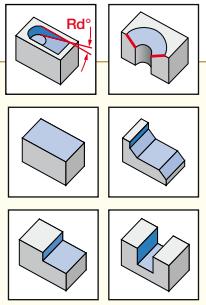


HM90 APKT 1003

General Use Inserts with 2 Helical Cutting Edges, for High 90° Shoulder Accuracy





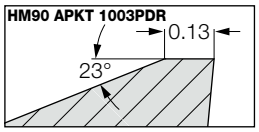


Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	IC950	IC4050	IC5400	IC810	IC910	IC380	IC808	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 APKT 1003PDR	6.76	11.45	10.26	3.53	0.80	1.40		●	●	●	●	●	●	●	●	●	●	●	●	4.00-8.00	0.08-0.15
HM90 APKT 1003PDR-SC	6.80	11.60	10.20	4.00	0.40	1.80		●		●										4.00-8.00	0.08-0.15
HM90 APKT 1003PDR-MM	6.70	11.50	10.25	3.50	0.80	1.60				●										4.00-8.00	0.08-0.15
HM90 APKT 1003PDTR-8M	6.76	11.45	10.26	3.53	0.80	1.40					●					●				4.00-8.00	0.08-0.20
HM90 APKT 100304PDR	6.76	11.45	10.25	3.53	0.40	1.78	●		●		●								●	4.00-8.00	0.08-0.15
HM90 APKT 100308R	6.76	11.45	10.29	3.53	0.80	1.00				●										4.00-8.00	0.08-0.15
HM90 APKT 100312PDR	6.76	11.45	10.29	3.53	1.20	1.00			●		●								●	4.00-8.00	0.08-0.15
HM90 APKT 100316PDR	6.76	11.45	10.29	3.53	1.60	0.58			●		●								●	4.00-8.00	0.08-0.15
HM90 APKT 100325PDR	6.76	10.40	9.88	3.53	2.50	-			●		●								●	4.00-8.00	0.08-0.15
HM90 APKT 100330PDR	6.76	10.40	9.83	3.53	3.00	-			●		●								●	4.00-8.00	0.08-0.15

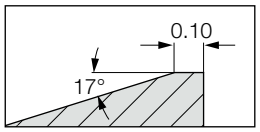
• For inserts with corner radii more than 1.5 mm , the cutter body and seat should be modified. • Inserts with corner radii larger than 0.8 mm should be used on APK tools only on the face of the cutter. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

HM90 APKT 1003PDR



Helical cutting edge with high 90° shoulder accuracy. Reduced mismatch and improved surface quality.
For general use applications.



-8M
Super reinforced helical cutting edge. For interrupted cuts and heavy machining. Use for long overhang and extended flute cutters with reduced chatter.

HM90 APKT 1003PDR-MM



- Cutting edge geometry with low axial angle
- Reinforced cutting edge geometry, which provides better chipping resistance
- Wide frontal wiper that leaves excellent surface finish on the workpiece
- Used for unfavorable conditions and high feeds

HM90 APKT 1003PDR-SC

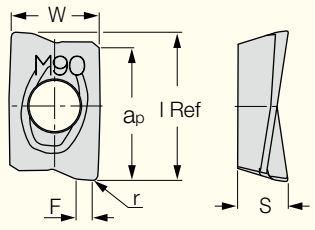


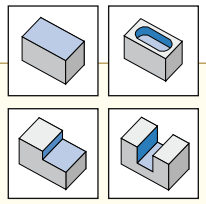
- Larger axial effective angle up to the middle of the insert length
- Reduced cutting forces, effective up to 5 mm – the middle of insert's cutting edge length
- Used for machining ductile high strength materials. Parts such as shafts, gears, crankshafts, connection rods, camshafts, etc.

HM90 APCR 100304PDFR-P/DP

Inserts with Positive Helical Cutting Edges and Polished Rake, for Machining Aluminum and High Temperature Alloys



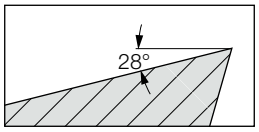




Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC28	IC928	IC08	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 APCR 100304PDFR-P	6.52	11.25	10.18	3.85	0.40	1.52	●	●	●	●	4.00-8.00	0.07-0.25
HM90 APCR 100304PDFRDP	6.52	11.25	10.18	3.85	0.40	1.52	●				4.00-8.00	0.07-0.25

• Super positive chipformer peripherally ground • P - Polished rake DP- Polished rake and flank • Used for machining aluminum, titanium and magnesium • Recommended for coarse pitch cutters • For cutting speed recommendations, see pages L2-8, L16-19.

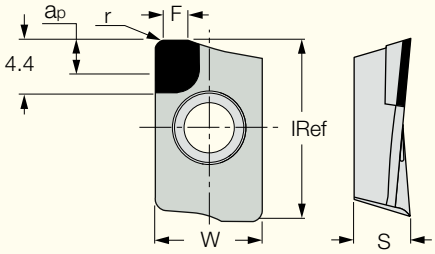
For tools, see: APK-FE (D8) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

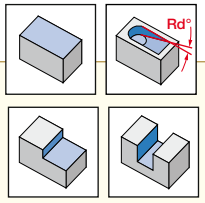


APKW 100304 PDR (PCD)

Single R.H. PCD Tipped Insert, for Milling Aluminum







Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard ID8	ID5
APKW 100304 PDR	6.76	11.20	2.00	3.50	0.40	1.52	●	●

• Use ID5 for aluminum alloys with <12% silicon, use ID8 for aluminum alloys with >12% silicon • The inserts are supplied with spare screws.

For tools, see: HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

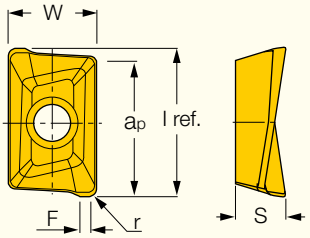
PCD
Recommended Machining Conditions

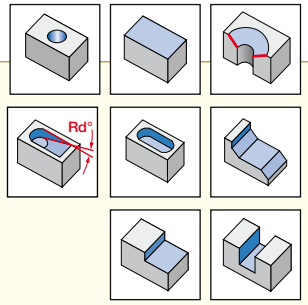
	Grade	D.O.C. (ap) mm	Material	Vc m/min	Feed mm/tooth	Cutting Edge
N	ID5	<2.0	Aluminum alloys <12% silicon	300-3000	0.05-0.25	Sharp
		<2.0	Chipboard Fiberboard Plastics	2000-3000	0.05-0.25	
		<2.0	Copper Brass alloys	500-1500	0.05-0.25	
N	ID8	<2.0	Aluminum>12% silicon	250-1000	0.05-0.25	Sharp
		<2.0	Aluminum<12% silicon	300-3000	0.05-0.25	
		<2.0	Chipboard Fiberboard Plastics Plastics MMC	2000-3000 200-600	0.05-0.25	

APCT 1003PDR-HM

Inserts with 2 Helical Precision Ground Cutting Edges, for Finishing and High Accuracy



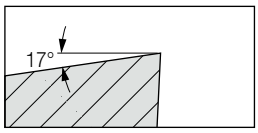




Designation	Dimensions W	r	l	S	a_p	F	Tough ↔ Hard IC28	IC328	IC250	Recommended Machining Data a_p (mm)	f_z (mm/t)
APCT 100302R-HM	6.70	0.25	10.95	3.51	10.05	1.20		●		4.00-8.00	0.06-0.12
APCT 100304R-HM	6.70	0.45	10.95	3.51	10.05	1.20		●		4.00-8.00	0.07-0.12
APCT 1003PDR-HM	6.70	0.50	10.95	3.51	10.05	1.20	●		●	4.00-8.00	0.07-0.15

For tools, see: APK-FE (D8) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

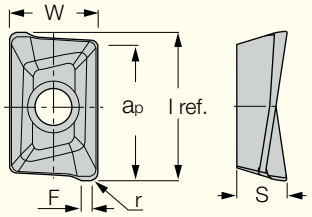
For cutting speed recommendations, see pages L2-8, L16-19.

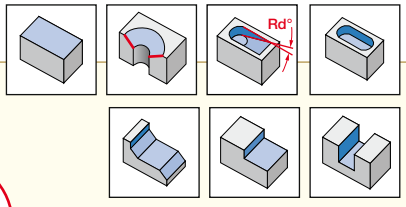


APCR 1003PDFR-P

Super Positive Insert with a Polished Rake, for Machining Aluminum



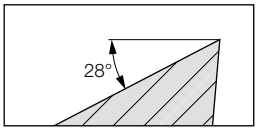




Designation	Dimensions W	l	S	r	F	a_p	Tough ↔ Hard IC28	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
APCR 1003PDFR-P	6.70	11.20	3.76	0.50	1.20	10.30	●	●	4.00-8.00	0.07-0.25

• Super positive rake sharp ground helical cutting edge, for finishing on aluminum, stainless steel and high temperature alloys • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: APK-FE (D8) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

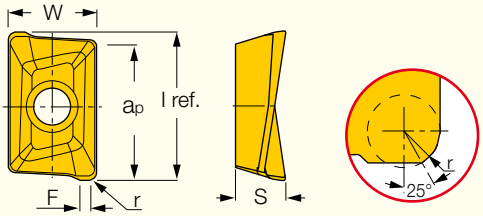


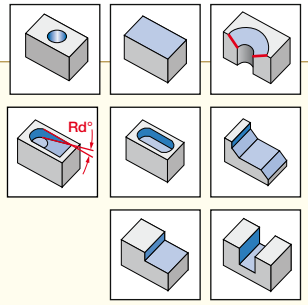
CUT-GRIP

APKR 1003PDR-HM

Super Positive Inserts for Aluminum, Stainless Steel and High Temperature Alloys



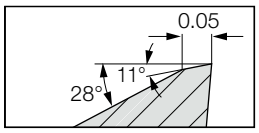




Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard IC28	IC330	IC328	IC928	IC250	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKR 1003PDR-HM	6.70	11.20	10.30	3.76	0.50	1.20	●	●	●	●	●	4.00-8.00	0.07-0.15

For tools, see: HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

For cutting speed recommendations, see pages L2-8, L16-19.

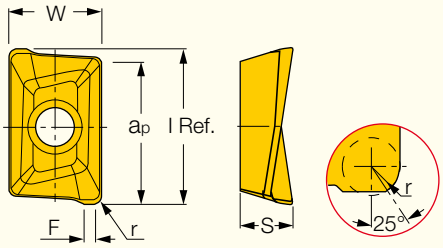


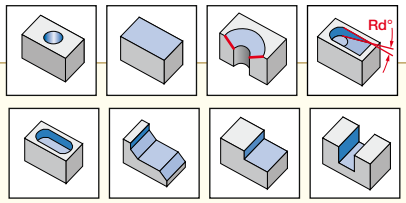
HELIMILL

APKT 1003PDR-HM

Inserts with 2 Helical Cutting Edges, for General Use







Designation	Dimensions W	l	S	a_p	r	F	Tough ↔ Hard IC28	IC330	IC328	IC635	IC50M	IC830	IC928	IC250	IC950	IC4050	IC520M	IC910	IC30N	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDR-HM	6.70	10.95	3.55	10.05	0.50	1.20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	4.00-8.00	0.08-0.15

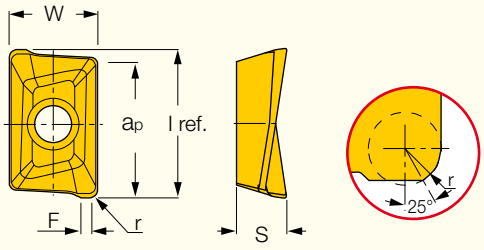
For tools, see: APK-FE (D8) • E90AC (B37) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

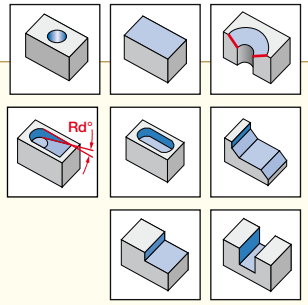
For cutting speed recommendations, see pages L2-8, L16-19.

APKT 1003PDTR-8M

Insert with Reinforced Helical Cutting Edge, for Interrupted Cut and Heavy Milling



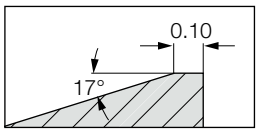




Designation	Dimensions W	l	S	r	F	a_p	Tough ↔ Hard IC328	IC635	IC50M	IC250	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDTR-8M	6.70	10.95	3.55	0.50	1.20	10.05	●	●	●	●	●	4.00-8.00	0.08-0.20

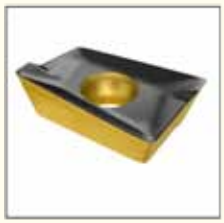
• Super reinforced helical cutting edge, for interrupted cuts and heavy machining • Excellent for long overhang and extended flute cutters to reduce chatter • For cutting speed recommendations, see pages L2-8, L16-19.

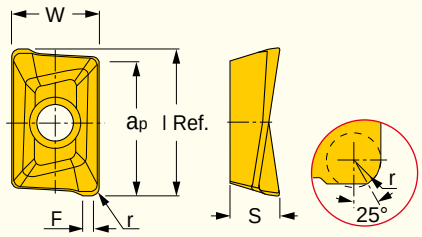
For tools, see: APK-FE (D8) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

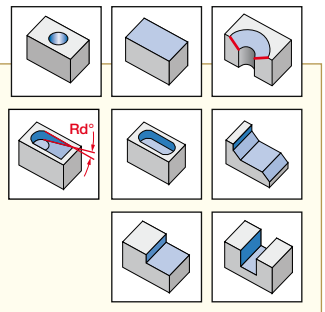


APKT 1003PDTR/L-RM

Insert with Reinforced Helical Cutting Edge, for Interrupted Cut and Heavy Machining



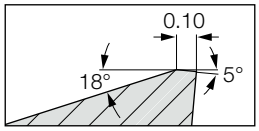




Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard IC28	IC328	IC50M	IC928	IC250	IC950	IC4050	IC520M	IC910	IC30N	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDTR/L-RM	6.70	11.00	9.80	3.47	0.50	1.20	●	●	●	●	●	●	●	●	●	●	●	●	4.00-8.00	0.10-0.20

• APKT...L should be used only on left-hand tools. • For cutting speed recommendations, see pages L2-8, L16-19.

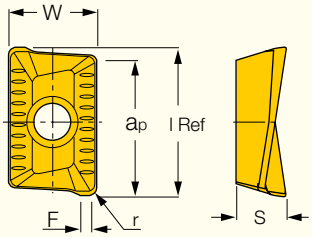
For tools, see: APK-FE (D8) • E90AC (B37) • ETS (G20) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

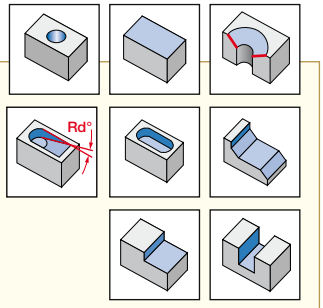


APKT 1003PDTR-76

Inserts with 2 Helical Cutting Edges with Ribs Along Edge, for Interrupted Cut



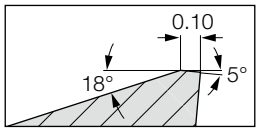




Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC28	IC330	IC328	IC635	IC50M	IC830	IC928	IC250	IC950	IC5400	IC520M	IC910	Recommended Machining Data ap (mm)	fz (mm/t)
APKT 1003PDTR-76	6.70	11.00	9.80	3.47	0.50	1.20	●	●	●	●	●	●	●	●	●	●	●	●	4.00-8.00	0.08-0.15

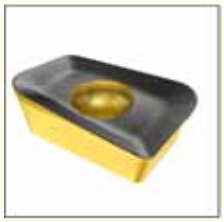
• Reinforced helical cutting edge with ribs on rake face to reduce heat transfer. Used for interrupted cuts and heavy machining. • For cutting speed recommendations, see pages L2-8, L16-19.

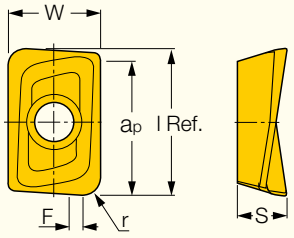
For tools, see: APK-FE (D8) • E90AC (B37) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

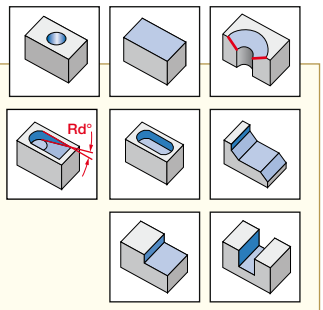


APKT 1003...TR-RM

Inserts with Various Corner Radii and a Reinforced Cutting Edge, for Interrupted Cut and Heavy Machining



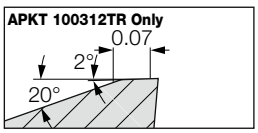


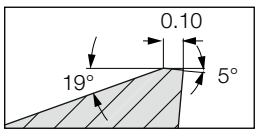


Designation	Dimensions r	l	W	ap	S	F	Tough ↔ Hard IC28	IC330	IC328	IC50M	IC928	IC250	IC950	IC520M	IC910	Recommended Machining Data ap (mm)	fz (mm/t)
APKT 100308PDTR-RM	0.80	11.00	6.70	9.90	3.47	0.90	●	●	●	●	●	●	●	●	●	4.00-8.00	0.08-0.15
APKT 100310PDR-RM	1.00	10.75	6.70	9.90	3.47	0.60	●		●							4.00-8.00	0.08-0.15
APKT 100312TR-RM	1.20	10.50	6.70	9.85	3.47	-	●		●	●	●	●	●	●	●	4.00-8.00	0.08-0.15
APKT 100316PDTR-RM	1.60	10.90	6.70	9.78	3.47	0.80	●		●		●	●	●			4.00-8.00	0.08-0.15
APKT 100320PDTR-RM	2.00	10.90	6.70	9.75	3.47	0.80			●		●	●	●			4.00-8.00	0.08-0.15
APKT 100332TR-RM	3.20	10.70	6.70	9.65	3.47	-	●		●		●	●	●			4.00-8.00	0.08-0.15
APKT 100340TR-RM	4.00	10.55	6.70	9.60	3.47	-	●		●							4.00-8.00	0.10-0.20

For tools, see: APK-FE (D8) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

For cutting speed recommendations, see pages L2-8, L16-19.



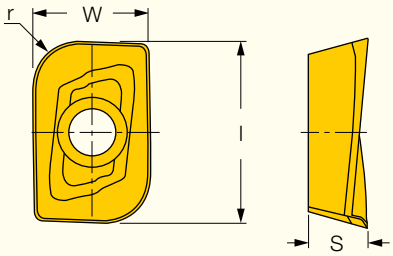


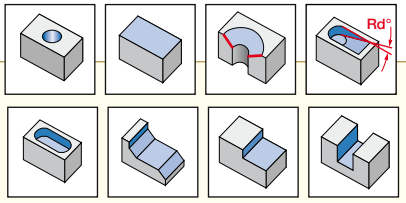
HELIMILL

APKT 1003..R

Inserts with Ground Large Corner Radii







Designation	Dimensions W	l	S	r	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 100325R	6.70	10.10	3.50	2.50	●	4.00-8.00	0.08-0.15
APKT 100330R	6.70	10.10	3.50	3.00	●	4.00-8.00	0.08-0.15
APKT 100340R	6.70	10.10	3.50	4.00	●	4.00-8.00	0.08-0.15

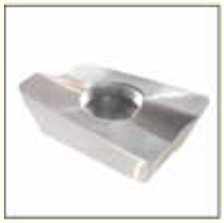
For tools, see: APK-FE (D8) • HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

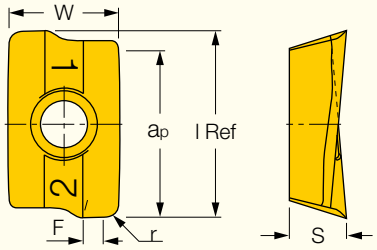
For cutting speed recommendations, see pages L2-8, L16-19.

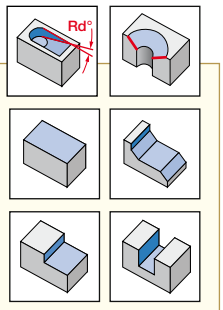
HELI2000

HM90 APKW 1003PDR

Inserts with Reinforced Edge and Flat Rake, for Hardened Steel and Milling at Heavy Interrupted Cut



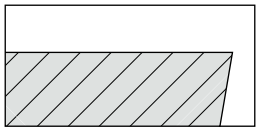




Designation	Dimensions W	l	S	r	F	a_p	Tough ↔ Hard IC928	IC910	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APKW 1003PDR	6.76	11.47	3.50	0.80	1.40	10.25	●	●	●	4.00-8.00	0.08-0.15

• Reinforced cutting edge, resistant to edge breakage and chipping • Recommended for milling at unfavorable conditions and heavy interrupted cut • Different corner radii can be ground • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

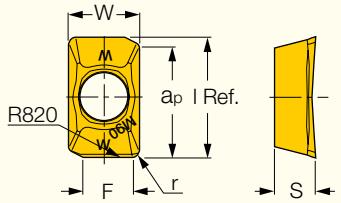


HELI2000

HM90 APKT 1003PD-W

Wiper Insert





Designation	Dimensions W	l	S	r	F	ap	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 APKT 1003PD-W	6.69	11.65	3.55	0.80	4.40	10.80	●	0.10-1.00	0.15-0.30

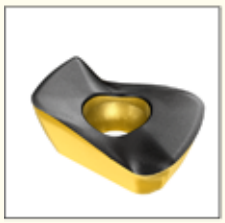
• Must be used together with HM90 APKT 1003PDR inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

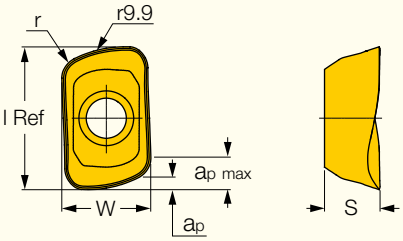
For tools, see: HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

FEEDMILL • HELIMILL

APKT 1003R8T-FF

Insert for High Feed Milling





Designation	Dimensions W	l	ap(1)	ap max(2)	S	r(3)	Tough ↔ Hard IC830	IC808	Recommended Machining Data ap (mm)	fz (mm/t)
APKT 1003R8T-FF	6.60	10.80	1.00	1.80	3.50	1.90	●	●	0.50-1.00	0.50-1.50

• The actual diameter of the tool is 0.1 mm larger than the nominal diameter when using this insert. • Tool corner should be modified by rounding to R2.0 mm. • Should be used on tools of 12 mm diameter and up. • At D.O.C. larger than ap max, regular insert feed should be applied. • For cutting speed recommendations, see pages L2-8, L16-19.

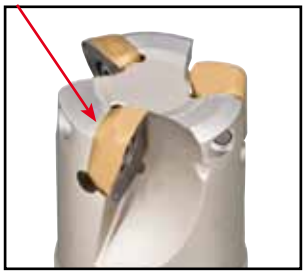
(1) The ap range for fast feed - up to 1.5 mm/t. At ap>1 mm regular insert feed should be applied. (2) Above ap and up to apmax, apply regular feed. (3) Radius for CNC programming is considered as 1.8 mm

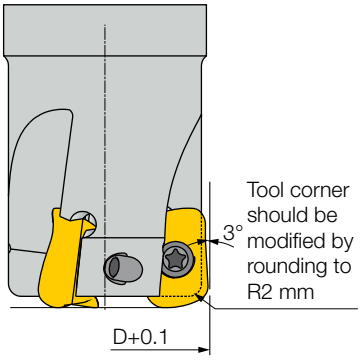
For tools, see: HM90 E90A-10 (B23) • HM90 E90A-CF-10 (B26) • HM90 E90A-M-10 (B27) • HM90 E90A-MM-10 (B26) • HM90 F90AP-10 (C17).

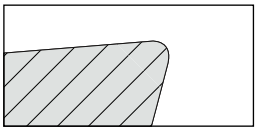
Standard Tool



Tool with a Modified Corner



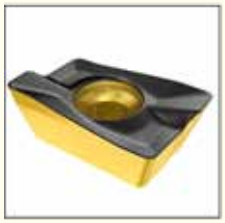


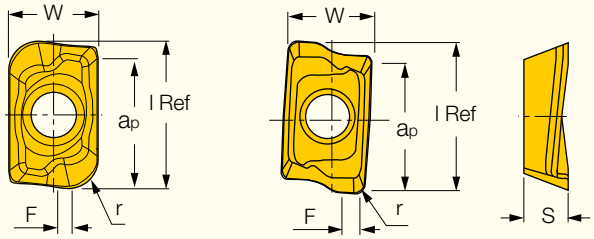


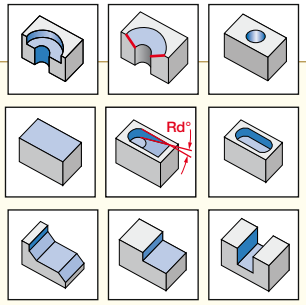
For general application

HM90 ADKT/ADCT 1505

General Use Inserts with 2 Helical Cutting Edges, for High 90° Shoulder Accuracy







Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC4050	IC5400	IC810	IC910	IC380	IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADCT 1505PDR-PL	9.65	16.18	14.50	5.85	0.80	2.16			●								●		5.00-8.00	0.08-0.12
HM90 ADCT 150508R-T	9.65	16.18	14.50	5.85	0.80	2.16										●			5.00-8.00	0.08-0.10
HM90 ADCT 150516R-T	9.65	16.18	14.50	5.85	1.60	2.16										●			5.00-8.00	0.08-0.10
HM90 ADCT 150520R-T	9.65	16.18	14.50	5.85	2.00	2.16										●			5.00-8.00	0.08-0.10
HM90 ADCT 150524R-T	9.65	16.18	14.50	5.85	2.40	2.16										●			5.00-8.00	0.08-0.10
HM90 ADCT 150532R-T	9.65	16.18	14.50	5.85	3.20	2.16										●			5.00-8.00	0.08-0.10
HM90 ADCT 150540R-T	9.65	16.18	14.50	5.85	4.00	2.16										●			5.00-8.00	0.08-0.10
HM90 ADCT 150550R-T	9.65	16.18	14.50	5.85	5.00	2.16										●			5.00-8.00	0.08-0.10
HM90 ADKT 1505PDR	9.65	16.18	14.50	5.85	0.80	2.16	●	●	●	●	●	●	●	●	●	●	●	●	5.00-12.00	0.08-0.15
HM90 ADKT 1505PDR-MM	9.60	16.00	14.50	5.80	0.80	2.70			●										5.00-12.00	0.08-0.15
HM90 ADKT 150516-PDR	9.65	15.60	14.20	5.92	1.60	1.37												●	5.00-12.00	0.08-0.15
HM90 ADKT 150520-PDR	9.65	15.60	14.20	5.90	2.00	0.79												●	5.00-12.00	0.08-0.15
HM90 ADKT 150524-PDR	9.65	15.60	14.20	5.80	2.40	0.52												●	5.00-12.00	0.08-0.15
HM90 ADKT 150532-PDR	9.65	15.20	14.00	5.85	3.20	-												●	5.00-12.00	0.08-0.15
HM90 ADKT 150540-PDR	9.65	14.83	13.90	5.80	4.00	-												●	5.00-12.00	0.08-0.15
HM90 ADKT 150550-PDR	9.65	14.85	13.80	5.75	5.00	-												●	5.00-12.00	0.08-0.15
HM90 ADKT 150564-PDR	9.65	14.85	13.66	5.65	6.40	-												●	5.00-12.00	0.08-0.15
HM90 ADCT 150508 PDTR	9.50	15.70	14.00	6.40	0.80	4.10	●		●										5.00-12.00	0.08-0.15

• Inserts with corner radii larger than 0.8 mm should be used on ADK & SM tools only on the face of the cutter • For a more economical insert refer to ADKT 1505PDR HM90 in the ADKT 1505PDR family • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: ADK (D12) • F75A (C36) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D20).

HM90 ADCT 150508 PDTR



- Sharp ground cutting edge with a special edge preparation
- Ground all around, including clamping surfaces
- Low axial angle edge geometry
- Wide sharp-edged wiper for high surface finish
- High perpendicularity and mismatch accuracy when using tool diameters of up to 50 mm

HM90 ADCT 1505..R-T



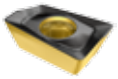
- For machining titanium and super alloys
- Excellent surface finish
- Smoother cut
- Reduces edge burrs
- Reduces vibration and noise

HM90 ADCT 1505..PDR-PL

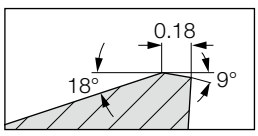


- Designed for optimal machining of stainless steel and high temperature alloys
- Sharp cutting edge and a positive rake geometry optimized to avoid built-up edge
- Wiper bottom edge leaving excellent surface finish
- Helical axial positive edge geometry

HM90 ADKT 1505PDR-MM



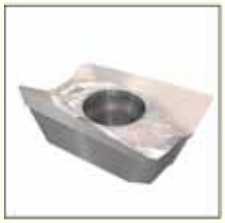
- Cutting edge geometry with low axial angle
- Reinforced cutting edge geometry, which provides better chipping resistance
- Wide frontal wiper that leaves excellent surface finish on the workpiece
- Used for unfavorable conditions and high feeds

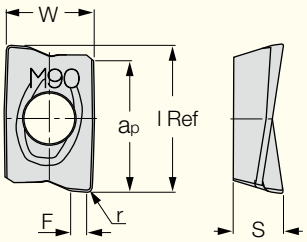


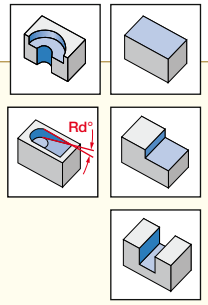
HELI2000

HM90 ADCR 1505PDFR-P

Peripherally Ground Insert with a Super Positive Polished Rake, for Machining Aluminum and High Temperature Alloys



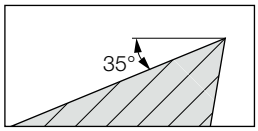




Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC28	IC08	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 ADCR 1505PDFR-P	9.55	16.30	15.30	6.90	0.80	4.00	●	●	5.00-12.00	0.15-0.25

• Super positive chipformer peripherally ground (P - Polished rake) • Used for machining aluminum, titanium and magnesium • For cutting speed recommendations, see pages L2-8, L16-19.

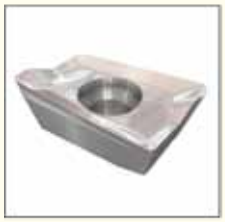
For tools, see: HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26).

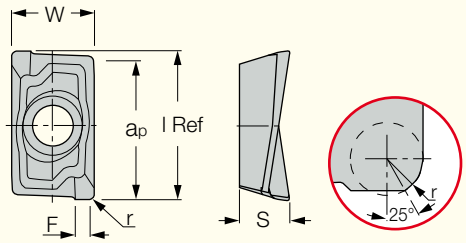


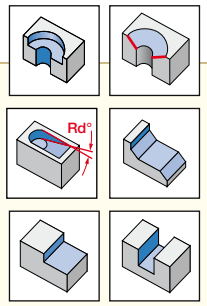
HELIMILL

ADCR 1505PDFR

Super Positive Precision Inserts, for Aluminum, Stainless Steel and High Temperature Alloys



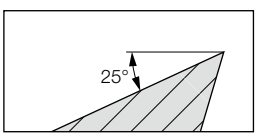




Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC28	IC928	Recommended Machining Data ap (mm)	fz (mm/t)
ADCR 1505PDFR	9.50	15.95	14.50	5.64	0.80	1.60		●	5.00-12.00	0.15-0.25
ADCR 1505PDFR-P (1)	9.50	15.95	14.50	5.64	0.80	1.60	●		5.00-12.00	0.07-0.25

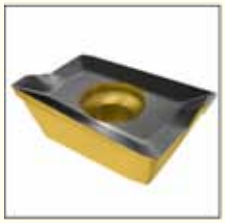
(1) Polished rake, used on titanium magnesium and aluminum.

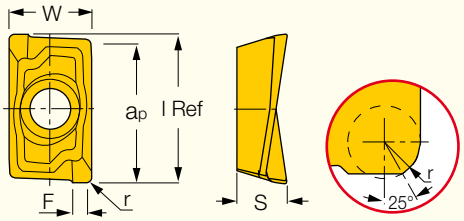
For tools, see: ADK (D12) • F75A (C36) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D20).
For cutting speed recommendations, see pages L2-8, L16-19.

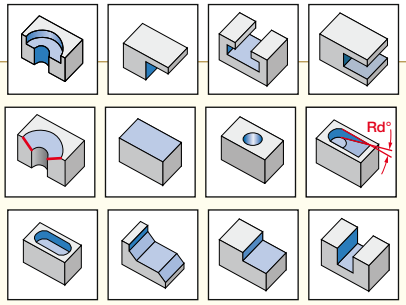


ADKR 1505PD-R/L-HM

Super Positive Inserts, for Machining Aluminum, Stainless Steel and High Temperature Alloys





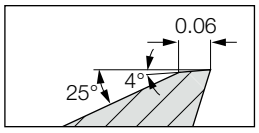


Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC28	IC328	IC50M	IC928	IC250	IC950	IC4050	IC30N	Recommended Machining Data ap (mm)	fz (mm/t)
ADKR 1505PDR/L-HM [1]	9.60	15.95	14.00	6.00	0.80	1.60	●	●	●	●	●		●	●	5.00-12.00	0.07-0.15
ADKR 150504PDR-HM	9.92	16.30	14.20	5.63	0.40	1.60	●	●				●			5.00-12.00	0.07-0.15

• For cutting speed recommendations, see pages L2-8, L16-19.

[1] PDL - Left-hand inserts are used only on left hand tools.

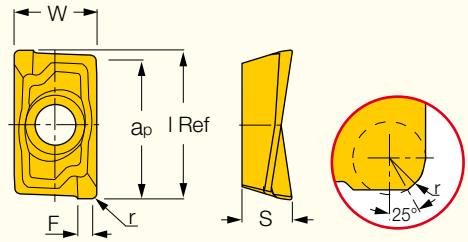
For tools, see: ADK (D12) • F75A (C36) • FST (G40) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D20).

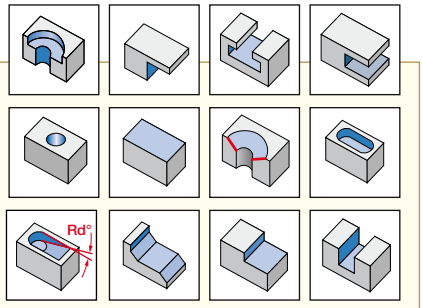


ADCT 1505PDFR-HM

Peripherally Ground Inserts, for Finishing and General Use Applications



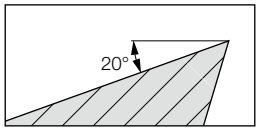




Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC28	IC328	IC928	Recommended Machining Data ap (mm)	fz (mm/t)
ADCT 1505PDFR-HM	9.57	15.65	14.10	5.64	0.80	1.60	●	●	●	5.00-12.00	0.06-0.12

For tools, see: ADK (D12) • E90AC (B37) • F75A (C36) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D20).

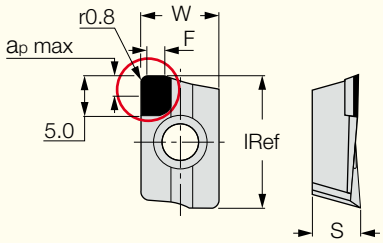
For cutting speed recommendations, see pages L2-8, L16-19.

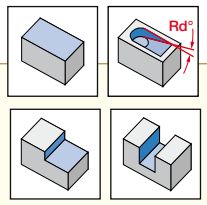


ADKW (CBN)

Single R.H. with an IB85 PCBN Brazed Tip, for Machining Hard Materials







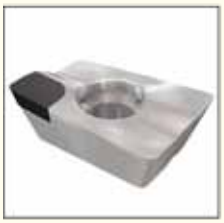
Designation	Dimensions W	l	S	F	a_p	IB85	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKW 1505 PDER	9.60	16.18	5.83	1.45	2.00	●	0.10-2.00	0.10-0.25
ADKW 1505 PDTR	9.60	16.18	5.83	1.45	2.00	●	0.10-2.00	0.10-0.25

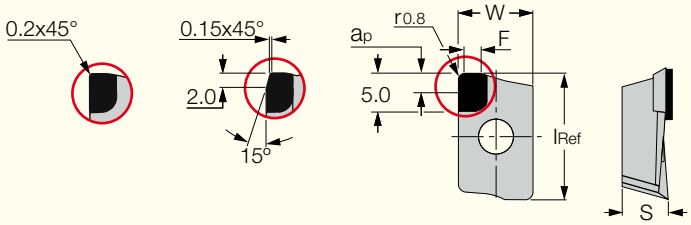
• This inserts are supplied with spare screws. • For cutting speed recommendations, see pages L6, L15.

For tools, see: F90AD-SFR (C27) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26).

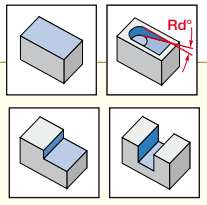
ADKW (PCD)

Single R.H. PCD Tipped Inserts, for Milling Aluminum





150502x45PDR 1505-75RM PDR 150508PDR



Designation	Dimensions W	l	S	a_p	F	Tough ↔ Hard ID8	ID5	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKW 1505-75RM PDR	9.60	16.18	5.83	2.00	2.00		●	0.10-2.00	0.10-0.25
ADKW 150502X45 PDR	9.60	16.18	5.83	2.00	2.00		●	0.10-2.00	0.10-0.25
ADKW 150508 PDR	9.60	16.18	5.83	2.00	1.52	●	●	0.10-2.00	0.10-0.25

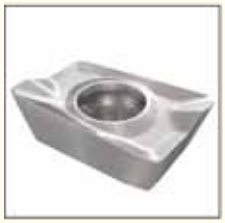
• The inserts are supplied with spare screws. • For cutting speed recommendations, see pages L6, L15.

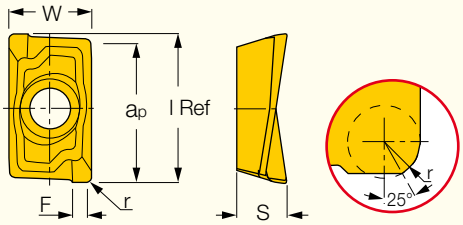
For tools, see: F90AD-SFR (C27) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26).

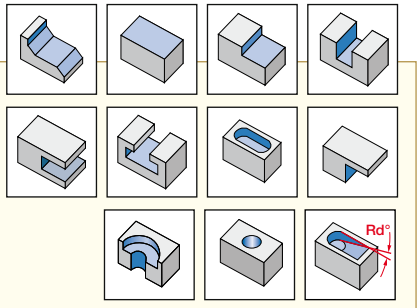
HELIMILL

ADKT 1505PDTR-8M

Insert with Reinforced Helical Cutting Edge,
for Interrupted Cut and Heavy Milling







Designation	Dimensions W	l	S	a_p	F	Tough ↔ Hard IC635	IC250	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505PDTR-8M	9.57	15.65	5.64	13.75	1.60	●	●	●	5.00-12.00	0.08-0.15

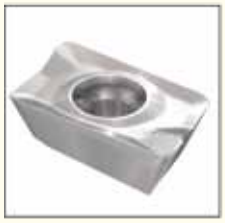
For tools, see: ADK (D12) • F75A (C36) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D20).

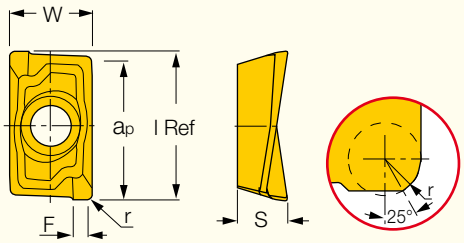
For cutting speed recommendations, see pages L2-5,L15.

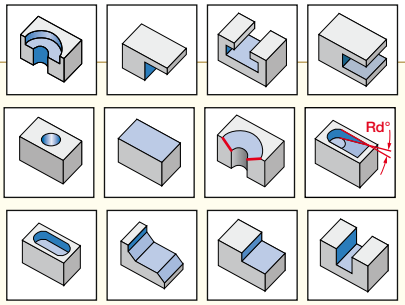
HELIMILL

ADKT 1505PDR/L-HM

Inserts with 2 Helical Cutting Edges, for General Use





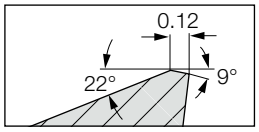


Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC528	IC928	IC250	IC950	IC4050	IC5400	IC520M	IC910	IC30N	IC908	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505PDR/L-HM [1]	9.57	15.70	13.80	5.64	0.80	1.60	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	5.00-12.00	0.08-0.15

[1] PDL - Left-hand inserts are used only for special tools.

For tools, see pages: ADK (D12) • E90AC (B37) • ETS (G20) • F75A (C36) • FST (G40) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D17).

For cutting speed recommendations, see pages L2-5,L15.

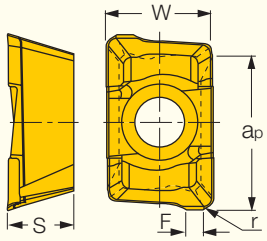


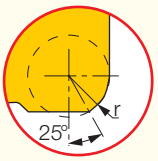
HELISHRED

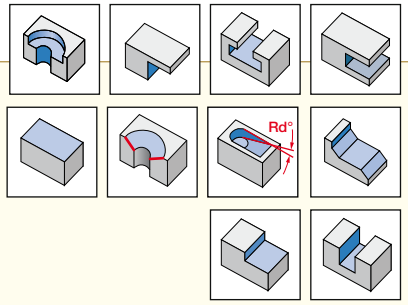
ADMT 1505PDR-HS

Inserts with a Serrated Cutting Edge for Chip Splitting, for Roughing





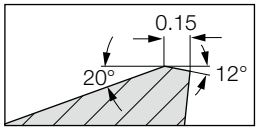




Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC928	IC250	IC950	IC520M	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADMT 1505PDR-HS	9.60	15.85	14.00	5.64	0.80	2.00	●	●	●	●	●	●	●	●	●	5.00-12.00	0.10-0.20

• Self-balanced forces on rake face. Use for long overhang and extended flute cutters for reduced chattering. • For cutting speed recommendations, see pages L2-8, L16-19.

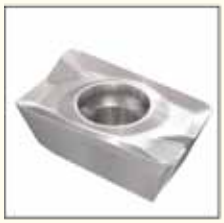
For tools, see: ADK (D12) • F75A (C36) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D20).

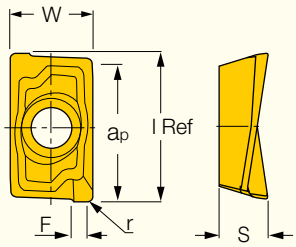


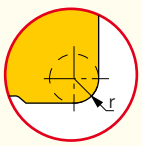
HELIMILL

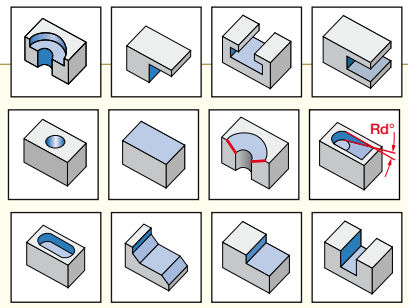
ADKT 1505PDTR/L-RM

Insert with Reinforced Helical Cutting Edge, for Interrupted Cut and Heavy Machining









Designation	Dimensions W	l	S	F	r	a_p	Tough ↔ Hard IC328	IC50M	IC528	IC928	IC250	IC950	IC4050	IC5400	IC520M	IC910	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505PDTR/L-RM (1)	9.54	15.80	5.63	1.60	1.00	13.90	●	●	●	●	●	●	●	●	●	●	●	●	5.00-12.00	0.10-0.20

(1) PDTL-Left-hand inserts are used only for special tools.

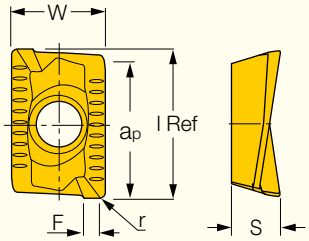
For tools, see pages: ADK (D12) • F75A (C36) • FST (G40) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • SM (D20).

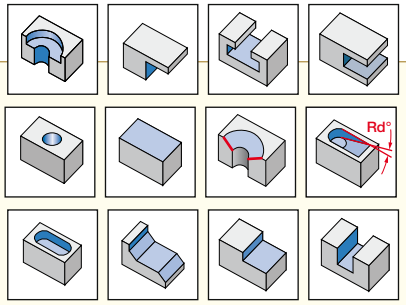
For cutting speed recommendations, see pages L2-8, L16-19.

ADKT 1505PDTR-76

Insert with 2 Helical Cutting Edges with Ribs Along Edge, for Interrupted Cut







Designation	Dimensions W	l	S	r	F	a_p	Tough ↔ Hard IC330	IC328	IC635	IC50M	IC830	IC928	IC250	IC950	IC4050	IC5400	IC520M	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505PDTR-76	9.54	15.75	5.63	1.00	1.60	13.90	●	●	●	●	●	●	●	●	●	●	●	●	5.00-12.00	0.08-0.15

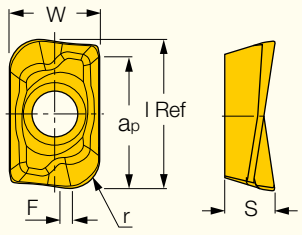
• Reinforced helical cutting edge with ribs on rake face reducing heat transfer, for interrupted cuts and medium to heavy machining. • For cutting speed recommendations, see pages L2-8, L16-19.

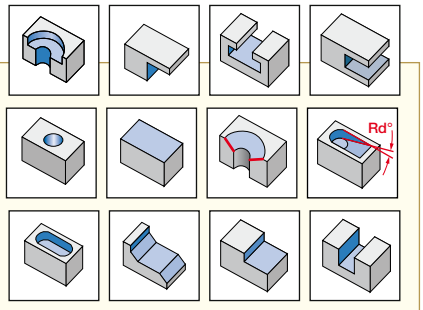
For tools, see pages: ADK (D12) • E90AC (B37) • F75A (C36) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D17).

ADKT 1505..R/L-HM

Inserts with 2 Helical Cutting Edges and Various Corner Radii for General Use





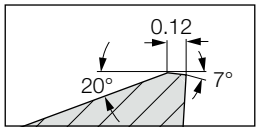


Designation	Dimensions r	W	F	l	a_p	S	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC830	IC928	IC250	IC950	IC520M	IC910	IC30N	IC908	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 150516R-HM	1.60	9.57	1.37	15.60	13.85	5.60	●	●	●	●	●	●	●	●	●	●		●	●	5.00-12.00	0.08-0.15
ADKT 150520R-HM	2.00	9.57	-	14.80	13.50	5.20		●												5.00-12.00	0.08-0.15
ADKT 150524R/L-HM (1)	2.50	9.57	0.52	15.60	13.80	5.60	●	●		●	●	●	●	●	●	●			●	5.00-12.00	0.08-0.15
ADKT 150532R/L-HM (1)	3.20	9.57	-	15.50	13.70	5.60	●	●	●	●	●	●	●	●	●	●	●	●	●	5.00-12.00	0.08-0.15
ADKT 150540R/L-HM (1)	4.00	9.57	-	15.40	13.65	5.60	●	●			●									5.00-12.00	0.08-0.15
ADKT 150550R/L-HM (1)	5.00	9.57	-	15.10	13.50	5.30	●	●		●		●	●	●	●					5.00-12.00	0.08-0.15
ADKT 150564R/L-HM (1)	6.20	9.57	-	14.80	13.20	5.30	●	●	●	●	●	●	●	●	●					5.00-12.00	0.08-0.15

• Inserts with corner radii larger than 0.8 mm should be used on ADK & SM tools only on the face of the cutter. • For cutting speed recommendations, see pages L2-8, L16-19.

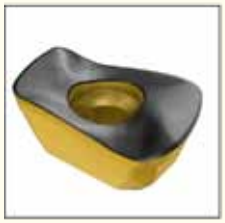
(1) L - Left-hand inserts are used only for special tools.

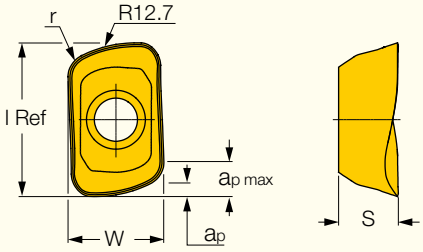
For tools, see pages: ADK (D12) • E90AC (B37) • F75A (C36) • FST (G40) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D17).



ADKT 1505-FF

Inserts for Very High Feed Milling





Designation	Dimensions W	l	a_p(1)	$a_{p\ max}$(2)	S	r(3)	Tough ↔ Hard IC330	IC928	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505R8T-FF	9.90	15.90	1.50	3.50	6.20	2.70	●	●	●	0.50-1.00	0.50-1.50

• The cutting diameter of the tool is 0.5 mm larger than the nominal diameter when using this insert. • Tool corner should be modified to 2.0 mm. • At D.O.C. larger than apmax, regular insert feed should be applied. • For cutting speed recommendations, see page L7.

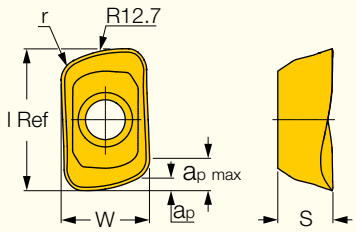
(1) 1.5 mm/t may be applied at this range. (2) Above ap and up to apmax, apply regular ADKT 1506 insert feed. (3) Radii for CNC programming is considered as 3.5 mm

For tools, see: HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26).

ADCT 1505-FF

Inserts for Very High Feed Milling





Designation	Dimensions W	l	a_p(1)	$a_{p\ max}$(2)	S	r(3)	Tough ↔ Hard IC330	IC830	Recommended Machining Data a_p (mm)
ADCT 1505R8T-FF	9.90	15.70	1.50	3.50	6.10	2.70	●	●	1.50-3.50
ADCT 1505R8PL-FF	9.90	15.80	1.50	3.50	6.10	2.70	●	●	1.50-3.50

• The cutting diameter of the tool is 0.5 mm larger than the nominal diameter when using this insert. • Tool corner should be modified to R2.0 mm.
• At D.O.C. larger than apmax, regular insert feed should be applied. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) 1.5 mm/t may be applied at this range. (2) Above ap and up to apmax, apply regular ADKT 1506 insert feed. (3) Radii for CNC programming is considered as 3.5 mm

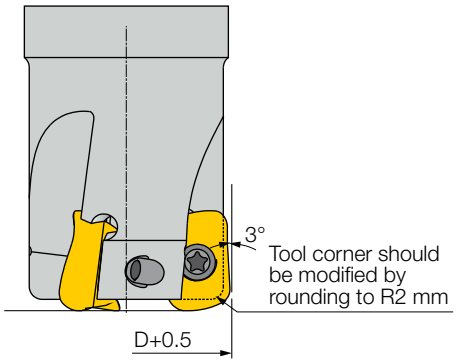
For tools, see: HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26).

Standard Tool

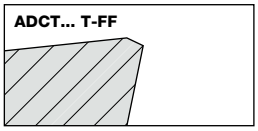


Tool with a Modified Corner



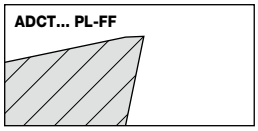


ADCT... T-FF



For austenitic stainless steel and alloy steel

ADCT... PL-FF



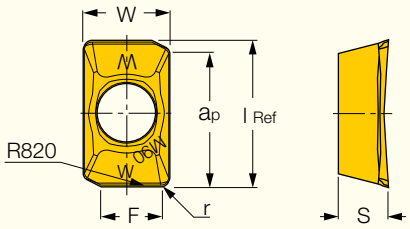
For high temperature and titanium alloys

HELI2000

HM90 ADKT 1505PD-W

Wiper Insert for High Surface Finish

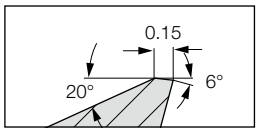




Designation	Dimensions						Tough ↔ Hard		Recommended Machining Data	
	W	l	a_p	S	F	r	IC928	IC908	a_p (mm)	f_z (mm/t)
HM90 ADKT 1505PD-W	9.52	16.75	15.00	5.83	5.92	0.80	●	●	0.10-1.00	0.15-0.30

• Must be used together with HM90 ADKT 1505PDR inserts. • Use a single wiper insert per tool. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26).

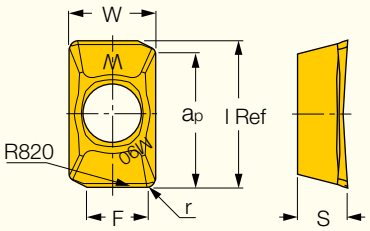


HELIMILL

ADKT 1505PD-W

Wiper Insert for High Surface Finish

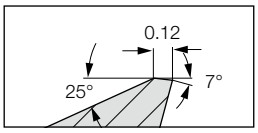




Designation	Dimensions						Tough ↔ Hard		Recommended Machining Data	
	W	l	a_p	S	F	r	IC328	IC928	a_p (mm)	f_z (mm/t)
ADKT 1505PD-W	9.57	16.30	14.63	5.60	6.53	1.00	●	●	0.10-1.00	0.15-0.30

• Must be used together with ADKT 1505PDR inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

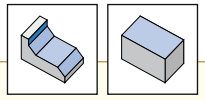
For tools, see: HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26).



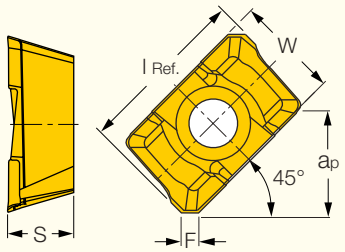
HELISHRED

ADMT 1505ADR-HS

Inserts with Serrated Cutting Edges for Chip Splitting, for Roughing Applications on 45° Milling Cutters

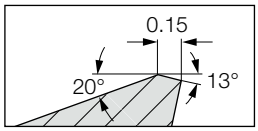






Designation	Dimensions W	S	F	a_p	l	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADMT 1505ADR-HS	9.60	5.77	1.70	8.50	15.85	●	5.00-12.00	0.15-0.25

• Serrated cutting edge for chip splitting. Self-balanced forces on rake face. Use for long overhang and extended flute cutters with reduced chatter. • For cutting speed recommendations, see pages L2-8, L16-19.

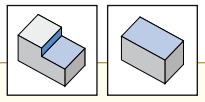


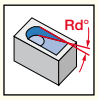
MILLSHRED

P290 LINE

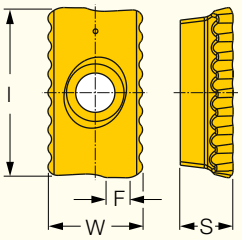
P290 ACKT 1806

Single-Sided Rectangular Inserts with 2 Serrated Cutting Edges









Designation	Dimensions W	l	S	r(2)	F	IC830	Recommended Machining Data a_p (mm)	f_z (mm/t)
P290 ACKT 1806PDR-FW	10.70	18.50	6.00	1.20	2.00	●	10.00-18.00	0.10-0.15
P290 ACKT 1806PDR-FWE (1)	10.70	18.50	6.00	1.20	2.00	●	10.00-18.00	0.10-0.15

(1) For machining titanium alloys (2) Radius for prgramming

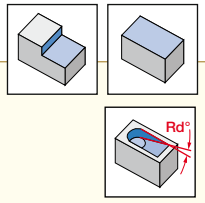
For tools, see: P290 ACK-18 (D13) • P290 EPW (B33) • P290 EPW-M (B34) • P290 FPW (C31) • P290 SM (D13).

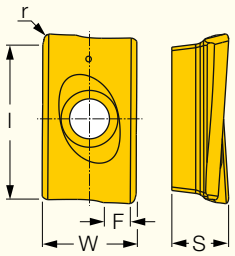
For cutting speed recommendations, see pages L2-8, L16-19.

MILLSHRED
P290 LINE

P290 ACCT 1806

Single-Sided Rectangular Inserts with 2 18 mm Long Cutting Edges for Finishing Applications





Designation	Dimensions W	l	S	r	F	IC830	Recommended Machining Data a_p (mm)	f_z (mm/t)
P290 ACCT 1806PDR-HL	10.70	18.50	6.00	0.80	2.80	●	10.00-18.00	0.10-0.15

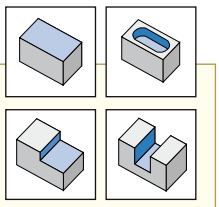
For tools, see: P290 ACK-18 (D13) • P290 EPW (B33) • P290 EPW-M (B34) • P290 FPW (C31) • P290 SM (D13).

For cutting speed recommendations, see pages L2-8, L16-19.

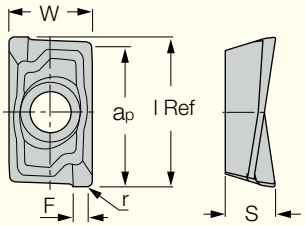
HELIMILL

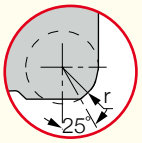
APKR 1604

16 mm Super Positive Inserts, for Aluminum, Stainless Steel and High Temperature Alloys



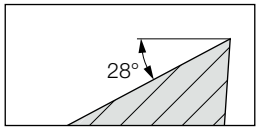






Designation	Dimensions W	l	S	r	F	a_p	Tough ↔ Hard IC28	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKR 160404PDR-HM	9.45	17.58	5.70	0.40	1.74	15.53	●	●	6.00-14.00	0.07-0.12

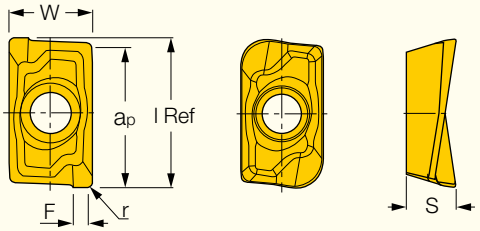
For cutting speed recommendations, see pages L2-8, L16-19.

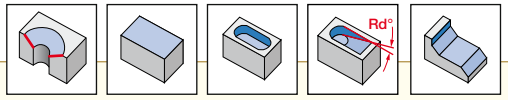


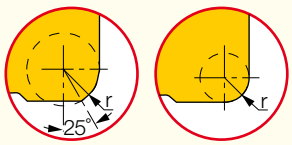
APKT 1604

Milling Inserts with a 16 mm Cutting Edge Length and a Positive Rake Angle for General Use



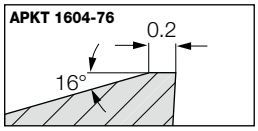


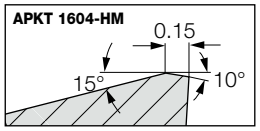


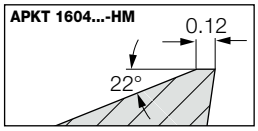


Designation	Dimensions r	W	l	S	F	ap	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC928	IC250	IC950	IC4050	IC520M	IC910	IC30N	IC20	Recommended Machining Data ap (mm)	fz (mm/t)
APKT 1604PDR/L-HM	0.80	9.45	17.70	5.70	1.70	15.30		●	●	●		●			●	●	●	●	6.00-14.00	0.08-0.15
APKT 1604PDR-RM	0.80	9.45	17.70	5.70	1.78	15.30				●		●							6.00-14.00	0.08-0.15
APKT 1604PDR-76	0.80	9.45	17.30	5.70	1.80	15.30	●	●		●	●	●	●	●					6.00-14.00	0.10-0.20
APKT 160416R-HM	1.60	9.45	16.70	5.30	-	15.25	●	●				●	●		●				8.00-14.00	0.08-0.15
APKT 160424R-HM	2.40	9.45	16.70	5.30	-	15.20			●	●		●			●				8.00-14.00	0.08-0.15
APKT 160432R/L-HM	3.10	9.45	16.60	5.30	-	15.15	●	●		●		●			●				8.00-14.00	0.08-0.15
APKT 160448R-HM	4.80	9.45	16.40	5.20	-	15.15						●							8.00-14.00	0.08-0.15
APKT 160464R-HM	6.40	9.45	16.00	4.90	-	15.15						●			●				8.00-14.00	0.08-0.15

For cutting speed recommendations, see pages L2-8, L16-19.



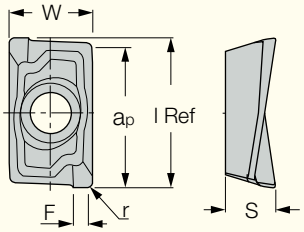


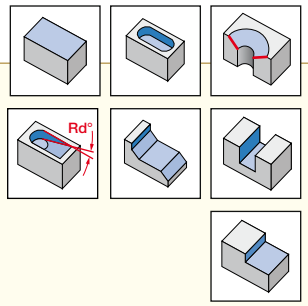


APCR 1604

Super Positive and Polished Rake Insert for Machining Aluminum and High Temperature Alloys







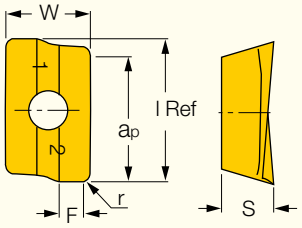
Designation	Dimensions r	W	l	S	ap	IC28	Recommended Machining Data ap (mm)	fz (mm/t)
APCR 1604PDFR-P	0.80	9.45	17.92	5.70	14.50	●	6.00-14.00	0.15-0.25

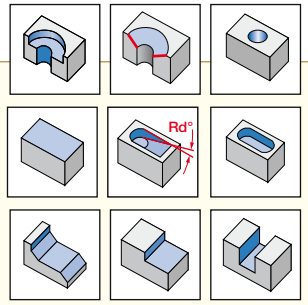
For cutting speed recommendations, see pages L2-8, L16-19.

HM90 ADKW 1505PDR

Milling Inserts for Unfavorable Conditions and Heavy Interrupted Cut on Hardened Steel



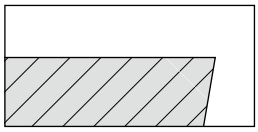


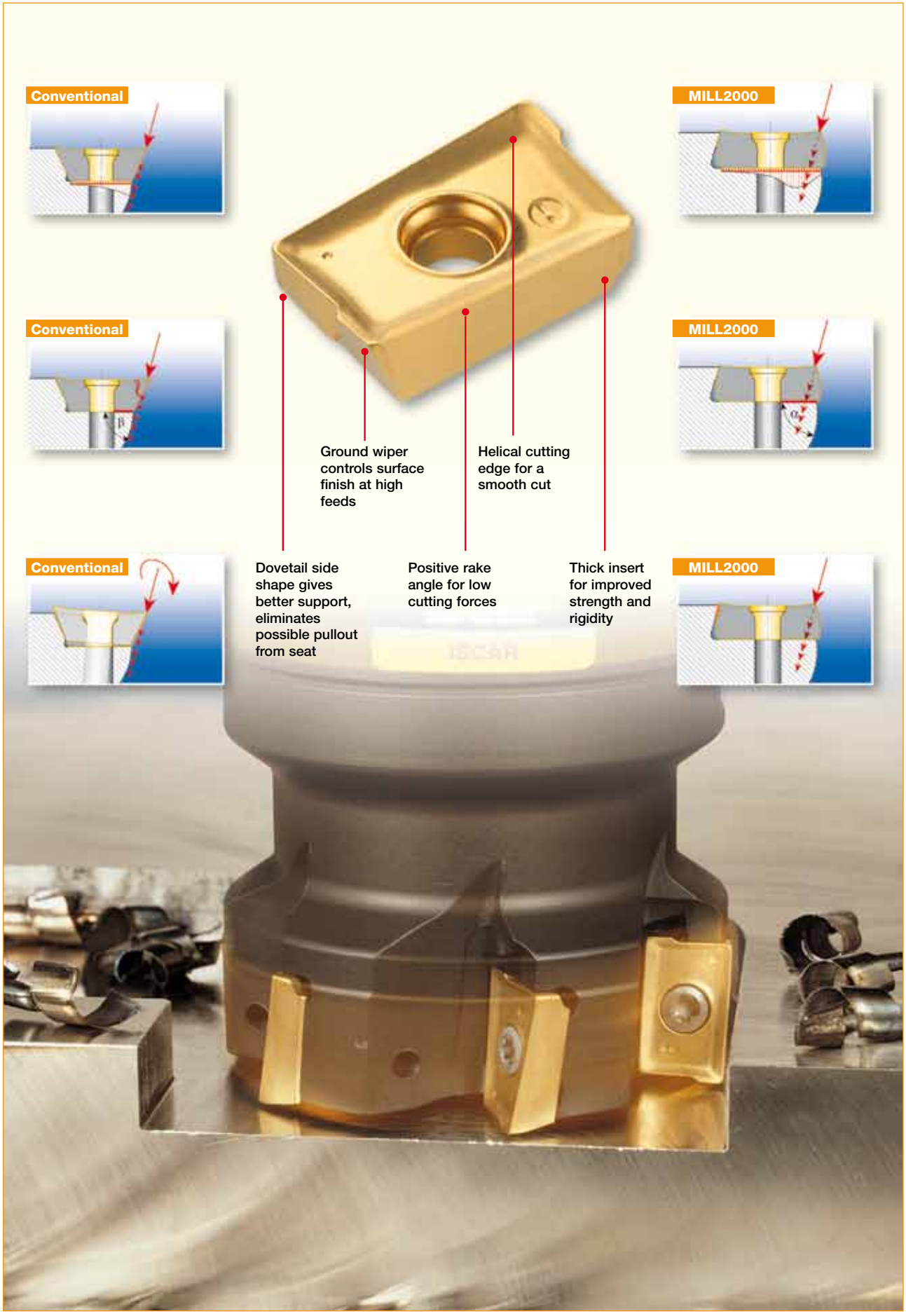


Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard IC928	IC910	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADKW 1505PDR	9.59	16.15	14.15	5.83	0.80	2.45	●	●	●	5.00-12.00	0.08-0.15

• Reinforced cutting edge, resistant to edge breakage and chipping • Recommended for milling at unfavorable conditions and heavy interrupted cut • Different corner radii can be ground • For cutting speed recommendations, see pages L2-8, L16-19.

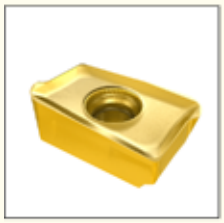
For tools, see: ADK (D12) • F75A (C36) • HM90 E90AD-15 (B30) • HM90 E90AD-CF-15 (B31) • HM90 E90AD-M-15 (B31) • HM90 F90A-15 (C26) • SM (D20).

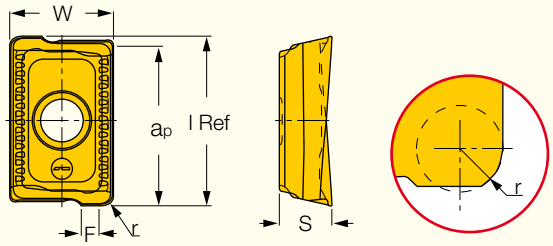


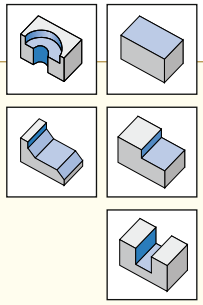

Conventional
MILL2000
Conventional
MILL2000
Conventional
MILL2000
Ground wiper controls surface finish at high feeds
Helical cutting edge for a smooth cut
Dovetail side shape gives better support, eliminates possible pullout from seat
Positive rake angle for low cutting forces
Thick insert for improved strength and rigidity

3M AXKT 1304

High Durability Inserts, for Heavy Milling



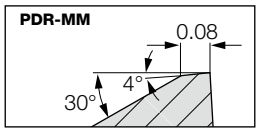


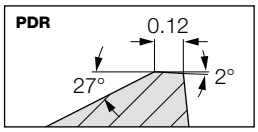


Designation	Dimensions W	l	ap	S	r	F	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC4050	IC810	IC910	IC808	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
3M AXKT 1304PDR	8.40	14.12	12.85	4.55	0.60	2.10	●	●	●		●	●	●		●	●	5.00-12.00	0.15-0.35
3M AXKT 1304PDR-MM	8.40	14.12	12.85	4.55	0.60	2.10		●		●	●	●		●		●	5.00-12.00	0.10-0.22

For tools, see: 3M AXK-13 (D10) • 3M AXK-CF-13 (D11) • 3M E90AX (B29) • 3M F90AX-13 (C23) • 3M SM (D16).

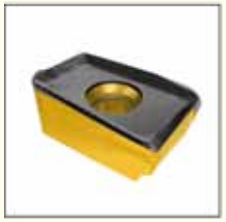
For cutting speed recommendations, see pages L2-8, L16-19.

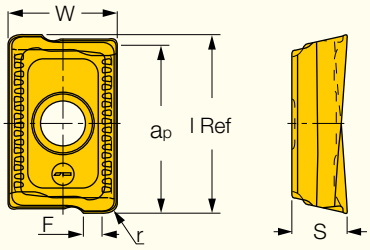


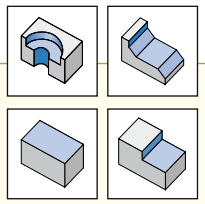


3M AXKT 1304..R-PDRMM

High Durability Inserts with a Variety of Corner Radii for Heavy Milling



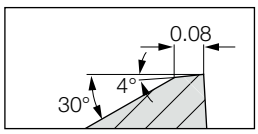




Designation	Dimensions W	r	l	ap	S	F	Tough ↔ Hard IC328	IC928	Recommended Machining Data ap (mm)	fz (mm/t)
3M AXKT 130408R-PDRMM	8.40	0.80	14.12	13.00	4.54	1.40	●	●	5.00-12.00	0.10-0.22
3M AXKT 130412R-PDRMM	8.40	1.20	13.50	12.80	4.42	1.20	●	●	5.00-12.00	0.15-0.30
3M AXKT 130416R-PDRMM	8.40	1.60	13.50	12.80	4.36	0.80	●	●	5.00-12.00	0.15-0.30
3M AXKT 130424R-PDRMM	8.40	2.40	13.50	12.75	4.18	-	●	●	5.00-12.00	0.15-0.30

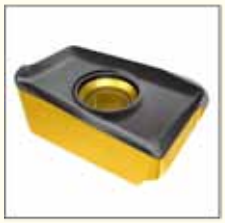
• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life. • Inserts with corner radii larger than 0.8 mm should be used on 3M SM-13 and 3M AXK tools only on the face of the cutter. • For cutting speed recommendations, see pages L2-8, L16-19.

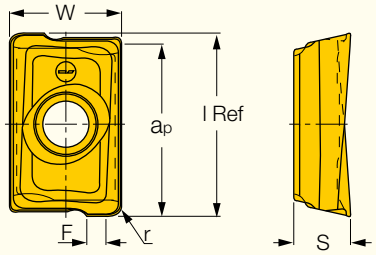
For tools, see: 3M AXK-13 (D10) • 3M AXK-CF-13 (D11) • 3M E90AX (B29) • 3M F90AX-13 (C23) • 3M SM (D16).

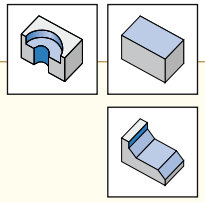


3M AXKT 2006..R-PDR

High Durability Inserts, with a Variety of Corner Radii for Heavy Milling



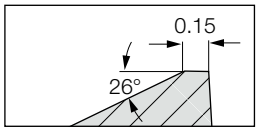




Designation	Dimensions W	r	l	a_p	S	F	Tough ↔ Hard IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 200612R-PDR	13.50	1.20	21.05	21.10	6.75	2.20	●	●	8.00-20.00	0.15-0.30
3M AXKT 200616R-PDR	13.50	1.60	21.80	20.00	6.62	2.00	●	●	8.00-20.00	0.15-0.30
3M AXKT 200624R-PDR	13.50	2.40	22.00	20.10	6.55	1.55	●	●	8.00-20.00	0.15-0.30
3M AXKT 200632R-PDR	13.50	3.20	22.00	20.10	6.46	0.90		●	8.00-20.00	0.15-0.30
3M AXKT 200640R-PDR	13.50	4.00	21.90	20.00	6.26	-	●	●	8.00-20.00	0.15-0.30

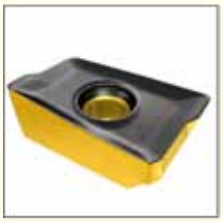
• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life. • Inserts with corner radii larger than 0.8 mm should be used on 3M SM-20 tools only on the face of the cutter. • For cutting speed recommendations, see pages L2-8, L16-19.

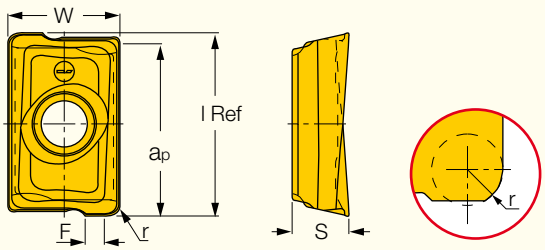
For tools, see: 3M E90AX (B29) • 3M F90AX-20 (C33) • 3M SM (D16).

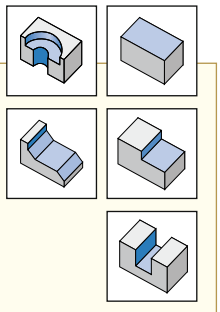


3M AXKT-2006

High Durability Inserts, for Heavy Milling Applications



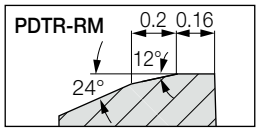


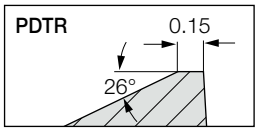


Designation	Dimensions W	l	a_p	S	r	F	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC4050	IC810	IC910	IC808	IC908	IC4100	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 2006PDTR-RM	13.50	22.40	20.70	6.80	1.00	3.34		●		●	●								8.00-20.00	0.20-0.40
3M AXKT 2006PDTR	13.50	22.50	20.20	6.80	1.00	3.05	●	●	●	●	●	●	●	●	●	●	●	●	8.00-20.00	0.15-0.30

• Reduce feed by 50% during engagement and exit from the workpiece, this practice will substantially increase insert life. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: 3M E90AX (B29) • 3M F90AX-20 (C33) • 3M SM (D16).



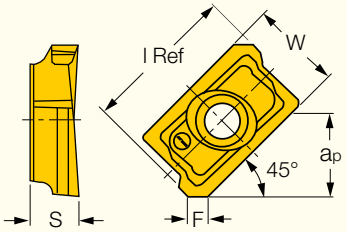


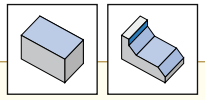
MILL2000

3M AXKT 2006ADTR

Heavy Duty Insert, for 45° Heavy Face Milling

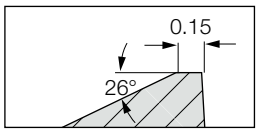






Designation	Dimensions W	l	ap	S	F	Tough ↔ Hard IC328	IC928	IC950	IC910	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
3M AXKT 2006ADTR	13.90	22.60	10.00	6.50	2.40	●	●	●	●	●	3.00-9.00	0.30-0.40

For cutting speed recommendations, see pages L2-8, L16-19.

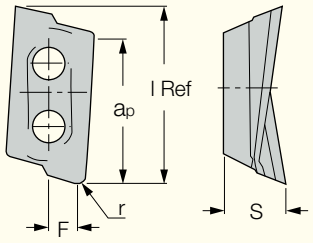


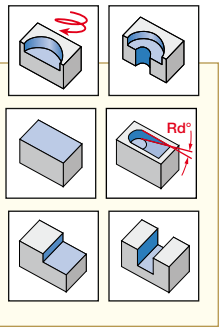
HELIPLUS

HP ADCR 1906

Milling Inserts with 19 mm Cutting Edge for Machining Aluminum



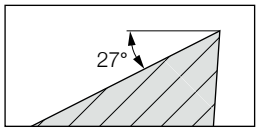




Designation	Dimensions r	l	ap	S	F	IC28	Recommended Machining Data ap (mm)	fz (mm/t)
HP ADCR 190604PDFR-P	0.40	22.88	19.53	7.38	3.50	●	5.00-18.00	0.15-0.25
HP ADCR 190620PDFR-P	2.00	22.80	19.00	7.22	1.67	●	5.00-18.00	0.15-0.25

• Super positive rake angle, polished sharp cutting edge • For aluminum and high temperature alloys • For cutting speed recommendations, see pages L2-8, L16-19.

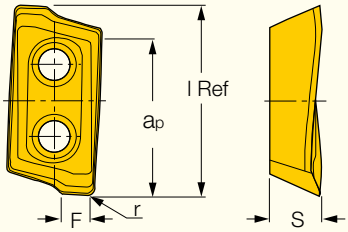
For tools, see: HP E90AT-19 (B34) • HP F90AT-19 (C32).

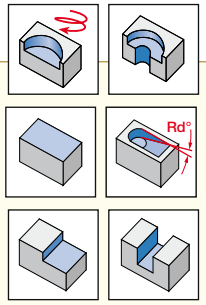


HP ADKT/ADCT 1906

Milling Inserts with 19 mm Cutting Edge, for General Use





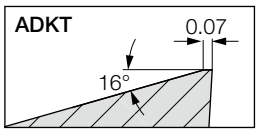


Designation	Dimensions l	ap	r	S	F	Tough ↔ Hard IC328	IC928	IC950	IC910	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HP ADKT 190608PDTR	21.80	19.20	0.80	6.85	2.90	●	●		●	●	5.00-18.00	0.08-0.15
HP ADCT 1906PDR	22.00	19.40	1.00	6.85	2.70	●	●			●	5.00-18.00	0.07-0.15
HP ADKT 190610PDTR	21.80	19.20	1.00	6.85	2.70	●	●	●	●	●	5.00-18.00	0.08-0.18
HP ADKT 190612PDTR (1)	21.80	19.20	1.20	6.85	2.40	●	●		●	●	5.00-18.00	0.08-0.15
HP ADKT 190616PDTR (1)	21.80	19.20	1.60	6.85	2.00	●	●			●	5.00-18.00	0.08-0.15
HP ADKT 190624PDTR (1)	21.80	19.20	2.40	6.85	1.00	●	●		●	●	5.00-18.00	0.08-0.15
HP ADKT 190631PDTR (1)	21.80	19.20	3.10	6.85	0.50	●	●		●	●	5.00-18.00	0.08-0.18
HP ADKT 190640PDTR (1)	20.40	19.20	4.00	6.85	0.20	●	●		●	●	5.00-18.00	0.08-0.18

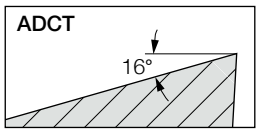
• HP ADKT-utility inserts, HP ADCT-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) Insert with corner radii larger than 1.0 mm should not be used on the HP ADK-19 cutter.

For tools, see: HP E90AT-19 (B34) • HP F90AT-19 (C32).



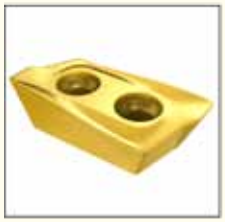
For general applications

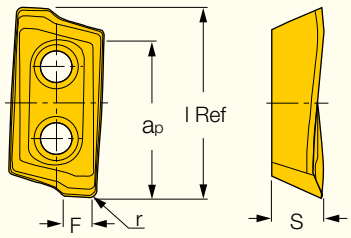


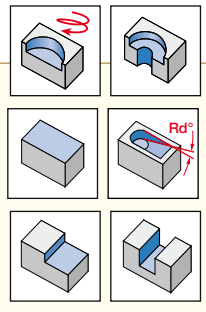
For general finishing and high temp. alloys

HP ADKT/ADCT 2207

Inserts with Two 22 mm Long Cutting Edges, for General High Shoulder Milling



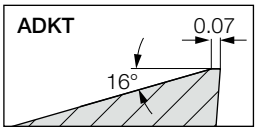




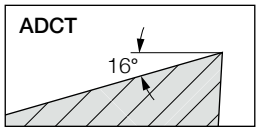
Designation	Dimensions l	ap	S	r	F	Tough ↔ Hard IC328	IC928	IC950	IC910	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HP ADCT 2207PDR	25.73	22.60	7.50	1.00	3.43	●	●			●	5.00-22.00	0.07-0.15
HP ADKT 2207PDTR	25.73	22.60	7.50	0.80	3.43	●	●	●	●	●	5.00-22.00	0.10-0.20

For tools, see: HP E90AT-22 (B35) • HP F90AT-22 (C34).

For cutting speed recommendations, see pages L2-8, L16-19.



For general applications



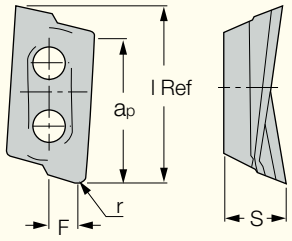
For general finishing and high temp. alloys

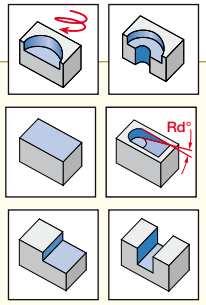
HELIPLUS

HP ADCR 2207

Milling Inserts with a Very Positive and Polished Rake, for Machining Aluminum



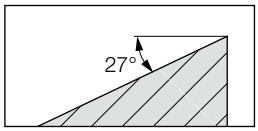




Designation	Dimensions l	r	ap	S	F	IC28	Recommended Machining Data ap (mm)	fz (mm/t)
HP ADCR 220704PDFR-P	27.70	0.40	22.40	9.60	4.88	●	5.00-22.00	0.08-0.25
HP ADCR 220704PDFR-P LM	26.14	0.40	22.40	7.52	3.81	●	5.00-22.00	0.08-0.25
HP ADCR 220720PDFR-P LM	25.90	2.00	22.70	7.40	2.50	●	5.00-22.00	0.08-0.25
HP ADCR 220732PDFR-P LM	25.70	3.20	22.40	7.49	1.20	●	5.00-22.00	0.08-0.25
HP ADCR 220750PDFR-P LM	24.30	5.00	21.60	7.49	0.47	●	5.00-22.00	0.08-0.15

• LM insert provides high 90° shoulder accuracy, especially when using the 32-50 mm cutters • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HP E90AT-22 (B35) • HP F90AT-22 (C34).

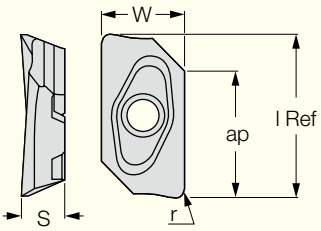


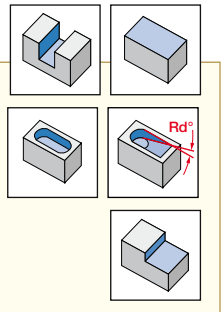
HELIALU

HM90 AXCR 1505

Super Positive Inserts with a Polished Rake, for Machining Aluminum



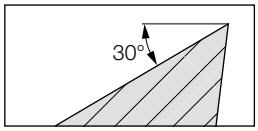




Designation	Dimensions W	S	ap	l	r	IC28	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 AXCR 150504R-P	10.00	5.00	14.00	19.20	0.40	●	6.00-14.00	0.10-0.20
HM90 AXCR 150508R-P	10.00	5.00	14.00	19.20	0.80	●	6.00-14.00	0.10-0.20
HM90 AXCR 150520R-P	10.00	5.00	14.00	19.20	2.00	●	6.00-14.00	0.10-0.20
HM90 AXCR 150525R-P	10.00	5.00	14.00	19.20	2.50	●	6.00-14.00	0.10-0.20
HM90 AXCR 150530R-P	10.00	5.00	14.00	19.20	3.00	●	6.00-14.00	0.10-0.20
HM90 AXCR 150532R-P	10.00	5.00	14.00	19.20	3.20	●	6.00-14.00	0.10-0.20
HM90 AXCR 150540R-P	10.00	5.00	14.00	19.20	4.00	●	6.00-14.00	0.10-0.20

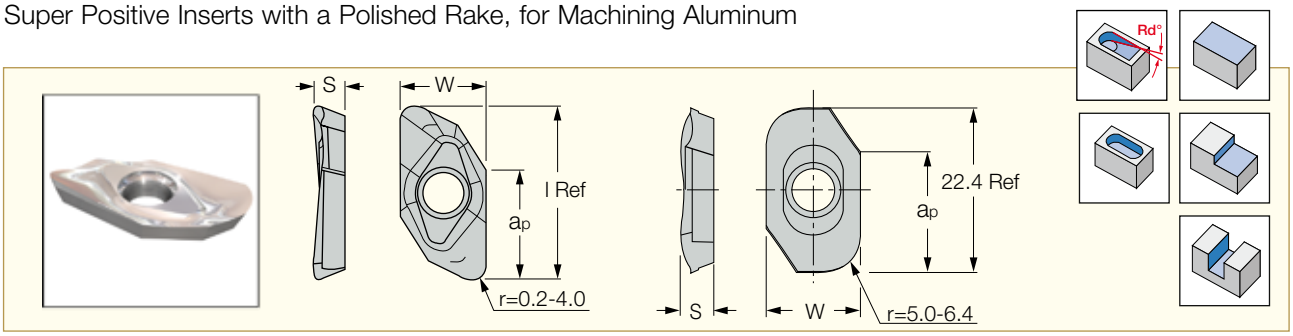
• Note: It is recommended to use the insert and screw set when machining at very high cutting speed. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HM90 EAL-15 (H7) • HM90 EAL-ER (H9) • HM90 EAL-HSK63A-15 (H8) • HM90 FAL-15 (H9).



HM90 APCR 1605..R-P

Super Positive Inserts with a Polished Rake, for Machining Aluminum



Designation	Dimensions W	r(2)	ap	l	S	Tough ↔ Hard IC28	IC08	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 APCR 160502R-P	13.10	0.20	16.90	25.30	4.78	●		8.00-14.00	0.15-0.25
HM90 APCR 160504R-P	13.10	0.40	16.70	25.30	4.76	●		8.00-14.00	0.15-0.25
HM90 APCR 160505R-P	13.10	0.50	16.70	25.30	4.76	●		8.00-14.00	0.15-0.25
HM90 APCR 160508R-P	13.10	0.80	15.90	25.30	4.73	●		8.00-14.00	0.15-0.25
HM90 APCR 160516R-P	13.10	1.60	15.70	25.30	4.70	●		8.00-14.00	0.15-0.25
HM90 APCR 160520R-P	13.10	2.00	15.20	25.30	4.64	●	●	8.00-14.00	0.15-0.25
HM90 APCR 160525R-P	13.10	2.50	15.10	24.80	4.60	●		8.00-14.00	0.15-0.25
HM90 APCR 160530R-P	13.10	3.00	15.00	24.20	4.50	●		8.00-14.00	0.15-0.25
HM90 APCR 160532R-P	13.10	3.20	15.00	24.20	4.51	●		8.00-14.00	0.15-0.25
HM90 APCR 160540R-P	13.10	4.00	14.50	23.30	4.41	●		8.00-14.00	0.15-0.25
HM90 APCR 160550R-P (1)	12.90	5.00	16.00	22.80	4.40	●		8.00-14.00	0.15-0.25
HM90 APCR 160560R-P (1)	12.90	6.00	16.00	22.80	4.40	●		8.00-14.00	0.15-0.25
HM90 APCR 160564R-P (1)	12.90	6.40	16.00	22.80	4.40	●		8.00-14.00	0.15-0.25

• Recommended to use the insert and screw set when machining at very high cutting speed. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) Use with HM90 ....16BR tools only. (2) Measured on the cutter

For tools, see: HM90 EAL-16 (H2) • HM90 EAL-16BR (H6) • HM90 EAL-CF4-16 (H3) • HM90 EAL-HSK63A-16 (H3) • HM90 FAL-16 (H4) • HM90 FAL-16BR (H6) • SM-16 (H5).

Insert and Screw Set (5+5) for High Speed Machining Applications

In order to maintain high machining reliability we strongly recommend that when replacing the worn out insert, the clamping screw will be replaced as well.
Available are packages that contain 5 **HM90 APCR 1605..R-P IC28** or **HM90 AXCR 1505..R-P IC28** inserts and 5 matching screws.
These packages contain inserts with a weight tolerance of 0.02 gm.
This tight tolerance ensures maintenance of the dynamic balance of the tool after insert indexing.

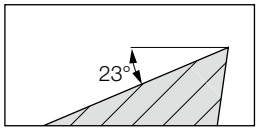


HSM90 SET APCR-P

Set Designation		5 Included Inserts		5 Included Screws
HSM90 Set APCR 160502RP IC28	=	HM90 APCR 160502R-P IC28	+	SR 14-0180
HSM90 Set APCR 160504RP IC28		HM90 APCR 160504R-P IC28		SR 14-0180
HSM90 Set APCR 160505RP IC28		HM90 APCR 160505R-P IC28		SR 14-0180
HSM90 Set APCR 160508RP IC28		HM90 APCR 160508R-P IC28		SR 14-0180
HSM90 Set APCR 160516RP IC28		HM90 APCR 160516R-P IC28		SR 14-0180
HSM90 Set APCR 160520RP IC08		HM90 APCR 160520R-P IC08		SR 14-0180
HSM90 Set APCR 160520RP IC28		HM90 APCR 160520R-P IC28		SR 14-0180
HSM90 Set APCR 160525RP IC28		HM90 APCR 160525R-P IC28		SR 14-0180
HSM90 Set APCR 160530RP IC28		HM90 APCR 160530R-P IC28		SR 14-0180
HSM90 Set APCR 160532RP IC28		HM90 APCR 160532R-P IC28		SR 14-0180
HSM90 Set APCR 160540RP IC28		HM90 APCR 160540R-P IC28		SR 14-0180
HSM90 Set APCR 160550RP IC28		HM90 APCR 160550R-P IC28		SR 14-0180
HSM90 Set APCR 160560RP IC28		HM90 APCR 160560R-P IC28		SR 14-0180
HSM90 Set APCR 160564RP IC28		HM90 APCR 160564R-P IC28		SR 14-0180

HSM90 SET AXCR-P

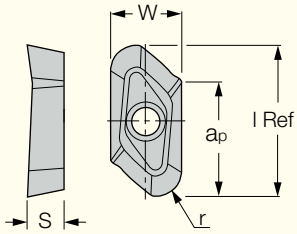
Set Designation		5 Included Inserts		5 Included Screws
HSM90 Set AXCR 150504RP IC28	=	HM90 AXCR 150504R-P IC28	+	SR 14-562
HSM90 Set AXCR 150508RP IC28		HM90 AXCR 150508R-P IC28		SR 14-562
HSM90 Set AXCR 150520RP IC28		HM90 AXCR 150520R-P IC28		SR 14-562
HSM90 Set AXCR 150530RP IC28		HM90 AXCR 150530R-P IC28		SR 14-562
HSM90 Set AXCR 150532RP IC28		HM90 AXCR 150532R-P IC28		SR 14-562

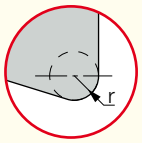


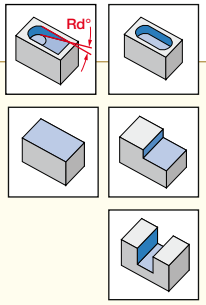
APCR 2206..-HM

Super Positive Inserts with a Polished Rake, for Machining Aluminum









Designation	Dimensions r	ap	W	l	S	IC28	Recommended Machining Data ap (mm)	fz (mm/t)
APCR 220605-HM	0.50	21.00	13.90	29.70	6.00	●	8.00-20.00	0.15-0.30
APCR 220620-HM	2.00	21.00	13.90	28.90	6.00	●	8.00-20.00	0.15-0.30
APCR 220632-HM	3.20	21.00	13.90	28.90	6.00	●	8.00-20.00	0.15-0.30
APCR 220650-HM	5.00	21.00	13.90	28.80	6.00	●	8.00-20.00	0.15-0.30
APCR 220664-HM	6.35	21.00	13.90	26.30	6.00	●	8.00-20.00	0.15-0.30

(1) Insert with corner radii larger than 0.8 mm should be used only on the face of the cutter.

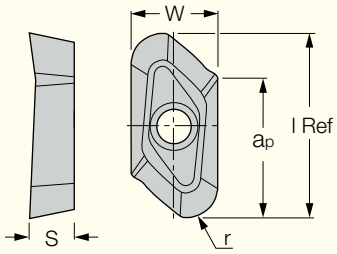
For tools, see: APK-22 (H11) • SM-22 (H11).

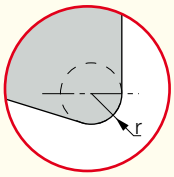
For cutting speed recommendations, see pages L2-8, L16-19.

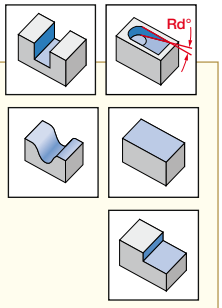
HM90 APCR 2206..R-P

Super Positive Inserts with a Polished Rake, for Machining Aluminum









Designation	Dimensions W	r	ap	l	S	IC28	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 APCR 220605R-P	13.72	0.50	22.10	29.70	6.90	●	8.00-20.00	0.07-0.12
HM90 APCR 220608R-P	13.72	0.80	22.10	29.70	6.90	●	8.00-20.00	0.07-0.12
HM90 APCR 220616R-P	13.72	1.60	22.10	29.70	6.90	●	8.00-20.00	0.15-0.25
HM90 APCR 220623R-P	13.72	2.30	22.10	29.70	6.60	●	8.00-20.00	0.15-0.25
HM90 APCR 220632R-P	13.72	3.20	21.80	29.40	6.60	●	8.00-20.00	0.15-0.25
HM90 APCR 220640R-P	13.72	4.00	21.50	29.00	6.60	●	8.00-20.00	0.20-0.30
HM90 APCR 220650R-P	13.72	5.00	21.30	28.20	6.10	●	8.00-20.00	0.20-0.30
HM90 APCR 220664R-P	13.72	6.40	20.30	25.90	5.80	●	8.00-20.00	0.20-0.30

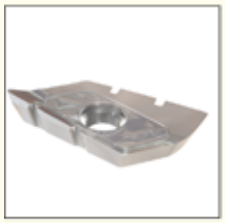
For tools, see: HM90 EAL-22 (H10) • HM90 FAL-22 (H10).

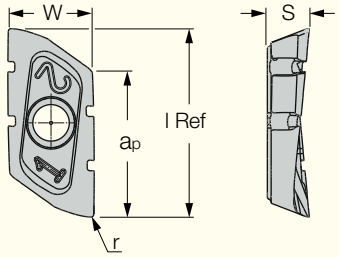
For cutting speed recommendations, see pages L2-8, L16-19.

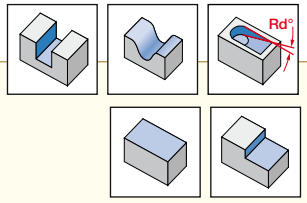
HELIALU

HM90 APCR 220605-CS

Chip Splitting Insert, for Rough Milling of Aluminum







To be used only on even number flute tools, when the "1" and "2" digits appear in an alternating order.

Designation	Dimensions W	r	ap	l	S	IC28	Recommended Machining Data ap (mm)	fz (mm/t)
HM90 APCR 220605-CS	14.60	0.50	22.00	30.90	6.90	●	8.00-20.00	0.25-0.35

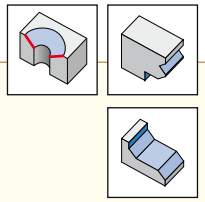
• To avoid incorrect mounting of the inserts, insert one pin into each tool pocket in an alternating order. As there is only one cavity at the insert bottom, this will prevent incorrect insert orientation. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HM90 EAL-22 (H10) • HM90 FAL-22 (H10).

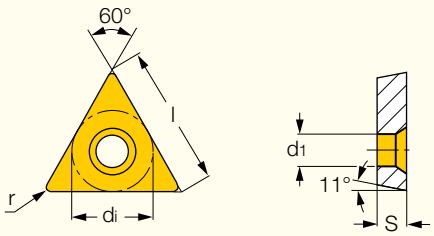
ISOTURN

TPMT

11° Positive Triangular Inserts with a Positive Chipformer and Low Cutting Forces for Internal Turning and Finishing







Designation	Dimensions l	di	S	r	d1	Tough ↔ Hard IC3028	IC635	IC50M	IC8350	IC9350	IC8250	IC9250	IC8150	IC9150	IC520M	IC20	IC807	IC907	IC20N	Recommended Machining Data ap (mm)	f (mm/rev)	fz (mm/rev)
TPMT 110202	11.00	6.35	2.38	0.20	3.00	●											●	●		0.20-2.00	0.05-0.25	0.05-0.25
TPMT 110204	11.00	6.35	2.38	0.40	3.00	●						●	●			●	●	●		1.00-3.00	0.12-0.30	0.12-0.30
TPMT 110208	11.00	6.35	2.38	0.80	3.00	●						●	●			●			●	1.00-4.00	0.15-0.30	0.15-0.30
TPMT 160304	16.50	9.52	3.18	0.40	4.30	●			●	●	●	●		●		●	●	●		1.00-4.00	0.05-0.30	0.12-0.30
TPMT 160308	16.50	9.52	3.38	0.80	4.30	●	●	●				●		●	●	●	●	●		5.00-12.00	0.08-0.15	0.15-0.35

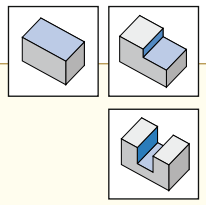
• For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see pages: E30 / T230 (B37) • E45 / T245 (B40) • E60 / T260 (B40).

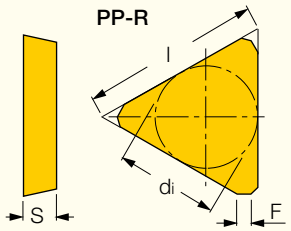
ISCARMILL

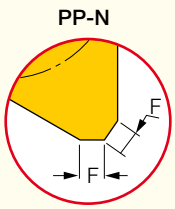
TPKN/TPKR

11° Positive Triangular Milling Inserts for General Use









Designation	Dimensions di	l	S	F	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC928	IC54	IC250	IC950	IC520M	IC910	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
TPKN 1603PP-R	9.53	16.50	3.18	1.40						●						3.00-10.00	0.10-0.15
TPKN 1603PP-R-42	9.53	16.50	3.18	1.40											●	3.00-10.00	0.10-0.15
TPKN 1603PPFR	9.53	16.50	3.18	1.40	●										●	3.00-10.00	0.10-0.15
TPKN 1603PPTN	9.52	16.50	3.18	1.20				●					●			3.00-10.00	0.10-0.15
TPKN 1603PPTR	9.53	16.50	3.18	1.40			●	●			●		●			3.00-10.00	0.10-0.15
TPKN 1603PPTR-42	9.53	16.50	3.18	1.47		●		●			●					3.00-10.00	0.10-0.15
TPKR 1603PPTR-HS	9.53	16.50	3.50	1.45		●		●	●		●	●	●			3.00-10.00	0.12-0.20
TPKN 2204PD-R	12.70	22.00	4.76	1.40						●						3.00-15.00	0.10-0.15
TPKN 2204PDFR	12.70	22.00	4.76	1.40											●	3.00-15.00	0.10-0.15
TPKN 2204PDTR/L	12.70	22.00	4.76	1.40			●	●			●	●	●			3.00-15.00	0.10-0.15
TPKN 2204PDTR-42	12.70	22.00	4.76	1.80		●		●			●	●	●	●		3.00-15.00	0.10-0.15
TPKR 2204PD-R-76	12.70	22.00	4.76	1.80		●		●				●				3.00-15.00	0.10-0.15
TPKR 2204PDTR-HS	12.70	22.00	4.76	1.88		●	●	●	●		●	●	●			3.00-15.00	0.12-0.20

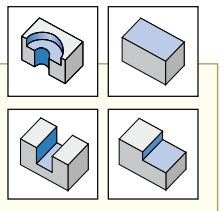
For tools, see: F90 (C30).

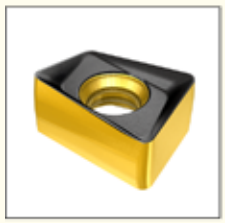
For cutting speed recommendations, see pages L2-8, L16-19.

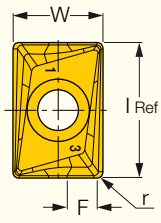
HELIDO 490 LINE

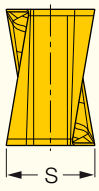
H490 ANKX/ANCX-09

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges









Designation	Dimensions W	l	S	r	F	Tough ↔ Hard IC330	IC830	IC810	IC380	IC808	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANCX 090404PDR	6.50	8.50	5.20	0.40	4.80	●	●	●		●			3.00-8.00	0.08-0.15
H490 ANCX 090408PDR	6.50	8.50	5.20	0.80	4.40	●	●	●	●	●			3.00-8.00	0.08-0.15
H490 ANCX 090412PDR	6.50	8.50	4.80	1.20	4.20	●	●	●		●			3.00-8.00	0.08-0.15
H490 ANCX 090416PDR	6.50	8.50	4.70	1.60	3.60	●	●	●		●			3.00-8.00	0.08-0.15
H490 ANKX 090408PNTR	6.50	8.50	5.20	0.80	5.00	●	●	●		●	●	●	3.00-8.00	0.10-0.18

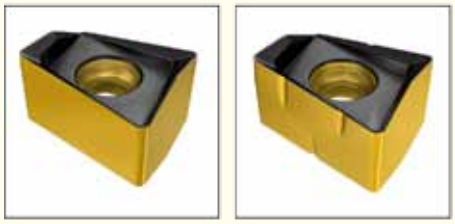
• ANKX-Utility inserts. ANCX-Precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

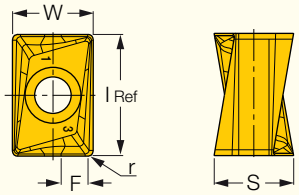
For tools, see: H490 ANK-09C (K113) • H490 E90AX-09 (B20) • H490 E90AX-M (B21) • H490 E90AX-MM (B21) • H490 F90AX-09 (C13).

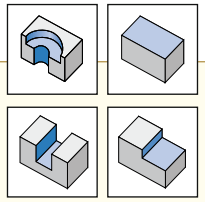
HELIDO 490 LINE

H490 ANKX/ANCX-12

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges







Designation	Dimensions W	r	S	l	F	Tough ↔ Hard IC330	IC328	IC830	IC810	IC380	IC808	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANCX 120508PDR	10.00	0.80	9.45	13.67	3.50	●		●	●	●	●	●	●	4.00-11.00	0.08-0.15
H490 ANKX 120504PNTR	10.00	0.40	9.15	13.70	3.80	●		●						4.00-11.00	0.15-0.30
H490 ANKX 120508PNTR	10.00	0.80	9.15	13.67	3.50	●	●	●	●	●	●	●	●	4.00-11.00	0.15-0.30
H490 ANKX 120510PNTR	10.00	1.00	8.90	13.70	3.40			●						4.00-11.00	0.15-0.30
H490 ANKX 120512PNTR	10.00	1.20	8.90	13.70	3.20			●						4.00-11.00	0.15-0.30
H490 ANKX 120516PNTR	10.00	1.60	8.60	13.70	2.80			●						4.00-11.00	0.15-0.30
H490 ANKX 120520PNTR	10.00	2.00	8.70	13.70	2.80			●						4.00-11.00	0.15-0.30
H490 ANKX 120524PNTR	10.00	2.40	8.60	13.70	2.80			●						4.00-11.00	0.15-0.30
H490 ANKX 1205PNTR-CS [1]	10.00	0.80	9.15	13.70	3.50			●						8.00-11.00	0.15-0.20
H490 ANKX 1205PNTR-RM	10.00	0.80	9.15	13.70	3.50			●			●			4.00-11.00	0.20-0.30

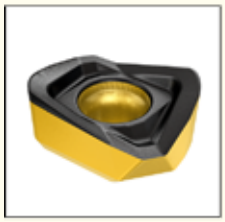
• ANKX-utility inserts. ANCX-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

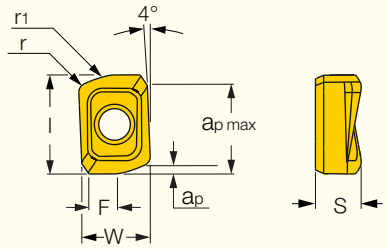
[1] The maximum feed per tooth for chip splitting effect is up to 0.20 mm/t.

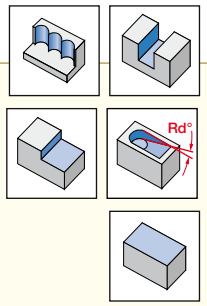
For tools, see: H490 E90AX-12 (B27) • H490 F90AX-12 (C21).

H490 ANKX/ANCX 1205-FF

Single-Sided Rectangular Inserts with 2 Helical Cutting Edges, for Very High Feed Milling at Small Depth of Cut







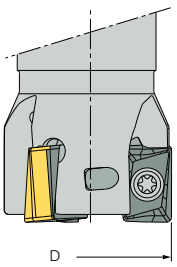
Designation	Dimensions l	S	W	F	r	r_1	$a_{p\ max}$ [1]	a_p [2]	IC830	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANCX 1205R15T-FF	13.50	6.40	10.20	3.50	1.50	6.00	12.00	2.00	●	0.50-2.00	1.00-2.00
H490 ANKX 1205R15T-FF	13.50	6.40	10.20	3.50	1.50	6.00	12.00	2.00	●	0.50-2.00	1.00-2.00

• The cutting diameter of the tool is 0.5 mm larger than the nominal diameter when using this insert. • Tool corner should be modified by rounding to R2.0 mm. • The corner radius for CNC programming is 2.50 mm. • At D.O.C. larger than apmax, regular insert feed should be applied. • For cutting speed recommendations, see pages L2-8, L16-19.

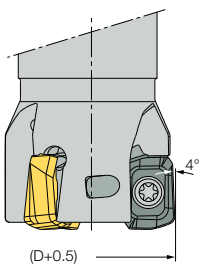
[1] At ap>2 mm, regular insert feed should be applied. [2] The ap range for fast feed up to 2 mm/t can be applied

For tools, see pages: H490 E90AX-12 (B27) • H490 F90AX-12 (C21).

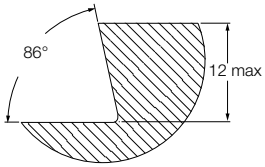
Insert Mounting in a Standard Tool



Tool with regular inserts



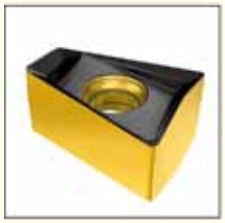
Tool with H490 ANKX 1205... FF inserts

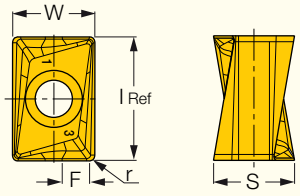


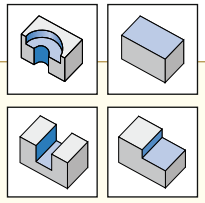
Shoulder angle when H490 ANKX 1205...-FF inserts are used

H490 ANKX/ANCX-17

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges







Designation	Dimensions W	l	S	r	F	Tough ↔ Hard IC330	IC328	IC830	IC928	IC4050	IC5400	IC810	IC910	IC380	IC808	IC908	DT7150	IC4100	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANCX 170608PDR	11.20	16.70	10.40	0.80	4.70	●		●				●		●	●	●	●		●	5.00-15.00	0.08-0.15
H490 ANKX 1706PNTR-CS (1)	11.20	16.70	10.40	0.80	4.70			●												5.00-15.00	0.15-0.40
H490 ANKX 1706PNTR-RM	11.20	16.70	10.40	0.80	4.70			●							●					5.00-15.00	0.20-0.40
H490 ANKX 170604PNTR	11.20	16.70	10.40	0.40	4.70	●		●												5.00-15.00	0.15-0.30
H490 ANKX 170608PNTR	11.20	16.70	10.40	0.80	4.70	●	●	●	●	●	●	●	●	●	●	●	●	●	●	5.00-15.00	0.15-0.40
H490 ANKX 170610PNTR (2)	11.20	16.70	10.00	1.00	1.20				●											5.00-15.00	0.15-0.40
H490 ANKX 170612PNTR (2)	11.20	16.70	10.50	1.20	3.50			●	●						●					5.00-15.00	0.15-0.40
H490 ANKX 170616PNTR (2)	11.20	16.70	10.50	1.60	3.10			●	●						●					5.00-15.00	0.15-0.40
H490 ANKX 170620PNTR (2)	11.20	16.70	10.50	2.00	2.70			●	●						●					5.00-15.00	0.15-0.40
H490 ANKX 170624PNTR (2)	11.20	16.70	10.50	2.40	2.30			●	●						●					5.00-15.00	0.15-0.40

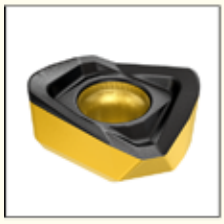
• ANKX-utility inserts. ANCX-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

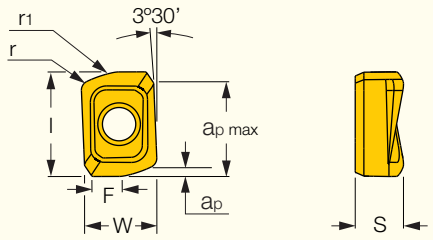
(1) The maximum feed per tooth for chip splitting effect is up to 0.22 mm/t. (2) Inserts with corner radii larger than 0.8 mm should be used on H490 SM tools only on the face of the cutter.

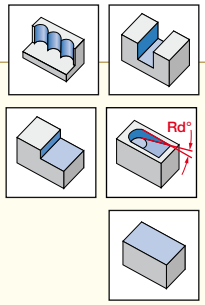
For tools, see: H490 ANKD-C# (D15) • H490 E90AX-17 (B32) • H490 E90AX-17-C# (B33) • H490 F90AX-17 (C29) • H490 SM-17 (D15).

H490 ANKX/ANCX 1706-FF

Single-Sided Rectangular Inserts with 2 Helical Cutting Edges, for Fast Feed Milling at Small Depth of Cut







Designation	Dimensions l	S	W	F	r	r_1	$a_{p\ max}$(1)	a_p(2)	R_d°	Tough ↔ Hard IC830	IC5400	Recommended Machining Data a_p (mm)(3)	f_z (mm/t)
H490 ANCX 1706R15T-FF	16.80	7.80	11.70	4.60	1.60	15.00	15.00	2.00	-	●		1.50-15.00	1.00-1.50
H490 ANKX 1706R15T-FF	16.80	7.80	11.70	4.60	1.60	15.00	15.00	2.00	6.5	●	●	0.50-2.00	1.00-2.00

• The cutting diameter of the tool is 1.5 mm larger than the nominal diameter when using this insert. • The corner radius for CNC programming is 2.85 mm.
• No tool radius modifications is required. • At D.O.C. larger than apmax, regular insert feed should be applied.
• For cutting speed recommendations, see pages L2-8, L16-19.

(1) At ap>2 mm, regular insert feed should be applied. (2) The ap range for fast feed is limited up to 2 mm.

(3) Valid only at up to 2 mm D.O.C.

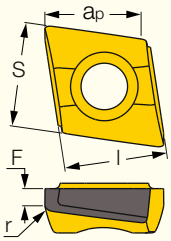
For tools, see pages: H490 E90AX-17 (B32) • H490 F90AX-17 (C29).

SUMOMILL
290 LINE

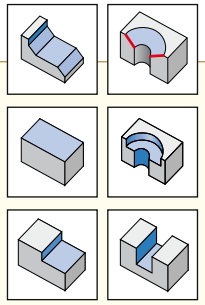
T290 LNMT/LNHT 0502

Tangential Inserts with 2 Cutting Edges









Designation	Dimensions W	l	a_p	S	F	r	Tough ↔ Hard IC330	IC830	IC5400	IC810	IC808	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T290 LNHT 050202TR	2.80	5.70	5.00	5.80	1.20	0.20		●			●		2.00-5.00	0.03-0.07
T290 LNHT 050204TR	2.80	5.70	5.00	5.80	1.00	0.40		●					2.00-5.00	0.03-0.07
T290 LNHT 050208TR	2.80	5.70	5.00	5.80	1.00	0.80		●					2.00-5.00	0.03-0.07
T290 LNHT 050210TR	2.80	5.70	5.00	5.80	1.00	1.00		●					2.00-5.00	0.03-0.07
T290 LNMT 050204TR	2.80	5.70	5.00	5.80	1.00	0.40	●	●	●	●	●	●	2.00-5.00	0.04-0.08

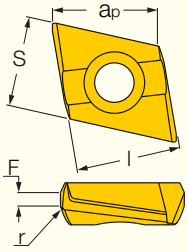
• LNMT-utility inserts. LNHT-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

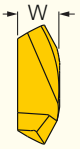
For tools, see: E30 / T230 (B37) • E45 / T245 (B40) • E60 / T260 (B40) • T290 ELN-05 (B11) • T290 ELN-M-05 (B11) • T290 ELN-MM-05 (B12) • TS T290 ELN (B12).

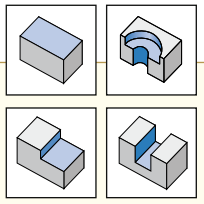
T290 LNMT/LNHT 1004

Tangential Insert with 2 Cutting Edges









Designation	Dimensions W	l	a_p	S	F	r	Tough ↔ Hard IC330	IC830	IC5400	IC810	IC808	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T290 LNMT 100405TR	4.10	10.40	10.00	8.90	1.30	0.50	●	●	●	●	●	●	3.00-9.00	0.08-0.20

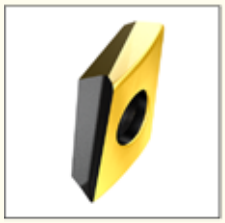
• LNMT-utility inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

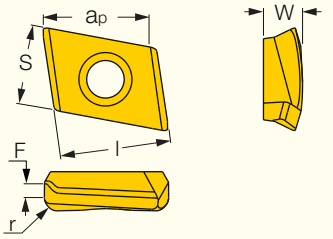
For tools, see: T290 ELN-10 (B22) • T290 FLN-10 (C15).

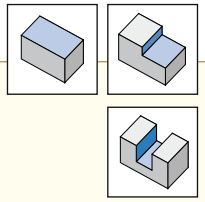
SUMOMILL
290 LINE

T290 LNMT/LNHT 1506

Tangential Insert with 2 Cutting Edges







Designation	Dimensions W	l	ap	S	F	r	Tough ↔ Hard IC330	IC830	IC5400	IC810	IC380	IC808	IC5100	Recommended Machining Data ap (mm)	fz (mm/t)
T290 LNHT 150604TR	5.60	15.90	15.00	11.50	2.00	0.40		●						5.00-15.00	0.10-0.22
T290 LNMT 150608TR	5.60	15.90	15.00	11.50	2.00	0.80	●	●	●	●	●	●	●	5.00-15.00	0.10-0.22

• LNMT-utility inserts. LNHT-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

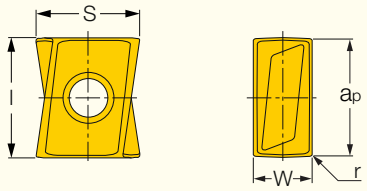
For tools, see: T290 FLN-15 (C24).

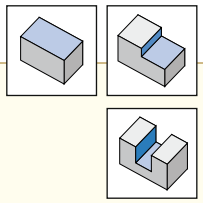
HELITANG
T490 LINE

T490 LNMT/LNHT 0804

Tangentially Clamped Inserts with 4 Helical Cutting Edges







Designation	Dimensions W	l	ap	r(3)	S	Tough ↔ Hard IC330	IC328	IC830	IC5400	IC810	IC808	IC5100	Recommended Machining Data ap (mm)	fz (mm/t)
T490 LNHT 080404PNR	4.24	8.59	8.00	0.40	7.51	●	●	●		●	●		1.50-5.00	0.08-0.15
T490 LNHT 080408PNR	4.24	8.59	8.00	0.80	7.16	●		●		●	●		1.50-5.00	0.08-0.15
T490 LNHT 080412PNR	4.24	8.59	8.00	1.20	6.87	●		●		●	●		1.50-5.00	0.08-0.15
T490 LNHT 080416PNR	4.24	8.59	8.00	1.60	6.74	●		●		●	●		1.50-5.00	0.08-0.15
T490 LNMT0804PNR-CS (1)	4.24	8.59	8.00	0.40	7.43			●			●		1.50-5.00	0.10-0.15
T490 LNHT 080404PNR-RD (2)	4.24	8.59	8.00	0.40	7.43			●					1.50-5.00	0.08-0.15

• LNMT-utility inserts. LNHT-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) Chip splitting cutting edge (2) Used for ramping down applications on 16-20 mm tools (see table below). (3) Radius obtained on workpiece

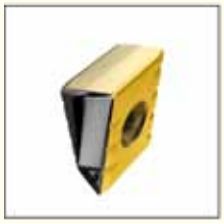
For tools, see pages: T490 ELN-08 (B18) • T490 ELN-M-08 (B19) • T490 ELN-MM..-08 (B19) • T490 FLN-08 (C12) • T490 LNM-08 (D5).

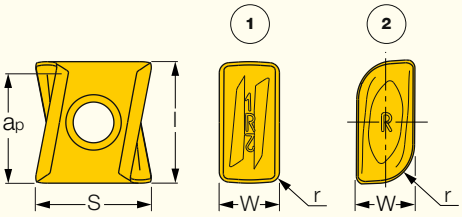
T490 LNHT 0804PNR-RD

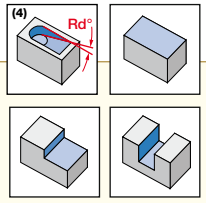
Tool Diameter	a - Rampdown
16	2°
18	1.85°
20	1.7°

T490 LNMT/LNHT 1306

Tangentially Clamped Inserts with 4 Helical Cutting Edges







Designation	Dimensions W	l	a_p	r(6)	S	Fig	Tough ↔ Hard IC330	IC328	IC830	IC928	IC4050	IC5400	IC810	IC380	IC808	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T490 LNMT 1306PNTR	6.65	13.74	12.50	0.80	13.05	1	●	●	●	●	●	●	●	●	●	●	●	4.00-12.00	0.10-0.25
T490 LNHT 1306PNTR/L (1)	6.65	13.81	12.50	0.80	13.05	1	●		●				●		●	●	●	4.00-12.00	0.10-0.20
T490 LNMT 1306PNTR-CS (2)	6.65	13.74	12.50	0.80	13.05	1	●		●				●					4.00-12.00	0.10-0.20
T490 LNHT 1306PN-R PL (3)	6.65	13.81	12.50	0.80	13.05	1	●		●						●			4.00-12.00	0.10-0.20
T490 LNHT 1306PNTR-RD (4)	6.65	13.81	12.50	0.80	13.05	1			●				●					4.00-12.00	0.10-0.20
T490 LNMT 1306PNTR-RD (4)	6.65	13.75	12.50	0.80	13.05	1			●									4.00-12.00	0.10-0.20
T490 LNHT 130612PNTR	6.65	13.81	12.50	1.20	13.00	1							●					4.00-12.00	0.10-0.20
T490 LNHT 130616PNTR/L (1)	6.65	13.81	12.50	1.60	12.88	1	●		●									4.00-12.00	0.10-0.20
T490 LNMT 130616PNTR	6.65	13.75	12.50	1.60	12.88	1			●									4.00-12.00	0.10-0.25
T490 LNHT 130624PNTR/L (1)	6.65	13.80	12.50	2.40	12.50	1	●		●									4.00-12.00	0.10-0.20
T490 LNHT 130631PNTR/L	6.65	13.81	12.50	3.10	12.37	1	●		●									4.00-12.00	0.10-0.20
T490 LNMT 130631PNTR	6.65	13.75	12.50	3.10	12.45	1	●		●									4.00-12.00	0.10-0.25
T490 LNHT 130640PNTR (5)	6.65	13.63	12.50	4.00	12.60	2	●		●									4.00-12.00	0.10-0.20
T490 LNHT 130650PNTR (5)	6.65	13.63	12.50	5.00	12.45	2	●		●									4.00-12.00	0.10-0.20
T490 LNHT 130660PNTR (5)	6.65	13.63	12.50	6.00	12.45	2			●									4.00-12.00	0.10-0.25
T490 LNHT 130664PNTR (5)	6.65	13.63	12.50	6.35	12.28	2	●		●						●			4.00-12.00	0.10-0.20

• LNMT-utility inserts. LNHT-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

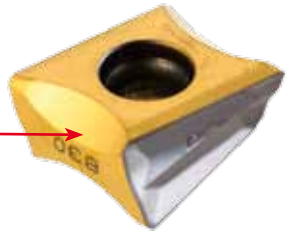
(1) Left-hand insert used on special left-hand cutters (2) Chip splitting insert (3) Positive rake face, for stainless steel and high temperature alloys. (4) Used for ramping down applications on tools larger than 32 mm (see table below). (5) 2 cutting edges only (6) Radius obtained on workpiece

For tools, see: T490 ELN-13 (B28) • T490 ELN-13-C# (B29) • T490 ELN-CF-13 (B28) • T490 FLN-13 (C22) • T490 LNK-13 (D6) • T490 LNK-13-BT (D7) • T490 LNK-13-C# (D7) • T490 LNK-13-CF (D6) • T490 LNK-13-INT (D8) • T490 SM-13 (D14).

T490 LNHT 1306PNTR-RD

Tool Diameter	a - Rampdown
32	2.8°
40	2°
50	1.5°
63	1.1°
80	0.9°
100	0.7°
125	0.5°

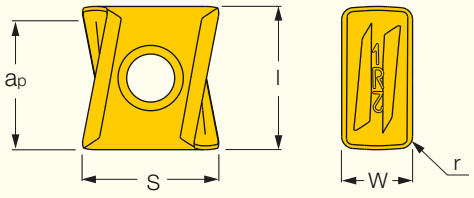
Special chamfer for ramping down applications

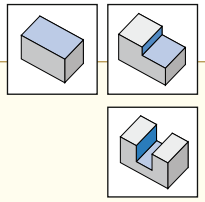


T490 LNAR 1306

Tangentially Clamped Precision Ground Inserts with a Super Positive Rake for Machining Aluminum







Designation	Dimensions W	l	ap	r	S	Tough ↔ Hard IC330	IC07	Recommended Machining Data ap (mm)	fz (mm/t)
T490 LNAR 1306PN-R	6.65	13.80	12.50	0.80	13.00	●		4.00-12.00	0.08-0.20
T490 LNAR 1306PN-R-P	6.65	13.80	12.50	0.80	13.00		●	4.00-12.00	0.08-0.20

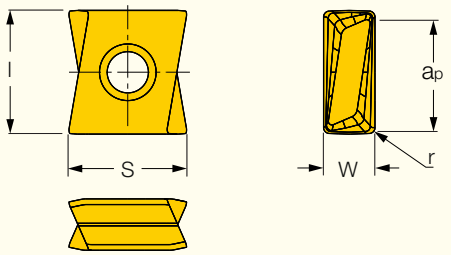
• For T490 ELN-13 on diameter 25 mm at ap=5, fz=0.15 at ap=10, fz=0.1 • For cutting speed recommendations, see pages L2-8, L16-19.

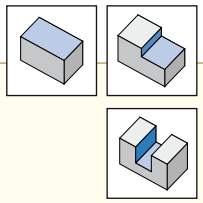
For tools, see: T490 ELN-13 (B28) • T490 ELN-13-C# (B29) • T490 ELN-CF-13 (B28) • T490 FLN-13 (C22) • T490 LNK-13 (D6) • T490 LNK-13-BT (D7) • T490 LNK-13-C# (D7) • T490 LNK-13-CF (D6) • T490 LNK-13-INT (D8) • T490 SM-13 (D14).

T490 LNMT/LNHT 1607

Tangentially Clamped Insert with 4 Helical Cutting Edges







Designation	Dimensions W	l	ap	r	S	Tough ↔ Hard IC330	IC328	IC830	IC5400	IC810	IC808	IC5100	Recommended Machining Data ap (mm)	fz (mm/t)
T490 LNHT 160708PNR	7.04	17.00	16.00	0.80	15.83	●		●		●	●		5.00-15.00	0.15-0.25
T490 LNHT 160712PNR	7.04	17.00	16.00	1.20	15.83					●			5.00-15.00	0.15-0.25
T490 LNHT 160716PNR	7.04	17.00	16.00	1.60	15.83	●		●		●	●		5.00-15.00	0.15-0.25
T490 LNHT 160724PNR	7.04	17.00	16.00	2.40	15.83	●		●		●			5.00-15.00	0.15-0.25
T490 LNHT 160732PNR	7.04	17.00	16.00	3.20	15.83	●		●		●	●		5.00-15.00	0.15-0.25
T490 LNMT 1607PN-R	7.04	17.00	16.00	0.80	15.83	●	●	●	●	●	●	●	5.00-15.00	0.15-0.25
T490 LNMT 1607PN-R-CS (1)	7.04	17.00	16.00	0.80	15.83			●					5.00-15.00	0.15-0.20

(1) Chip splitting insert

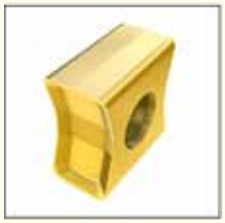
For tools, see: T490 ELN-16 (B32) • T490 FLN-16 (C28).

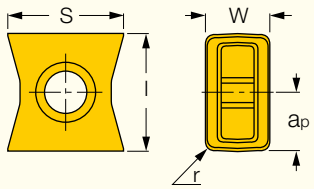
• For cutting speed recommendations, see pages L2-8, L16-19.

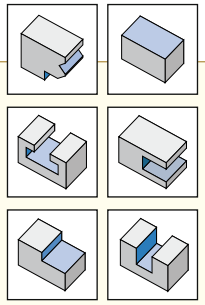
TANGMILL
TANGENTIAL LINE

LNKX/LNMT 1106

Tangentially Clamped Inserts with a Very Positive Chipformer and Reinforced Cutting Edge





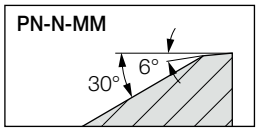


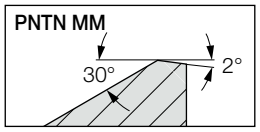
Designation	W	l	S	r	a_p(1)	C328	C928	C950	C4050	C5400	C910	C908	DT7150	C4100	Recommended Machining Data a_p (mm)	Recommended Machining Data f_z (mm/t)
	Dimensions					Tough ↔ Hard										
LNKX 1106PN-N MM	6.00	11.16	11.00	0.80	5.00	●	●	●	●		●	●	●	●	1.50-5.00	0.15-0.20
LNMT 1106PN-N MM	6.00	11.16	11.00	0.80	10.00	●	●	●	●	●	●	●	●	●	1.50-5.00	0.17-0.25

• Molded chipformer to produce positive cutting • Reduced cutting forces enable higher feed capability • LNKX... is peripherally ground for accuracy and improved surface finish • LNMT... is an economical, utility insert • LNKX 1106PNTN MM inset has a reinforced, chamfered land • 4 R.H. and4 L.H. cutting edges when used on F90LN... cutters • For cutting speed recommendations, see pages L2-8, L16-19.

(1) D.O.C. when the insert is on the cutter

For tools, see: F86LNX-11 (C35) • F90LN-FR CA11 (H12) • F90LN-N11 (C18) • SDN-CALN11 (G38).

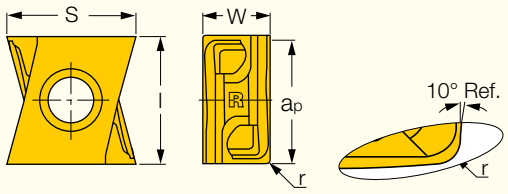


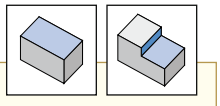


LNHT 1106 PN-R HT

Tangentially Clamped Inserts with 4 Straight Right-Hand Cutting Edges



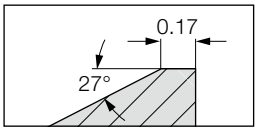




Designation	W	l	S	r	a_p	IC328	IC928	IC910	IC908	Recommended Machining Data a_p (mm)	Recommended Machining Data f_z (mm/t)
	Dimensions					Tough ↔ Hard					
LNHT 1106PN-R HT	5.97	11.15	11.00	0.80	10.00	●	●	●	●	2.00-7.00	0.15-0.25

• Right-hand insert, with 4 cutting edges • ap max=10 mm for cast iron applications (for each pass), ap max=8 mm for steel applications • Can machine a 90° shoulder according to the table below • For cutting speed recommendations, see pages L2-8, L16-19.

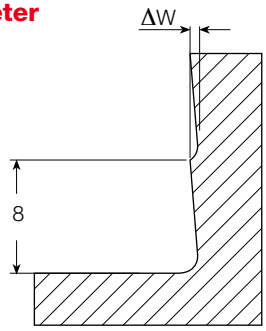
For tools, see: F90LN-FR CA11 (H12) • F90LN-N11 (C18) • SDN-CALN11 (G38).



Mismatch as a function of cutting diameter

LNHT 11..
Δh=8

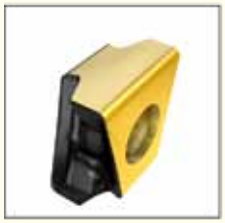
Dtool	ΔW
40	0.12
50	0.06
63	0.03
80	0.04
100	0.01
125	0.02

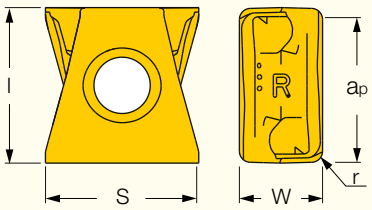


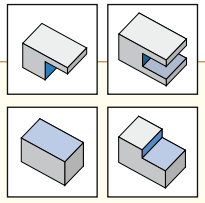
TANGMILL
TANGENTIAL LINE

LNHT 1106 PN-N HT

Tangentially Clamped Inserts with Straight, Right- and Left-Hand Cutting Edges



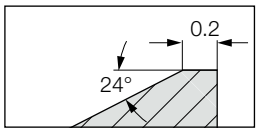




Designation	Dimensions W	l	S	r	a_p	Tough ↔ Hard IC928	IC910	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHT 1106PN-N HT	5.97	11.16	11.00	0.80	10.00	●	●	●	2.00-7.00	0.15-0.25

• 2 right-and 2 left-hand inserts • ap max=10 mm for cast iron applications (for each pass), ap max=8 mm for steel applications • Can machine 90° shoulders, see table below • For cutting speed recommendations, see pages L2-8, L16-19.

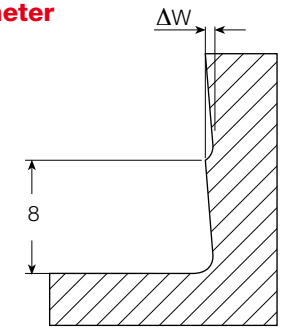
For tools, see pages: F90LN-FR CA11 (H12) • F90LN-N11 (C18) • SDN-CALN11 (G38).



Mismatch as a function of cutting diameter

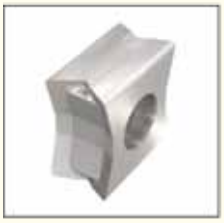
LNHT 11..
Δh=8

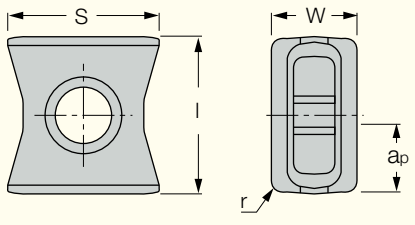
Dtool	ΔW
40	0.12
50	0.06
63	0.03
80	0.04
100	0.01
125	0.02

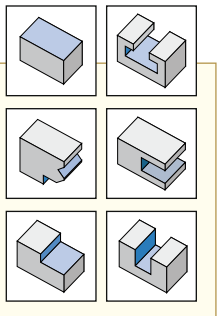


LNAR 1106

Tangentially Clamped Inserts with Positive Polished Rake





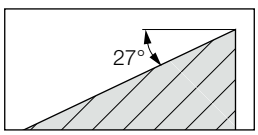


Designation	Dimensions W	l	S	r	a_p(1)	Tough ↔ Hard IC07	IC907	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAR 1106 PN-N	6.00	11.16	10.72	0.50	5.00		●	1.50-5.00	0.15-0.20
LNAR 1106 PN-N-P	6.00	11.16	10.72	0.50	5.00	●		1.50-5.00	0.15-0.20

• Polished rake and sharp cutting edge • Recommended for machining high silicon and cast aluminum, titanium and magnesium • 4 R.H. and 4 L.H. cutting edges • For cutting speed recommendations, see pages L2-8, L16-19.

(1) D.O.C. when the insert is on the cutter.

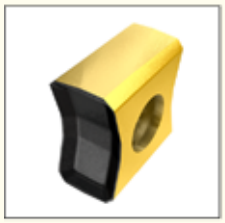
For tools, see pages: F90LN-FR CA11 (H12) • F90LN-N11 (C18).

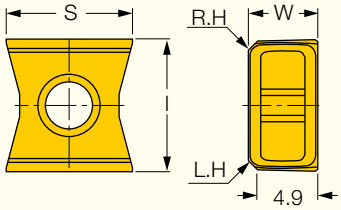


TANGMILL
TANGENTIAL LINE

LNAT 1106-W

Tangentially Clamped Wiper Inserts





Designation	Dimensions W	I	S	F	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 1106PN-W (1)	6.00	11.38	10.94	4.90	●	0.50-2.00	0.10-0.15

• When feed per revolution is less than 4 mm it is recommended to use only one wiper insert. When feed per revolution is greater than 4 mm, it is recommended to use two wiper inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) Wiper insert with two right- and two left-hand cutting edges, for 90° lead angle in F90LN cutters.

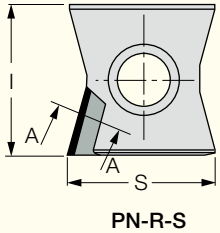
For tools, see pages: F86LNX-11 (C35) • F90LN-FR CA11 (H12) • F90LN-N11 (C18).

TANGMILL
TANGENTIAL LINE

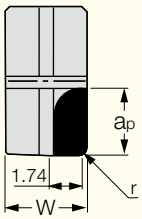
LNAR 1106 (PCD)

Tangentially Clamped Milling Inserts with a Brazed PCD Tip for Machining Aluminum

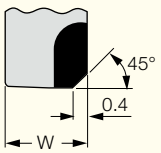




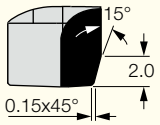
PN-R-S

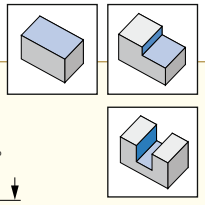


X45PN-R-S



X75PN-R-S



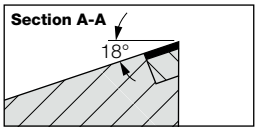


A single R.H. cutting edge PCD insert

Designation	Dimensions W	l	S	r	Ch	a°	a_p(1)	Tough ↔ Hard ID8	ID5	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAR 110604PN-R-S	6.00	11.00	10.72	0.40	-	90	2.00	●	●	0.10-2.00	0.10-0.25
LNAR 110604X45PN-R-S	6.00	11.00	10.72	-	0.4	45	2.00	●	●	0.10-2.00	0.10-0.25
LNAR 110620X75PN-R-S	6.00	11.00	10.72	-	0.15	75	2.00	●	●	0.10-2.00	0.10-0.25

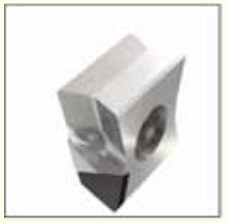
• The chamfered corner used for reduced chipping on the machined component edges • Use ID5 for aluminum alloys with <12% silicon • Use ID8 for aluminum alloys with >12% silicon. • The inserts are supplied with spare screws. • For D.O.C. and cutting speed recommendations see pages L6, L18.

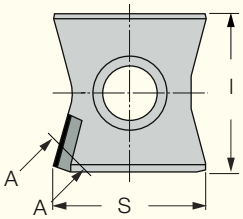
For tools, see: F90LN-FR CA11 (H12) • F90LN-N11 (C18).

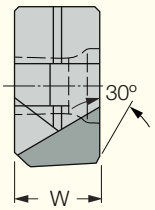


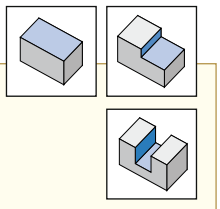
LNAR 1106PN-R-S-W (PCD)

Tangentially Clamped Wiper Milling Inserts with a Brazed PCD Tip, for Machining Aluminum







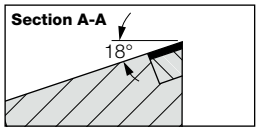


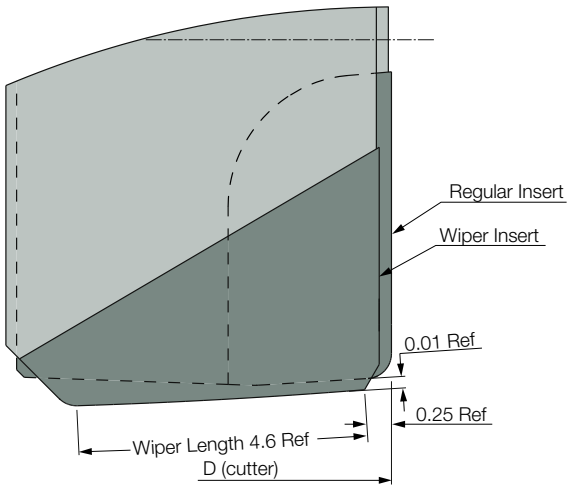
A single R.H. cutting edge PCD insert

Designation	Dimensions W	l	S	ID5	Recommended Machining Data f_z (mm/t)
LNAR 1106PN-R-S-W	6.00	11.16	10.72	●	0.10-0.25

• For D.O.C. and cutting speed recommendations see pages L6, L18.The chamfered corner is used for reduced chipping on the machined component edges • The wiper insert should not be used with LNAR 110620x75PN-R-S inserts.

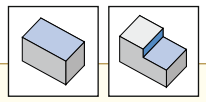
For tools, see: F90LN-FR CA11 (H12) • F90LN-N11 (C18).



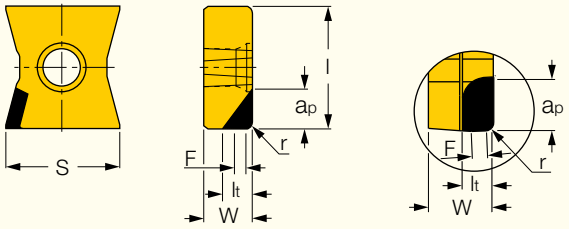


LNAW-11 (CBN)

Tangentially Clamped Inserts with a PCBN Brazed Tip, for Machining Hard Materials







A single R.H. cutting edge insert

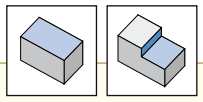
Designation	Dimensions W	S	r	l	a_p	F	l_t	a°	Tough ↔ Hard IB85	IB55	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAW 1106PNTR-S	6.00	11.80	0.80	11.17	2.00	1.20	2.8	90	●	●	0.05-2.00	0.10-0.25
LNAW 1106PN-R-S	6.00	11.90	0.80	11.17	2.00	1.20	2.8	90	●		0.05-2.00	0.10-0.25

• LNAW PN-R.. is 0.03 mm edge-honed for finishing applications, while the LNAW PNTR... has a chamfered edge for rough milling applications. • For D.O.C. and machining recommendations see pages L6, L15. The inserts are supplied with spare screws.

For tools, see: F90LN-FR CA11 (H12) • F90LN-N11 (C18).

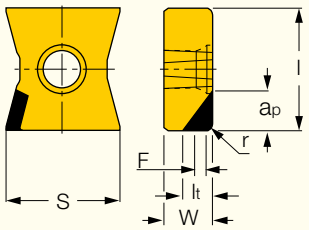
LNAW-15 (CBN)

Tangentially Clamped Inserts with a PCBN Brazed Tip, for Machining Hard Materials

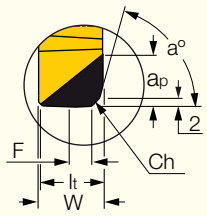




PN-R-S



X75PN-R-S



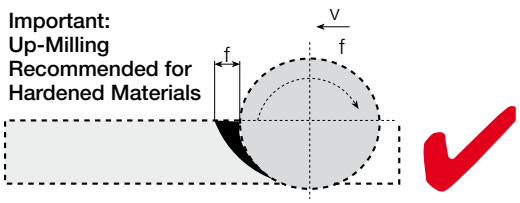
A single R.H. cutting edge insert

Designation	Dimensions W	S	r	Ch	l	a_p	F	l_t	a°	Tough ↔ Hard IB85	IB55	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAW 1506PN-R-S	6.00	14.00	0.80	-	15.00	2.00	1.60	3.8	90	●		0.05-2.00	0.10-0.25
LNAW 1506PNTR-S	6.00	13.90	0.80	-	15.00	2.00	1.60	3.8	90	●	●	0.05-2.00	0.10-0.25
LNAW 150620X75PN-R-S	6.00	13.90	-	0.8X45	15.00	3.00	1.50	5.8	75	●		0.05-2.00	0.10-0.25
LNAW 150620X75PNTR-S	6.00	13.80	-	0.8X45	15.00	3.00	1.50	5.8	75	●		0.05-2.00	0.10-0.25

• LNAW PN-R.. is 0.03 mm edge-honed for finishing applications, while the LNAW PNTR... has a chamfered edge for rough milling applications. • For D.O.C. and machining recommendations see pages L6, L15. The inserts are supplied with spare screws.

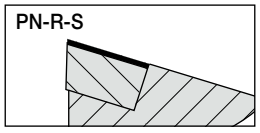
For tools, see: F90LN-N15 (C25) • SSB-LN15-R/L (G41).

Important:
Up-Milling
Recommended for
Hardened Materials

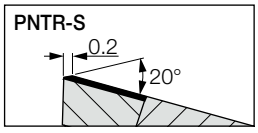




PN-R-S



PNTR-S

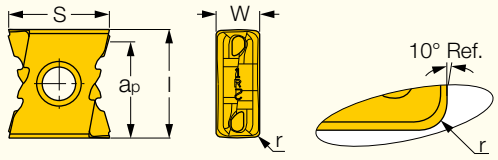


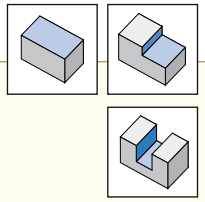
TANGMILL
TANGENTIAL LINE

LNMT 1506PN-R-TS

Tangentially Clamped Inserts with a Serrated Cutting Edge, for Chip Splitting







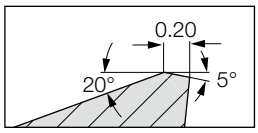
For R.H. tools

Designation	Dimensions W	l	S	r	a_p(1)	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNMT 1506PN-R TS	6.00	15.00	13.90	0.80	12.00	●	4.00-9.00	0.10-0.20

- Self balanced forces on rake face
- Used for long overhang and extended flute cutters, reduces chatter.
- For cutting speed recommendations, see pages L2-8, L16-19.

(1) apmax=8 mm for steel and 12 mm for cast iron

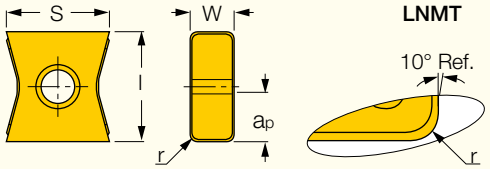
For tools, see pages: F90LN-N15 (C25).

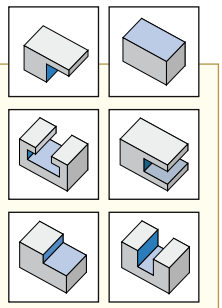


LNKX/LNMT 1506PNTN/PN-N MM

Tangentially Clamped Inserts, Reinforced Negative Land, for Unfavorable Conditions





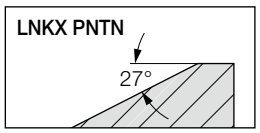


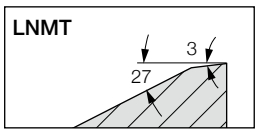
Designation	Dimensions W	l	S	r	a_p(1)	Tough ↔ Hard IC328	IC928	IC950	IC4050	IC5400	IC810	IC910	IC908	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 1506PN-N MM	6.00	15.00	13.90	0.80	7.00	●	●	●	●	●			●			2.00-7.00	0.30-0.40
LNKX 1506PNTN	6.00	15.00	13.90	0.80	7.00						●	●		●	●	2.00-7.00	0.20-0.30
LNKX 150612-PNTN	6.00	15.00	13.90	1.20	7.00							●				2.00-7.00	0.20-0.30
LNMT 1506PN-N MM	6.00	15.00	13.95	0.80	7.00	●	●	●	●				●			2.00-7.00	0.30-0.40
LNMT 1506PNTN	6.00	15.00	13.95	0.80	14.00							●		●	●	2.00-7.00	0.20-0.30
LNMT 150616PN-N MM	6.00	15.00	13.95	1.60	7.00		●									2.00-7.00	0.30-0.40

(1) D.O.C. when the insert is on the cutter.

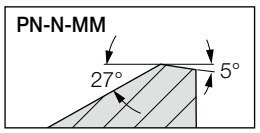
For tools, see pages: F90LN-N15 (C25) • FDN-CALN15 (G30) • SDN-CALN15 (G38).

For cutting speed recommendations, see pages L2-8, L16-19.





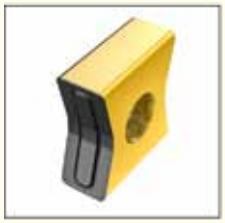
An economical class insert

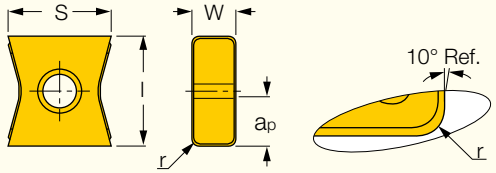


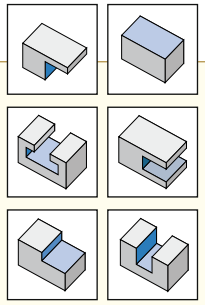
TANGMILL
TANGENTIAL LINE

LNMW 1506 PNTN

Tangentially Clamped Insert, for Machining Grey and Nodular Cast Iron



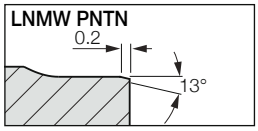




Designation	Dimensions W	l	S	r	Tough ↔ Hard IC910	IC4100	Recommended Machining Data ap (mm)	fz (mm/t)
LNMW 1506 PNTN	6.00	15.30	13.98	0.80	●	●	2.00-7.00	0.20-0.30

• Flat rake, used for grey cast iron e.g. GG25 170-240 HBR • For cutting speed recommendations, see pages L2-8, L16-19.

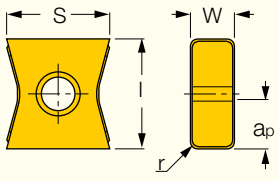
For tools, see: F90LN-N15 (C25) • FDN-CALN15 (G30) • SDN-CALN15 (G38) • SSB-LN15-R/L (G41).

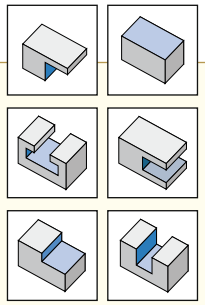


LNKX 1506PN-N PL

Tangentially Clamped Inserts with a Positive Land,
for Alloyed and Stainless Steel and Cast Iron





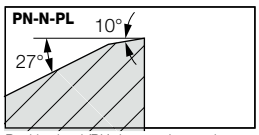


Designation	Dimensions W	l	S	r	ap(1)	Tough ↔ Hard IC328	IC928	IC910	IC908	DT7150	IC4100	Recommended Machining Data ap (mm)	fz (mm/t)
LNKX 1506PN-N PL	6.00	15.00	13.90	0.80	7.00	●	●	●	●	●	●	2.00-7.00	0.10-0.15

• For cutting speed recommendations, see pages L2-8, L16-19.

(1) D.O.C. when the insert is on the cutter.

For tools, see: F90LN-N15 (C25) • FDN-CALN15 (G30) • SDN-CALN15 (G38).



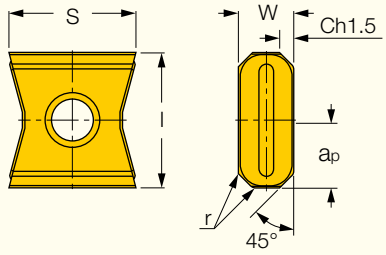
- Positive land (PL), leaves sharp edges without chipping on cast iron components
- High shear rake for steel and stainless steel

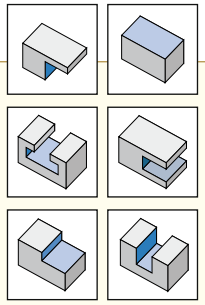
TANGMILL
TANGENTIAL LINE

LNKX 1506 1.5X45 PN-N

Tangentially Clamped, Chamfered Insert for 90° Cutters



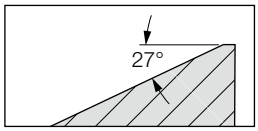




Designation	Dimensions W	l	S	r	ap	Tough ↔ Hard IC328	IC928	IC910	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
LNKX 1506 1.5X45PN-N	6.00	15.00	13.90	0.80	7.00	●	●	●	●	1.50-5.00	0.15-0.20

• A chamfered insert, used only on 90° cutters for smooth engagement • Chatter reduction and elimination of chipping on material edge during exit • 4 R.H. and 4 L.H. cutting edges when used on F90LN.. cutters • For cutting speed recommendations, see pages L2-8, L16-19.

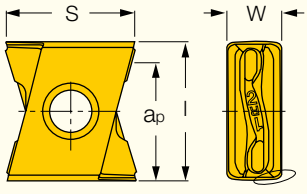
For tools, see: F90LN-N15 (C25) • SSB-LN15-R/L (G41).

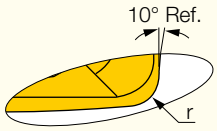


LNMT/LNHT 1506PN-R HT

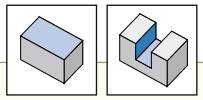
Tangentially Clamped Inserts with 4 Straight, Right-Hand Cutting Edges







The radius is not tangent to the cutting edge on the LNMT insert.

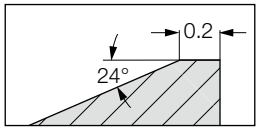


Designation	Dimensions W	l	S	r	ap(1)	Tough ↔ Hard IC328	IC928	IC950	IC910	IC908	DT7150	IC4100	Recommended Machining Data ap (mm)	fz (mm/t)
LNHT 1506PN-R HT	6.00	15.00	13.94	0.80	12.00	●	●	●	●	●			3.00-12.00	0.15-0.25
LNMT 1506PN-R HT	6.00	15.00	13.90	0.80	12.00		●	●	●		●	●	3.00-12.00	0.15-0.20

• A right-hand insert, with 4 cutting edges, for high 90° shoulders • LNMT-utility inserts, LNHT-precision inserts • For cutting speed recommendations, see pages L2-8, L16-19.

(1) ap max=9 mm for steel and 12 mm for cast iron

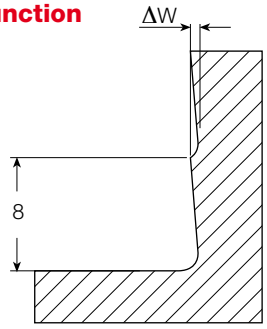
For tools, see pages: F90LN-N15 (C25) • SSB-LN15-R/L (G41).



Mismatch as a function of tool diameter

LNMT 15..
Δh=8

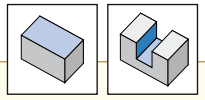
Cutting Dia.	ΔW
63	0.07
80	0.04
100	0.01
125	0.015



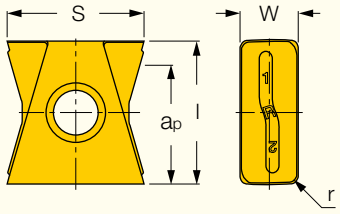
TANGMILL
TANGENTIAL LINE

LNMT/LNHT 1506...-N HT

Tangentially Clamped Inserts with 4 Straight Cutting Edges: 2 L.H. and 2 R.H.





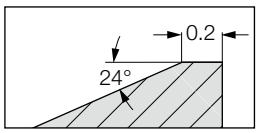


Designation	Dimensions W	l	S	r	a_p(1)	Tough ↔ Hard IC928	IC910	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNMT 1506PN-N HT	6.00	15.00	14.03	0.80	14.00	●				3.00-12.00	0.15-0.25
LNMT 1506PNTN-HT	6.00	15.00	14.03	0.80	14.00		●	●	●	3.00-12.00	0.15-0.25
LNHT 1506PNTN HT	6.00	15.00	14.03	0.80	14.00		●			3.00-12.00	0.15-0.25

• A neutral insert, with 2 L.H. and 2 R.H. cutting edges • Can machine a 90° shoulder according to the table below • For cutting speed recommendations, see pages L2-8, L16-19.

(1) ap max=9 mm for steel and 12 mm for cast iron

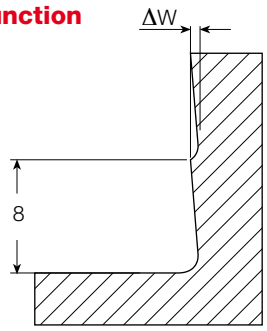
For tools, see pages: F90LN-N15 (C25) • FDN-CALN15 (G30) • SDN-CALN15 (G38) • SSB-LN15-R/L (G41).



Mismatch as a function of tool diameter

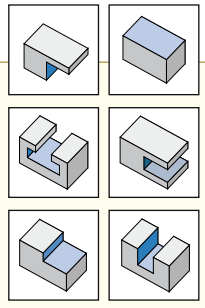
LNMT 15..
Δh=8

Cutting Dia.	ΔW
63	0.07
80	0.04
100	0.01
125	0.015

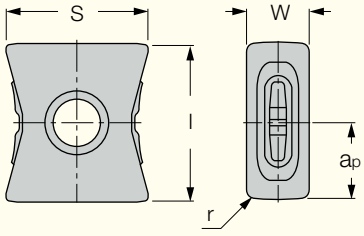


LNAR 1506

Tangentially Clamped Insert with Positive Polished Land and a Sharp Cutting Edge



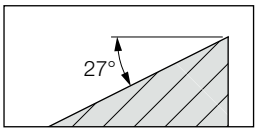




Designation	Dimensions W	l	S	r	a_p	IC07	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAR 1506 PN-N-P	6.00	15.00	13.60	0.80	7.50	●	2.00-7.00	0.10-0.15

• Note: Do not use this insert on F86LNX tools. • Recommended for machining high silicon aluminum, titanium and magnesium. • 4 R.H. and 4 L.H. cutting edges when used on F90LN.. cutters. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: F90LN-N15 (C25).

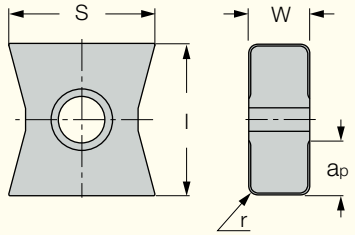


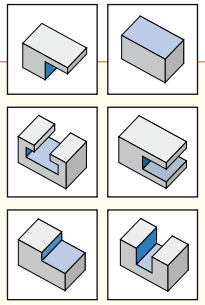
TANGMILL
TANGENTIAL LINE

LNHW 1506 PNTN (ceramic)

Tangentially Clamped Ceramic Insert for High Speed Machining of Grey and Nodular Cast Iron





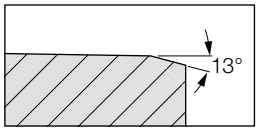


Designation	Dimensions W	l	S	r	a_p[1]	IS8	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHW 1506 PNTN	6.00	15.00	14.40	0.80	5.00	●	1.00-5.00	0.15-0.25

• Ceramic peripherally ground inserts for high speed machining of grey and nodular cast iron providing high surface finish • 4 R.H. and 4 L.H. cutting edges when used on F90LN.. cutters • For cutting speed recommendations, see pages L6, L15.

[1] D.O.C. when the insert is on the cutter.

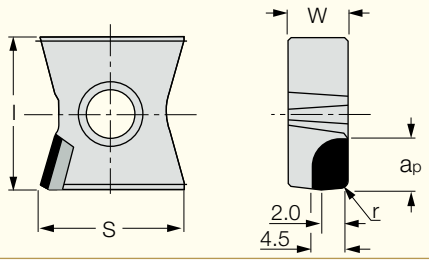
For tools, see: F90LN-N15 (C25) • SSB-LN15-R/L (G41).

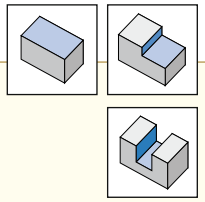


LNAR 1506 PN-R-S (PCD)

Tangentially Clamped Insert with a Brazed PCD Tip, for Machining Aluminum



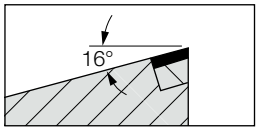




Designation	Dimensions W	l	S	r	a_p	Tough ↔ Hard ID8	ID5	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAR 150604PN-R-S	6.00	15.00	14.00	0.40	2.00	●	●	0.05-2.00	0.10-0.25

• The insert features a single R.H. cutting edge • Use ID5 for aluminum alloys with less than 12% silicon and ID8 for aluminum alloys with more than 12% silicon
• The inserts are supplied with spare screws. • For D.O.C. and cutting speed recommendations see pages L6, L18.

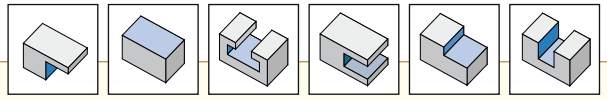
For tools, see: F90LN-N15 (C25).



TANGMILL
TANGENTIAL LINE

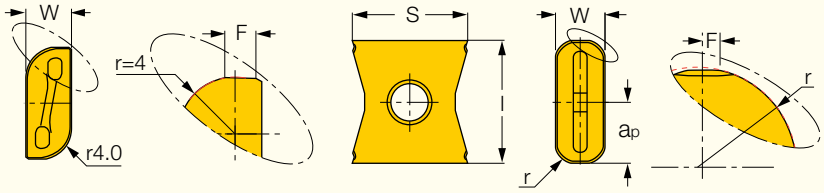
LNAT 1506..PN-N MM

Tangentially Clamped Precision Ground Inserts with Various Corner Radii for Corner Rounding





150640PN-N MM

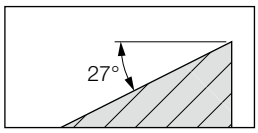


Designation	Dimensions W	l	F	S	r	a_p	Tough ↔ Hard IC928	IC910	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 150616PN-N MM	6.00	15.00	1.39	13.88	1.60	7.00	●	●	●	●	4.00-8.00	0.08-0.15
LNAT 150625PN-N MM	6.00	15.00	0.60	13.88	2.50	7.00	●	●			4.00-8.00	0.08-0.15
LNAT 150632PN-N MM	6.00	15.00	0.53	13.88	3.20	7.00	●	●	●	●	4.00-8.00	0.08-0.15
LNAT 150640PN-N MM (1)	6.00	15.00	2.06	13.96	4.00	7.00	●				4.00-8.00	0.08-0.15

• Precision ground inserts • Various corner radii for square shoulder applications requiring larger corner radii
• For cutting speed recommendations, see pages L2-8, L16-19.

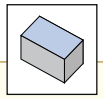
(1) Insert has 2 R.H. and 2 L.H. cutting edges.

For tools, see: F90LN-N15 (C25) • SSB-LN15-R/L (G41).

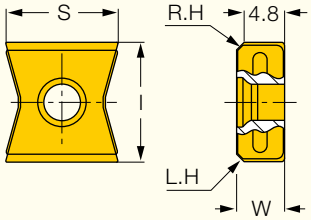


LNAT 1506-W

Tangentially Clamped Wiper Inserts







Designation	Dimensions W	l	S	Tough ↔ Hard IC910	IC908	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 1506PN-W	6.00	15.18	13.85	●	●	●	0.50-2.00	0.10-0.15

• Wiper insert with two right- and two left-hand wipers, for 90° lead angle in F90LN cutters • When feed per revolution is less than 4 mm it is recommended to use only one wiper insert. For feed per revolution greater than 4 mm, use two wiper inserts • For cutting speed recommendations, see pages L2-8, L16-19.

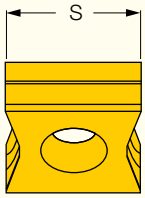
For tools, see: F90LN-N15 (C25) • SSB-LN15-R/L (G41).

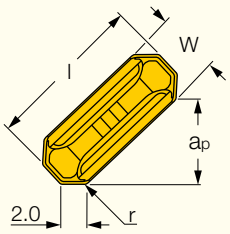
TANGMILL
TANGENTIAL LINE

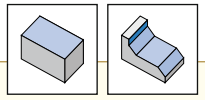
LNKX 150608AN-N PL

Tangentially Clamped Insert with a Positive Rake Angle for Cast Iron







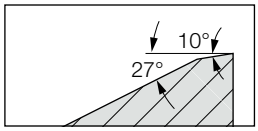


Designation	Dimensions W	l	S	r	a_p(1)	Tough ↔ Hard IC328	IC910	IC908	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 150608AN-N PL	6.00	15.30	12.90	0.80	7.50	●	●	●	●	●	2.00-7.00	0.10-0.20

• Positive land (PL), leaves sharp edges without chipping on cast iron components • High shear rake for light machining of steel, stainless steel and cast iron • For cutting speed recommendations, see pages L2-8, L16-19.

(1) D.O.C. when the insert is on the cutter.

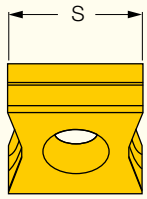
For tools, see: F45LN-N15 (C54).

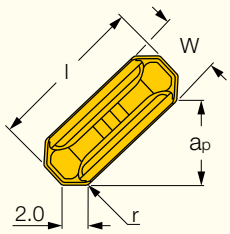


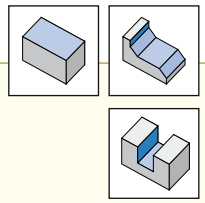
LNKX/LNMT 150608ANTN MM

Tangentially Clamped Inserts with a Negative Land and Reinforced Chipformer, for Unfavorable Cutting Conditions







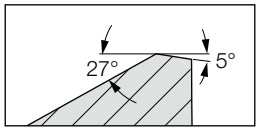


Designation	Dimensions W	l	S	r	a_p(1)	Tough ↔ Hard IC328	IC928	IC950	IC910	IC908	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 150608ANTN MM	6.00	15.30	12.90	0.80	7.50	●	●	●	●	●	●	●	2.00-7.00	0.30-0.40
LNMT 150608ANTN MM	6.00	15.30	12.90	0.80	7.50	●	●	●	●	●	●	●	2.00-7.00	0.30-0.40

• Molded chipformer with reinforced negative land, for unfavorable cutting conditions • Enables higher feed rates • 4 R.H. and 4 L.H. cutting edges when used on F45LN... cutters • For cutting speed recommendations, see pages L2-8, L16-19.

(1) D.O.C. when the insert is on the cutter.

For tools, see: F45LN-N15 (C54).

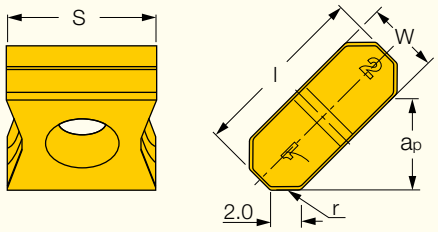


TANGMILL
TANGENTIAL LINE

LNMW 150608 ANTN

Tangentially Clamped Insert with a Reinforced Negative Land, for Unfavorable Cutting Conditions



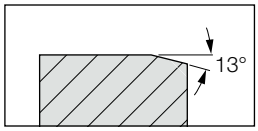


Designation	Dimensions W	l	S	r	a_p(1)	Tough ↔ Hard IC910	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNMW 150608 ANTN	6.00	15.30	12.90	0.80	7.50	●	●	2.00-7.00	0.30-0.40

• Molded rake face with reinforced negative land for unfavorable and high feed cutting conditions • 4 R.H. and 4 L.H. cutting edges when used on F45LN.. cutters • For cutting speed recommendations, see pages L2-8, L16-19.

(1) D.O.C. when the insert is on the cutter.

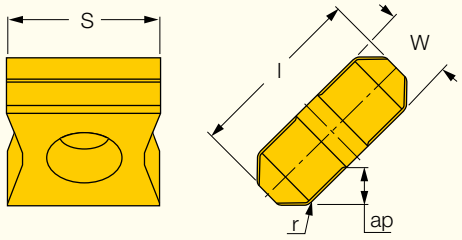
For tools, see: F45LN-N15 (C54).



LNHW 1506 ANTN (ceramic)

Tangentially Clamped Ceramic Inserts for High Speed Machining of Cast Iron

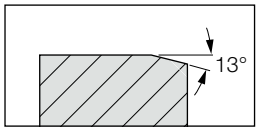




Designation	Dimensions W	l	S	r	a_p	IS8	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHW 1506 ANTN	6.00	15.30	12.90	0.80	3.00	●	1.00-3.00	0.15-0.25

• Provide high surface finish • Feature 4 R.H. and 4 L.H. cutting edges when used on F45LN.. cutters • Important: Tightening torque 3.5-4 Nxm • For cutting speed recommendations, see pages L2-8, L16-19.

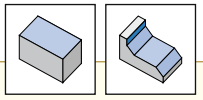
For tools, see: F45LN-N15 (C54).



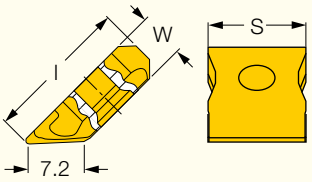
TANGMILL
TANGENTIAL LINE

LNAT 1506AN-W

Tangentially Clamped Wiper Insert for 45° Lead Angle on F45LN Cutters







Designation	Dimensions l	S	W	Tough ↔ Hard IC910	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 1506AN-W	19.33	12.90	5.98	●	●	0.50-2.00	0.10-0.15

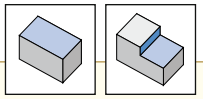
• The insert has one right-hand and one left-hand wiper • When feed per revolution is less than 7 mm it is recommended to use only one wiper insert. When it is greater than 7 mm, use two wiper inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: F45LN-N15 (C54).

HELITANG
T465 LINE

T465 LNHT/LNMT 2212

Tangentially Clamped Insert with 4 Cutting Edges 22 mm Long, for 65° Cutters

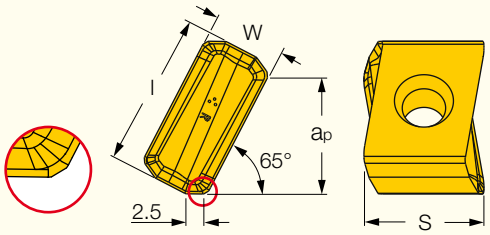




ZN-R ZNTR



ZNTR-CS

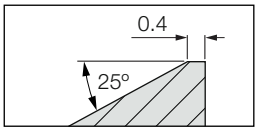


Designation	Dimensions W	l	S	a_p	Tough ↔ Hard IC330	IC830	IC5400	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T465 LNHT 2212-ZN-R (1)	12.00	25.39	19.80	19.00	●					5.00-15.00	0.12-0.35
T465 LNHT 2212-ZNTR/L (2)	12.00	25.39	19.80	19.00		●	●	●	●	5.00-19.00	0.25-0.45
T465 LNMT 2212ZNTR-CS (3)	12.00	25.39	19.80	19.00		●				5.00-19.00	0.25-0.35

• LNMT-utility inserts. LNHT-precision inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) For stainless steel and high temperature alloys. (2) T465 LNHT 2212-ZNTL (for use on special request tools) available only in grade IC830 (3) Chip splitting insert

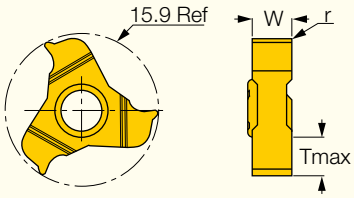
For tools, see pages: T465 FLN-22 (C39).

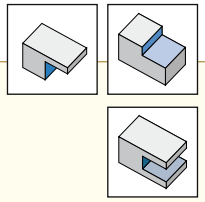


TRI

Triple-Edged Groove Milling Inserts







Designation	Dimensions W	r	T_{max}	IC908	Recommended Machining Data f_z (mm/t)
TRI 16RK-1.2-0.05	1.20	0.05	4.60	●	0.02-0.08
TRI 16RK-1.4-0.1	1.40	0.10	4.80	●	0.02-0.10
TRI 16RK-1.5-0.1	1.50	0.10	4.80	●	0.03-0.12
TRI 16RK-1.7-0.1	1.70	0.10	4.80	●	0.03-0.12
TRI 16RK-1.95-0.15	1.95	0.15	4.80	●	0.04-0.15
TRI 16RK-2.0-0.2	2.00	0.20	4.80	●	0.04-0.15
TRI 16RK-2.25-0.15	2.25	0.15	4.80	●	0.04-0.15
TRI 16RK-2.75-0.15	2.75	0.15	4.80	●	0.04-0.20
TRI 16RK-3.0-0.2	3.00	0.20	4.80	●	0.04-0.20
TRI 16RK-3.25-0.15	3.25	0.15	4.80	●	0.04-0.20
TRI 16RK-4.0-0.2	4.00	0.20	4.80	●	0.05-0.25
TRI 16RK-4.25-0.15	4.25	0.15	4.80	●	0.05-0.25
TRI 16RK-5.0-0.2	5.00	0.20	4.80	●	0.05-0.30
TRI 16RK-5.25-0.15	5.25	0.15	4.80	●	0.05-0.30
TRI 16RK-6.0-0.2	6.00	0.20	4.80	●	0.05-0.30

For tools, see: TRIB (G11) • TRIB-SM (G12).

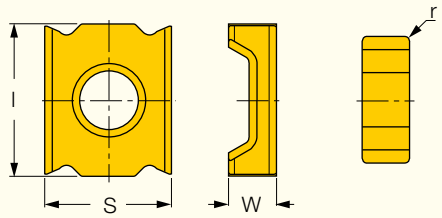
For cutting speed recommendations, see pages L2-8, L16-19.

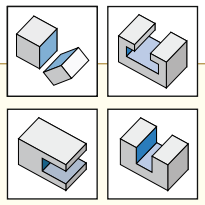
TANGMILL
TANGENTIAL LINE

LNET 08

Tangentially Clamped Inserts with 4 Cutting Edges for Slotting and Grooving Cutters



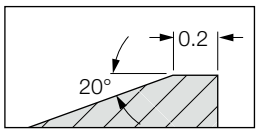




Designation	Dimensions l	S	W	r	Tough ↔ Hard IC928	IC910	Recommended Machining Data f_z (mm/t)
LNET 081804-TN-N	8.40	6.85	1.80	0.40	●	●	0.08-0.08
LNET 082104-TN-N	8.40	6.85	2.10	0.40	●		0.08-0.08
LNET 082604-TN-N	8.40	6.85	2.60	0.40	●	●	0.08-0.08
LNET 082804-TN-N	8.40	6.85	2.80	0.40	●		0.08-0.08
LNET 083004-TN-N	8.40	6.85	3.00	0.40	●	●	0.12-0.12
LNET 083204-TN-N	8.40	6.85	3.20	0.40	●		0.12-0.12
LNET 083504-TN-N	8.40	6.85	3.50	0.40	●	●	0.12-0.12
LNET 083704-TN-N	8.40	6.85	3.70	0.40	●		0.12-0.12

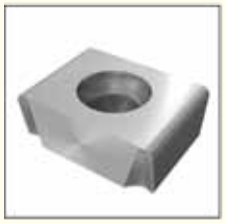
• The insert has 2 right- and 2 left-hand cutting edges. • For cutting speed recommendations, see pages L2-8, L16-19.

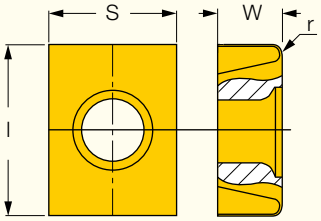
For tools, see: ETS-LN08 (G16) • ETS-LN08-M (G15) • SDN-FLX-LN08 (G34) • SDN-LN08 (G33) • FDN-LN08 (G24).

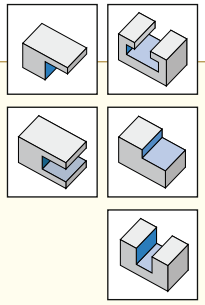


LNET 12-TN

Tangentially Clamped Inserts with 4 Cutting Edges for Slotting Cutters



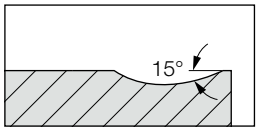




Designation	Dimensions W±0.01	r	S	l	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data f_z (mm/t)
LNET 123504-TN	3.50	0.40	9.52	12.70	●	●		●	0.06-0.15
LNET 123508-TN	3.50	0.80	9.52	12.70		●		●	0.06-0.15
LNET 124004-TN	4.00	0.40	9.52	12.70		●		●	0.06-0.15
LNET 124008-TN	4.00	0.80	9.52	12.70		●		●	0.06-0.15
LNET 124504-TN	4.50	0.40	9.52	12.70	●	●	●	●	0.06-0.15
LNET 124508-TN	4.50	0.80	9.52	12.70	●	●		●	0.06-0.15
LNET 124804-TN	4.75	0.40	9.52	12.70	●	●		●	0.06-0.15
LNET 124808-TN	4.75	0.80	9.52	12.70	●	●		●	0.06-0.15
LNET 125004-TN	5.00	0.40	9.52	12.70		●		●	0.06-0.15
LNET 125008-TN	5.00	0.80	9.52	12.70		●		●	0.06-0.15
LNET 125504-TN	5.50	0.40	9.52	12.70		●		●	0.06-0.15
LNET 125508-TN	5.50	0.80	9.52	12.70		●		●	0.06-0.15
LNET 125516-TN	5.50	1.60	9.52	12.70	●				0.06-0.15
LNET 125708-TN	5.75	0.80	9.52	12.70		●		●	0.06-0.15
LNET 126504-TN	6.50	0.40	9.52	12.70				●	0.06-0.15
LNET 126508-TN	6.50	0.80	9.52	12.70				●	0.06-0.15
LNET 127704-TN	7.70	0.40	9.52	12.70				●	0.06-0.15
LNET 127708-TN	7.70	0.80	9.52	12.70				●	0.06-0.15

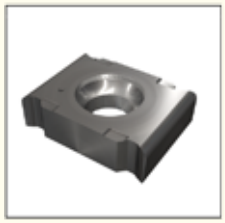
For tools, see: FDN-CALN12 (G29) • FDN-LN12 (G25) • SDN-CALN12 (G36) • SDN-LN12 (G35).

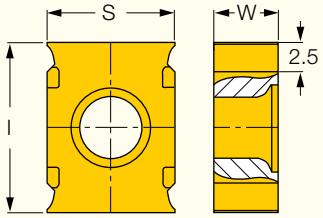
For cutting speed recommendations, see pages L2-8, L16-19.

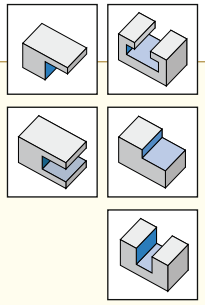


LNET 12-TN-MM

Tangentially Clamped Inserts with 4 Cutting Edges for Deep and Long Steel Slots



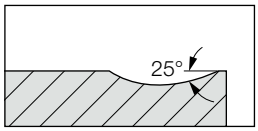




Designation	Dimensions W±0.01	S	l	IC928	Recommended Machining Data fz (mm/t)
LNET 123508-TN-MM	3.50	9.52	12.70	●	0.06-0.15
LNET 124008-TN-MM	4.00	9.52	12.70	●	0.06-0.15
LNET 124508-TN-MM	4.50	9.52	12.70	●	0.06-0.15
LNET 124808-TN-MM	4.77	9.52	12.70	●	0.06-0.15
LNET 125008-TN-MM	5.00	9.52	12.70	●	0.06-0.15
LNET 125508-TN-MM	5.50	9.52	12.70	●	0.06-0.15
LNET 126504-TN-MM	6.50	9.52	12.70	●	0.06-0.15
LNET 126508-TN-MM	6.50	9.52	12.70	●	0.06-0.15
LNET 127704-TN-MM	7.70	9.52	12.70	●	0.06-0.15
LNET 127708-TN-MM	7.70	9.52	12.70	●	0.06-0.15

• Excellent chip evacuation • For cutting speed recommendations, see pages L2-8, L16-19.

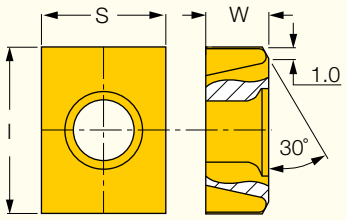
For tools, see: FDN-CALN12 (G29) • FDN-LN12 (G25) • SDN-CALN12 (G36) • SDN-LN12 (G35).

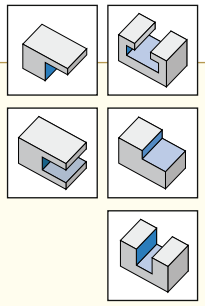


LNET 12..-30X1-N

Tangentially Clamped Inserts with 4 Cutting Edges for Parting and Slitting





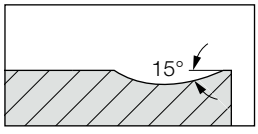


Designation	Dimensions W±0.01	S	l	Tough ↔ Hard IC328	IC928	IC910	Recommended Machining Data fz (mm/t)
LNET 1235-30X1-N	3.50	9.52	12.70			●	0.06-0.15
LNET 1240-30X1-N	4.00	9.52	12.70	●		●	0.06-0.15
LNET 1245-30X1-N	4.50	9.52	12.70	●	●	●	0.06-0.15
LNET 1248-30X1-N	4.75	9.52	12.70	●	●	●	0.06-0.15
LNET 1250-30X1-N	5.00	9.52	12.70		●	●	0.06-0.15
LNET 1255-30X1-N	5.50	9.52	12.70	●	●	●	0.06-0.15
LNET 1265-30X1-N	6.50	9.52	12.70			●	0.06-0.15
LNET 1265-30X1-N-MM (1)	6.50	9.52	12.70		●		0.06-0.15
LNET 1277-30X1-N	7.70	9.52	12.70			●	0.06-0.15
LNET 1277-30X1-N-MM (1)	7.70	9.52	12.70		●		0.06-0.15

• Used mainly for parting, leaving a very small burr on the corner being cut • For cutting speed recommendations, see pages L2-8, L16-19.

(1) Improved chip formation on steel in wider widths.

For tools, see: FDN-CALN12 (G29) • FDN-LN12 (G25) • SDN-CALN12 (G36) • SDN-LN12 (G35).

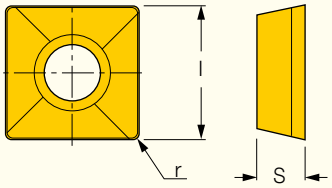


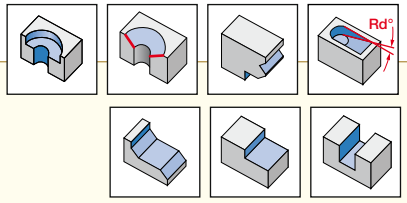
HELIQUAD

SOMT-HQ

Square Milling Inserts for General Use



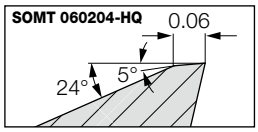


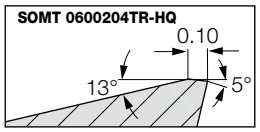


Designation	Dimensions l	S	r	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC928	IC250	IC950	IC520M	IC910	IC30N	Recommended Machining Data a_p (mm)	f_z (mm/t)
SOMT 060204-HQ	6.16	2.56	0.40	●	●		●	●	●	●				2.00-4.00	0.07-0.10
SOMT 060204TR-HQ	6.16	2.56	0.40			●					●	●	●	2.00-4.00	0.08-0.12

For tools, see: E45X (B38) • E90X (B14) • E90XC (B35).

For cutting speed recommendations, see pages L2-8, L16-19.



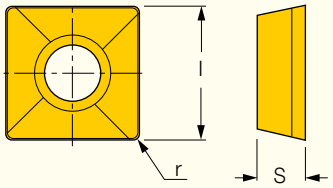


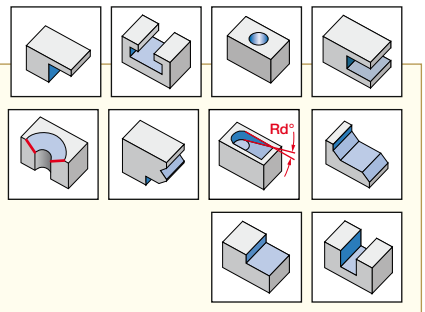
QUAD2000

QOMT-HQ

Insert with 4 Right- or Left-Hand Cutting Edges for General Use



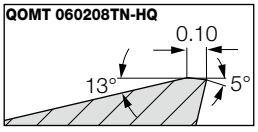




Designation	Dimensions l	S	r	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
QOMT 060208TN-HQ	6.16	2.56	0.80	●	●	●	●	2.00-4.00	0.08-0.12

For tools, see: E45X (B38) • E90X (B14) • ETS (G20) • FDN (G22) • FDN-CF4 (G28) • SDN (G39).

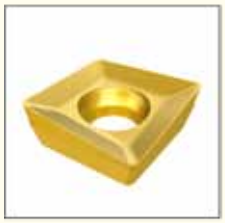
For cutting speed recommendations, see pages L2-8, L16-19.

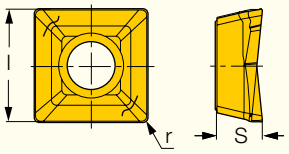


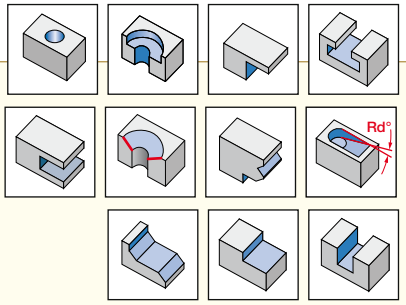
HELIQUAD

XOMT-HQ

Square Inserts for Milling, Drilling and Boring with 2 Right- and 2 Left-Hand Cutting Edges for General Use



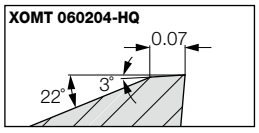


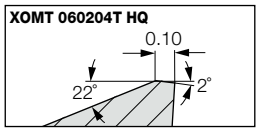


Designation	Dimensions l	S	r	Tough ↔ Hard IC28	IC328	IC50M	IC928	IC250	IC950	IC4050	IC520M	IC910	IC30N	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
XOMT 060204-HQ	6.16	2.56	0.40	●	●	●	●	●	●					●	2.00-4.00	0.07-0.10
XOMT 060204T-HQ	6.16	2.56	0.40							●	●	●	●		2.00-4.00	0.10-0.15

For tools, see: E45X (B38) • E90X (B14) • E90XC (B35) • ETS (G20) • FDN (G22) • FDN-CF4 (G28) • SDN (G39).

For cutting speed recommendations, see pages L2-8, L16-19.

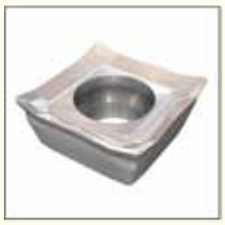


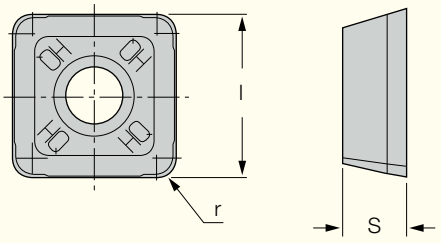


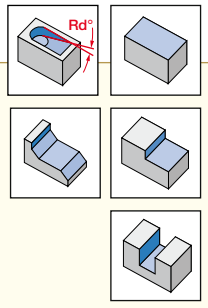
QUAD2000

QPMR 1004..-HQ-M

Super Positive Square Milling Inserts, for Machining Aluminum, Stainless Steel and High Temperature Alloys



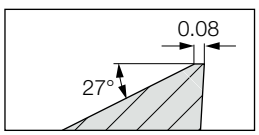




Designation	Dimensions l	S	r	Tough ↔ Hard IC28	IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
QPMR 100404PDN-HQ-M	10.35	4.48	0.40	●	●	●	3.00-8.00	0.08-0.15

For tools, see: E90SP (B22) • F90SP-10 (C16).

For cutting speed recommendations, see pages L2-8, L16-19.

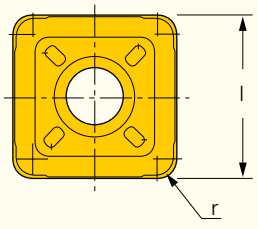


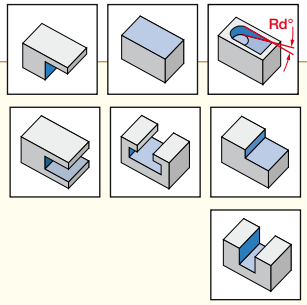
QUAD2000

QPMT 100408PDTN

Square Inserts, with 4 Right- or Left-Hand Cutting Edges for General Use



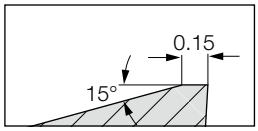




Designation	Dimensions l	S	r	Tough ↔ Hard IC328	IC928	IC950	IC4050	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
QPMT 100408PDTN-M	10.35	4.12	0.70	●	●	●	●	●	3.00-8.00	0.08-0.15

For tools, see pages: E90SP (B22) • F90SP-10 (C16) • FDN (G22) • FST (G40) • SDN (G39) • SE-FT (D20) • SM-FT (D20) • SPK (D9) • SPK BT/INT-FT/B (D18) • SPK Shell Mill-FT/A (D17) • SPK-CF (D10) • SSB (G40).

For cutting speed recommendations, see pages L2-8, L16-19.

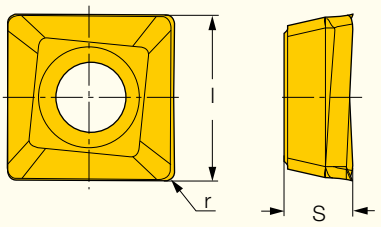


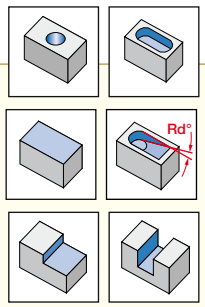
HELIQUAD

SPMT-HQ

Square Positive Inserts, for Right-Hand Tools for General Use



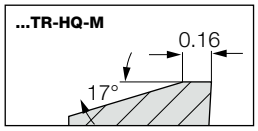


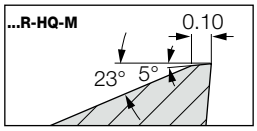


Designation	Dimensions l	S	r	Tough ↔ Hard IC28	IC330	IC328	IC50M	IC830	IC928	IC950	IC4050	IC5400	IC810	IC910	IC30N	IC808	IC908	DT7150	IC4100	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPMT 100404R-HQ-M	10.20	4.23	0.40			●			●					●							4.00-8.00	0.08-0.15
SPMT 100408R-HQ-M	10.20	4.23	0.70			●	●		●	●	●			●	●						4.00-8.00	0.08-0.15
SPMT 100408TR-HQ-M	10.20	4.23	0.70	●	●	●		●	●	●	●	●	●	●		●	●	●	●	●	4.00-8.00	0.10-0.20
SPMT 100416R-HQ-M	10.20	4.23	1.60			●															4.00-8.00	0.10-0.20

For tools, see: E90SP (B22) • F90SP-10 (C16) • SE-FT (D23) • SM-FT (D23) • SPK (D9) • SPK BT/INT-FT/B (D21) • SPK Shell Mill-FT/A (D20) • SPK-CF (D10) • SSB (G40).

For cutting speed recommendations, see pages L2-8, L16-19.

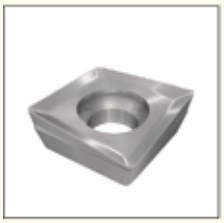


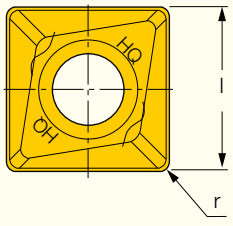


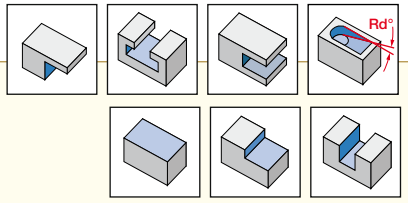
HELIQUAD

XPMT-HQ

Square Inserts with 2 Right- or Left-Hand Cutting Edges for General Use



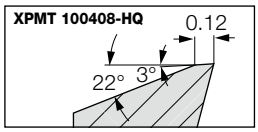


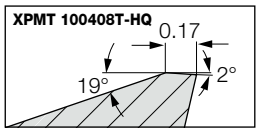


Designation	Dimensions l	S	r	Tough ↔ Hard IC28	IC328	IC928	IC950	IC4050	IC520M	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
XPMT 100408-HQ	10.20	4.12	0.60	●	●	●					4.00-8.00	0.07-0.12
XPMT 100408T-HQ	10.20	4.12	0.60				●	●	●	●	4.00-8.00	0.08-0.15

For tools, see pages: E90AC (B37) • E90SP (B22) • ETS (G20) • F90SP-10 (C16) • FDN (G22) • FST (G40) • SDN (G39) • SE-FT (D20) • SM-FT (D20) • SPK (D9) • SPK BT/INT-FT/B (D18) • SPK Shell Mill-FT/A (D17) • SPK-CF (D10) • SSB (G40).

For cutting speed recommendations, see pages L2-8, L16-19.



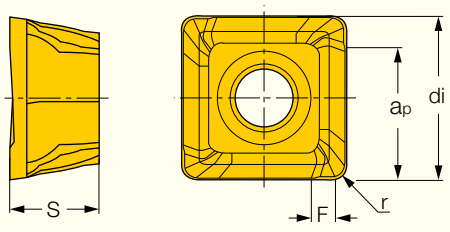


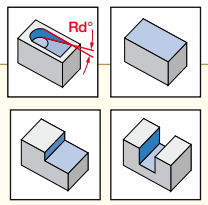
CHAMMILL

S90MT

Square Shoulder Milling Insert







Designation	Dimensions di	a_p	r	F	S	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
S90MT 1106PC-R	10.90	8.70	0.80	1.30	6.00	●	●	●	●	3.00-8.00	0.08-0.15

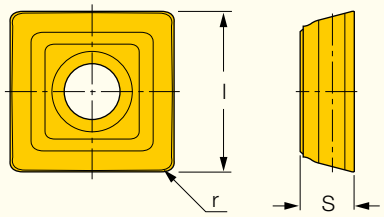
For tools, see: FCM (C14) • FRCM (E24).

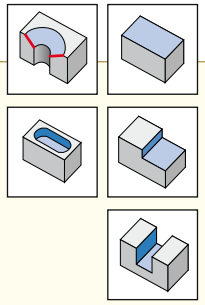
For cutting speed recommendations, see pages L2-8, L16-19.

SDMT-PDN-RM

Inserts with Four Helical Cutting Edges, for General Use 90° Shoulder Milling





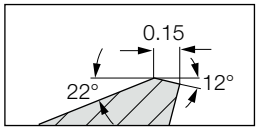


Designation	Dimensions l	S	r	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
SDMT 12T3PDN-RM-M [1]	12.70	4.20	0.80	●	●		●	4.00-10.00	0.08-0.15
SDMT 1205PDN-RM-M	12.70	5.00	0.80	●	●	●	●	4.00-10.00	0.08-0.15

[1] Use with TSD 12T3N seats

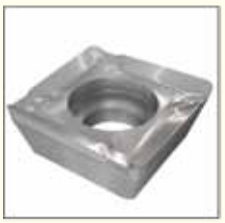
For tools, see: F90SD-12 (C19).

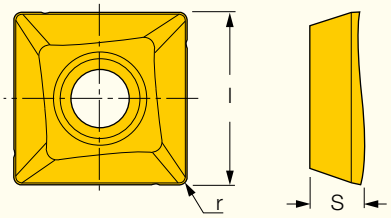
For cutting speed recommendations, see pages L2-8, L16-19.

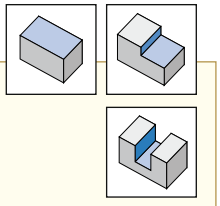


SDMR-HQ

Super Positive Square Insert for Aluminum, Stainless Steel and High Temperature Alloys



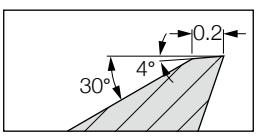




Designation	Dimensions l	S	r	Tough ↔ Hard IC28	IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
SDMR 1205PDR-HQ-M	12.70	5.10	1.00	●	●	●	4.00-10.00	0.07-0.12

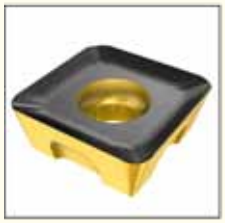
For tools, see: F90SD-12 (C19) • SDK BT/INT-FT (D22) • SDK Shell Mill-FT (D21) • SE-FT (D23).

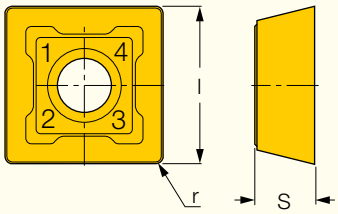
For cutting speed recommendations, see pages L2-8, L16-19.

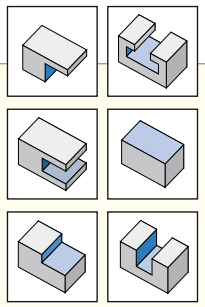


QDCT-PDN

Precision Ground Inserts with 4 Right- or Left-Hand Cutting Edges for General Use



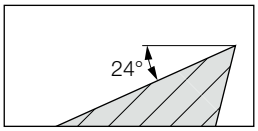




Designation	Dimensions l	S	r	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
QDCT 120508-PDN	12.70	4.92	0.80	●	4.00-10.00	0.08-0.12
QDCT 120516-PDN	12.70	4.92	1.60	●	4.00-10.00	0.08-0.12
QDCT 120524-PDN	12.70	4.92	2.40	●	4.00-10.00	0.08-0.12
QDCT 120532-PDN	12.70	4.92	3.20	●	4.00-10.00	0.08-0.12

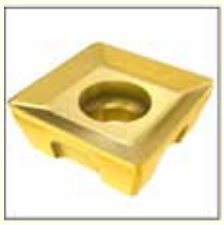
• Inserts with corner radii larger than 0.8 mm should be used only on the face of the SDK cutter. • For cutting speed recommendations, see pages L2-8, L16-19.

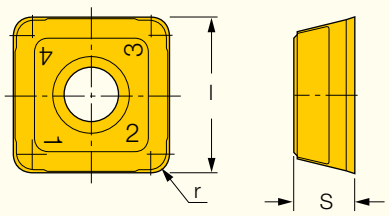
For tools, see pages: F90SD-12 (C19) • FDN (G22) • FST (G40) • SDK BT/INT-FT (D19) • SDK Shell Mill-FT (D18) • SDN (G39) • SM-FT (D20) • SSB (G40).

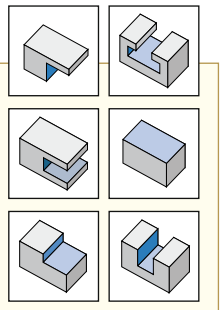


QDMT 1205..PDTN-M

Inserts with 4 Right- or Left-Hand Cutting Edges for General Use



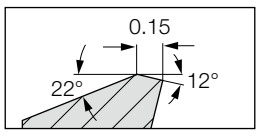




Designation	Dimensions l	S	r	Tough ↔ Hard IC328	IC928	IC950	IC4050	IC910	IC908	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
QDMT 1205PDTN-M	12.70	5.00	0.80	●	●	●	●	●	●	●	4.00-10.00	0.08-0.15
QDMT 120516PDTN-M	12.70	5.00	1.60	●	●	●		●	●		4.00-10.00	0.08-0.15
QDMT 120520PDTN-M	12.70	5.00	2.00	●	●	●		●	●		4.00-10.00	0.08-0.15
QDMT 120524PDTN-M	12.70	5.00	2.40	●	●	●		●	●		4.00-10.00	0.08-0.15
QDMT 120532PDTN-M	12.70	5.00	3.20	●	●	●	●	●	●		4.00-10.00	0.08-0.15

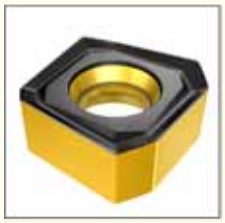
• Inserts with corner radii larger than 0.8 mm should be used only on the face of the SDK cutter. • For cutting speed recommendations, see pages L2-8, L16-19.

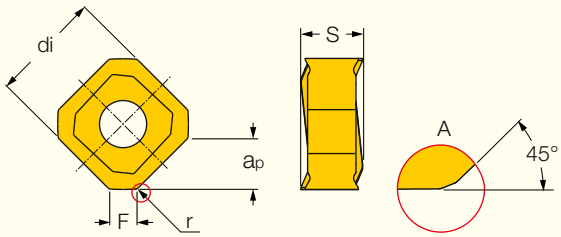
For tools, see: F90SD-12 (C19) • FDN (G22) • FST (G40) • SDK BT/INT-FT (D22) • SDK Shell Mill-FT (D21) • SDN (G39) • SE-FT (D23) • SM-FT (D23) • SSB (G40).



S845 SNMU/SNHU-13

Square Double-Sided Inserts with 8 Cutting Edges



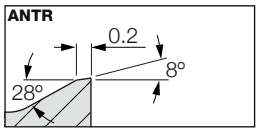


Designation	Dimensions					Tough ↔ Hard								Recommended Machining Data	
	di	a_p	S	F	r	IC330	IC830	IC4050	IC5400	IC810	IC808	DT7150	IC5100	a_p (mm)	f_z (mm/t)
S845 SNHU 1305ANR-PL (1)	13.00	5.50	6.00	1.10	- (3)	●	●							2.00-6.00	0.15-0.30
S845 SNMU 1305ANTR (2)	13.00	6.00	6.20	3.00	0.80					●		●	●	2.00-6.00	0.20-0.40
S845 SNMU 1305ANR-MM	13.00	6.00	6.20	3.00	0.80	●	●	●	●		●			2.00-6.00	0.20-0.40
S845 SNHU 1305ANTR (2)	13.00	6.00	6.20	3.00	0.80					●				2.00-6.00	0.15-0.30
S845 SNHU 1305ANR-MM	13.00	6.00	6.20	3.00	0.80	●	●				●			2.00-6.00	0.15-0.30

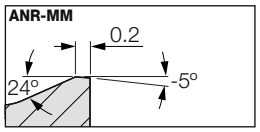
• To be used with S845 SNHU 13..-W wiper insert. • S845 SNHU - Precision ground • S845 SNMU - Utility
• For cutting speed recommendations, see pages L2-8, L16-19.

(1) For high temperature alloys and stainless steel (2) For cast iron (3) See (A) in the drawing

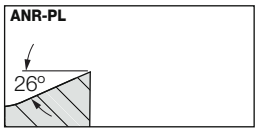
For tools, see: FF SOF (E42) • SOE45 8/16 (B38) • SOF45 (C45) • SOF45CL (C47).



For cast iron



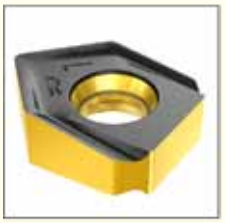
For general applications

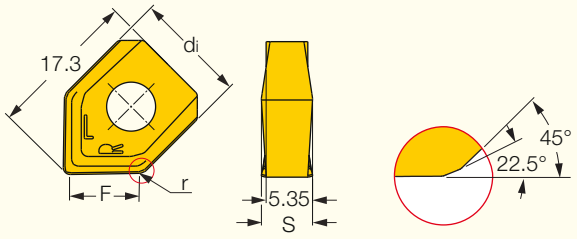


For stainless steel and high temperature alloys

S845 SNHU 1305-W

Double-Sided Wiper Insert with 4 Cutting Edges





Designation	Dimensions			Tough ↔ Hard		Recommended Machining Data	
	di	S	F	IC810	IC808	a_p (mm)	f_z (mm/t)
S845 SNHU 1305AN-N-W (1)	13.00	5.90	8.10	●	●	0.80-3.00	0.10-0.20

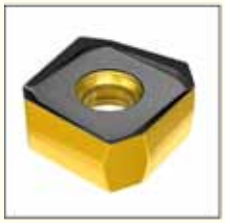
• Wiper insert with 4 cutting edges: 2 right- and 2 left-hand. To be used with S845 SNMU/SNHU 13.. inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

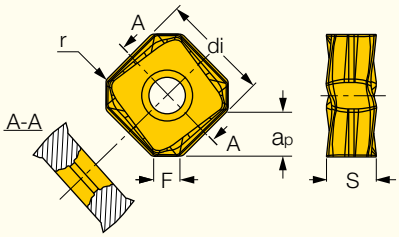
For tools, see pages: SOE45 8/16 (B38) • SOF45 (C45) • SOF45CL (C47).

HELIDO
845 LINE

S845 SXMU/SXCU-16

Square Thick Inserts with 8 Helical, Right-Hand Cutting Edges





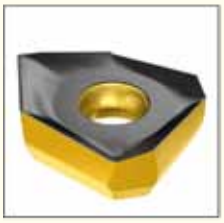
Designation	Dimensions					Tough ↔ Hard											Recommended Machining Data	
	di	S	F	r	ap	IC330	IC328	IC830	IC928	IC5400	IC810	IC910	IC808	IC908	DT7150	IC4100	IC5100	ap (mm)	fz (mm/t)
S845 SXMU 1606ADTR-MM	16.20	7.63	2.84	0.80	7.15		●	●	●	●	●	●	●	●	●	●	●	3.00-7.00	0.30-0.50
S845 SXMU 1606ADTR-RM	16.20	7.63	2.84	0.80	7.15						●				●			3.00-7.00	0.30-0.50
S845 SXCU 160608AD-RMM	16.20	7.63	2.84	0.80	7.15	●		●					●					3.00-7.00	0.20-0.35

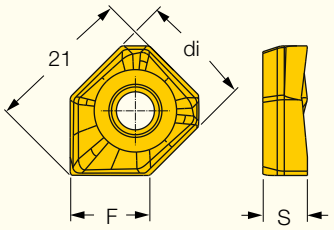
• When a wiper insert is being used, recommended ap=0.8-3.0 mm, fz=0.1-0.25 mm/t . • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: S845 F45SX-16 (C52).

S845 SXHU 1606-W

HELIDO Wiper Insert with a Single Cutting Edge





Designation	Dimensions				IC808	Recommended Machining Data	
	di	S	F	ap		ap (mm)	fz (mm/t)
S845 SXHU 1606AD-R-W	16.20	6.44	10.00	3.00	●	0.80-3.00	0.20-0.35

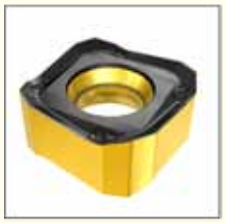
• When a wiper insert is being used, recommended ap=0.8-3.0 mm, fz=0.1-0.25 mm/t . • For cutting speed recommendations, see pages L2-8, L16-19.

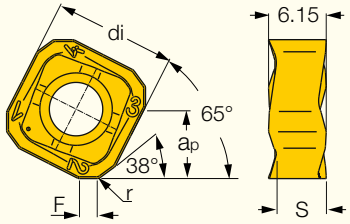
For tools, see: S845 F45SX-16 (C52).

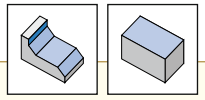
HELIDO
865 LINE

S865 SNMU 1305ZNTR

Square Double-Sided Inserts with 8 Cutting Edges





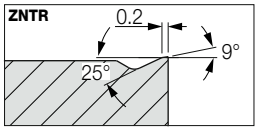


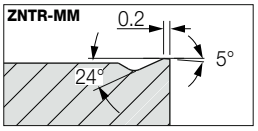
Designation	Dimensions di	S	a_p(1)	F	r	Tough ↔ Hard IC330	IC830	IC810	IC808	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S865 SNMU 1305ZNTR	13.00	5.50	8.00	2.00	0.50			●		●	2.00-6.00	0.15-0.25
S865 SNMU 1305ZNTR-MM	13.00	5.50	8.00	2.00	0.50	●	●	●	●		2.00-6.00	0.15-0.25

• Recommended ap max on steel applications with coarse pitch cutters and on cast iron with fine pitch cutters may be increased up to 8 mm. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) Recommended ap for general applications is 6 mm.

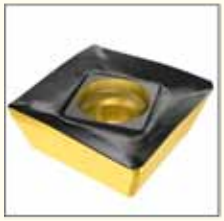
For tools, see: S865 FSN-13 (C38).

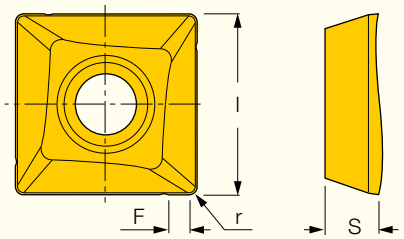


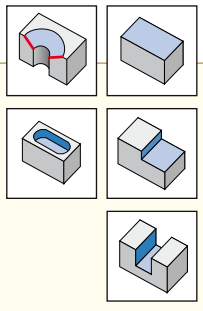


SDMT-PDR-HQ

Inserts with Four Helical Cutting Edges, for General Use 90° Shoulder Milling



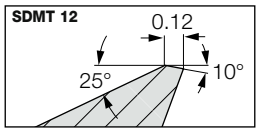




Designation	Dimensions l	S	r	F	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	IC950	IC5400	IC810	IC910	IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
SDMT 1205PDR-HQ-M	12.70	5.00	0.80	1.60	●	●	●	●	●	●	●	●	●	●	●	4.00-10.00	0.08-0.15

For tools, see: F90SD-12 (C19) • SDK BT/INT-FT (D22) • SDK Shell Mill-FT (D21) • SM-FT (D23).

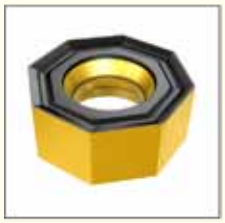
For cutting speed recommendations, see pages L2-8, L16-19.

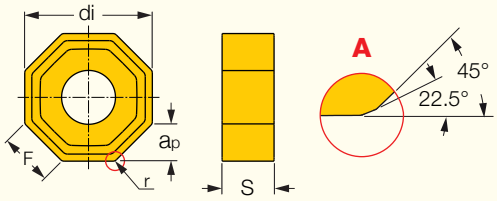


16MILL

ONHU/ONMU-05

Octagonal Double-Sided Inserts with 16 Cutting Edges



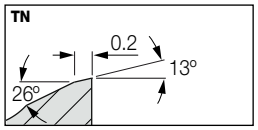


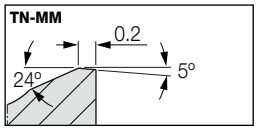
Designation	Dimensions F	di	ap	S	r	Tough ↔ Hard IC330	IC830	IC4050	IC5400	IC810	IC808	DT7150	IC5100	Recommended Machining Data ap (mm)	fz (mm/t)
ONHU 050500-N-HP [1]	4.50	13.00	3.50	5.20	- [5]					●				1.50-3.00	0.20-0.30
ONHU 050500-PL [2]	4.50	13.00	3.50	5.20	- [5]	●	●							1.50-3.00	0.15-0.20
ONHU 050500-R-HP	4.50	13.00	3.50	5.20	- [5]		●							1.50-3.00	0.20-0.30
ONHU 050505-TN [3]	5.00	13.00	3.50	5.20	0.50	●	●			●	●			1.50-3.00	0.20-0.30
ONHU 050505-TN-MM [4]	5.00	13.00	3.50	5.20	0.50	●	●				●			1.50-3.00	0.25-0.40
ONMU 050505-TN [3]	5.00	13.00	3.50	5.20	0.50					●		●	●	1.50-3.00	0.30-0.40
ONMU 050505-TN-MM [4]	5.00	13.00	3.50	5.20	0.50	●	●	●	●		●			1.50-3.00	0.30-0.40

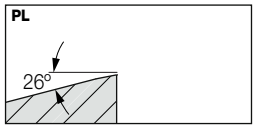
• ONHU - Precision ground • ONMU - Utility • To be used with ONHU 0505AN-..-W wiper inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

[1] For austenitic cast iron with spheroidal graphite. Used for the manufacture of turbine housings and exhaust manifolds. [2] Used on stainless steel and high temperature alloys [3] Used for cast iron [4] Used for general applications [5] See (A) in the drawing.

For tools, see pages: FF SOF (E42) • SOE45 8/16 (B38) • SOF45 (C45) • SOF45CL (C47).





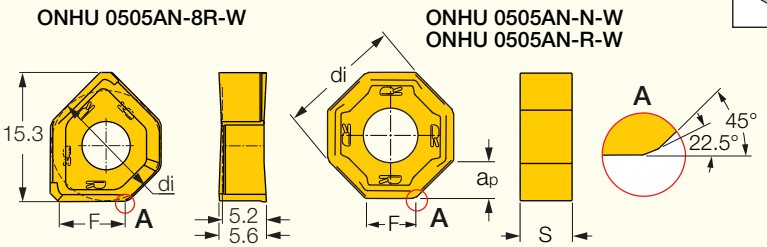


HELIDO 845 LINE

ONHU 0505-W

Octagonal Double-Sided Wiper Insert with 4 or 8 Cutting Edges





Designation	Dimensions di	S	F	r	Tough ↔ Hard IC810	IC808	Recommended Machining Data ap (mm)	fz (mm/t)
ONHU 0505AN-N-W [1]	13.00	4.90	4.70	- [4]	●		0.50-2.00	0.15-0.40
ONHU 0505AN-R-W [2]	13.00	4.90	4.50	- [4]	●	●	0.50-2.00	0.15-0.40
ONHU 0505AN-8R-W [3]	13.00	5.60	8.00	- [4]	●	●	0.50-2.00	0.15-0.40

• To be used with ONMU/ONHU 05 inserts. • For cutting speed recommendations, see pages L2-8, L16-19.

[1] Wiper insert with 4 right- and 4 left-hand cutting edges. [2] Wiper insert with 8 right-hand cutting edges. [3] Wiper insert with 4 right-hand 8 mm long wiper edges, used on 125 mm and larger diameter fine pitch cutters. [4] See (A) in the drawing.

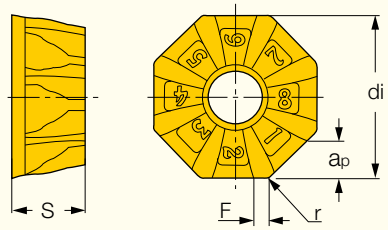
For tools, see pages: SOE45 8/16 (B38) • SOF45 (C45) • SOF45CL (C47).

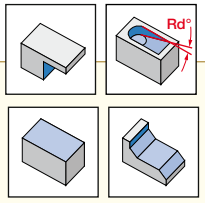
CHAMMILL

O45MT

45° Octagonal Milling Insert







Designation	Dimensions di	ap	F	r	S	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data ap (mm)	fz (mm/t)
O45MT 050505-RM	11.54	3.30	1.20	0.50	5.00	●	●	●	●	1.00-3.00	0.17-0.25

For tools, see: FCM (C14) • FDN-CM (G31) • FRCM (E24).

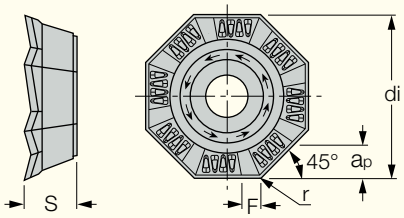
For cutting speed recommendations, see pages L2-8, L16-19.

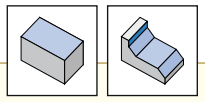
HELIOCTO

OECR

Octagonal Milling Inserts with Positive Rake and Sharp Cutting Edges





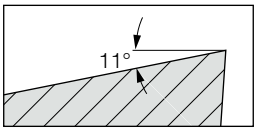


Designation	Dimensions di	ap	F	r	S	Tough ↔ Hard IC28	IC928	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
OECR 060405AER	14.45	3.70	1.60	0.50	4.90			●	1.00-3.70	0.12-0.12
OECR 060405AER-P (1)	14.45	3.70	1.60	0.50	4.90	●	●		1.00-3.70	0.12-0.12

(1) Polished rake, used for aluminum and titanium.

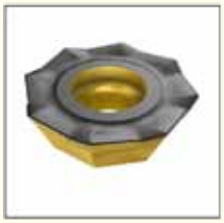
For tools, see: E45KT (C40) • F45KT (C41).

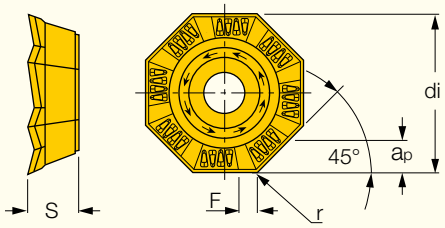
For cutting speed recommendations, see pages L2-8, L16-19.



OEMT 060405

Octagonal Milling Inserts for General Use

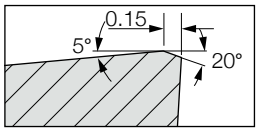




Designation	Dimensions					Tough ↔ Hard										Recommended Machining Data	
	di	a_p	F	r	S	IC28	IC330	IC328	IC830	IC928	IC250	IC950	IC910	IC808	IC908	a_p (mm)	f_z (mm/t)
OEMT 060405AER-76	14.27	2.50	1.60	0.50	4.74	●	●	●	●	●	●	●	●	●	●	1.00-2.45	0.15-0.15

For tools, see: E45KT (C40) • F45KT (C41).

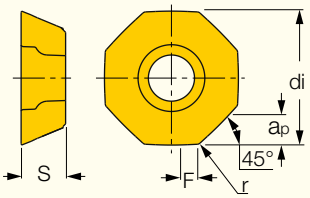
For cutting speed recommendations, see pages L2-8, L16-19.



OEMW-AETN

Octagonal Flat Rake Insert for Cast Iron

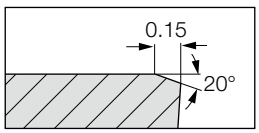




Designation	Dimensions					Tough ↔ Hard		Recommended Machining Data	
	di	a_p	F	r	S	IC928	IC908	a_p (mm)	f_z (mm/t)
OEMW 060405-AETN	14.27	2.45	1.05	0.50	4.74	●	●	1.00-2.45	0.15-0.15

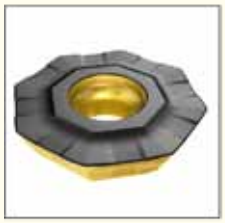
For tools, see: E45KT (C40) • F45KT (C41).

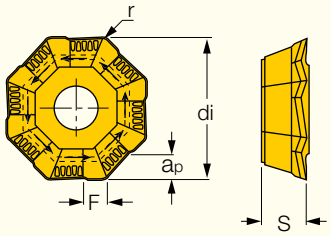
For cutting speed recommendations, see pages L2-8, L16-19.

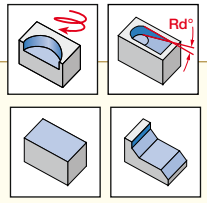


OFMT 07

Octagonal Milling Inserts for General Use







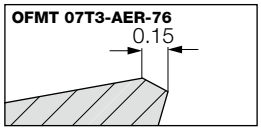
ECONOMICAL SOLUTION

Designation	Dimensions di	ap	F	r	S	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	IC250	IC950	IC4050	IC910	Recommended Machining Data ap (mm)	fz (mm/t)
OFMT 07T3-AER-76	17.80	3.40	1.75	0.60	4.55	●	●	●	●	●	●	●	●		1.00-3.00	0.15-0.25
OFMT 0706 AER-76 (1)	17.80	3.40	1.75	0.60	6.35			●		●		●			1.00-3.00	0.20-0.35
OFMT 07T3-AEN	18.07	3.90	1.60	0.60	4.54			●		●		●			1.00-3.00	0.15-0.25
OFMT 07T3-AETN	18.07	3.90	1.75	1.00	4.54					●				●	1.00-3.00	0.20-0.35

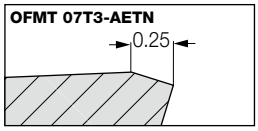
(1) Without a seat

For tools, see: HOF (C42).

For cutting speed recommendations, see pages L2-8, L16-19.



For general use

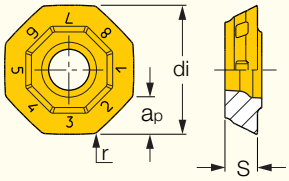


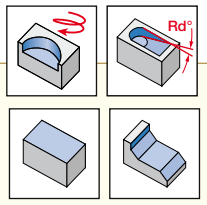
For general use
Reinforced cutting edge

OFMW-AETN

Octagonal Milling Insert for Heavy Duty Applications





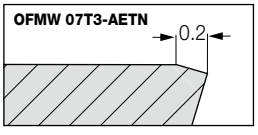


ECONOMICAL SOLUTION

Designation	Dimensions di	ap	r	S	Tough ↔ Hard IC910	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
OFMW 07T3-AETN	18.07	4.00	1.00	4.54	●	●	1.00-3.00	0.20-0.35

For tools, see: HOF (C42).

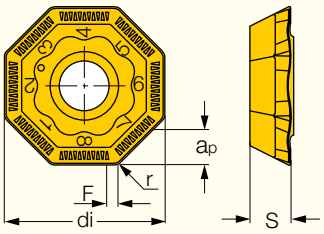
For cutting speed recommendations, see pages L2-8, L16-19.

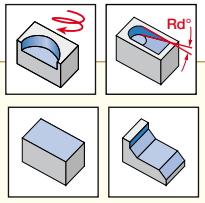


OFCR/OFCT-AEN/AETN

Octagonal Milling Inserts with Positive Rake and Sharp Cutting Edges





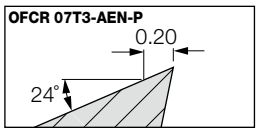


ECONOMICAL SOLUTION

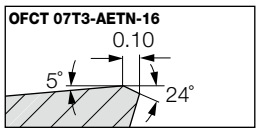
Designation	Dimensions di	ap	F	r	S	Tough ↔ Hard IC28	IC928	IC380	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
OFCR 07T3-AEN	17.80	4.60	1.60	0.60	4.35		●	●	●	1.00-3.00	0.10-0.20
OFCR 07T3-AEN-P	17.80	4.60	1.60	0.60	4.35	●				1.00-3.00	0.10-0.20
OFCT 07T3 AETN-16	18.00	4.60	1.60	1.00	4.50		●		●	1.00-3.00	0.15-0.25

For tools, see: HOF (C42).

For cutting speed recommendations, see pages L2-8, L16-19.



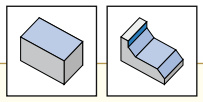
Aluminum, titanium and stainless steel



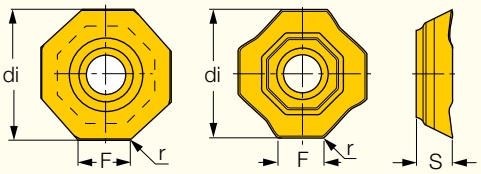
Hardened and molded steel

OFCT/OFCR-RW/AER (wiper)

Octagonal Milling Inserts with Four Wiper Cutting Edges







OFCT 07T3-RW-16
OFCR 07T3-RW-P

OFCT 07T3-AER

Designation	Dimensions di	F	S	r	Tough ↔ Hard IC28	IC328	IC928	IC250	IC950	IC910	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
OFCT 07T3-RW-16	18.35	7.00	4.50	0.80			●				●	0.50-1.00	0.10-0.15
OFCR 07T3-RW-P	18.45	6.80	4.60	0.60	●						●	0.50-1.00	0.10-0.15
OFCT 07T3-AER	18.90	7.20	5.30	1.60		●		●	●	●		0.50-1.00	0.10-0.15

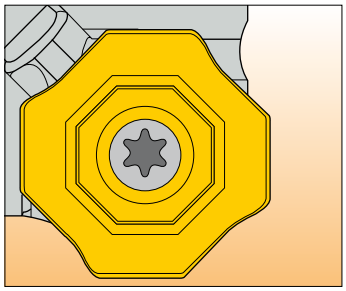
• For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HOF (C42).

A single wiper insert mounted on the HOF D..R07 cutter does the required job. The wiper insert protrudes less than 0.1 mm axially. Wiper inserts have only 4 cutting edges. There are 4 marks engraved on the wiper inserts. Pay attention when mounting the insert in the pocket that the marked cutting edges are parallel to the bottom of the cutter (see sketch).

Maximum depth of cut when using the wiper insert is 2.5 mm. It is recommended to use wiper insert in ap=0.5-1.0 mm in order to achieve the best results. The criterion for indexing the wiper insert should be decreased quallity of the surface finish.

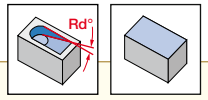
Recommended machining conditions for finishing operations:
Vc (finishing)= Vc (roughing) x 1.25 m/min
fz=0.10-0.15 mm/t

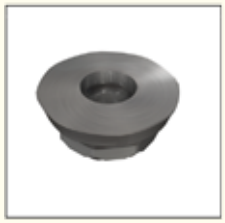


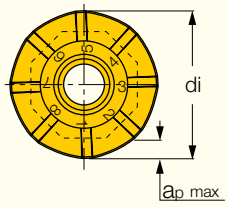
HELIOCTO • FEEDMILL

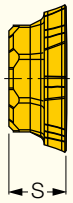
OFMW-FF

Insert with 8 FEEDMILL Large Radii Segmented Cutting Edges, for High Feed on HELIOCTO Cutters





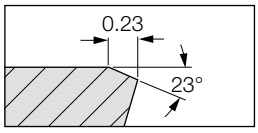


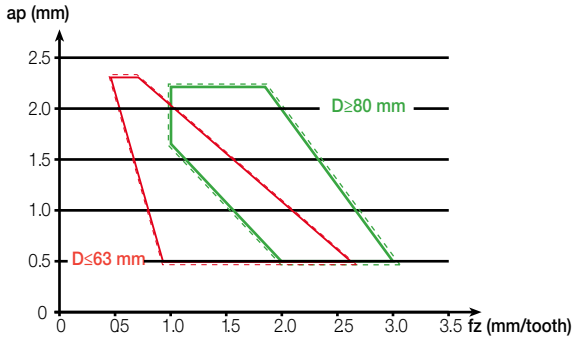


Designation	Dimensions ap	di	S	Tough ↔ Hard IC928	IC910	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
OFMW 0706R10-FF	2.20	20.40	8.00	●	●	●	1.00-2.20	0.40-1.50

• To be used without a seat. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: HOF (C42).

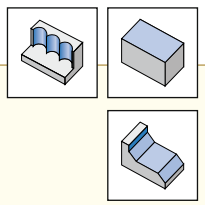




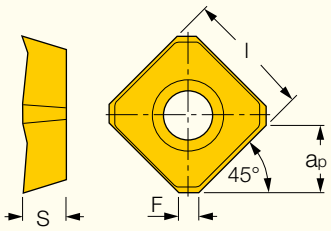
ISCARMILL

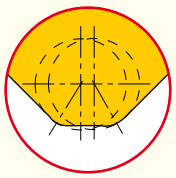
SEKT-AF-R

Super Positive Square Milling Inserts, for 45° Finishing and Medium Machining of Soft Materials





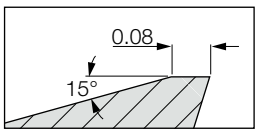




Designation	Dimensions S	F	ap	l	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC928	IC250	IC950	IC4050	IC520M	IC30N	Recommended Machining Data ap (mm)	fz (mm/t)
SEKT 09T3AF-N	4.20	1.80	4.50	9.60	●	●									2.00-4.00	0.12-0.15
SEKT 1204AFR-HM	5.16	2.16	6.40	12.90	●	●	●	●	●	●	●	●	●	●	2.00-6.00	0.10-0.15
SEKT 1204AFR-RM	5.16	2.16	6.40	12.90			●						●		2.00-6.00	0.10-0.15

For tools, see: F45ST (C48) • F45ST (endmill) (C49).

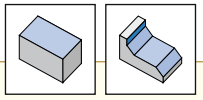
For cutting speed recommendations, see pages L2-8, L16-19.

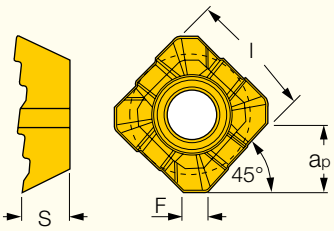


ISOSHRED

SEMT 1204AF-R-HS

Square Milling Insert with Chip Splitting Serrated Cutting Edge, for 45° Roughing

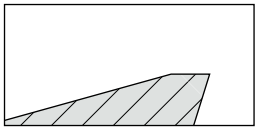




Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC328	IC928	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEMT 1204AF-R-HS	12.65	4.76	2.26	6.00	●	●	●	2.00-6.00	0.20-0.30

For tools, see: F45ST (C48) • F45ST (endmill) (C49).

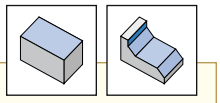
For cutting speed recommendations, see pages L2-8, L16-19.



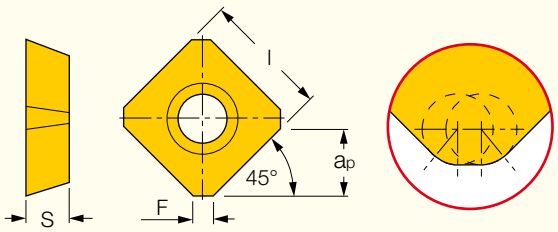
ISCARMILL

SEHW-AFTN

Precision Ground, Sharp Cutting Edge Milling Insert for General Use



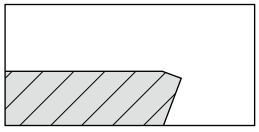




Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC328	IC50M	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEHW 1204AFTN	12.70	4.76	2.20	6.50	●	●	●	2.00-6.00	0.12-0.20

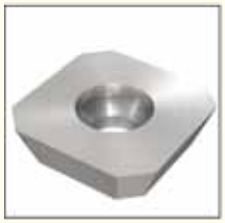
For tools, see: F45ST (C48) • F45ST (endmill) (C49).

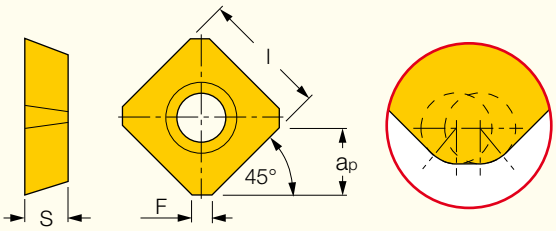
For cutting speed recommendations, see pages L2-8, L16-19.



SEKT-AFTN

Square Screw-Clamped Insert, for Medium Machining

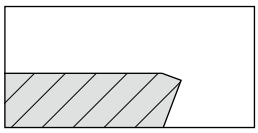




Designation	Dimensions l	S	F	ap	IC328	Recommended Machining Data ap (mm)	fz (mm/t)
SEKT 12T3AFTN	13.15	3.70	2.18	6.50	●	2.00-6.00	0.12-0.20

For tools, see: F45ST (C48) • F45ST (endmill) (C49).

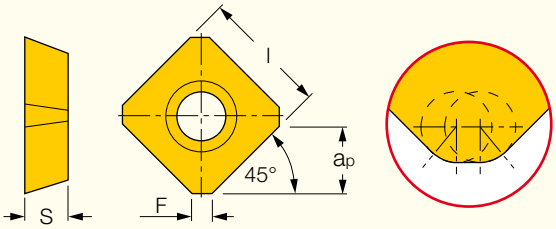
For cutting speed recommendations, see pages L2-8, L16-19.



SEMW 1204AFTN

Flat Rake Square Milling Inserts, for 45° General Use

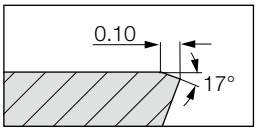




Designation	Dimensions l	S	F	ap	Tough ↔ Hard IC50M	IC250	IC950	Recommended Machining Data ap (mm)	fz (mm/t)
SEMW 1204AFTN	12.70	4.76	2.20	6.50	●	●	●	2.00-6.00	0.12-0.20

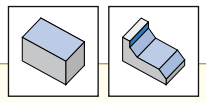
• For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: F45ST (C48) • F45ST (endmill) (C49).

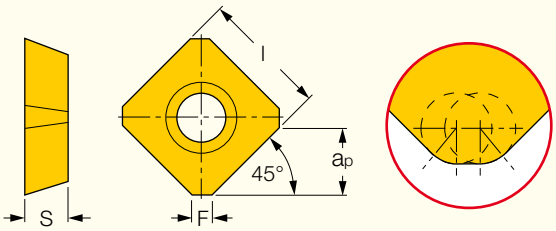


SEMT 12..AFTN-76

Milling Inserts with Ribs Along Edges, for Heavy Machining



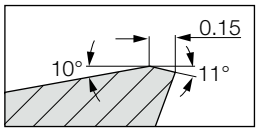




Designation	Dimensions l	S	F	ap	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data ap (mm)	fz (mm/t)
SEMT 12T3AFTN-76	13.15	3.70	2.20	6.50	●	●	●	●	2.00-6.00	0.12-0.20
SEMT 1204AFTN-76	12.70	4.76	2.20	6.50	●		●		2.00-6.00	0.12-0.20

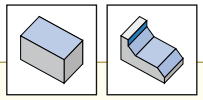
• Use optional TSE 12T3-N seat on F45ST cutters. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: F45ST (C48) • F45ST (endmill) (C49).

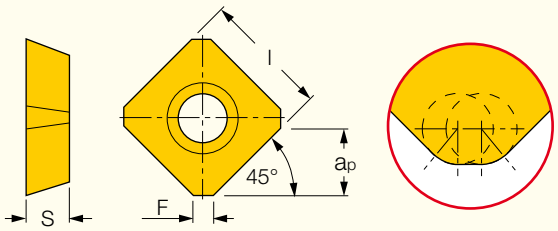


SEHT-AFN

Precision Ground, Sharp Cutting Edges, General Use Milling Inserts, for 45° Milling Cutters



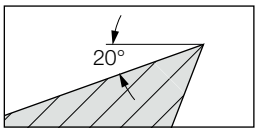




Designation	Dimensions l	S	F	ap	Tough ↔ Hard IC28	IC328	IC928	IC20	Recommended Machining Data ap (mm)	fz (mm/t)
SEHT 1204AFN	12.70	4.76	1.9	6.50	●	●	●		2.00-6.00	0.12-0.20
SEHT 1204AFN-P	12.70	4.76	1.9	6.50				●	2.00-6.00	0.12-0.20

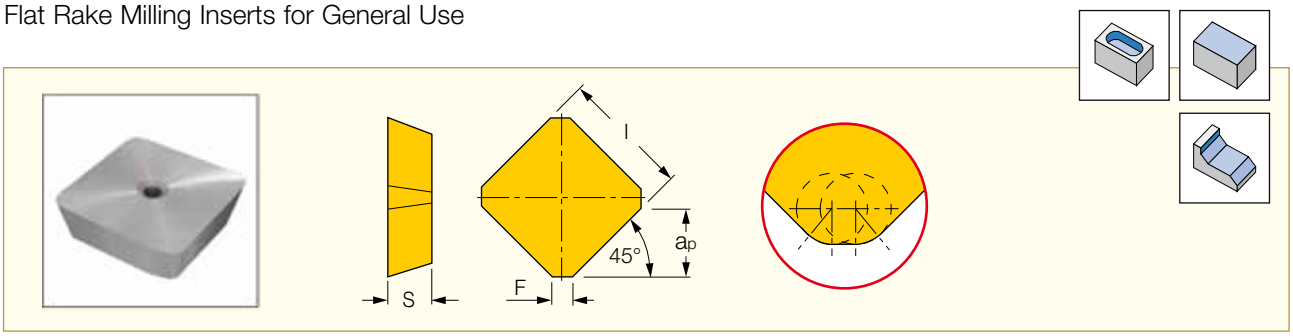
For tools, see: F45ST (C48) • F45ST (endmill) (C49).

For cutting speed recommendations, see pages L2-8, L16-19.



SEAN-AF..

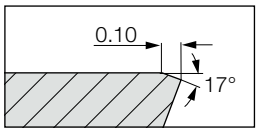
Flat Rake Milling Inserts for General Use



Designation	Dimensions l	S	F	ap	IS8	Recommended Machining Data ap (mm)	fz (mm/t)
SEAN 1203AFTN	12.70	3.18	1.80	6.50	●	2.00-6.00	0.10-0.15
SEAN 1203AFTN01530	12.70	3.18	1.80	6.50	●	2.00-6.00	0.10-0.15

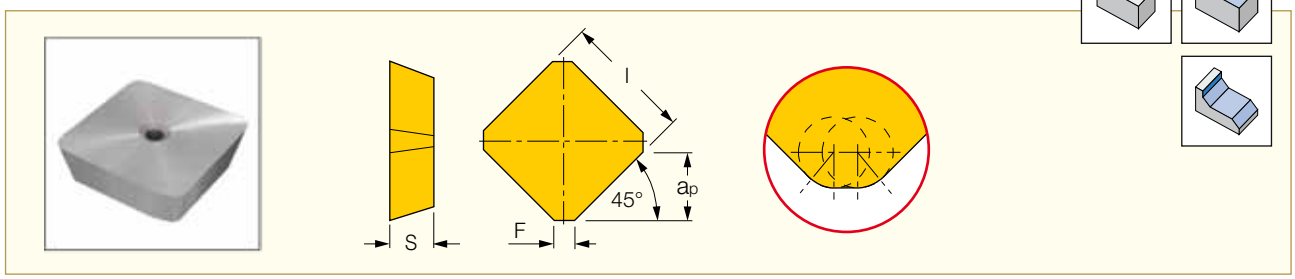
For tools, see: F45E (C50) • F45E (Endmill) (C51).

For cutting speed recommendations, see pages L2-8, L16-19.



SEKN-AF..

Flat Rake Face Milling Inserts for General Use



Designation	Dimensions l	S	F	ap	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC928	IC250	IC950	IC520M	IC910	IC30N	IC20	Recommended Machining Data ap (mm)	fz (mm/t)
SEKN 1203AF-N	12.70	3.18	1.80	6.50		●		●								2.00-6.00	0.12-0.20
SEKN 1203AF-N-42	12.70	3.18	1.80	6.50											●	2.00-6.00	0.12-0.20
SEKN 1203AFFN	12.70	3.18	1.80	6.50	●										●	2.00-6.00	0.12-0.20
SEKN 1203AFTN	12.70	3.18	1.80	6.50		●	●	●	●	●	●	●	●	●		2.00-6.00	0.12-0.20
SEKN 1203AFTN-42	12.70	3.18	1.80	6.50		●		●		●	●	●	●			2.00-6.00	0.12-0.20
SEKN 1204AFTN	12.70	4.76	1.80	6.32			●	●				●				2.00-6.00	0.12-0.20
SEKN 1504AFTN	15.88	4.76	1.80	6.50		●	●	●	●			●	●			2.00-6.00	0.12-0.20

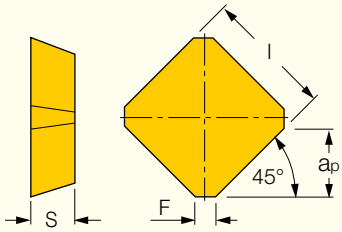
For tools, see: F45E (C50) • F45E (Endmill) (C51).

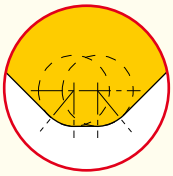
For cutting speed recommendations, see pages L2-8, L16-19.

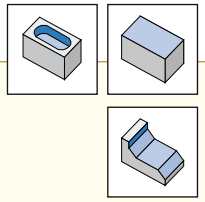
SEKR-AF-N-42

Super Positive, Square Milling Insert for 45° Finishing and Medium Machining on Soft Materials





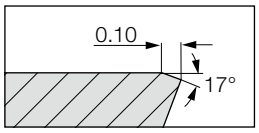




Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC28	IC328	IC50M	IC250	IC30N	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKR 1203AF-N-42	12.70	3.18	1.80	6.50	●	●	●	●	●	2.00-6.00	0.10-0.15

For tools, see: F45E (C50) • F45E (Endmill) (C51).

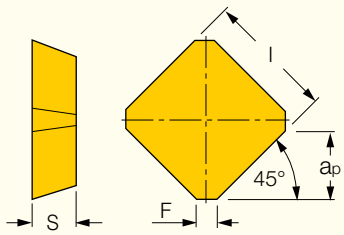
For cutting speed recommendations, see pages L2-8, L16-19.

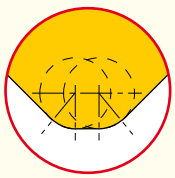


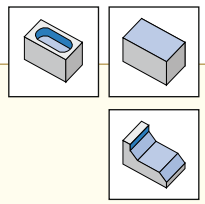
SEKR-AF..-76

Square Milling Inserts with Ribs Along Edges, for 45° Roughing Applications





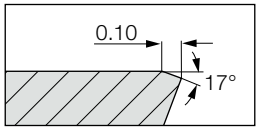




Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC28	IC328	IC50M	IC928	IC250	IC950	IC4050	IC520M	IC30N	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKR 1203AFN-76	12.70	3.18	1.80	6.50	●	●	●	●	●	●	●	●	●	2.00-6.00	0.12-0.20
SEKR 1204AFN-76	12.70	4.76	1.80	6.22		●								2.00-6.00	0.08-0.15
SEKR 1504AFTN-76	15.88	4.76	1.80	8.43		●								2.00-6.00	0.12-0.17

For tools, see: F45E (C50) • F45E (Endmill) (C51).

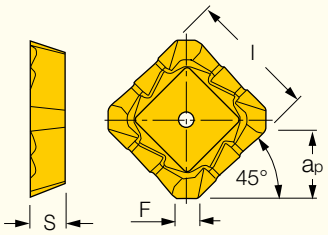
For cutting speed recommendations, see pages L2-8, L16-19.

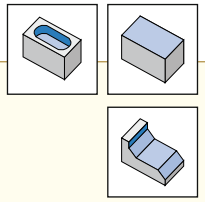


SEKR-AFTR-HS

Square Milling Inserts with Chip Splitting Serrated Cutting Edge, for 45° Roughing Applications







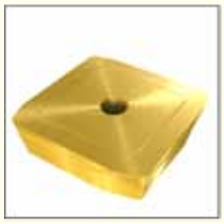
Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC928	IC250	IC950	IC520M	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKR 1204AFTR-HS	12.65	4.76	1.80	6.27		●			●	●	●			2.00-6.00	0.15-0.25
SEKR 1203AFTR-HS	12.70	3.18	1.80	6.50	●	●	●	●	●	●	●	●	●	2.00-6.00	0.15-0.25
SEKR 1504AFTR-HS	15.88	4.76	1.80	8.30		●			●			●	●	2.00-6.00	0.15-0.25

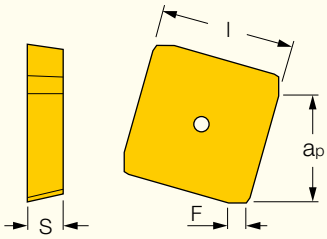
For tools, see: F45E (C50) • F45E (Endmill) (C51).

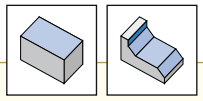
For cutting speed recommendations, see pages L2-8, L16-19.

SPKN ED..

Flat Rake Milling Inserts for General Use







Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC28	IC328	IC635	IC50M	IC250	IC950	IC520M	IC910	IC30N	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPKN 1203EDFR/L	12.70	3.18	1.40	9.50	●									●	3.00-8.00	0.08-0.15
SPKN 1504EDFR	15.88	4.76	1.40	11.50										●	3.00-8.00	0.08-0.15
SPKR 1203ED-R	12.70	3.18	1.40	9.50										●	3.00-9.00	0.08-0.15
SPKN 1204EDTR	12.70	4.76	1.40	9.78							●				3.00-8.00	0.08-0.15
SPKN 1203EDTR/L	12.70	3.18	1.70	9.50			●	●	●		●	●	●		3.00-8.00	0.08-0.15
SPKN 1504EDTR/L	15.88	4.76	1.40	11.50				●			●				3.00-8.00	0.08-0.15
SPKN 1203EDR-42	12.70	3.18	1.40	9.50										●	3.00-8.00	0.08-0.15
SPKN 1203EDTR-42	12.70	3.18	1.40	9.50		●		●	●	●					3.00-8.00	0.08-0.15
SPKN 1504EDTR-42	15.88	4.76	1.40	11.50		●		●	●						3.00-8.00	0.08-0.15

For tools, see: F75 (C37).

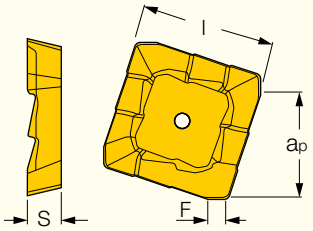
For cutting speed recommendations, see pages L2-8, L16-19.

ISOSHRED

SPKR EDTR-HS

Square Positive Inserts with Chip Splitting Serrated Cutting Edges





Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC328	IC50M	IC928	IC250	IC950	IC520M	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPKR 1203EDTR-HS	12.70	3.18	1.60	9.50	●	●	●	●	●	●	●	3.00-9.00	0.10-0.20
SPKR 1504EDTR-HS	15.82	4.80	2.00	12.24	●		●					3.00-9.00	0.10-0.20

For tools, see: F75 (C37).

For cutting speed recommendations, see pages L2-8, L16-19.

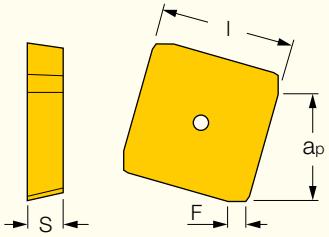
ISCARMILL

SPKR ED..-76

Square Milling Inserts with Ribs Along Edges, for 45° Roughing



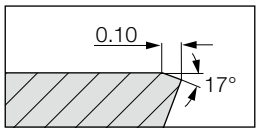
SPKR-76



Designation	Dimensions l	S	F	a_p	Tough ↔ Hard IC328	IC50M	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPKR 1203EDR/L-76	12.70	3.18	1.80	9.50	●	●	●	3.00-9.00	0.08-0.15
SPKR 1504EDTR-76	15.88	4.76	1.73	12.65	●		●	3.00-9.00	0.08-0.15

For tools, see: F75 (C37).

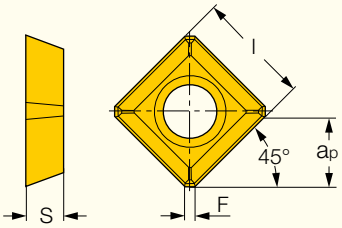
For cutting speed recommendations, see pages L2-8, L16-19.

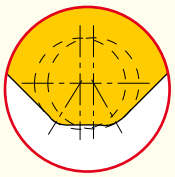


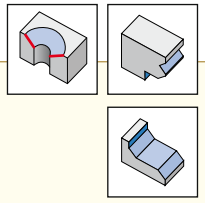
SDMT-AD-N

Inserts for General Use on 45° Endmills









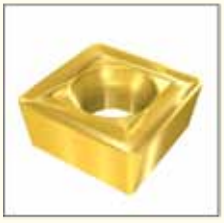
Designation	Dimensions l	S	ap	F	Tough ↔ Hard IC635	IC50M	IC520M	IC20	Recommended Machining Data ap (mm)	fz (mm/t)
SDMT 0903AD-N	9.52	3.18	5.60	0.90	●	●	●	●	2.00-4.00	0.12-0.15

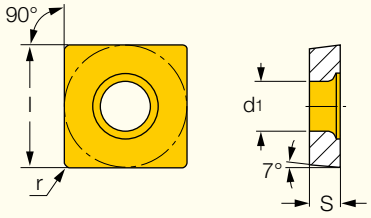
For tools, see: E45 / T245 (B40).

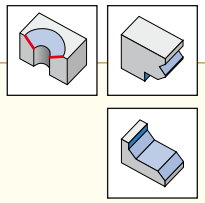
For cutting speed recommendations, see pages L2-8, L16-19.

SCMT-19

Square 7° Positive Inserts for Semi-Roughing at Medium to High Feeds







Designation	Dimensions l	S	r	d1	Tough ↔ Hard IC635	IC50M	IC520M	IC20	Recommended Machining Data ap (mm)	fz (mm/t)
SCMT 09T308-19	9.52	3.97	0.80	4.40	●	●	●	●	1.00-5.00	0.08-0.15
SCMT 120408-19	12.70	4.76	0.80	5.50	●	●	●	●	3.00-8.00	0.08-0.15

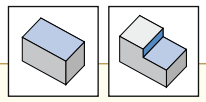
• For cutting speed recommendations, see pages L2-8, L16-19.

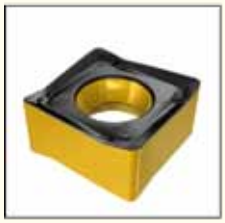
For tools, see page: E45 / T245 (B40)

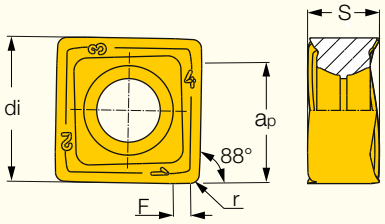
HELIDO 890 LINE

S890 SNMU 1305PN...

Square, Double-Sided Inserts with 8 Cutting Edges





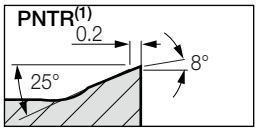


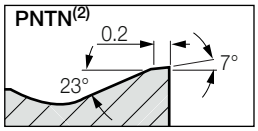
Designation	Dimensions di	S	ap	F	r(5)	Tough ↔ Hard IC330	IC830	IC5400	IC810	IC808	IC5100	Recommended Machining Data ap (mm)	fz (mm/t)
S890 SNMU 1305PNTR (1)	13.00	6.45	9.00	1.80	0.80	●	●	●	●	●	●	2.00-9.00	0.10-0.20
S890 SNMU 1305PNTN (2)	13.00	6.45	9.00	1.80	0.80				●			2.00-9.00	0.10-0.20
S890 SNMU 1305PNR-MM (3)	13.00	6.45	9.00	1.80	0.80		●			●		2.00-9.00	0.18-0.30
S890 SNHU 1305PN-R-W (4)	13.00	5.14	5.00	10.40	0.80				●			0.50-2.00	0.10-0.20

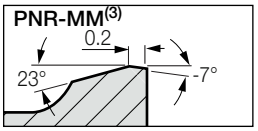
• For cutting speed recommendations, see pages L2-8, L16-19.

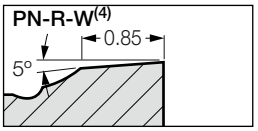
(1) General use, 8 right-hand cutting edges, for milling a variety of cast iron and steel workpiece materials. (2) 8 neutral cutting edges, used for machining cast iron. Can be used for left-hand specially tailored milling cutters. (3) 8 right-hand cutting edges, used mainly for milling steel (R.H. helix). (4) A wiper insert with 4 right-hand cutting edges that provide substantially improved surface finish. (5) 1.2 & 2.0 corner radii - on request.

For tools, see pages: S890 FSN-13 (C20).





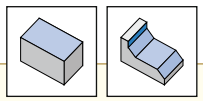




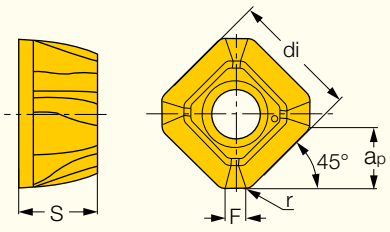
CHAMMILL

S45MT

45° Face Milling Insert with 4 Cutting Edges







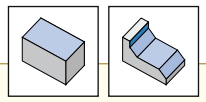
Designation	Dimensions di	ap	F	r	S	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data ap (mm)	fz (mm/t)
S45MT 1106AP-N	11.80	5.20	2.39	0.78	6.00	●	●	●	●	1.00-5.00	0.15-0.25

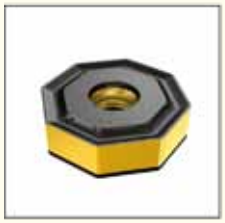
For tools, see: FCM (C14) • FRCM (E24).

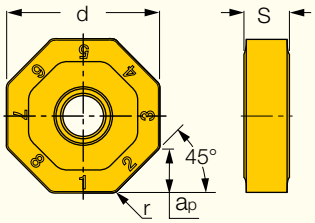
For cutting speed recommendations, see pages L2-8, L16-19.

ONHU/ONMU-08-TN/HL

Octagonal Double-Sided Face Milling Inserts, for Cast Iron and Rough Applications



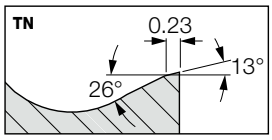


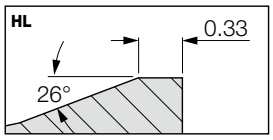


Designation	Dimensions di	r	S	a_p	Tough ↔ Hard IC810	IC910	IC908	DT7150	IC4100	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 080608-TN	20.20	0.80	6.00	5.50		●		●	●		2.00-5.50	0.25-0.40
ONMU 080608-TN	20.20	0.80	6.00	5.50	●	●		●	●	●	2.00-5.50	0.25-0.40
ONMU 080612-HL	20.20	1.20	6.00	5.50		●	●				2.00-5.50	0.40-0.50

• TN - For cast iron • HL - For rough applications and inhomogeneous surfaces • For cutting speed recommendations, see pages L2-8, L16-19.

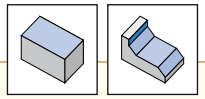
For tools, see: F45NM (C44) • F45WG (C43) • FF NM (E41).



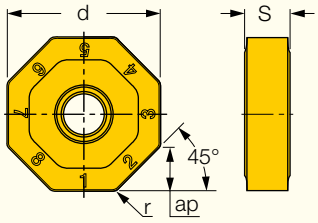


ONHU/ONMU-08-TN-MM

Octagonal Double-Sided Face Milling Inserts, for General Steel Machining



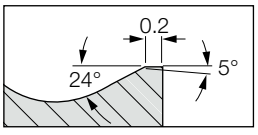




Designation	Dimensions di	r	S	a_p	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC4050	IC5400	IC910	IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 080608-TN-MM	20.20	0.80	6.00	5.50		●		●	●			●		●	2.00-5.50	0.25-0.40
ONMU 080608-TN-MM	20.20	0.80	6.00	5.50	●	●	●	●		●	●		●	●	2.00-5.50	0.40-0.50

For tools, see: F45NM (C44) • F45WG (C43) • FF NM (E41).

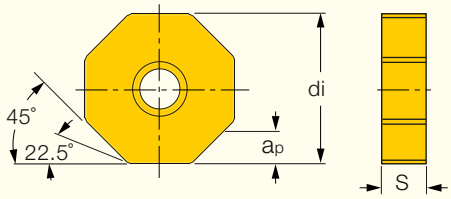
For cutting speed recommendations, see pages L2-8, L16-19.



ONHQ-TN

16MILL Octagonal Double-Sided Ceramic Face Milling Insert





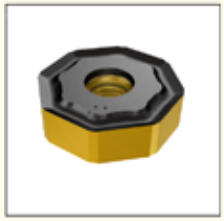
Designation	Dimensions di	S	ap	IS8	Recommended Machining Data ap (mm)
ONHQ 0806-TN	20.20	6.00	5.50	●	2.00-5.50

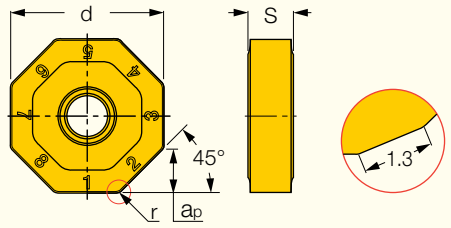
For tools, see: F45NM (C44) • F45WG (C43).

For cutting speed recommendations, see pages L2-8, L16-19.

ONHU 0806-N-PL

Octagonal Insert with Sharp Edge and Positive Land for Cast Iron

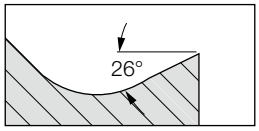




Designation	Dimensions di	r	S	ap	IC910	Recommended Machining Data ap (mm)	fz (mm/t)
ONHU 080600-N-PL	20.20	1.30	6.00	5.50	●	2.00-5.50	0.25-0.40

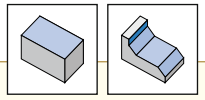
For tools, see: F45NM (C44) • F45WG (C43).

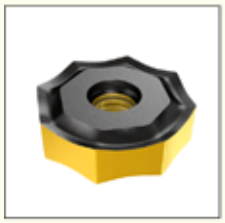
For cutting speed recommendations, see pages L2-8, L16-19.

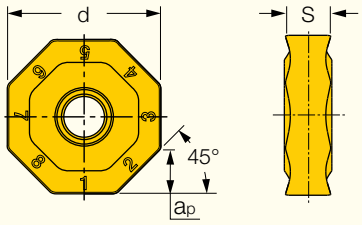


ONHU/ONMU 080608 AN-N-HP

16MILL Octagonal, Double-Sided Face Milling Inserts, for High Temperature Alloys, Stainless Steel and Steels



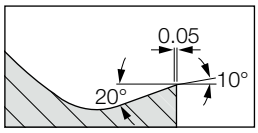




Designation	Dimensions di	r	S	a_p	Tough ↔ Hard IC28	IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 080608 AN-N-HP	20.20	0.80	6.00	2.50		●	●	●	2.00-5.50	0.25-0.40
ONMU 080608 AN-N-HP	20.20	0.80	6.00	2.50	●	●	●		2.00-5.50	0.25-0.40

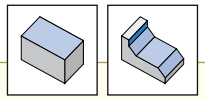
For tools, see: F45NM (C44) • F45WG (C43).

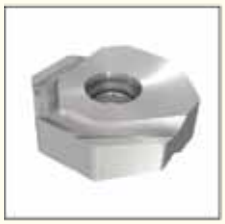
For cutting speed recommendations, see pages L2-8, L16-19.

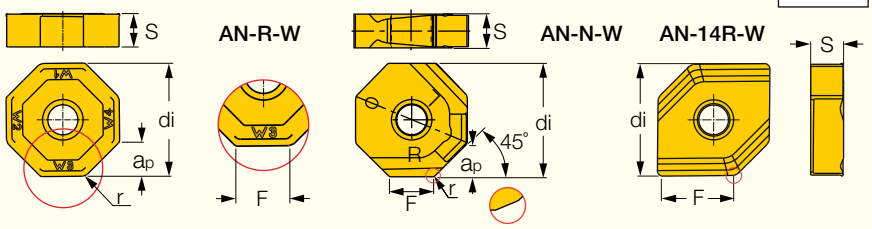


ONHU 0806AN-*-W

Octagonal Double-Sided Wiper Inserts







Designation	Dimensions di	r	S	a_p	F	Tough ↔ Hard IC910	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 0806AN-R-W [1]	20.40	0.40	6.00	3.50	7.20	●		1.50-3.50	0.20-0.25
ONHU 0806AN-N-W [2]	20.30	0.50	6.00	3.50	7.40	●	●	1.50-3.50	0.20-0.25
ONHU 0806AN-14R-W [3]	20.15	0.50	5.50	3.50	13.20	●		1.50-3.50	0.20-0.25

[1] Wiper insert with 4 cutting edges, recommended for fine pitch cutters, for cutter diameters >160 mm. [2] Wiper insert with 4 cutting edges, 2 right- and 2 left-hand. [3] Wiper insert with 4 cutting edges, recommended for fine pitch cutters, for cutter diameters <125 mm.

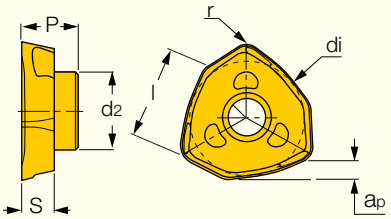
For tools, see pages: F45NM (C44) • F45WG (C43).

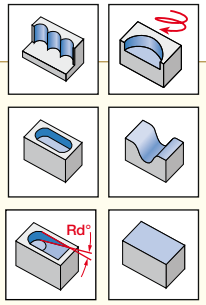
For cutting speed recommendations, see pages L2-8, L16-19.

FF WOMT/WOCT

Positive Rake Inserts for Very High Feed Machining of to 3.5 mm/tooth at Small Depth of Cut





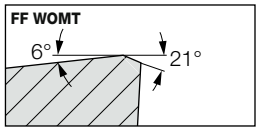


Designation	Dimensions							Tough ↔ Hard					Recommended Machining Data	
	di	l	S	P	d_2	$r^{(1)}$	a_p	IC328	IC928	IC5400	IC910	IC908	a_p (mm)	f_z (mm/t)
FF WOCT 060212T	9.86	7.00	2.70	4.70	5.60	2.00	1.00	●	●			●	0.30-1.00	0.30-1.00
FF WOMT 060212T-M	9.86	7.00	2.70	4.70	5.60	2.00	1.00		●			●	0.30-1.00	0.70-1.50
FF WOCT 09T320T	14.50	10.60	3.95	6.50	9.30	2.00	1.50	●	●				0.70-1.50	0.30-1.00
FF WOMT 09T320T	14.50	10.60	3.95	6.50	9.30	2.00	1.50		●	●	●	●	0.70-1.50	0.70-2.00

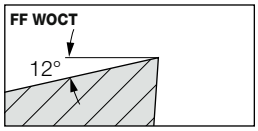
• For cutting speed recommendations, see pages L2-8, L16-19.

(1) Insert radius for programming: r=3.0 for FF WO.. 060212 inserts, r=4.0 for FF WO.. 09T320 inserts

For tools, see: FF EW (E35) • FF EW-CF (E36) • FF EW-M (E36) • FF FW (E40).



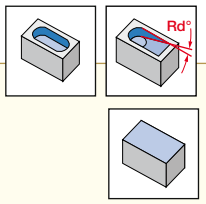
For general applications



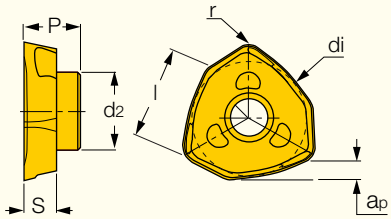
For high temperature alloys and stainless steel

FF WOMW

Flat Rake Inserts with Reinforced Cutting Edge for High Feed Machining of up to 3.5 mm/tooth at Small Depth of Cut





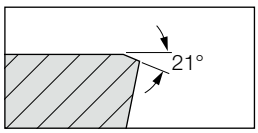


Designation	Dimensions							IC928	Recommended Machining Data	
	di	l	S	P	d_2	$r^{(1)}$	a_p		a_p (mm)	f_z (mm/t)
FF WOMW 060212T-M	9.86	7.00	2.70	4.70	5.60	2.00	1.00	●	0.50-1.00	0.50-3.50
FF WOMW 09T320T	14.50	10.60	4.00	6.50	9.30	2.00	1.50	●	0.80-1.50	0.50-3.50

• For cutting speed recommendations, see pages L2-8, L16-19.

(1) Insert radius for programing: r=3.0 for FF WOMW 060212 insert, r=4.0 for FF WOMW 09T320 insert

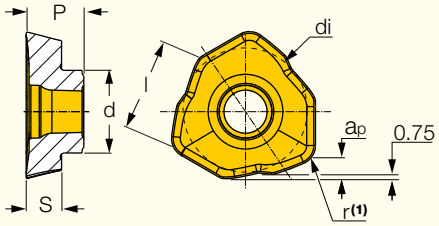
For tools, see: FF EW (E35) • FF EW-CF (E36) • FF EW-M (E36) • FF FW (E40).



FF WOMT-CS

Chip Splitting Insert for High Feed Machining of up to 2.0 mm/Tooth at Shallow Depth of Cut





Designation	Dimensions							IC908	Recommended Machining Data	
	di	l	S	P	d_2	a_p	r(1)		a_p (mm)	f_z (mm/t)
FF WOMT 09T320-CS	14.50	10.60	3.95	6.50	9.30	2.00	2.00	●	1.50-2.00	0.70-2.00

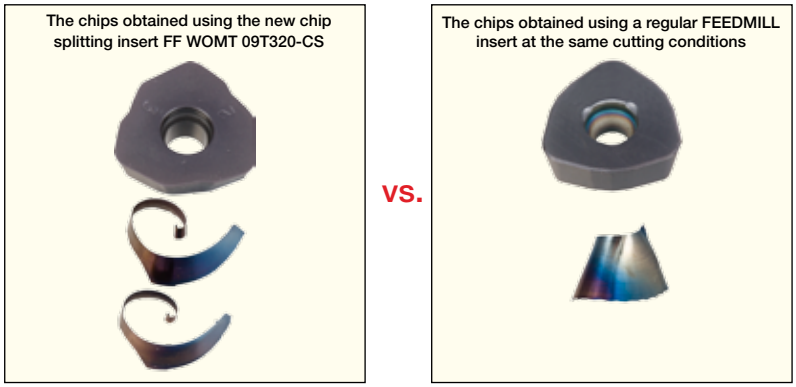
• Chip splitting is effective at depths of cut larger than 0.75 mm. • For cutting speed recommendations, see pages L2-8, L16-19.

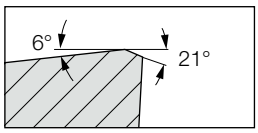
(1) Insert radius for programming r=4.2 mm

For tools, see: FF EW (E35) • FF EW-CF (E36) • FF FW (E40).

The FEEDMILL insert splits the chips into two narrow strips which result in:

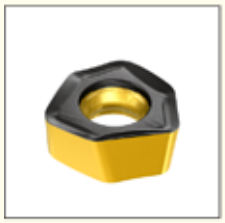
- Approximately 15% lower power consumption
- Higher output from low power machines and unstable spindles
- Improved chip transfer and evacuation

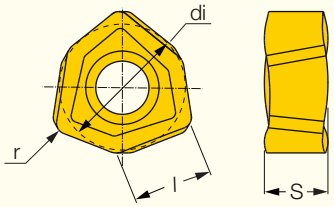


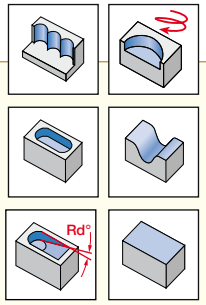


H600 WXCU 04

Double-Sided Inserts with 6 Cutting Edges, for Fast Feed Machining







Designation	Dimensions di	l	S	r(1)	Tough ↔ Hard IC330	IC830	IC808	Recommended Machining Data ap (mm)	fz (mm/t)
H600 WXCU 040310HP	6.25	4.13	3.10	0.96	●	●		0.50-0.80	0.20-0.70
H600 WXCU 040310T	6.25	4.13	3.10	0.96		●	●	0.50-0.80	0.20-0.70

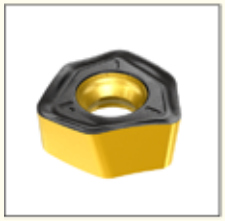
• For cutting speed recommendations, see pages L2-8, L16-19.

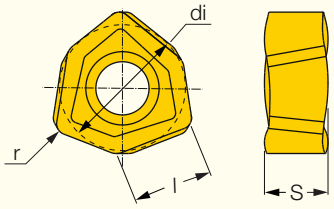
(1) Insert radius for programming r=1.9 mm

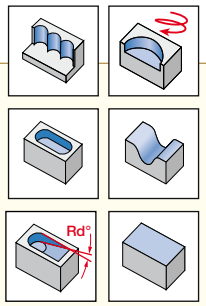
For tools, see: FF EWX-04 (E32) • FF EWX-M-04 (E33) • FF EWX-MM-04 (E34) • TS FF EWX (E34).

H600 WXCU 05

Double-Sided Inserts with 6 Cutting Edges, for Fast Feed Machining





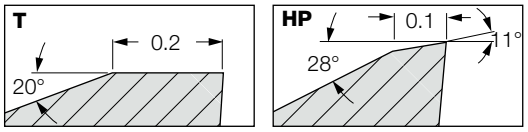


Designation	Dimensions di	l	S	r(3)	Tough ↔ Hard IC330	IC830	IC810	IC808	Recommended Machining Data ap (mm)	fz (mm/t)
H600 WXCU 05T312HP (1)	8.33	5.50	4.20	1.20	●	●			0.80-1.00	0.30-0.80
H600 WXCU 05T312T (2)	8.33	5.50	4.20	1.20		●	●	●	0.80-1.00	0.70-1.20

• Recommended machining data on MF tools: For H600 WXCU 05T312HP ap=0.8-2.0 mm, fz=0.2-0.6 mm/t, For H600 WXCU 05T312T ap=0.8-2.0 mm, fz=0.5-1.0 mm/t. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) For stainless steel and high temperature alloys. (2) For alloy steel and cast iron. (3) Insert radius for programming: r=2.3 mm on FF tools, r=3.1 mm on MF tools.

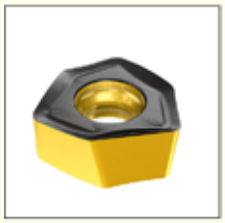
For tools, see: FF EWX-05 (E32) • FF EWX-M-05 (E33) • FF FWX-05 (E37) • MF FWX-05 (E37).

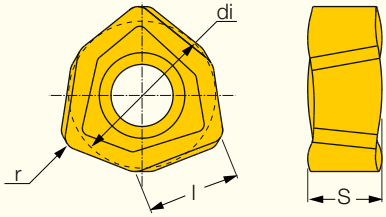


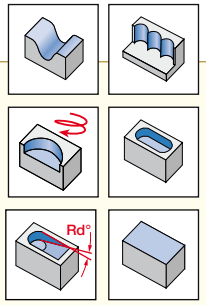
HELIDO
600 UPFEED LINE

H600 WXCU 08

Double-Sided Inserts with 6 Cutting Edges, for Fast Feed Machining





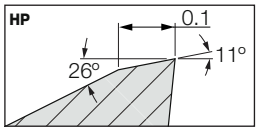


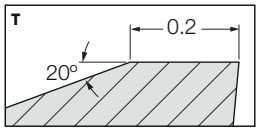
Designation	Dimensions di	l	S	r(3)	Tough ↔ Hard IC330	IC830	IC810	IC808	Recommended Machining Data ap (mm)	fz (mm/t)
H600 WXCU 080612HP (1)	13.23	8.80	6.80	1.20	●	●		●	1.00-2.00	0.75-1.50
H600 WXCU 080612T (2)	13.23	8.80	6.80	1.20		●	●	●	1.00-2.00	1.00-2.00

• Recommended machining data on MF tools: For H600 WXCU 080612HP ap=1.8-3.5 mm, fz=0.5-1.0 mm/t, For H600 WXCU 080612T ap=1.8-3.5 mm, fz=0.8-1.5 mm/t. • For cutting speed recommendations, see pages L2-8, L16-19.

(1) For stainless steel and high temperature alloys. (2) For alloy steel and cast iron • "I" marks on top rake for identification (3) Insert radius for programming: r=3.3 mm on FF tools, r=4.7 mm on MF tools.

For tools, see: FF FWX-08 (E38) • MF FWX-08 (E38).

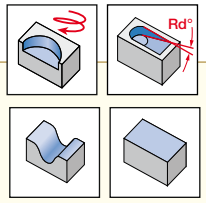




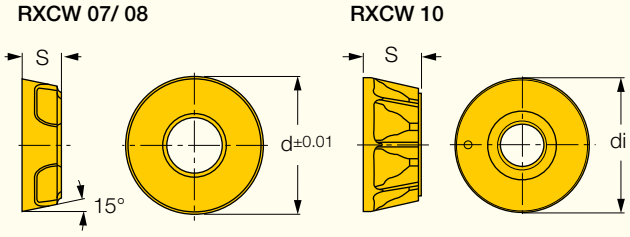
ISCARMILL

RXCW

Precision Ground, Flat Rake Round Milling Inserts



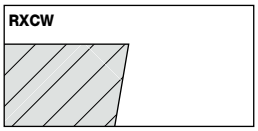


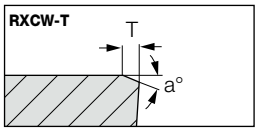


Designation	Dimensions di	S	Txa°	Tough ↔ Hard IC328	IC928	IC950	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
RXCW 0702	7.00	2.40	-	●	●	●	●	1.00-2.50	0.05-0.20
RXCW 0702-T	7.00	2.40	0.10X22				●	1.00-2.50	0.05-0.20
RXCW 0802	8.00	2.40	-	●	●	●	●	1.00-2.50	0.05-0.20
RXCW 0802-T	8.00	2.40	0.10X22				●	1.00-2.50	0.05-0.20
RXCW 10T3	10.00	3.97		●	●	●	●	1.00-5.00	0.10-0.25
RXCW 10T3-T	10.00	3.97	0.15X22				●	1.00-5.00	0.10-0.25

For tools, see: ER (E22) • ER-M (E23).

For cutting speed recommendations, see pages L2-8, L16-19.

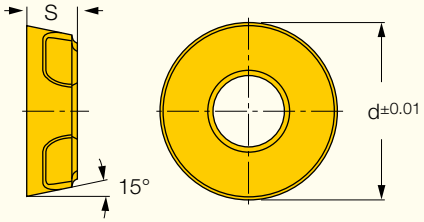


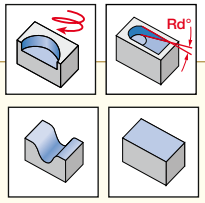


RXCR

Precision Ground, Positive Rake Round Milling Inserts



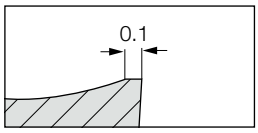




Designation	Dimensions di	Dimensions S	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RXCR 05T1	5.00	1.50	●	●	●	1.00-2.00	0.05-0.10
RXCR 0702	7.00	2.40	●			1.00-2.00	0.05-0.10
RXCR 0802	8.00	2.40	●			1.00-2.00	0.05-0.10
RXCR 10T3	10.00	3.97		●		1.00-5.00	0.10-0.25

For tools, see: ER (E22) • ER-M (E23).

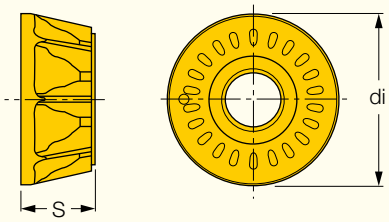
For cutting speed recommendations, see pages L2-8, L16-19.

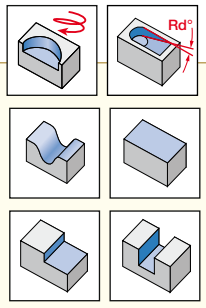


RXMT 10

Round Milling Inserts, Positive Rake for Rough Operations



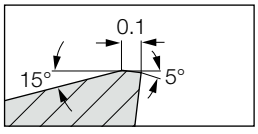




Designation	Dimensions di	Dimensions S	Tough ↔ Hard IC328	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
RXMT 10T3-RM	10.00	3.97	●	●	1.00-5.00	0.10-0.25

• Star-shaped bottom for indexing and to prevent insert rotation • For cutting speed recommendations, see pages L2-8, L16-19.

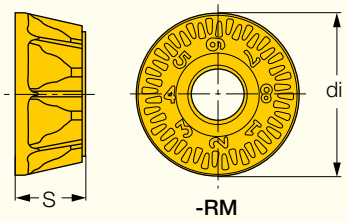
For tools, see: ER (E22) • ER-M (E23).

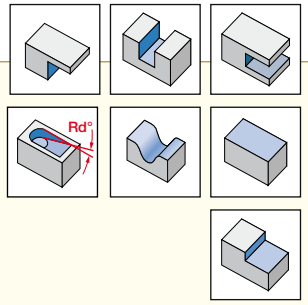


R90MT

Round Profile Milling Inserts



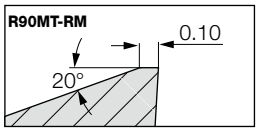


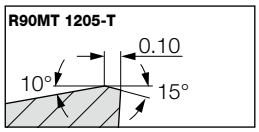


Designation	Dimensions di	S	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
R90MT 1205-RM	12.00	5.00	●	●	●	●	2.00-6.00	0.15-0.25
R90MT 1205-T	12.00	5.30	●	●		●	2.00-6.00	0.12-0.20
R90MT 43-RM	12.70	5.40	●	●	●	●	2.00-6.00	0.15-0.25

For tools, see: ER-M (E23) • FCM (C14) • FDN-CM (G31) • FRCM (E24).

For cutting speed recommendations, see pages L2-8, L16-19.

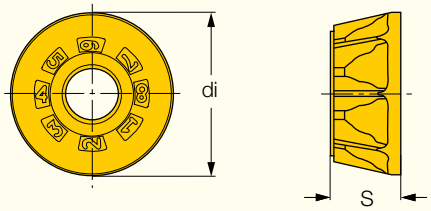


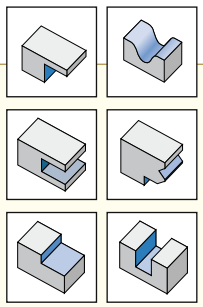


R90CW

Round Inserts with a Flat Rake for Profile Milling



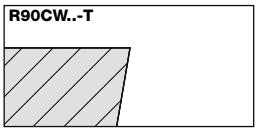




Designation	Dimensions di	S	Tough ↔ Hard IC328	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
R90CW 1205-T	12.00	5.00	●	●	2.00-6.00	0.12-0.20
R90CW 43-T	12.70	5.40	●	●	2.00-6.00	0.12-0.20

For tools, see: ER-M (E23) • FDN-CM (G31).

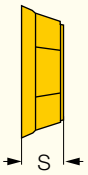
For cutting speed recommendations, see pages L2-8, L16-19.

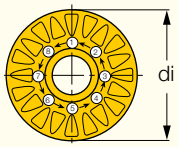


REMT-76

Round Milling Insert with Ribs on the Rake Face



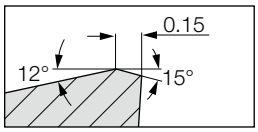




Designation	Dimensions di	Dimensions S	Tough ↔ Hard IC328	IC928	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
REMT 1505-LM-76	15.87	5.24	●	●	●	3.00-7.00	0.12-0.20

For tools, see: E45KT (C40) • F45KT (C41).

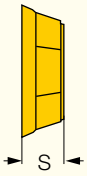
For cutting speed recommendations, see pages L2-8, L16-19.

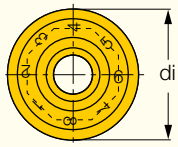


REMW

Round Insert with a Reinforced Flat Rake for Profile Milling



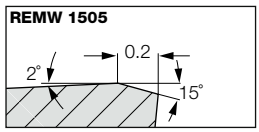




Designation	Dimensions di	Dimensions S	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
REMW 1505	15.87	5.20	●	3.00-7.00	0.15-0.25

For tools, see: E45KT (C40) • F45KT (C41).

For cutting speed recommendations, see pages L2-8, L16-19.

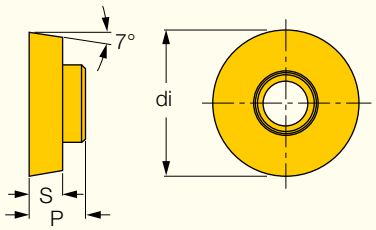


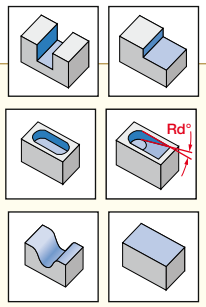
MILLSHRED
ROUND LINE

RCMW/RCCW-MO

Round Flat Rake Milling Inserts



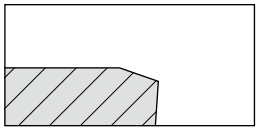




Designation	Dimensions di	S	P	Tough ↔ Hard IC928	IC910	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RCCW 1206MO	12.00	4.00	6.40			●	2.50-5.00	0.15-0.40
RCMW 1607MO	16.00	5.00	7.90		●	●	3.00-6.00	0.20-0.75
RCMW 2009MO	20.00	6.00	9.40	●		●	4.00-8.00	0.20-0.75

For tools, see: ERW (E25) • ERW-M (E26) • FRW (E27).

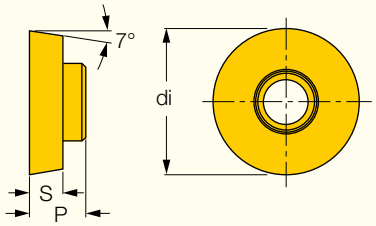
For cutting speed recommendations, see pages L2-8, L16-19.

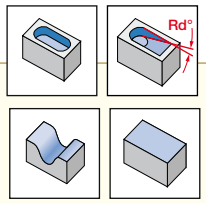


RCMT/RCCT-MO

Round Positive Rake Milling Inserts



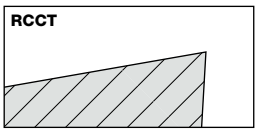


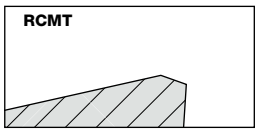


Designation	Dimensions di	S	P	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RCCT 1206MO	12.00	4.00	6.40	●	●	●	2.50-5.00	0.15-0.40
RCMT 1607MO	16.00	5.00	7.90		●	●	3.00-6.00	0.15-0.40
RCMT 2009MO	20.00	6.00	9.40		●	●	4.00-8.00	0.15-0.40

• RCMT - Positive rake and reinforced cutting edge, RCCT - Positive rake and sharp cutting edge, both used mainly on stainless steel. • For cutting speed recommendations, see pages L2-8, L16-19.

For tools, see: FRW (E27).



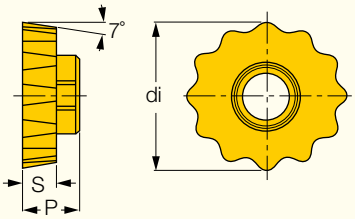


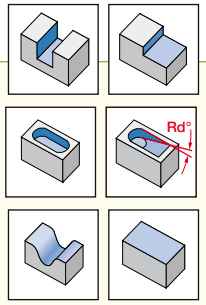
MILLSHRED
ROUND LINE

RCMT/RCMW/RCCW-FW

Fully Effective Serrated Inserts with Four Indexing Orientation Options



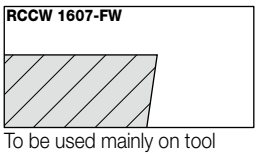




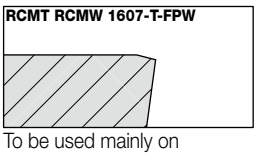
Designation	Dimensions di	S	P	Tough ↔ Hard IC830	IC928	IC910	IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RCMT 1206-FW	12.00	4.00	6.40		●				2.50-5.00	0.20-0.35
RCMT 1206-FW-F20	12.00	4.00	6.40		●			●	2.50-5.00	0.20-0.35
RCMT 1206-FW-T20	12.00	4.00	6.40		●				2.50-5.00	0.20-0.35
RCCW 1607-FW	16.00	5.00	7.90					●	3.00-6.00	0.20-0.35
RCMT 1607-FW	16.00	5.00	7.90	●	●		●	●	3.00-6.00	0.20-0.35
RCMT 1607-FW-F20	16.00	5.00	7.90		●			●	3.00-6.00	0.20-0.35
RCMT 1607-FW-T20	16.00	5.00	7.90		●			●	3.00-6.00	0.20-0.35
RCMW 1607-T-FPW	16.00	5.00	7.90					●	3.00-6.00	0.20-0.35
RCMW 1607-T-FW	16.00	5.00	7.90		●	●		●	3.00-6.00	0.20-0.35
RCMT 2009-FW	20.00	6.00	9.40		●			●	4.00-8.00	0.20-0.35
RCMT 2009-FW-F20	20.00	6.00	9.40		●				4.00-8.00	0.20-0.35
RCMT 2009-FW-T20	20.00	6.00	9.40		●				4.00-8.00	0.20-0.35
RCMW 2009-T-FW	20.00	6.00	9.40		●			●	4.00-8.00	0.20-0.35

For tools, see: ERW (E25) • ERW-M (E26) • FRW (E27).

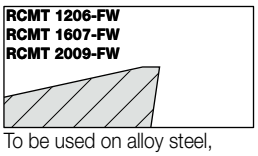
For cutting speed recommendations, see pages L2-8, L16-19.



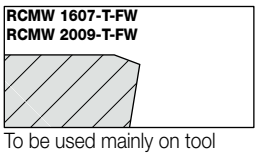
To be used mainly on tool and die steels



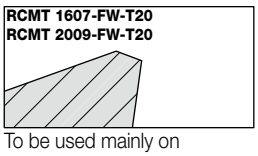
To be used mainly on hardened steel



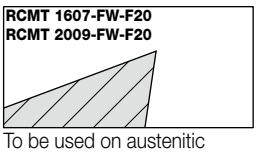
To be used on alloy steel, stainless steel and exotic materials



To be used mainly on tool and die steels and cast iron



To be used mainly on martensitic, stainless steels

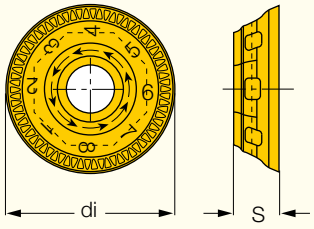


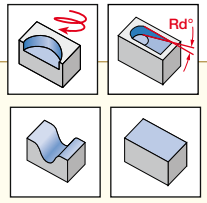
To be used on austenitic stainless steel, exotic materials and aluminum

RFMT 1905-76

Round Milling Insert



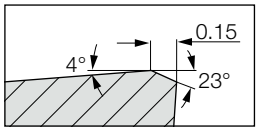




Designation	Dimensions di	Dimensions S	Tough ↔ Hard IC328	IC928	IC950	IC4050	Recommended Machining Data a_p (mm)	f_z (mm/t)
RFMT 1905-LM-76	19.74	5.48	●	●	●	●	3.00-8.00	0.15-0.25

For tools, see: HOF (C42).

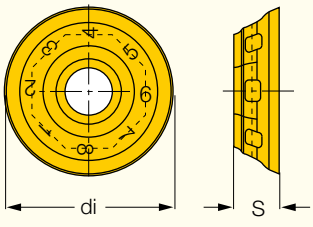
For cutting speed recommendations, see pages L2-8, L16-19.

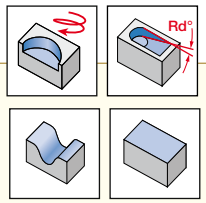


RFMW 1905

Round Insert with a Reinforced Flat Rake for Profile Milling



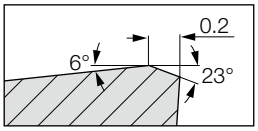




Designation	Dimensions di	Dimensions S	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
RFMW 1905	19.74	5.48	●	3.00-8.00	0.15-0.25

For tools, see: HOF (C42).

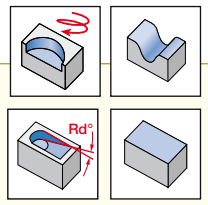
For cutting speed recommendations, see pages L2-8, L16-19.

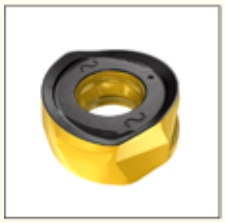


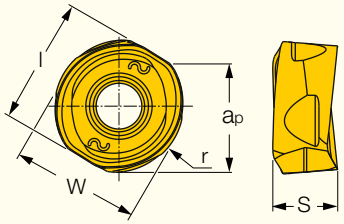
HELIDO
ROUND H400 LINE

H400 RNHU

Double-Sided Inserts with Four 5, 6 and 8 mm Radii Cutting Edges, for Profile Milling



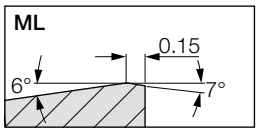


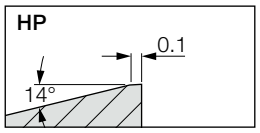


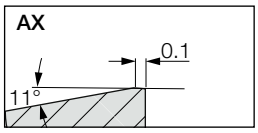
Designation	Dimensions r	l	W	a_p	S	Tough ↔ Hard IC330	IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
H400 RNHU 1004-AX	5.00	9.20	9.30	7.50	4.70		●	●	1.00-5.00	0.10-0.30
H400 RNHU 1004-HP	5.00	9.20	9.30	7.50	4.05		●		1.00-5.00	0.10-0.30
H400 RNHU 1004-ML	5.00	9.20	9.30	7.50	4.05		●	●	1.00-5.00	0.10-0.30
H400 RNHU 1205-AX	6.00	11.00	11.20	8.70	5.20		●	●	2.00-6.00	0.15-0.30
H400 RNHU 1205-HP	6.00	11.00	11.20	8.70	4.75	●	●		2.00-6.00	0.15-0.30
H400 RNHU 1205-ML	6.00	11.00	11.20	8.70	4.75		●	●	2.00-6.00	0.15-0.30
H400 RNHU 1606-AX	8.00	14.70	13.90	12.00	7.80		●	●	3.00-8.00	0.15-0.40
H400 RNHU 1606-HP	8.00	14.70	13.90	12.00	7.80		●		3.00-8.00	0.15-0.40
H400 RNHU 1606-ML	8.00	14.70	13.90	12.00	7.80		●	●	3.00-8.00	0.15-0.40

For tools, see: H400 ER-10 (E28) • H400 ER-12 (E29) • H400 ER-M (E29) • H400 FR-10 (E30) • H400 FR-12 (E30) • H400 FR-16 (E31).

For cutting speed recommendations, see pages L2-8, L16-19.



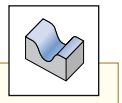




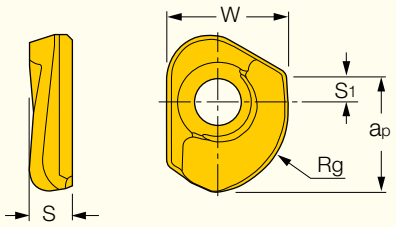
HELIBALL

CR-D8

Ball Nose 8 mm Diameter Profiling Insert







Designation	Dimensions W	R_g[1]	S	a_p	S_1	Tough ↔ Hard IC28	IC328	IC250	Recommended Machining Data a_p (mm)	f_z (mm/t)
CR D080-MS	6.30	4.00	2.00	5.40	1.4	●	●	●	1.00-4.00	0.04-0.12

(1) Radius generated on workpiece

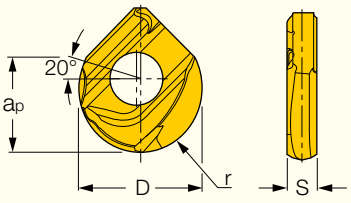
For tools, see: CDP D-M (E8) • CM D08 (E7).

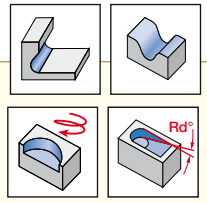
For cutting speed recommendations, see pages L2-8, L16-19.

HBR-QF

220° Spherical Profile Inserts for Roughing and Semi-Finishing,
Up and Down Ramping, and Undercutting







Designation	Dimensions D	ap	r	S	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HBR D100-QF	10.00	6.70	5.00	2.30			●	1.50-5.00	0.08-0.15
HBR D120-QF	12.00	9.77	6.00	2.60	●	●	●	2.00-6.00	0.08-0.15
HBR D160-QF	16.00	10.30	8.00	3.37	●	●	●	2.50-8.00	0.08-0.15
HBR D200-QF	20.00	13.40	10.00	4.65	●	●	●	3.00-10.00	0.08-0.15
HBR D250-QF	25.00	16.70	12.50	5.40			●	4.00-12.50	0.08-0.15

For tools, see: HCM D10 (E8) • HCM D12 (E9) • HCM D16 (E10) • HCM D20 (E11) • HCM D25 (E12) • HCM-M (E13) • HCM-MM (E13) • TS HCM (E14).

For cutting speed recommendations, see pages L2-8, L16-19.

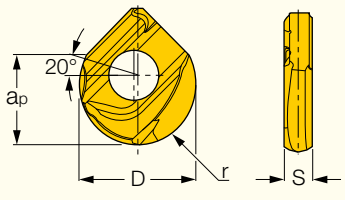


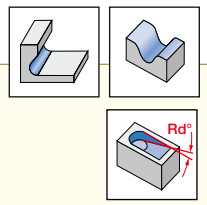


HBF-QF

220° Spherical Profile Inserts for Accurate Finishing,
Up and Down Ramping and Undercutting







Designation	Dimensions D	ap	r	S	Tough ↔ Hard IC928	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HBF D120-QF	12.00	8.00	6.00	2.60	●	●	2.00-6.00	0.03-0.80
HBF D160-QF	16.00	10.30	8.00	3.37		●	2.50-8.00	0.03-0.80
HBF D200-QF	20.00	13.40	10.00	4.65	●	●	3.00-10.00	0.03-0.80
HBF D250-QF	25.00	17.00	12.50	5.40	●	●	4.00-12.50	0.03-0.80

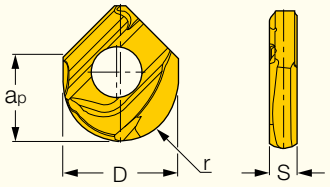
For tools, see: HCM D12 (E9) • HCM D16 (E10) • HCM D20 (E11) • HCM D25 (E12) • HCM-M (E13) • HCM-MM (E13) • TS HCM (E14).

For cutting speed recommendations, see pages L2-8, L16-19.

HCR

Ball Nose Inserts with Extended Flutes and 2 Cutting Edges (Fully Effective) for Cavity Profiling and Shouldering





Designation	Dimensions D	ap	r	S	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HCR D100-QF	10.00	7.00	5.00	2.30			●	1.50-5.00	0.08-0.15
HCR D120-QF	12.00	9.00	6.00	2.60			●	2.00-8.50	0.08-0.15
HCR D120-QP	12.00	9.80	6.00	2.60	●	●		2.00-8.50	0.08-0.15
HCR D160-QF	16.00	11.30	8.00	3.37	●		●	2.50-11.00	0.08-0.15
HCR D160-QP	16.00	11.30	8.00	3.37	●	●		2.50-11.00	0.08-0.15
HCR D200-QF	20.00	14.70	10.00	4.65			●	3.00-14.00	0.08-0.15
HCR D200-QP	20.00	15.40	10.00	4.65	●	●		3.00-14.00	0.08-0.15
HCR D250-QF	25.00	18.40	12.50	5.40			●	4.00-17.50	0.08-0.15
HCR D250-QP	25.00	17.50	12.50	5.40	●	●		4.00-17.50	0.08-0.15

• QF - For general use applications • QP - Positive chipformer for low cutting forces. Recommended for machining aluminum, titanium and other exotic materials.
• For cutting speed recommendations, see pages L2-8, L16-19.

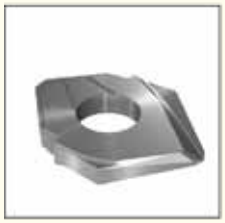
For tools, see: HCM D10 (E8) • HCM D12 (E9) • HCM D16 (E10) • HCM D20 (E11) • HCM D25 (E12) • HCM-M (E13) • HCM-MM (E13) • TS HCM (E14).

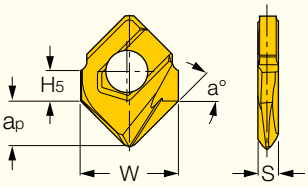


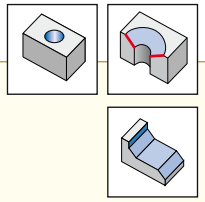


HCD-QF

90° V-Shaped Inserts with 2 Cutting Edges, for Chamfering, Countersinking and Spot Drilling







Designation	Dimensions W	ap	a°	S	H5	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HCD D120-090-QF	12.00	5.00	45	2.60	4.00	●	1.50-4.00	0.08-0.15
HCD D124-090-QF	12.40	5.10	45	2.60	4.00	●	1.50-4.00	0.08-0.15
HCD D160-090-QF	16.00	7.50	45	3.37	4.50	●	2.00-6.00	0.08-0.15
HCD D205-090-QF	20.50	9.50	45	4.65	6.00	●	2.50-7.00	0.08-0.15
HCD D250-090-QF	25.00	12.00	45	5.40	7.00	●	3.00-9.00	0.08-0.15

For tools, see: HCM D12 (E9) • HCM D16 (E10) • HCM D20 (E11) • HCM D25 (E12) • HCM-M (E13) • HCM-MM (E13) • TS HCM (E14).

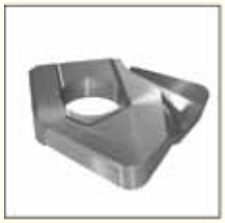
For cutting speed recommendations, see pages L2-8, L16-19.

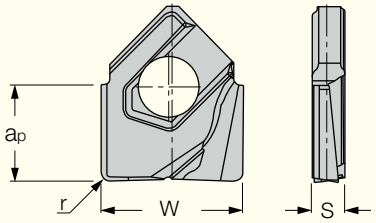


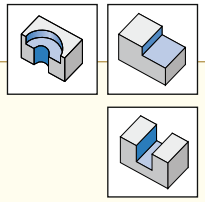


HCC-QF

Inserts with 2 Cutting Edges (Fully Effective), for Shouldering, Slotting, Drilling and Countersinking







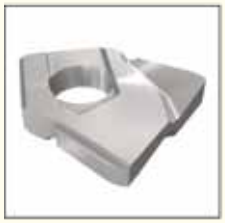
Designation	Dimensions W	ap	r	S	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HCC D120-R0.5-QF	12.00	8.10	0.50	2.60	●	3.50-7.50	0.08-0.15
HCC D120-R1.0-QF	12.00	8.10	1.00	2.60	●	3.50-7.50	0.08-0.15
HCC D120-R2.0-QF	12.00	8.10	2.00	2.60	●	3.50-7.50	0.08-0.15
HCC D160-R0.5-QF	16.00	10.30	0.50	3.37	●	5.00-10.00	0.08-0.15
HCC D160-R1.0-QF	16.00	10.30	1.00	3.37	●	5.00-10.00	0.08-0.15
HCC D160-R2.0-QF	16.00	10.30	2.00	3.37	●	5.00-10.00	0.08-0.15
HCC D200-R0.5-QF	20.00	12.80	0.50	4.65	●	6.00-12.00	0.08-0.15
HCC D200-R1.0-QF	20.00	12.80	1.00	4.65	●	6.00-12.00	0.08-0.15
HCC D200-R2.0-QF	20.00	12.80	2.00	4.65	●	6.00-12.00	0.08-0.15
HCC D200-R3.0-QF	20.00	12.80	3.00	4.65	●	6.00-12.00	0.08-0.15
HCC D250-R1.0-QF	25.00	14.70	1.00	5.40	●	7.50-15.50	0.08-0.15
HCC D250-R2.0-QF	25.00	14.70	2.00	5.40	●	7.50-15.50	0.08-0.15
HCC D250-R3.0-QF	25.00	14.70	3.00	5.40	●	7.50-15.50	0.08-0.15
HCC D250-R4.0-QF	25.00	14.70	4.00	5.40	●	7.50-15.50	0.08-0.15

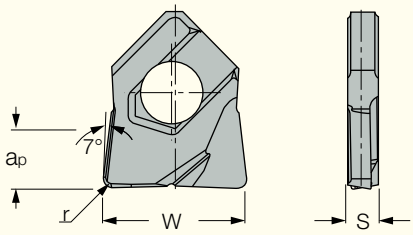
For tools, see: HCE (B9) • HCE-M (B10) • HCE-MM (B10) • TS HCM (E14).

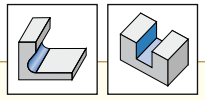
For cutting speed recommendations, see pages L2-8, L16-19.

HTR-QF

Toroidal Inserts with a Variety of Corner Radii, for Machining Fillets and for Machining Next to Steep Walls







Designation	Dimensions W	ap	r	S	IC908	Recommended Machining Data ap (mm)	fz (mm/t)
HTR D120-R1.0-QF	12.00	5.00	1.00	2.60	●	0.70-3.50	0.08-0.15
HTR D120-R2.0-QF	12.00	5.00	2.00	2.60	●	0.70-3.50	0.08-0.15
HTR D120-R3.0-QF	12.00	5.00	3.00	2.60	●	0.70-3.50	0.08-0.15
HTR D120-R4.0-QF	12.00	5.00	4.00	2.60	●	0.70-3.50	0.08-0.15
HTR D.62-R.031-QF	15.88	6.45	0.80	3.37	●	1.00-5.00	0.08-0.15
HTR D.62-R.063-QF	15.88	6.45	1.60	3.37	●	1.00-5.00	0.08-0.15
HTR D.62-R.125-QF	15.88	6.45	3.18	3.37	●	1.00-5.00	0.08-0.15
HTR D.62-R.156-QF	15.88	6.45	3.96	3.37	●	1.00-5.00	0.08-0.15
HTR D160-R1.0-QF	16.00	5.00	1.00	3.37	●	1.00-5.00	0.08-0.15
HTR D160-R1.5-QF	16.00	5.00	1.50	3.37	●	1.00-5.00	0.08-0.15
HTR D160-R2.0-QF	16.00	5.00	2.00	3.37	●	1.00-5.00	0.08-0.15
HTR D160-R3.0-QF	16.00	5.00	3.00	3.37	●	1.00-5.00	0.08-0.15
HTR D200-R2.0-QF	20.00	8.00	2.00	4.65	●	1.20-6.00	0.08-0.15
HTR D200-R3.0-QF	20.00	7.50	3.00	4.65	●	1.20-6.00	0.08-0.15
HTR D200-R4.0-QF	20.00	8.00	4.00	4.65	●	1.20-6.00	0.08-0.15
HTR D250-R3.0-QF	25.00	9.00	3.00	5.40	●	1.50-7.50	0.08-0.15
HTR D250-R4.0-QF	25.00	9.00	4.00	5.40	●	1.50-7.50	0.08-0.15
HTR D250-R5.0-QF	25.00	9.00	5.00	5.40	●	1.50-7.50	0.08-0.15
HTR D250-R6.0-QF	25.00	9.00	6.00	5.40	●	1.50-7.50	0.08-0.15

For tools, see: HCE (B9) • HCE-M (B10) • HCE-MM (B10) • TS HCM (E14).

For cutting speed recommendations, see pages L2-8, L16-19.



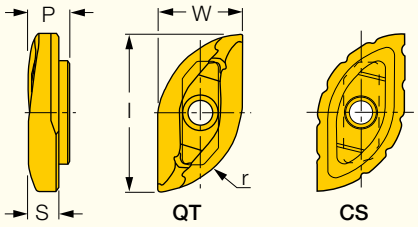


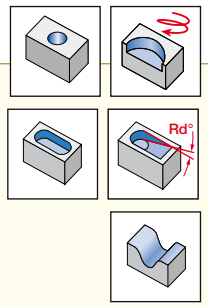
DROPMILL

BCR

Ball Nose Inserts with a Straight Cutting Edge Tangent to a Round Corner







Designation	Dimensions r[2]	l	W	P	S	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
BCR D120-QT	6.00	9.60	5.80	3.20	2.30	●		●	1.20-4.20	0.20-0.25
BCR D160-QT	8.00	12.70	7.70	4.40	3.30		●	●	1.60-5.60	0.20-0.25
BCR D200-QT	10.00	17.00	9.60	4.90	3.60			●	2.00-7.00	0.20-0.25
BCR D250-QT	12.50	20.00	11.80	5.70	4.20	●	●	●	2.50-8.75	0.20-0.25
BCR D300-QT	15.00	27.30	14.70	7.00	5.30	●	●		3.00-10.50	0.20-0.25
BCR D320-CS [1]	16.00	28.00	15.00	7.00	5.30			●	3.20-11.20	0.20-0.25
BCR D320-QT	16.00	28.00	15.10	7.00	5.30	●	●	●	3.20-11.20	0.20-0.25
BCR D400-CS [1]	20.00	35.40	18.80	9.40	6.30			●	4.00-14.00	0.20-0.25
BCR D400-QT	20.00	35.40	18.80	9.40	7.00	●			4.00-14.00	0.20-0.25
BCR D500-CS [1]	25.00	44.00	24.00	11.70	9.00			●	5.00-17.50	0.20-0.25

[1] Not recommended for stainless steel and high temp. alloys. [2] Radius generated on workpiece

For tools, see: BCM (E15) • BCM-M (E16) • BCM-MM (E16) • TS BCM (E17).

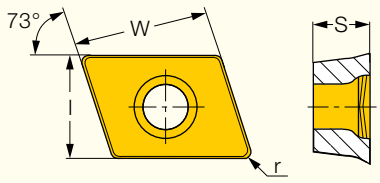
For cutting speed recommendations, see pages L2-8, L16-19.

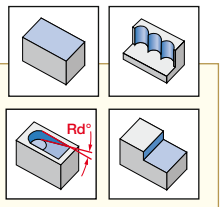
ISCARPLUNGER

XCMT-TR

73° Rhombic, 7° Positive Flank Insert, for Plungers







Designation	Dimensions l	W	S	r	$a_{e(min)}$	$a_{e(max)}$	IC908	Recommended Machining Data f_z (mm/t)
XCMT 120408TR	9.50	12.20	5.00	0.80	6.00	11.00	●	0.11-0.30

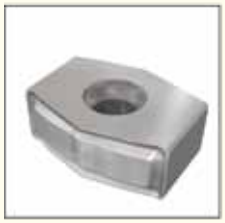
For tools, see: PLX (F10) • PLX-M (F9).

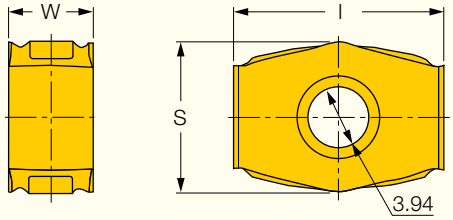
For cutting speed recommendations, see pages L2-8, L16-19.

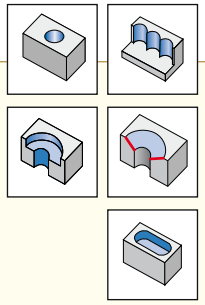
ISCARPLUNGER

PLHT

Tangentially Clamped Insert with 4 Cutting Edges, for Plungers







Designation	Dimensions W	l	S	Tough ↔ Hard IC328	IC908	Recommended Machining Data f_z (mm/t)
PLHT 1305-PDX	5.45	13.70	9.95	●	●	0.12-0.12

For tools, see: PH (F8) • PH-A (F8).

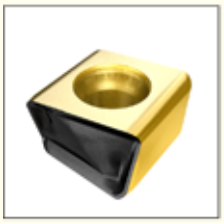
For cutting speed recommendations, see pages L2-8, L16-19.

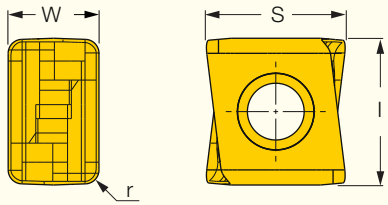
TANGPLUNGE

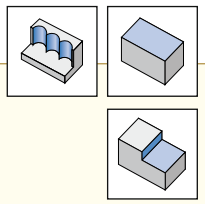
PLUNGING LINE

HTP LNHT 0604

Tangentially Clamped Insert with 4 Cutting Edges, for Plungers







Designation	Dimensions W	l	S	r	$a_{e(min)}$	$a_{e(max)}$[1]	Tough ↔ Hard IC330	IC830	IC808	Recommended Machining Data f_z (mm/t)
HTP LNHT 0604 ER	4.06	6.50	6.77	0.80	1.00	4.50	●	●	●	0.08-0.12
HTP LNHT 0604 ETR	4.06	6.50	6.77	0.80	1.00	4.50	●		●	0.08-0.12

For tools, see: HTP-LN06 (F4) • HTP-M-LN06 (F4) • TS HTP (F3).

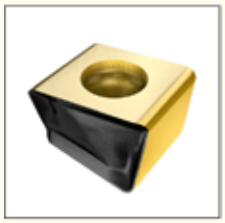
For cutting speed recommendations, see pages L2-8, L16-19.

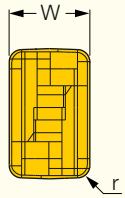
[1] For cutter diameter smaller than 20 mm, ae=4.5. For cutter diameter 20 mm and larger, ae=5 mm.

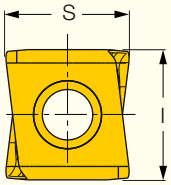
TANGPLUNGE
PLUNGING LINE

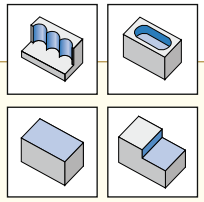
HTP LNHT 1006

Tangentially Clamped Inserts with 4 Cutting Edges, for Plungers







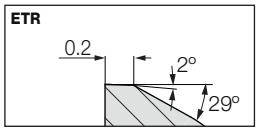


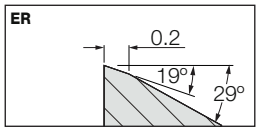
Designation	Dimensions W	l	S	r	$a_{e(min)}$	$a_{e(max)}$ [1]	Tough ↔ Hard IC330	IC830	IC810	IC808	Recommended Machining Data f_z (mm/t)
HTP LNHT 1006 ER	6.50	10.50	9.93	1.00	2.00	8.00	●	●	●	●	0.10-0.15
HTP LNHT 1006 ETR	6.50	10.50	9.93	1.00	2.00	8.00	●	●		●	0.12-0.20

For tools, see: FTP-LN10 (E39) • HTP-LN10 (F5) • HTP-M-LN10 (F5) • HTP-R-LN10 (F6).

For cutting speed recommendations, see pages L2-8, L16-19.

[1] For cutter diameter smaller than 32 mm, ae=7.0. For cutter diameter 32 mm and larger, ae=8 mm.

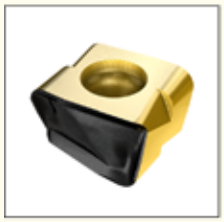


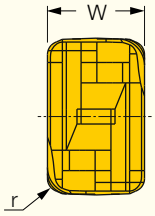


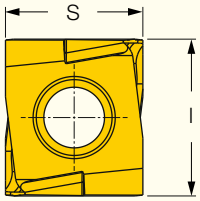
HELITANG
UPFEED LINE

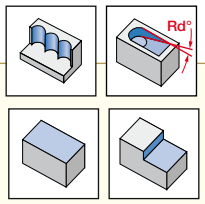
FTP LNHT 1006

Tangentially Clamped Inserts with 4 Cutting Edges, for Plunging and Fast Feed Facing





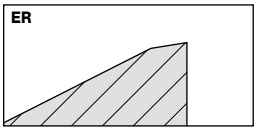




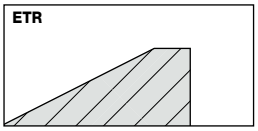
Designation	Dimensions W	l	S	r	Tough ↔ Hard IC830	IC808
FTP LNHT 1006 ER	6.50	10.50	9.78	1.80	●	●
FTP LNHT 1006 ETR	6.50	10.50	9.80	1.80	●	

For tools, see: FTP-LN10 (E39).

For cutting speed recommendations, see pages L2-8, L16-19.



ER- Used for general applications

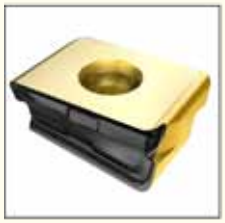


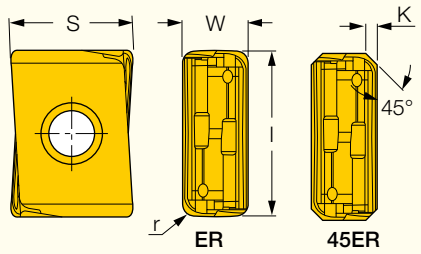
ETR- First priority for hardened steel

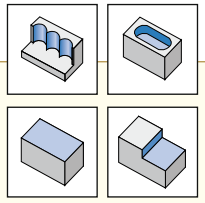
TANGPLUNGE
PLUNGING LINE

HTP LNHT 1606

Tangentially Clamped Inserts with 4 Cutting Edges, for Plungers



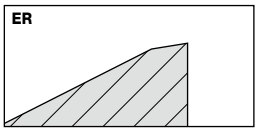




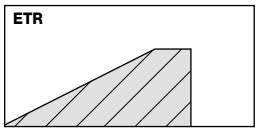
Designation	Dimensions							Tough ↔ Hard				Recommended Machining Data
	W	l	S	r	$a_{e(min)}$	$a_{e(max)}$	K	IC328	IC928	IC910	IC908	f_z (mm/t)
HTP LNHT 1606 ER	6.50	16.50	12.07	1.20	6.00	14.00	-	●	●	●	●	0.10-0.20
HTP LNHT 1606 ETR	6.50	16.50	12.03	1.20	6.00	14.00	-		●		●	0.10-0.20
HTP LNHT 16061.2X45ER	6.50	16.50	12.04	-	6.00	14.00	1.2X45		●			0.10-0.20

For tools, see: HTP-R-LN16 (F7).

For cutting speed recommendations, see pages L2-8, L16-19.



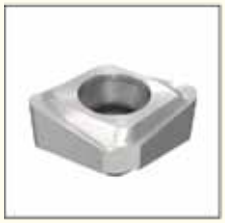
ER- Used for general applications

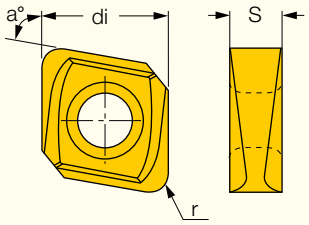


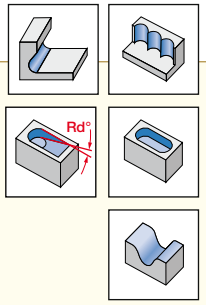
ETR- First priority for hardened steel

CNHT

Toroidal Bull Nose, Peripherally Ground Inserts with 4 Cutting Edges





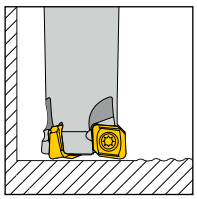


Designation	Dimensions di	r	S	a°	$a_{e(min)}$	$a_{e(max)}$	IC908
CNHT 070305	7.00	0.50	3.60	80	1.00	4.50	●
CNHT 070310	7.00	1.00	3.60	80	1.00	4.50	●
CNHT 070315	7.00	1.50	3.60	80	1.00	4.50	●

For tools, see: E90CN (B13) • E90CN-M (B13) • E93CN (E18) • E93CN-M (E19) • E93CN-MM (E20).

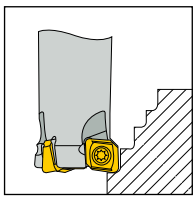
For cutting speed recommendations, see pages L2-8, L16-19.

Finishing



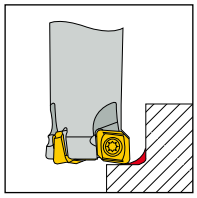
	Light	Medium	Heavy
a_p	0.1	0.5	1-1.5
f mm/t	0.25	0.15	0.1

Plunging



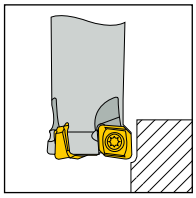
		Light	Medium	Heavy
ae	**CNHT**	1	3	4.5
	ENHT	1	4	8.5
f mm/t		0.12	0.1	0.08

Machining Small Corner Radii



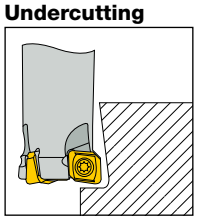
	Light	Medium	Heavy
a_p	0.1	0.5	1-2
ae	0.1	0.5	1-2
f mm/t	0.25	0.15	0.1

Machining Long Unsupported Parts



	Light	Medium	Heavy
a_p	0.1	0.5	2
ae	0.1	0.5	0.5
f mm/t	0.25	0.15	0.1

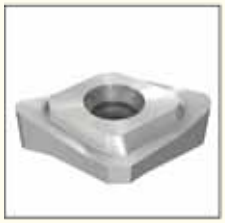
Undercutting

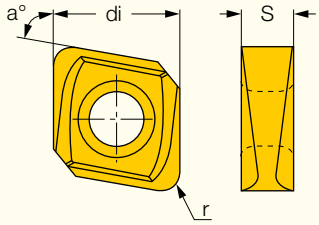


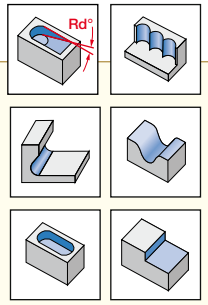
	Light	Medium	Heavy
a_p	2	4	6
ae	0.1	0.2	0.3
f mm/t	0.25	0.15	0.1

ENHT

Toroidal Bull Nose, Peripherally Ground Inserts with 4 Cutting Edges



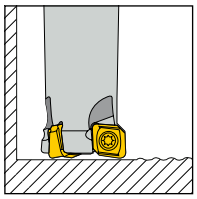


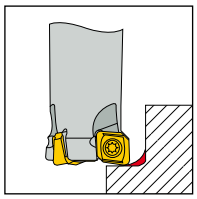


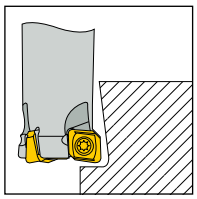
Designation	Dimensions di	r	S	a°	$a_{e(min)}$	$a_{e(max)}$	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
ENHT 100408	10.50	0.80	4.20	75	1.00	8.50	●	0.10-1.50	0.10-0.25
ENHT 100410	10.50	1.00	4.20	75	1.00	8.50	●	0.10-1.50	0.10-0.25
ENHT 100415	10.50	1.50	4.20	75	1.00	8.50	●	0.10-1.50	0.10-0.25
ENHT 100420	10.50	2.00	4.20	75	1.00	8.50	●	0.10-1.50	0.10-0.25
ENHT 100425	10.50	2.50	4.20	75	1.00	8.50	●	0.10-1.50	0.10-0.25
ENHT 100430	10.50	3.00	4.20	75	1.00	8.50	●	0.10-1.50	0.10-0.25

For tools, see: E93CN (E18) • E93CN-M (E19) • F93CN (E21).

For cutting speed recommendations, see pages L2-8, L16-19.







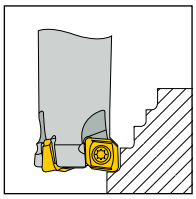
	Light	Medium	Heavy
ap	0.1	0.5	1-1.5
f mm/t	0.25	0.15	0.1

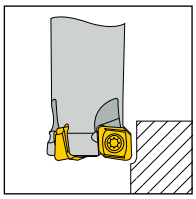
Machining Small Corner Radii

	Light	Medium	Heavy
ap	0.1	0.5	1-2
ae	0.1	0.5	1-2
f mm/t	0.25	0.15	0.1

Undercut

	Light	Medium	Heavy
ap	2	4	6
ae	0.1	0.2	0.3
f mm/t	0.25	0.15	0.1





		Light	Medium	Heavy
ae	**CNHT**	1	3	4.5
	ENHT	1	4	8.5
f mm/t	0.12	0.1	0.08	

Machining Long Unsupported Parts

	Light	Medium	Heavy
ap	0.1	0.5	2
ae	0.1	0.5	0.5
f mm/t	0.25	0.15	0.1


BT50 SEM 22X75
4558308

USER GUIDE, GRADES, MATERIALS



Member IMC Group

Cutting Speed Recommendations for Indexable Milling Cutters

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.(1)
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
		>= 0.55 %C	Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron		Ferritic/pearlitic		180	15
			Pearlitic/martensitic		260	16
	Ductile cast iron (nodular)		Ferritic		160	17
			Pearlitic		250	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolytic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

(1) For workpiece materials list, see pages L22-57

	UNCOATED		COATED						
No.	**IC28**	**IC08**	**IC328/ 330**	**IC4050**	**IC300**	**IC928/ 830**	**C5400**	**IC950**	**IC908/ 808**
1	80 110		140 - 180	170 - 280	210 - 220	180 - 230	225 - 285	210 - 350	210 - 270
2	70 - 90		125 - 150	120 - 200	160 - 180	160 - 190	200 - 235	150 - 250	185 - 225
3	60 - 70		100 - 120	100 - 160	130 - 180	130 - 160	160 - 200	120 - 200	150 - 180
4	50 - 70		90 - 110	80 - 120	130 - 160	120 - 140	150 - 175	100 - 150	135 - 165
5	50 - 60		80 - 100	140 - 320	110 - 140	100 - 130	125 - 160	170 - 400	120 - 150
6	70 - 100		120 - 160	120 - 240	130 - 180	160 - 210	200 - 260	150 - 300	180 - 240
7	50 - 80		90 - 140	100 - 200	100 - 140	120 - 180	150 - 225	125 - 250	135 - 210
8	50 - 70		80 - 120	80 - 160	100 - 140	100 - 160	125 - 200	100 - 200	120 - 180
9	40 - 70		70 - 110	70 - 140	110 - 140	90 - 140	110 - 175	90 - 175	105 - 165
10	40 - 50		60 - 80	60 - 120	100 - 140	80 - 100	100 - 125	75 - 150	90 - 120
11	30 - 70		55 - 120	60 - 100	60 - 100	70 - 160	85 - 200	75 - 130	80 - 180
12	60 - 110	60 - 110	100 - 180	100 - 180	60 - 130	120 - 220			120 - 200
13	60 - 80	40 - 100	100 - 140	100 - 140	50 - 120	120 - 170			110 - 190
14	50 - 70	40 - 80	80 - 120	80 - 120	50 - 100	100 - 150			100 - 160
15			70 - 140	90 - 220		90 - 170		70 - 180	
16			60 - 120	90 - 180		70 - 150		70 - 140	
17			130 - 240	150 - 240		160 - 300		120 - 190	
18			110 - 200	100 - 250		140 - 250		80 - 200	
19			180 - 330	160 - 300		220 - 410		130 - 240	
20			160 - 290	150 - 260		200 - 360		120 - 210	
21	480 - 640	800 - 900							1180 - 1220
22	400 - 560	700 - 800							1070 - 1210
23	50 - 640	800 - 900							1180 - 1220
24	400 - 560	750 - 850							1070 - 1210
25	240 - 320	400 - 450							470 - 490
26	240 - 320	500 - 550							580 - 620
27	240 - 320	500 - 550							580 - 620
28	160 - 240	350 - 380							400 - 440
29									
30									
31	20 - 30	10 - 20	30 - 40			30 - 50			35 - 50
32	20 - 20	10 - 20	25 - 35			30 - 40			30 - 45
33	10 - 20	20 - 50	20 - 30			20 - 30			25 - 35
34	10 - 20	20 - 50	20 - 25			20 - 30			25 - 30
35	30 - 40	20 - 50	40 - 60			50 - 70			50 - 75
36	20 - 40	20 - 30	30 - 60			30 - 70			35 - 75
37	20 - 40	20 - 30	30 - 60			30 - 70			35 - 75
38									55 - 65
39									45 - 55
40									90 - 105
41									55 - 65

Cutting Speed Recommendations for Indexable Milling Cutters

ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.(1)
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
		>= 0.55 %C	Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron		Ferritic/pearlitic		180	15
			Pearlitic/martensitic		260	16
	Ductile cast iron (nodular)		Ferritic		160	17
			Pearlitic		250	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolytic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

(1) For workpiece materials list, see pages L22-57

COATED				CERAMIC
IC380	IC910/ 810	IC4100/ 5100 α-TEC	DT7150 DO-TEC	IS8
180 - 240	210 - 350			
150 - 200	150 - 250			
120 - 160	120 - 200			
110 - 150	100 - 150			
100 - 135	170 - 250			
160 - 220	150 - 220			
140 - 190	125 - 250			
120 - 160	100 - 200			
110 - 150	90 - 175			
80 - 110	75 - 150			
120 - 160	75 - 130			
120 - 180				
100 - 170				
90 - 140				
	200 - 320	200 - 350	140 - 270	350 - 800
	130 - 330	180 - 330	125 - 230	250 - 600
	125 - 300	150 - 250	200 - 330	400 - 900
	120 - 240	130 - 220	160 - 330	250 - 600
	220 - 400	200 - 350	180 - 350	360 - 540
	200 - 350	180 - 330	160 - 330	300 - 440
30 - 45				
25 - 40				
20 - 30				
20 - 25				
40 - 65				
30 - 65				
30 - 65				
45 - 55				
40 - 50				
75 - 90				
45 - 55				

PCD
Recommended Machining Conditions

	Grade	D.O.C. mm	Material	Vc m/min	Feed mm/tooth	Cutting Edge
N	ID5	<2.0	Aluminum alloys <12% silicon	300-3000	0.05-0.25	Sharp
		<2.0	Chipboard Fiberboard Plastics	2000-3000	0.05-0.25	
		<2.0	Copper Brass alloys	500-1500	0.05-0.25	
N	ID8	<2.0	Aluminum>12% silicon	250-1000	0.05-0.25	
		<2.0	Aluminum<12% silicon	300-3000	0.05-0.25	
		<2.0	Chipboard Fiberboard Plastics MMC	2000-3000 200-600	0.05-0.25 0.05-0.25	

CBN
Recommended Machining Conditions

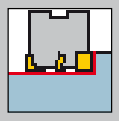
	D.O.C. mm	Material	Grade					
			IB85			IB55		
			Vc m/min	Feed mm/tooth	Cutting Edge	Vc m/min	Feed mm/tooth	Cutting Edge
K	<0.5	Grey cast iron HB 200-280	500-1500	0.1-0.3	Chamfer Hone			
	0.5-2.0		500-1100	0.1-0.25	Chamfer			
	<0.5	Compacted graphite iron GCI	400-600	0.1-0.2	Hone			
S	0.5-2.0	Co based > 35 HRc Ni based > 35 HRc Fe based > 35 HRc Cr based > 35 HRc	150-200 120-150 60-120 50-75	0.05-0.15	Chamfer			
H	<0.5	Hardened steels > 45 HRc	80-180	0.1-0.25	Chamfer	80-220	0.1-0.25	Chamfer
	<2	Hardened cast iron	80-200	0.1-0.15	Chamfer			
P	<2	Bearing steel	180-220	0.05-0.25	Chamfer	180-220	0.1-0.15	Chamfer
	<2	Ferrous powder metal	150-300	0.1-0.15	Chamfer	250-360	0.1-0.15	Chamfer

Recommended Cutting Conditions for ADKT 1505R8T-FF Inserts

Workpiece Material										
ISO class DIN/ISO 513	Description	ISCAR Mat. Group*	Typical AISI/SAE/ASTM	Representative DIN W.-Nr.	Hardness, HB	Carbide grade	D.O.C. Ap [mm]	Cutting speed Vc, [m/min]	Feed per tooth fz, [mm/tooth]	Coolant
P	Non-alloy steel	1	1020	1.0402	130-180	IC928	1-1.5	100-150	0.8-1.5	Air
						IC808	1.5-2	100-170	0.7-1.3	
	Low alloy steel	8	4340	1.6582	260-300	IC928	1-1.5	100-150	0.8-1.5	Air
						IC808	1.5-2		0.5-1	
		9	3135	1.571	HRC 35-42**	IC928	0.5-1.1	80-120	0.4-1	Air
						IC808	0.5-0.7		0.2-0.7	
	High alloy steel	10	H13	1.2344	200-220	IC928	0.7-1.5	100-150	0.6-1.1	Air
						IC808				
M	Martensitic stainless steel	12	420	1.4021	200	IC928	0.5-1.5	80-120	0.4-0.8	Air
						IC330				
	Austenitic stainless steel	14	304L	1.4306	200	IC928	0.5-1	80-100	0.3-0.7	Air
						IC330				
			316L	1.4404	140	IC928	0.5-1	80-100	0.3-0.6	
						IC330				
K	Grey cast iron	16	Class 40	0.6025 (GG25)	250	IC928	1-1.5	150-220	1-1.5	Air
	Nodular cast iron	17	Class 65-45-12	0.7050 (GGG50)	200	IC928	1-1.5	100-160	1-1.5	
S	High temperature alloys	34	Inconel 718	2.4668	340	IC928	0.5-1	20-30	0.1-0.2	Wet (emilsion)
		37	AMS R56400	3.7165 (Ti6Al4V)	HRC 40-45	IC928	0.5-1	22-45	0.4-0.6	

* ISCAR material grpoup in accordance with VDI 3323 standard
** Quenched and tempered
The data refer to W.O.C. no more than 0.7×D and a cutter overhang to 2×D, where D - the cutter diameter

Grade Selection for Applications and Materials

Material Groups / Main Applications	ISO P 1-11 Steel	ISO H 38-41 Hard Steel and Cast Iron	ISO M 12-14 Stainless Steel	ISO S 31-37 High Temp.	ISO K 15-20 Cast Iron	ISO N 21-28 Nonferrous
 INDEXABLE MILLING CUTTERS	Harder IC908 (808) IC30N **IC830 (928)** IC330 (328) Tougher	Harder IB55 IB85 **IC808 (908)** Tougher	Harder IC908 (808) IC30N IC4050 IC928 (830) IC28 **IC330 (328)** Tougher (1)	Harder IC08 **IC808 (908)** IC928 (830) IC328 (330) IC28 Tougher	Harder IS8 IC4100 (5100) DT7150 **IC810 (910)** Tougher	Harder ID5 ID8 IC07 IC08 **IC28** Tougher

First choice

(1) Only for austenitic stainless steel

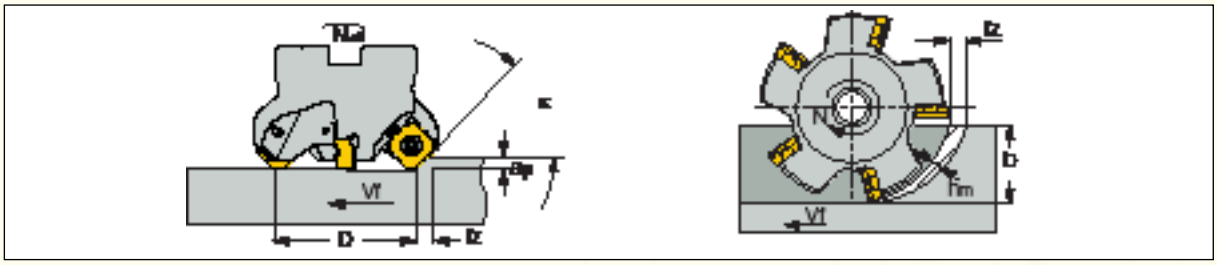
Grade Priorities for MULTI-MASTER Endmills

Material Groups	ISO P 1-11 Steel	ISO H 38-41 Hard Steel and Cast Iron	ISO M 12-14 Stainless Steel	ISO S 31-37 High Temp.	ISO K 15-20 Cast Iron	ISO N 21-28 Nonferrous
	Harder IC903 **IC900/IC908** Tougher	Harder **IC903** IC900/IC908 Tougher	Harder **IC900/IC908** **IC300** Tougher	Harder IC903 **IC900/IC908** **IC300** IC08 Tougher	Harder IC903 **IC900/IC908** Tougher	Harder IC900/IC908 **IC08** Tougher

In most cases the best performance can be attained without using coolant for specific grades. However, it should be noted that if for any reason coolant must be used, it could possibly affect tool life and sometimes cause insert failure, due to thermal shocks.

■ First choice

Milling Calculations



Calculations

Cutting speed	$Vc = \frac{\pi * D * N}{1000} [m/min]$
Spindle speed	$N = \frac{Vc * 1000}{\pi * D} [rev/min]$
Table speed	$V_f = f_z * Z * N$ [mm/min]
Feed per tooth	$f_z = \frac{V_f}{N * Z}$ [mm/tooth]
Feed per revolution	$f_N = fz * Z$ [mm/rev]
Metal removal rate	$Q = \frac{a_p * b * V_f}{1000} [cm^3/min]$
Machining time	$Th = \frac{L_w}{V_f} [min]$
Specific cutting force	$K_c = K_{c1} * h_m^{-mc}$
Average chip thickness in shoulder milling for b/D≤0.1	$h_m \approx f_z * \sqrt{\frac{b}{D}} [mm]$
Average chip thickness in shoulder milling for b/D>0.1	$hm = \frac{(\sin\kappa * 180 * b * f_z)}{\pi * D * \arcsin(b/D)} [mm]$
Machining power	$P = \frac{(a_p * b * V_f * k_c)}{6 * 10^7 * \eta} [kW]$

Vc	[m/min]	Cutting speed
D	[mm]	Tool diameter
N	[RPM]	Spindle speed
Vf	[mm/min]	Feed speed
fz	[mm/tooth]	Feed per tooth
Z		Number of teeth
fN	[mm/rev]	Feed per revolution
Q	[cm^3/min]	Metal removal rate
ap	[mm]	Depth of cut
b	[mm]	Width of cut
Th	[min]	Machining time
Lw	[mm]	Machining length
Kc	[N/mm^2]	Specific cutting force
Kc1(1)	[N/mm^2]	Specific cutting force for 1 mm^2 chip section
hm	[mm]	Average chip thickness
mc(1)		Chip thickness factor
κ	[degrees]	Cutting edge angle
P	[kW]	Machining power
η		Machine efficiency

P = Pc + PM

P - Total Machining Power
Pc - Net Power=Cutting Power
PM - Motor Power (while not cutting)

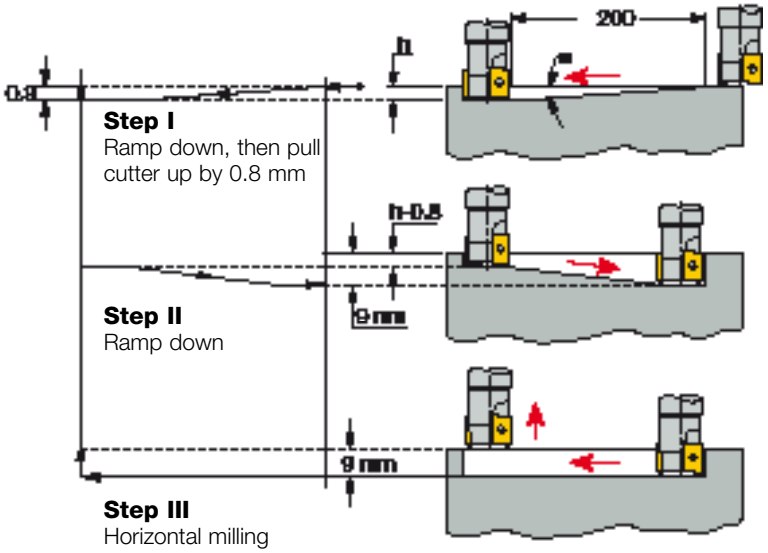
Values for Motor Power Pm

Max. Machine Power (kW)	Motor Power Pm (kW)
5.5	0.4
7.5	0.4-0.6
11.0	1.0
15.0	1.5
18.0	2.2
22.0	2.5

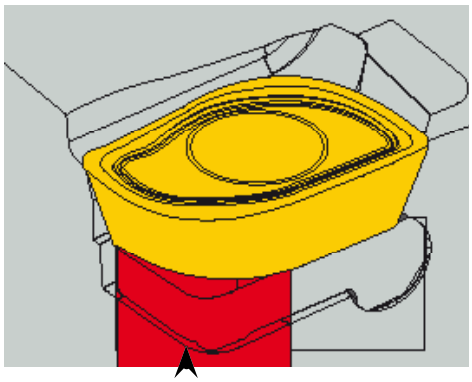
Motor Power Pm has a value of approximately 7 to 12% of Maximum Machine Power

(1) See page L20

Sequence of Rampdown Operations (Example)
Tool: HM90 E90A

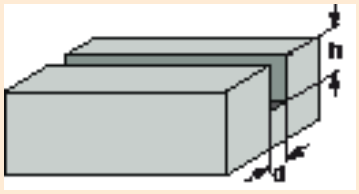
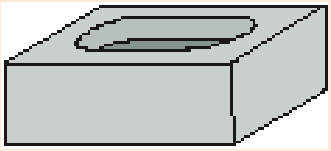
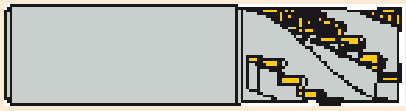


Cutter Nose Shape
Cutter body and seat for inserts with corner radii more than 1.5 mm should be modified accordingly: Rbody=**Rinsert-0.5**



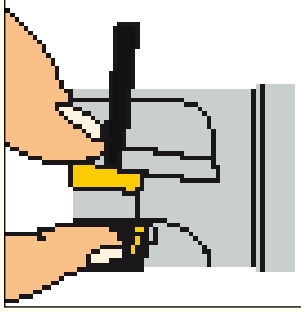
Segment to be ground

Coolant Recommendations

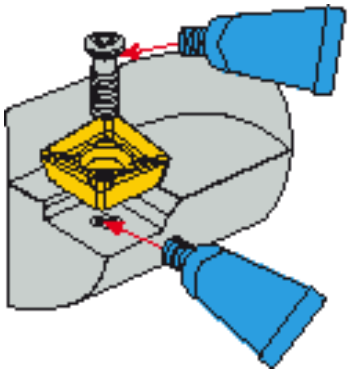
Workpiece Material	With Coolant	Without Coolant
Austenitic Stainless Steel Titanium Inconel Aluminum	✓	
Grey Cast Iron		✓
Application		
 Deep Slotting $\frac{h}{d} > 1.5$	✓	
 Recessing	✓	
Tool Type		
Extended Flute 	✓	

Insert Mounting

Apply anti-seize lubricant to screw head and thread before mounting to ensure proper clamping, firmly press rear of insert with thumb and then tighten the screw. Use the torx screw driver perpendicular to insert seat.

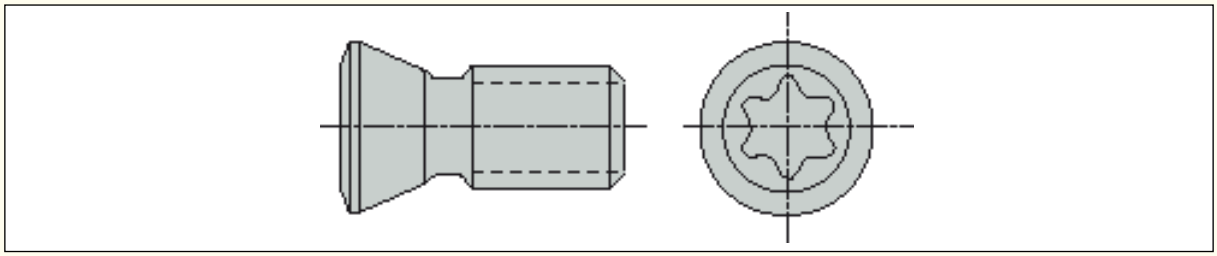


Applying Anti-seize Lubricant



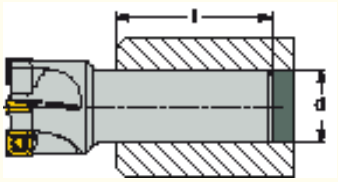
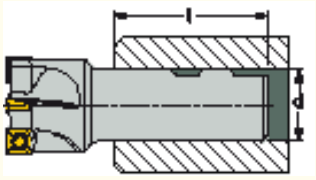
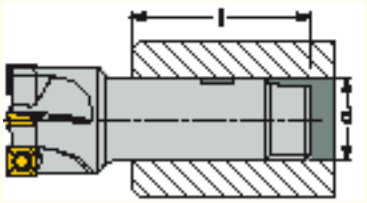
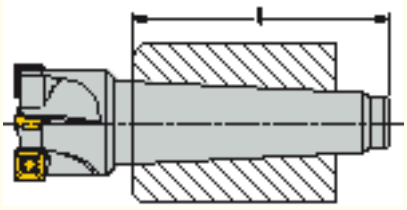
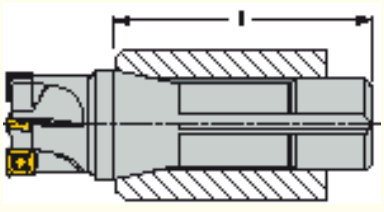
In order to facilitate easy unfastening of insert screws, it is recommended to use anti-seize lubricant grease as shown, supplied with the tool.

Tightening Torque by Screw



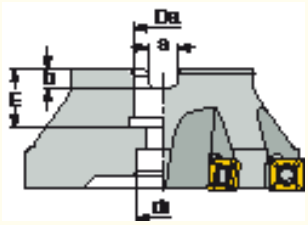
Screw	Thread	Torx Key	Tightening Torque [Nxcm]
SR 14-505	M 2.2	T 7	80 to 100
SR 14-548	M 2.2	T 7	80 to 100
SR 34-508	M 2.2	T 7	80 to 100
SR 34-508/L	M 2.2	T 7	80 to 100
SR 14-560	M 2.5	T 8	100 to 130
SR 14-560/S	M 2.5	T 8	100 to 130
SR 34-505	M 2.5	T 8	100 to 130
SR 34-505/L	M 2.5	T 8	100 to 130
SR 34-513	M 2.5	T 8	100 to 130
SR 34-514	M 2.5	T 7	80 to 100
SR 14-513	M 3	T 9	200 to 230
SR 14-551	M 3	T 9	200 to 230
SR 34-506	M 3	T 9	200 to 230
SR 34-506/L	M 3	T 9	200 to 230
SR 14-562	M 3.5	T10	300 to 340
SR 14-571	M 3.5	T10	300 to 340
SR 14-601	M 3.5	T10	300 to 340
SR 14-562	M 3.5	T10/51	350
SR 34-550	M 3.5	T10	300 to 340
SR 14-506	M 4	T15	450 to 520
SR 14-536	M 4	T20	800 to 1000
SR 14-541	M 4	T15	450 to 520
SR 14-544	M 4	T15	450 to 520
SR 14-544/S	M 4	T15	450 to 520
SR 16-236	M 4	T15	450 to 520
SR 16-236/P	M 4	T15	450 to 520
SR 34-501	M 4	T15	450 to 520
SR 34-510	M 4	T15	450 to 520
SR 34-512	M 4	T15	450 to 520
SR 34-535	M 4	T15	450 to 520
SR 14-500 -L...	M 4 x 0.5	T15	400 to 450
SR 14-519	M 5	T20	800 to 1000
SR 14-536/S	M 5	T20	800 to 1000
SR 14-542	M 5	T20	800 to 1000
SR 14-590	M 5	T20	800 to 1000
SR 14-591	M 5	T20	800 to 1000
SR 14-591/H	M 5	T20	800 to 1000
SR 14-592	M 5	T20	800 to 1000
SR 14-592XL	M 5	T20	800 to 1000
SR 16-212	M 5	T20	800 to 1000
SR 34-511	M 5	T20	800 to 1000
SR 34-523	M 5	T20	800 to 1000
SR 14-592XLM	M 5	T20	790 to 1010
SR 14-592M	M 5	T20	790 to 1010
SR 14-592SM	M 5	T20	790 to 1010
SR 14-0180	M 5	T20	790 to 1010
SR 34-515	M 8	T25	1200 to 1250
SR 34-516	M 8	T25	1200 to 1250
SR 118-069	NF 1/4-28	IP20	850-900
SR 10502813-HG-M	UNF 4-48	IP7	80 to 100
SR 10502813-HGSM	UNF 4-48	IP7	80 to 100

Endmill Shank Styles

		Shank Diameter (d)	l min. Recommended
	**Cylindrical**	10 16 20 25 32 40	1.5xd 1.5xd 1.5xd 1.5xd 1.5xd 1.5xd
	**Weldon**	12 16 20 25 32 40 50	45 48 50 56 60 70 80
	**Combined Shank (Clarkson)**	16 20 25 32 40	39 — 53 54 75
	**Morse**	CM 2 CM 3 CM 4	64.0 81.0 102.5
	**Bridgeport**		101.6

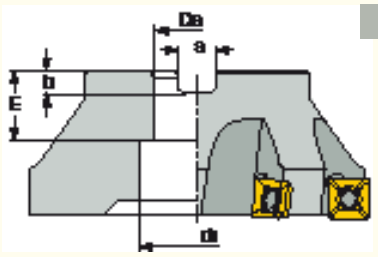
Face Mill Arbor Hole Styles

Style A



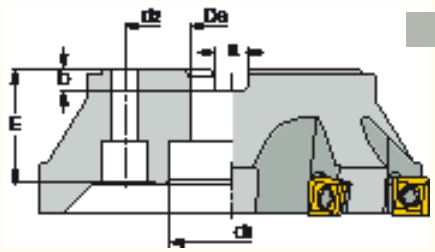
Da	E	d_1	a	b
16	19	13.5	8.4	5.6
22	20	18	10.4	6.5
27	23	38	12.4	7.0

Style B



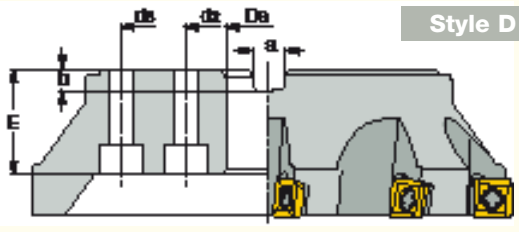
Da	E	d_1	a	b
22	20	31	10.9	6.5
27	25	38	12.4	7.0
32	25	46	14.4	8.0
40	33	56	16.4	9.0

Style C



Da	E	d_1	d_2	d_3	a	b
40	33	65	66.7	—	16.4	9.0
60	38	—	101.6	—	25.7	14.0

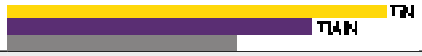
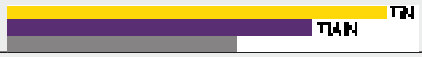
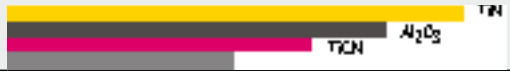
Style D



Da	E	d_1	d_2	d_3	a	b
60	38	—	101.6	177.8	25.7	14.0



ISCAR Milling Grades Chart

Grades	ISO		Coating Layers
IC300	P25-P50 M20-M40 S15-S25		
S.T. IC330 IC328	P25-P50 M30-M40 S25-S30		
S.T. IC380	P15-P40 M20-M30 K05-K25 H10-H25	AL-TEC	
IC900	P15-P40 M20-M30 K05-K25 S15-S25 H10-H25	AL-TEC	
IC903	H01-H10 P05-P15 M10-M20 S10-S20	AL-TEC	
S.T. IC808 IC908	P15-P30 M20-M30 K20-K40 S05-S20 H05-H15		
S.T. IC810 IC910	K10-K30 P15-P30	AL-TEC	
S.T. IC830 IC928	P20-P50 M20-M30 K15-K40 S15-S40		
IC950	P10-P35 K10-K40		
S.T. IC5100 IC4100	K05-K20 P10-P25	α-TEC	
IC520M	P15-P35 M10-M20 K10-K30		
IC4050	K20-K40 P20-P50 M20-M30		
S.T. IC5400	P05-P20		
S.T. IC8080	K01-K20 P05-P20		
DT7150 CVD+PVD COATED	K05-K25	DO-TEC	

S.T. SUMO TEC ■ PVD COATED ■ CVD COATED ■ CERMET

ISCAR Milling Grades Chart

Recommended Applications

A tough submicron TiN/TiCN PVD coated grade. Suitable for milling heat resistant alloys, austenitic stainless steel and carbon steel at unfavorable conditions, at low to medium cutting speeds.
A TiN/TiCN PVD coated tough grade. Used for milling, grooving, parting and drilling a wide range of workpiece materials, at low to medium cutting speeds.
A tough submicron substrate, TiCN PVD coated and a special surface treatment. Designed for machining titanium and heat resistant alloys, austenitic stainless steel, at medium to high cutting speeds, interrupted cut and unfavorable conditions. Excellent notch wear and built-up edge resistance. High resistance to mechanical and thermal shock – therefore milling with coolant may be applied.
A tough, submicron PVD TiAlN coated grade. Suitable for milling heat resistant alloys, austenitic stainless steel, hard alloys and carbon steel at medium to high cutting speeds.
Ultra-fine grain carbide with 12% cobalt, TiAlN PVD coated grade. Used for up to 62 HRc hardened steel, titanium, nickel-based alloys and stainless steel at high speeds and medium feeds. A tough and highly wear resistant grade.
A tough submicron substrate, TiAlN PVD coated grade. Designed for machining heat resistant alloys, austenitic stainless steel, hard alloys and carbon steel at medium to high cutting speeds, interrupted cut and unfavorable conditions. Excellent notch wear and built-up edge resistance.
A PVD TiAlN coated grade. First choice for milling nodular cast iron at medium to high cutting speeds.
A PVD TiAlN coated tough grade. Suitable for milling stainless steel, high temperature alloys and other alloy steels. Recommended for interrupted cut and heavy operations.
A PVD TiAlN coated grade. Used for heavy milling alloy steel and cast iron. Features excellent wear resistance.
A tough substrate with a new MTCVD and TiCN/Al_2O_3 coating. Recommended for milling grey cast iron at high cutting speeds, providing extended tool life.
A TiCN CVD coated grade. Used for milling and drilling steel, malleable cast iron and stainless steel at medium feeds and medium to high cutting speeds.
A TiCN/TiC/Al_2O_3 multilayer, CVD coated grade. Used for milling grey and nodular cast iron, at medium to high cutting speeds. A high wear resistant grade.
A tough substrate with a new MTCVD and alpha Al_2O_3 coating. Recommended for milling steel at high cutting speed providing excellent tool life.
A hard fine grain substrate with MTCVD Al_2O_3 coating. Features excellent chipping and wear resistance. Recommended for high speed drilling of cast iron and steel, to be used for the peripheral insert on DR drills.
A tough substrate with a dual MTCVD Al_2O_3 and TiAlN PVD coating. Recommended for medium to high cutting speeds for machining of both grey and nodular cast iron. Features high wear and chipping resistance.

ISCAR Milling Grades Chart

Grades	ISO	Coating Layers
IC30N	P10-P30 M10-M20 H10-H25	
IC07	M10-M30 S10-S30	
IC20	M10-M25 K10-K20 N05-N25 S05-S20 H05-H15	
IC08	M10-M30 N10-N25 S10-S30	
IC28	N10-N30 P30-P50 M30-M40 S20-S25	
IC50M	P20-P30	
IB55	K05-K15 H10-H30	
IB85	K01-K15	
ID5	N01-N10	
ID8	N05-N15	
IS8 SILICON NITRIDE	K01-K20	

CERMET UNCOATED CBN PCD CERAMICS

ISCAR Milling Grades Chart

Recommended Applications

A cermet grade. Provides excellent resistance to wear and plastic deformation even at high cutting speeds and medium feeds. Useful for turning and milling of semi-finishing and finishing applications.
An uncoated, fine grain carbide grade. Used for high temperature alloys and stainless steel at low to medium cutting speeds.
An uncoated carbide grade. Used for semi-finishing, finishing and semi-roughing of aluminum, cast iron and stainless steel. Used at low to medium speeds and feeds.
An uncoated, fine grain carbide grade. Used for stainless steel and high temperature alloys at low to medium cutting speeds.
An uncoated carbide grade. Used mainly for machining aluminum at medium cutting speeds with medium to large chip sections. The inserts usually feature very sharp cutting angles.
An uncoated carbide grade. Recommended for semi-finishing to rough steel milling with medium to large chip sections.
A 55% CBN brazed tip, used for finishing hardened steel (45-65 HRc) in continuous cutting.
An 85% CBN brazed tip, used for high speed turning of cast iron, cemented tungsten carbide, sintered metals and heavy alloys. Excellent for interrupted cutting of hardened steel.
A PCD brazed tip, suitable for machining aluminum (Si < 12%) and copper alloys and general cutting of nonferrous materials.
A PCD grade for milling applications. Ideal for machining nonferrous metals, such as high silicon (>12%) aluminum alloys and metal matrix composites. Typical components: engine, gearbox and transmission components, disk brakes, glass epoxy parts, etc.
A silicon nitride grade, used for medium turning and milling applications. Can be used for interrupted cuts. Cutting speed range: 100-1500 m/min, feed range: 0.1-1.0 mm/rev.

According to DIN / ISO 513 and VDI 3323

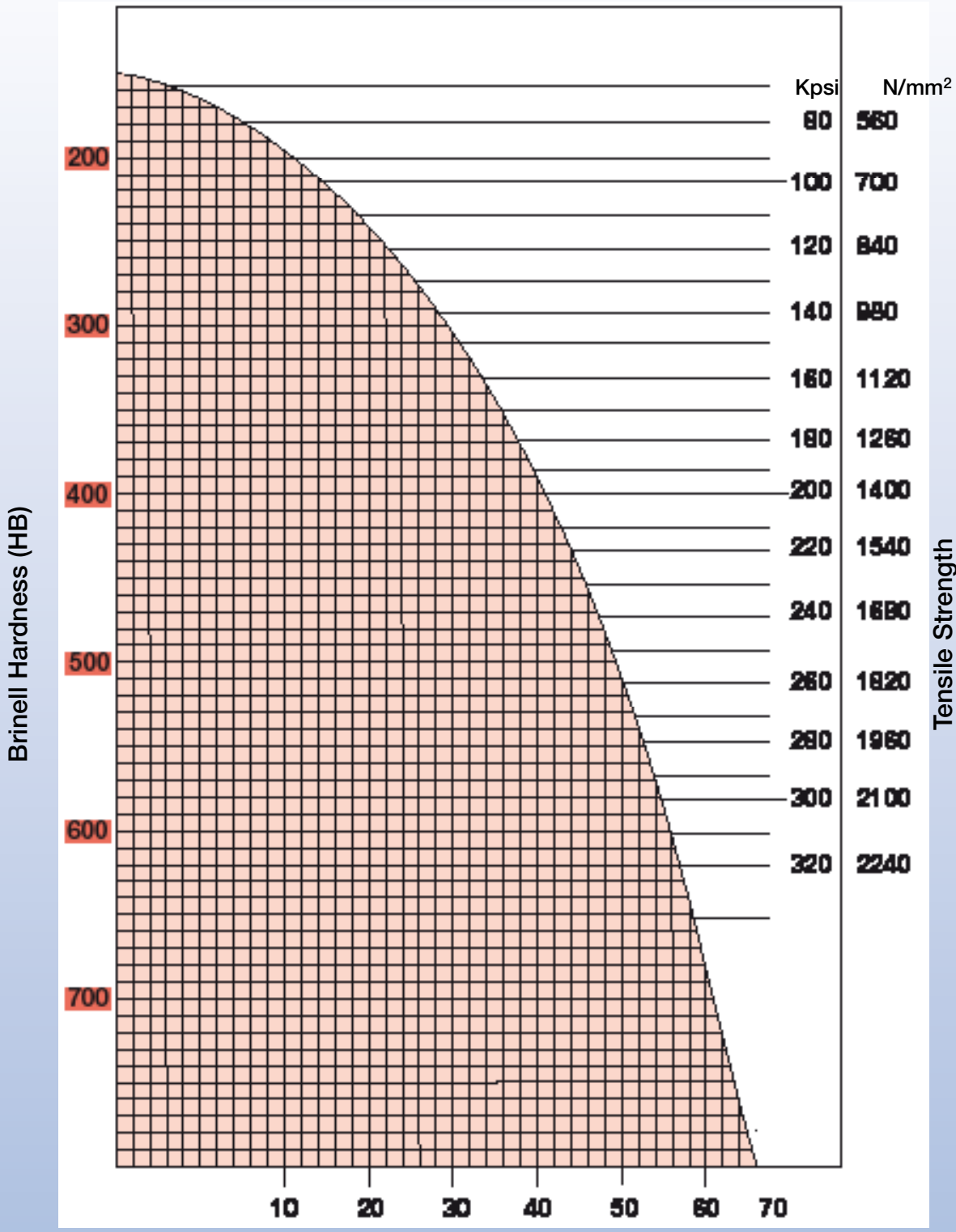
ISO	Material		Condition	Tensile Strength [N/mm²]	Kc1(1) [N/mm²]	mc(2)	Hardness HB	Material No.
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	1350	0.21	125	1
		>= 0.25 %C	Annealed	650	1500	0.22	190	2
		< 0.55 %C	Quenched and tempered	850	1675	0.24	250	3
		>= 0.55 %C	Annealed	750	1700	0.24	220	4
			Quenched and tempered	1000	1900	0.24	300	5
	Low alloy steel and cast steel (less than 5% of alloying elements		Annealed	600	1775	0.24	200	6
				930	1675	0.24	275	7
			Quenched and tempered	1000	1725	0.24	300	8
				1200	1800	0.24	350	9
	High alloy steel, cast steel, and tool steel		Annealed	680	2450	0.23	200	10
			Quenched and tempered	1100	2500	0.23	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	1875	0.21	200	12
			Martensitic	820	1875	0.21	240	13
			Austenitic	600	2150	0.20	180	14
K	Grey cast iron		Pearlitic/ferritic		1150	0.20	180	15
			Pearlitic/martensitic		1350	0.28	260	16
	Ductile cast iron (nodular)		Ferritic		1225	0.25	160	17
			Pearlitic		1350	0.28	250	18
	Malleable cast iron		Ferritic		1225	0.25	130	19
			Pearlitic		1420	0.3	230	20
N	Aluminum-wrought alloy		Not cureable		700	0.25	60	21
			Cured		800	0.25	100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		700	0.25	75	23
			Cured		700	0.25	90	24
		>12% Si	High temperature		750	0.25	130	25
	Copper alloys	>1% Pb	Free cutting		700	0.27	110	26
			Brass		700	0.27	90	27
			Electrolytic copper		700	0.27	100	28
	Non-metallic		Duroplastics, fiber plastics					29
			Hard rubber					30
S	High temp. alloys	Fe based	Annealed		2600	0.24	200	31
			Cured		3100	0.24	280	32
		Ni or Co based	Annealed		3300	0.24	250	33
			Cured		3300	0.24	350	34
			Cast		3300	0.24	320	35
	Titanium and Ti alloys		Pure	RM 400	1700	0.23		36
			Alpha+beta alloys cured	RM 1050	2110	0.22		37
H	Hardened steel		Hardened		4600		55 HRc	38
			Hardened		4700		60 HRc	39
	Chilled cast iron		Cast		4600		400	40
	Cast iron		Hardened		4500		55 HRc	41

Steel Stainless Steel Cast Iron

Nonferrous High Temp. Alloys Hardened Steel

(1) Specific cutting force for 1 mm² chip section. (see page L8).
(2) Chip thickness factor. (see page L8).

Hardness Conversion Table



ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
1		1.0028	Ust 34-2 (S250G1T)		
1		1.0034	RSt 34-2 (S250G2T)	1449 34/20HR; 1449 34/20HS; 1449 34/20CR; 1449 34/20CS	
1		1.0035	St185 (Fe 310-0); St 33	Fe 310-0; 1449 15HR; 1449 15HS	
1	A 570 Gr. 33; A 570 Gr. 36	1.0036	S235JRG1; (Fe 360 B); Ust 37-2	Fe 360 B; 4360-40 B	
1		1.0037	S235JR (Fe 360 B); St 37-2	Fe 360 B; 4360-40 B	
1	A 570 Gr. 40	1.0044	S275JR (Fe 430 B); St44-2	Fe 430 B FN; 1449 43/25 HR; 1449 43/25HS; 4360-43 B	
1		1.0045	S355JR	4360-50 B	
1	A 570 Gr.50; A 572 Gr.50	1.0050	E295 (Fe 490-2); St 50-2	Fe 490-2 FN; 4360-50 B	
1	A 572 Gr. 65	1.0060	E335 (Fe 590-2); St 60-2	Fe 60-2; 4360-55 E; 4360-55 C	
1		1.0112	P235S	1501-164-360B LT20	
1		1.0114	S235JU; St 37-3 U	4360-40C	
1		1.0130	P265S	1501-164-400B LT 20	
1		1.0143	S275J0; St 44-3 U	4360-43C	
1	A 573 Gr. 70; A 611 Gr.D	1.0144	S275J2G3 (Fe 430 D 1); St 44-3	Fe 430 D1 FF; 4360-43 C; 4360-43 D	
1		1.0149	S275JOH; RoSt 44-2	4360-43C	
1		1.0226	DX51D; St 02 Z	Z2	
1	M 1010	1.0301	C10	040 A 10; 045 M 10; 1449 10 CS	
1	A 621 (1008)	1.0330	DC 01; St 2; St 12	1449 4 CR; 1449 3 CS	
1	A 619 (1008)	1.0333	Ust 3 (DC03G1); Ust 13	1449 2 CR;1449 3 CR	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
A 34-2		Fe 330; Fe 330 B FU		SS 330	
A 34-2 NE		Fe 330 B FN			St2sp; St2ps
A 33	1300	Fe 320	Fe 310-0		St0
	1311; 1312	FE37BFU	AE 235 B; Fe 360 B		16D; 18kp; St3kp
E 24-2	1311	Fe 360 B; 1449 37/23 HR	AE 235 B; Fe 360 B	STKM 12 A; STKM 12 AC	
E 28-2	1412	Fe 430 B; Fe 430 B FN	AE 275 B; Fe 430 B FN	SM 400 A; SM 400 B; SM 400 C	St4ps; St4sp
E 36-2	2172	Fe 510 B	AE 355 B		
A 50-2	1550; 2172	Fe 490	a 490-2; Fe 490-2 FN	SS 490	ST5ps; ST5sp
A 60-2	1650	Fe 60-2; Fe 590	A 590-2; Fe 590-2 FN	SM 570	St6ps; St6sp
A37AP		Fe 360 C	AE 235 C		
E 24-3		Fe 360 C	AE 235 C		
A 42 AP			SPH 265		
E 28-3	1414-01	Fe 430 D	AE 275 D		
E 28-3; E 28-4	1411; 1412; 1414	Fe 430 B; Fe 430 C (FN); Fe 430 D (FF)	AE 275 D; Fe 430 D1 FF	SM 400 A; SM 400 B; SM 400 C	St4kp; St4ps; St4sp
	1412-04	Fe 430 C	Fe 430 C		
GC	1151 10	FeP 02 G	FeP 02 G		
AF 34 C 10; XC 10		C 10; 1 C 10	F.1511; F.151.A	S 10C	10
TC	1142	FeP 00; FeP 01	AP 11	SPHD	15 kp
E		FeP 02	AP 02	SPCD	

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
1	A 621 (1008)	1.0334	UStW 23 (DD12G1)		
1	A 622 (1008)	1.0335	DD13; StW 24	1449 1 HR	
1	A 620 (1008)	1.0338	DC04; St 4; St 14	1449 1 CR; 1449 2 CR	
1	A 516 Gr. 65; 55 A 515 Gr. 65; 55 A 414 Gr. C; A 442 Gr.55	1.0345	P235GH/H I	1501 Gr. 141-360; 1501 Gr. 161-360; 151-360 1501 Gr. 161-400; 154-360 1501 Gr. 164-360; 161-360	
1	(M) 1020; M 1023	1.0402	C22	055 M 15; 070 M 20; 1499 22 HS; 1499 22 CS	2C/2D
1	1020	1.0402	C22	050A20	2C/2D
1	1020; 1023	1.0402	C22	055 M 15; 070 M 20	2C
1		1.0425	P265GH/H II	1501 Gr. 161-400; 151-400 1501 Gr. 164-360; 161-400 1501 Gr. 164-400; 154-400	
1	A27 65-35	1.0443	GS-45	A1	
1		1.0539	S355NH;StE 335		
1		1.0545	S355N; StE 355	4360-50E	
1		1.0546	S355NL;TStE 355	4360-50EE	
1		1.0547	S355JOH	4360-50C	
1		1.0549	S355 NLH;TStE 355		
1		1.0553	S355JO;St 52-3U	4360-50C	
1	A 633 Gr.C; A 588	1.0562	P355N; StE 355	1501 Gr.225-490A LT 20	
1		1.0565	P355NH; WStE 355	1501-225-490B LT 20	
1		1.0566	P355NL1; TStE 355	1501-225-490A LT 50	
1	1	1.0570	S355J2G3; St 52-3	Fe 510 D1 FF; 1449 50/35 HR›HS; 4360-50 D	
1	1213	1.0715	9 SMn 28 (1SMn30)	230 M 07	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
S C		FeP 12	AP 12	SPHE	10kp
3 C		FeP 13	AP 13	SPHE	08kp
ES	1147	FeP 04	AP 04	SPCE	08Ju; JuA
A 37 CP; A 37 AP	1331; 1330	FeE235; Fe 360 1 KW; Fe 360 1KG; Fe 360 2 KW; Fe 360 2 KG	A 37 RC I; RA II	SGV 410; SGV 450; SGV 480; SPV 450; SPV 480	
AF 42 C 20; XC 25; 1 C 22	1450	C 20; C 21; C 25	1 C 22; F.112	S20C	20
CC20	1450	C20; C21	F.112	S22 C	20
AF 42 C 20; XC 25; 1 C 22	1450	C 20;C 21;C 25	1 C 22F.112	S 20 C; S 22 C	
A 42 CP; A 42 AP	1431; 1430; 1432	Fe 410 1KW; Fe 410 1KG; Fe 410 1KT; Fe 410 2KW; Fe 410 2KG	A 42 RC I; A 42 RC II	SPV 315; SPV 355; SG 295; SGV 410; SGV 450; SGV 480	16K; 20K
E 23-45 M	1305				
TSE 355-4	2134-04	Fe 510 B	Fe 355 KGN		
E 355 R	2334-01	FeE 355 KG	AE 355 KG		
E 355 FP	2135-01	FeE 355 KT	AE 355 KT		
TSE 355-3	2172-04	Fe 510 C	Fe 510 C		
	2135	Fe 510 D	FeE 355 KTM		
E 36-3		Fe 510 C			
FeE 355 KG N; E 355 R/FP; A 510 AP	2106	FeE 355 KG; FeE 355 KW	AEE 355 KG; AEE 355 DD	SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490YB	15GF
A 510 AP	2106	FeE 355-2			
A 510 FP	2107-01	FeE 355-3			
E 36-3; E 36-4	2132; 2133; 2134; 2174	17GS; 17G1S	AE 355 D; Fe 510 D1 FF	SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490YB	17GS; 17G1S
S 250	1912	CF SMn 28	F.2111 - 11 SMn 28	SUM 22	

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
1	1213	1.0715	9 SMn 28	230 M 07	
1	12 L 13	1.0718	9 SMnPb 28 (11SMnPb30)		
1	1108; 1109	1.0721	10 S 20	10S20	
1	11 L 08	1.0722	10 SPb 20		
1	11 L 08	1.0722	10 SPb 20		
1	1215	1.0736	9 SMn 36 11SMn37)		
1	12 L 14	1.0737	9 SMnPb 36 (11SMnPb37)		
1		1.0972	S315MC; QStE 300 TM	1501-40F30	
1		1.0976	S355MC; QStE 360 TM	1501-43F35	
1		1.0982	S460MC; QStE 460 TM	1501-50F45	
1		1.0984	S500MC; QStE 500 TM		
1		1.0986	S500MC; QStE 500 TM	1501 - 60F55	
1	1010	1.1121	CK 10; (C10E)	040 A 10	
1		1.1121	St 37-1	4360 40 A	
1	1015	1.1141	CK 15; (C15E)	040 A 15; 080 M 15	32C
1	1020; 1023	1.1151	C22E; CK 22	055 M 15; (070 M 20)	
1		1.2083			
1	A572-60	1.8900	StE 380	4360 55 E	
1	A36		St 44-2	4360 43 A	
1			StE 320-3Z	1 501 160	
2	(M) 1025	1.0406	C 25	070 M 26	
2		1.0416	GS-38		
2	A 537 Cl.1; A 414 Gr. G; A 612	1.0473	P355GH; 19 Mn 6		
2	1035	1.0501	C35	080 A 32; 080 A 35; 080 M 36; 1449 40 CS	
2	1045	1.0503	CF 45; (C45G)	060 A 47; 080 M 46	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
S 250	1912	CF 9 SMn 28	11 SMn 28	SUM 22	
S 250 Pb	1914	CF 9 SMnPb 28	F.2112-11 SMnPb 28	SUM 22 L; SUM 23 L; SUM 24 L	
10S20; 10 F 2		CF 10 S 20	F. 2121 - 10 S 20		
10PbF 2		CF 10 SPb 20	F.2122-10 SPb 20		
10 PbF 2		CF 10 SPb 20	10 SPb 20		
S 300		CF 9 Mn 36	F.2113 - 12 SMn 35	SUM 25	
S 300 Pb	1926	CF 9 SMnPb 36	F.2114- 12 SMnPb 35		
E 315 D					
E 355 D	2642	FeE 355TM			
E 490 D	2662	FeE 490 TM			
E 560 D		FeE 560 TM			
XC 10	1265	C 10; 2 C 10; 2 C 15	F-1510-C 10 K	S 9 CK; S 10 C	08;10
	1300				
XC 12; XC 15; XC 18	1370	C 15; C 16	F.1110-C 15 K; F.1511-C 16 K	S 15; S 15 CK	15
2 C 22; XC 18; XC 25	1450	C 20; C 25	F.1120-C 25 K	S 20 C; S 20 CK; S 22 C	20
	2314				
	2145	FeE390KG		S25C	
NFA 35-501 E 28	1411				
	1421				
1 C 25		C 25; 1 C 25			
20-400 M	1306				
A 52 CP	2101; 2102	Fe E 355-2	A 52 RC I, RA II	SGV 410; SGV 450; SGV 480	
1 C 35; AF 55 C 35; XC 38	1572; 1550	C 35; 1 C 35	F.113	S 35 C	35
XC 42 H 1 TS	1672	C 43; C 46		S 45 C	45

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
2	1040	1.0511	C40	080 M 40	
2		1.0540	C 50		
2	A27 70-36	1.0551	GS-52	A2	
2	A148 80-40	1.0553	GS-60	A3	
2	A738	1.0577	S355J2G4 (Fe 510 D 2)	Fe 510 D2 FF; 1501 Gr.224-460; 1501 Gr. 224-490	
2	1140	1.0726	35 S 20	212 M 36	8M
2	1146	1.0727	45 S 20 (46S20)		
2	1035; 1041	1.1157	40Mn4	150 M 36	15
2	1025	1.1158	C25E; CK 25	(070 M 25)	
2	1536	1.1166	34Mn5		
2	1330	1.1170	28Mn6	(150 M 28); (150 M 18)	14A
2		1.1178	C30E; CK 30	080M30	
2	1035	1.1180	C35R; Cm 35	080 A 35	
2	1035; 1038	1.1181	C35E; CK 35	080 A 35; (080 M 36)	
2	1035	1.1181	C35E; CK 35	080 A 35; (080 M 36)	
2	1035	1.1183	Cf 35 (C35G)	080 A 35	
2	1042	1.1191	GS- Ck 45	080 A 46	
2	1049; 1050	1.1206	C50E; CK 50	080 M 50	
2	1050; 1055	1.1213	Cf 53; (C53G)	070 M 55	
2	4520	1.5423	22Mo4	1503-245-420	
3	A 516 Gr.70; A 515 Gr. 70; A 414 Gr.F; A 414 Gr.G	1.0481	P295GH; 17 Mn 4	1501 Gr. 224	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
1 C 40; AF 60 C 40		C40; 1 C 40	F.114.A		
	1674	C 50	1 C 50		
280-480 M	1505				
320-560 M	1606				
A 52 FP	2107		A 52 RB II; AE 355 D		
35MF 6	1957		F.210.G		
45 MF 4	1973				
35 M 5; 40 M 5					40G
2 C 25; XC 25		C25	F.1120 - C 25 K	S 25 C; S 28 C	25
			TO.B	SMn 433 H	
20 M 5; 28 Mn 6		C 28 Mn	28 Mn 6	SCMn 1	30G
XC 32		C 30	2 C 30		
3 C 35; XC 32	1572		F.1135-C 35 K-1		
2 C 35; XC 32; XC 38 H 1	1550; 1572	C 35	F.1130-C 35 K	S 35 C	35
XC 38	1572	C36		S35C	
XC 38 H 1 TS	1572	C 36; C 38		S 35 C	35
XC 45	1660	C45	F-1140		
2 C 50; XC 48 H 1; XC 50 H1	1674	C 50			50
XC 48 H TS	1674	C 53		S 50 C	50
		16 Mo 5 KG; 16 Mo 5 KW	F.2602- 16 Mo 5	SB 450 M; SB 480 M	
A 48 CP; A 48 AP		Fe 510 KG; Fe 510 KT; Fe 510 KW; Fe 510-2 KG; Fe 510-2KT; Fe 510-2KW; FeE 295	A 47 RC I; RA II	SG 365; SGV 410; SGV 450; SGV 480	14G2

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
3	1043	1.0503	C35	060 A 47; 080 M 46; 1449 50 HS, 1449 50 CS	
3	1074	1.0614	C 76 D; D 75-2		
3	1086	1.0616	C 86 D; D 85-2		
3	1095	1.0618	C 92 D; D 95-2		
3	1036; 1330	1.1165	30Mn5	120 M 36; (150 M 28)	
3	1335	1.1167	36Mn5	150 M 36	
3	1040	1.1186	C40E; CK 40	060 A 40; 080 A 40; 080 M 40	
3	1045	1.1191	C45E; CK 45	080 M 46; 060 A 47	
3	1049	1.1201	C45R; Cm 45	080 M 46	
3		1.7242	18 CrMo 4		
3	A 387 Gr. 12 Cl	1.7337	16 CrMo 4 4		
3		1.7362	12 CrMo 19 5	3606-625	
3	A572-60		17 MnV 6	436055 E	
4	1055	1.0535	C55	070 M 55	
4	1060	1.0601	C60	060 A 62; 1449 HS; 1449 CS	43D
4	107	1.0603	C67	080 A 67; 1449 70 HS	
4	1074; 1075	1.0605	C75	1449 80 HS	
4	1055	1.1203	C55E; CK 55	060 A 57; 070 M 55	
4	1055	1.1209	C55R; Cm 55	070 M 55	
4	1060; 1064	1.1221	C60E; CK 60	060 A 62	43D
4	1070	1.1231	Ck 67; (C67E)	060 A 67	
4	1074; 1075; 1078	1.1248	CK 75; (C75E)	060 A 78	
4	1086	1.1269	CK 85 (C85E)		

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
1 C 45; AF 65 C 45	1672; 1650	C 45; 1 C 45	F.114	S 45 C	45
XC 75					
XC 80		C 85			
XC 90					
35 M 5			F.8211-30 Mn 5; f.8311-AM 30 Mn 5	SMn 433 H; SCMn 2	27ChGSNMDTL 30GSL
40 M 5	2120		F. 1203-36 Mn 6; F. 8212-36 Mn 5	ssmN 438 (H); SCMn 3	35G2; 35GL
2 C 40; XC 42 H 1		C 40		S 40 C	
2 C 45; XC 42 H 1; XC 45; XC 48 H 1	1672	C 45; C 46	F.1140-C 45 K; F.1142-C48 K	S 45 C; S 48 C	45
3 C 45; XC 42 H 1; XC 48 H 1	1660	C 45	F.1145-C 45K-1; F.1147C 48 K-1	S 50 C	
		A 18 CrMo 4 5 KW			15ChM
Z 10 CD 5.05		16 CrMo 20 5			
NFA 35-501 E 36	2142				
1 C 55; AF 70 C 55	1655	C 55; 1 C 55		S 55 C	55
1 C 60; AF 70 C 55		C 60; 1 C 60		S 58 C	60(G)
XC 65		C 67			
		C 75			75
2 C 55; XC 55 H 1	1655	C 55	F.1150-C 55 K	S 55 C	55
3 C 55; XC 55 H 1		C 55	F.1155-C 55K-1		
2 C 60; XC 60 H 1	1665; 1678	C 60		S 58 C	60; 60G; 60GA
XC 68	1770	C70			65GA; 68GA; 70
XC 75	1774	C 75			75(A)
XC 90		C 90			85(A)

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
4	1095	1.1274	Ck 101 (C101E)		
4	W 112	1.1663	C 125 W		
4					
5		1.0070	E360 (Fe 690-2); St 70-2	Fe 690-2 FN	
5		1.7238	49 CrMo 4		
5		1.7701	51 CrMoV 4		
6	A 284 Gr.D; A 573 Gr.58; A 570 Gr 36; A 570 Gr C; A 611 Gr. C	1.0116	S235J2G3 (Fe 360 D 1); St 37-3	Fe 360 D1 FF; 1449 37/23 CR; 4360-40 D	
6	5120	1.0841	St 52-3	150 M 19	
6	9255	1.0904	55 Si 7	250A53	45
6	9254	1.0904	55 Si 7	250 A 53	
6	9262	1.0961	60SiCr7		
6	L3	1.2067	100Cr6	BL3	
6	L1	1.2108	90 CrSi 5		
6	L2	1.2210	115CrV3		
6		1.2241	51CrV4		
6		1.2311	40 CrMnMo 7		
6	4135	1.2330	35 CrMo 4	708 A 37	
6		1.2419	105WCr6	105WC 13	
6	0 1	1.2510	100 MnCrW 4	BO1	
6	S1	1.2542	45 WCrV7	BS1	
6	S1	1.2550	60WCrV7		
6	L6	1.2713	55NiCrMoV6		
6	L 6	1.2721	50NiCr13		
6	O2	1.2842	90MnCrV8	BO2	
6	E 50100	1.3501	100 Cr 2		
6	52100	1.3505	100Cr6	2 S 135; 535 A 99	31
6		1.5024	46Si7		
6	9255	1.5025	51Si7		
6	9255	1.5026	55Si7	251 a 58	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
XC 100	1870	C 100	F-5117	SUP 4	
Y2 120					
	2223				
A 70-2	1655	Fe 70-2; Fe 690	A 690-2; Fe 690-2 FN		
		51 CrMoV 4			
E 24-3; E 24-4	1312; 1313	Fe 360 D1 FF; Fe 360 C FN; Fe 360 D FF; Fe 37-2	AE 235 D; Fe 360 D1 FF		St3kp; St3ps; St3sp; 16D
20 MC 5	2172	Fe 52	F-431		
55S7	2085	55Si8	56Si7		
55 S 7	2090				
60SC6		60SiCr8	60SiCr8		
Y100C6			100Cr6		
	2092	105WCR 5			
100C3		107CrV3KU			
		35 cRmO 8 KU			
34 CD 4	2234	35CrMo4	34CrMo4	SCM435TK	
105WC13	2140	10WCr6	105WCr5		ChWG
8 MO 8	2140	10WCr6	105WCr5	SKS31	
	2710	45 WCrV8 KU	45WCrSi8		5ChW25F
55WC20	2710	58WCr9KU			
55NCDV7			F.520.S	SKT4	5ChNM
55 NCV 6	2550		f-528		
90 MV8					
100 C 6	2258	100Cr6	F.1310 - 100 Cr 6	SUJ2	SchCh 15
45 S 7; Y 46 7; 46 SI 7			F. 1451 - 46 SI 7		
51 S 7; 51 Si 7	2090	48 Si 7; 50 Si 7	F.1450-50 Si 7		
55 S 7	2085; 2090	55 Si 7	F.1440 - 56 Si 7		55S2

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
6	9260	1.5027	60Si7	251 A 60; 251 H 60	
6	9260 H	1.5028	65Si7		
6		1.5120	38 MnSi 4		
6	A 204 Gr.A; 4017	1.5415	16Mo3; 15 Mo 3	1503-243 B	
6	4419	1.5419	20Mo4	1503-243-430	
6	A 350-LF 5	1.5622	14Ni6		
6	3415	1.5732	1 NilCr10		
6	3310; 3314	1.5752	14NilCr14	655M13	36A
6		1.6587	17CrNiMo6	820A16	
6		1.6657	14NiCrMo134		
6	5015	1.7015	15 Cr 3	523 M 15	
6	5132	1.7033	34Cr4	530A32	18B
6	5140	1.7035	41C r4	530M40	18
6	5140	1.7045	42Cr41	530 A 40	
6	5115	1.7131	16MnCr5	527 M 17	
6		1.7139	16MnCr5		
6	5155	1.7176	55Cr3	527 A 60	48
6	4135; 4137	1.7220	34CrMo4	708 Aa 37	
6	4142	1.7223	41CrMo4		
6	4140	1.7225	42CrMo4	708 M 0	
6		1.7228	55NiCrMoV6G	823M30	33
6		1.7262	15CrMo5		
6		1.7321	20 mOcR 4		
6	ASTM A182 F12	1.7335	13CrMo4 4	1501-620Gr27	
6	A 182-F11; A 182-F12	1.7335	13 CrMo 4 4	1 501 620 Gr. 27	
6	ASTM A 182 F22	1.7380	10CrMo9 10	1501-622gR31; 1501-622gR45	
6	A182 F22	1.7380	10 CrMo 9 10	1501-622	
6		1.7715	14MoV6 3	1503-660-440	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
60 S 7		60 Si 7	F. 1441 - 60 Si 7		60S2
60 S 7				50 P 7; SUP 6	
15 D 3	2912	16Mo3 KG; 16Mo3KW	F. 2601 - 16 Mo 3		
	2512	G 20 Mo 5; G 22 Mo5		SCPH 11	
16N6		14 Ni 6 KG; 14 Ni 6 KT	F.2641 - 15 Ni 6		
14 NC 11		16NiCr11	15NiCr11	SNC415(H)	
12NC15				SNC815(H)	
18NCD6			14NiCrMo13		
			14NiCrMo131		
12 C 3				SCr415(H)	15Ch
32C4		34Cr4(KB)	35Cr4	SCr430(H)	35Ch
42C4		41Cr4	42Cr4	SCr440(H)	
42 C 4 TS	2245	41Cr4	42Cr4	SCr440	
16 MC 5	2511	16MnCr5	16MnCr5		
	2127				
55 C 3	2253			SUP9(A)	50ChGA
35 CD 4	2234				35ChM
		41CrMo4	42CrMo4	SNB 22-1	40ChFA
42 CD 4	2244				
	2512	653M31			
12 CD 4	2216		12CrMo4		
	2625				
		14CrMo4 5	14CrMo45		
15 CD 4.5	2216		12CrMo4	SCM415(H)	12ChM; 15ChM
12 CD 9.10	2218	12CrMo9, 12CrMo10	TU.H		
			13MoCrV6		

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
6	A355A	1.8509	41CrAlMo 7	905 M 39	41B
7	A570.36	1.0038	S235JRG2 (Fe 360 B); RSt 37-2	Fe 360 B FU; 1449 27/23 CR; 4360-40 B	
7	3135	1.5710	36NiCr6	640A35	111A
7		1.5755	31 NiCr 14	653 M 31	
7	8620	1.6523	2 NiCrMo2	805M20	362
7	8740	1.6546	40 NiCrMo 22	311-Tyre 7	
7	4340	1.6565	40NiCrMo6	817 M 40	24
7	4130	1.7218	25CrMo4	CDS 110	
7		1.7733	24 CrMoV 5 5		
7		1.7755	GS-45 CrMOV 10 4		
7		1.8070	21 CrMoV 5 11		
8	C 45 W	1.173	C 45 W3		
8	4142	1.2332	47 CrMo 4	708 M 40	19A
8	A128 (A)	1.3401	G-X120 Mn 12		
8	3435	1.5736	36 NiCr 10		
8	9840	1.6511	36CrNiMo4	816M40	110
8		1.7361	32 CeMo12	722 M 24	40B
8	6150	1.8159	50 CrV 4	735 A 50	47
8		1.8161	58 CrV 4		
8		1.8515	32 CrMo 12	722 M 24	40B
8		1.8523	39CrMoV13 9	897M39	40C
9		1.4882	X 50 CrMnNiNbN 21 9		
9		1.5864	35 niCr 18		
9			31 NiCrMo 13 4	830 m 31	
10	A 619	1.0347	DCO3; RRSt; RRSt 13	1449 3 CR; 1449 2 CR	
10	M 1015; M 1016; M 1017	1.0401	C15	080 M 15; 080 M 15; 1449 17 CS	
10		1.0723	15 S22; 15 S 20	210 A 15; 210 M 15	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
40 CAD 6.12	2940	41CrAlMo7	41CrAlMo7		
E 24-2NE	1312	Fe 360 B FN	AE 235 B FN; AE 235 B FU; Fe 360 B FN; Fe 360 B FU		St3ps; St3sp
35NC6				SNC236	
18 NC 13					
20 NCD 2	2506	20NiCrMo2	20NiCrMo2	SNCM220(H)	20ChGNM
		40NiCrMo2(KB)	40NiCrMo2	SNCM240	38ChGNM
35 NCD 6	2541	35NiCrMo6(KB)		SNCM 447	38Ch2N2MA
25 CD 4	2225	25CrMo4(KB)	55Cr3	SCM420; SCM430	20ChM; 30ChM
20 CDV 6		21 CrMoV 5 11			
		35 NiCr 9			
XC 48					
42 CD 4	2244	42CrMo4	42CrMo4	SCM (440)	
Z 120 M 12	2183	GX120Mn12	F. 8251-AM-X120Mn12	SCMnH 1; SCMn H 11	110G13L
30 NC 11					
40NCD3		36nlcRmO4(KB)	35NiCrMo4	SUP10	40ChN2MA
30 CD 12	2240	30CrMo12	F.124.A		
50CrV4	2230	50CrV4	51CrV4		50ChGFA
30 CD 12	2240	32CrMo12	F.124.A		
		36CrMoV12			
Z 50 CMNNb 21.09					
	2534		f-1270		
E		Fep 02	AP 02		08JU
AF 37 C12; XC 18	1350	C15; C16; 1 C 15	F.111	S 15 C	
	1922		F.210.F	SUM 32	

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
10	D 3	1.2080	X 210 Cr 12	BD 3	
10	420	1.2083	X 42 Cr 13		
10		1.2085	X 33 CrS 16		
10		1.2162	21 MnCr 5		
10	L2	1.2210	115 Cr V3		
10		1.2311	40 CrMnMo7		
10	P20+S	1.2312	40CrMnMoS 8.6		
10		1.2316	X36CrMo17		X38CrMo16
10	H 11	1.2343	x 38 CrMoV 5 1	BH 11	
10		1.234	X 38 CrMoV 5 1		
10	H 13	1.2344	X 40 CrMoV 5 1	BH 13	
10	A 2	1.2363	X100 CrMoV 5 1	BA 2	
10		1.236	X 100 CrMo V5-1		
10	D 2	1.2379	X 155 CrVMo 12 1	BD2	
10		1.238	X 155 CrVMo 12 1		
10	HNV3	1.2379	X210Cr12G	BD2	
10	D 4 (D 6)	1.2436	X 210 CrW 12	BD6	
10		1.244	X 210 CrW 12		
10	O1	1.251	100 MnCrW 4	B0 1	
10	H 21	1.2581	X 30 WCrV 9 3	BH 21	
10		1.2601	X 165 CrMoV 12		
10	H 12	1.2606	X 37 CrMoW 5 1	BH 12	
10		1.277	X 45 NiCrMo 4		
10	O2	1.284	90 MnCrV 8	B0 2	
10	D3	1.3343	S 6-5-2	BM2	
10	ASTM A353	1.5662	X8Ni9	1501-509; 1501-510	
10	ASM A353	1.5662	X8Ni9	502-650	
10	2517	1.568	12Ni19	12Ni19	
10	2515	1.5680	12 Ni 19		
10		1.713	16 MnCr 5		
10		1.276	X 19 NiCrMo 4		
11		1.3202	S 12-1-4-5	BT 15	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
Z 200 C 12					
Z40 C14	2314			SUS 420 J 2	
Z35V CD 17.S					
20 MC 5					
100 C3		107 CrV3 KU	F.520 L		
40 CMD 8		35 cRmO 8 KU			
40CMD8S					
Z 38 CDV 5		X 37 CrMoV 5 1 KU			4Ch5MFS
Z 38 CDV 5		X 37 CrMoV 51 KU			
Z 40 CDV 5	2242	X40CrMoV511KU	F-5318	SKD61	4Ch5MF1S
Z 100 CDV 5	2260	X100CrMoV51KU	F-5227	SKD12	
Z 160 CDV 12	2310	X165CrMoW12KU	X160CrMoW12KU	SKD11	
Z 160 CDV 12		X 155 CrVMo 12 1 KU			
Z160CDV12	2736				
Z 200 CD 12	2312	X215CrW 12 1 KU	F-5213		
90 MnWRrV5		95MnWCr 5 KU	95 MnCrW 5		
Z 30 WCV 9		X30WCrV 9 3 KU	F-526	SKD5	3Ch2W8F
	2310				
Z 35 CWDV 5		X 35 CrMoW 05 KU	F.537		5ChNM
45 NCD 16		40 NiCrMoV 8 KU			
90 MV 8		90 MnVCr 8 KU			
Z200C12	2715	X210Cr13KU	X210Cr12	SUH3	R6M5
		14 Ni 6 KG; 14 Ni 6 KT	XBNiO9		
9 Ni		X10Ni9	F-2645	SL9N60(53)	
Z18N5					
Z 18 N 5					
16 MC 5					
		HS 12-1-5-5	12-1-5-5		

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
11		1.3207	S 10-4-3-10	BT42	
11	T 15	1.3243	S 6-5-2-5		
11		1.3246	S 7-4-2-5		
11		1.3247	S 2-10-1-8	BM 42	
11	M 42	1.3249	S 2-9-2-8	BM 34	
11	T 4	1.3255	S 18-1-2-5	BT 4	
11	M 2	1.3343	S6-5-2	BM2	
11	M 7	1.3348	S2-9-2		
11	T 1	1.3355	S 18-0-1	BT 1	
11	HNV 3	1.4718	X45CrSi 9 3	401S45	52
11	422	1.4935	x20 CrMoWV 12 1		
12	403	1.4000	X6Cr13	403 S 17	
12		1.4001	X6Cr14		
12	(410S)	1.4001	X7 Cr 13	(403 S 7)	
12	405	1.4002	X6CrA12	405S17	
12	405	1.4002	X6 CrAl 13	405 S 17	
12	416	1.4005	X12CrS 13	416 S 21	
12	410; CA-15	1.4006	(G-)X10 Cr 13	410S21	56A
12	430	1.4016	X8Cr17	Z8C17	
12	430	1.4016	X6 Cr 17	430 S 15	60
12		1.4027	G-X20Cr14	420C29	
12	420	1.4028	X30 Cr 13	420 S 45	
12		1.4086	G-X120Cr29	452C11	
12	430 F	1.4104	X12CrMoS17	420 S 37	
12	440B	1.4112	X90 CrMoV 18		
12	434	1.4113	X6CrMo 17	434 S 17	
12		1.4340	G-X40CrNi27 4		
12	S31500	1.4417	X2CrNiM0Si19 5		
12	S31500	1.4417	X2 CrNoMoSi 18 5 3		

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
Z130WKCDV					
KCV 06-05-05-04-02	2723	HS 6-5-2-5	6-5-2-5	SKH55	R6M5K5
Z110 WKCDV 07-05-04	7-4-2-5	HS 7-4-2-5	M 35		
Z110 DKCWV 09-08-04	2-10-1-8	HS 2-9-1-8	M 41		
			2-9-2-8		R6M5
Z 80 WKCV 18-05-04-0					
Z 85 WDCV	2722	HS 6 5 2	F-5604	SKH 51	
Z 100 DCWV 09-04-02-	2782	HS 2 9 2	F-5607		
Z 80 WCV 18-4-01					R18
Z45CS9		X45CrSi8	F322	SUH1	40Ch9S2
Z 6 C 13	2301	X6Cr13	F.3110	SUS403	08Ch13
			F8401		08Ch13
Z 8 C 13	2301				08Ch13
Z8CA12		X6CrAl13			
Z6CA13	2302	X6CrAl13			
Z11 CF 13	2380	X12 CrSC13	F-3411	SUS 416	
Z10 C 13	2302	X12Cr13	F.3401	SUS410	12Ch13
430S15	2320	X8Cr17	F.3113		12Ch17
Z 8 C 17	2320	X8Cr17	F3113	SUS430	12Ch17
Z20C13M					20Ch13L
Z 30 C 13	2304				20Ch13
Z 10 CF 17	2383	X10CrS17	F.3117	SUS430F	
Z 8 CD 17.01	2325	X8CrMo17		SUS434	
	2376				
	2376				

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
12		1.4418	X4 CrNiMo16 5		
12	XM 8; 430 Ti; 439	1.4510			
12	430tl	1.4510	X6 CrTi 17		
12		1.4511	X 6 CrNb 17		
12	409	1.4512	X 6 CrTi 12; (X2CrTi12)	LW 19; 409 S 19	
12		1.4720	X20CrMo13		
12	405	1.4724	X10CrA113	403S17	
12	430	1.4742	X10CrA118	439S15	60
12	HNV6	1.4747	X80CrNiSi20	443S65	59
12	446	1.4749	x18 cRn 28		
12	446	1.4762	X10CrA124		
12	EV 8	1.4871	X 53 CrMnNiN 21 9	349 S 54	
12	302		x12 CrNi 18 9	302 S 31	
12	429		X10 CrNi 15		
13	420	1.4021	X20Cr13	420S37	
13	420	1.4031	X40 Cr 13		
13		1.4034	X46Cr13	420 S 45	
13	431	1.4057	X20CrNi172	431 S 29	57
13	CA6-NM	1.4313	G-X4 CrNi 13 4	425 C 11	
13		1.4544		S. 524; S. 526	
13	348	1.4546	X5CrNiNb 18-10	347 S 31; 2 S. 130; 2 S. 143; 2 S. 144; 2 S. 145; S.525; S.527	
13		1.4922	x20cRmV12-1		
13		1.4923	X22 CrMoV12 1		
14	304	1.4301	X 5 CrNi 18 9	304 S 15	
14	303	1.4305	X10 CrNiS 18 9	303 S 21	58M
14	304L	1.4306	X2CrNi18 9	304S12	
14	304L	1.4306	X2 CrNi 18 10	304 S 11	
14	CF-8	1.4308	X6 CrNi 18 9	304 C 15	58E
14	301	1.4310	X12CrN i17 7	301 S 21	
14	304 LN	1.4311	X2 CrNiN 18 10	304 S 62	
14		1.4312	G-X10CrNi18 8	302C25	
14	305	1.4312	X8 CrNi 18 12	305 s 19	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
Z6CND16-04-01	2387				
Z 4 CT 17		X 6 CrTi 17	F.3115 -X 5 CrTi 17	SUS 430 LX	08 Ch17T
Z 4 CT 17					08Ch17T
Z 4 CNb 17		X 6 CrNb 17	F.3122-X 5 CrNb 17	SUS 430 LK	
Z 3 CT 12		X 6 CrTi 12		SUH 409	
Z10C13		X10CrA112	F.311		10Ch13SJu
Z10CAS18		X8Cr17	F.3113	SUS430	15Ch13SJu
Z80CSN20.02		X80CrSiNi20	F.320B	SUH4	
Z10CAS24	2322	X16Cr26		SUH446	
Z 52 CMN 21.09		X53CrMnNiN21 9		SUH35, SUH36	55Ch20G9AN4
Z 10 CN 18-09	2330				
Z 20 C 13	2303	14210			20Ch13
Z 40 C 14	2304				40Ch13
Z40 C 14		X40Cr14	F.3405	SUS420J2	
Z 15 CN 16.02	2321	X16CrNi16	F.3427	SUS431	20Ch17N2
Z 4 CND 13-04 M	2385	(G)X6CrNi304		SCS5	
		X 6 CrNiTi 18 11			08Ch 18N12T
		X 6 CrNiNb 18 11			
	2317	x20cRmOnl 12 01			
Z 5 CN 18.09	2332; 2333				08Ch18N10
Z 8 CNF 18-09	2346	X10CrNiS18.09	F.3508	SUS303	30Ch18N11
Z2CrNi18 10	2352	x2cRnl18 11	F.3503	SCS19	
Z 3 CN 19-11	2352	X2CrNi18 11			
Z 6 CN 18-10 M	2333			SUS304L	
Z 12 CN 17.07	2331	X2CrNi18 07	F.3517		
Z 2 CN18.10	2371	X2CrNiN18 10		SUS304LN	
Z10CN18.9M					10Ch18N9L
					10Ch18N9L

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
14	304	1.4350	X5CrNi18 9	304S15	58E
14	S32304	1.4362	X2 CrNiN 23 4		
14	202	1.4371	X3 CrMnNiN 188 8 7	284 S 16	
14	316	1.4401	X 5 CrNiMo 17 12 2; (X4 CrNiMo 17 -12-2)	316 S 13; 316 S 17; 316 S 19; 316 S 31; 316 S 33	
14	316L	1.4404	X2 CrNiMo 17 13 2; (X2 CrNiMo 17-12-2); GX 2 CrNiMoN 18-10	316 S 11; 316 S 13; 316 S 14; 316 S 31; 316 S 42; S.537; 316 C 12; T.75; S. 161	
14	316LN	1.4406	X2 CrNiMoN 17 12 2; (X2CrNiMoN 18-10)	316 S 61; 316 S 63	
14	CF-8M	1.4408	GX 5 CrNiMoN 7 12 2; G-X 6 CrNiMo 18 10	316 C 16 (LT 196); ANC 4 B	
14		1.4410	G-X10CrNiMo18 9		
14	316 Ln	1.4429	X2 CrNiMo 17 -13-3	316 S 62	
14	316L	1.4435	X2 CrNiMo18 14 3	316 S 11; 316 S 13; 316 S 14; 316 S 31; LW 22; LWCF 22	
14	316	1.4436	X 5 CrNiMo 17 13 3; (X4CRNIMO 17-13-3	316 S 19; 316 S 31; 316 S 33; LW 23; LWCF 23	
14	317L	1.4438	X2 CrNiMo 18 16 4; (X2CrNiMo 18-15-4)	317 S 12	
14	(s31726)	1.4439	X2 CrNiMoN 17 13 5		
14		1.444	X 2 CrNiMo 18 13		
14	317	1.4449	X5 CrNiMo 17 13 3	317 S 16	
14	329	1.4460	X 4 CrNiMo 27 5 2; (X3CrNiMo27-5-2)		
14	329	1.4460	X8CrNiMo27 5		

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
Z6CN18.09	2332	X5CrNi18 10	F.3551	SUS304	
Z 2 CN 23-04 AZ	2327				
Z 8 CMN 18- 08-05					
Z 3 CND 17 -11-01; Z 6 CND 17-11; Z 6 CND 17-11-02; Z 7 CND 17-11-02; Z 7 CND 17-12-02	2347	X 5 CrNiMo 17 12	F.3534-X 5 CrNiMo 17 12 2	SUS 316	
Z 2 CND 17-12; Z 2 CND 18-13; Z 3 CND 17-11-02; Z 3 CND 17-12-02 FF; Z 3 CND 18-12-03; Z 3 CND 19.10 M	2348	X 2 CrNiMo 17 12; G-X 2 CrNiMo 19 11	F.3533 - X 2 CrNiMo 17 13 2; F.3537 - X 2 CrNiMo 17 13 3	SUS 316 L	
Z2 CND 17-12 AZ		X 2 CrNiMoN 17 12	F.3542-X 2 CrNiMoN 17 12 2	SUS316LN	07 Ch 18N
	2343		F.8414-AM-X 7 CrNiMo 20 10	SCS 14	10G2S2MSL
Z5CND20.12M	2328				
Z 2 CND 17-13 Az	2375	X 2 CrNiMoN 17 13	F.3543-X 2 CrNiMoN 17 13 3	SUS 316 LN	
Z 3 CND 17-12-03; Z 3 CND 18-14-03	2375	X2CrNiMoN 17 13	F.3533-X 2 CrNiMo 17 13 2	SUS 316 L	O3 Ch 17N14M3
Z 6 CND 18-12-03; Z 7 CND 18-12-03	2343	X 5 CrNiMo 117 13; X 8 cRnlmO 17 13	F.3543-X 5 CrNiMo 17 12 2 F.3538-X 5 CrNiMo 17 13 3	SUS 316	
Z 2 CND 19-15-04; z 3 cnd 19-15-04	2367	X2CrNiMo18 16	f.3539-x 2 cRnlmO 18 16 4	SUS317L	
Z 3 CND 18-14-06 AZ					
		X 5 CrNiMo 18 15		SUS 317	
(Z 3 CND 25-07 Az); Z 5 CND 27-05 Az	2324		F.3309-X 8 CrNiMo 17 12 2; F.3552-X 8 CrNiMo 18 16 4	SUS 329 J 1	
	2324				

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
14		1.4462	X2CrNiMoN22 5 3	318 S 13	
14		1.4500	G-X7NiCrMoCuNb25 20		
14	17-7PH	1.4504		316S111	
14	443 444	1.4521	X2CrMoTi18-2		
14	UNS N 08904	1.4539	X1NiCrMoCuN25-20-5		
14	CN-7M	1.4539	(G-)X1 NiCrMoCu 25 20 5		
14	321	1.4541	Z 6 CrNiTi 18-10	321 S 31; 321 S 51 (1010; 1105); LW 24; LWCF 24	
14	630	1.4542	X5 CrNiCuNb 17 4; (X5 CrNiChNb 16-4)		
14	15-5PH	1.4545	Z7 CNU15.05		
14	S31254	1.4547	X1 CrNiMoN 20 18 7		
14	347	1.4550	X6 CrNiNb 18 10	347 S 17	58F
14		1.4552	G-X7CrNiNb18 9		
14	17-7PH	1.4568		316S111	
14	316tTi	1.4571	X6 CrNiMoTi 17 12 2	320 S 31	
14	316 Ti	1.4571	x 6 CrNiMoTi 17 12 2	320 S 31	58J
14		1.4581	G-X 5 CrNiMoNb	318 C 17	
14	318	1.4583	X 10CrNiMoNb 18 12	303 S 21	
14		1.4585	G-X7CrNiMoCuNb18 18		
14		1.4821	X20CrNiSi25 4		
14		1.4823	G-X40CrNiSi27 4		
14	309	1.4828	X15CrNiSi20 12	309 S 24	58C
14	309S	1.4833	X6 CrNi 22 13	309 S 13	
14	310 S	1.4845	X12 CrNi 25 21	310S24	
14	321	1.4878	X6 CrNiTi 18 9	32 1 S 20	58B

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
Z 3 CND 22-05 Az; (Z 2 CND 24 -08 Az); (Z 3 CND 25-06-03 Az)	2377			SUS 329 J3L	
23NCDU25.20M					
		Z8CNA17-07	X2CrNiMo1712		
	2326		F.3123-X 2 CrMoTiNb 18 2	SUS 444	
Z 2 NCDU 25-20	2562				
Z1 NCDU 25-02 M	2564				
Z 6 CNT 18-10	2337	X 6 CrNiTi 18 11	F.3523 - X 6 CrNiTi 18 10	SUS 321	06Ch18N10T; 08Ch18N10T; 09Ch18N10T; 12Ch18N10T
Z 7 CNU 15-05; Z 7 CNU 17-04				SCS 24; SUS 630	
	2378				
Z 6 CNNb 18.10	2338	X6CrNiNb18 11	F.3552	SUS347	08Ch18N12B
Z4CNNb19.10M					
		Z8CNA17-07	X2CrNiMo1712		09Ch17NJu1
Z 6 CNDT 17-12002	2350				10Ch17N13M2T
Z 6 NDT 17.12	2350	X6CrNiMoTi17 12	F.3535		10Ch17N13M2T
Z 4 CNDNb 18.12 M					
Z15CNS20.12		x15cRnlsl2 12			
		X6CrNiMoTi17 12			
Z20CNS25.04					
Z15CNS20.12			F.8414	SCS17	20Ch20N14S2
Z 15 CN 24-13					
Z 12 CN 25-20	2361	X6CrNi25 20	F.331	SUH310	20Ch23N18
Z 6 CNT 18-12 (B)	2337	X6CrNiTi18 11	F.3553	SUS321	

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
14	Ss30415	1.4891	X5 CrNiNb 18 10		
14	S30815	1.4893	X8 CrNiNb 11		
14	304H	1.4948	X6 CrNi 18 11	304 S 51	
14	660	1.4980	X5 NiCrTi 25 15		
14			X5 NiCrN 35 25		
14	S31753		X2 CrNiMoN 18 13 4		
14			X2 CrNiMoN 25 22 7		
15	CLASS20	0.6010	GG10		
15	A48-20B	0.6010	GG-10		
15	NO 25 B	0.6015	GG 15	Grade 150	
15	CLASS25	0.6015	GG15	GRADE150	
15	A48 25 B	0.6015	GG 15	Grade 150	
15	A48-30B	0.6020	GG-20	Grade 220	
15	NO 30 B	0.6020	GG 20	Grade 220	
15	A436 Type 2	0.6660	GGL-NiCr202	L-NiCuCr202	
15	60-40-18	0.7040	GGG 40	SNG 420/12	
15	No 20 B		GG 10		
16	CLASS30	0.6020	GG20	GRADE220	
16	A48-40 B	0.6025	EN- GJL-250 (GG25)	Grade260	
16	CLASS45	0.6030	GG30	GRADE300	
16	A48-45 B	0.6030		Grade 300	
16	A48-50	0.6035	GG-35	GRADE 350	
16	A48-60 B	0.6040	GG40	GRADE400	
16		1.4829	X 12 CrNi 22 12		
16					
16					
17		0.7033	GGG-35.3	350/22 L 40	
17	60/40/18	0.7043	GGG-40.3	370/7	
17	80-55-06	0.7050	EN- GJS-800-7 (GGG50)	SNG500/7	
17	65-45-12	0.7050	GGG-50	SNG 500/7	
17		0.7652	GGG-NiMn 13 7	S-NiMn 137	
17	A43D2	0.7660	GGG-NiCr 20 2	Grade S6	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
	2372				
	2368				
Z 5 CN 18-09	2333				
Zz 8 nctv 25-15 b ff	2570				
Ft10D	110	G10			SCh10
FT 10 D	0110-00				SCh10
FT 15 D	0115-00	G 15	FG 15	FC150	SCh15
Ft15D	115	G 15	FG 15		SCh15
Ft 15 D	01 15-00	G14	FG15		SCh15
Ft 20 D	0120-00				SCh20
Ft 20 D	120	G 20		FC200	SCh20
L-NC 202	0523-00				
FCS 400-12	0717-02	GS 370-17	FGE 38-17	FCD400	VCh42-12
Ft 10 D	110			FC100	
Ft20D	120	G 20	FG 20		
Ft 25 D	125	G 25	FG 25	FC250	VCh60-2
Ft30D	130	G 30	FG 30	FC300	SCh20
Ft 30 D	01 30-00				SCh30
Ft35D	135	G 35	FG 35	FC350	SCh30
Ft 40 D	140				SCh40
					SCh25
FGS 370/17	0717-15				VCh42-12
FGS 370/17	0717-15				VCh50-2
FGS 500/7	0727-02	GGG 50		FCD500	VCh50-2
FGS 500-7	0727-02				
S-Mn 137	0772-00				
S-NC 202	0776-00				

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
17			GGG 40.3	SNG 370/17	
18		0.7060	GGG60	SNG600/3	
18	80/55/06	0.7060	GGG-60	600/3	
18	100/70/03	0.7070	GGG-70	SNG700/2	
18	A48 40 B				
19		0.8055	GTW55		
19	32510	0.8135	GTS-35-10	B 340/12	
19	A47-32510	0.8135	GTS-35-10	B 340/2	
19	A220-40010	0.8145	GTS-45-06	P 440/7	
19			GTS-35	B 340/12	
19				8 290/6	
19	32510		GTS-35	B340/12	
20		0.8035	GTM-35	W340/3	
20		0.8040	GTW-40	W410/4	
20		0.8045			
20		0.8065	GTMW-65		
20	A220-50005	0.8155	GTS-55-04	P 510/4	
20	50005	0.8155	GTS-55-04	P510/4	
20	70003	0.8165	GTS-65-02	P 570/3	
20	90001	0.8170	GTS-70-02	P 690/2	
20	A220-90001	0.8170	GTS-70-02		
20	1022; 1518	1.1133	20Mn5	120 M 19	
20	400 10		GTS-45	P440/7	
20	70003		GTS-65	P 570/3	
21	Al99	3.0205			
21	1000	3.0255	Al99.5	L31; L34; L36	
21		3.3315	AlMg1		
22		3.1325	AlCuMg 1		
22		3.1655	AlCuSiPb		
22		3.2315	AlMgSi1		
22	7050	3.4345	AlZnMgCuO,5	L 86	
22		3.437	AlZnMgCu 1,5		
23		3.2381	G-AlSi 10 Mg		
23		3.2382	GD-AlSi10Mg		

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
FGS 370-17	0717-12			FC250	
FGS600-3	07 32-03	GGG 60	GGG 60		
FGS 600/3	0727-03			FCD600	
FGS 700-2	07 37-01	GGG 70	GGG 70	FCD700	
			GTW 55		
MN35-10	810		GTS 35		KCh35-10
Mn 35-10	0815-00				KCh35-10
Mn 450-6	0852-00	GMN 45		FCMW370	
	0810-00				
MN 32-8	814			AC4A	
MN 35-10	08 15			FCMW330	
MB35-7	852		GTM 35		
MB40-10		GMB40	GTM 40		
		GMB45	GTM 45		KCh55-4
			GTW 65		KCh55-4
Mn 550-4	0854-00				KCh60-3
MP 50-5	854	GMN 55		FCMP490	KCh70-2
Mn 650-3	0856-00	GMN 65		FCMP590	KCh70-2
Mn 700-2	0862-00	GMN 70		FCMP690	KCh70-2
Mn 700-2	0864-00				20G
20 M 5	2132	G 22 Mn 3; 20 Mn 7	F.1515-20 Mn 6	SMnC 420	
	08 52				
MP 60-3	858			FCMP540	AD0
A59050C					D1
					AD35
					AK9
AZ 4 GU/9051		811-04			
					AK12

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
23	A360.2	3.2383	G-AlSi0Mg(Cu)	LM9	
23		3.2581	G-AlSi12		
23		3.3561	G-AlMg 5		
23	ZE 41	3.5101	G-MgZn4sE1Zr1	MAG 5	
23	EZ 33	3.5103	MgSE3Zn27r1	MAG 6	
23	AZ 81	3.5812	G-MgAl8Zn1	NMAG 1	
23	AZ 91	3.5912	G-MgAl9Zn1	MAG 7	
23	A356-72			2789; 1973	
23	356,1			LM25	
23	A413.2		G-AlSi12	LM 6	
23	A413.1		G-AlSi 12 (Cu)	LM 20	
23	A413.0		GD-AlSi12		
23	A380.1		GD-AlSi8Cu3	LM24	
24		2.1871	G-AlCu 4 TiMg		
24		3.1754	G-AlCu5Ni1,5		
24		3.2163	G-AlSi9Cu3		
24	4218 B	3.2371	G-AlSi 7 Mg		
24	SC64D	3.2373	G-AlSI9MGWA		
24		3.2373	G-AlSi 9 Mg		
24	QE 22	3.5106	G-MgAg3SE2Zr1	mag 12	
24	GD-AlSI12		G-ALMG5	LM5	
26	C93200	2.1090	G-CuSn 7 5 pb		
26	c 83600	2.1096	G-CuSn5ZnPb	LG 2	
26	C 83600	2.1098	G-CuSn 2 Znpb		
26	C23000	2.1182	G-CuPb15Sn	LB1	
26	C 93800	2.1182	G-CuPb15Sn		
27		2.0240	CuZn 15		
27	C27200	2.0321	CuZn 37	cz 108	
27	C27700	2.0321	CuZn 37	cz 108	
27		2.0590	G-CuZn40Fe		
27	C 86500	2.0592	G-CuZn 35 Al 1	U-Z 36 N 3	
27	C 86200	2.0596	G-CuZn 34 Al 2	HTB 1	
27	C 18200	2.1293	CuCrZr	CC 102	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
	4253				
G-TR3Z2					
NF A32-201					
	4244			A5052	AK7
	4261				
	4260			ADC12	AK12
	4247			A6061	
	4250			A7075	
					VAL 8
					AK8
A-S7G	4251			C4BS	AK9
A-SU12	4252				
U-E 7 Z 5 pb 4					
U-pb 15 E 8					
Uu-PB 15e 8					
CuZn 36, CuZn 37		C 2700			L 63
CuZn 36, CuZn 37		C2720			L 63
HTB 1					
U-Z 36 N 3					LTs23AD; ZMts
U-Cr 0.8 Zr					

ISCAR MATERIAL GROUPS

According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
28		2.0060	E-Cu57		
28		2.0375	CuZn36Pb3		
28	C 63000	2.0966	CuAl 10 Ni 5 Fe 4	Ca 104	
28	B-148-52	2.0975	G-CuAl 10 Ni		
28	c 90700	2.1050	G-CuSn 10	CT1	
28	C 90800	2.1052	G-CuSn 12	pb 2	
28	C 81500	2.1292	G-CuCrF 35	CC1-FF	
28		2.4764	CoCr20W15Ni		
31	N 08800	1.4558	X 2 NiCrAlTi 32 20	NA 15	
31	N 08031	1.4562	X 1 NiCrMoCu 32 28 7		
31	N 08028	1.4563	X 1 NiCrMoCuN 31 27 4		
31	N 08330	1.4864	X 12 NiCrSi 36 16	NA 17	
31	330	1.4864	X12 NiCrSi 36 16	NA 17	
31		1.4865	G-X40NiCrSi38 18	330 C 40	
31		1.4958	X 5 NiCrAlTi 31 20		
31	AMS 5544	2.4668	NiCr19NbMo		
32		1.4977	X 40 CoCrNi 20 20		
33	Monel 400	2.4360	NiCu30Fe	NA 13	
33	5390A	2.4603			
33	Hastelloy C-4	2.4610	NiMo16cR16Ti		
33	Nimonic 75	2.4630	NiCr20Ti	HR 5,203-4	
33		2.4630	NiCr20Ti	HR5,203-4	
33	Inconel 690	2.4642	NiC29Fe		
33	Inconel 625	2.4856	NiCr22Mo9Nb	NA 21	
33	5666	2.4856	NiCr22Mo9Nb		
33	Incoloy 825	2.4858	NiCr21Mo	NA 16	
34	Monel k-500	2.4375	NiCu30 Al	NA 18	
34	4676	2.4375	NiCu30Al	3072-76	
34		2.4631	NiCr20TiAl	Hr40; 601	
34	Inconel 718	2.4668	NiCr19FeNbMo		
34	Inconel 751	2.4694	NiCr16fE7TiAl		
34		2.4955	NiFe25Cr20NbTi		
34	5383	2.4668	NiCr19Fe19NbMo	HR8	
34	5391	2 4670	S-NiCr13A16MoNb	3146-3	

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
					LS60-2
U-A 10 N					BrAD; N10-4-4
UE 12 P					
Z1NCDU31-27-03	2584				EK 77
Z 12 NCS 35.16					
Z 12 NCS 37.18				SUH330	
		XG50NiCr39 19		SCH15	
NC20K14					
Z 42 CNKDWNb					
NU 30					
NC22FeD					
NC 20 T					
NC20T					
Nnc 30 Fe					
NC 22 FeDNb					
Inconel 625					
NC 21 Fe DU					KhN38VT
NU 30 AT					
NC20TA					KhN77TYuR
NC 19 Fe Nb					
NC19eNB					
NC12AD					

ISCAR MATERIAL GROUPS

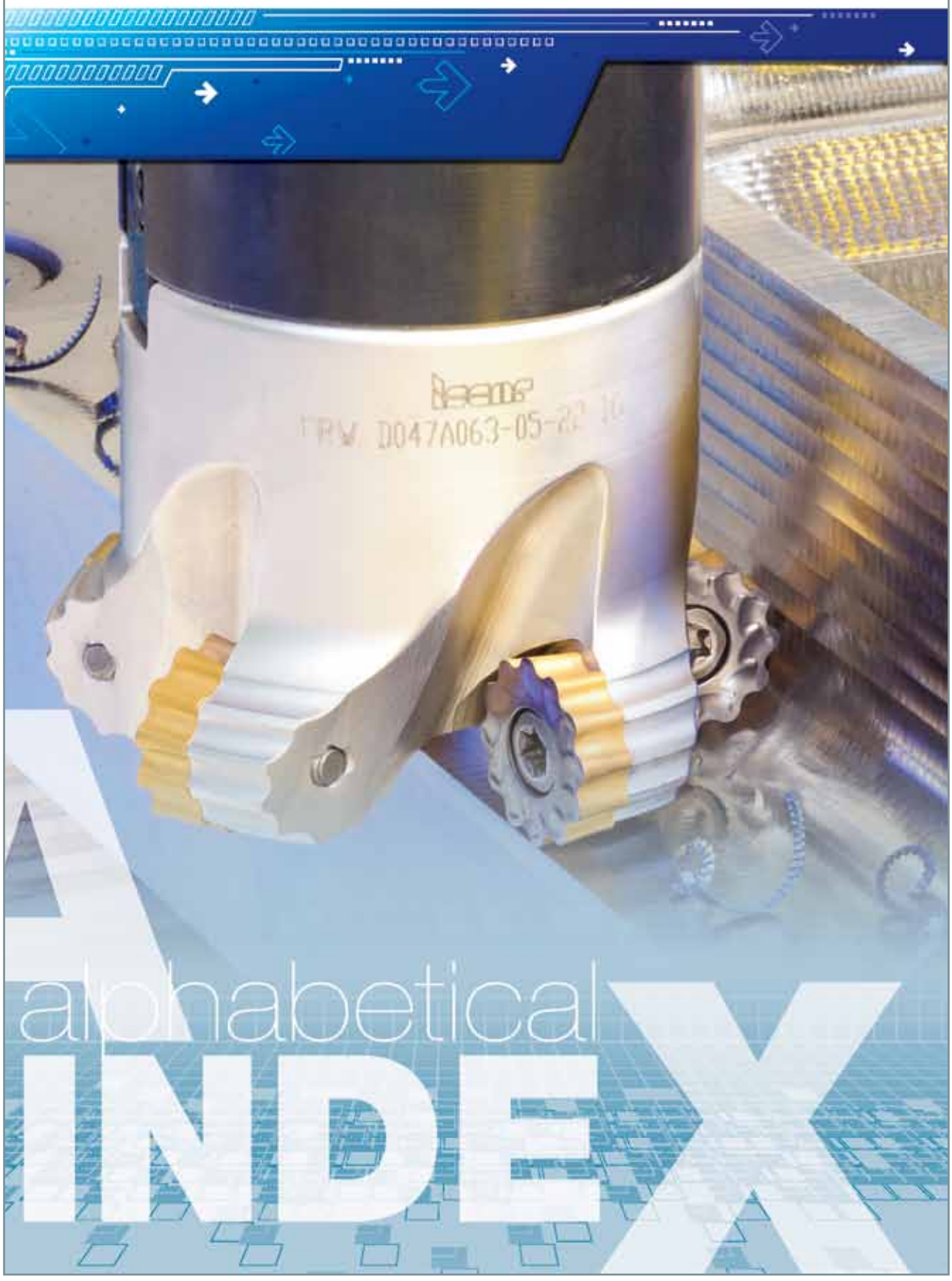
According to VDI 3323 Standard

Mtl. No.	USA AISI/SAE	GERMANY Werkstoff	GERMANY DIN	Great Britain BS	Great Britain EN
34	5660	2.4662	NiFe35Cr14MoTi		
34	5537C	2.4964	CoCr20W15Ni		
34	AMS 5772		C0Cr22W14Ni		
35	Inconel X-750	2.4669	NiCr15Fe7TiAl		
35	Hastelloy B	2.4685	G-NiMo28		
35	Hastelloy C	2.4810	G-NiMo30		
35	AMS 5399	2.4973	NiCr19Co11MoTi		
35		3.7115	TiAl5Sn2		
36	R 50250	3.7025	Ti 1	2 TA 1	
36	R 52250	3.7225	Ti 1 pd	TP 1	
36	AMS 5397	2.4674	NiCo15Cr10MoAlTi		
37		3.7124	TiCu2	2 TA 21-24	
37	R 54620	3.7145	TiAl6Sn2Zr4Mo2Si		
37		3.7165	TiAl6V4	TA 10-13; TA 28	
37		3.7185	TiAl4Mo4Sn2	TA 45-51; TA 57	
37		3.7195	TiAl 3 V 2.5		
37			TiAl4Mo4Sn4Si0.5		
37	AMS R54520		TiAl5Sn2.5	TA14/17	
37	AMS R56400		TiAl6V4	TA10-13/TA28	
37	AMS R56401		TiAl6V4ELI	TA11	
38	W 1	1.1545	C 105 W1	BW 1A	
38	W210	1.1545	C105W1	BW2	
38		1.2762	75 CrMoNiW 6 7		
38	440C	1.4125	X105 CrMo 17		
38		1.6746	32 nlcRmO 14 5	832 M 31	
40	Ni- Hard 2	0.9620	G-X 260 NiCr 4 2	Grade 2 A	
40	Ni- Hard 1	0.9625	G-X 330 Ni Cr 4 2	Grade 2 B	
40	Ni-Hard 4	0.9630	G-X 300 CrNiSi 9 5 2		
40		0.9640	G-X 300 CrMoNi 15 2 1		
40	A 532 III A 25% Cr	0.9650	G-X 260 Cr 27	Grade 3 D	
40	A 532 III A 25% Cr	0.9655	G-X 300 CrNMo 27 1	Grade 3 E	
40	310	1.4841	X15 CrNiSi 25 20	314 S31	
41		0.9635	G-X 300 CrMo 15 3		
41		0.9645	G-X 260 CrMoNi 20 2 1		

France AFNOR	Sweden SS	Italy UNI	Spain UNE	Japan JIS	Russia GOST
ZSNCDT42					
KC20WN					
KC22WN					
NC 15 TNb A					
NC19KDT					VT5-1
					VT1-00
T-A 6 V					VT6
T-A5E					
T-A6V					
Y1 105	1880	C 100 KU	F-5118	SK 3	
Y120	2900	C120KU	CF.515	SUP4	U10A
Z 100 CD 17		X 105 CrMo 17			95Ch18
35 NCD 14					
	0512-00				
	0513-00				
	0466-00				ChWG
					20Ch25N20S2
Z 15 CNS 25-20					



INDEX



Member IMC Group

Alphabetical Index

	3M AXK-13	D10
	3M AXK-CF-13	D11
	3M AXKT 1304	K26
	3M AXKT 1304..R-PDRMM	K26
	3M AXKT-2006	K27
	3M AXKT 2006ADTR	K28
	3M AXKT 2006..R-PDR	K27
	3M E90AX	B29
	3M F90AX-13	C23
	3M F90AX-20	C33
	3M SM	D16
A	ADCR 1505PDFR	K13
	ADCT 1505-FF	K19
	ADCT 1505PDFR-HM	K14
	ADK	D12
	ADKR 1505PD-R/L-HM	K14
	ADKT 1505-FF	K19
	ADKT 1505PDR/L-HM	K16
	ADKT 1505PDTR-8M	K16
	ADKT 1505PDTR-76	K18
	ADKT 1505PDTR/L-RM	K17
	ADKT 1505PD-W	K20

A

ADKT 1505**R/L-HM	K18
ADKW (CBN)	K15
ADKW (PCD)	K15
ADMT 1505ADR-HS	K21
ADMT 1505PDR-HS	K17
APCR 1003PDFR-P	K6
APCR 1604	K23
APCR 2206..-HM	K32
APCT 1003PDR-HM	K6
APK-22	H11
APK-FE	D8
APKR 1003PDR-HM	K7
APKR 1604	K22
APKT 1003PDR-HM	K7
APKT 1003PDTR-8M	K8
APKT 1003PDTR-76	K9
APKT 1003PDTR/L-RM	K8
APKT 1003..R	K10
APKT 1003R8T-FF	K11
APKT 1003..##TR-RM	K9
APKT 1604	K23
APKW 100304 PDR (PCD)	K5

	Arbore hole standard	L14
B	BCM	E15
	BCM-M	E16
	BCM-MM	E16
	BCR	K102
	BT-ODP (FLEXFIT)	E47
C	CAB M-M (FLEXFIT)	E43
	CA-SPM	H14
	Calculations	L9
	Carbide grades	L8, L16-20
	CBN	K112
	CDP D-M	E8
	CDP ER-M	E44
	CM D08	E7
	CNHT	K106
	C#-ODP (FLEXFIT)	E51
	COOLANT SET	C10
	CR-D8	K96
D	DIN69871-ODP	E48
E	E30 / T230	B37
	E45KT	C40
	E45 / T245	B40

E	E45X	B38
	E60 / T260	B40
	E90AC	B37
	E90CN	B13
	E90CN-M	B13
	E90SP	B22
	E90X	B14
	E90XC	B35
	E93CN	E18
	E93CN-M	E19
	E93CN-MM	E20
	ENHT	K107
	ER	E22
	ER-M	E23
	ER-ODP	E48
	ERW	E25
	ERW-M	E26
	ETS	G20
	ETS-LN08	G16
	ETS-LN08-M	G15
F	F45E	C50
	F45E (endmill)	C51

F

F45KT	C41
F45LN-N15	C54
F45NM	C44
F45ST	C48
F45ST (endmill)	C49
F45WG	C43
F75	C37
F75A	C36
F86LNX-11	C35
F90	C30
F90AD-SFR	C27
F90LN-FR CA11	H12
F90LN-N11	C18
F90LN-N15	C25
F90SD-12	C19
F90SP-10	C16
F93CN	E21
FCM	C14
FDN	G22
FDN	G27
FDN-CALN12	G29
FDN-CALN15	G30

F

FDN-CF4	G28
FDN-CM	G31
FDN-LN08	G24
FDN-LN12	G25
FF EW	E35
FF EW-CF	E36
FF EW-M	E36
FF EWX-04	E32
FF EWX-05	E32
FF EWX-M-04	E33
FF EWX-M-05	E33
FF EWX-MM-04	E34
FF FW	E40
FF FWX-05	E37
FF FWX-08	E38
FF NM	E41
FF SOF	E42
FF WOMT-CS	K87
FF WOMT/WOCT	K86
FF WOMW	K86
FRCM	E24
FRW	E27

F	FST	G40
	FTP-LN10	E39
	FTP LNHT 1006	K104
G	GIM-C	G51
	GIM-J	G51
	GIM-W	G52
	GM-DG	G47
	GSAN	G52
	GSFN	G53
	GSFU	G53
	GSHT	G54
H	H400 ER-10	E28
	H400 ER-12	E29
	H400 ER-M	E29
	H400 FR-10	E30
	H400 FR-12	E30
	H400 FR-16	E31
	H400 RNHU	K96
	H490 ANKD-C#	D15
	H490 ANKX/ANCX-09	K34
	H490 ANKX/ANCX-12	K35
	H490 ANKX/ANCX-17	K36

H490 ANKX/ANCX 1205-FF	K35
H490 ANKX/ANCX 1706-FF	K36
H490 E90AX-09	B20
H490 E90AX-12	B27
H490 E90AX-17	B32
H490 E90AX-17-C#	B33
H490 E90AX-M	B21
H490 E90AX-MM	B21
H490 F90AX-09	C13
H490 F90AX-12	C21
H490 F90AX-17	C29
H490 SM-17	D15
H600 WXCU 04	K88
H600 WXCU 05	K88
H600 WXCU 08	K89
HBF-QF	K97
HBR-QF	K97
HCC-QF	K100
HCD-QF	K99
HCE	B9
HCE-M	B10
HCE-MM	B10

H

HCM D10	E8
HCM D12	E9
HCM D16	E10
HCM D20	E11
HCM D25	E12
HCM-M	E13
HCM-MM	E13
HCR	K98
HM90 ADCR 1505PDFR-P	K13
HM90 ADKT 1505PD-W	K20
HM90 ADKT/ADCT 1505	K12
HM90 ADKW 1505PDR	K24
HM90 APCR 1605..R-P	K31
HM90 APCR 2206..R-P	K32
HM90 APCR 100304PDFR-P/DP	K4
HM90 APCR 220605-CS	K33
HM90 APCT 1003	K3
HM90 APKT 1003	K4
HM90 APKT 1003PD-W	K11
HM90 APKW 1003PDR	K10
HM90 AXCR 1505	K30
HM90 E90A-10	B23

HM90 E90A-CF-10	B26
HM90 E90AD-15	B30
HM90 E90AD-CF-15	B31
HM90 E90AD-M-15	B31
HM90 E90A-M-10	B27
HM90 E90A-MM-10	B26
HM90 EAL-15	H7
HM90 EAL-16	H2
HM90 EAL-16BR	H6
HM90 EAL-22	H10
HM90 EAL-CF4-16	H3
HM90 EAL-ER	H9
HM90 EAL-HSK63A-15	H8
HM90 EAL-HSK63A-16	H3
HM90 F90A-15	C26
HM90 F90AP-10	C17
HM90 FAL-15	H9
HM90 FAL-16	H4
HM90 FAL-16BR	H6
HM90 FAL-22	H10
HOF	C42
HP ADCR 1906	K28

H

HP ADCR 2207	K30
HP ADKT/ADCT 1906	K29
HP ADKT/ADCT 2207	K29
HP ANCR 0702PNFR	K3
HP ANK-07	D5
HP ANKT/ANCT 0702..PN-R/PNTR	K2
HP ANKW 070204PNTR	K2
HP E90AN-07	B15
HP E90AN-M-07	B16
HP E90AN-MM-07	B16
HP E90AT-19	B34
HP E90AT-22	B35
HP F90AN-07	C11
HP F90AT-19	C32
HP F90AT-22	C34
HSK A-ODP (FLEXFIT)	E49
HSK E-ODP (FLEXFIT)	E50
HTP-LN06	F4
HTP-LN10	F5
HTP LNHT 0604	K103
HTP LNHT 1006	K104
HTP LNHT 1606	K105

H	HTP-M-LN06	F4
	HTP-M-LN10	F5
	HTP-R-LN10	F6
	HTP-R-LN16	F7
	HTR-QF	K101
L	LNAR 1106	K42
	LNAR 1106 (PCD)	K44
	LNAR 1106PN-R-S-W (PCD)	K44
	LNAR 1506	K49
	LNAR 1506 PN-R-S (PCD)	K50
	LNAT 1106-W	K43
	LNAT 1506AN-W	K54
	LNAT 1506..PN-N MM	K51
	LNAT 1506-W	K51
	LNAW-11 (CBN)	K45
	LNAW-15 (CBN)	K45
	LNET 08	K56
	LNET 12..-30X1-N	K58
	LNET 12-TN	K57
	LNET 12-TN-MM	K58
	LNHT 1106 PN-N HT	K42
	LNHT 1106 PN-R HT	K41

L	LNHW 1506 ANTN (ceramic)	K53
	LNHW 1506 PNTN (ceramic)	K50
	LNKX 1506 1.5X45 PN-N	K48
	LNKX 1506PN-N PL	K47
	LNKX 150608AN-N PL	K52
	LNKX/LNMT 1106	K41
	LNKX/LNMT 1506PNTN/PN-N MM	K46
	LNKX/LNMT 150608ANTN MM	K52
	LNMT 1506PN-R-TS	K46
	LNMT/LNHT 1506...-N HT	K49
	LNMT/LNHT 1506PN-R HT	K48
	LNMW 1506 PNTN	K47
	LNMW 150608 ANTN	K53
M	MF FWX-05	E37
	MF FWX-08	E38
	MM CAB	B73
	MM CAB-T-T	B73
	MM EA	B47
	MM EA-CF	B48
	MM EB	B58
	MM EBA	B58
	MM EC-3	B49

M

MM EC-4	B50
MM EC-6	B51
MM EC-8/MM EC-10	B52
MM EC-CF	B54
MM EC-D	B52
MM ECF	B64
MM ECS	B66
MM ECU	B48
MM EDF	B65
MM EFF	B62
MM EFS	B53
MM EFS-CF	B53
MM ERA	B55
MM ERS	B55
MM ESB-G	B67
MM ESR-G	B67
MM ETR	B60
MM FF	B61
MM GRIT-16K/18P	G9
MM GRIT-22K/P,28K	G10
MM GRIT-K/P-45A	B66
MM GRT (shanks)	B69

M

MM HBR	B57
MM HC	B46
MM HCD	B63
MM HCR	B56
MM HDF	B64
MM HR	B63
MM HRF	B56
MM HT	B59
MM HT-NCSR	B60
MM HT-NWFR	B60
MM S-A (stepped shanks)	B68
MM S-A (straight shanks)	B70
MM S-B (85° conical shanks)	B70
MM S-D (89° conical shanks)	B71
MM S-ER	B74
MM S-ER-H	B74
MM TRD-M	J29
MM TRD-W	J29
MM TS-A	B69
MM TS-DG	G8
MM TS-H	G7
MM TS-N	G6

MT-BSPT	J40
MTECB-BSPT	J19
MTECB-ISO	J3
MTECB-NPT	J21
MTECB-NPTF	J22
MTEC-BSPT	J19
MTECB-UN	J12
MTECB-W	J10
MTEC E-ISO	J7
MTEC E-UN	J15
MTECI-A60	J28
MTEC-ISO	J6
MTEC-NPT	J22
MTEC-NPTF	J23
MTECQ ISO	J4
MTECQ UN	J4
MTECSH-ISO	J9
MTECSH-UN	J18
MTECS-ISO	J8
MTECS-MJ	J17
MTECS-UN	J16
MTECS-UNJ	J17

M

MTECS-W	J10
MTEC-UN	J13
MTEC-W	J11
MTECZ-BSF/BSP	J20
MTECZ-BSPT	J21
MTECZ-ISO	J5
MTECZ-NPT	J23
MTECZ-NPTF	J24
MTECZ-UN	J14
MTECZ-Whitworth	J20
MTH-BSPT (int. & ext.)	J45
MTH-F	J46
MTH-ISO (int. & ext.)	J43
MTH-NPT (int. & ext.)	J46
MTH-UN (int. & ext.)	J44
MTH-W (int. & ext.)	J45
MT-ISO (external)	J35
MT-ISO (internal)	J36
MT-ISO-MM	J30
MT-NPS	J41
MT-NPSF	J42
MT-NPT	J41

M	MT-NPTF	J40
	MT-PG	J42
	MTSLE	J34
	MTSR	J26
	MTSR-C	J27
	MTSR-C-SINGLE	J32
	MTSR-Double Insert	J27
	MTSRH (endmills)	J32
	MTSRH (helical shell mill)	J34
	MTSR-MULTI (shell mill)	J33
	MT-UN (external)	J38
	MT-UN (internal)	J39
	MT-UN-MM	J31
	MT-W	J37
	MT-W-MM	J31
O	O45MT	K69
	OECR	K69
	OEMT 060405	K70
	OEMW-AETN	K70
	OFCR/OFCT-AEN/AETN	K72
	OFCT/OFCR-RW/AER (wiper)	K72
	OFMT 07	K71

O	OFMW-AETN	K71
	OFMW-FF	K73
	ONHQ-TN	K84
	ONHU 0505-W	K68
	ONHU 0806AN-*-W	K85
	ONHU 0806-N-PL	K84
	ONHU/ONMU-05	K68
	ONHU/ONMU-08-TN/HL	K83
	ONHU/ONMU-08-TN-MM	K83
	ONHU/ONMU 080608 AN-N-HP	K85
P	P290 ACCT 1806	K22
	P290 ACK-18	D13
	P290 ACKT 1806	K21
	P290 EPW	B33
	P290 EPW-M	B34
	P290 FPW	C31
	P290 SM	D13
	PH	F8
	PH-A	F8
	PLHT	K103
	PLX	F10
	PLX-M	F9

Q	QDCT-PDN	K64
	QDMT 1205..PDTN-M	K64
	QOMT-HQ	K59
	QPMR 1004..-HQ-M	K60
	QPMT 100408PDTN	K61
R	R90CW	K91
	R90MT	K91
	RCMT/RCCT-MO	K93
	RCMT/RCMW/RCCW-FW	K94
	RCMW/RCCW-MO	K93
	R (drive flange set)	G50
	REMT-76	K92
	REMW	K92
	RFMT 1905-76	K95
	RFMW 1905	K95
	RXCR	K90
	RXCW	K89
	RXMT 10	K90
S	S45MT	K82
	S90MT	K62
	S845 F45SX-16	C52
	S845 SNHU 1305-W	K65

S

S845 SNMU/SNHU-13	K65
S845 SXHU 1606-W	K66
S845 SXMU/SXCU-16	K66
S865 FSN-13	C38
S865 SNMU 1305ZNTR	K67
S890 FSN-13	C20
S890 SNMU 1305PN...	K82
SCMT-19	K81
Screw tightening torques	L12
SDK BT/INT-FT	D22
SDK D63-FT/A	D17
SDK D63-FT/B (modular)	D18
SDK D80-FT/A (modular)	D18
SDK D80-FT/B (modular)	D19
SDK D100-FT/B (modular)	D19
SDK Shell Mill-FT	D21
SDMR-HQ	K63
SDMT-AD-N	K81
SDMT-PDN-RM	K63
SDMT-PDR-HQ	K67
SDN	G39
SDN-CALN11	G38

S

SDN-CALN12	G36
SDN-CALN15	G38
SDN-FLX-LN08	G34
SDN-LN08	G33
SDN-LN12	G35
SEAN-AF..	K77
SE-FT	D23
SEHT-AFN	K76
SEHW-AFTN	K74
SEKN-AF..	K77
SEKR-AF..-76	K78
SEKR-AF-N-42	K78
SEKR-AFTR-HS	K79
SEKT-AF-R	K73
SEKT-AFTN	K75
SEMT 12**AFTN-76	K76
SEMT 1204AF-R-HS	K74
SEMW 1204AFTN	K75
SGSA	G48
SGSF	G49
SGSF-W	G47
S M	E43

S

SM	D20
SM-16	H5
SM-22	H11
S M-CF	E45
SM-FT	D23
SOE45 8/16	B38
SOF45	C45
SOF45CL	C47
SOMT-HQ	K59
SPK	D9
SPK BT/INT-FT/B	D21
SPK-CF	D10
SPK D50-FT/A (modular)	D17
SPK D50-FT/B (modular)	D17
SPKN ED..	K79
SPKR ED..-76	K80
SPKR EDTR-HS	K80
SPK Shell Mill-FT/A	D20
SPM-D-CA	H13
SPMT-HQ	K61
SSB	G40
SSB-LN15-R/L	G41

S

SW/S	G50

T

T290 ELN-05	B11
T290 ELN-10	B22
T290 ELN-M-05	B11
T290 ELN-MM-05	B12
T290 FLN-10	C15
T290 FLN-15	C24
T290 LNMT/LNHT 0502	K37
T290 LNMT/LNHT 1004	K37
T290 LNMT/LNHT 1506	K38
T465 FLN-22	C39
T465 LNHT 2212	K54
T490 ELN-08	B18
T490 ELN-13	B28
T490 ELN-13-C#	B29
T490 ELN-16	B32
T490 ELN-CF-13	B28
T490 ELN-M-08	B19
T490 ELN-MM..-08	B19
T490 FLN-08	C12
T490 FLN-13	C22
T490 FLN-16	C28

T490 LNAR 1306	K40
T490 LNK-13	D6
T490 LNK-13-BT	D7
T490 LNK-13-C#	D7
T490 LNK-13-INT	D8
T490 LNK-CF-13	D6
T490 LNM-08	D5
T490 LNMT/LNHT 0804	K38
T490 LNMT/LNHT 1306	K39
T490 LNMT/LNHT 1607	K40
T490 SM-13	D14
TAG N-A	G45
TAG N-C/W/M	G45
TAG N-J/JS/JT	G46
TAG N-UT	G46
TGSF	G44
TPKN/TPKR	K34
TPMT	K33
TRI	K55
TRIB	G11
TRIB-SM	G12
TS BCM	E17
TS CAB	B72

T	TS FF EWX	E34
	TS HCM	E14
	TS HP E90AN	B17
	TS HTP	F3
	TS S-A	B72
	TS T290 ELN	B12
X	XCMT-TR	K102
	XOMT-HQ	K60
	XPMT-HQ	K62

Your Tool Advisor Genius

ITA recommends the optimal tool based on application parameters and your machine power. 3 tool options, 25 alternatives, cutting data, power consumption, cutting time, metal removal rates, engineering support and more.



Dansk
English
Français
Deutsch
Suomi
Italiano
日本語
한국어
Nederlands
Português
Русский
Svenska
Español-España
Tiếng Việt
中文
Български език
Српски
Magyar
Hrvatski
Español-México
Norsk
Polski
Românește
Slovenščina
Türkçe
Slovenčina
Čeština

Available for Windows and MAC operating systems, including iPhones and iPads.

Member IMC Group
ISCAR
www.iscar.com