PRAMET

New products 2015.2

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MILLING TOOLS

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MILLING INSERTS 54

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DRILLING INSERTS 124

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NEW PRODUCTS FOR MACHINING STAINLESS MATERIALS

MILLING:

New range of face milling cutters

ECONOMICAL OFFER

OEHT inserts with 8 cutting edges. Optional round inserts REHT and wiper insert XEHT

Page..... 6

New inserts for milling

COMPREHENSIVE RANGE

Positive geometries - MF and MM - for machining stainless steel

Page..... 55

New range of helical milling cutters

PRODUCTIVE TOOL

Depth of cut up to 108 mm

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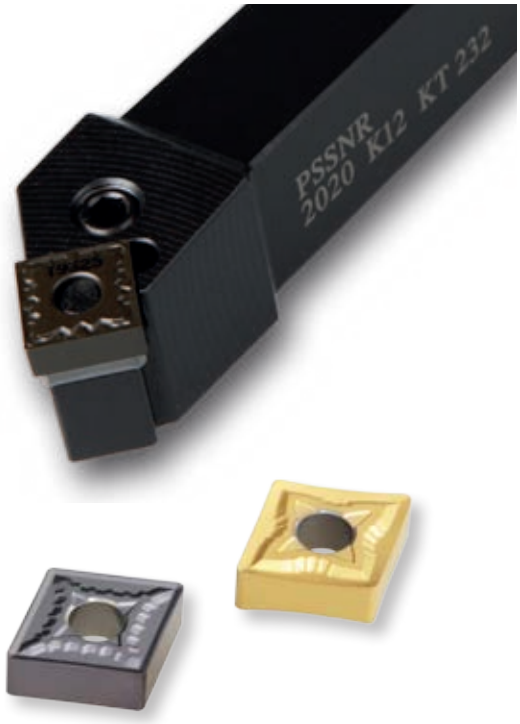
NEW PRODUCTS HIGHLIGHTS

TURNING:

New inserts for turning of difficult-to-machine materials



RELIABILITY AND DURABILITY

Positive chip-breakers SF, SM and new grades

UP!GRADE®

Page 79

DRILLING:

New inserts for drilling long-chip materials

PERFORMANCE AND EXPANDED APPLICATIONS

Chip-breaker SD optimised for mild steel and stainless steel

Page 125

FACE MILLING CUTTERS


5
1
4
2
3
HB340

S45OE06Z

NEW RANGE OF FACE MILLING CUTTERS FOR MACHINING STAINLESS STEELS

A versatile range of new milling cutters and inserts with geometries designed for face milling adhesive and soft materials. These include inserts featuring eight cutting edges for economical milling of stainless steels.

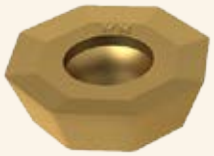
NEW PRODUCTS

- **Wide range of milling cutters -** 50-200 mm diameter, including diameters of copy milling cutters
- **Octagonal inserts** OEHT 06 for depths 3,3 - 10,7 mm
- Round inserts REHT 16, for face and copy milling
- Inserts XEHT 06 with wiper cutting edge
- **New geometries** designed for machining stainless steels
- **Currently only available in metric**

BENEFITS

- **Economical** OEHT inserts feature eight cutting edges
- **Comprehensive** range: New milling cutters, inserts and geometries – all specially designed for stainless steels
- **Versatile** tool: A wide range of inserts can be clamped into the same milling cutter – octagonal, round and wiper inserts.
- Versatile applications: For a wide range of materials
- Suitable for unstable conditions and machining fragile components

INSERTS

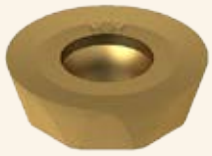


OEHT

INSERT OEHT

Positive geometry

- 8 cutting edges
- Suitable for machining stainless steels, high temperature alloys, general steels and non ferrous metals

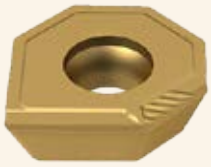


REHT

INSERT REHT

Geometry with a positive rake angle

- Suitable for machining stainless steels, high temperature alloys and general steels.
- Designed especially for light and medium machining



XEHT

INSERT XEHT

Wiper geometry with a slightly positive rake angle

- Wiper insert
- Suitable for machining general steels and also stainless steels and high temperature alloys
- Geometry suited to light cutting conditions

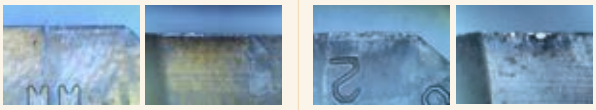
i Each milling cutter supports internal delivery of coolant (incl. larger milling cutter diameters of 160 and 200 mm).

S45OE06Z

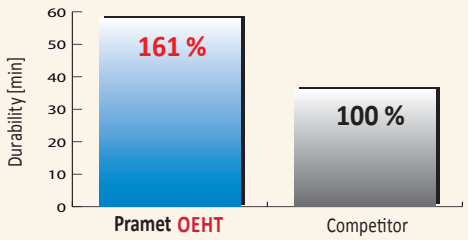
OEHT - MACHINING EXAMPLE

Material: DIN 1.4404 / X2CrNiMo 17-12-2
Insert: **OEHT 0604AEER-MM: M8340**
Coolant: No

Cutting speed	v_c	140	$m.min^{-1}$
Feed per tooth	f_z	0,15	$mm.zub^{-1}$
Axial length of cut	a_p	2,5	mm

Pramet 36 min	Competitor 36 min
	

Total time [min]	Pramet	Competitor
	58	36



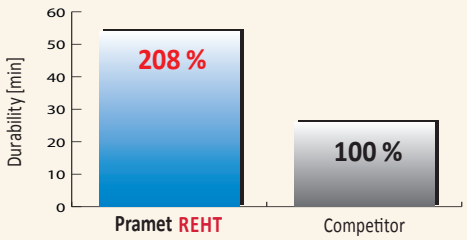
REHT - MACHINING EXAMPLE

Material: DIN 1.4404 / X2CrNiMo 17-12-2
Insert: **REHT 1604M0EN-MM: M8340**
Coolant: No

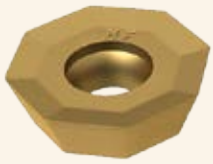
Cutting speed	v_c	160	$m.min^{-1}$
Feed per tooth	f_z	0,15	$mm.zub^{-1}$
Axial length of cut	a_p	2,0	mm

Pramet 26 min	Competitor 26 min
	

Total time [min]	Pramet	Competitor
	54	26



OEHT INSERT GEOMETRIES

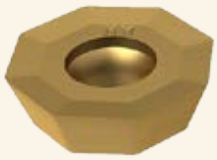


MF

GEOMETRY MF

Sharp and highly positive geometry

- Primary choice for **finishing operations**
- For machining stainless steel, mild carbon steel, and non-ferrous metals



MM

GEOMETRY MM

Sharp and positive geometry

- Primary choice for **standard stainless steels**
- For machining stainless steel, mild carbon steel, non-ferrous metals and superalloys

M

GEOMETRY M

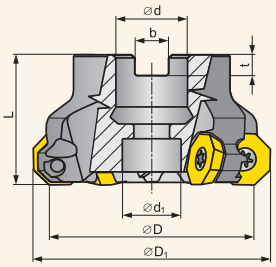
Positive geometry with stabiliser

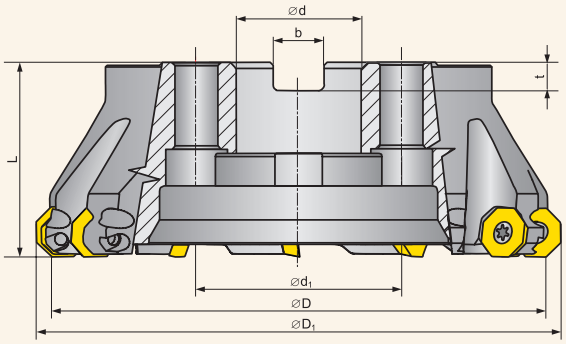
- Suitable for **unstable cutting conditions**
- For machining carbon steels and harder stainless steels

S45OE06Z-C

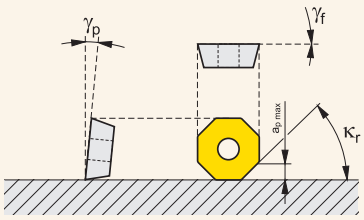
Currently only available in metric

FACE MILLING CUTTERS





γ_p	+10°	κ_r	43°
γ_f	+1°÷ +6°	$a_{p\ max}$	3,3 (10,7) mm



Z* - Number of teeth

ISO	Assortment	Dimensions [mm]											Cooling	[kg]
		D	d	d_1	L	D_1	b	t	Z*					
50A04R-S45OE06Z-C	●	50	22	18	40	60,2	10,4	6,3	4				+	0,3
50A05R-S45OE06Z-C	●	50	22	18	40	60,0	10,4	6,3	5				+	0,3
56A05R-S45OE06Z-C	●	56	22	18	40	66,0	10,4	6,3	5				+	0,4
63A04R-S45OE06Z-C	●	63	22	18	40	73,2	10,4	6,3	4				+	0,5
63A06R-S45OE06Z-C	●	63	22	18	40	73,0	10,4	6,3	6				+	0,5
70A06R-S45OE06Z-C	●	70	22	18	40	80,0	10,4	6,3	6				+	0,6
80A05R-S45OE06Z-C	●	80	27	38	50	90,2	12,4	7	5				+	0,9
80A06R-S45OE06Z-C	●	80	27	38	50	90,2	12,4	7	6				+	1,0
90A07R-S45OE06Z-C	●	90	32	45	50	100,0	14,4	8	7				+	1,4
100A06R-S45OE06Z-C	●	100	32	45	50	110,2	14,4	8	6				+	1,6
100A08R-S45OE06Z-C	●	100	32	45	50	109,9	14,4	8	8				+	1,7
125A07R-S45OE06Z-C	●	125	40	56	63	135,2	16,4	9	7				+	3,1
125A09R-S45OE06Z-C	●	125	40	56	63	134,9	16,4	9	9				+	3,1
160C09R-S45OE06Z-C	●	160	40	66,7	63	170,2	16,4	9	9				+	5,0
160C12R-S45OE06Z-C	●	160	40	66,7	63	169,9	16,4	9	12				+	5,1
200C11R-S45OE06Z-C	●	200	60	101,6	63	210,2	25,7	14	11				+	8,1
200C14R-S45OE06Z-C	●	200	60	101,6	63	209,9	25,7	14	14				+	8,3

● New item in the assortment

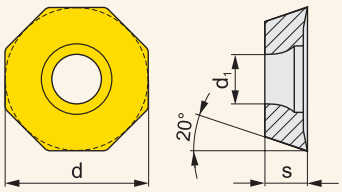
● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

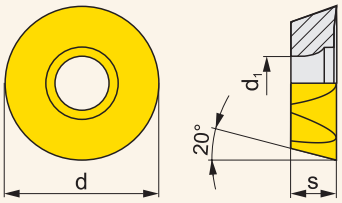
S45OE06Z-C

Currently only available in metric

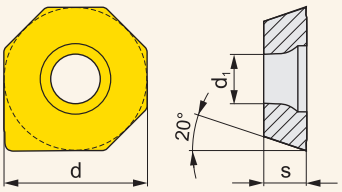
FACE MILLING CUTTERS



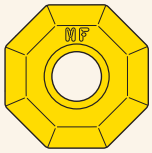
OEHT 06



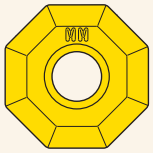
REHT 16



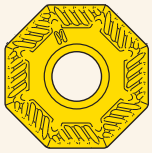
XEHT 06



OEHT 06 MF



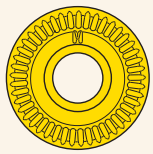
OEHT 06 MM



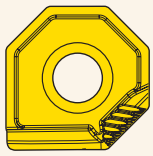
OEHT 06 M

OEHT 06 FA

REHT 16 MM



REHT 16 M



XEHT 06

INDEXABLE CUTTING INSERTS

ISO	Grades						Dimensions [mm]		
	M0315	M9325	M8310	M8340	8230	HF7	d	s	d_1
OEHT 0604AEER-MF			●	●	●		16,050	4,760	5,50
OEHT 0604AEER-MM		●	●	●	●		16,050	4,760	5,50
OEHT 0604AESR-M		●	●	●	●		16,050	4,760	5,50
REHT 1604M0EN-MM		●	●	●	●		16,000	4,760	5,50
REHT 1604M0SN-M		●	●	●	●		16,000	4,760	5,50
OEHT 0604AEFR-FA	●					●	16,050	4,760	5,50
XEHT 0604AESR			●				16,050	4,760	5,50

SPARE PARTS

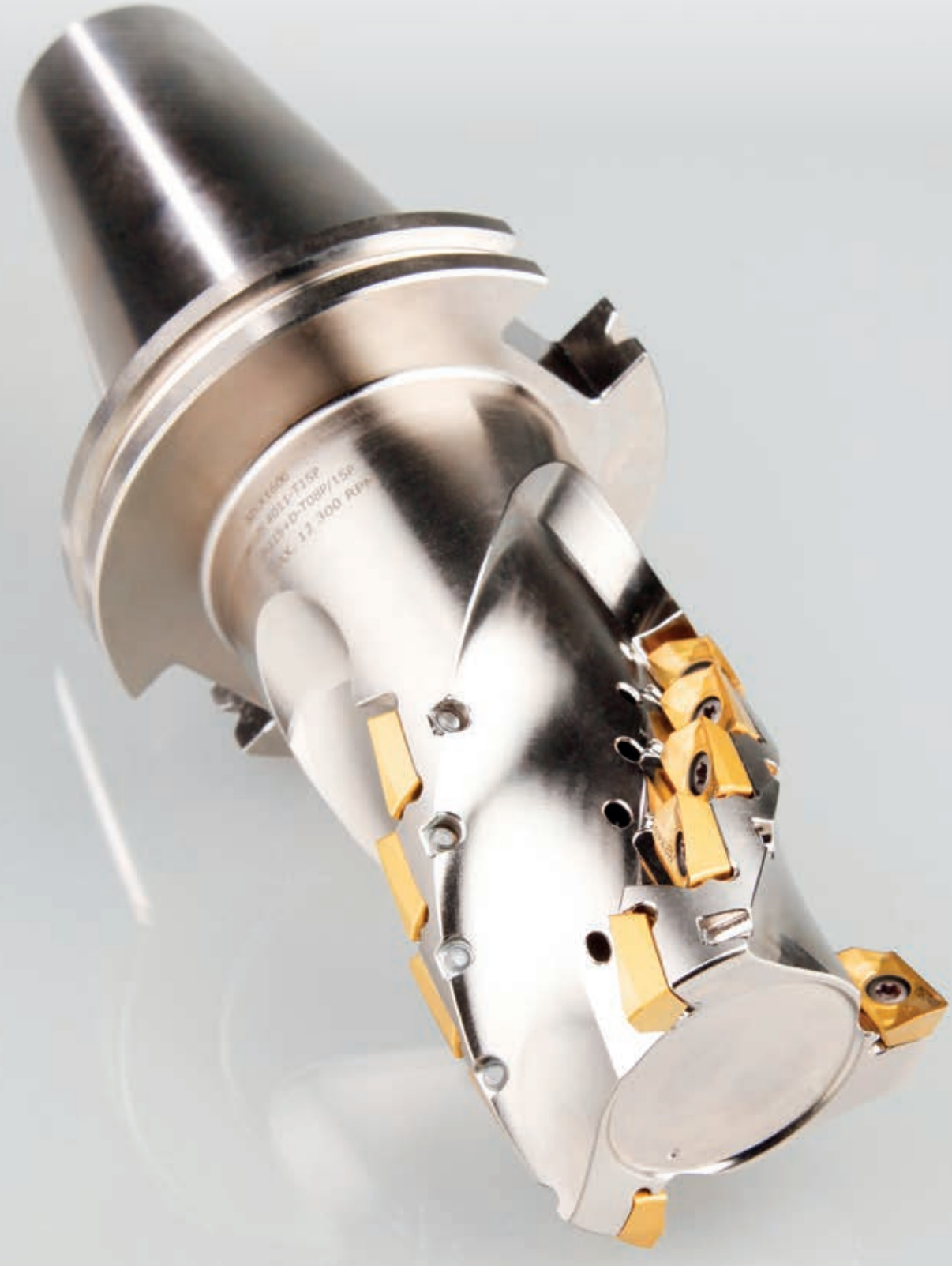
Diameter of cutter	Clamping screw	Screw for taper clamping	Screw driver	Arbor cover	Cover screw	Screw driver
50÷70	US 5011-T20P	HS 1030C	SDR T20P-T	-	-	-
80÷125	US 5011-T20P	-	SDR T20P-T	-	-	-
160	US 5011-T20P	HS 1240C	SDR T20P-T	CAC160C	HSD 0825C	HXK 5
200	US 5011-T20P	HS 1655C	SDR T20P-T	CAC200C	HSD 1025C	HXK 7

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SHOULDER MILLING CUTTERS



FULL RANGE OF PRODUCTS FOR SHOULDER MILLING

COMPLETE RANGE OF MILLING CUTTERS

PRODUCTIVE AND ECONOMICAL OFFER

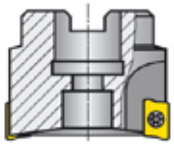
WIDE RANGE OF MILLING CUTTER DIAMETERS

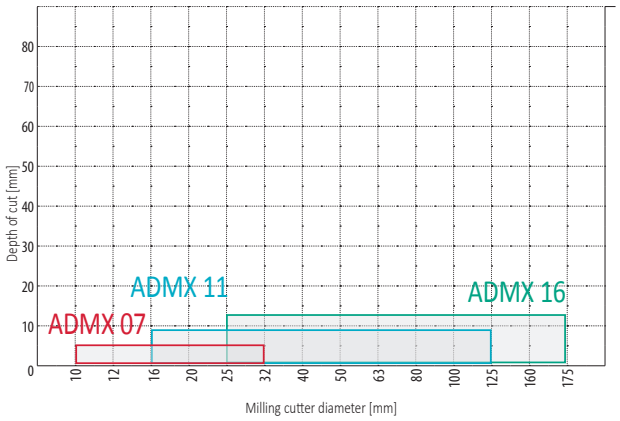
END MILLS, MODULAR MILLS AND SHELL-TYPE ROUGHING CYLINDRICAL CUTTERS

PRODUCTIVE

FORCE AD

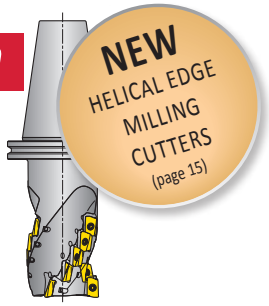
ADMX 07
ADMX / ADEX 11
ADMX / ADEX 16

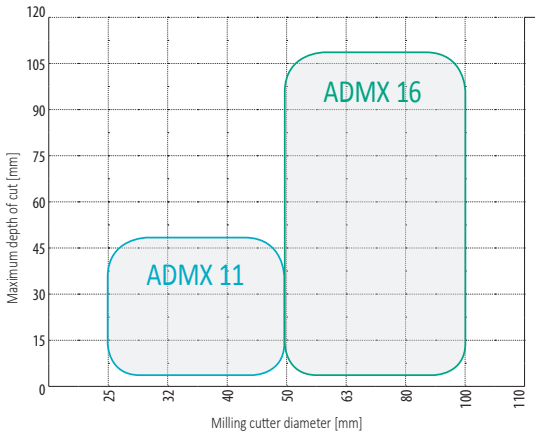




HELICAL AD

ADMX / ADEX 11
ADMX / ADEX 16

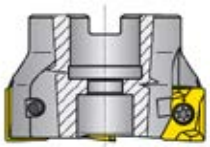


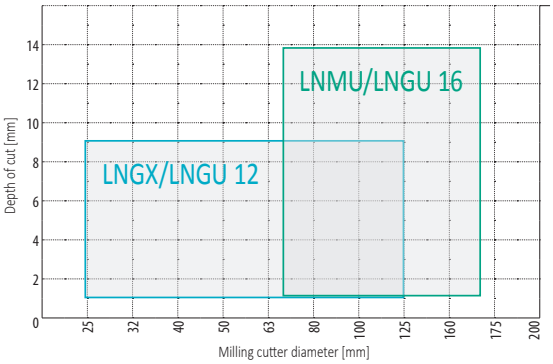


ECONOMICAL

ECON LN

LNGX / LNGU 12
LNMU / LNGU 16





SUMMARY

WIDE RANGE OF INSERTS

Radius	0,2mm	0,4mm	0,8mm	1,0mm	1,2mm	1,6mm	2,0mm	2,5mm	3,0mm	3,2mm	4,0mm	5,0mm
AD 07												
AD 11												
AD 16												
LN 12												
LN 16												

NEW INSERTS FOR STAINLESS STEEL (page 55-56)

NEW INSERTS LNMU 16 (page 57)

VERSATILE APPLICATIONS

P M K N S H

NEW INSERTS FOR STAINLESS STEEL (page 55-56)

J-SAD16E

NEW RANGE OF MILLING CUTTERS WITH HELICAL CUTTING EDGES FOR ADMX 16 INSERTS

Our successful Force AD range of shoulder milling cutters has been expanded with the addition of helical milling cutters using the ADMX 16 inserts.
We now offer a complete range of tools for this insert.

NEW PRODUCTS

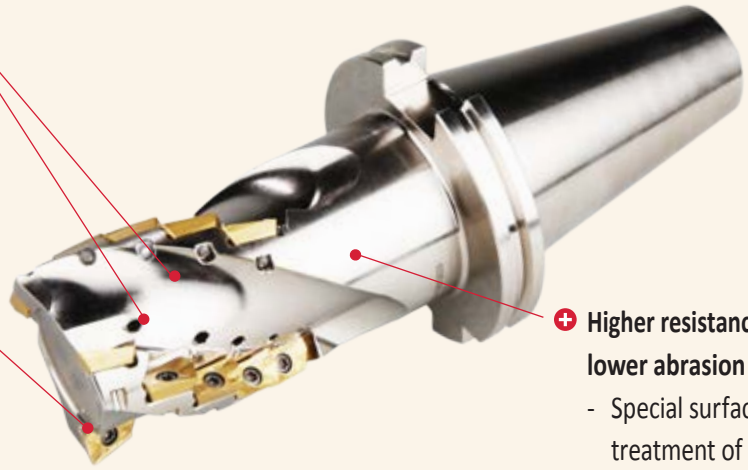
- New productive helical end mills for roughing
- A wide range of new milling cutters: End mills diameters 50-80 mm and shell end mills diameters 50-100 mm
- Suitable for medium machining all materials including, cast iron, stainless steels and aluminium alloys
- **Currently only available in metric**

BENEFITS

- **Higher metal removal rates** with a depth of cut up to 108 mm
- **Reduced noise and vibration**
- **Reliable** chip evacuation from the cutting zone, even for large cutting depths
- **Compact range** of tools for the ADMX 16 inserts (the same insert type can be used for several milling cutters and applications)
- **Versatile** milling tool for a wide range of applications. Main operations: Contouring, grooving, shoulder milling.

Safer and easier chip evacuation
- Large clearance between teeth
- Internal delivery of coolant

Highly reliable clamping
- Axial support for inserts increases milling stability, reducing both insert and tool wear



Higher resistance to corrosion, lower abrasion of the tool
- Special surface treatment of the body – nickel plating

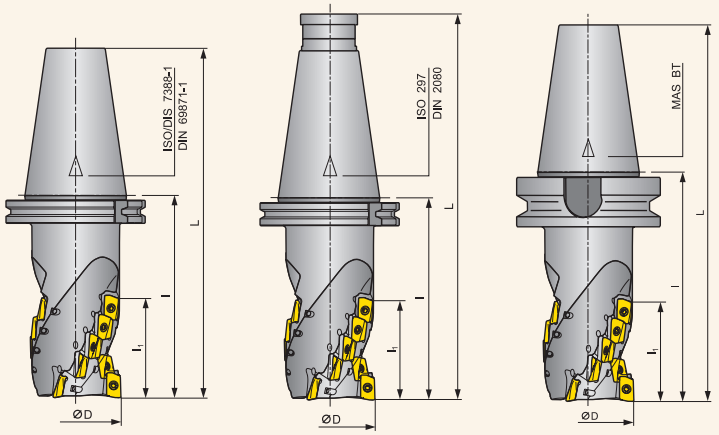
The milling cutters are designed for the ADMX160608 inserts. The inserts that are positioned along the helix are required to have a radius of ≤ 0.8 mm.
The inserts on the **end teeth may have radii higher than 0.8 mm, however for radii above 2.0 mm a modification of the pocket/seats is needed**. See page 137 for details.

SAD16E

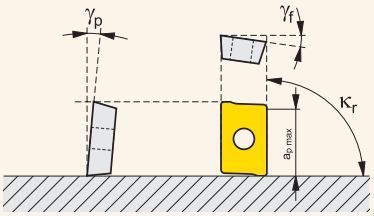
Currently only available in metric

HELICAL MILLING CUTTERS

HELICAL AD



γ_p	+12°	κ_r	90°
γ_f	-6°	$a_{p\,max}$	l_1



Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	L	l	l_1	Z*	ZN*	TS*	Taper			Cooling	[kg]
50J3R100H50-SAD16E54-C	●	50	202	100	54	3	12	50	ISO/DIS 7388-1			+	3,2
50J3R140H50-SAD16E80-C	●	50	242	140	80	3	18	50	ISO/DIS 7388-1			+	3,5
63J3R140H50-SAD16E68-C	●	63	242	140	68	3	15	50	ISO/DIS 7388-1			+	4,4
63J3R155H50-SAD16E95-C	●	63	257	155	95	3	21	50	ISO/DIS 7388-1			+	4,6
80J4R165H50-SAD16E108-C	●	80	257	165	108	4	32	50	ISO/DIS 7388-1			+	6,5
50J3R140G50-SAD16E80-C	●	50	267	140	80	3	18	50	ISO 297			+	3,6
63J3R155G50-SAD16E95-C	●	63	282	155	95	3	21	50	ISO 297			+	4,7
80J4R165G50-SAD16E108-C	●	80	292	165	108	4	32	50	ISO 297			+	6,6
50J3R140X50-SAD16E68-C	●	50	242	140	68	3	15	50	MAS BT			+	4,4
63J3R155X50-SAD16E80-C	●	63	257	155	80	3	18	50	MAS BT			+	5,3
80J4R165X50-SAD16E95-C	●	80	267	165	95	4	28	50	MAS BT			+	7,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

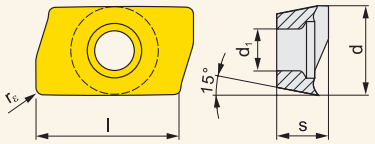
See latest price list for current availability

SAD16E

Currently only available in metric

HELICAL MILLING CUTTERS

ADMX 16

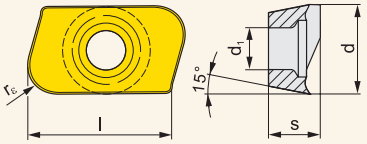


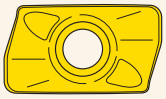
ADMX 16SR-F

ADMX 16SR-M

ADMX 16PR-R

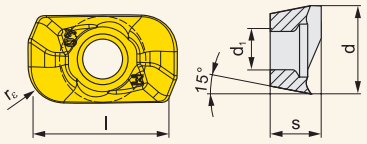
ADMX 16 (16)

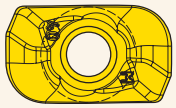




ADMX 160616SR-M

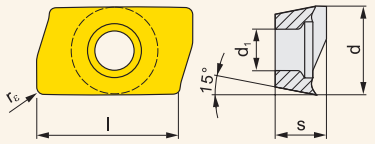
ADMX 16 (40)

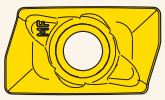




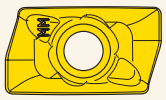
ADMX 160640SR-M

ADMX 16



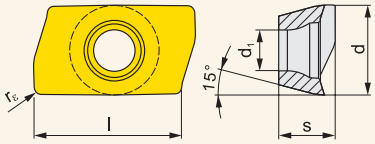


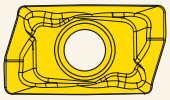
ADMX 160608SR-MF



ADMX 160608SR-MM

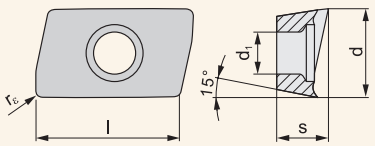
ADEX 16

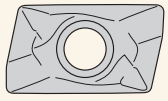




ADEX 16....SR-FM

ADEX 16





ADEX 16....FR-FA

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SAD16E

Currently only available in metric

HELICAL MILLING CUTTERS

INDEXABLE CUTTING INSERTS

ISO	Grades															Dimensions [mm]				
	M0315	M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	HF7					(l)	d	s	d_1	r_ε
ADMX 160608SR-F					●	●	●	●	●	●						16,000	9,950	6,25	4,50	0,8
ADMX 160604SR-M							●	●	●							16,000	9,950	6,25	4,50	0,4
ADMX 160608SR-M		●	●	●	●	●	●	●	●	●						16,000	9,950	6,25	4,50	0,8
ADMX 160616SR-M				●		●	●	●	●	●						16,000	9,950	6,25	4,50	1,6
ADMX 160620SR-M							●		●							16,000	9,950	6,25	4,50	2,0
ADMX 160630SR-M							●		●							16,000	9,950	6,25	4,50	3,0
ADMX 160632SR-M				●			●	○	●	●						16,000	9,950	6,25	4,50	3,2
ADMX 160640SR-M							●		●							15,680	9,950	6,25	4,50	4,0
ADMX 160650SR-M							●		●							15,680	9,950	6,25	4,50	5,0
ADMX 160608PR-R		●	●	●		●	●	●	●	●						16,000	9,950	6,25	4,50	0,8
ADMX 160616PR-R		●	●	●			●	●	●							16,000	9,950	6,25	4,50	1,6
ADMX 160608SR-MF							●									16,000	9,950	6,25	4,50	0,8
ADMX 160604SR-MM							●									16,000	9,950	6,25	4,50	0,4
ADMX 160608SR-MM							●									16,000	9,950	6,25	4,50	0,8
ADMX 160616SR-MM							●									16,000	9,950	6,25	4,50	1,6
ADEX 160608SR-FM				●	●	●	●	●	●	●						16,000	9,950	6,25	4,50	0,8
ADEX 160604FR-FA	●										●					16,000	9,950	6,10	4,50	0,8
ADEX 160608FR-FA	●										●					16,000	9,950	6,10	4,50	0,8
ADEX 160616FR-FA	●										●					16,000	9,950	6,10	4,50	1,6
ADEX 160630FR-FA											●					16,000	9,950	6,10	4,50	3,0

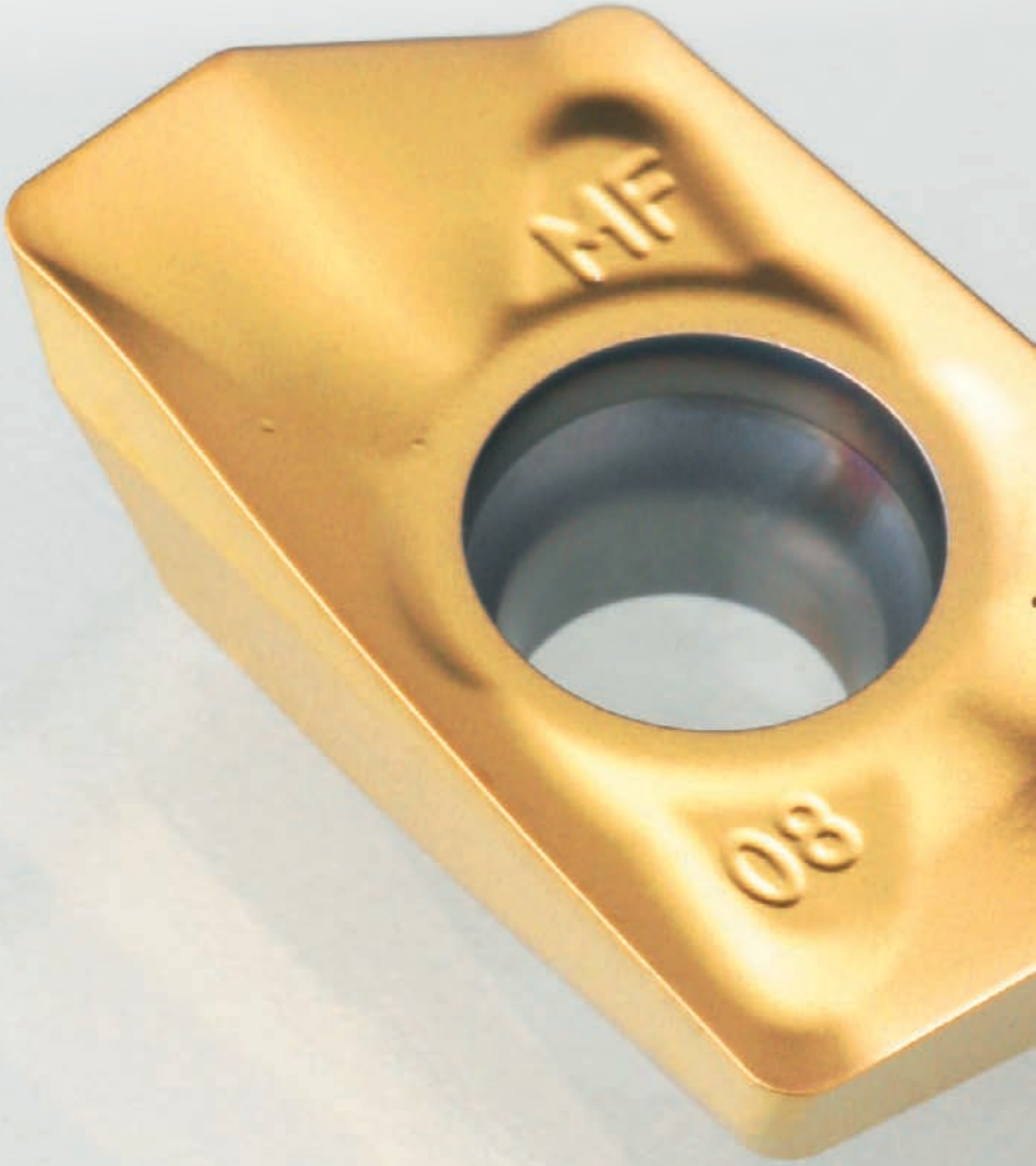
SPARE PARTS

Diameter of cutter	Clamping screw	Shank	Handle
			
50 ÷ 80	US 4011-T15P	D-T08P/T15P	FG-15

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

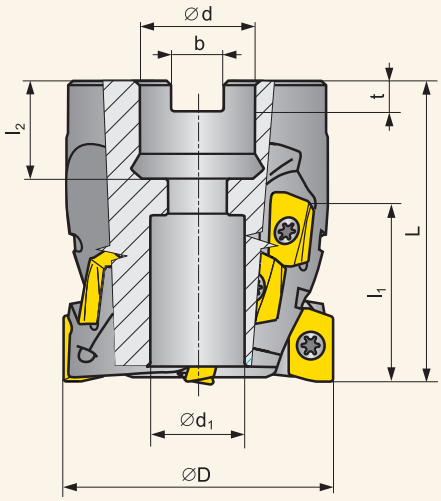

HF
08

S90AD16E

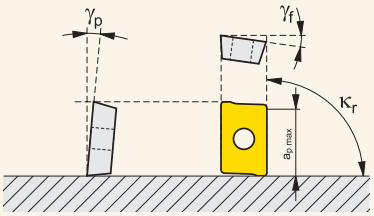
Currently only available in metric

HELICAL MILLING CUTTERS

HELICAL AD



γ_p	+12°	κ_r	90°
γ_f	-6°	$a_{p\,max}$	l_1



Z* - Number of teeth

ISO	Assortment	Dimensions [mm]											Cooling	[kg]
		D	L	l_1	l_2	d_1	d	Z*	ZN*					
50T03R-S90AD16E40-C	●	50	70	40	21	18	22	3	9				+	0,5
63T04R-S90AD16E40-C	●	63	70	40	22	22	27	4	12				+	0,9
63T04R-S90AD16E68-C	●	63	100	68	22	22	27	4	20				+	1,2
80T04R-S90AD16E55-C	●	80	85	55	25	30	32	4	16				+	1,8
80T04R-S90AD16E80-C	●	80	115	80	25	30	32	4	24				+	2,6
100T05R-S90AD16E80-C	●	100	120	80	30	36	40	5	30				+	4,4

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

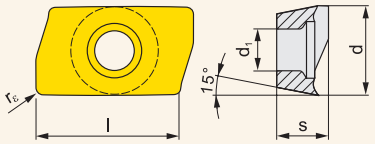
See latest price list for current availability

S90AD16E

Currently only available in metric

HELICAL MILLING CUTTERS

ADMX 16

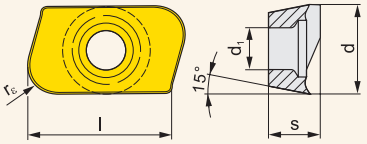


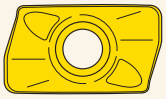
ADMX 16SR-F

ADMX 16SR-M

ADMX 16PR-R

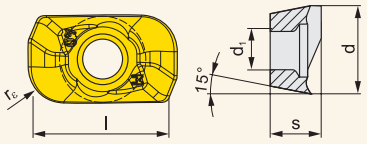
ADMX 16 (16)

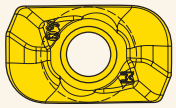




ADMX 160616SR-M

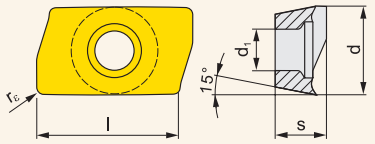
ADMX 16 (40)

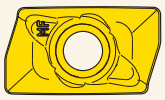




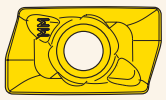
ADMX 160640SR-M

ADMX 16



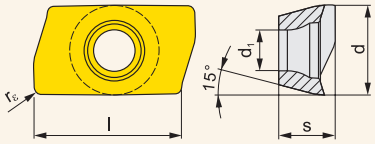


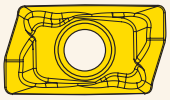
ADMX 160608SR-MF



ADMX 160608SR-MM

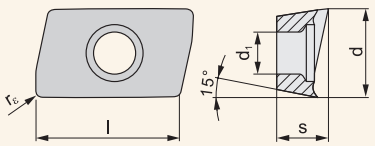
ADEX 16

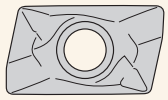




ADEX 16....SR-FM

ADEX 16





ADEX 16....FR-FA

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

S90AD16E

Currently only available in metric

HELICAL MILLING CUTTERS

INDEXABLE CUTTING INSERTS

ISO	Grades											Dimensions [mm]				
	M0315	M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	HF7	(l)	d	s	d_1	r_ε
ADMX 160608SR-F					●	●	●	●	●	●		16,000	9,950	6,25	4,50	0,8
ADMX 160604SR-M							●	●	●			16,000	9,950	6,25	4,50	0,4
ADMX 160608SR-M		●	●	●	●	●	●	●	●	●		16,000	9,950	6,25	4,50	0,8
ADMX 160616SR-M				●		●	●	●	●	●		16,000	9,950	6,25	4,50	1,6
ADMX 160620SR-M							●		●			16,000	9,950	6,25	4,50	2,0
ADMX 160630SR-M							●		●			16,000	9,950	6,25	4,50	3,0
ADMX 160632SR-M				●			●	○	●	●		16,000	9,950	6,25	4,50	3,2
ADMX 160640SR-M							●		●			15,680	9,950	6,25	4,50	4,0
ADMX 160650SR-M							●		●			15,680	9,950	6,25	4,50	5,0
ADMX 160608PR-R		●	●	●		●	●	●	●	●		16,000	9,950	6,25	4,50	0,8
ADMX 160616PR-R		●	●	●			●	●	●			16,000	9,950	6,25	4,50	1,6
ADMX 160608SR-MF							●					16,000	9,950	6,25	4,50	0,8
ADMX 160604SR-MM							●					16,000	9,950	6,25	4,50	0,4
ADMX 160608SR-MM							●					16,000	9,950	6,25	4,50	0,8
ADMX 160616SR-MM							●					16,000	9,950	6,25	4,50	1,6
ADEX 160608SR-FM				●	●	●	●	●	●	●		16,000	9,950	6,25	4,50	0,8
ADEX 160604FR-FA	●										●	16,000	9,950	6,10	4,50	0,8
ADEX 160608FR-FA	●										●	16,000	9,950	6,10	4,50	0,8
ADEX 160616FR-FA	●										●	16,000	9,950	6,10	4,50	1,6
ADEX 160630FR-FA											●	16,000	9,950	6,10	4,50	3,0

SPARE PARTS

Diameter of cutter	Clamping screw	Shank	Handle	Screw for taper clamping
				
50	US 4011-T15P	D-T08P/T15P	FG-15	HS 1030C
63	US 4011-T15P	D-T08P/T15P	FG-15	HS 1230C
80	US 4011-T15P	D-T08P/T15P	FG-15	HS 1630C
100	US 4011-T15P	D-T08P/T15P	FG-15	HS 2040C

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

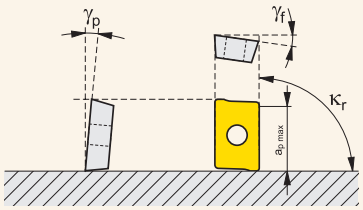

MF
08

SAD11E

Currently only available in metric

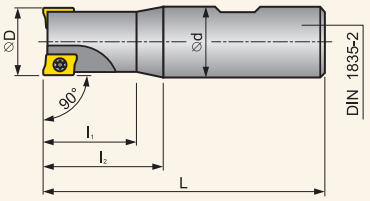
SHOULDER MILLING CUTTERS

γ_p	+4°÷ +8°	κ_r	90°
γ_f	-9°÷ -12,8°	$a_{p\,max}$	9 mm

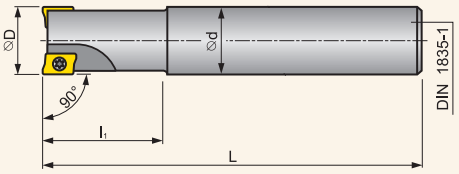


FORCE AD

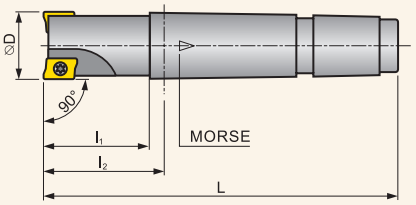
WELDON



CYLINDRICAL



MORSE



Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	L	l_1	l_2	d	Morse	Z*					Cooling	[kg]
WELDON														
16A2R027B16-SAD11E-C	●	16	75	27	-	16	-	2					+	0,1
20A2R032B20-SAD11E-C	●	20	82	32	-	20	-	2					+	0,2
20A3R032B20-SAD11E-C	●	20	82	32	-	20	-	3					+	0,2
25A3R042B25-SAD11E-C	●	25	98	42	-	25	-	3					+	0,3
25A4R042B25-SAD11E-C	●	25	98	42	-	25	-	4					+	0,3
32A4R042B32-SAD11E-C	●	32	102	42	-	32	-	4					+	0,4
32A5R042B32-SAD11E-C	●	32	102	42	-	32	-	5					+	0,4
CYLINDRICAL														
16A2R024A14-SAD11E-C	●	16	160	24	-	14	-	2					+	0,2
16A2R024A16-SAD11E-C	●	16	135	24	-	16	-	2					+	0,2
16A2R050A16-SAD11E-C	●	16	135	50	-	16	-	2					+	0,2
18A2R029A20-SAD11E-C	●	18	150	29	-	20	-	2					+	0,3
20A2R029A20-SAD11E-C	●	20	150	29	-	20	-	2					+	0,3
20A2R070A20-SAD11E-C	●	20	150	70	-	20	-	2					+	0,3
20A3R029A18-SAD11E-C	●	20	200	29	-	18	-	3					+	0,3
20A3R029A20-SAD11E-C	●	20	150	29	-	20	-	3					+	0,3
22A3R029A20-SAD11E-C	●	22	200	29	-	20	-	3					+	0,4
25A3R034A25-SAD11E-C	●	25	170	34	-	25	-	3					+	0,5
25A3R080A25-SAD11E-C	●	25	170	80	-	25	-	3					+	0,5
25A4R034A25-SAD11E-C	●	25	170	34	-	25	-	4					+	0,5
32A3R090A32-SAD11E-C	○	32	195	90	-	32	-	3					+	0,9
32A5R034A32-SAD11E-C	●	32	195	34	-	32	-	5					+	0,9

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SAD11E

Currently only available in metric

SHOULDER MILLING CUTTERS

ISO	Assortment	Dimensions [mm] D	L	l_1	l_2	d	Morse	Z*				Cooling	[kg]
MORSE													
16A2R030E02-SAD11E-C	○	16	94	25	30	-	2	2				+	0,1
20A3R035E03-SAD11E-C	●	20	116	30	35	-	3	3				+	0,2
25A4R043E03-SAD11E-C	●	25	124	38	43	-	3	4				+	0,3
25A4R043E03-SAD11E-C	●	25	124	38	43	-	3	4				+	0,3

● New item in the assortment

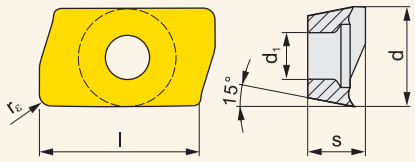
● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

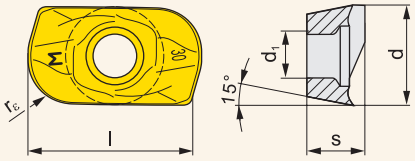
SAD11E

Currently only available in metric

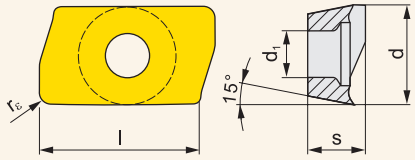
SHOULDER MILLING CUTTERS



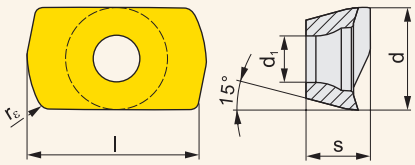
ADMX 11



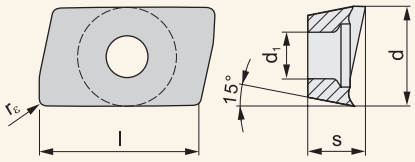
ADMX 11 (30)



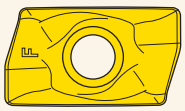
ADMX 11



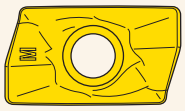
ADEX 11



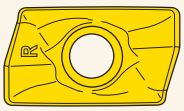
ADEX 11



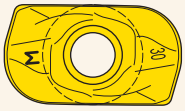
ADMX 11SR-F



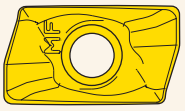
ADMX 11SR-M



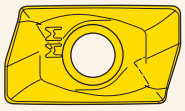
ADMX 11PR-R



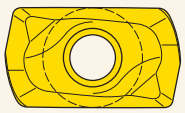
ADMX 11T330SR-M



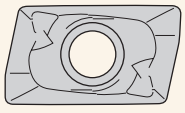
ADMX 11SR-MF



ADMX 11SR-MM



ADEX HF



ADEX FR-FA

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

SAD11E

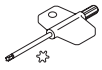
Currently only available in metric

SHOULDER MILLING CUTTERS

INDEXABLE CUTTING INSERTS

ISO	Grades															Dimensions [mm]				
	M0315	M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	HF7					(l)	d	s	d_1	r_ε
ADMX 11T304SR-F					●	●	●	●	●	●						11,000	6,530	3,97	2,90	0,4
ADMX 11T308SR-F					●		●	●	●	●						11,000	6,530	3,97	2,90	0,8
ADMX 11T302SR-M							●		●							11,000	6,530	3,97	2,90	0,2
ADMX 11T304SR-M				●	●	●	●	●	●	●						11,000	6,530	3,97	2,90	0,4
ADMX 11T308SR-M		●	●	●	●	●	●	●	●	●						11,000	6,530	3,97	2,90	0,8
ADMX 11T310SR-M							●		●							11,000	6,530	3,97	2,90	1,0
ADMX 11T312SR-M							●	●	●							11,000	6,530	3,97	2,90	1,2
ADMX 11T316SR-M						●	●	●	●	●						11,000	6,530	3,97	2,90	1,6
ADMX 11T320SR-M							●		●							10,810	6,530	3,97	2,90	2,0
ADMX 11T325SR-M							●		●							10,810	6,530	3,97	2,90	2,5
ADMX 11T330SR-M							●		●							10,810	6,530	3,97	2,90	3,0
ADMX 11T308PR-R		●	●	●		●	●	●	●	●						11,000	6,530	3,97	2,90	0,8
ADMX 11T316PR-R				●			●	●	●							11,000	6,530	3,97	2,90	1,6
ADMX 11T304SR-MF							●									11,000	6,530	3,97	2,90	0,4
ADMX 11T308SR-MF							●									11,000	6,530	3,97	2,90	0,8
ADMX 11T304SR-MM							●									11,000	6,530	3,97	2,90	0,4
ADMX 11T308SR-MM							●									11,000	6,530	3,97	2,90	0,8
ADMX 11T312SR-MM							●									11,000	6,530	3,97	2,90	1,2
ADEX 11T308SR-HF						●	●	●	●							10,665	6,530	3,80	2,90	0,8
ADEX 11T304FR-FA	●										●					11,000	6,530	3,97	2,90	0,4
ADEX 11T308FR-FA	●										●					11,000	6,530	3,97	2,90	0,8
ADEX 11T316FR-FA											●					11,000	6,530	3,97	2,90	1,6

SPARE PARTS

Diameter of cutter	Clamping screw	Screwdriver
		
16 ÷ 32	US 2505-T08P	FLAG T08P

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

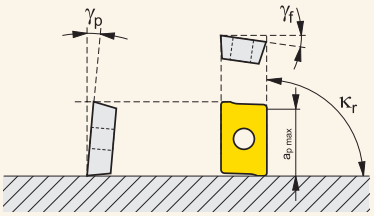
SAD07D-C

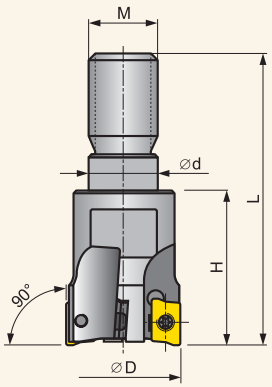
Currently only available in metric

SHOULDER MILLING CUTTERS

FORCE *AD*

γ_p	+8°	κ_r	90°
γ_f	-6° ÷ -12°	$a_{p\ max}$	5 mm





Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	L	H	M	d	Z*	Cooling	[kg]
12A2R020M06-SAD07D-C	●	12	35	20	M6	6,5	2	+	0,0
14A3R020M08-SAD07D-C	●	14	38	20	M8	8,5	3	+	0,0
16A4R023M08-SAD07D-C	●	16	41	23	M8	8,5	4	+	0,0
20A5R030M10-SAD07D-C	●	20	49	30	M10	10,5	5	+	0,1
25A6R035M12-SAD07D-C	●	25	57	35	M12	12,5	6	+	0,1
32A8R043M16-SAD07D-C	●	32	66	43	M16	17	8	+	0,2

● New item in the assortment

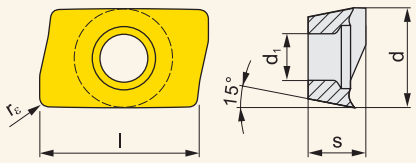
● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

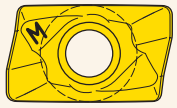
SAD07D-C

Currently only available in metric

SHOULDER MILLING CUTTERS



ADMX 07

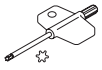


ADMX 07-M

INDEXABLE CUTTING INSERTS

ISO	Grades					Dimensions [mm]				
	M9340	M8310	M8340	8215	8230	l	d	s	d_1	r_ε
ADMX 070202SR-M			●	●	●	6,950	4,482	2,48	2,20	0,2
ADMX 070204SR-M	●	●	●	●	●	6,950	4,482	2,48	2,20	0,4
ADMX 070208SR-M	●	●	●	●	●	6,950	4,482	2,48	2,20	0,8
ADMX 070220SR-M			●		●	6,950	4,482	2,48	2,20	2,0

SPARE PARTS

Diameter of cutter	Clamping screw	Screwdriver
		
12-14	US 62003A-T06P	FLAG T06P
16-25	US 62004A-T06P	FLAG T06P

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

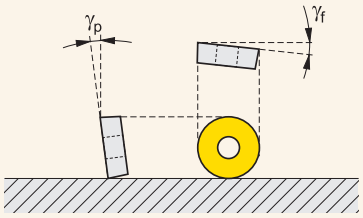
COPY MILLING CUTTERS

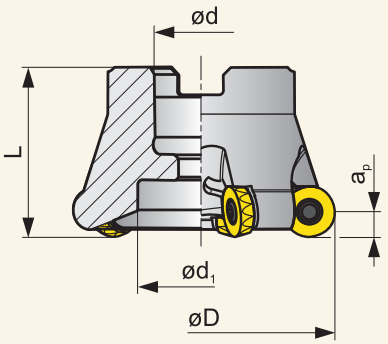

SMORC 12
4423 01

SMORC

COPY MILLING CUTTERS

γ_p	-7°	κ_r	-
γ_f	-2°÷ -3°	$a_{p\ max}$	6,0 ÷ 10,0





Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	d	d_1	L	Z*						Cooling	[kg]
40A03R-SMORC12	●	40	16	12	40	3	RC.. 1204					-	0,2
50A04R-SMORC12	●	50	22	18	40	4	RC.. 1204					-	0,3
52A05R-SMORC12-C	●	52	22	18	40	5	RC.. 1204					+	0,2
63A05R-SMORC12	●	63	22	30	40	5	RC.. 1204					-	0,4
66A06R-SMORC12-C	●	66	27	22	50	6	RC.. 1204					+	0,5
80A05R-SMORC12	●	80	27	37	50	5	RC.. 1204					-	0,9
100A06R-SMORC12	●	100	32	45	50	6	RC.. 1204					-	1,6
63A04R-SMORC16	●	63	22	18	50	4	RC.. 1606					-	0,5
66A05R-SMORC16-C	●	66	27	22	50	5	RC.. 1606					+	0,4
80A05R-SMORC16	●	80	27	37	50	5	RC.. 1606					-	0,7
100A06R-SMORC16	●	100	32	45	50	6	RC.. 1606					-	1,1
125A07R-SMORC16-C	●	125	40	36	63	7	RC.. 1606					+	2,7
160C08R-SMORC16	●	160	40	66,7	63	8	RC.. 1606					-	4,4
												-	
80A04R-SMORC20	●	80	27	28	50	4	RC.. 2006					-	0,6
100A05R-SMORC20	●	100	32	45	50	5	RC.. 2006					-	1,0
125A06R-SMORC20-C	●	125	40	36	63	6	RC.. 2006					+	2,6
160C07R-SMORC20	●	160	40	66,7	63	7	RC.. 2006					-	4,1

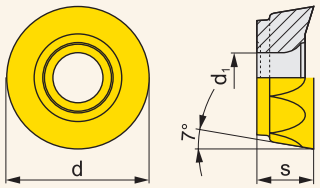
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

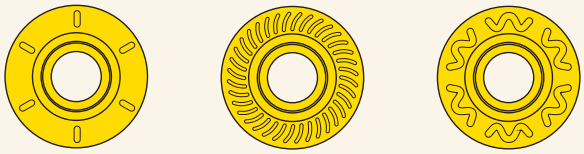
See latest price list for current availability

SMORC

COPY MILLING CUTTERS



RCMT



RCMT-F RCMT-M RCMT-R

INDEXABLE CUTTING INSERTS

ISO	Grades							Dimensions [mm]		
	M9315	M9325	M9340	M8310	M8345	8215	8230	d	s	d_1
RCMT 1204MOEN-F				●		●	●	12,000	4,760	4,40
RCMT 1204MOEN-R	●		●	●			●	12,000	4,760	4,40
RCMT 1204MOSN-M		●	●	●	●		●	12,000	4,760	4,40
RCMT 1204MOSN-R	●				●			12,000	4,760	4,40
RCMT 1606MOEN-F				●			●	16,000	6,350	5,50
RCMT 1606MOSN-M		●	●		●		●	16,000	6,350	5,50
RCMT 1606MOSN-R		●		●	●		●	16,000	6,350	5,50
RCMT 2006MOSN-F			●				●	20,000	6,350	6,50
RCMT 2006MOSN-M	●	●	●		●		●	20,000	6,350	6,50
RCMT 2006MOSN-R		●			●		●	20,000	6,350	6,50

SPARE PARTS

Cutter	Clamping screw	Shank	Handle	Screwdriver	Screw for taper clamping
40A03R-SMORC12	US 63509-T15P	D-T08P/T15P	FG-15	-	HS 90835
50A04R-SMORC12	US 63509-T15P	D-T08P/T15P	FG-15	-	HS 1030C
52A05R-SMORC12-C	US 63509-T15P	D-T08P/T15P	FG-15	-	HSD 1025C
63A05R-SMORC12	US 63509-T15P	D-T08P/T15P	FG-15	-	HS 1030C
66A06R-SMORC12-C	US 63509-T15P	D-T08P/T15P	FG-15	-	HS 1230C
80A05R-SMORC12	US 63509-T15P	D-T08P/T15P	FG-15	-	-
100A06R-SMORC12	US 63509-T15P	D-T08P/T15P	FG-15	-	-
63A04R-SMORC16	US 65014-T20P	-	-	SDR T20P-T	HS 1030C
66A05R-SMORC16-C	US 65014-T20P	-	-	SDR T20P-T	HS 1230C
80A05R-SMORC16	US 65014-T20P	-	-	SDR T20P-T	-
100A06R-SMORC16	US 65014-T20P	-	-	SDR T20P-T	-
125A07R-SMORC16-C	US 65014-T20P	-	-	SDR T20P-T	HSD 2040
160C08R-SMORC16	US 65014-T20P	-	-	SDR T20P-T	-
80A04R-SMORC20	US 66015-T25P	-	-	SDR T25P-T	HS 1230C
100A05R-SMORC20	US 66015-T25P	-	-	SDR T25P-T	-
125A06R-SMORC20-C	US 66015-T25P	-	-	SDR T25P-T	HSD 2040
160C07R-SMORC20	US 66015-T25P	-	-	SDR T25P-T	-

● New item in the assortment

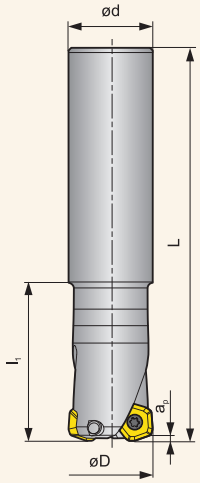
● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

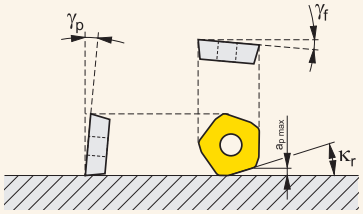
SPD09-C

HIGH FEED MILLING CUTTERS

PENTA *HF*



γ_p	10°	κ_r	19°
γ_f	-10°÷ -24°	$a_{p\,max}$	2,0 mm



Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	L	l_1	d	Z*	Cooling	[kg]
32E2R060A32-SPD09-C	●	32	250	60	32	2	+	1,4
40E3R060A32-SPD09-C	●	40	250	60	32	3	+	1,5

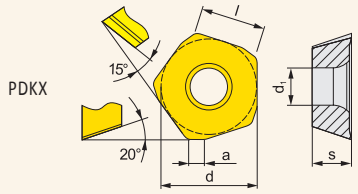
● New item in the assortment

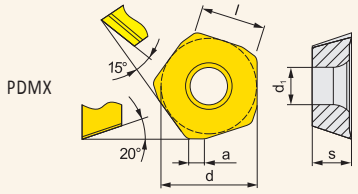
● Stock assortment ○ Non-stock assortment All dimensions [mm]

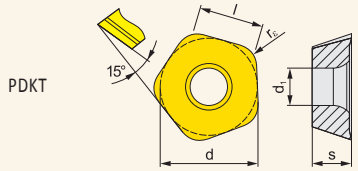
See latest price list for current availability

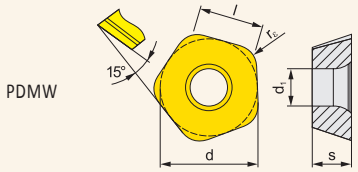
SPD09-C

HIGH FEED MILLING CUTTERS










PDKX-FM


PDMX-M


PDMX-R

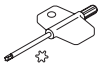

PDKT-FM


PDMW

INDEXABLE CUTTING INSERTS

ISO	Grades							Dimensions [mm]					
	M9315	M9325	M9340	M8310	M8345	8215	8230	l	d	s	d_1	a	r_ε
PDKX 0905ZEER-FM			●		●			9,000	13,500	5,47	5,50	2,0	-
PDMX 0905ZEER-M			●		●	●	●	9,000	13,500	5,47	5,50	2,0	-
PDMX 0905ZESR-R					●	●	●	9,000	13,500	5,47	5,50	2,0	-
PDKT 090530ER-FM				●	●	●	●	9,000	13,500	5,47	5,50	-	3
													-
PDMW 090530SR	●	●		●	●			9,000	13,500	5,47	5,50	-	3

SPARE PARTS

Diameter of cutter	Clamping screw	Screwdriver
		
32 ÷ 40	US 45011-T20P	FLAG T20P

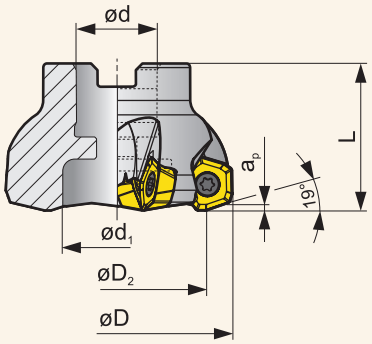
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

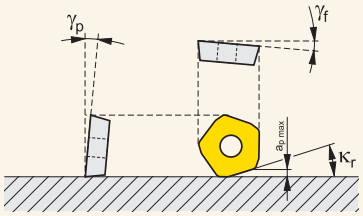
S19PD09-C

HIGH FEED MILLING CUTTERS

PENTA *HF*



γ_p	10°	κ_r	19°
γ_f	-1° ÷ -24°	$a_{p\,max}$	2,0 mm



Z* - Number of teeth

ISO	Assortment	Dimensions [mm]											Cooling	[kg]
		D	d	d_1	L	D_2	Z*							
42A03R-S19PD09-C	●	42	16	12	40	27,8	3						+	0,2
50A04R-S19PD09-C	●	50	22	18	40	35,6	4						+	0,2
50A05R-S19PD09-C	●	50	22	18	40	36,0	5						+	0,2
52A04R-S19PD09-C	●	52	22	18	40	37,6	4						+	0,2
63A05R-S19PD09-C	●	63	22	18	40	48,6	5						+	0,3
63A06R-S19PD09-C	●	63	22	18	40	49,0	6						+	0,3
66A06R-S19PD09-C	●	66	22	18	40	51,6	6						+	0,3
66A06R-S19PD09-CF	●	66	27	22	50	52,0	6						+	0,5
80A05R-S19PD09-C	●	80	27	37	50	66,0	5						+	0,8
80A06R-S19PD09-C	●	80	27	37	50	66,0	6						+	0,8
100A06R-S19PD09-C	●	100	32	45	50	85,6	6						+	1,4
100A08R-S19PD09-C	●	100	32	45	50	85,6	8						+	1,4
125A10R-S19PD09-C	●	125	40	36	63	111,0	10						+	2,8

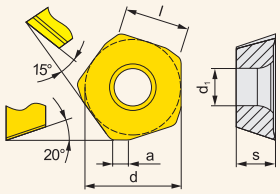
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

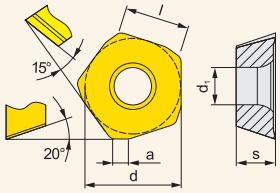
See latest price list for current availability

S19PD09-C

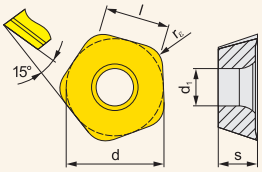
PDKX



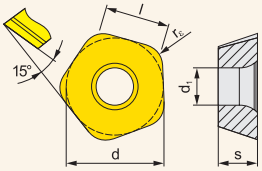
PDMX



PDKT



PDMW



PDKX-FM

PDMX-M

PDMX-R

PDKT-FM

PDMW

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

S19PD09-C

HIGH FEED MILLING CUTTERS

INDEXABLE CUTTING INSERTS

ISO	Grades							Dimensions [mm]					
	M9315	M9325	M9340	M8310	M8345	8215	8230	l	d	s	d_1	a	r_ε
PDKX 0905ZEER-FM			●		●			9,000	13,500	5,47	5,50	2,0	-
PDMX 0905ZEER-M			●		●	●	●	9,000	13,500	5,47	5,50	2,0	-
PDMX 0905ZESR-R					●	●	●	9,000	13,500	5,47	5,50	2,0	-
PDKT 090530ER-FM				●	●	●	●	9,000	13,500	5,47	5,50	-	3
PDMW 090530SR	●	●		●	●			9,000	13,500	5,47	5,50	-	3

SPARE PARTS

Cutter	Clamping screw	Screwdriver	Screw for taper clamping
			
42A03R-S19PD09-C	US 45011-T20P	SDR T20P-T	HS 90835
50A04R-S19PD09-C	US 45011-T20P	SDR T20P-T	HS 1030C
50A05R-S19PD09-C	US 45011-T20P	SDR T20P-T	HS 1030C
52A04R-S19PD09-C	US 45011-T20P	SDR T20P-T	HS 1030C
63A05R-S19PD09-C	US 45011-T20P	SDR T20P-T	HS 1030C
63A06R-S19PD09-C	US 45011-T20P	SDR T20P-T	HS 1030C
66A06R-S19PD09-C	US 45011-T20P	SDR T20P-T	HS 1030C
66A06R-S19PD09-CF	US 45011-T20P	SDR T20P-T	HS 1230C
80A05R-S19PD09-C	US 45011-T20P	SDR T20P-T	-
80A06R-S19PD09-C	US 45011-T20P	SDR T20P-T	-
100A06R-S19PD09-C	US 45011-T20P	SDR T20P-T	-
100A08R-S19PD09-C	US 45011-T20P	SDR T20P-T	-
125A10R-S19PD09-C	US 45011-T20P	SDR T20P-T	HSD 2040

● New item in the assortment

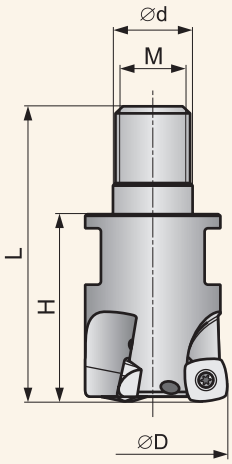
● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

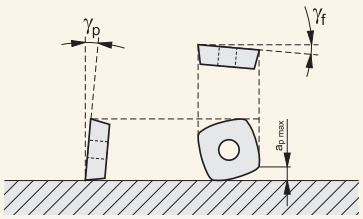
SZD

HIGH FEED MILLING CUTTERS

FEED ZD



γ_p	+8°; +10°	κ_r	
γ_f	-5°; -6°	$a_{p\,max}$	1,0; 1,6 mm



Z* - Number of teeth

ISO	Assortment	Dimensions [mm]										Cooling	[kg]
		D	H	L	d	M	Z*						
16E2R030M08-SZD07	●	16	30	48	8,5	M8	2	ZD.. 0703				+	0,0
20E3R030M10-SZD07	●	20	30	49	10,5	M10	3	ZD.. 0703				+	0,1
25E3R032M12-SZD07	●	25	32	54	12,5	M12	3	ZD.. 0703				+	0,1
25E4R032M12-SZD07	●	25	32	54	12,5	M12	4	ZD.. 0703				+	0,1
32E4R040M16-SZD07	○	32	40	65	17	M16	4	ZD.. 0703				+	0,2
25E2R032M12-SZD09-C	●	25	32	54	12,5	M12	2	ZD.. 09T3				+	0,1
25E3R032M12-SZD09-C	●	25	32	54	12,5	M12	3	ZD.. 09T3				+	0,1
32E3R040M16-SZD09-C	●	32	40	63	17	M16	3	ZD.. 09T3				+	0,2
35E4R040M16-SZD09-C	●	35	40	63	17	M16	4	ZD.. 09T3				+	0,2
42E4R040M16-SZD09-C	●	42	40	63	17	M16	4	ZD.. 09T3				+	0,2
32E3R040M16-SZD12-C	●	32	40	63	17	M16	3	ZD.. 1204				+	0,2
40E4R040M16-SZD12-C	●	40	40	63	17	M16	4	ZD.. 1204				+	0,2

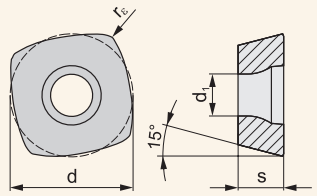
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

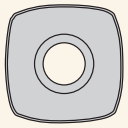
See latest price list for current availability

SZD

HIGH FEED MILLING CUTTERS



ZDCW / ZDEW

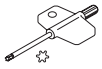


ZDCW / ZDEW

INDEXABLE CUTTING INSERTS

ISO	Grades						Dimensions [mm]				
	M8310	M8325	M8345	7205	7215	7230	l	d	s	d_1	r_ε
ZDCW 070304	●	●	●		●	●	6,800	6,800	3,18	2,60	0,4
ZDCW 09T304	●	●	●	○	●	●	9,525	9,525	3,97	3,40	0,4
ZDEW 120408	●	●	●	●			12,700	12,700	4,76	4,40	0,8

SPARE PARTS

Diameter of cutter	Clamping screw	Screwdriver
		
..SZD07	US 2205-T07P	FLAG T07P
..SZD09	US 3006-T09P	FLAG T09P
..SZD12	US 4011-T15P	FLAG T15P

● New item in the assortment

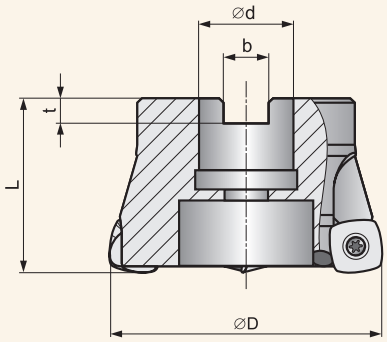
● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

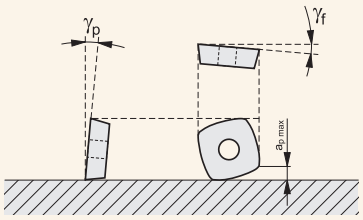
SMOZD

HIGH FEED MILLING CUTTERS

FEED ZD



γ_p	+10°	κ_r	-
γ_f	-6°	$a_{p\ max}$	1,0; 1,6 mm



Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	d	L	b	t	Z*				Cooling	[kg]
40A03R-SMOZD09-C	○	40	16	40	8,4	5,6	3	ZD.. 09T3			+	0,2
40A04R-SMOZD09-C	●	40	16	40	8,4	5,6	4	ZD.. 09T3			+	0,2
50A04R-SMOZD12-C	●	50	22	40	10,4	6,4	4	ZD.. 1204			+	0,2
52A04R-SMOZD12-C	●	52	22	40	10,4	6,4	4	ZD.. 1204			+	0,3
63A04R-SMOZD12-C	○	63	22	40	10,4	6,4	4	ZD.. 1204			+	0,5
63A05R-SMOZD12-C	●	63	22	40	10,4	6,4	5	ZD.. 1204			+	0,4
66A05R-SMOZD12-C	●	66	27	50	12	7	5	ZD.. 1204			+	0,8
80A05R-SMOZD12-C	●	80	27	50	12	7	5	ZD.. 1204			+	1,0

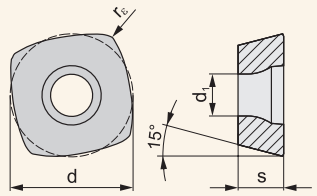
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

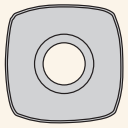
See latest price list for current availability

SMOZD

HIGH FEED MILLING CUTTERS



ZDCW / ZDEW



ZDCW / ZDEW

INDEXABLE CUTTING INSERTS

ISO	Grades						Dimensions [mm]				
	M8310	M8325	M8345	7205	7215	7230	l	d	s	d_1	r_ε
ZDCW 09T304	●	●	●	○	●	●	9,525	9,525	3,97	3,40	0,4
ZDEW 120408	●	●	●	●			12,700	12,700	4,76	4,40	0,8

SPARE PARTS

Diameter of cutter	Clamping screw	Shank	Handle	Screw for taper clamping
40	US 3006-T09P	D-T07P/T09P	FG-15	HS 0830C
50 ÷ 66	US 4011-T15P	D-T08P/T15P	FG-15	HS 1030C
80	US 4011-T15P	D-T08P/T15P	FG-15	-

● New item in the assortment

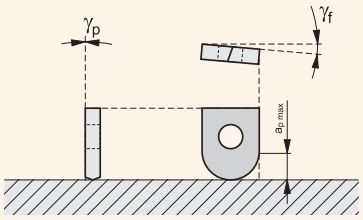
● Stock assortment ○ Non-stock assortment All dimensions [mm]

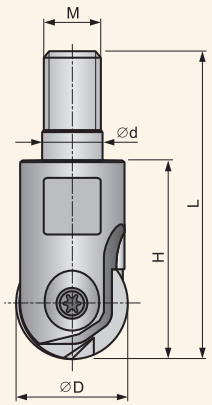
See latest price list for current availability

SRC-A

BALLNOSE EXCHANGEABLE HEADS

γ_p	0°	κ_r	
γ_f	-7° ÷ -14°	$a_{p\,max}$	2 ÷ 5 mm





Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	d_1	L	H	d	Inserts	Cooling	[kg]
08K2R30M06-SRC08-A	○	8	6,5	M6	45	19	RC 08, RC 08-F		
10K2R30M06-SRC10-A	○	10	6,5	M6	45	19	RC 10, RC 10F		
12K2R30M08-SRC12-A	●	12	8,5	M8	48	19	RC 12, RC 12-F		
16K2R35M08-SRC16-A	●	16	8,5	M8	53	35	RC 16, RC 16-F		
20K2R35M10-SRC20-A	●	20	10,5	M10	54	35	RC 20, RC 20-F		

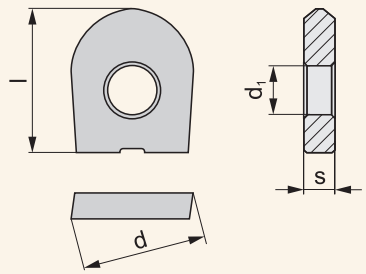
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

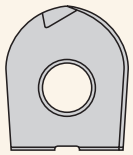
See latest price list for current availability

SRC-A

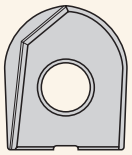
BALLNOSE EXCHANGEABLE HEADS



RC



RC



RC-F

INDEXABLE CUTTING INSERTS

ISO	Grades			Dimensions [mm]			
	M8310	7215	7230	d	d_1	l	s
RC 08	●	●	●	8,000	3,000	9,50	2,00
RC 10	●	●	●	10,000	4,000	11,50	2,50
RC 12	●	●	●	12,000	5,000	12,00	2,50
RC 16	●	●	●	16,000	5,000	14,00	3,00
RC 20	●	●	●	20,000	5,000	16,00	3,00
RC 08-F		●		8,000	3,000	9,50	2,00
RC 10-F		●	○	10,000	4,000	11,50	2,50
RC 12-F		●	○	12,000	5,000	12,00	2,50
RC 16-F		●	●	16,000	5,000	14,00	3,00
RC 20-F		●	●	20,000	5,000	16,00	3,00

SPARE PARTS

Diameter of cutter	Clamping screw	Screwdriver
		
8	CS 3007-T08P	SDR T08P
10	CS 4008-T15P	SDR T15P
12	CS 5009-T20P	SDR T20P
16	CS 5013-T20P	SDR T20P
20	CS 5015-T20P	SDR T20P

● New item in the assortment

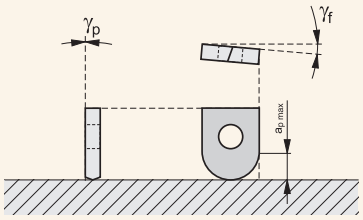
● Stock assortment ○ Non-stock assortment All dimensions [mm]

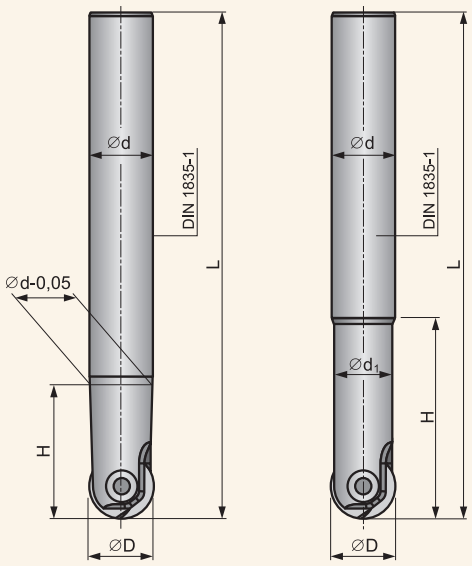
See latest price list for current availability

K2-SRC

BALLNOSE MILLING CUTTERS FOR COPYING

γ_p	0°	κ_r	
γ_f	-7° ÷ -14°	$a_{p\,max}$	2 ÷ 8 mm





Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	d_1	L	H	d	Inserts	Cooling	[kg]
SRC TYPE A									
08K2R025A10-SRC08-A	●	8	7,5	110	25	10	RC 08, RC 08-F, LC 08-KP, LC 08-KPF	-	0,1
10K2R030A12-SRC10-A	●	10	9	130	30	12	RC 10, RC 10F, LC10-KP, LC 10-KPF	-	0,1
12K2R030A12-SRC12-A	●	12	10,5	130	30	12	RC 12, RC 12-F, LC 12..-CH, LC 12..-RE	-	0,2
16K2R035A16-SRC16-A	●	16	14	140	35	16	RC 16, RC 16-F	-	0,3
20K2R045A20-SRC20-A	●	20	18	160	45	20	RC 20, RC 20-F	-	0,4
25K2R045A25-SRC25-A	●	25	22,4	160	45	25	RC 25, RC 25-F	-	0,7
32K2R060A32-SRC32-A	●	32	28,6	180	60	32	RC 32, RC 32-F	-	1,1
SRC TYPE B									
08K2R050A12-SRC08-A	●	8	-	140	13,5	12	RC 08, RC 08-F, LC08-KP, LC 08-KPF	-	0,1
10K2R060A16-SRC10-A	●	10	-	150	19,5	16	RC 10, RC 10F, LC10-KP, LC 10-KPF	-	0,1
12K2R060A16-SRC12-A	●	12	-	160	24,5	16	RC 12, RC 12-F, LC 12..-CH, LC 12..-RE	-	0,2
16K2R065A20-SRC16-A	●	16	-	175	31,5	20	RC 16, RC 16-F	-	0,3
20K2R080A25-SRC20-A	●	20	-	190	33,5	25	RC 20, RC 20-F	-	0,4

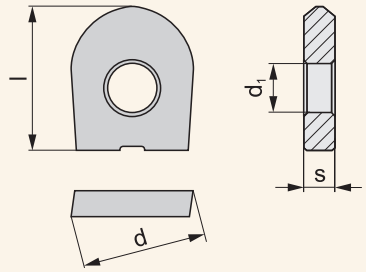
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

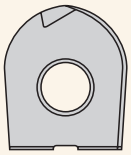
See latest price list for current availability

K2-SRC

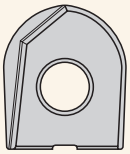
BALLNOSE MILLING CUTTERS FOR COPYING



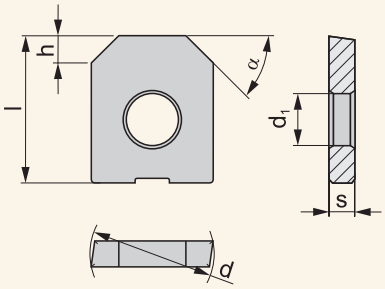
RC



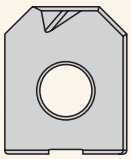
RC



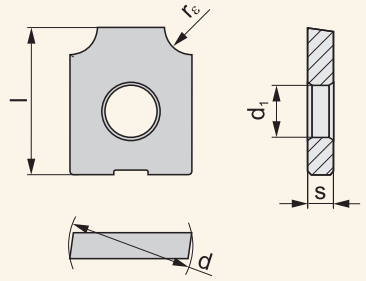
RC..-F



LC



RC 12..-CH



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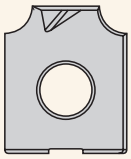
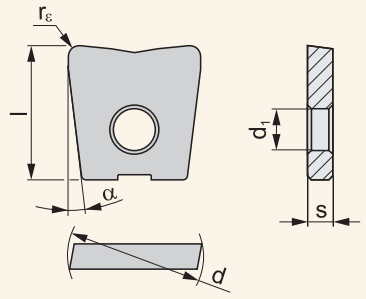
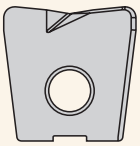


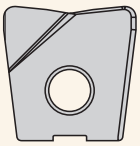
LC 12..-RE



LC-KP



LC..-KP



LC..-KPF

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

K2-SRC

BALLNOSE MILLING CUTTERS FOR COPYING

INDEXABLE CUTTING INSERTS

ISO	Grades			Dimensions [mm]				
	M8310	7215	7230	d	d_1	l	s	r
RC 08	●	●	●	8,000	3,000	9,50	2,00	-
RC 10	●	●	●	10,000	4,000	11,50	2,50	-
RC 12	●	●	●	12,000	5,000	12,00	2,50	-
RC 16	●	●	●	16,000	5,000	14,00	3,00	-
RC 20	●	●	●	20,000	5,000	16,00	3,00	-
RC 25	●	●	●	25,000	6,000	21,50	4,00	-
RC 32		●	○	32,000	8,000	25,90	5,00	-
RC 08-F		●		8,000	3,000	9,50	2,00	-
RC 10-F		●	○	10,000	4,000	11,50	2,50	-
RC 12-F		●	○	12,000	5,000	12,00	2,50	-
RC 16-F		●	●	16,000	5,000	14,00	3,00	-
RC 20-F		●	●	20,000	5,000	16,00	3,00	-
RC 25-F		●	○	25,000	6,000	21,50	4,00	-
RC 32-F		○		32,000	8,000	25,90	5,00	-
LC 0806-KP	●	●	●	8,000	3,000	9,50	2,00	0,6
LC 0810-KP	●	○	○	8,000	3,000	9,50	2,00	1,0
LC 1008-KP	●	●	○	10,000	4,000	11,50	2,50	0,8
LC 1010-KP	●	●	●	10,000	4,000	11,50	2,50	1,0
LC 0806-KPF		●	○	8,000	3,000	9,50	2,00	0,6
LC 1008-KPF		●	○	10,000	4,000	11,50	2,50	0,8
LC 1245-CH		○		12,000	5,000	14,00	2,50	-
LC 1260-CH		○		12,000	5,000	14,00	2,50	-
LC 1210-RE		○		12,000	5,000	14,00	2,50	1,00
LC 1220-RE		○		12,000	5,000	14,00	2,50	2,00
LC 1230-RE		○		12,000	5,000	14,00	2,50	3,00

SPARE PARTS

Diameter of cutter	Clamping screw	Screwdriver
		
8	CS 3007-T08P	SDR T08P
10	CS 4008-T15P	SDR T15P
12	CS 5009-T20P	SDR T20P
16	CS 5013-T20P	SDR T20P
20	CS 5015-T20P	SDR T20P
25	CS 6020-T20P	SDR T20P
32	CS 8025-T30P	SDR T30P

● New item in the assortment

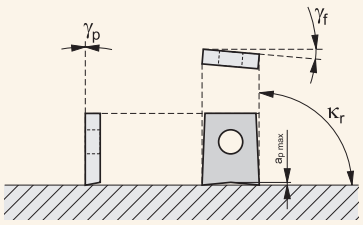
● Stock assortment ○ Non-stock assortment All dimensions [mm]

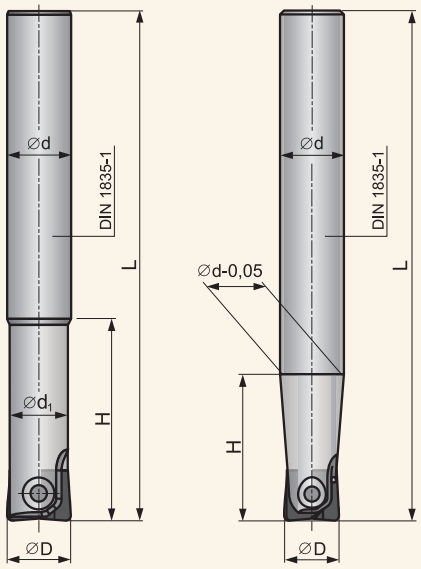
See latest price list for current availability

K2-SLC

SHOULDER END MILLING CUTTERS

γ_p	0°	κ_r	90°
γ_f	-7° ÷ -14°	$a_{p\,max}$	0,6 ÷ 4,0 mm





Z* - Number of teeth

ISO	Assortment	Dimensions [mm] D	d_1	L	H	d	Inserts	Cooling	[kg]
SLC / SRC TYPE A									
08K2R025A10-SRC08-A	●	8	7,5	110	25	10	LC 08-KP; LC 08-KPF; RC 08; RC 08-F	-	0,1
10K2R030A12-SRC10-A	●	10	9	130	30	12	LC 10-KP; LC 10-KPF; RC 10; RC 10-F	-	0,1
12K2R030A12-SLC12-A	●	12	10,5	130	30	12	LC 12-KP; LC 12-KPF; LC 12..-RI	-	0,2
16K2R035A16-SLC16-A	●	16	14	140	35	16	LC 16-KP; LC 16-KPF	-	0,3
20K2R045A20-SLC20-A	●	20	18	160	45	20	LC20-KP; LC20-KPF	-	0,4
SLC / SRC TYPE B									
08K2R050A12-SRC08-A	●	8	-	140	13,5	12	LC 08-KP; LC 08-KPF; RC 08; RC 08-F	-	0,1
10K2R060A16-SRC10-A	●	10	-	150	19,5	16	LC 10-KP; LC 10-KPF; RC 10; RC 10-F	-	0,1

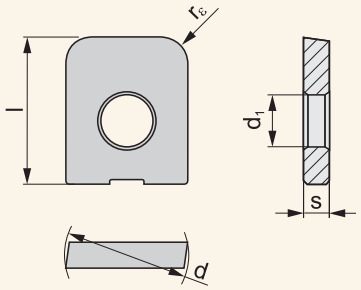
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

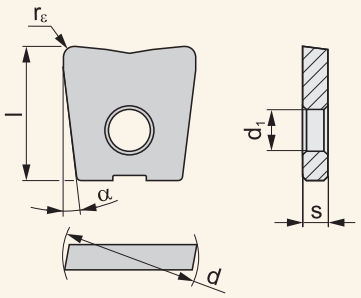
See latest price list for current availability

K2-SLC

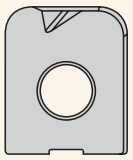
SHOULDER END MILLING CUTTERS



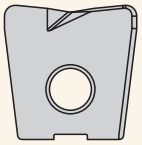
LC



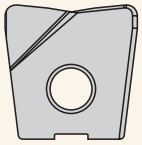
LC-KP



RC 12..RI



RC KP



RC KPF

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

K2-SLC

SHOULDER END MILLING CUTTERS

INDEXABLE CUTTING INSERTS

ISO	Grades			Dimensions [mm]				
	M8310	7215	7230	d	d_1	l	s	r
LC 0806-KP	●	●	●	8,000	3,000	9,50	2,00	0,6
LC 0810-KP	●	○	○	8,000	3,000	9,50	2,00	1,0
LC 1008-KP	●	●	○	10,000	4,000	11,50	2,50	0,8
LC 1010-KP	●	●	●	10,000	4,000	11,50	2,50	1,0
LC 1210-KP	●	●	●	12,000	5,000	14,00	2,50	1,0
LC 1220-KP		○	○	12,000	5,000	14,00	2,50	2,0
LC 1610-KP	●	●	●	16,000	5,000	16,00	3,00	1,0
LC 1613-KP	●	●	○	16,000	5,000	16,00	3,00	1,3
LC 1630-KP		○	○	16,000	5,000	16,00	3,00	3,0
LC 2010-KP	●	○	●	20,000	5,000	18,00	3,00	1,0
LC 2016-KP	●	●	○	20,000	5,000	18,00	3,00	1,6
LC 2040-KP		○	○	20,000	5,000	18,00	3,00	4,0
LC 0806-KPF		●	○	8,000	3,000	9,50	2,00	0,6
LC 1008-KPF		●	○	10,000	4,000	11,50	2,50	0,8
LC 1210-KPF		○	●	12,000	5,000	14,00	2,50	1,0
LC 1613-KPF		●	○	16,000	5,000	16,00	3,00	1,3
LC 2016-KPF		○	●	20,000	5,000	18,00	3,00	1,6
LC 1215-RI		○		12,000	5,000	14,00	2,50	1,5
LC 1220-RI		○		12,000	5,000	14,00	2,50	2,0
LC 1230-RI		○		12,000	5,000	14,00	2,50	3,0

SPARE PARTS

Diameter of cutter	Clamping screw 	Screwdriver 
8	CS 3007-T08P	SDR T08P
10	CS 4008-T15P	SDR T15P
12	CS 5009-T20P	SDR T20P
16	CS 5013-T20P	SDR T20P
20	CS 5015-T20P	SDR T20P

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

MILLING INSERTS

ADMX 11/16

NEW INSERTS FOR MILLING STAINLESS STEEL

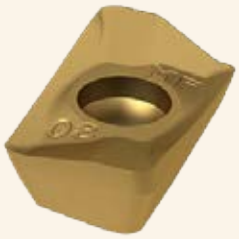
The ADMX11 and ADMX16 ranges of inserts for shoulder milling have been expanded with two new positive geometries - MF and MM - for machining stainless steel.
Positive rake angle and a positive land provide low cutting resistance.

NEW PRODUCTS

- **Two new geometries, MM and MF,** designed for the machining of stainless steel. They are also suitable for high temperature alloys and mild carbon steel.

BENEFITS

- **Lower cost of tooling and tool exchange**. New geometries **increase durability of the inserts,** both when machining with and without coolant.
- **Low power demand.** Positive geometry MF and MM provides low cutting resistance, reduced cutting forces and power consumption of the machine.

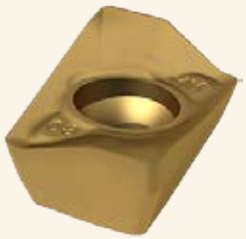


MF

GEOMETRY MF

Sharp and highly positive geometry

- Light machining
- **Finishing operations**
- Ideal for machining stainless steel
- Also suitable for machining superalloys, low carbon steel and non-ferrous materials



MM

GEOMETRY MM

Sharp and highly positive geometry **with stabilised cutting edge**

- **Universal geometry**
- Medium and low feeds
- Finishing and semi-roughing
- Ideal for machining stainless steel
- Also suitable for machining superalloys and low carbon steel

LNGX 12

NEW INSERTS FOR MILLING STAINLESS STEEL

The LNGX 12 range of inserts for shoulder milling has been expanded with two new positive geometries. MF and MM geometries are an ideal choice for stainless steel milling.

NEW PRODUCTS

- **Two new geometries, MM and MF,** designed for the machining of stainless steels. They are also suitable for high temperature alloys and mild carbon steel.

BENEFITS

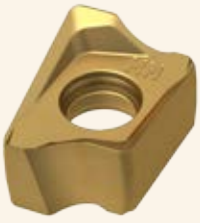
- **Increased durability of inserts:** Low build-up of heat (due to low contact of chip and insert).
- **Low power demand.** More positive geometry MM compared to existing geometry M provides lower cutting resistance.

MF

GEOMETRY MF

Sharp and positive geometry

- Light machining, **finishing operations**
- Light to medium cutting conditions
- Ideal for machining stainless steels
- Also suitable for machining high temperature alloys, low carbon steel, and non-ferrous materials



MM

GEOMETRY MM

Positive geometry **with stabilised cutting edge**

- Medium and low feeds
- Light to medium cutting conditions
- Ideal for machining stainless steels
- Also suitable for machining high temperature alloys and low carbon steels

LNGU/LNMU 16

NEW INSERTS FOR ECONOMICAL SHOULDER MILLING

The LNGU/LNMU 16 inserts have been expanded with new radii and geometry options. We offer a complete line of inserts to support economical and reliable shoulder milling in a wide range of materials.

GEOMETRY

RADIUS 0,8 – 4,0 mm

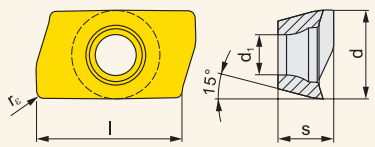
NEW PRODUCTS

- New geometry of inserts F and M for machining stainless steel, steel and cast iron
- Highly positive geometry FA for machining non-ferrous metals
- New options for radii 1.6, 2.0, 3.0, and 4.0

BENEFITS

- Economical shoulder milling (four cutting edges)
- Complete line of geometries and radii
- A versatile tool for a wide range of machined materials (of groups P, M, K, N).
- Stability and operational reliability

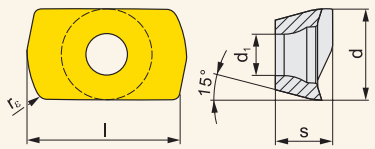
ADEX-FM



Dimensions	l	d	d_1	s		
1606	16,000	9,950	4,50	6,25		

Geometry	ISO	Grade							Radius	Feed/tooth		Depth of cut	
		M9325	M9340	M8310	M8340	8215	8230	8240	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**ADEX 160608SR-FM**	●	●	●	●	●	●	●	0,8	0,10	0,25	0,3	13,0

ADEX-HF



Dimensions	l	d	d_1	s		
11T3	10,665	6,530	2,90	3,80		
1606	15,575	9,950	4,50	5,88		

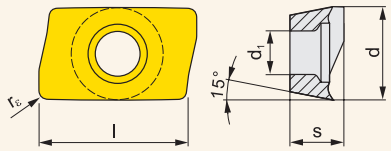
Geometry	ISO	Grade							Radius	Feed/tooth		Depth of cut	
		M8310	M8340	8215	8230				r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**ADEX 11T308SR-HF**	●	●	●	●				0,8	0,60	1,30	0,1	0,6
	ADEX 160612SR-HF	●	●	●	●				1,2	0,60	1,30	0,3	1,3

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

ADMX 07



Dimensions	l	d	s	d_1
0702	7,000	4,482	2,48	2,20

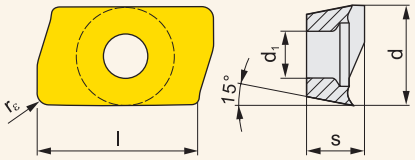
Geometry	ISO	Grade					Radius	Feed/tooth		Depth of cut	
		M9340	M8310	M8340	8215	8230	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**ADMX 070202SR-M**			●	●	●	0,2	0,03	0,12	0,1	5,0
	ADMX 070204SR-M	●	●	●	●	●	0,4	0,03	0,12	0,1	5,0
	ADMX 070208SR-M	●	●	●	●	●	0,8	0,03	0,12	0,1	5,0
	ADMX 070220SR-M			●		●	2,0	0,03	0,12	0,1	5,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

ADMX 11



Dimensions	l	d	d_1	s
11T3	11,000	6,530	2,90	3,97

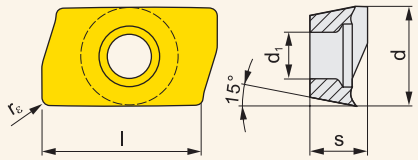
Geometry	ISO	Grade									Radius	Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
F	ADMX 11T304SR-F				●	●	●	●	●	●	0,4	0,07	0,12	0,2	9,0
	ADMX 11T308SR-F				●		●	●	●	●	0,8	0,07	0,12	0,2	9,0
M	ADMX 11T302SR-M						●		●		0,2	0,10	0,18	0,2	9,0
	ADMX 11T304SR-M			●	●	●	●	●	●	●	0,4	0,10	0,18	0,2	9,0
	ADMX 11T308SR-M	●	●	●	●	●	●	●	●	●	0,8	0,10	0,18	0,2	9,0
	ADMX 11T310SR-M						●		●		1,0	0,10	0,22	0,2	9,0
	ADMX 11T312SR-M						●	●	●		1,2	0,10	0,22	0,2	9,0
	ADMX 11T316SR-M					●	●	●	●	●	1,6	0,10	0,22	0,2	9,0
	ADMX 11T320SR-M						●		●		2,0	0,10	0,22	0,2	9,0
	ADMX 11T325SR-M						●		●		2,5	0,10	0,22	0,2	9,0
	ADMX 11T330SR-M						●		●		3,0	0,10	0,22	0,2	9,0
R	ADMX 11T308PR-R	●	●	●		●	●	●	●	●	0,8	0,15	0,25	0,8	9,0
	ADMX 11T316PR-R			●			●	●	●		1,6	0,10	0,22	0,8	9,0
MF	ADMX 11T304SR-MF						●				0,4	0,07	0,14	0,2	9,0
	ADMX 11T308SR-MF						●				0,8	0,07	0,14	0,2	9,0
MM	ADMX 11T304SR-MM						●				0,4	0,10	0,18	0,2	9,0
	ADMX 11T308SR-MM						●				0,8	0,10	0,18	0,2	9,0
	ADMX 11T312SR-MM						●				1,2	0,10	0,18	0,2	9,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

ADMX 16



Dimensions	l	d	d_1	s
1606	16,000	9,950	4,50	6,25

Geometry	ISO	Grade									Radius	Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
F	ADMX 160608SR-F				●	●	●	●	●	●	0,8	0,07	0,15	0,3	13,0
M	ADMX 160604SR-M						●	●	●		0,4	0,10	0,25	0,3	13,0
M	ADMX 160608SR-M	●	●	●	●	●	●	●	●	●	0,8	0,10	0,25	0,3	13,0
M	ADMX 160616SR-M			●		●	●	●	●	●	1,6	0,10	0,30	0,3	13,0
M	ADMX 160620SR-M						●		●		2,0	0,10	0,25	0,3	13,0
M	ADMX 160630SR-M						●		●		3,0	0,10	0,25	0,3	13,0
M	ADMX 160632SR-M			●			●	○	●	●	3,2	0,10	0,30	0,3	13,0
M	ADMX 160640SR-M						●		●		4,0	0,10	0,25	0,3	13,0
M	ADMX 160650SR-M						●		●		5,0	0,10	0,25	0,3	13,0
R	ADMX 160608PR-R	●	●	●		●	●	●	●	●	0,8	0,17	0,35	1,0	13,0
R	ADMX 160616PR-R	●	●	●			●	●	●		1,6	0,17	0,35	1,0	13,0
M	ADMX 160608SR-MF						●				0,8	0,05	0,16	0,3	13,0
MM	ADMX 160604SR-MM						●				0,4	0,14	0,22	0,3	13,0
MM	ADMX 160608SR-MM						●				0,8	0,14	0,22	0,3	13,0
MM	ADMX 160616SR-MM						●				1,6	0,14	0,22	0,3	13,0

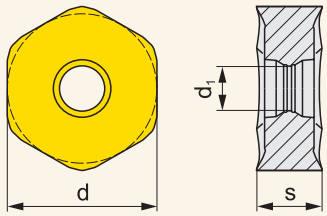
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR MILLING

HNGX 06



Dimensions	d	s	d_1
0604	10,500	5,260	3,70

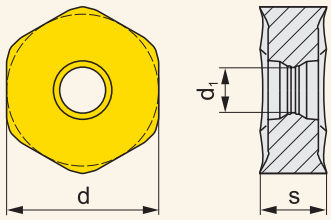
Geometry	ISO	Grade									Radius	Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**HNGX 0604ANSN-F**				●	●	●	●	●	●		0,08	0,17	0,3	3,0
	**HNGX 0604ANSN-M**	●	●	●	●	●	●	●	●	●		0,13	0,25	0,6	3,0
	**HNGX 0604ANSN-R**	●	●	●		●	●	●	●	●		0,18	0,30	1,0	3,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

HNGX 09



Dimensions	d	s	d_1
0906	16,500	6,350	4,90

Geometry	ISO	Grade									Radius	Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**HNGX 0906ANEN-FF**				●			●	●			0,05	0,20	0,5	5,0
	**HNGX 0906ANSN-F**				●	●	●	●	●	●		0,10	0,20	0,5	5,0
	**HNGX 0906ANSN-M**	●	●	●	●	●	●	●	●	●		0,17	0,35	0,8	5,0
	**HNGX 0906ANSN-R**	●	●	●		●	●	●	●	●		0,30	0,50	1,0	5,0

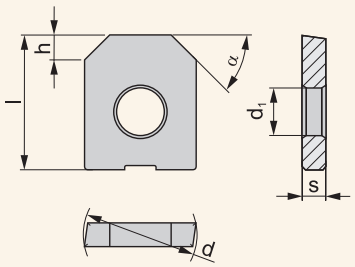
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR MILLING

LC12-CH



Dimensions	d	d_1	h	s	α
1245	12,000	5,000	3,00	2,50	45°
1260	12,000	5,000	5,00	2,50	60°

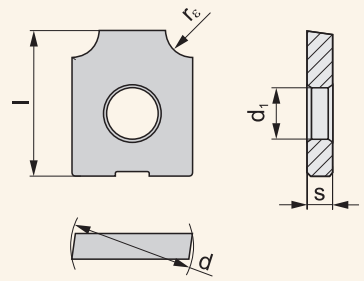
Geometry	ISO	Grade	Radius	Feed/tooth		Depth of cut	
		7215	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**LC 1245-CH**	○		0,08	0,25	0,1	2,0
	LC 1260-CH	○		0,08	0,25	0,1	2,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

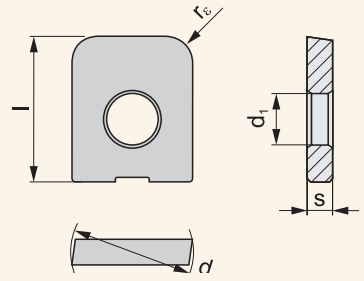
LC12-RE



Dimensions	d	d_1	l	s	r_ε	
1210	12,000	5,000	14,00	2,50	1,0	
1220	12,000	5,000	14,00	2,50	2,0	
1230	12,000	5,000	14,00	2,50	3,0	

Geometry	ISO	Grade															Radius	Feed/tooth		Depth of cut	
		7215															r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**LC 1210-RE**	○															1,0	0,08	0,25	0,1	1,0
	LC 1220-RE	○															2,0	0,08	0,25	0,1	2,0
	LC 1230-RE	○															3,0	0,08	0,25	0,1	3,0

LC12-RI



Dimensions	d	d_1	l	s	r_ε	
1215	12,000	5,000	14,00	2,50	1,5	
1220	12,000	5,000	14,00	2,50	2,0	
1230	12,000	5,000	14,00	2,50	3,0	

Geometry	ISO	Grade															Rádius	Feed/tooth		Depth of cut	
		7215															r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**LC 1215-RI**	○															1,5	0,08	0,25	0,1	1,5
	LC 1220-RI	○															2,0	0,08	0,25	0,1	2,0
	LC 1230-RI	○															3,0	0,08	0,25	0,1	3,0

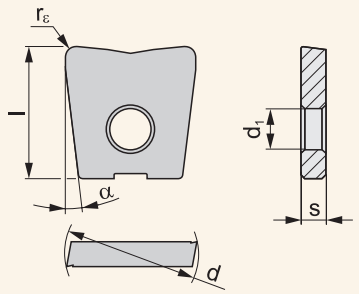
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR MILLING

LC12-KP (KPF)



Dimensions	d	l	d_1	s	α
08	8,000	9,500	3,00	2,00	3°
10	10,000	11,500	4,00	2,50	3°
12	12,000	14,000	5,00	2,50	7°
16	16,000	16,000	5,00	3,00	7°
20	20,000	18,000	5,00	3,00	7°

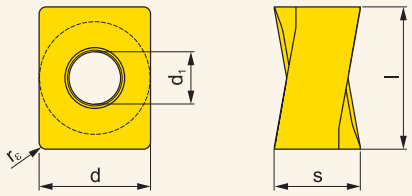
Geometry	ISO	Grade			Radius	Feed/tooth		Depth of cut	
		M8310	7215	7230	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**LC 0806-KP**	●	●	●		0,08	0,20	0,1	0,6
	LC 0810-KP	●	○	○		0,08	0,20	0,1	1,0
	LC 1008-KP	●	●	○		0,08	0,25	0,1	0,8
	LC 1010-KP	●	●	●		0,08	0,25	0,1	1,0
	LC 1210-KP	●	●	●		0,08	0,25	0,1	1,0
	LC 1220-KP		○	○		0,08	0,25	0,1	2,0
	LC 1610-KP	●	●	●		0,08	0,30	0,1	1,0
	LC 1613-KP	●	●	○		0,08	0,30	0,1	1,3
	LC 1630-KP		○	○		0,08	0,30	0,1	3,0
	LC 2010-KP	●	○	●		0,08	0,35	0,1	1,0
	LC 2016-KP	●	●	○		0,08	0,35	0,1	1,6
	LC 2040-KP		○	○		0,08	0,35	0,1	4,0
	**LC 0806-KPF**		●	○		0,05	0,20	0,1	0,6
	LC 1008-KPF		●	○		0,05	0,20	0,1	0,8
	LC 1210-KPF		○	●		0,05	0,25	0,1	1,0
	LC 1613-KPF		●	○		0,05	0,30	0,1	1,3
	LC 2016-KPF		○	●		0,05	0,35	0,1	1,6

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

LNGU 16



Dimensions	l	d	d_1	s		
1607	16,6	13,200	5,70	10,00		

Geometry	ISO	Grade							Radius	Feed/tooth		Depth of cut	
		M9315	M9325	M8340	8215	8230	8240	HF7	r_e	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**LNGU 160708SR-M**	●	●	●	●	●	●		0,8	0,10	0,30	1,0	13,0
	**LNGU 160708FR-FA**							●	0,8	0,05	0,45	0,3	13,0

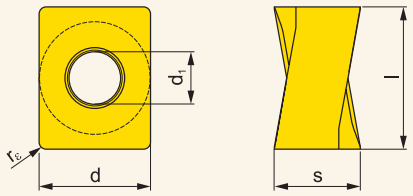
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR MILLING

LNMU 16



Dimensions	l	d	d_1	s
1607	16,6	13,200	5,70	10,00

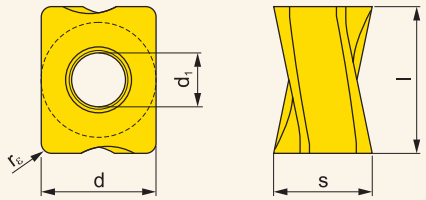
Geometry	ISO	Grade							Radius	Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M8310	M8340	8215	8230	r_e	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	LNMU 160708ER-F					●	●	●	0,8	0,08	0,20	0,3	13,0
	LNMU 160708SR-M			●		●	●	●	0,8	0,10	0,30	0,3	13,0
	LNMU 160720SR-M					●		●	2,0	0,10	0,30	0,3	13,0
	LNMU 160730SR-M					●		●	3,0	0,10	0,30	0,3	13,0
	LNMU 160740SR-M					●		●	4,0	0,10	0,30	0,3	13,0
	LNMU 160708SR-R	●	●	●	●	●	●	●	0,8	0,15	0,40	1,0	13,0
	LNMU 160716SR-R		●	●	●	●		●	1,6	0,15	0,40	1,0	13,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

LNGX 12



Dimensions	l	d	s	d_1
1205	12,000	9,500	7,10	4,50

Geometry	ISO	Grade											Radius	Feed/tooth		Depth of cut	
		M0315	M5315	M9315	M9325	M9340	M8310	M8340	8215	8230	8240	HF7	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
F	LNGX 120504ER-F							●	●	●			0,4	0,04	0,15	0,2	9,0
	LNGX 120508ER-F						●	●	●	●			0,8	0,04	0,15	0,2	9,0
M	LNGX 120504ER-M							●		●			0,4	0,05	0,25	0,2	9,0
	LNGX 120508ER-M			●	●	●	●	●	●	●	●		0,8	0,05	0,25	0,2	9,0
	LNGX 120510ER-M							●		●			1,0	0,05	0,25	0,2	9,0
	LNGX 120512ER-M							●		●			1,2	0,05	0,25	0,2	9,0
	LNGX 120516ER-M							●		●			1,6	0,05	0,25	0,2	9,0
	LNGX 120520ER-M							●		●			2,0	0,05	0,25	0,2	9,0
R	LNGX 120508SR-R		●	●	●	●	●	●	●	●			0,8	0,05	0,25	1,0	9,0
	LNGX 120516SR-R				●			●	●	●			1,6	0,05	0,25	1,0	9,0
MF	LNGX 120504ER-MF							●					0,4	0,05	0,25	0,2	9,0
	LNGX 120508ER-MF							●					0,8	0,05	0,25	0,2	9,0
MM	LNGX 120508SR-MM							●					0,8	0,05	0,25	0,2	9,0
FA	LNGX 120504FR-FA											●	0,4	0,03	0,35	0,2	9,0
	LNGX 120508FR-FA	●										●	0,8	0,03	0,35	0,2	9,0

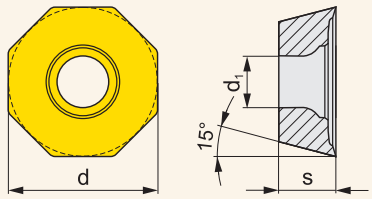
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR MILLING

ODMT



Dimensions	d	s	d_1
0504	12,700	4,760	4,40
0605	15,9	5,560	5,50

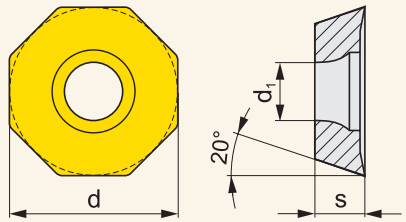
Geometry	ISO	Grade							Radius	Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M8340	8215	8230	8240	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**ODMT 0504ZZN**	●	●	●	●		●	●		0,12	0,45	1,0	8,6
	ODMT 0605ZZN	●	●	●	●	●	●	●		0,15	0,45	1,0	8,6

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

OEHT 06



Dimensions	d	s	d_1
0604	16,100	4,760	5,50

Geometry	ISO	Grade						Radius	Feed/tooth		Depth of cut	
		M0315	M9325	M8310	M8340	8230	HF7	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	OEHT 0604AEER-MF			●	●	●			0,08	0,20	0,5	3,3
	OEHT 0604AEER-MM		●	●	●	●			0,08	0,25	0,5	3,3
	OEHT 0604AESR-M		●	●	●	●			0,08	0,35	0,8	3,3
	OEHT 0604AEFR-FA	●					●		0,08	0,20	0,8	3,3

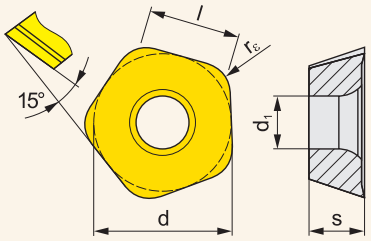
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR MILLING

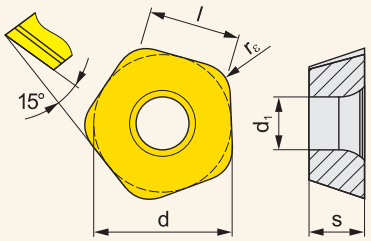
PDKT 09-FM



Dimensions	l	d	s	d_1		
0905	9,000	13,500	5,47	5,50		

Geometry	ISO	Grade														Radius	Feed/tooth		Depth of cut	
		M8310	M8345	8215	8230											r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**PDKT 090530ER-FM**	●	●	●	●											3,0	0,50	2,50	0,3	2,0

PDMW 09



Dimensions	l	d	s	d_1		
0905	9,000	13,500	5,47	5,50		

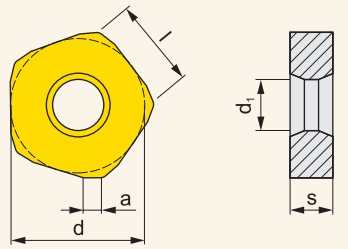
Geometry	ISO	Grade														Radius	Feed/tooth		Depth of cut	
		M9315	M9325	M8310	M8345											r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**PDMW 090530SR**	●	●	●	●											3,0	0,50	2,50	0,3	2,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

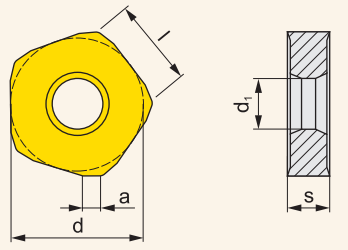
PNMQ 13



Dimensions	l	d	s	d_1	a	
1308	13,000	24,400	7,94	10,00	3,00	

Geometry	ISO	Grade					Radius	Feed/tooth		Depth of cut	
		M9315	M9340	M8345	8230		r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	PNMQ 1308DNSN	●	●	●	●			0,30	0,70	0,5	10,0

PNMU 13-M



Dimensions	l	d	s	d_1	a	
1308	13,000	24,400	7,94	10,00	3,00	

Geometry	ISO	Grade					Radius	Feed/tooth		Depth of cut	
		M9315	M9340	M8345	8215	8230	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	PNMU 1308DNSR-M	●	●	●	●	●		0,25	0,70	0,5	10,0

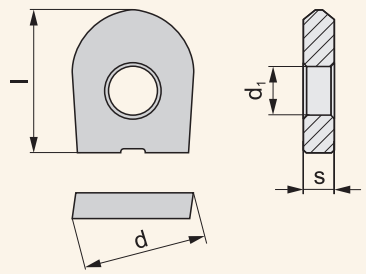
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR MILLING

RC(F)



Dimensions	d	d_1	l	s
08	8,000	3,000	9,50	2,00
10	10,000	4,000	11,50	2,50
12	12,000	5,000	12,00	2,50
16	16,000	5,000	14,00	3,00
20	20,000	5,000	16,00	3,00
25	25,000	6,000	21,50	4,00
32	32,000	8,000	25,90	5,00

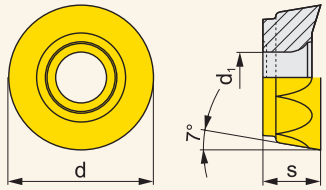
Geometry	ISO	Grade			Radius	Feed/tooth		Depth of cut	
		M8310	7215	7230	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**RC 08**	●	●	●		0,10	0,30	0,3	0,8
	RC 10	●	●	●		0,10	0,33	0,3	1,0
	RC 12	●	●	●		0,10	0,35	0,4	1,2
	RC 16	●	●	●		0,10	0,40	0,5	1,6
	RC 20	●	●	●		0,10	0,50	0,6	2,0
	RC 25	●	●	●		0,10	0,55	0,6	2,5
	RC 32		●	○		0,10	0,60	0,6	3,2
	**RC 08-F**		●			0,05	0,30	0,3	0,8
	RC 10-F		●	○		0,05	0,33	0,3	1,0
	RC 12-F		●	○		0,05	0,35	0,4	1,2
	RC 16-F		●	●		0,05	0,40	0,5	1,6
	RC 20-F		●	●		0,05	0,50	0,5	2,0
	RC 25-F		●	○		0,05	0,50	0,6	2,5
	RC 32-F		○			0,05	0,60	0,6	3,2

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

RCMT



Dimensions	d	s	d_1
1204	12,000	4,760	4,40
1606	16,000	6,350	5,50
2006	20,000	6,350	5,50

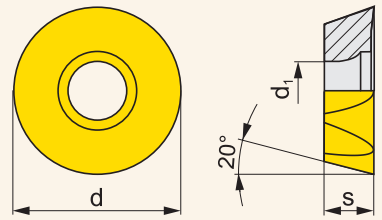
Geometry	ISO	Grade							Radius	Feed/tooth		Depth of cut	
		M9315	M9325	M9340	M8310	M8345	8215	8230	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	RCMT 1204MOEN-F				●		●	●		0,05	0,20	0,3	6,0
	RCMT 1606MOEN-F				●			●		0,05	0,25	0,3	8,0
	RCMT 2006MOSN-F			●				●		0,08	0,30	0,3	10,0
	RCMT 1204MOSN-M		●	●	●	●		●		0,15	0,40	0,3	6,0
	RCMT 1606MOSN-M		●	●		●		●		0,15	0,45	0,3	8,0
	RCMT 2006MOSN-M	●	●	●		●		●		0,15	0,45	0,3	10,0
	RCMT 1204MOEN-R	●		●	●			●		0,20	0,50	0,3	6,0
	RCMT 1204MOSN-R	●				●				0,20	0,50	0,3	6,0
	RCMT 1606MOSN-R		●		●	●		●		0,20	0,60	0,3	8,0
	RCMT 2006MOSN-R		●			●		●		0,20	0,60	0,3	10,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

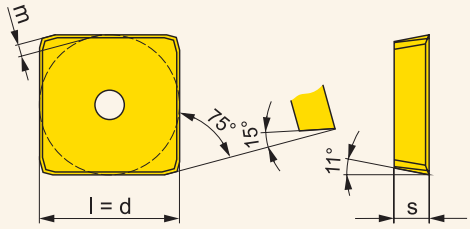
REHT 16



Dimensions	d	s	d_1
1604	16,000	4,760	5,50

Geometry	ISO	Grade														Radius	Feed/tooth		Depth of cut	
		M9325	M8310	M8340	8230											r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	REHT 1604M0EN-MM	●	●	●	●												0,08	0,25	0,5	4,0
	REHT 1604M0SN-M	●	●	●	●												0,08	0,35	0,8	4,0

SPKN EDS



Dimensions	l	d	s	m
1203	12,700	12,700	3,18	0,88
1504	15,900	15,875	4,76	1,26

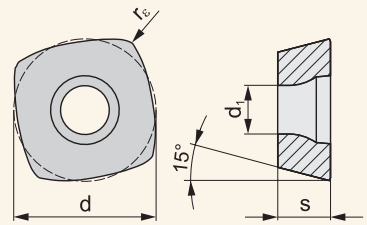
Geometry	ISO	Grade														Radius	Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M8340	8215	8230	8240	H10	S26						r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	SPKN 1203EDSR		●	●	●	●	●	●	●	●							0,15	0,30	1,0	9,0
	SPKN 1203EDSL						○										0,15	0,30	1,0	9,0
	SPKN 1504EDSR	●	●	●	●	●	●	●	●	●							0,20	0,40	1,0	13,0
	SPKN 1504EDSL				○			○									0,20	0,40	1,0	13,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

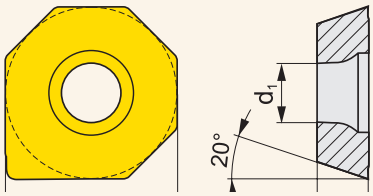
ZDCW



Dimensions	l	d	s	d_1		
0703	6,800	6,800	3,18	2,40		
09T3	9,500	9,525	3,97	3,40		

Geometry	ISO	Grade						Radius	Feed/tooth		Depth of cut	
		M8310	M8325	M8345	7205	7215	7230	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**ZDCW 070304**	●	●	●		●	●	0,4	0,15	1,50	0,3	1,0
	ZDCW 09T304	●	●	●	○	●	●	0,4	0,30	2,00	0,3	1,0

XEHT 06



Dimensions	d	s	d_1			
0604	16,100	4,760	5,50			

Geometry	ISO	Grade	Radius	Feed/tooth		Depth of cut	
		M8310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**XEHT 0604AESR**	●		0,08	0,35	0,1	0,5

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

TURNING INSERTS

SF, SM

NEW INSERTS FOR TURNING OF DIFFICULT-TO-MACHINE MATERIALS

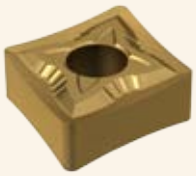
New positive chip-breakers have been designed specifically for turning of difficult-to-machine materials, promoting longer insert durability.

NEW PRODUCTS

- **Two new positive geometries,** SF and SM
- Inserts with new chip-breakers in **new grades** T6310 and H07 for difficult-to-machine materials.

BENEFITS

- **Longer durability** of inserts with the same cutting conditions, or **higher cutting speed** with the same durability
- Chip-breakers are also designed for turning stainless steel and mild steel
- Suitable for turning sections with thin walls

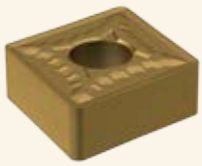


SF

CHIP-BREAKER SF

Sharp positive geometry with inclination cutting edge

- **Finishing machining**
- Very low cutting forces
- Continuous cut
- Suitable for materials with poor machinability, such as stainless steels, mild steels and high temperature alloys



SM

CHIP-BREAKER SM

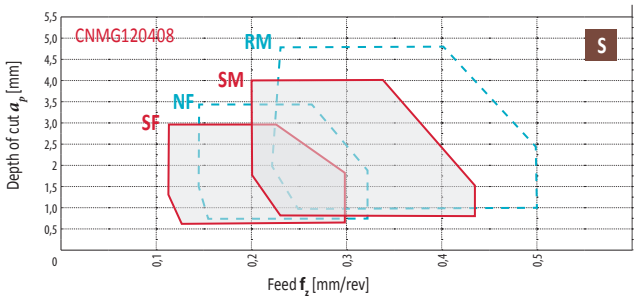
Wear-resistant and universal positive geometry

- **Medium machining**
- High productivity
- Continuous and interrupted cut
- Suitable for materials with poor machinability, such as stainless steels, mild steels and high tempertaure alloys

i Which chip-breaker should be used?

- Finishing machining (continuous cut): chip-breaker **SF**
- Versatile (continuous and interrupted cut): chip-breaker **SM**
- The NF and RM chip-breakers with the new T6310 grade are now also suitable for materials with poor machinability.

New chip-breakers complement existing geometries to offer a wide choice of cutting conditions:



T6310, H07

NEW GRADES FOR TURNING OF DIFFICULT-TO-MACHINE MATERIALS

In addition to new chip-breakers, we have launched two grades which will increase reliability of the inserts for turning materials with poor machinability and titanium alloys.

T6310 GRADE

T6310

- **High reliability** due to special new sintering process
- High wear resistance (new substrate with high strength and hardness)
- PVD coating using Triple Coating Technology: Multi-layer TiAlN + top layer AlTiSiN with high hardness

H07 GRADE

H07

- Special uncoated material for turning titanium and its alloys.
- Fine-grain substrate with low cobalt content.

BENEFITS

- High strength and reliability of the insert during continuous cut
- Resistance to heat-related cracks
- Universal use for stainless steels, heat-treated and hardened materials
- Excellent durability of the inserts for higher cutting speeds

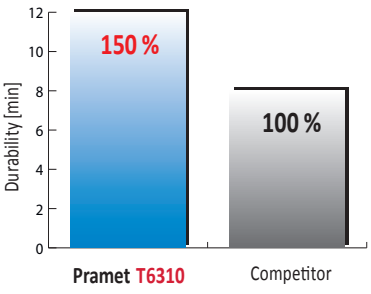
BENEFITS

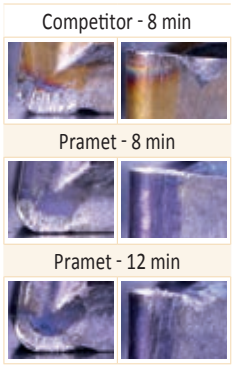
- High abrasion resistance
- Resistance to pitting on the cutting face when machining titanium and its alloys
- Resistance to plastic deformation
- Also suitable for the machining of non-ferrous metals and cast iron

MACHINING EXAMPLE USING T6310 GRADE

Material: INCONEL 718
Insert: CNMG 120408E-SF:T6310
Coolant: No

Cutting speed	v_c	35	m/min
Feed	f	0,15	mm
Axial length of cut	a_p	1,5	mm





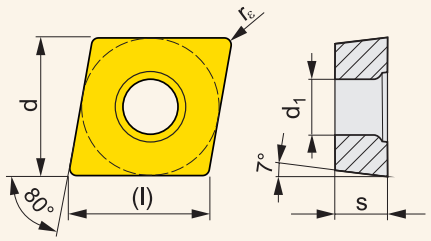
i Which grade should be used?

Difficult-to-machine materials:
1. Finishing and medium machining (continuous cut): T6310
2. Where higher toughness is necessary, e.g. welded parts (interrupted cut): T8330

Titanium alloys:
1. H07 + chip-breaker SF
2. T6310 + chip-breaker SM

UP! GRADE®

CCGT



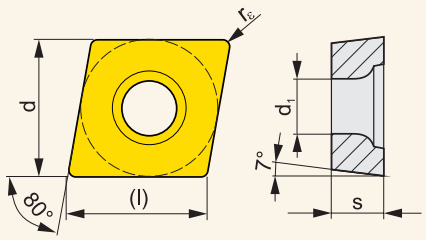
Dimensions	(l)	d	d_1	s		
0602	6,4	6,350	2,80	2,38		
0803	8,1	7,940	3,40	3,18		
09T3	9,7	9,525	4,40	3,97		
1204	12,9	12,700	5,50	4,76		

Chip-breaker	ISO	Grade					Radius	Feed/rev.		Depth of cut	
		T0315	T8310	T8315	T8330	HF7	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CCGT 060202F-AL	●				●	0,2	0,06	0,15	0,3	3,0
	CCGT 060204F-AL	●				●	0,4	0,10	0,30	0,4	3,5
	CCGT 080302E-AL		●				0,2	0,05	0,15	0,3	2,5
	CCGT 080302F-AL	●					0,2	0,05	0,15	0,3	2,5
	CCGT 080304E-AL		●				0,4	0,05	0,30	0,4	2,5
	**CCGT 080304F-AL**	●				●	0,4	0,05	0,30	0,4	2,5
	CCGT 09T302F-AL	●				●	0,2	0,10	0,15	0,3	4,0
	CCGT 09T304F-AL	●				●	0,4	0,10	0,30	0,4	4,5
	CCGT 09T308F-AL	●				●	0,8	0,15	0,60	0,8	5,0
	CCGT 120404F-AL	●				●	0,4	0,10	0,30	0,4	7,0
	CCGT 120408F-AL	●				●	0,8	0,15	0,60	0,8	7,0
	CCGT 060202ER-SI				●		0,2	0,08	0,15	0,4	1,6
	**CCGT 060204ER-SI**			●	●		0,4	0,08	0,25	0,5	1,5
	CCGT 09T304ER-SI			●	●		0,4	0,14	0,30	0,8	2,0
	CCGT 120408ER-SI				●		0,8	0,22	0,44	1,0	4,0
	CCGT 060202EL-SI				●		0,2	0,08	0,15	0,4	1,6
	**CCGT 060204EL-SI**			●	●		0,4	0,08	0,25	0,5	1,5
	CCGT 09T304EL-SI			●	●		0,4	0,14	0,30	0,8	2,0
	CCGT 120408EL-SI				●		0,8	0,22	0,44	1,0	4,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

CCMT



Dimensions	(l)	d	d_1	s
0602	6,4	6,350	2,90	2,38
0803	8,1	7,940	3,40	3,18
09T3	9,7	9,525	4,50	3,97
1204	12,9	12,700	5,60	4,76

Chip-breaker	ISO	Grade											Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T8315	T8330	TT010	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CCMT 060202E-FF									●	●			0,2	0,05	0,15	0,2	2,0
	CCMT 060204E-FF									●	●			0,4	0,05	0,23	0,4	2,0
	CCMT 09T304E-FF									●	●			0,4	0,05	0,23	0,4	2,0
	CCMT 080302E-FF2						●					●		0,2	0,04	0,15	0,2	1,5
	CCMT 080304E-FF2						●					●		0,4	0,06	0,23	0,4	2,5
	CCMT 060202E-FM			●		●	●			●	●			0,2	0,08	0,15	0,2	1,0
	CCMT 060204E-FM			●		●	●			●	●			0,4	0,08	0,20	0,4	1,5
	CCMT 060208E-FM					●	●				●			0,8	0,12	0,30	0,8	2,0
	CCMT 09T302E-FM			●		●	●			●	●			0,2	0,05	0,15	0,2	3,0
	CCMT 09T304E-FM			●		●	●			●	●			0,4	0,10	0,30	0,4	3,0
	CCMT 09T308E-FM			●		●	●			●	●			0,8	0,15	0,35	0,8	3,0
	CCMT 120404E-FM			●		●	●			●	●			0,4	0,10	0,30	0,4	4,0
	CCMT 120408E-FM			●		●	●			●	●			0,8	0,15	0,35	0,8	4,0
	CCMT 120412E-FM					●	●				●			1,2	0,15	0,45	1,2	4,0
	CCMT 080304E-FM2					●	●	●						0,4	0,15	0,25	0,4	2,7
	CCMT 080308E-FM2						●	●						0,8	0,15	0,40	0,8	4,0
	CCMT 080304E-NF2		●	●		●	●							0,4	0,12	0,25	0,5	3,6
	CCMT 080308E-NF2		●	●			●							0,8	0,17	0,40	1,0	4,0
	CCMT 060202E-RF			●										0,2	0,10	0,15	1,0	3,0
	CCMT 060204E-RF		●	●					●					0,4	0,10	0,30	1,0	3,0
	CCMT 09T304E-RF			●					●					0,4	0,15	0,30	0,8	4,0
	CCMT 09T308E-RF		●	●					●					0,8	0,10	0,40	0,8	4,0
	CCMT 120408E-RF		●	●					●					0,8	0,20	0,60	1,0	8,0
	CCMT 09T304E-RM	●	●	●		●	●				●			0,4	0,15	0,30	1,0	4,0
	CCMT 09T308E-RM	●	●	●		●	●				●			0,8	0,20	0,40	1,5	4,0
	CCMT 120408E-RM	●	●	●		●	●				●			0,8	0,20	0,40	1,5	4,5
	CCMT 120412E-RM					●	●				●			1,2	0,20	0,50	1,5	4,5

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

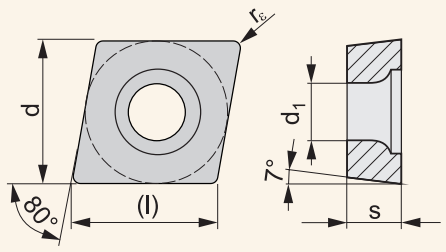
Chip-breaker	ISO	Grade												Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T8315	T8330	TT010	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CCMT 060202E-UR			●		●	●			●	●		●	0,2	0,08	0,15	0,2	3,0
	CCMT 060204E-UR		●	●		●	●			●	●		●	0,4	0,08	0,30	0,4	3,0
	CCMT 060208E-UR		●			●	●				●			0,8	0,08	0,50	0,8	3,0
	CCMT 09T302E-UR												●	0,2	0,08	0,15	0,2	3,0
	CCMT 09T304E-UR		●	●	●	●	●			●	●		●	0,4	0,08	0,30	0,4	4,0
	CCMT 09T308E-UR		●	●	●	●	●			●	●		●	0,8	0,08	0,50	0,8	3,0
	CCMT 120404E-UR		●			●	●				●			0,4	0,08	0,30	0,4	3,0
	CCMT 120408E-UR		●	●		●	●				●			0,8	0,08	0,50	0,8	4,0
	CCMT 120412E-UR		●			●	●				●			1,2	0,08	0,50	1,2	4,0
	CCMT 060204W-UR												●	0,4	0,08	0,30	0,4	2,0
	CCMT 09T308W-UR												●	0,8	0,08	0,50	0,8	3,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

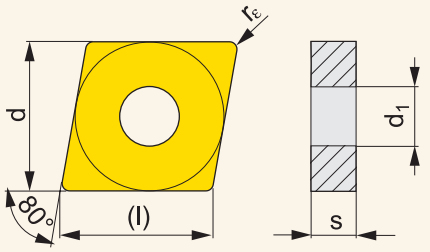
CCMW



Dimensions	(l)	d	d_1	s
0602	6,4	6,350	2,80	2,38
09T3	9,7	9,525	4,40	3,97
1204	12,9	12,700	5,50	4,76

Chip-breaker	ISO	Grade		Radius	Feed/rev.		Depth of cut	
		T5305	T5315	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CCMW 060202	●	●	0,2	0,05	0,15	0,2	4,2
	CCMW 060204	●	●	0,4	0,05	0,30	0,4	4,2
	**CCMW 09T304**	●	●	0,4	0,05	0,30	0,4	6,3
	CCMW 09T308	●	●	0,8	0,05	0,35	0,8	6,3
	CCMW 120404	●	●	0,4	0,05	0,30	0,4	8,4
	CCMW 120408	●	●	0,8	0,05	0,40	0,8	8,4

CNGG



Dimensions	(l)	d	d_1	s
1204	12,9	12,700	5,16	4,76

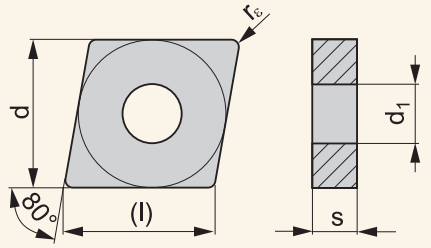
Chip-breaker	ISO	Grade				Radius	Feed/rev.		Depth of cut	
		T6310	T8315	T8330	H07	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CNGG 120402E-SF	●	●	●	●	0,2	0,08	0,15	0,2	2,5

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

CNMA



Dimensions	(l)	d	d_1	s
1204	12,9	12,700	5,16	4,76
1606	16,1	15,875	6,35	6,35
1906	19,3	19,050	7,94	6,35

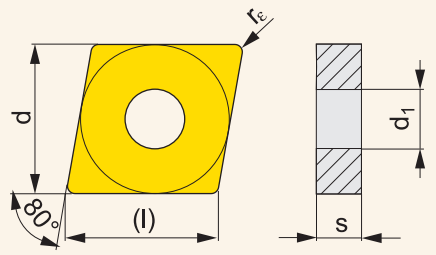
Chip-breaker	ISO	Grade			Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T6310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CNMA 120404	●	●		0,4	0,10	0,30	0,4	8,4
	CNMA 120408	●	●	●	0,8	0,05	0,60	0,8	8,4
	CNMA 120412	●	●	●	1,2	0,05	0,60	1,2	8,4
	CNMA 120416	●	●		1,6	0,10	0,60	1,6	8,4
	CNMA 160612	●	●		1,2	0,10	0,90	1,2	10,6
	CNMA 190612	●	●		1,2	0,10	0,90	1,2	12,7
	CNMA 190616	●	●		1,6	0,10	0,90	1,6	12,7
	CNMA 120408S	●			0,8	0,10	0,60	0,8	8,4
	CNMA 120412S	●			1,2	0,10	0,60	1,6	8,4
	CNMA 160612S	●			1,2	0,10	0,60	1,2	8,5
	CNMA 190616S	●			1,6	0,10	0,90	1,6	12,7

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

CNMG



Dimensions	(l)	d	d_1	s		
0903	9,7	9,525	3,81	3,18		
1204	12,9	12,700	5,16	4,76		
1606	16,1	15,875	6,35	6,35		
1906	19,3	19,050	7,94	6,35		
2509	25,8	25,400	9,12	9,52		

Chip-breaker	ISO	Grade															Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	6640	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**CNMG 120408W-F**		●			●	●										0,8	0,10	0,60	0,8	4,4
	**CNMG 120404E-FF**											●					0,4	0,06	0,15	0,4	1,5
	CNMG 120408E-FF											●					0,8	0,08	0,20	0,8	1,5
	**CNMG 090304E-FM**					●	●						●				0,4	0,10	0,30	0,5	6,3
	CNMG 090308E-FM					●	●						●				0,8	0,10	0,45	0,8	3,0
	CNMG 120404E-FM			●	●	●	●					●	●			●	0,4	0,10	0,30	0,5	3,0
	CNMG 120408E-FM			●	●	●	●					●	●			●	0,8	0,15	0,45	0,8	3,0
	CNMG 120412E-FM					●	●										1,2	0,15	0,45	1,2	4,0
	**CNMG 120408E-KR**	●	●														0,8	0,25	0,60	0,8	7,0
	CNMG 120412E-KR	●	●														1,2	0,25	0,70	1,2	7,0
	**CNMG 090308E-M**					●	●	●									0,8	0,15	0,60	0,8	4,0
	CNMG 120404E-M		●		●	●	●	●									0,4	0,17	0,30	0,8	6,0
	CNMG 120408E-M	●	●		●	●	●	●	●	●			●				0,8	0,15	0,60	0,8	6,0
	CNMG 120412E-M	●	●		●	●	●	●	●								1,2	0,17	0,80	1,2	6,0
	CNMG 120416E-M	●					●	●									1,6	0,17	0,80	1,6	8,0
	CNMG 160608E-M				●	●	●	●	●								0,8	0,15	0,60	0,8	7,0
	CNMG 160612E-M					●	●	●									1,2	0,17	0,60	1,2	7,0
	CNMG 160616E-M						●	●									1,6	0,17	0,60	1,6	7,0
	CNMG 190608E-M					●	●	●	●								0,8	0,15	0,60	0,8	8,0
	CNMG 190612E-M				●	●	●	●	●	●							1,2	0,17	0,80	1,2	8,0
	CNMG 190616E-M				●	●	●	●									1,6	0,17	0,80	1,6	8,0
	**CNMG 120408W-M**		●			●	●										0,8	0,15	0,60	0,8	4,0
	CNMG 120412W-M		●			●	●										1,2	0,20	0,90	1,2	4,0
	**CNMG 120404W-MR**					●	●										0,4	0,39	0,60	0,5	4,0
	CNMG 120408W-MR		●			●	●										0,8	0,46	0,70	0,8	5,0
	CNMG 120412W-MR		●			●	●										1,2	0,49	0,75	1,2	5,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

Chip-breaker	ISO	Grade															Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	6640	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CNMG 090304E-NF			●			●				●	●	●				0,4	0,10	0,30	0,4	3,0
	CNMG 090308E-NF			●			●				●	●	●				0,8	0,13	0,30	0,8	3,0
	CNMG 120404E-NF			●		●	●				●	●	●		●		0,4	0,13	0,30	0,4	3,0
	CNMG 120408E-NF			●		●	●				●	●	●		●		0,8	0,15	0,35	0,8	3,5
	CNMG 120412E-NF			●		●	●				●		●				1,2	0,15	0,35	1,2	4,0
	CNMG 120404E-NM			●		●	●					●	●				0,4	0,15	0,30	0,5	3,0
	CNMG 120408E-NM			●		●	●					●	●				0,8	0,20	0,40	0,8	3,0
	CNMG 120412E-NM			●		●	●					●	●				1,2	0,20	0,40	1,2	3,5
	CNMG 160608E-NM			●			●					●	●				0,8	0,25	0,50	0,8	5,0
	CNMG 160612E-NM			●			●					●					1,2	0,25	0,50	1,2	5,0
	CNMG 190612E-NM			●			●					●	●				1,2	0,30	0,50	1,2	8,0
	CNMG 120408E-R	●	●		●	●	●	●	●	●							0,8	0,17	0,60	1,0	8,0
	CNMG 120412E-R	●	●		●	●	●	●	●								1,2	0,25	0,70	2,0	6,0
	CNMG 120416E-R		●					●									1,6	0,30	0,80	2,0	6,0
	CNMG 160608E-R		●														0,8	0,25	0,60	2,0	7,0
	CNMG 160612E-R	●	●		●	●	●		●								1,2	0,25	0,70	2,0	7,0
	CNMG 160616E-R	●															1,6	0,25	0,80	2,0	7,0
	CNMG 190608E-R		●														0,8	0,25	0,60	2,0	8,0
	CNMG 190612E-R	●	●		●	●	●	●	●	●							1,2	0,25	0,70	2,0	8,0
	CNMG 190616E-R	●	●		●	●	●	●	●	●							1,6	0,25	0,80	2,0	9,0
	CNMG 120408E-RM	●	●	●	●	●	●	●			●	●	●				0,8	0,20	0,50	1,0	7,0
	CNMG 120412E-RM	●	●	●	●	●	●	●			●	●	●				1,2	0,25	0,70	1,5	7,0
	CNMG 120416E-RM	●	●	●	●	●	●	●					●				1,6	0,30	0,75	2,0	7,0
	CNMG 160608E-RM	●	●	●		●	●	●					●				0,8	0,20	0,50	1,0	8,0
	CNMG 160612E-RM	●	●	●	●	●	●	●			●		●				1,2	0,25	0,70	1,5	8,0
	CNMG 160616E-RM	●	●	●	●	●	●	●									1,6	0,30	0,80	2,0	8,0
	CNMG 190608E-RM	●	●	●		●	●	●									0,8	0,20	0,50	1,0	10,0
	CNMG 190612E-RM	●	●	●	●	●	●	●			●		●				1,2	0,25	0,70	1,5	10,0
	CNMG 190616E-RM	●	●	●	●	●	●	●			●						1,6	0,30	0,80	2,0	10,0
	CNMG 250924E-RM			●		●	●	●									2,4	0,40	1,00	2,5	15,0
	CNMG 120404E-SF			●							●	●	●	●			0,4	0,10	0,30	0,4	2,7
	CNMG 120408E-SF			●							●	●	●	●			0,8	0,12	0,30	0,8	3,0
	CNMG 120412E-SF										●	●	●				1,2	0,15	0,35	1,2	3,0
	CNMG 120404E-SM			●		●	●				●		●				0,4	0,18	0,30	0,4	4,0
	CNMG 120408E-SM			●		●	●				●		●				0,8	0,20	0,45	0,8	4,0
	CNMG 120412E-SM			●		●	●				●		●				1,2	0,22	0,45	1,2	4,5
	CNMG 160608E-SM			●			●						●				0,8	0,22	0,50	0,8	5,0
	CNMG 160612E-SM			●		●	●				●						1,2	0,25	0,55	1,2	5,5
	CNMG 190612E-SM			●		●	●				●						1,2	0,25	0,55	1,2	6,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

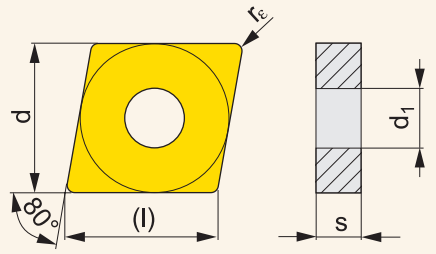
See latest price list for current availability

Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	6640	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CNMG 120404EL-SI			●			●					●	●				0,4	0,20	0,30	0,8	5,0
	CNMG 120408EL-SI			●			●					●	●				0,8	0,20	0,50	0,8	5,0
	CNMG 120412EL-SI						●						●				1,2	0,20	0,50	1,2	5,0
	CNMG 120404ER-SI			●			●		●			●	●				0,4	0,20	0,30	0,8	5,0
	CNMG 120408ER-SI			●			●		●			●	●				0,8	0,20	0,50	0,8	5,0
	CNMG 120412ER-SI						●						●				1,2	0,20	0,50	1,2	5,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

CNMM



Dimensions	(l)	d	d_1	s
1204	12,9	12,700	5,16	4,76
1606	16,1	15,875	6,35	6,35
1906	19,3	19,050	7,94	6,35
2509	25,8	25,400	9,12	9,52

Chip-breaker	ISO	Grade								Radius	Feed/rev.		Depth of cut	
		T7335	T9315	T9325	T9335	6630	6640	T8330	T8345	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	CNMM 160612E-DR		●	●	●					1,2	0,30	0,85	2,5	9,0
	CNMM 190608E-DR		●	●	●					0,8	0,30	0,60	2,5	9,0
	CNMM 190612E-DR		●	●	●	●				1,2	0,30	0,85	2,5	9,0
	CNMM 190616E-DR		●	●	●					1,6	0,30	0,85	2,5	9,0
	CNMM 190616E-HR		●	●	●	●	●		●	1,6	0,50	1,20	5,0	13,3
	CNMM 190624E-HR		●	●	●	●			●	2,4	0,50	1,40	5,0	13,3
	CNMM 250924E-HR		●	●	●	●	●		●	2,4	0,50	1,40	5,0	14,0
	CNMM 120408E-NR	●	●	●		●	●	●		0,8	0,25	0,60	1,0	8,4
	CNMM 120412E-NR	●	●	●				●		1,2	0,25	0,80	1,2	8,4
	CNMM 120408E-NR2	●	●	●				●		0,8	0,25	0,55	0,8	7,5
	CNMM 120412E-NR2	●	●	●				●		1,2	0,28	0,70	1,2	7,5
	CNMM 160608E-NR2	●		●				●		0,8	0,30	0,60	1,0	9,5
	CNMM 160612E-NR2	●	●	●				●		1,2	0,35	0,65	1,5	9,5
	CNMM 160616E-NR2	●		●						1,6	0,35	0,80	2,0	9,5
	CNMM 190612E-NR2	●	●	●				●		1,2	0,35	0,90	1,5	12,0
	CNMM 190616E-NR2	●	●	●				●		1,6	0,40	1,00	2,0	12,0
	CNMM 190624E-NR2	●	●	●						2,4	0,40	1,20	2,5	12,0
	CNMM 250924E-NR2	●	●	●				●		2,4	0,40	1,60	2,5	16,0
	CNMM 120408E-OR		●	●	●			●		0,8	0,25	0,60	2,0	8,0
	CNMM 120412E-OR		●	●	●					1,2	0,30	0,70	2,5	8,0
	CNMM 120416E-OR		●	●	●					1,6	0,35	0,80	2,0	8,0
	CNMM 160608E-OR		●	●	●					0,8	0,30	0,60	3,0	8,0
	CNMM 160612E-OR		●	●				●		1,2	0,35	0,90	3,0	10,0
	CNMM 160616E-OR		●	●						1,6	0,36	1,00	3,0	10,0
	CNMM 190612E-OR		●	●	●	●		●		1,2	0,35	0,90	3,0	10,0
	CNMM 190616E-OR		●	●	●	●		●	●	1,6	0,37	1,20	3,0	10,0
	CNMM 190624E-OR		●	●						2,4	0,38	1,25	3,0	12,0
	CNMM 250924E-OR		●	●	●	●		●	●	2,4	0,45	1,70	4,0	16,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR TURNING

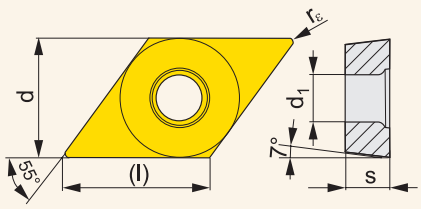
Chip-breaker	ISO	Grade								Radius	Feed/rev.		Depth of cut	
		T7335	T9315	T9325	T9335	6630	6640	T8330	T8345	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**CNMM 190616E-OR1**			●	●	●				1,6	0,30	1,20	3,0	11,0
	**CNMM 250924S-923**		●		●			●	●	2,4	0,45	1,50	3,0	16,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

DCGT



Dimensions	(l)	d	d_1	s		
0702	7,8	6,350	2,80	2,38		
11T3	11,6	9,525	4,40	3,97		

Chip-breaker	ISO	Grade																Radius	Feed/rev.		Depth of cut	
		T0315	T8330	HF7														r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	DCGT 070202F-AL	●		●														0,2	0,06	0,12	0,3	2,1
	DCGT 070204F-AL	●		●														0,4	0,10	0,24	0,4	2,1
	**DCGT 11T302F-AL**	●		●														0,2	0,06	0,12	0,3	3,3
	DCGT 11T304F-AL	●		●														0,4	0,10	0,24	0,4	3,3
	DCGT 11T308F-AL	●		●														0,8	0,15	0,48	0,8	3,3
	**DCGT 11T304ER-SI**		●															0,4	0,08	0,24	0,4	2,5
	DCGT 11T308ER-SI		●															0,8	0,15	0,30	0,8	2,5
	**DCGT 11T304EL-SI**		●															0,4	0,08	0,24	0,4	2,5
	DCGT 11T308EL-SI		●															0,8	0,15	0,30	0,8	2,5

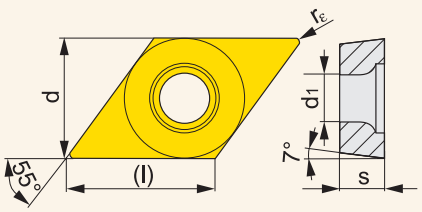
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR TURNING

DCMT



Dimensions	(l)	d	d_1	s
0702	7,8	6,350	2,90	2,38
11T3	11,6	9,525	4,50	3,97
1504	15,5	12,700	5,60	4,76

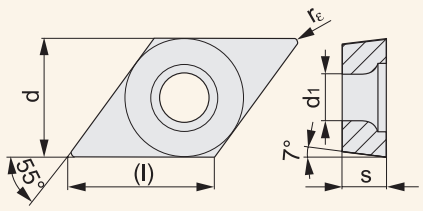
Chip-breaker	ISO	Grade									Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9315	T9325	6630	T8315	T8330	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	DCMT 11T302E-FF							●	●		0,2	0,05	0,12	0,2	2,0
	DCMT 11T304E-FF							●	●		0,4	0,05	0,23	0,4	2,0
	DCMT 11T308E-FF							●	●		0,8	0,05	0,23	0,8	2,0
	DCMT 070202E-FM				●	●		●	●		0,2	0,05	0,12	0,2	1,0
	DCMT 070204E-FM			●	●	●		●	●		0,4	0,08	0,24	0,4	2,0
	DCMT 11T302E-FM				●	●		●	●		0,2	0,08	0,12	0,2	2,0
	DCMT 11T304E-FM			●	●	●		●	●		0,4	0,10	0,24	0,4	3,0
	DCMT 11T308E-FM			●	●	●		●	●		0,8	0,10	0,30	0,8	3,0
	DCMT 11T312E-FM				●	●			●		1,2	0,20	0,40	1,2	3,3
	DCMT 11T304E-RF		●	●			●				0,4	0,10	0,24	0,8	3,3
	DCMT 11T308E-RF		●	●			●				0,8	0,10	0,40	0,8	3,3
	DCMT 11T304E-RM	●	●	●	●	●			●		0,4	0,15	0,24	1,0	3,3
	DCMT 11T308E-RM	●	●	●	●	●			●		0,8	0,15	0,40	1,0	3,3
	DCMT 11T312E-RM			●	●	●			●		1,2	0,15	0,45	1,5	3,3
	DCMT 150408E-RM				●	●			●		0,8	0,20	0,48	1,0	4,5
	DCMT 070202E-UR				●	●		●	●		0,2	0,05	0,12	0,2	1,0
	DCMT 070204E-UR				●	●		●	●	●	0,4	0,05	0,24	0,4	2,1
	DCMT 11T302E-UR				●	●			●	●	0,2	0,05	0,12	0,2	2,0
	DCMT 11T304E-UR		●	●	●	●		●	●	●	0,4	0,08	0,24	0,4	2,5
	DCMT 11T308E-UR		●	●	●	●		●	●	●	0,8	0,08	0,48	0,8	3,0
	DCMT 11T312E-UR				●	●					1,2	0,15	0,30	1,2	3,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

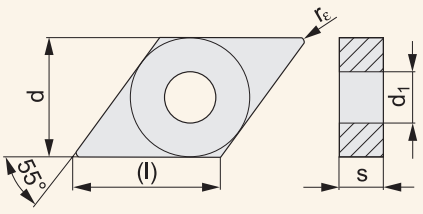
DCMW



Dimensions	(l)	d	d_1	s		
0702	7,8	6,350	2,80	2,38		
11T3	11,6	9,525	4,40	3,97		

Chip-breaker	ISO	Grade																Radius	Feed/rev.		Depth of cut	
		T5305	T5315															r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	DCMW 070202	●	●															0,2	0,05	0,35	0,2	2,9
	DCMW 070204	●	●															0,4	0,05	0,20	0,4	2,0
	DCMW 11T304	●	●															0,4	0,05	0,35	0,4	2,9
	DCMW 11T308	●	●															0,8	0,05	0,35	0,8	2,9

DNMA



Dimensions	(l)	d	d_1	s		
1504	15,5	12,700	5,16	4,76		
1506	15,5	12,700	5,16	6,35		

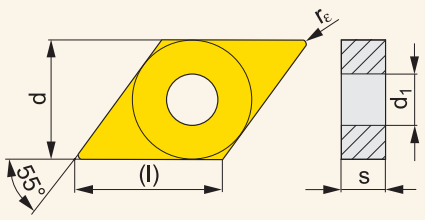
Chip-breaker	ISO	Grade																Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T6310														r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	DNMA 150404	●	●															0,4	0,10	0,24	0,4	3,9
	DNMA 150408	●	●															0,8	0,10	0,48	0,8	3,9
	DNMA 150604	●	●	●														0,4	0,05	0,24	0,4	3,9
	DNMA 150608	●	●	●														0,8	0,05	0,48	0,8	3,9
	DNMA 150612	●	●															1,2	0,10	0,72	1,2	3,9

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

DNMG



Dimensions	(l)	d	d_1	s
1104	11,6	9,525	3,81	4,76
1504	15,5	12,700	5,16	4,76
1506	15,5	12,700	5,16	6,35

Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	DNMG 110402E-FF										●					0,2	0,06	0,12	0,2	1,5
	DNMG 110404E-FF										●	●				0,4	0,06	0,20	0,4	1,5
	DNMG 110408E-FF										●					0,8	0,08	0,25	0,8	1,5
	DNMG 150404E-FF										●					0,4	0,06	0,20	0,4	1,5
	DNMG 150604E-FF										●					0,4	0,06	0,20	0,4	1,5
	DNMG 150608E-FF										●					0,8	0,08	0,25	0,8	1,5
	DNMG 110404E-FM				●	●	●				●	●				0,4	0,10	0,24	0,4	3,0
	DNMG 110408E-FM				●	●	●				●	●				0,8	0,10	0,35	0,4	3,0
	DNMG 150404E-FM					●	●					●				0,4	0,10	0,24	0,5	3,0
	DNMG 150408E-FM					●	●					●				0,8	0,15	0,45	0,8	3,0
	DNMG 150604E-FM			●	●	●	●				●	●			●	0,4	0,10	0,24	0,5	3,0
	DNMG 150608E-FM			●	●	●	●				●	●			●	0,8	0,15	0,45	0,8	3,0
	DNMG 150612E-FM					●	●					●				1,2	0,15	0,45	1,2	3,0
	DNMG 150616E-FM					●	●									1,6	0,15	0,45	1,6	3,0
	DNMG 110404E-M		●			●	●	●								0,4	0,12	0,24	0,5	3,0
	DNMG 110408E-M		●			●	●	●								0,8	0,15	0,48	0,8	3,3
	DNMG 110412E-M					●	●	●								1,2	0,17	0,72	1,2	3,3
	DNMG 150404E-M					●	●	●								0,4	0,12	0,24	0,5	3,0
	DNMG 150408E-M					●	●	●								0,8	0,15	0,48	0,8	4,5
	DNMG 150412E-M					●	●	●								1,2	0,17	0,72	1,2	4,5
	DNMG 150604E-M		●			●	●	●								0,4	0,12	0,24	0,5	3,0
	DNMG 150608E-M		●		●	●	●	●	●							0,8	0,15	0,48	0,8	4,5
	DNMG 150612E-M		●		●	●	●	●								1,2	0,17	0,72	1,2	4,5
	DNMG 110404E-NF			●		●	●			●		●				0,4	0,10	0,24	0,4	3,0
	DNMG 110408E-NF			●		●	●			●		●				0,8	0,13	0,30	0,8	3,0
	DNMG 150404E-NF			●		●	●			●		●				0,4	0,13	0,24	0,4	3,0
	DNMG 150408E-NF			●		●	●			●		●				0,8	0,15	0,30	0,8	3,0
	DNMG 150604E-NF			●		●	●			●	●	●		●		0,4	0,13	0,24	0,4	3,0
	DNMG 150608E-NF			●		●	●			●	●	●		●		0,8	0,15	0,30	0,8	3,0
	DNMG 150612E-NF					●	●			●		●				1,2	0,15	0,35	1,2	3,5

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

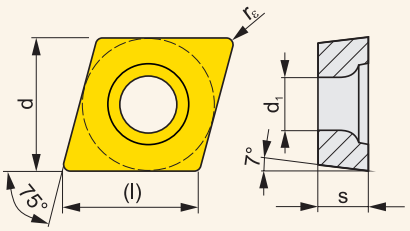
Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	DNMG 110404E-NM			●			●				●	●				0,4	0,15	0,24	0,5	3,0
	DNMG 110408E-NM			●			●				●	●				0,8	0,20	0,40	0,8	3,0
	DNMG 150604E-NM			●		●	●				●	●				0,4	0,15	0,24	0,5	3,0
	DNMG 150608E-NM			●		●	●				●	●				0,8	0,20	0,40	0,8	3,0
	DNMG 150612E-NM			●			●				●					1,2	0,20	0,40	1,2	3,5
	DNMG 150608E-R	●	●		●	●	●		●							0,8	0,25	0,48	2,0	4,5
	DNMG 150612E-R	●	●		●	●	●		●							1,2	0,25	0,70	2,0	4,5
	DNMG 150616E-R						●									1,6	0,30	0,80	2,0	4,5
	DNMG 110408E-RM			●		●	●	●								0,8	0,20	0,48	1,0	3,3
	DNMG 110412E-RM					●	●	●								1,2	0,25	0,60	1,5	3,3
	DNMG 150412E-RM					●	●	●								1,2	0,25	0,70	1,5	4,5
	DNMG 150608E-RM	●	●	●	●	●	●	●			●	●				0,8	0,20	0,48	1,0	4,5
	DNMG 150612E-RM	●	●	●	●	●	●	●				●				1,2	0,25	0,70	1,5	4,5
	DNMG 150616E-RM		●	●		●	●	●								1,6	0,30	0,75	2,0	4,5
	DNMG 110404E-SF			●						●	●	●				0,4	0,10	0,24	0,4	2,0
	DNMG 110408E-SF			●						●	●	●				0,8	0,12	0,27	0,8	2,5
	DNMG 150404E-SF									●	●	●				0,4	0,10	0,24	0,4	2,5
	DNMG 150408E-SF									●	●	●				0,8	0,12	0,30	0,8	3,0
	DNMG 150604E-SF			●						●	●	●	●			0,4	0,10	0,24	0,4	2,5
	DNMG 150608E-SF			●						●	●	●	●			0,8	0,12	0,30	0,8	3,0
	DNMG 150612E-SF									●	●					1,2	0,15	0,30	1,2	3,0
	DNMG 110404E-SM			●			●			●		●				0,4	0,15	0,24	0,4	3,0
	DNMG 110408E-SM			●		●	●			●		●				0,8	0,18	0,35	0,8	3,3
	DNMG 150604E-SM			●		●	●			●		●				0,4	0,18	0,24	0,4	3,5
	DNMG 150608E-SM			●		●	●			●		●				0,8	0,20	0,40	0,8	4,0
	DNMG 150612E-SM			●		●	●			●		●				1,2	0,22	0,40	1,2	4,0
	DNMG 110404EL-SI			●			●					●				0,4	0,20	0,24	0,8	3,3
	DNMG 110408EL-SI			●			●					●				0,8	0,20	0,48	0,8	3,3
	DNMG 150408EL-SI			●			●					●				0,8	0,20	0,48	0,8	4,5
	DNMG 150604EL-SI			●			●		●		●	●				0,4	0,20	0,24	0,8	4,5
	DNMG 150608EL-SI			●			●		●		●	●				0,8	0,20	0,48	0,8	4,5
	DNMG 110404ER-SI			●			●					●				0,4	0,20	0,24	0,8	3,3
	DNMG 110408ER-SI			●			●					●				0,8	0,20	0,48	0,8	3,3
	DNMG 150408ER-SI			●			●					●				0,8	0,20	0,48	0,8	4,5
	DNMG 150604ER-SI			●			●		●		●	●				0,4	0,20	0,24	0,8	4,5
	DNMG 150608ER-SI			●			●		●		●	●				0,8	0,20	0,48	0,8	4,5
	DNMG 150608W-MR					●	●									0,8	0,36	0,55	0,8	4,0
	DNMG 150612W-MR					●	●									1,2	0,39	0,60	1,2	4,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

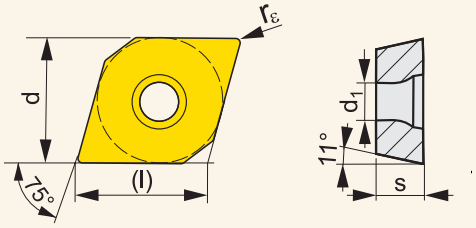
ECMT



Dimensions	(l)	d	d_1	s
0602	6,5	6,350	2,80	2,38
0803	8,2	7,940	3,40	3,18

Chip-breaker	ISO	Grade				Radius	Feed/rev.		Depth of cut	
		T5315	T9315	T9325	T9335	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	ECMT 060204E-FM2		●	●	●	0,4	0,15	0,25	0,4	2,7
	ECMT 080304E-FM2	●	●	●	●	0,4	0,10	0,25	0,4	2,7
	**ECMT 080308E-FM2**		●	●	●	0,8	0,15	0,40	0,8	4,0

EPMT



Dimensions	(l)	d	d_1	s
0502	5,7	5,560	2,50	2,38

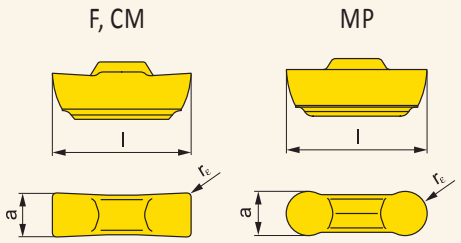
Chip-breaker	ISO	Grade				Radius	Feed/rev.		Depth of cut	
		T7335	T9315	T9325	TT010	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**EPMT 050202E-NF2**	●	●	●	●	0,2	0,05	0,15	1,0	2,5

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

LCMF 13



Dimensions	a	tol. a	l
0313	3,0	±0,05	12,60
0413	4,0	±0,05	12,60

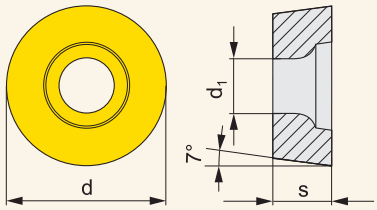
Chip-breaker	ISO	Grade		Radius	Feed/rev.		Depth of cut	
		T9325	T8330	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	LCMF 031304-CM		●	0,4	0,05	0,30	-	-
	LCMF 031304-CM-04*		●	0,4	0,05	0,30	-	-
	LCMF 041304-CM		●	0,4	0,05	0,30	-	-
	LCMF 031302-F		●	0,2	0,05	0,20	0,3	3,0
	LCMF 031302-F-04*		●	0,2	0,05	0,20	0,3	2,0
	LCMF 031304-F		●	0,4	0,05	0,25	0,3	3,0
	LCMF 031304-F-04*		●	0,4	0,05	0,20	0,3	2,0
	LCMF 041304-F	●	●	0,4	0,05	0,25	0,5	3,0
	LCMF 0313MO-MP		●	1,5	0,05	0,30	0,5	1,5
	LCMF 0313MO-MP-04*		●	1,5	0,05	0,30	0,5	1,5
	LCMF 0413MO-MP		●	2,0	0,05	0,35	0,5	2,0

* Inserts are designed for the following shanks:
A16Q-GGER/L 0313-04
A2OR-GGFR/L 0313-04

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

RCMT



Dimensions	d	d_1	s
0602	6,0	2,800	2,38
0803	8,0	3,400	3,18
10T3	10,0	4,400	3,97
1204	12,0	4,400	4,76
1606	16,0	5,500	6,35
2006	20,0	6,500	6,35
2507	25,0	8,600	7,94
3009	30,0	10,000	9,52

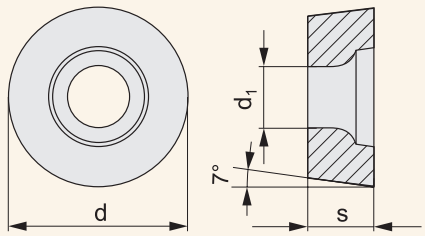
Chip-breaker	ISO	Grade				Radius	Feed/rev.		Depth of cut	
		T9310	T9315	T9325	T8330	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	RCMT 1606MOS-37		●	●			0,20	0,90	1,0	4,0
	RCMT 2006MOS-371		●	●			0,20	1,20	1,0	5,0
	RCMT 2507MOS-372			●			0,20	1,20	1,0	6,0
	RCMT 0602MOE-FM		●	●	●		0,10	0,60	0,3	2,4
	RCMT 0803MOE-FM		●	●	●		0,15	0,80	0,5	3,0
	RCMT 10T3MOE-FM		●	●	●		0,30	1,00	0,7	4,0
	RCMT 1204MOE-FM		●	●	●		0,30	1,00	0,7	4,8
	RCMT 0602MOE-UR		●	●	●		0,10	0,40	0,1	1,5
	RCMT 0803MOE-UR		●	●	●		0,13	1,00	0,2	3,0
	RCMT 10T3MOE-UR		●	●	●		0,15	1,00	0,2	4,0
	RCMT 1204MOE-UR		●	●	●		0,17	1,00	0,2	5,0
	RCMT 3009MO-RR4	○	○				0,80	1,50	4,0	8,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

RCMW



Dimensions	d	d_1	s
0602	6,0	2,800	2,38
0803	8,0	3,400	3,18
10T3	10,0	4,400	3,97
1204	12,0	4,400	4,76

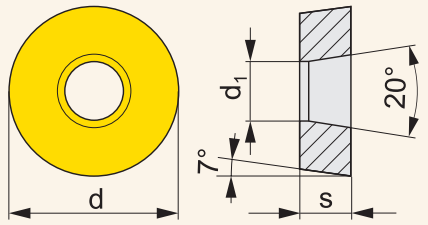
Chip-breaker	ISO	Grade		Radius	Feed/rev.		Depth of cut	
		T5305	T5315	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	RCMW 0602MO	●	●		0,05	0,20	0,5	1,5
	RCMW 0803MO	●	●		0,05	0,30	0,5	2,0
	RCMW 10T3MO	●	●		0,10	0,35	0,5	2,5
	RCMW 1204MO	●	●		0,05	0,40	0,5	3,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

RCMX



Dimensions	d	d_1	s
1003	10,0	3,600	3,18
1204	12,0	4,200	4,76
1606	16,0	5,200	6,35
2006	20,0	6,500	6,35
2507	25,0	7,200	7,94
3209	32,0	9,500	9,52

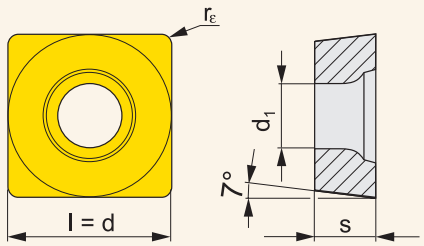
Chip-breaker	ISO	Grade									Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T9310	T9315	T9325	T9335	6630	6640	T8345	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	RCMX 1003MOS-31					●	●					0,40	1,00	1,5	2,5
	RCMX 1204MOS-321				●	●	●					0,40	1,00	1,0	3,0
	RCMX 1606MOS-331				●	●	●	●				0,40	1,20	1,0	4,0
	RCMX 2006MOS-341							●	●			0,60	1,20	2,0	5,0
	RCMX 2507MOS-351							●	●			0,80	1,20	3,0	7,0
	RCMX 3209MOS-361								●			0,80	1,50	3,0	8,0
	RCMX 1606MOS-37				●	●						0,20	0,90	1,0	4,0
	RCMX 2006MOS-37							●				0,20	0,90	1,5	5,0
	RCMX 2507MOS-37							●				0,60	0,90	2,0	7,0
	RCMX 2006MO-RF1	●		●	●	●	●					0,45	1,20	1,0	5,0
	RCMX 2507MO-RF1			●	●	●	●			●		0,60	1,20	1,5	7,0
	RCMX 2006MO-RM1			●	●	●	●					0,20	1,30	1,5	5,0
	RCMX 2507MO-RM1			●	●	●	●					0,60	1,20	2,0	7,0
	RCMX 2507MO-RM2			●	●	●						0,80	1,50	2,0	7,0
	RCMX 3209MO-RM2		●	●	●	●	●					0,80	1,50	2,0	8,0
	RCMX 3209MO-RR2			●	●	●						0,80	1,50	2,5	8,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SCMT



Dimensions	l	d	d_1	s		
09T3	9,5	9,525	4,50	3,97		
1204	12,7	12,700	5,60	4,76		
2509	25,4	25,400	8,70	9,52		
3809	38,1	38,100	8,70	9,52		

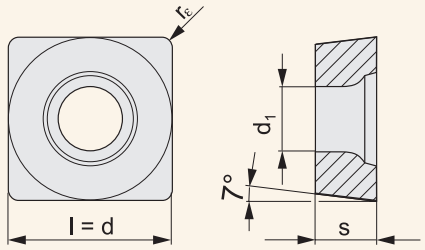
Chip-breaker	ISO	Grade															Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9315	T9325	T9335	6630	6635	T8315	T8330	TT310					r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	SCMT 09T304E-FM			●	●	●				●	●						0,4	0,10	0,30	0,4	3,0
	SCMT 09T308E-FM			●	●	●				●	●						0,8	0,15	0,35	0,8	3,0
	SCMT 120404E-FM				●	●				●	●						0,4	0,10	0,30	0,4	4,0
	SCMT 120408E-FM			●	●	●				●	●						0,8	0,15	0,35	0,8	4,0
	SCMT 120412E-FM				●	●					●						1,2	0,15	0,45	1,2	4,0
	SCMT 09T308E-RF		●	●				●									0,8	0,10	0,40	0,8	4,0
	SCMT 120408E-RF		●	●				●									0,8	0,20	0,68	1,0	8,0
	SCMT 09T308E-RM	●	●	●	●	●					●						0,8	0,20	0,40	1,5	4,0
	SCMT 120408E-RM	●	●	●	●	●					●						0,8	0,20	0,40	1,5	4,5
	SCMT 09T304E-UR				●	●					●						0,4	0,08	0,34	0,4	3,0
	SCMT 09T308E-UR		●		●	●					●	●					0,8	0,08	0,50	0,8	3,0
	SCMT 120408E-UR		●		●	●					●						0,8	0,08	0,50	0,8	4,0
	SCMT 120412E-UR					●					●						1,2	0,08	0,50	1,2	4,0
	SCMT 380932E-DR4						●										3,2	0,70	1,40	4,0	18,0
	SCMT 250924E-OR				●	●	●										2,4	0,60	1,80	3,0	16,0
	SCMT 380932E-OR				●	●	●		●								3,2	1,00	2,00	4,0	24,0
	SCMT 250924E-SR					●	●										2,4	0,60	1,80	3,0	16,0
	SCMT 380932E-SR						●										3,2	1,20	2,00	4,0	24,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SCMW



Dimensions	l	d	d_1	s
09T3	9,5	9,525	4,40	3,97
1204	12,7	12,700	5,50	4,76

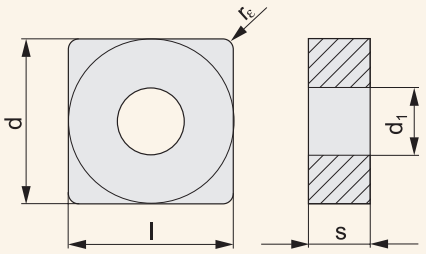
Chip-breaker	ISO	Grade		Radius	Feed/rev.		Depth of cut	
		T5305	T5315	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	SCMW 09T304	●	●	0,4	0,05	0,34	0,4	4,5
	SCMW 09T308	●	●	0,8	0,05	0,35	0,8	4,5
	SCMW 120408	●	●	0,8	0,05	0,40	0,8	6,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SNMA



Dimensions	(l)	d	d_1	s		
1204	12,7	12,700	5,16	4,76		
1506	15,9	15,875	6,35	6,35		
1906	19,1	19,050	7,94	6,35		
2507	25,4	25,400	9,12	7,94		
2509	25,4	25,400	9,12	9,52		

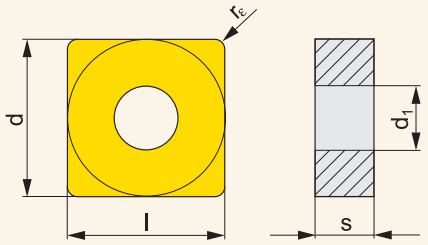
Chip-breaker	ISO	Grade			Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T6310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	SNMA 120408	●	●	●	0,8	0,05	0,60	0,8	6,0
	SNMA 120412	●	●		1,2	0,10	0,60	1,2	6,0
	SNMA 150612	●	●		1,2	0,10	0,90	1,2	7,1
	SNMA 190612	●	●		1,2	0,10	0,90	1,2	8,9
	SNMA 190616	●	●		1,6	0,10	0,90	1,6	8,9
○	**SNMA 250724**	●	●		2,4	0,10	1,10	2,4	12,0
	SNMA 250924	●	●		2,4	0,10	1,10	2,4	12,0
	SNMA 120412S	●			1,2	0,10	0,60	1,2	6,0
	SNMA 190616S	●			1,6	0,10	0,90	1,2	8,9
	SNMA 250724S	●			2,4	0,10	1,10	2,4	12,0
	SNMA 250924S	●			2,4	0,10	1,10	2,4	12,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SNMG



Dimensions	l	d	d_1	s
1204	12,7	12,700	5,16	4,76
1506	15,9	15,875	6,35	6,35
1906	19,1	19,050	7,94	6,35
2509	25,4	25,400	9,12	9,52

Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	6640	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**SNMG 120404E-FM**					●	●				●	●	●				0,4	0,10	0,30	0,5	3,0
	SNMG 120408E-FM				●	●	●					●	●			●	0,8	0,15	0,45	0,8	3,0
	SNMG 120412E-FM					●	●						●				1,2	0,15	0,45	1,2	3,0
	SNMG 120416E-FM					●	●						●				1,6	0,15	0,45	1,6	8,4
	**SNMG 120408E-KR**	●	●														0,8	0,20	0,50	0,8	7,0
	SNMG 120412E-KR	●	●														1,2	0,25	0,70	1,2	7,0
	**SNMG 120404E-NF**			●		●	●				●		●				0,4	0,13	0,30	0,4	3,0
	SNMG 120408E-NF			●		●	●				●	●	●		●		0,8	0,15	0,35	0,8	3,5
	**SNMG 120408E-NM**			●			●					●	●				0,8	0,20	0,50	0,8	3,0
	SNMG 120412E-NM			●			●					●					1,2	0,20	0,50	1,2	3,5
	**SNMG 120408E-M**	●	●		●	●	●	●	●								0,8	0,15	0,60	0,8	6,0
	SNMG 120412E-M					●	●	●									1,2	0,15	0,80	1,2	8,0
	SNMG 120416E-M					●	●	●									1,6	0,17	0,80	1,6	8,0
	SNMG 150612E-M					●	●	●	●								1,2	0,17	0,80	1,2	8,0
	SNMG 190612E-M					●	●	●	●								1,2	0,17	0,80	1,2	8,0
	SNMG 190616E-M					●	●	●									1,6	0,17	0,80	1,6	8,0
	**SNMG 120408E-R**	●			●	●	●	●	●	●							0,8	0,25	0,60	2,0	6,0
	SNMG 120412E-R	●			●		●	●	●								1,2	0,25	0,70	2,0	6,0
	SNMG 120416E-R				●	●	●										1,6	0,30	0,80	2,0	6,0
	SNMG 150612E-R	●	●		●	●	●										1,2	0,25	0,70	2,0	7,0
	SNMG 150616E-R		●		●	●	●										1,6	0,25	0,80	2,0	7,0
	SNMG 190612E-R				●	●	●		●	●							1,2	0,25	0,70	2,0	9,0
	SNMG 190616E-R				●	●	●	●	●								1,6	0,30	0,80	2,0	9,0
	**SNMG 120408E-RM**	●	●	●	●	●	●	●			●	●	●				0,8	0,20	0,50	1,0	7,0
	SNMG 120412E-RM	●	●	●	●	●	●	●			●						1,2	0,25	0,70	1,5	7,0
	SNMG 120416E-RM	●	●	●	●	●	●	●					●				1,6	0,30	0,75	2,0	7,0
	SNMG 150612E-RM	●	●	●	●	●	●	●			●						1,2	0,25	0,70	1,5	8,0
	SNMG 150616E-RM	●	●	●		●	●	●									1,6	0,30	0,80	2,0	8,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

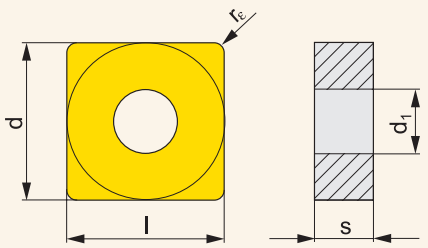
Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	6640	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	SNMG 190612E-RM	●	●	●	●	●	●	●									1,2	0,25	0,70	1,5	10,0
	SNMG 190616E-RM	●	●	●	●	●	●	●			●						1,6	0,30	0,80	2,0	10,0
	SNMG 250924E-RM			●		●	●	●									2,4	0,40	1,20	2,4	15,0
	SNMG 120408E-SF			●							●	●	●	●			0,8	0,12	0,30	0,8	3,0
	SNMG 120412E-SF										●	●	●				1,2	0,15	0,35	1,2	3,5
	SNMG 120408E-SM			●		●	●				●		●				0,8	0,20	0,45	0,8	4,5
	SNMG 120412E-SM			●		●	●										1,2	0,22	0,50	1,2	5,0
	SNMG 190612E-SM			●			●				●						1,2	0,25	0,55	1,2	5,5
	SNMG 190616E-SM			●			●										1,6	0,30	0,55	1,6	6,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

SNMM



Dimensions	l	d	d_1	s
1204	12,7	12,700	5,16	4,76
1506	15,9	15,875	6,35	6,35
1906	19,1	19,050	7,94	6,35
2507	25,4	25,400	9,12	7,94
2509	25,4	25,400	9,12	9,52

Chip-breaker	ISO	Grade								Radius	Feed/rev.		Depth of cut	
		T7335	T9315	T9325	T9335	6630	6640	T8330	T8345	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	SNMM 120412E-DR		●	●	●					1,2	0,30	0,85	2,5	8,4
	SNMM 150612E-DR		●	●	●					1,2	0,30	0,85	2,5	9,0
	SNMM 190612E-DR		●	●	●		●			1,2	0,30	0,85	2,5	9,0
	SNMM 190616E-DR		●	●	●					1,6	0,30	0,85	2,5	9,0
	SNMM 190616E-HR			●	●	●			●	1,6	0,50	1,36	5,0	13,3
	SNMM 190624E-HR		●	●	●				●	2,4	0,50	1,40	5,0	13,3
	SNMM 250716E-HR		●	●	●				●	1,6	0,50	1,36	5,0	14,0
	SNMM 250724E-HR		●	●	●	●	●		●	2,4	0,50	1,40	5,0	14,0
	SNMM 250732E-HR			●	●					3,2	0,50	1,40	5,0	14,0
	SNMM 250924E-HR		●	●	●	●			●	2,4	0,50	1,40	5,0	14,0
	SNMM 250932E-HR			●	●					3,2	0,50	1,40	5,0	14,0
	SNMM 120408E-NR	●	●	●				●		0,8	0,25	0,68	1,0	8,4
	SNMM 120408E-NR2	●	●	●				●		0,8	0,30	0,55	0,8	7,0
	SNMM 120412E-NR2	●		●				●		1,2	0,32	0,70	1,2	7,5
	SNMM 150612E-NR2	●	●	●				●		1,2	0,30	0,70	1,2	9,0
	SNMM 150616E-NR2	●		●						1,6	0,35	0,90	1,6	9,0
	SNMM 190612E-NR2	●		●						1,2	0,32	0,70	1,5	12,0
	SNMM 190616E-NR2	●	●	●				●		1,6	0,35	0,90	1,6	12,0
	SNMM 190624E-NR2	●		●						2,4	0,40	1,20	2,5	12,0
	SNMM 250724E-NR2	●	●	●				●		2,4	0,50	1,40	3,0	16,0
	SNMM 250924E-NR2	●	●	●						2,4	0,50	1,60	3,0	16,0
	SNMM 120408E-OR		●	●	●					0,8	0,30	0,68	1,5	6,0
	SNMM 120412E-OR		●	●						1,2	0,32	0,70	2,0	6,0
	SNMM 120416E-OR		●	●						1,6	0,35	0,80	2,0	8,0
	SNMM 150608E-OR		●	●	●					0,8	0,35	0,60	2,0	8,0
	SNMM 150612E-OR		●	●	●					1,2	0,35	1,00	2,0	9,0
	SNMM 150616E-OR		●	●						1,6	0,35	1,00	2,0	10,0
	SNMM 190612E-OR		●	●	●			●		1,2	0,35	1,00	3,0	10,0
	SNMM 190616E-OR		●	●	●	●		●	●	1,6	0,38	1,20	2,0	10,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

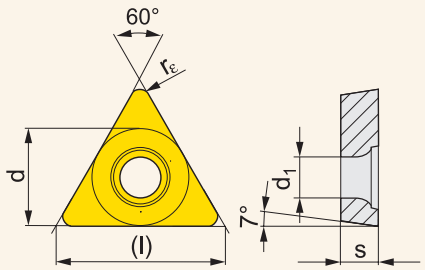
Chip-breaker	ISO	Grade								Radius	Feed/rev.		Depth of cut	
		T7335	T9315	T9325	T9335	6630	6640	T8330	T8345	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	SNMM 190624E-OR		●	●						2,4	0,45	1,20	3,5	12,0
	SNMM 250716E-OR		●	●	●					1,6	0,45	1,36	4,0	16,0
	SNMM 250724E-OR		●	●	●	●		●	●	2,4	0,45	1,70	4,0	16,0
	SNMM 250924E-OR		●	●	●			●		2,4	0,30	1,70	3,0	16,0
	SNMM 190616E-OR1		●	●	●	●				1,6	0,30	1,00	3,0	11,0
	SNMM 250724S-SR			●	●		●			2,4	0,70	1,60	5,0	16,0
	SNMM 250924S-SR			●	●	●				2,4	0,70	1,60	5,0	16,0
	SNMM 190616S-923				●			●	●	1,6	0,45	1,36	3,0	13,0
	SNMM 250716S-923				●					1,6	0,45	1,36	3,0	13,0
	SNMM 250724S-923		●		●			●	●	2,4	0,45	1,50	3,0	16,0
	SNMM 250924S-923		●		●			●	●	2,4	0,45	1,50	3,0	16,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

TCGT



Dimensions	(l)	d	d_1	s
0902	9,6	5,560	2,50	2,38
1102	11,0	6,350	2,80	2,38
16T3	16,5	9,525	4,40	3,97

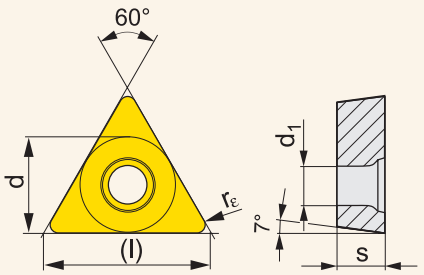
Chip-breaker	ISO	Grade				Radius	Feed/rev.		Depth of cut	
		T0315	T8315	T8330	HF7	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	TCGT 090202F-AL	○			○	0,2	0,06	0,12	0,3	3,0
	TCGT 090204F-AL	○			●	0,4	0,10	0,24	0,4	3,0
	TCGT 110202F-AL	○			●	0,2	0,06	0,12	0,3	3,6
	**TCGT 110204F-AL**	●			●	0,4	0,10	0,24	0,4	3,6
	TCGT 110208F-AL	○			○	0,8	0,15	0,48	0,8	3,6
	TCGT 16T304F-AL	●			●	0,4	0,10	0,24	0,4	5,3
	TCGT 16T308F-AL	●			●	0,8	0,15	0,48	0,8	5,3
	**TCGT 110202ER-SI**		●	●		0,2	0,08	0,12	0,4	1,6
	TCGT 110204ER-SI		●	●		0,4	0,08	0,24	0,4	1,6
	**TCGT 110202EL-SI**		●	●		0,2	0,08	0,12	0,4	1,6
	TCGT 110204EL-SI		●	●		0,4	0,08	0,24	0,4	1,6

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

TCMT



Dimensions	(l)	d	d_1	s		
06T1	6,9	3,970	2,20	1,98		
0902	9,5	5,560	2,50	2,38		
1102	11,0	6,350	2,90	2,38		
16T3	16,5	9,525	4,50	3,97		

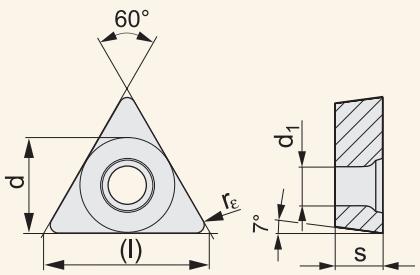
Chip-breaker	ISO	Grade									Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9315	T9325	6630	T8315	T8330	TT310	r_e	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**TCMT 06T102E-FF2**				●						0,2	0,08	0,12	0,2	1,5
	TCMT 06T104E-FF2				●	●					0,4	0,15	0,23	0,4	2,0
	TCMT 090204E-FF2		●		●	●					0,4	0,10	0,23	0,4	2,5
	**TCMT 110202E-FM**			●	●	●		●	●		0,2	0,08	0,12	0,2	2,0
	TCMT 110204E-FM			●	●	●		●	●		0,4	0,08	0,24	0,4	2,0
	TCMT 110208E-FM				●	●			●		0,8	0,15	0,30	0,8	2,5
	TCMT 16T304E-FM			●	●	●		●	●		0,4	0,10	0,25	0,4	3,0
	TCMT 16T308E-FM			●	●	●		●	●		0,8	0,10	0,35	0,8	3,0
	**TCMT 16T308E-RF**						●				0,8	0,15	0,40	1,0	4,0
	**TCMT 16T308E-RM**	●	●	●	●	●			●		0,8	0,15	0,40	1,0	4,0
	TCMT 16T312E-RM	●	●		●	●			●		1,2	0,15	0,45	1,5	4,0
	**TCMT 110204E-UR**				●	●			●		0,4	0,08	0,24	0,4	3,0
	TCMT 16T304E-UR				●	●			●	●	0,4	0,08	0,24	0,4	3,0
	TCMT 16T308E-UR		●		●	●			●		0,8	0,08	0,30	0,8	3,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

TCMW



Dimensions	(l)	d	d_1	s
1102	11,0	6,350	2,80	2,38
16T3	16,5	9,525	4,40	3,97

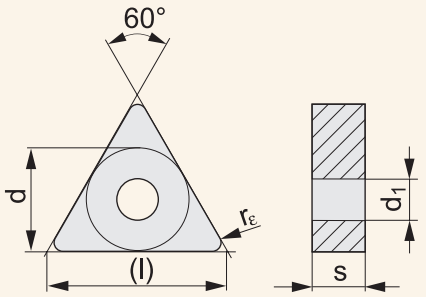
Chip-breaker	ISO	Grade		Radius	Feed/rev.		Depth of cut	
		T5305	T5315	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**TCMW 110204**	●	●	0,4	0,10	0,20	0,4	3,6
	TCMW 16T304	●	●	0,4	0,05	0,24	0,4	4,8
	TCMW 16T308	●	●	0,8	0,05	0,35	0,8	4,8

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

TNMA



Dimensions	(l)	d	d_1	s
1604	16,5	9,525	3,81	4,76
2204	22,0	12,700	5,16	4,76

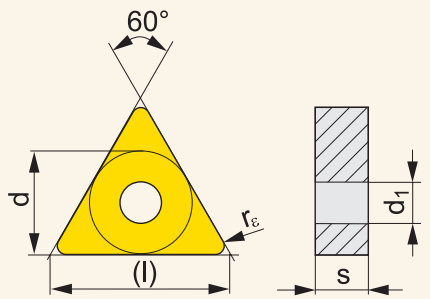
Chip-breaker	ISO	Grade			Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T6310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	TNMA 160404	●	●		0,4	0,10	0,24	0,4	4,8
	TNMA 160408	●	●	●	0,8	0,05	0,40	0,8	4,8
	TNMA 160412	●	●	●	1,2	0,05	0,40	1,2	4,8
	TNMA 220408	●	●	●	0,8	0,05	0,40	0,8	6,4
	TNMA 220412	●	●		1,2	0,10	0,40	1,2	6,4
	TNMA 160408S	●			0,8	0,10	0,40	0,8	4,8
	TNMA 220412S	●			1,2	0,10	0,40	1,2	6,4

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

TNMG



Dimensions	(l)	d	d_1	s
1604	16,5	9,525	3,81	4,76
2204	22,0	12,700	5,16	4,76
2706	27,5	15,875	6,35	6,35
3309	33,0	19,050	7,94	9,52

Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	TNMG 160404E-FF										●	●				0,4	0,06	0,20	0,4	1,5
	TNMG 160408E-FF										●					0,8	0,08	0,25	0,8	1,5
	TNMG 160404E-FM			●	●	●	●				●	●			●	0,4	0,10	0,24	0,5	3,0
	TNMG 160408E-FM			●	●	●	●				●	●			●	0,8	0,15	0,45	0,8	3,0
	TNMG 160412E-FM					●	●					●				1,2	0,15	0,45	1,2	3,0
	TNMG 220404E-FM					●	●					●				0,4	0,15	0,24	0,8	5,0
	TNMG 220408E-FM					●	●					●				0,8	0,15	0,45	0,8	3,0
	TNMG 160408E-KR	●	●													0,8	0,20	0,40	0,8	4,0
	TNMG 160404E-M		●			●	●	●								0,4	0,17	0,24	0,8	3,0
	TNMG 160408E-M	●	●		●	●	●	●	●							0,8	0,15	0,48	0,8	5,3
	TNMG 160412E-M		●			●	●	●								1,2	0,15	0,72	1,2	5,3
	TNMG 220408E-M	●	●		●	●	●	●	●							0,8	0,15	0,48	0,8	6,0
	TNMG 220412E-M	●	●			●	●	●	●							1,2	0,17	0,72	1,2	6,0
	TNMG 160404E-NF			●		●	●			●	●	●		●		0,4	0,13	0,24	0,4	3,0
	TNMG 160408E-NF			●		●	●			●	●	●		●		0,8	0,15	0,30	0,8	3,0
	TNMG 160404E-NM			●			●				●	●				0,4	0,15	0,24	0,5	3,0
	TNMG 160408E-NM			●		●	●				●	●				0,8	0,20	0,40	1,0	3,0
	TNMG 220408E-NM			●		●	●				●	●				0,8	0,20	0,40	1,0	3,5
	TNMG 220412E-NM			●			●									1,2	0,20	0,40	1,2	3,5
	TNMG 160408E-R	●	●		●	●	●	●								0,8	0,20	0,48	0,8	5,3
	TNMG 160412E-R		●		●	●	●	●								1,2	0,25	0,70	2,0	5,3
	TNMG 220408E-R				●	●	●	●								0,8	0,25	0,48	2,0	6,0
	TNMG 220412E-R				●	●	●									1,2	0,25	0,70	2,0	6,0
	TNMG 220416E-R				●	●	●									1,6	0,25	0,80	2,0	6,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	TNMG 160408E-RM	●	●	●	●	●	●	●								0,8	0,20	0,48	1,0	5,3
	TNMG 160412E-RM	●	●	●		●	●	●				●				1,2	0,25	0,65	1,5	5,3
	TNMG 220408E-RM	●	●	●	●	●	●	●								0,8	0,20	0,48	1,0	7,0
	TNMG 220412E-RM	●	●	●	●	●	●	●								1,2	0,25	0,65	1,5	7,0
	TNMG 220416E-RM	●	●	●		●	●	●								1,6	0,30	0,75	2,0	7,0
	TNMG 270612E-RM						●									1,2	0,35	0,72	1,2	8,9
	TNMG 270616E-RM					●	●	●								1,6	0,35	0,75	2,0	8,9
	TNMG 270624E-RM						●	●								2,4	0,35	0,80	3,0	8,9
	TNMG 270632E-RM							●								3,2	0,35	0,80	3,2	8,9
	TNMG 330924E-RM							●								2,4	0,45	0,90	3,0	10,9
	TNMG 160404E-SF			●						●	●	●	●			0,4	0,10	0,24	0,4	2,5
	TNMG 160408E-SF			●						●	●	●	●			0,8	0,12	0,28	0,8	3,0
	TNMG 220408E-SF									●	●	●				0,8	0,15	0,35	0,8	3,5
	TNMG 160404E-SM			●		●	●			●		●				0,4	0,18	0,24	0,4	4,0
	TNMG 160408E-SM			●		●	●			●		●				0,8	0,20	0,40	0,8	4,0
	TNMG 160412E-SM			●			●									1,2	0,22	0,40	1,2	4,0
	TNMG 220404E-SM						●			●		●				0,4	0,20	0,24	0,4	4,0
	TNMG 220408E-SM			●		●	●			●		●				0,8	0,20	0,45	0,8	4,5
	TNMG 220412E-SM			●		●	●									1,2	0,22	0,50	1,2	5,0
	TNMG 160404EL-SI			●			●		●		●	●				0,4	0,20	0,24	0,8	5,0
	TNMG 160408EL-SI			●			●		●		●	●				0,8	0,20	0,48	0,8	5,0
	TNMG 160404ER-SI			●			●		●		●	●				0,4	0,20	0,24	0,8	5,0
	TNMG 160408ER-SI			●			●		●		●	●				0,8	0,20	0,48	0,8	5,0

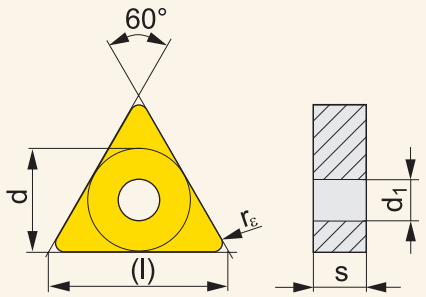
● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR TURNING

TNMM



Dimensions	(l)	d	d_1	s
1604	16,5	9,525	3,81	4,76
2204	22,0	12,700	5,16	4,76
2706	27,5	15,875	6,35	6,35

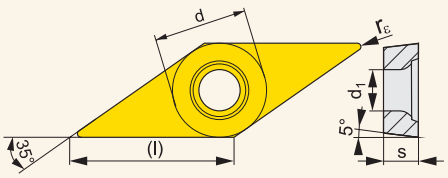
Chip-breaker	ISO	Grade					Radius	Feed/rev.		Depth of cut	
		T9315	T9325	T9335	6640	T8330	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	TNMM 160408E-DR		●				0,8	0,30	0,48	2,5	5,3
	TNMM 220408E-DR	●	●	●			0,8	0,30	0,48	2,5	7,3
	TNMM 220412E-DR	●	●	●			1,2	0,30	0,72	2,5	7,3
	TNMM 220416E-DR		●				1,6	0,30	0,85	2,5	7,3
	TNMM 270616E-DR		●	●	○		1,6	0,30	0,85	2,5	8,9
	TNMM 270616E-HR		●	●			1,6	0,50	0,96	5,0	8,9
	TNMM 270624E-HR		●				2,4	0,50	1,40	5,0	8,9
	TNMM 160408E-NR2		●				0,8	0,20	0,48	0,8	5,3
	TNMM 220408E-NR2		●				0,8	0,25	0,48	0,8	7,3
	TNMM 220412E-NR2		●			●	1,2	0,30	0,70	1,2	7,3
	TNMM 160408E-OR	●	●				0,8	0,25	0,45	2,0	5,0
	TNMM 160412E-OR	●	●				1,2	0,30	0,60	2,0	5,3
	TNMM 220408E-OR	●	●	●			0,8	0,30	0,48	1,0	7,3
	TNMM 220412E-OR	●	●	●			1,2	0,32	0,70	2,0	7,0
	TNMM 220416E-OR	●	●				1,6	0,40	0,80	3,0	7,3
	TNMM 220412ER			●			1,2	0,20	0,50	1,2	5,0
	TNMM 220412EL			●			1,2	0,20	0,50	1,2	5,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

VBMT



Dimensions	(l)	d	d_1	s
1102	11,1	6,350	2,90	2,38
1103	11,1	6,350	2,90	3,18
1604	16,6	9,525	4,50	4,76

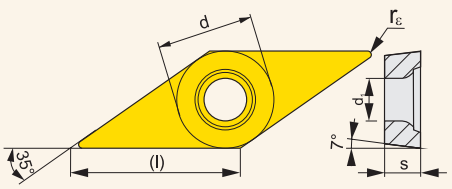
Chip-breaker	ISO	Grade								Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T8315	T8330	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	VBMT 110302E-FM						●	●	●		0,2	0,07	0,10	0,2	2,0
	VBMT 110304E-FM			●		●	●	●	●		0,4	0,08	0,20	0,4	2,0
	VBMT 110308E-FM					●	●		●		0,8	0,10	0,25	0,8	2,5
	VBMT 160402E-FM					●	●		●		0,2	0,07	0,10	0,2	2,0
	VBMT 160404E-FM		●	●		●	●	●	●		0,4	0,10	0,20	0,4	2,0
	VBMT 160408E-FM		●	●		●	●	●	●		0,8	0,15	0,30	0,8	2,5
	VBMT 160412E-FM					●	●		●		1,2	0,20	0,40	1,2	3,0
	VBMT 160404E-RM	●	●	●		●	●		●		0,4	0,10	0,20	0,8	3,6
	VBMT 160408E-RM	●	●	●		●	●		●		0,8	0,10	0,35	1,0	3,6
	VBMT 160412E-RM			●		●	●		●		1,2	0,15	0,40	1,2	3,6
	VBMT 110202E-UR									●	0,2	0,07	0,10	0,2	2,0
	VBMT 110204E-UR					●	●		●	●	0,4	0,08	0,20	0,4	2,0
	VBMT 160402E-UR								●		0,2	0,05	0,10	0,2	2,0
	VBMT 160404E-UR		●		●	●	●		●	●	0,4	0,08	0,20	0,4	3,0
	VBMT 160408E-UR		●		●	●	●		●	●	0,8	0,08	0,40	0,8	3,0
	VBMT 160412E-UR				●	●	●		●		1,2	0,08	0,30	1,2	3,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current availability

INDEXABLE CUTTING INSERTS FOR TURNING

VCMT



Dimensions	(l)	d	d_1	s
1103	11,1	6,350	2,90	3,18
1604	16,6	9,525	4,50	4,76

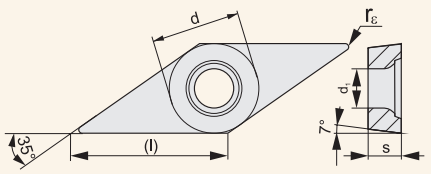
Chip-breaker	ISO	Grade			Radius	Feed/rev.		Depth of cut	
		T9315	T9325	T8330	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**VCMT 160404E-FM**	●	●	●	0,4	0,10	0,20	0,4	2,0
	VCMT 160408E-FM	●	●	●	0,8	0,15	0,30	0,8	2,5
	**VCMT 110304E-UR**	●	●	●	0,4	0,08	0,20	0,4	2,0
	VCMT 110308E-UR	●	●	●	0,8	0,08	0,30	0,8	2,0
	VCMT 160404E-UR	●	●	●	0,4	0,08	0,20	0,4	2,0
	VCMT 160408E-UR	●	●	●	0,8	0,08	0,30	0,8	3,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

VCGW, VCMW



Dimensions	(l)	d	d_1	s
1103	11,1	6,350	2,80	3,18
1303	13,8	7,940	3,40	3,18
1604	16,5	9,525	4,40	4,76

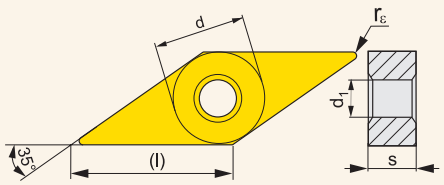
Chip-breaker	ISO	Grade		Radius	Feed/rev.		Depth of cut	
		T5305	T5315	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**VCGW 130302**	●		0,2	0,07	0,10	0,4	3,3
	VCGW 130304	●		0,4	0,10	0,20	0,4	3,3
	VCGW 130308	●		0,8	0,10	0,40	0,8	3,3
	**VCMW 110302**	●	●	0,2	0,05	0,10	0,2	2,4
	VCMW 110304	●	●	0,4	0,05	0,20	0,4	2,4
	VCMW 160404	●	●	0,4	0,05	0,20	0,4	3,7
	VCMW 160408	●	●	0,8	0,05	0,40	0,8	3,7

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

VNMG



Dimensions	(l)	d	d_1	s		
1604	16,6	9,525	3,81	4,76		

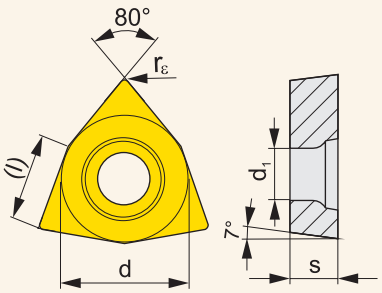
Chip-breaker	ISO	Grade															Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	T6310	T8315	T8330						r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	VNMG 160404E-FF									●	●						0,4	0,06	0,20	0,4	1,5
	VNMG 160404E-FM				●	●	●				●						0,4	0,10	0,20	0,5	3,0
	VNMG 160408E-FM				●	●	●				●						0,8	0,15	0,35	0,8	3,0
	VNMG 160412E-FM					●	●				●						1,2	0,15	0,45	1,2	3,0
	VNMG 160404E-M		●			●	●	●									0,4	0,12	0,20	0,8	3,0
	VNMG 160408E-M	●	●		●	●	●	●									0,8	0,15	0,40	0,8	4,0
	VNMG 160412E-M						●	●									1,2	0,15	0,60	1,2	4,0
	VNMG 160404E-NF			●		●	●		●	●	●						0,4	0,10	0,20	0,4	2,5
	VNMG 160408E-NF			●		●	●		●	●	●						0,8	0,13	0,30	0,8	3,0
	VNMG 160404E-NM			●			●			●	●						0,4	0,15	0,20	0,5	3,0
	VNMG 160408E-NM			●			●			●	●						0,8	0,20	0,40	0,8	3,0
	VNMG 160404E-SF								●	●	●						0,4	0,10	0,20	0,4	2,0
	VNMG 160408E-SF								●	●	●						0,8	0,12	0,25	0,8	2,5
	VNMG 160412E-SF								●	●							1,2	0,15	0,28	1,2	3,0
	VNMG 160404E-SM			●		●	●		●		●						0,4	0,15	0,20	0,4	3,0
	VNMG 160408E-SM			●		●	●		●		●						0,8	0,20	0,30	0,8	3,5
	VNMG 160412E-SM						●		●								1,2	0,22	0,40	1,2	3,5

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

WCMT



Dimensions	(l)	d	d_1	s		
06T3	6,5	9,525	4,50	3,97		
0804	8,7	12,700	5,60	4,76		

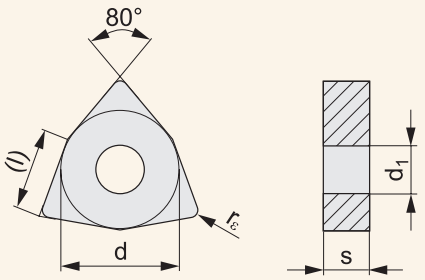
Chip-breaker	ISO	Grade					Radius	Feed/rev.		Depth of cut	
		T7335	T9315	T9325	T8315	T8330	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**WCMT 06T304E-FM**	●	●	●	●	●	0,4	0,10	0,30	0,4	3,0
	WCMT 06T308E-FM	●	●	●	●	●	0,8	0,15	0,35	0,8	3,0
	WCMT 080404E-FM	●	●	●	●	●	0,4	0,10	0,30	0,4	4,0
	WCMT 080408E-FM	●	●	●	●	●	0,8	0,15	0,35	0,8	4,0
	WCMT 080412E-FM		●	●		●	1,2	0,15	0,45	1,2	4,0
	**WCMT 06T308E-UR**		●	●			0,8	0,15	0,30	0,8	3,0
	**WCMT 06T308E-RF**	●					0,8	0,15	0,40	0,8	4,0
	WCMT 080412E-RF	●					1,2	0,20	0,70	1,2	5,6

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

WNMA



Dimensions	(l)	d	d_1	s
0804	8,7	12,700	5,16	4,76

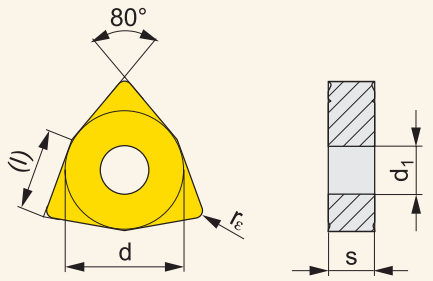
Chip-breaker	ISO	Grade			Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T6310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**WNMA 080404**	●	●		0,4	0,10	0,30	0,4	4,4
	WNMA 080408	●	●	●	0,8	0,05	0,60	0,8	4,4
	WNMA 080412	●	●	●	1,2	0,05	0,60	1,2	4,4
	**WNMA 080408S**	●			0,8	0,10	0,60	0,8	4,4

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

WNMG



Dimensions	(l)	d	d_1	s
0604	6,5	9,525	3,81	4,76
06T3	6,5	9,525	3,81	3,97
0804	8,7	12,700	5,16	4,76

Chip-breaker	ISO	Grade															Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310		r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	WNMG 060408W-F					●	●										0,8	0,15	0,60	0,8	4,2
	WNMG 080404W-F					●	●										0,4	0,15	0,30	0,4	4,4
	WNMG 060402E-FF										●						0,2	0,06	0,15	0,2	1,5
	WNMG 060404E-FF										●						0,4	0,06	0,20	0,4	1,5
	WNMG 080404E-FF										●						0,4	0,06	0,20	0,4	1,5
	WNMG 080408E-FF										●						0,8	0,08	0,25	0,8	1,5
	WNMG 06T304E-FM						●					●					0,4	0,10	0,30	0,5	3,0
	WNMG 06T308E-FM						●					●					0,8	0,10	0,35	0,8	3,0
	WNMG 060404E-FM					●	●				●	●			●		0,4	0,10	0,30	0,5	3,0
	WNMG 060408E-FM					●	●					●			●		0,8	0,10	0,35	0,8	3,0
	WNMG 060412E-FM					●											1,2	0,15	0,45	1,2	3,0
	WNMG 080404E-FM			●	●	●	●				●	●					0,4	0,10	0,30	0,5	3,0
	WNMG 080408E-FM			●	●	●	●				●	●					0,8	0,15	0,45	0,8	3,0
	WNMG 080412E-FM			●	●	●	●					●					1,2	0,15	0,45	1,2	4,0
	WNMG 080408E-KR	●	●														0,8	0,25	0,60	0,8	5,5
	WNMG 080412E-KR	●	●														1,2	0,25	0,60	1,2	5,5
	WNMG 060404E-M		●			●	●	●									0,4	0,17	0,30	0,8	3,0
	WNMG 060408E-M		●		●	●	●	●									0,8	0,15	0,60	0,8	4,2
	WNMG 080404E-M		●			●	●	●									0,4	0,17	0,30	0,8	3,0
	WNMG 080408E-M	●	●		●	●	●	●	●			●					0,8	0,15	0,60	0,8	5,6
	WNMG 080412E-M	●	●		●	●	●	●									1,2	0,15	0,80	1,2	5,6
	WNMG 060408W-M				●	●	●										0,8	0,15	0,60	0,8	3,0
	WNMG 060412W-M		●			●	●										1,2	0,15	0,90	1,2	3,0
	WNMG 080408W-M					●	●										0,8	0,15	0,60	0,8	4,0
	WNMG 080412W-M		●			●	●										1,2	0,20	0,90	1,2	4,0
	WNMG 060408W-MR					●	●										0,8	0,46	0,70	0,8	3,0
	WNMG 080404W-MR					●	●										0,4	0,39	0,60	0,5	4,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

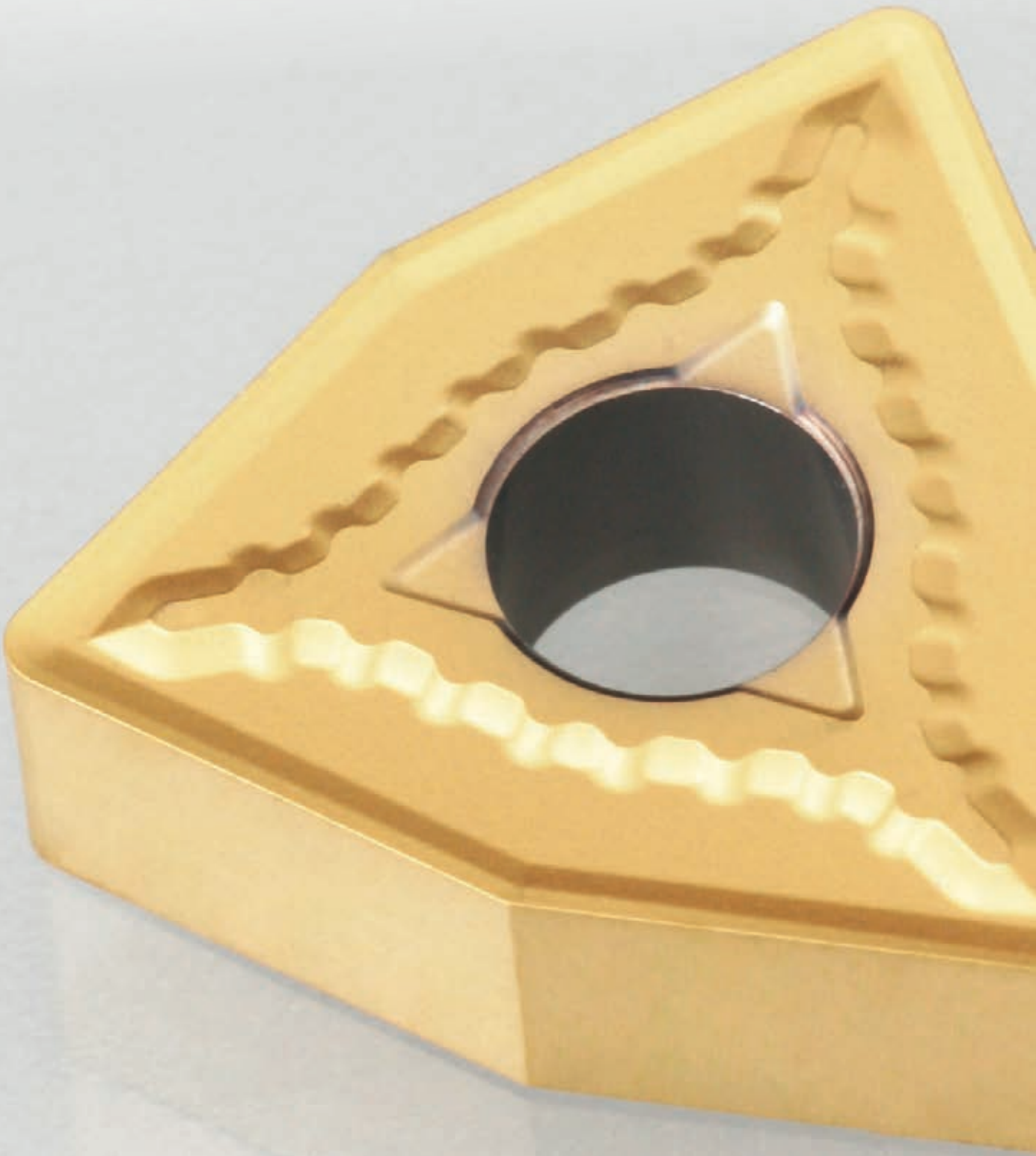
INDEXABLE CUTTING INSERTS FOR TURNING

Chip-breaker	ISO	Grade														Radius	Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	WNMG 080408W-MR		●			●	●									0,8	0,46	0,70	0,8	4,0
	WNMG 080412W-MR		●			●	●									1,2	0,49	0,75	1,2	4,0
	WNMG 060404E-NF			●		●	●			●	●	●				0,4	0,10	0,30	0,4	3,0
	WNMG 060408E-NF					●	●			●		●				0,8	0,13	0,30	0,8	3,0
	WNMG 080404E-NF			●		●	●			●	●	●		●		0,4	0,13	0,30	0,4	3,0
	WNMG 080408E-NF			●		●	●			●	●	●		●		0,8	0,15	0,35	0,8	3,5
	WNMG 080412E-NF			●		●	●			●		●				1,2	0,15	0,35	1,2	4,0
	WNMG 060404E-NM			●			●				●	●				0,4	0,15	0,30	0,5	3,0
	WNMG 060408E-NM			●		●	●				●	●				0,8	0,20	0,40	0,8	3,0
	WNMG 060412E-NM			●		●	●									1,2	0,20	0,50	1,2	3,5
	WNMG 080404E-NM			●		●	●				●	●				0,4	0,15	0,30	0,5	3,0
	WNMG 080408E-NM			●		●	●				●	●				0,8	0,20	0,50	0,8	3,0
	WNMG 080412E-NM			●			●				●					1,2	0,20	0,50	1,2	3,5
	WNMG 080408E-R	●	●		●	●	●	●	●							0,8	0,25	0,60	2,0	5,6
	WNMG 080412E-R	●	●		●	●	●	●								1,2	0,25	0,70	2,0	5,6
	WNMG 080416E-R		●													1,6	0,30	0,80	2,0	5,6
	WNMG 060412E-RM			●		●	●	●								1,2	0,25	0,60	1,3	4,0
	WNMG 080408E-RM	●	●	●	●	●	●	●			●	●				0,8	0,20	0,55	1,0	5,0
	WNMG 080412E-RM	●	●	●	●	●	●	●			●					1,2	0,25	0,70	1,5	5,0
	WNMG 080416E-RM	●	●	●	●	●	●	●				●				1,6	0,30	0,75	2,0	5,0
	WNMG 060404E-SF			●						●	●	●	●			0,4	0,10	0,25	0,4	2,5
	WNMG 060408E-SF			●						●	●	●	●			0,8	0,12	0,28	0,8	3,0
	WNMG 080404E-SF			●						●	●	●	●			0,4	0,10	0,30	0,4	2,7
	WNMG 080408E-SF			●						●	●	●	●			0,8	0,12	0,30	0,8	3,0
	WNMG 060404E-SM			●		●	●					●				0,4	0,18	0,30	0,4	3,0
	WNMG 060408E-SM			●			●			●		●				0,8	0,18	0,35	0,8	3,5
	WNMG 060412E-SM			●			●					●				1,2	0,20	0,40	1,2	4,0
	WNMG 080404E-SM			●		●	●			●		●				0,4	0,18	0,30	0,4	4,0
	WNMG 080408E-SM			●		●	●			●		●				0,8	0,20	0,45	0,8	4,0
	WNMG 080412E-SM			●		●	●			●		●				1,2	0,22	0,45	1,2	4,5
	WNMG 060404EL-SI						●					●				0,4	0,20	0,30	0,8	4,2
	WNMG 080404EL-SI			●			●				●	●				0,4	0,20	0,30	0,8	5,0
	WNMG 080408EL-SI			●			●				●	●				0,8	0,20	0,50	0,8	5,0
	WNMG 080412EL-SI						●					●				1,2	0,20	0,50	1,2	5,0
	WNMG 060404ER-SI						●					●				0,4	0,20	0,30	0,8	4,2
	WNMG 080404ER-SI			●			●				●	●				0,4	0,20	0,30	0,8	5,0
	WNMG 080408ER-SI			●			●				●	●				0,8	0,20	0,50	0,8	5,0
	WNMG 080412ER-SI						●					●				1,2	0,20	0,50	1,2	5,0

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability



DRILLING INSERTS

NEW INSERTS FOR DRILLING LONG-CHIP MATERIALS

The new SD chip-breaker expands the choice for the SCET and XPET inserts in the 800D drill series.
The chip-breaker is designed for drilling long-chip materials, in particular mild steel and stainless steel.

NEW PRODUCTS

- New patented SD chip-breaker for the SCET and XPET inserts
- Optimised for low carbon and soft stainless steels

BENEFITS

- Reliable formation of chip and good chip evacuation
- Quiet running, minimised vibration
- Suitable for high cutting speeds
- Optimised geometry with different grades for the outer and inner inserts allows better performance and greater insert reliability

SD

CHIP-BREAKER SD

Positive geometry with stabiliser

- For low carbon and soft stainless steels
- Geometry designed for drilling in solid material
- Optimum contact of the chip with the face increases durability of the inserts
- Low cutting forces

For best results use the same SD chip breaker for both inner and outer inserts.

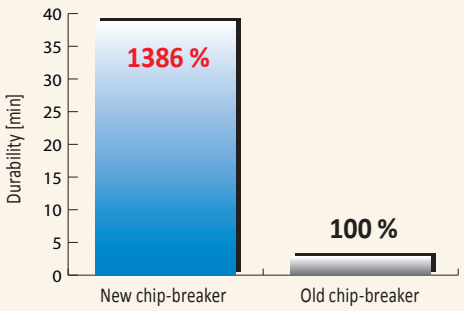
We offer a range of 2D – 5D drills for drilling steels and stainless steels.

MACHINING EXAMPLE USING THE NEW SD CHIP-BREAKER

Material: AISI316
Drill: 803D-21-63-S25
Inner insert: XPET 0602AP-SD:D8345
Outer insert: SCET 060204-SD:D9335
Coolant: Yes

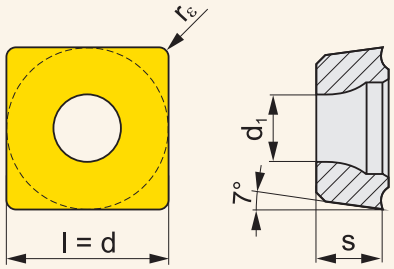
Speed	n	1950	1/min
Feed per revolution	f	0,08	mm

Chip-breaker	UD	**SD**	
Total drilled length	432	6048	mm
Total time	2,8	38,8	min



INDEXABLE CUTTING INSERTS FOR DRILLING

SCET



Dimensions	l	d	s	d_1
0502	5,6	5,556	2,38	2,40
0602	6,4	6,350	2,38	2,90
0703	7,9	7,937	3,18	3,50
09T3	9,5	9,525	3,97	4,50
1204	12,7	12,700	4,76	5,60
1505	15,9	15,875	5,56	5,60

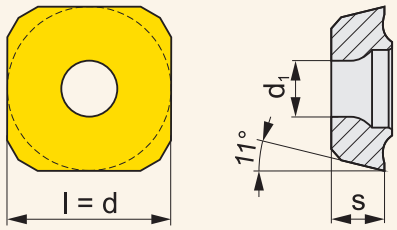
Chip-breaker	ISO	Grade		Radius	Feed/rev.		Depth of cut	
		D8330	D9335	r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**SCET 050204-UD**	●	●	0,4	0,05	0,11	-	-
	SCET 060204-UD	●	●	0,4	0,06	0,15	-	-
	SCET 070308-UD	●	●	0,8	0,07	0,18	-	-
	SCET 09T308-UD	●	●	0,8	0,08	0,20	-	-
	SCET 120408-UD	●	●	0,8	0,09	0,22	-	-
	SCET 150512-UD	●	●	1,2	0,10	0,25	-	-
	**SCET 050204-SD**	●	●	0,4	0,05	0,11	-	-
	SCET 060204-SD	●	●	0,4	0,06	0,15	-	-
	SCET 070308-SD	●	●	0,8	0,07	0,18	-	-
	SCET 09T308-SD	●	●	0,8	0,08	0,20	-	-
	SCET 120408-SD	●	●	0,8	0,09	0,22	-	-
	SCET 150512-SD	●	●	1,2	0,10	0,25	-	-

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

XPET



Dimensions	l	d	s	d_1		
0502	5,6	5,556	2,38	2,40		
0602	6,4	6,350	2,38	2,60		
0703	7,9	7,937	3,18	2,90		
0903	9,5	9,525	3,18	3,50		
11T3	11,5	11,509	3,97	3,90		
12T3	12,7	12,700	3,97	3,90		
1504	15,9	15,875	4,76	4,50		
1904	19,1	19,050	4,76	4,50		

Chip-breaker	ISO	Grade															Radius	Feed/rev.		Depth of cut	
		D8345															r_ε	f_{min}	f_{max}	$a_{p\,min}$	$a_{p\,max}$
	**XPET 0502AP**	●																0,05	0,11	-	-
	XPET 0602AP	●																0,06	0,15	-	-
	XPET 0703AP	●																0,07	0,18	-	-
	XPET 0903AP	●																0,08	0,20	-	-
	XPET 11T3AP	●																0,09	0,22	-	-
	XPET 12T3AP	●																0,09	0,22	-	-
	XPET 1504AP	●																0,10	0,25	-	-
	XPET 1904AP	●																0,10	0,25	-	-
	**XPET 0502AP-SD**	●																0,05	0,11	-	-
	XPET 0602AP-SD	●																0,06	0,15	-	-
	XPET 0703AP-SD	●																0,07	0,18	-	-
	XPET 0903AP-SD	●																0,08	0,20	-	-
	XPET 11T3AP-SD	●																0,09	0,22	-	-
	XPET 12T3AP-SD	●																0,09	0,22	-	-
	XPET 1504AP-SD	●																0,10	0,25	-	-
	XPET 1904AP-SD	●																0,10	0,25	-	-

● New item in the assortment

● Stock assortment ○ Non-stock assortment All dimensions [mm]

See latest price list for current availability

TECHNICAL SECTION

WORKPIECE MATERIALS - CLASSIFICATION

Correctly identifying the machined material is one of the most important factors when choosing the tool and the initial machining conditions. To facilitate this, the machined materials are divided into six basic groups, or into twenty-four subgroups, combining materials that qualitatively cause the same type of loading (straining) on the cutting edge and therefore a similar type of wear.

Thus the first step is to assign the workpiece material to one of the (sub) groups - see table

Group	Subgroup	*Dormer AMG	Subgroup definition	Example	Correction to standard
P	P1	1.1, 1.2	Steel and cast steel with very good (enhanced) machinability; automatic steel and low-carbon steel	ČSN 11 109	1,33
	P2	1.3	Non-alloy and low-alloy cast steel and steel with a medium carbon content (0.25<C<0.55); rigidity of up to 900 MPa and hardness of 160-255 HB	ČSN 12 050	1,00
	P3	1.4	Less machinable non-alloy and low-alloy cast steel and steel with a medium carbon content; rigidity of up to 1000 MPa and hardness of up to 300 HB	ČSN 15 340	0,80
	P4	1.5	Medium- to high-alloy cast steel and steel (usually with a carbon content of 0.55 <C); rigidity of up to 1270 MPa and hardness of up to 375HB (resp. 40 HRC)	ČSN 19 436	0,60
M	M1	2.1	Ferritic corrosion-resistant steel	ČSN 17041	1,09
	M2	(2.1, 2.4)	Martensitic corrosion-resistant steel	ČSN 17042	1,06
	M3	2.2	Austenitic corrosion-resistant steel	ČSN 17 247	1,00
	M4	2.3, 2.4	Ferritic-austenitic (duplex) and super-austenitic corrosion-resistant steel	ČSN 17 465	0,93
K	K1	3.1, 3.2	Grey cast iron	ČSN 42 2425	1,00
	K2	3.1, 3.2	Tempered cast iron	ČSN 42 2545	0,95
	K3	3.3	Ductile cast iron ferritic and ferrite-pearlite	ČSN 42 2304	0,90
	K4	3.4	Ductile cast iron pearlite-ferritic, pearlite-sorbitic and pearlite	ČSN 42 2307	0,85
N	N1	7.1	Aluminium and its soft alloys (with a low Si content), particularly formed and cast (non-hardened); hardness of up to 100 HB	ČSN 42 4400	1,00
	N2	7.2, 7.3, 7.4	Hard Al alloys, particularly cast and hardened (with a high Si content)	ČSN 42 4330	0,65
	N3	6.1, 6.2, 6.3	Soft Cu alloys, automatic brass and other types of soft brass and bronze	ČSN 42 3135	0,60
	N4	6.4	Less machinable and hard Cu alloys	ČSN 42 3145	0,40
S	S1	4.1, 4.2, 4.3	Technically pure Ti, alloys a , a+b and b, refined and aged alloys	TiAl6V4	1,75
	S2	5.1, 5.2, 5.3	Fe-based alloys	INCOLOY 800	1,20
	S3	5.1, 5.2, 5.3	Ni-based alloys	INCONEL 718	1,00
	S4	5.1, 5.2, 5.3	Co-based alloys	Haynes 25	0,75
H	H1	1.6	Highly rigid and hard tool steel and hardened and refined steel with a hardness of 40-50 HRC	ČSN 19 854	1,15
	H2	-	Hardened and white cast iron 350-600 HV	ČSN 42 2483	1,10
	H3	1.7	Hardened and refined steel with hardness in the 50-55 HRC range	ČSN 19 552.4	1,00
	H4	1.8	Hardened and refined (mostly tool) steel with hardness of more than 55 HRC	ČSN 19 436.4	0,95

* The material classification code used by Dormer is added here for cross reference purposes and should be used only as a guide.

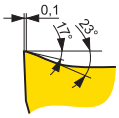
GEOMETRY OF CUTTING INSERTS FOR MILLING

ADMX 11-MF

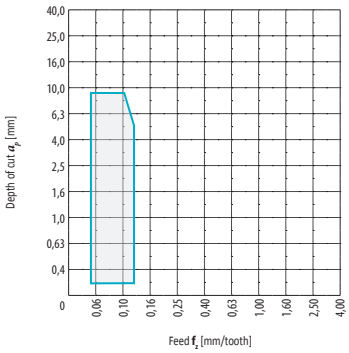
Geometry | Photo | Group of machined materials | Operating diagram | Description

Used for inserts: ADMX 11T304SR-MF, ADMX 11T308SR-MF

Cutting edge profile



Milling	P	M	K	N	S	H
Light	■	■		◪	■	
Medium	◪	◪		◪	◪	
Heavy						



- Highly positive geometry
- Suitable for milling material groups M, S, P and secondary N
- Particularly suited to light milling
- Available with radii of 0.4 and 0.8
- Particularly suited to finishing operations

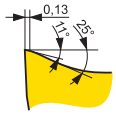
Range of machining conditions:		Unit:
f_z	0,05 ÷ 0,14	[mm/tooth]
a_p	0,2 ÷ 9,0	[mm]

ADMX 11-MM

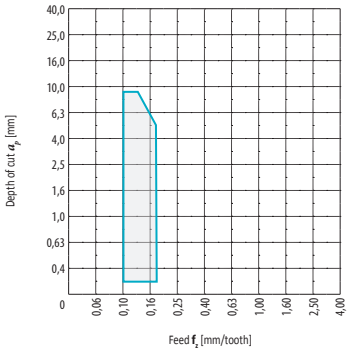
Geometry | Photo | Group of machined materials | Operating diagram | Description

Used for inserts: ADMX 11T304SR-MM, ADMX 11T308SR-MM, ADMX 11T312SR-MM

Cutting edge profile



Milling	P	M	K	N	S	H
Light	■	■		◪	■	
Medium	■	■		◪	■	
Heavy						



- Highly positive geometry
- Suitable for milling material groups M, S, P and secondary N
- Particularly suited to light and medium machining
- Available with radii of 0.4, 0.8 and 1.2
- Universal geometry for finishing and semi-roughing operations

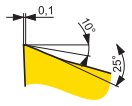
Range of machining conditions:		Unit:
f_z	0,1 ÷ 0,18	[mm/tooth]
a_p	0,2 ÷ 9,0	[mm]

ADMX 16-MF

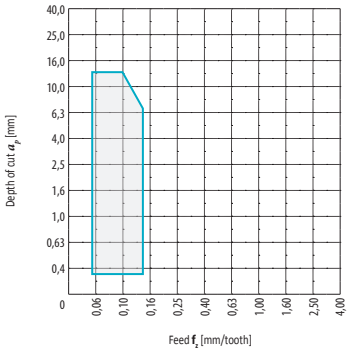
Geometry | Photo | Group of machined materials | Operating diagram | Description

Used for inserts: ADMX 160608SR-MF

Cutting edge profile



Milling	P	M	K	N	S	H
Light	■	■		◪	■	
Medium	◪	◪		◪	◪	
Heavy						



- Highly positive geometry
- Suitable for milling material groups M, S, P and secondary N
- Particularly suited to finishing operations

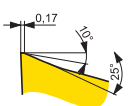
Range of machining conditions:		Unit:
f_z	0,05 ÷ 0,16	[mm/tooth]
a_p	0,3 ÷ 13,0	[mm]

ADMX 16-MM

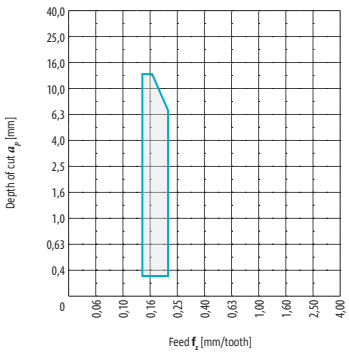
Geometry | Photo | Group of machined materials | Operating diagram | Description

Used for inserts: ADMX 160604SR-MM, ADMX 160608SR-MM, ADMX 160616SR-MM

Cutting edge profile



Milling	P	M	K	N	S	H
Light	■	■		◪	■	
Medium	■	■		◪	■	
Heavy						

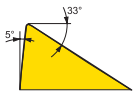
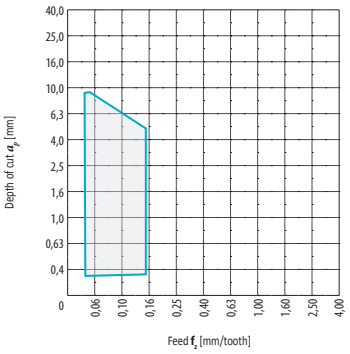


- Highly positive geometry
- Suitable for milling material groups M, S, P and secondary N
- Available with radii of 0.4, 0.8 and 1.6
- Universal geometry for finishing and semi-roughing operations

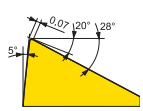
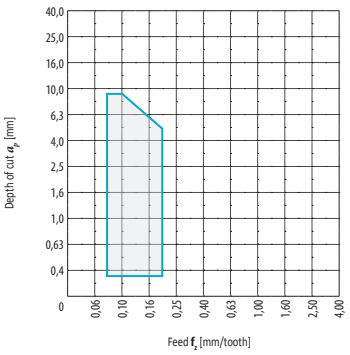
Range of machining conditions:		Unit:
f_z	0,14 ÷ 0,22	[mm/tooth]
a_p	0,3 ÷ 13,0	[mm]

■ Main application area ◪ Other applications □ Potential applications

GEOMETRY OF CUTTING INSERTS FOR MILLING

Geometry	Photo	Group of machined materials	Operating diagram	Description	Used for inserts:
LNGX 12-MF	 Cutting edge profile 	Milling: P M K N S H Light: ■ ■ ■ Medium: □ ◪ ◪ Heavy:		- Positive geometry without peripheral land - Suitable for milling material groups M, S and P - Particularly suited to light milling - Available with radii of 0.4 and 0.8	LNGX 120504ER-MF, LNGX 120508ER-MF

Range of machining conditions:		Unit:
f_z	0,04 ÷ 0,15	[mm/tooth]
a_p	0,3 ÷ 9,0	[mm]

Geometry	Photo	Group of machined materials	Operating diagram	Description	Used for inserts:
LNGX 12-MM	 Cutting edge profile 	Milling: P M K N S H Light: ■ ■ ■ Medium: ◪ ■ ◪ Heavy: □ □ □		- Positive geometry with stabilised cutting edge - Suitable for milling material groups M, S and P - Particularly suited to light and medium machining	LNGX 120508SR-MM

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,20	[mm/tooth]
a_p	0,3 ÷ 9,0	[mm]

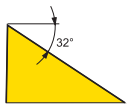
■ Main application area ◪ Other applications □ Potential applications

GEOMETRY OF CUTTING INSERTS FOR MILLING

LNGU 16-FA

Photo

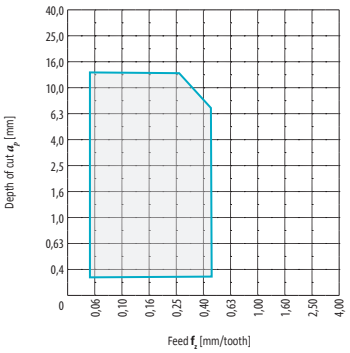
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light		◪		■	◪	
Medium		□		◪	□	
Heavy						

Operating diagram



Description

Used for inserts:
LNGU 160708FR-FA

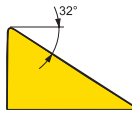
- Highly positive geometry with a sharp cutting edge
- Suitable for machining material group N, and potentially groups M and S
- Cutting insert has a polished face to reduce sticking of the machined material
- f_{zmax} = 0.18 for ISO M and S

Range of machining conditions:		Unit:
f_z	0,05 ÷ 0,45	[mm/tooth]
a_p	0,3 ÷ 13,0	[mm]

LNMU 16ER-F

Photo

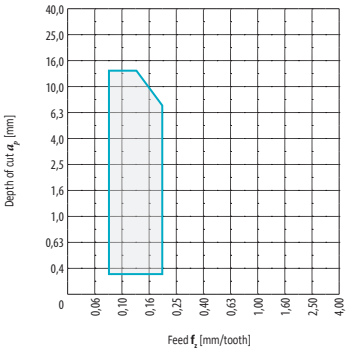
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	■	◪	◪		□	
Medium	◪	◪	◪		□	
Heavy						

Operating diagram



Description

Used for inserts:
LNMU 160708ER-F

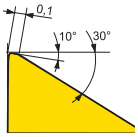
- Positive geometry without a peripheral stabilising land
- Suitable for machining material group P, and potentially groups K, M and S
- Particularly suited to light milling

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,20	[mm/tooth]
a_p	0,3 ÷ 13,0	[mm]

LNMU 16SR-M

Photo

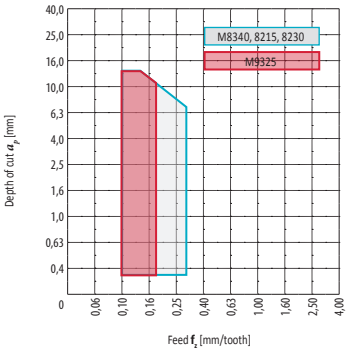
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	■	□	■			
Medium	■	□	■			
Heavy	◪		◪			

Operating diagram



Description

Used for inserts:
LNMU 160708SR-M, LNMU 160720SR-M, LNMU 160730SR-M
LNMU 160740SR-M

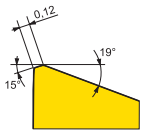
- Positive geometry with stabilised cutting edge
- Suitable for machining material groups P and K, and potentially M
- Particularly suited to light and medium machining
- Available with radii of 08, 20, 30 and 40

Range of machining conditions:		Unit:
f_z	0,1÷ 0,30	[mm/tooth]
a_p	0,3 ÷ 13,0	[mm]

LNMU 16SR-R

Photo

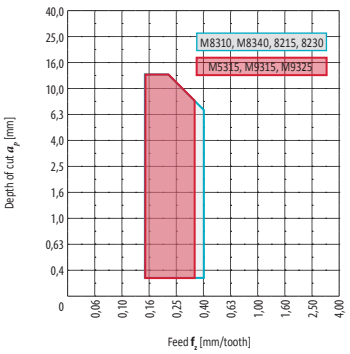
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	■	□	■			◪
Medium	■	□	■			□
Heavy	◪	□	■			

Operating diagram



Description

Used for inserts:
LNMU 160708SR-R, LNMU 160716SR-R

- Positive geometry with a negative stabilising land
- Geometry suitable for medium machining
- Suitable for machining material groups K and P
- Also suitable for material group H and potentially M
- Geometry also suitable for less stable conditions
- Available with radii of 08 and 16

Range of machining conditions:		Unit:
f_z	0,15 ÷ 0,40	[mm/tooth]
a_p	0,3 ÷ 13,0	[mm]

■ Main application area ◪ Other applications □ Potential applications

GEOMETRY OF CUTTING INSERTS FOR MILLING

OEHT 06-MF

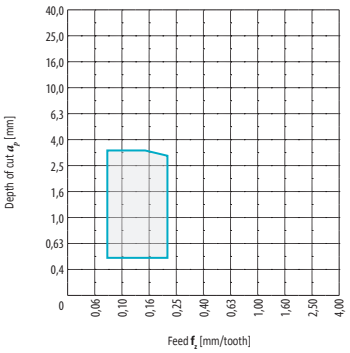
Photo

Cutting edge profile

Group of machined materials

Milling	P	M	K	N	S	H
Light	◪	■		◪	■	
Medium	◪	■		◪	■	
Heavy						

Operating diagram



Description

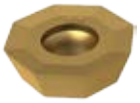
Used for inserts:
OEHT 0604AEER-MF

- Sharp geometry with a positive rake angle
- Suitable for machining material groups M and S, and potentially P and N
- Designed primarily for finishing
- Suitable for light and medium cutting conditions
- It may be possible to use all eight cutting edges depending on the depth of cut

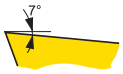
Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,20	[mm/tooth]
a_p	0,5 ÷ 3,3 (4,3; 9,9; 10,7)	[mm]

OEHT 06-MM

Photo



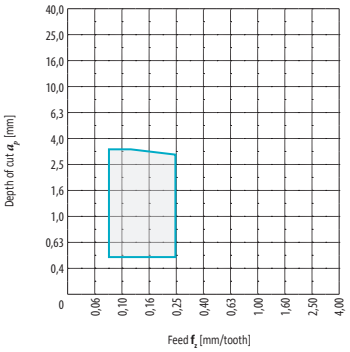
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	◪	■		◪	■	
Medium	◪	■		◪	■	
Heavy						

Operating diagram



Description

Used for inserts:
OEHT 0604AEER-MM

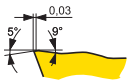
- Sharp geometry with a slightly positive rake angle
- Suitable for machining material groups M, S and P, and potentially N
- Designed especially for light and medium machining
- It may be possible to use all eight cutting edges depending on the depth of cut

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,25	[mm/tooth]
a_p	0,5 ÷ 3,3 (4,3; 9,9; 10,7)	[mm]

OEHT 06-M

Photo

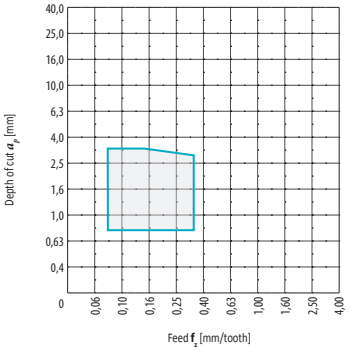
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	■	■			◪	
Medium	■	■			◪	
Heavy						

Operating diagram



Description

Used for inserts:
OEHT 0604AESR-M

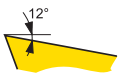
- Geometry with a slightly positive rake angle and a narrow peripheral land
- Suitable for milling material groups M, P and S
- Designed especially for light and medium machining
- It may be possible to use all eight cutting edges depending on the depth of cut

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,35	[mm/tooth]
a_p	0,8 ÷ 3,3 (4,3; 9,9; 10,7)	[mm]

OEHT 06-FA

Photo

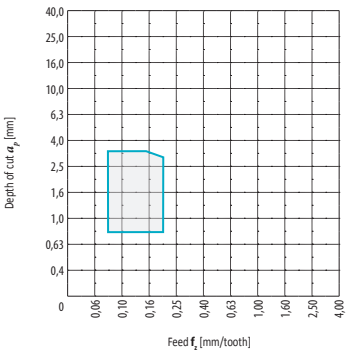
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light				■		
Medium				■		
Heavy						

Operating diagram



Description

Used for inserts:
OEHT 0604AEFR-FA

- Sharp geometry with a positive rake angle
- Minimal cutting edge roundness
- Suitable for milling group N non-ferrous materials
- Designed especially for light and medium machining
- It may be possible to use all eight cutting edges depending on the depth of cut

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,20	[mm/tooth]
a_p	0,8 ÷ 3,3 (4,3; 9,9; 10,7)	[mm]

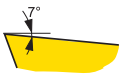
■ Main application area ◪ Other applications □ Potential applications

GEOMETRY OF CUTTING INSERTS FOR MILLING

REHT 16-MM

Used for inserts: **REHT 1604M0EN-MM**

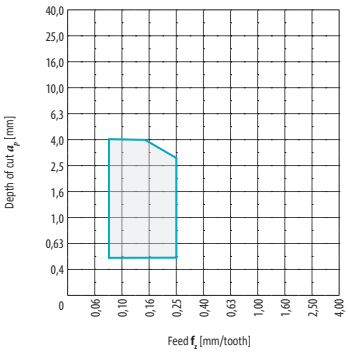
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	◥	■		□	■	
Medium	◥	■		□	■	
Heavy						

Operating diagram



Description

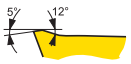
- Geometry with a slightly positive rake angle
- Suitable for machining material groups M, S and P, and potentially N
- Designed especially for light and medium machining
- Optional range for OEHT 0604 inserts

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,25	[mm/tooth]
a_p	0,5 ÷ 4,0	[mm]

REHT 16-M

Used for inserts: **REHT 1604M0SN-M**

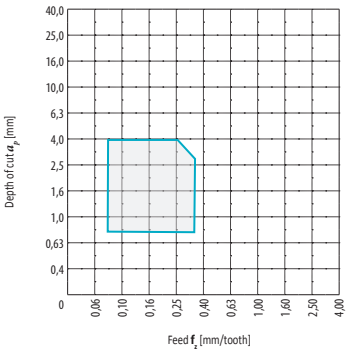
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	■	■			◥	
Medium	■	■			◥	
Heavy						

Operating diagram



Description

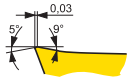
- Geometry with a positive rake angle and a narrow peripheral land
- Suitable for milling material groups M, P and S
- Designed especially for light and medium machining
- Optional range for OEHT 0604 inserts

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,35	[mm/tooth]
a_p	0,8 ÷ 4,0	[mm]

XEHT 06AESR

Used for inserts: **XEHT 0604AESR**

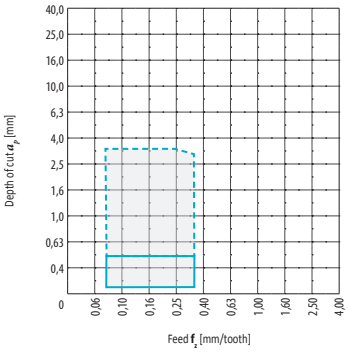
Cutting edge profile



Group of machined materials

Milling	P	M	K	N	S	H
Light	■	◥			□	
Medium						
Heavy						

Operating diagram



Description

- Smoothing geometry with a slightly positive rake angle
- Suitable for milling material groups P, secondary M, and potentially S
- Geometry suited to light cutting conditions
- Optional range for OEHT 0604 inserts

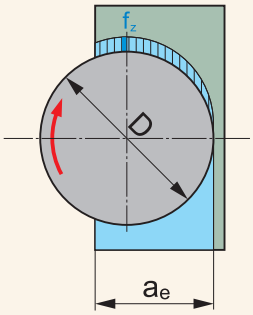
- To achieve optimum surface quality, we recommend **a maximum depth of 0.5 mm**

Range of machining conditions:		Unit:
f_z	0,08 ÷ 0,35	[mm/tooth]
a_p	0,1 ÷ 0,5 (3,3)	[mm]

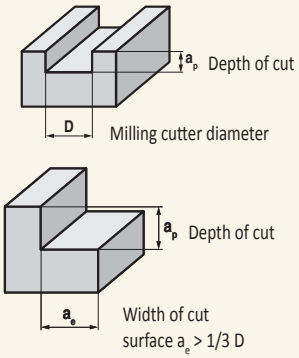
■ Main application area ◥ Other applications □ Potential applications

RECOMMENDED APPLICATIONS FOR CYLINDRICAL MILLING CUTTERS WITH HELICAL INSERTS

FOR SHOULDER AND SLOT MILLING $a_e > 1/3\ D$



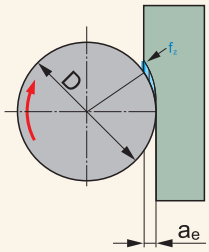
$f_{z\,min}$ = minimum feed per tooth [mm.tooth^{-1}]
$f_{z\,max}$ = maximum feed per tooth [mm.tooth^{-1}]
a_e = width of cut surface [mm]
a_p = depth of cut [mm]
D = milling cutter diameter [mm]

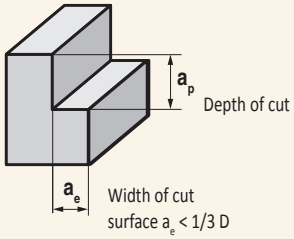


Milling cutter diameter	Recommended average chip thickness hm		a_e = 20		a_e = 25		a_e = 30		a_e = 35		a_e = 40		a_e = 45		a_e = 50	
			f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
[mm]	[mm]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]	
50	0,08	0,10	0,14	0,17	0,13	0,16	0,12	0,15	0,11	0,14	0,11	0,14	0,11	0,14	0,11	0,14
63	0,08	0,10			0,14	0,18	0,13	0,16	0,12	0,15	0,12	0,15	0,11	0,14	0,11	0,14
80	0,08	0,10					0,14	0,18	0,13	0,16	0,13	0,16	0,12	0,15	0,12	0,15
100	0,08	0,10							0,15	0,18	0,14	0,17	0,13	0,16	0,13	0,16

Milling cutter diameter	Recommended average chip thickness hm		a_e = 55		a_e = 63		a_e = 70		a_e = 80		a_e = 90		a_e = 100	
			f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
[mm]	[mm]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]	
50	0,08	0,10												
63	0,08	0,10	0,11	0,14	0,11	0,14								
80	0,08	0,10	0,11	0,14	0,11	0,14	0,11	0,14	0,11	0,14				
100	0,08	0,10	0,12	0,15	0,12	0,15	0,11	0,14	0,11	0,14	0,11	0,14	0,13	0,15

FOR SHOULDER MILLING $a_e < 1/3\ D$





$f_{z\,min}$ = minimum feed per tooth [mm.tooth^{-1}]
$f_{z\,max}$ = maximum feed per tooth [mm.tooth^{-1}]
a_e = width of cut surface [mm]
a_p = depth of cut [mm]
D = milling cutter diameter [mm]

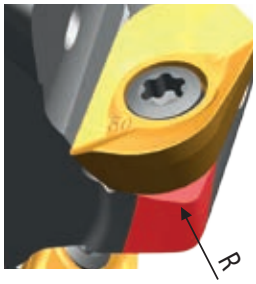
Milling cutter diameter	Recommended average chip thickness hm		a_e = 2		a_e = 4		a_e = 8		a_e = 12		a_e = 16		ae = 20		a_e = 24		a_e = 30	
			f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
[mm]	[mm]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]		[mm/tooth]	
50	0,08	0,10	0,40	0,50	0,29	0,36	0,21	0,26	0,17	0,21	0,15	0,19						
63	0,08	0,10	0,45	0,56	0,32	0,40	0,23	0,29	0,19	0,24	0,17	0,21	0,15	0,19				
80	0,08	0,10	0,51	0,64	0,36	0,45	0,26	0,32	0,21	0,27	0,19	0,23	0,17	0,21	0,15	0,19		
100	0,08	0,10	0,57	0,71	0,40	0,50	0,29	0,36	0,24	0,29	0,21	0,26	0,19	0,23	0,17	0,21	0,15	0,19

i For steels from 200 to 300 HB, we recommend reducing the feed and cutting speed by 15 %. For steels from 300 to 450 HB, we recommend reducing the feed and cutting speed by 30 %. For cast iron group K, the feed and cutting speed can be increased by 20 %.

ADMX/ADEX

MILLING CUTTER MODIFICATION

The body of the milling cutter must be modified when using inserts with a higher radius

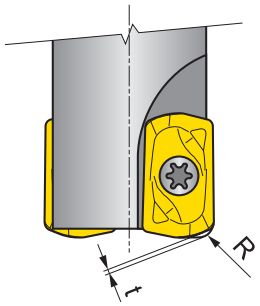


ADMX 07	R
ADMX070220SR-M	1,5
ADMX/ADEX 11	R
ADMX 11T320SR-M	1,0
ADMX 11T325SR-M	1,8
ADMX 11T330SR-M	1,8
ADEX 11T308SR-HF	1,4*
ADMX/ADEX 16	R
ADMX 160630SR-M	2,5
ADMX 160632SR-M	2,5
ADMX 160640SR-M	4,0
ADMX 160650SR-M	4,5
ADEX 160612SR-HF	3,0*

*For milling cutter diameters up to 80 mm

ADEX .. -HF

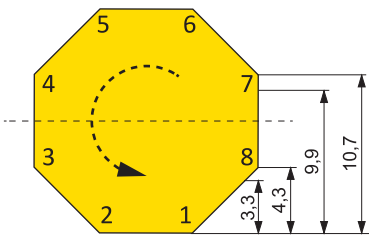
INFORMATION FOR CNC PROGRAMMING



Insert	R [mm]	t [mm]
ADEX 11T308SR-HF	1,42	0,35
ADEX 160612SR-HF	2,59	0,56

OEHT 06

NUMBER OF USABLE CUTTING EDGES OF THE OEHT 06 INSERTS BASED ON THE DEPTH OF CUT

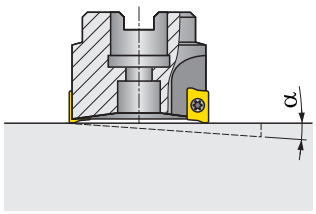


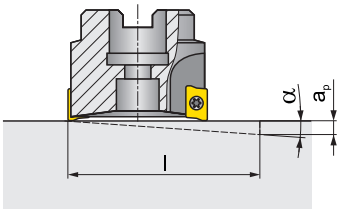
Depth of cut a_p [mm]	Number of cutting edges
up to 3,3	8
up to 4,3	7
up to 9,9	4
up to 10,7	2

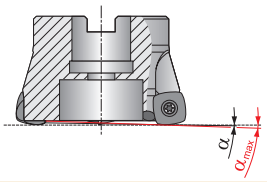
ADEX 11T308SR-HF
ADEX 160612SR-HF

RAMPING

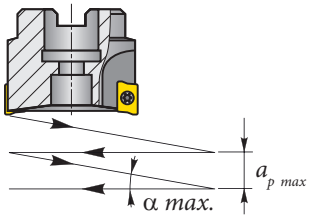
SHELL CUTTERS BODIES



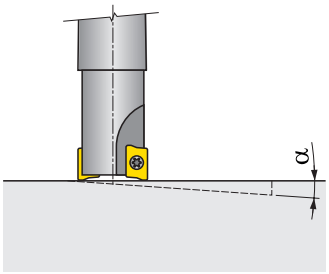


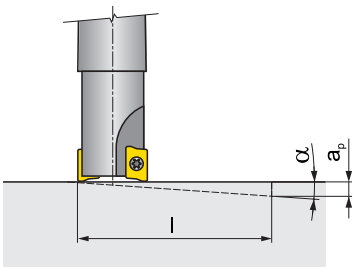


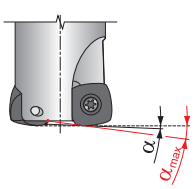
Tool	Insert	Milling cutter diameter [mm]	α_{max} [°]	a_p/l [mm]
S90AD11E	ADEX 11T308SR-HF	40	2,9**(0,6)*	0,6/57
		50	2,0**(0,6)*	0,6/86
		63	1,4**(0,2)*	0,6/100
		80	0,9**(0,15)*	0,6/100
		100	0,6**(0)*	-
		125	0,3**(0)*	-
S90AD16E	ADEX 160612SR-HF	40	1,2** (4,5)*	1,3/65
		50	0,8** (3,0)*	1,3/100
		63	0,5** (2,0)*	0,8/100
		80	0,4** (1,5)*	0,6/100



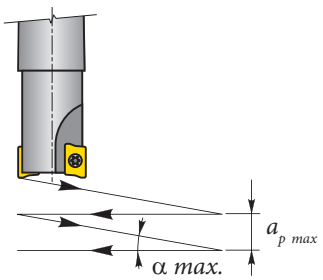
END MILLING CUTTERS







Tool	Insert	Milling cutter diameter [mm]	α_{max} [°]	a_p/l [mm]
SAD11E	ADEX 11T308SR-HF	16	5,4** (2,8)*	0,6/12
		20	4,2** (2,1)*	0,6/16
		25	3,0** (1,2)*	0,6/28
		32	3,1** (0,7)*	0,6/49
SAD16E	ADEX 160612SR-HF	25	4,0** (8,0)*	1,3/19
		32	2,0** (7,5)*	1,3/38
		40	1,2** (4,5)*	1,3/65

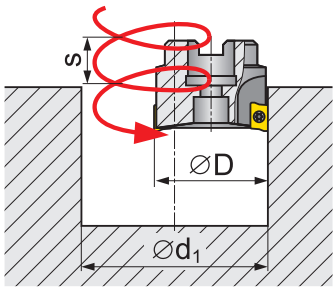


* Valid for conventional milling
** Can be used for HFC geometry

ADEX 11T308SR-HF
ADEX 160612SR-HF

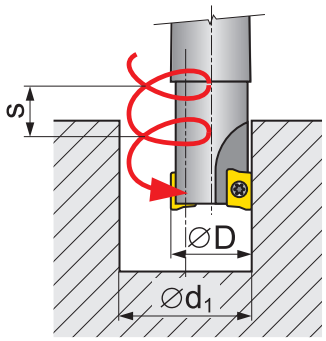
HELICAL INTERPOLATION MILLING

SHELL CUTTERS BODIES



Tool	Insert	Milling cutter diameter	d_{min}	d_{max}	S_{max}
		[mm]			
S90AD11E	ADEX 11T308SR-HF	40	68,5	78	0,6
		50	88,5	98	0,6
		63	114,5	124	0,6
		80	148,5	158	0,6
		100	188	198	-
		125	238,5	248	-
S90AD16E	ADEX 160612SR-HF	40	72	–	1,3
			–	78	1,3
		50	92	–	1,3
			–	98	1,3
		63	118	–	1,3
			–	124	1,3
		80	136	–	1,3
			–	158	1,3

END MILLING CUTTERS



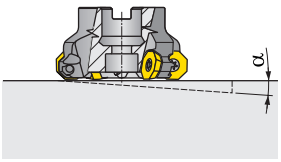
Tool	Insert	Milling cutter diameter	d_{min}	d_{max}	S_{max}
		[mm]			
SAD11E	ADEX 11T308SR-HF	16	21	30	0,6
		20	29	38	0,6
		25	39	48	0,6
		32	53	62	0,6
SAD16E	ADEX 160612SR-HF	25	42	–	1,3
			–	48	1,3
		32	55	–	1,3
			–	62	1,3
		40	72	–	1,3
			–	78	1,3

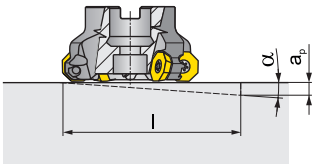
TECHNICAL INFORMATION - MILLING

OEHT 0604...
REHT 1604..

RAMPING

SHELL CUTTERS BODIES

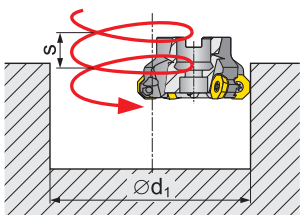




Tool	Insert	Milling cutter diameter [mm]	α_{max} [°]	a_p / l [mm]
S45OE06Z	OEHT 0604 ...	50	4,9	8,6/100
		56	4,2	7,3/100
		63	3,6	6,3/100
		70	3,1	5,4/100
		80	2,6	4,5/100
		90	2,3	4/100
		100	2	3,5/100
		125	1,5	2,6/100
	REHT 1604....	50	4,6	8/99,4
		56	4	7/100
		63	3	5,2/100
		70	2,7	4,7/100
		80	2,2	3,8/100
		90	2	3,5/100
		100	1,8	3,1/100
		125	1,3	2,3/100

HELICAL INTERPOLATION MILLING

SHELL CUTTERS BODIES

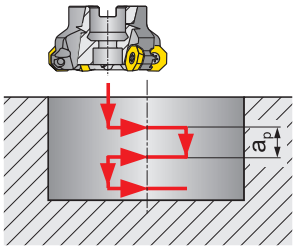


Tool	Insert	Milling cwutter diameter [mm]	d_{min} [mm]	d_{max} [mm]	s_{max} [mm]
S45OE06Z	OEHT 0604 ...	50	92	119	6,5
		56	104	131	6,5
		63	118	145	6,5
		70	132	159	6,5
		80	152	180	6,5
		90	172	199	6,5
		100	192	219	6,5
		125	242	269	6,5
	REHT 1604....	50	92	119	6,5
		56	104	131	6,5
		63	118	145	6,5
		70	132	159	6,5
		80	152	180	6,5
		90	172	199	6,5
		100	192	219	6,5
		125	242	269	6,5

OEHT 0604...
REHT 1604..

PROGRESSIVE PLUNGING

SHELL CUTTERS BODIES



Tool	Insert	Milling cutter diameter [mm]	a_{pmax} [mm]
S45OE06Z	**OEHT 0604 ...**	50 ÷ 200	3,1
	REHT 1604....	50 ÷ 200	3,1

TECHNICAL INFORMATION - MILLING

SURFACE QUALITY

INSERT TYPE	ADMX 16 LNGU 16 TBMR 27	PNMQ 13 PNMU 13	LNET 16 SBMR 22 SEEN 15 SEER 15 SPGN 25	ADKX 15 APKT 16 SDMT 12	ADKX 15 LNGX 12 ODMT 06 ODMW 06 PDKT 09 PDMT 09 PDMW 09 SEEN 12 SEER 12 SEET 12 SEEW 12 SNMT 12	ODMT 05 OFKR 07 SOMT09-M SOMT09-MI SOMT09-P SPKN 12 SPKN 15 SPKR 12 SPKR 15	ADMX 11 HNEF 09-F HNGX 09 SEMT 09 SNHF 12 SNHF 15 SNHN 12 TPKN 16 TPKN 22 TPKR 16 TPKR 22	OEHT 06
Width of wiper edge (segment) a [mm]	3,2	2,8	2,5	2,2	2,0	1,6	1,4	1,3
Number of milling cutter teeth	max f_z							
1	2,56	2,24	2,00	1,76	1,60	1,28	1,12	1,09
2	1,28	1,12	1,00	0,88	0,80	0,64	0,56	0,54
3	0,85	0,75	0,67	0,59	0,53	0,43	0,37	0,36
4	0,64	0,56	0,50	0,44	0,40	0,32	0,28	0,27
5	0,51	0,45	0,40	0,35	0,32	0,26	0,22	0,22
6	0,43	0,37	0,33	0,29	0,27	0,21	0,19	0,18
7	0,37	0,32	0,29	0,25	0,23	0,18	0,16	0,16
8	0,32	0,28	0,25	0,22	0,20	0,16	0,14	0,14
9	0,28	0,25	0,22	0,20	0,18	0,14	0,12	0,12
10	0,26	0,22	0,20	0,18	0,16	0,13	0,11	0,11
11	0,23	0,20	0,18	0,16	0,15	0,12	0,10	0,10
12	0,21	0,19	0,17	0,15	0,13	0,11	0,09	0,09
13	0,20	0,17	0,15	0,14	0,12	0,10	0,09	0,08
14	0,18	0,16	0,14	0,13	0,11	0,09	0,08	0,08
15	0,17	0,15	0,13	0,12	0,11	0,09	0,07	0,07
16	0,16	0,14	0,13	0,11	0,10	0,08	0,07	0,07
17	0,15	0,13	0,12	0,10	0,09	0,08	0,07	0,06
18	0,14	0,12	0,11	0,10	0,09	0,07	0,06	0,06

MILLING

CHOICE OF INITIAL CUTTING CONDITIONS

1. Specify the cutting conditions (light, medium or heavy duty milling).

   Light duty milling – one interruption per revolution, good cutting conditions, workpiece with pre-machined surface or surface of rolled blanks and forgings without major defects or roughness in depth of cut $a_p \leq 2$ mm.

   Medium duty milling – one or two interruptions per revolution. Not possible to choose the optimal cutting conditions. Surface of workpiece with skin of rolled blanks, forgings and castings or with minor defects in depth of cut $a_p = 2 – 4$ mm.

   Heavy duty milling – multiple interruptions per revolution. Unfavourable cutting conditions (negative rake of working angle). Surface of work piece with rough skin of castings, forgings and burnt parts. Variable depth of cut $a_p = 3 – 10$ mm.

   Feed range for each group dependent on cutting conditions. At the worsening of cutting conditions, it is necessary to reduce the upper limit of feed.

2. In accordance with tables 1a – 6a page 144 - 154, choose the suitable combination of grade and cutting edge with regard to the **machined material and the pre-chosen cutting insert and tool**. There are three possible solutions for each group of machined materials.
3. Use tables 1b – 6b on pages 145 - 155 to choose the initial cutting speed with regard to type of tool or cutting insert, cutting conditions and milling grade.
4. In tables 1b – 6b on pages 145 - 155 are the speed factors for recalculating the cutting speed with regard to the machine's condition, the tool and cutting edge service life, and the hardness of the workpiece material. If needed, however, the following can be used to calculate the actual speed:

$$v_c = v_{30} \cdot k_{VX} \cdot k_{VT} \cdot k_{VHB} \cdot (k_{VM})$$

Note: The cutting speed calculated in this way is the initial value (default), which is used to establish the basic cutting speed for a given operation.
Variations in the machinability of the workpiece material are the main reason for needing to adjust the cutting speed.

Table 1a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	P												Insert	Operating conditions of milling					
	Tool type													Light		Medium		Heavy	
1													HNGX 06 HNGX 09 HNEF 0905..... SNMT SNKT 1205AZ	I	M9315 M5315 S (E)	I	M9325 S	I	M9340 S
	S45HN06C S45HN09C	SNH06	SNH06	C60HN09	S45SN12Z									II	8215 M8310	II	8215 M8310 S	II	8230 S
														III	8230 S (E)	III	8230 S	III	8240 S
2													OEHT 06 ODMT(W) 05, ODMT(W) 06 SEMT 09 SDEW, SDEX 09.. SOMT 09T3::: TCMT 16T3 XPHT 1604..	I	8215 M9315 S (E)	I	8230 M9325 S	I	8240 M9340 S
	S45OE06Z S45OD05D S45OD06D	S45SE09F	SSE09	SSD09	N-SSO09	2516-45		SXP16						II	8230 S (E)	II	8230 S	II	8240 S
														III	8230 S (E)	III	8240 S	III	8240 S
3													ADMX ,ADEX 11T3.. ADMX ,ADEX 1606.. APKT 1003PD APET, APKT 1604.. LNGX 12..., LNGU 16... SOMT 09T30.., SDMT 120508SR.. ADKX 15T3...., XOEN 12 T3...	I	8215 M9315 S (E)	I	8230 M9325 S	I	8240 M9340 S, P
	S90AD11E, S90AD16E S90AP10D, S90AP16D	SAD07D-C SAD11E SAD16E	SAD07D-C SAD11E, SAD16E SAP10D, SAP16D	S90LN12 S90LN16	SLN12	SLN12	S90SO09 S90SD12	SSO09	C90AD15	CAD15	CAD15	W90XO12		II	8215 S (E)	II	8230 S	II	8240 S, P
														III	8230 S (E)	III	8240 S	III	8240 S, P
4													SCKR 09T3.., SCKR 12T3..., RDHX 0501.. RDHX, RDGT, RDHT 07T1..,0702.. RDHX, RDGT, RDHT 1003.. RDHX, RDGT, RDHT 12T3.. RDHX, RDGT, RDHT 1604.. RCMT 1204, RCMT1606, RCMT2006, ZDCW 07, ZDCW 09, ZDEW 12 PD.. 0905..., REHT 16, RPET 15	I	7010 7205 E (S)	I	7025 7215 S (E)	I	7040 7230 S
	C90SC09, 12	CSC09, 12	SCRD12, 16	SRD05, 07, 10, 12, 16	B-SRD07, 10	SMORC12, 16, 20	SMOZD09, 12	SZD07, 09, 12	SZD07 SZD09 SZD12	S19SPD09	SPD09	S45OE06Z S45OD06D		II	M8310 8215 E (S)	II	M8325 8230 S (E)	II	M8345 8240 S
														III	8215 E (S)	III	8230 S (E)	III	8240 S
5													XP xxER-FM ZPxxER-xx VCGT 220530 RC, RCA, LC	I	M8310 7215	I	8230 M8325 7230	I	M8345 8240 7230
	CXP16, 20, 25, 32	CXP16, 20, 25, 32	SZP10,12,16,20,25	SZP10, 12, 16, 20, 25, 32, 40, 50	K2-SRC	SRCA	K2-SLC	S90VC22C	SVC22C	A-SVC22C				II	–	II	–	II	–
														III	–	III	–	III	–
6													SN.. 11 (12) CN XN.. 1205	I	8215 E (S)	I	8230 S (E)	I	8240 S
	S90SN	S90SN-R	S90CN S90XN	S90CN-R S90XN-R										II	8230 S (E)	II	8230 S (E)	II	8230 S (E)
														III	–	III	–	III	–
7													ADMX, ADEX 1606.. LNET 160616SR ,SNGX 1305 SNGX 130512PN APET(W) 150412 SPET(W) 1204AD ADMX, ADEX 11T3.. SDMX 1205 CCMX 0603.. CCMX 08T3.., CCMX 09T3..	I	8230 M9315 S (E)	I	8230 M9325 S (E)	I	8240 M9340 S
	SLSN	SSAP	SSAP-A	S90AD11E S90AD16E	SAD11E SAD16E	C90SD12X	CSD12X		SCC06, SSC08 SSC09					II	8230 S	II	8230 S	II	8240 S
														III	–	III	–	III	–
8													SPUN,SPGN 2506.. SBMR 22 PNMU 1308..	I	8026T S	I	8240 S	I	8240 S
	W60SP25P	F60SB22	S57PN13											II	8230 8215 S	II	8230 S	II	M8345 S
														III	–	III	–	III	–
9													SPUN 2506.. TBMR 27....	I	8026T S	I	8240 S	I	8240 S
	W90SP25P	F90TB27X												II	–	II	–	II	–
														III	–	III	–	III	–

Group	P																			
	Cutting conditions	Range of starting feeds		M5315	M5326	M9315	M9325	M9340	5040	M8325	M8345	8215	8230	M8310	M8326	M8340	M8346	7205	7215	7230
1	Light	0,10	0,30	435	-	425	410	270	-	-	-	350	320	365	-	325	-	-	-	-
	Medium	0,10	0,25	405	-	390	370	260	-	-	-	305	280	330	-	285	-	-	-	-
	Heavy	0,10	0,20	370	-	350	325	255	-	-	-	260	240	-	-	245	-	-	-	-
2	Light	0,10	0,35	405	-	400	395	240	-	-	-	340	310	-	-	310	-	-	-	-
	Medium	0,10	0,30	370	-	360	350	230	-	-	-	295	270	-	-	275	-	-	-	-
	Heavy	0,10	0,20	355	-	335	310	245	-	-	-	250	230	-	-	235	-	-	-	-
3	Light	0,10	0,30	380	-	370	360	235	-	-	225	305	280	-	-	280	-	-	-	-
	Medium	0,10	0,25	365	-	350	330	235	-	-	210	275	255	-	-	260	-	-	-	-
	Heavy	0,10	0,15	345	-	325	300	235	-	-	190	240	225	-	-	230	-	-	-	-
4	Light	-	-	-	-	-	420	300	260	265	265	350	320	380	-	325	-	315	290	245
	Medium	-	-	-	-	-	385	275	240	245	245	320	295	350	-	300	-	290	265	225
	Heavy	-	-	-	-	-	350	230	215	220	220	295	270	-	-	275	-	260	240	205
5	Light	-	-	-	-	-	-	-	-	-	245	-	295	345	-	300	-	-	310	265
	Medium	-	-	-	-	-	-	-	-	-	220	-	270	315	-	275	-	-	295	250
	Heavy	-	-	-	-	-	-	-	-	-	200	-	245	-	-	245	-	-	280	235
6	Light	0,10	0,50	-	-	-	-	-	-	-	-	290	270	-	-	270	-	-	-	-
	Medium	0,10	0,30	-	-	-	-	-	-	-	-	265	245	-	-	245	-	-	-	-
	Heavy	0,10	0,20	-	-	-	-	-	-	-	-	-	220	-	-	220	-	-	-	-
7	Light	0,10	0,25	250	-	235	220	165	-	140	140	180	170	-	-	170	-	-	-	-
	Medium	0,10	0,20	220	-	205	185	150	-	120	120	150	140	-	-	140	-	-	-	-
	Heavy	0,08	0,15	-	-	-	150	140	-	-	95	-	110	-	-	115	-	-	-	-
8	Light	0,25	0,60	-	280	-	-	-	170	-	190	-	250	-	215	-	180	-	-	-
	Medium	0,25	0,50	-	225	-	-	-	140	-	155	-	195	-	175	-	140	-	-	-
	Heavy	0,25	0,40	-	200	-	-	-	120	-	135	-	170	-	155	-	120	-	-	-
9	Light	0,20	0,60	-	235	-	-	-	-	-	-	-	-	-	180	-	150	-	-	-
	Medium	0,20	0,50	-	185	-	-	-	-	-	-	-	-	-	145	-	115	-	-	-
	Heavy	0,20	0,40	-	165	-	-	-	-	-	-	-	-	-	125	-	100	-	-	-

P

ADJUSTMENT v_c

Subgroup	P1	P2	P3	P4

Adjustment for workpiece hardness

Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
120	**1,53**	1,18	0,94	0,71
140	**1,46**	1,12	0,90	0,67
160	**1,37**	1,05	0,84	0,63
180	**1,30**	**1,00**	0,80	0,60
200	**1,24**	**0,95**	0,76	0,57
220	**1,17**	**0,90**	**0,72**	0,54
240	**1,12**	**0,86**	**0,69**	0,52
260	**1,07**	**0,82**	**0,66**	**0,49**
280	1,04	**0,80**	**0,64**	**0,48**
300	1,00	**0,77**	**0,62**	**0,46**
320	0,96	0,74	**0,59**	**0,44**
340	0,92	0,71	**0,57**	**0,43**
360	0,88	0,68	0,54	**0,41**
375	0,85	0,65	0,52	**0,39**

Adjustment for durability (general machining)

Durability [min]	k_{vT}
15	1,23
20	1,13
30	1,00
45	0,89
60	0,81
90	0,72

Adjustment for durability (heavy roughing)
Adjustment for durability (heavy roughing)

Durability [min]	k_{vT}
30	1,23
60	1,00
90	0,89
120	0,81

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Table 2a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	M																	
	Tool type												Insert	Operating conditions of milling				
														Light		Medium		Heavy
1													HNGX06 HNGX09 HNEF 0905..... SNMT SNKT 1205AZ	I	M9325 S (E)	I	8215 S	I	M9340 S
														II	8215 (M8310) S (E)	II	8230 S	II	8230 S
	S45HN06C S45HN09C	SNH06	SNH06	C60HN09	S45SN12Z									III	M9340 S (E)	III	8230 S	III	8240 S
2													OEHT 06 ODMT(W) 05, ODMT(W) 06 SEMT 09 SDEW, SDEX 09.. SOMT 09T3::: TCMT 16T3 XPHT 1604..	I	8215 S (E)	I	8230 M9325 S	I	8240 M9340 S
														II	8230 S (E)	II	8230 S	II	8240 S
	S45OE06Z S45OD05D S45OD06D	S45SE09F	SSE09	SSD09	N-SSO09	2516-45		SXP16						III	8230 S (E)	III	8240 S	III	8240 S
3													ADMX ,ADEX 11T3.. ADMX ,ADEX 1606.. APKT 1003PD APET, APKT 1604.. LNGX 12..., LNGU 16... SOMT 09T30.., SDMT 120508SR.. ADKX 15T3...., XOEN 12T3...	I	8215 7010 S (E)	I	8230 M9325 S	I	8240 M9340 S, P
														II	8215 7010 S (E)	II	8230 S	II	8240 S, P
	S90AD11E, S90AD16E S90AP10D, S90AP16D	SAD07D-C SAD11E SAD16E	SAD07D-C SAD11E, SAD16E SAP10D, SAP16D	S90LN12 S90LN16	SLN12	SLN12	S90SO09 S90SD12	SSO09	C90AD15	CAD15	CAD15	W90XO12		III	8230 7025 S (E)	III	8240 S	III	8240 S, P
4													SCKR 09T3.., SCKR 12T3..., RDHX 0501.. RDHX, RDGT, RDHT 07T1..,0702.. RDHX, RDGT, RDHT 1003.. RDHX, RDGT, RDHT 12T3.. RDHX, RDGT, RDHT 1604.. RCMT 1204, RCMT1606, RCMT2006, ZDCW 07, ZDCW 09, ZDEW 12 PD.. 0905..., REHT16, RPET 15	I	7010 7205 E (S)	I	7025 7215 S (E)	I	7040 7230 S
														II	M8310 8215 E (S)	II	M8325 8230 S (E)	II	M8345 8240 S
	C90SC09, 12	CSC09, 12	SCRD12, 16	SRD05, 07, 10, 12, 16	B-SRD07, 10	SMORC12, 16, 20	SMOZD09, 12	SZD07, 09, 12	SZD07 SZD09 SZD12	S19SPD09	SPD09	S45OE06Z S45OD06D		III	8215 E (S)	III	8230 S (E)	III	8240 S
5													XP xxER-FM ZPxxER-xx VCGT 220530 RC, RCA, LC	I	M8310	I	8230 M8325	I	M8345 8240
														II	–	II	–	II	–
	CXP16, 20, 25, 32	CXP16, 20, 25, 32	SZP10,12,16,20, 25	SZP10, 12, 16, 20, 25, 32, 40, 50	K2-SRC	SRCA	K2-SLC	S90VC22C	SVC22C	A-SVC22C				III	–	III	–	III	–
6													SN.. 11 (12) CN XN.. 1205	I	8215 E (S)	I	8230 S (E)	I	8240 S
														II	8230 S (E)	II	8240 S	II	8240 S
	S90SN	S90SN-R	S90CN S90XN	S90CN-R S90XN-R										III	–	III	–	III	–
7													ADMX, ADEX 1606.. LNET 160616SR ,SNGX 1305 SNGX 130512PN APET(W) 150412 SPET(W) 1204AD ADMX, ADEX 11T3.. SDMX 1205 CCMX 0603.. CCMX 08T3.., CCMX 09T3..	I	8230 M9325 S (E)	I	8230 M9325 S (E)	I	8240 M9340 S
														II	8230 S	II	8230 S	II	8240 S
	SLSN	SSAP	SSAP-A	S90AD11E S90AD16E	SAD11E SAD16E	C90SD12X	CSD12X		SCC06, SSC08 SSC09					III	–	III	–	III	–
8													SPUN,SPGN 2506.. SBMR 22 PNMU 1308..	I	8026T S	I	8240 S	I	8240 S
														II	8230 8215 S	II	8230 S	II	M8345 S
	W60SP25P	F60SB22	S57PN13											III	–	III	–	III	–
9													SPUN 2506.. TBMR 27....	I	8026T S	I	8240 S	I	8240 S
														II	–	II	–	II	–
	W90SP25P	F90TB27X												III	–	III	–	III	–

Group	M																	
	Cutting conditions	Range of starting feeds		M9325	M5326	M9340	5040	M8325	M8345	8215	8230	M8310	M8326	M8340	M8346	7205	7215	7230	HF7
1	Light	0,10	0,30	245	-	160	-	-	-	210	190	215	-	195	-	-	-	-	-
	Medium	0,10	0,25	220	-	155	-	-	-	180	165	195	-	170	-	-	-	-	-
	Heavy	0,10	0,20	195	-	150	-	-	-	155	140	-	-	145	-	-	-	-	-
2	Light	0,10	0,35	235	-	140	-	-	-	200	185	-	-	185	-	-	-	-	75
	Medium	0,10	0,30	210	-	135	-	-	-	175	160	-	-	165	-	-	-	-	65
	Heavy	0,10	0,20	185	-	145	-	-	-	150	135	-	-	140	-	-	-	-	-
3	Light	0,10	0,30	215	-	140	-	-	135	180	165	-	-	165	-	-	-	-	65
	Medium	0,10	0,25	195	-	140	-	-	125	165	150	-	-	155	-	-	-	-	65
	Heavy	0,10	0,15	180	-	140	-	-	110	140	135	-	-	135	-	-	-	-	-
4	Light	-	-	250	-	180	155	155	155	210	190	225	-	195	-	185	170	145	80
	Medium	-	-	230	-	165	140	145	145	190	175	210	-	180	-	170	155	135	75
	Heavy	-	-	210	-	135	125	130	130	175	160	-	-	165	-	155	140	120	-
5	Light	-	-	-	-	-	-	-	145	-	175	205	-	180	-	-	-	-	-
	Medium	-	-	-	-	-	-	-	130	-	160	185	-	165	-	-	-	-	-
	Heavy	-	-	-	-	-	-	-	120	-	145	-	-	145	-	-	-	-	-
6	Light	0,10	0,50	-	-	-	-	-	-	170	160	-	-	160	-	-	-	-	-
	Medium	0,10	0,30	-	-	-	-	-	-	155	145	-	-	145		-	-	-	-
	Heavy	0,10	0,20	-	-	-	-	-	-	-	130	-	-	130	-	-	-	-	-
7	Light	0,10	0,25	130	-	95	-	80	80	105	100	-	-	100	-	-	-	-	40
	Medium	0,10	0,20	110	-	90	-	70	70	90	80	-	-	80	-	-	-	-	35
	Heavy	0,08	0,15	90	-	80	-	-	55	-	65	-	-	65	-	-	-	-	-
8	Light	0,25	0,60	-	-	-	100	-	110	-	150	-	125	-	105	-	-	-	-
	Medium	0,25	0,50	-	-	-	80	-	90	-	115	-	105	-	80	-	-	-	-
	Heavy	0,25	0,40	-	-	-	70	-	80	-	100	-	90	-	70	-	-	-	-
9	Light	0,20	0,60	-	-	-	-	-	-	-	-	-	105	-	90	-	-	-	-
	Medium	0,20	0,50	-	-	-	-	-	-	-	-	-	85	-	65	-	-	-	-
	Heavy	0,20	0,40	-	-	-	-	-	-	-	-	-	75	-	60	-	-	-	-

M

ADJUSTMENT v_c

Subgroup	M1	M2	M3	M4
Adjustment for workpiece hardness				
Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
120	**1,35**	1,31	1,24	1,15
140	**1,28**	**1,24**	1,18	1,10
160	**1,22**	**1,18**	**1,12**	1,04
180	**1,14**	**1,11**	**1,05**	0,98
200	**1,09**	**1,06**	**1,00**	0,93
220	**1,03**	**1,00**	**0,95**	0,88
240	0,98	**0,95**	**0,90**	**0,84**
260	0,93	**0,91**	**0,86**	**0,80**
280	0,89	**0,87**	**0,82**	**0,76**
300	0,87	**0,84**	**0,80**	**0,74**
320	0,84	**0,81**	0,77	**0,72**
340	0,80	0,78	0,74	**0,69**
360	0,77	0,75	0,71	**0,66**
375	0,74	0,72	0,68	**0,63**

Adjustment for durability (general machining)

Durability [min]	k_{VT}
15	1,23
20	1,13
30	1,00
45	0,89
60	0,81
90	0,72

Adjustment for durability (heavy roughing)

Durability [min]	k_{VT}
30	1,23
60	1,00
90	0,89
120	0,81

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Table 3a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	K												Insert	Operating conditions of milling					
	Tool type													Light		Medium		Heavy	
1													HNGX 06 HNGX 09 HNEF 0905..... SNMT SNKT 1205AZ	I	M5315 S (E)	I	M9315 S	I	M9325 S
	S45HN06C S45HN09C	SNH06	SNH06	C60HN09	S45SN12Z									II	8215 M8310	II	8215 M8310 S	II	8230 S
														III	8230 S (E)	III	8230 S	III	8240 S
2													OEHT 06 ODMT(W) 05, ODMT(W) 06 SEMT 09 SDEW, SDEX 09.. SOMT 09T3::: TCMT 16T3 XPHT 1604..	I	8215 M5315 S (E)	I	8230 M9315 S	I	8240 M9325 S
	S45QE06Z S45QD05D S45QD06D	S45SE09F	SSE09	SSD09	N-SSO09	2516-45		SXP16						II	8230 S (E)	II	8230 S	II	8240 S
														III	8230 S (E)	III	8240 S	III	8240 S
3													ADMX , ADEX 11T3.. ADMX ,ADEX 1606.. APKT 1003PD APET, APKT 1604.. LNGX 12..., LNGU 16... SOMT 09T30.., SDMT 120508SR.. ADKX 15T3..., XOEN 12T3...	I	8215 M5315 S (E)	I	8230 M9315 S	I	8240 M9325 S, P
	S90AD11E, S90AD16E S90AP10D, S90AP16D	SAD07D-C SAD11E SAD16E	SAD07D-C SA D11E, SAD16E SAP10D, SAP16D	S90LN12 S90LN16	SLN12	SLN12	S90SO09 S90SD12	SSO09	C90AD15	CAD15	CAD15	W90XO12		II	8215 S (E)	II	8230 S	II	8240 S, P
														III	8230 S (E)	III	8230 S	III	8240 S, P
4													SCKR 09T3.., SCKR 12T3..., RDHX 0501.. RDHX, RDGT, RDHT 07T1..,0702.. RDHX, RDGT, RDHT 1003.. RDHX, RDGT, RDHT 12T3.. RDHX, RDGT, RDHT 1604.. RCMT 1204, RCMT1606, RCMT2006, ZDCW 07, ZDCW 09, ZDEW 12 PD.. 0905..., REHT16, RPET 15	I	7010 7205 E (S)	I	7025 7215 S (E)	I	7040 7230 S
	C90SC09, 12	CSC09, 12	SCRD12, 16	SRD05, 07, 10, 12, 16	B-SRD07, 10	S MORC12,16,20	SMCZD09, 12	SZD07, 09, 12	SZD07 SZD09 SZD12	S19SPD09	SPD09	S45QE06Z S45QD06D		II	M8310 8215 E (S)	II	M8325 8230 S (E)	II	M8325 8240 S
														III	8215 E (S)	III	8230 S (E)	III	8240 S
5													XP xxER-FM ZPxxER-xx VCGT 220530 RC, RCA, LC	I	M8310 7215	I	M8325 8230 7230	I	M8325 7230
	CXP16, 20, 25, 32	CXP16, 20, 25, 32	SZP10,12,16,20, 25	SZP10, 12, 16, 20, 25, 32, 40, 50	K2-SRC	SRCA	K2-SLC	S90VC22C	SVC22C	A-SVC22C				II	–	II	–	II	–
														III	–	III		III	–
6													SN.. 11 (12) CN XN.. 1205	I	8215 E (S)	I	8230 S (E)	I	8240 S
	S90SN	S90SN-R	S90CN S90XN	S90CN-R S90XN-R										II	–	II	–	II	–
														III	–	III	–	III	–
7													ADMX, ADEX 1606.. LNET 160616SR, SNGX 1305 SNGX 130512PN APET(W) 150412 SPET(W) 1204AD ADMX, ADEX 11T3.. SDMX 1205 CCMX 0603.. CCMX 08T3.., CCMX 09T3..	I	8230 M9315 S (E)	I	8230 M9325 S (E)	I	8240 M9325 S
	SLSN	SSAP	SSAP-A	S90AD11E S90AD16E	SAD11E SAD16E	C90SD12X	CSD12X		SCC06, SSC08 SSC09					II	8230 S	II	8230 S	II	8240 S
														III	–	III	–	III	–
8													SPUN,SPGN 2506.. SBMR 22 PNMU 1308..	I	8026T S	I	8026T S	I	8240 S
	W60SP25P	F60SB22	S57PN13											II	8230 8215 S	II	8230 S	II	M8345 S
														III	–	III	–	III	–
9													SPUN 2506.. TBMR 27....	I	8026T S	I	8026T S	I	8240 S
	W90SP25P	F90TB27X												II	–	II	–	II	–
														III	–	III	–	III	–

Group	K																	
	Cutting conditions	Range of starting feeds		M5315	M5326	M9315	M9325	5040	M8325	8215	8230	M8310	M8326	M8340	M8346	7205	7215	7230	HF7
1	Light	0,10	0,30	410	-	400	385	-	-	330	300	345	-	305	-	-	-	-	-
	Medium	0,10	0,25	380	-	370	350	-	-	285	265	310	-	270	-	-	-	-	-
	Heavy	0,10	0,20	350	-	330	305	-	-	245	225	-	-	230	-	-	-	-	-
2	Light	0,10	0,35	380	-	380	375	-	-	320	290	-	-	290	-	-	-	-	120
	Medium	0,10	0,30	350	-	340	330	-	-	280	255	-	-	260	-	-	-	-	105
	Heavy	0,10	0,20	335	-	315	290	-	-	235	215	-	-	220	-	-	-	-	-
3	Light	0,10	0,30	360	-	350	340	-	-	285	265	-	-	265	-	-	-	-	105
	Medium	0,10	0,25	345	-	330	310	-	-	260	240	-	-	245	-	-	-	-	100
	Heavy	0,10	0,15	325	-	305	285	-	-	225	210	-	-	215	-	-	-	-	-
4	Light	-	-	-	-	-	395	245	250	330	300	360	-	305	-	295	275	230	125
	Medium	-	-	-	-	-	365	225	230	300	280	330	-	285	-	275	250	210	115
	Heavy	-	-	-	-	-	330	200	205	280	255	-	-	260	-	245	225	190	-
5	Light	-	-	-	-	-	-	-	-	-	280	325	-	285	-	-	290	250	-
	Medium	-	-	-	-	-	-	-	-	-	255	295	-	260	-	-	280	235	-
	Heavy	-	-	-	-	-	-	-	-	-	230	-	-	230	-	-	265	220	-
6	Light	0,10	0,50	-	-	-	-	-	-	275	255	-	-	255	-	-	-	-	-
	Medium	0,10	0,30	-	-	-	-	-	-	250	230	-	-	230	-	-	-	-	-
	Heavy	0,10	0,20	-	-	-	-	-	-	-	205	-	-	205	-	-	-	-	-
7	Light	0,10	0,25	235	-	220	205	-	130	170	160	-	-	160	-	-	-	-	65
	Medium	0,10	0,20	205	-	190	175	-	110	140	130	-	-	130	-	-	-	-	55
	Heavy	0,08	0,15	-	-	-	140	-	-	-	100	-	-	105	-	-	-	-	-
8	Light	0,25	0,60	-	265	-	-	160	-	-	235	-	200	-	-	-	-	-	-
	Medium	0,25	0,50	-	210	-	-	130	-	-	185	-	165	-	-	-	-	-	-
	Heavy	0,25	0,40	-	190	-	-	110	-	-	160	-	145	-	-	-	-	-	-
9	Light	0,20	0,60	-	220	-	-	-	-	-	-	-	170	-	-	-	-	-	-
	Medium	0,20	0,50	-	175	-	-	-	-	-	-	-	135	-	-	-	-	-	-
	Heavy	0,20	0,40	-	155	-	-	-	-	-	-	-	115	-	-	-	-	-	-

K

ADJUSTMENT v_c

Subgroup	K1	K2	K3	K4

Adjustment for workpiece hardness

Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
120	1,60	1,52	1,44	1,36
140	1,45	1,38	1,31	1,23
160	1,35	**1,28**	1,22	1,15
180	1,25	**1,19**	**1,13**	1,06
200	**1,10**	**1,05**	**0,99**	0,94
220	**1,00**	**0,95**	**0,90**	0,85
240	**0,90**	**0,86**	**0,81**	0,77
260	**0,80**	0,76	0,72	0,68
280	**0,70**	0,67	0,63	**0,60**
300	0,65	0,62	0,59	**0,55**
320	0,60	0,57	0,54	**0,51**
340	0,55	0,52	0,50	**0,47**
360	0,50	0,48	0,45	0,43
380	0,40	0,38	0,36	0,34

Adjustment for durability (general machining)

Durability [min]	k_{vT}
15	1,23
20	1,13
30	1,00
45	0,89
60	0,81
90	0,72

Adjustment for durability (heavy roughing)

Durability [min]	k_{vT}
30	1,23
60	1,00
90	0,89
120	0,81

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Table 4a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

N

Group	Tool type												Insert	Operating conditions of milling					
														Light		Medium		Heavy	
1													HNGX 06 HNGX 09 HNEF 0905..... SNMT SNKT 1205AZ	I	8215 (M8310) F (E)	I	8215 (M8310) F (E)	I	8215 (M8310) E (F)
														II	–	II	–	II	–
	S45HN06C S45HN09C	SNH06	SNH06	C60HN09	S45SN12Z									III	–	III	–	III	–
2													OEHT 06 ODMT(W) 05, ODMT(W) 06 SEMT 09 SDEW, SDEX 09.. SOMT 09T3::: TCMT 16T3 XPHT 1604..	I	8215 (M8310) F (E)	I	8215 (M8310) F (E)	I	8215 (M8310) E (F)
														II	HF7 F (E)	II	HF7 F (E)	II	HF7 F (E)
	S45OE06Z S45OD05D S45OD06D	S45SE09F	SSE09	SSD09	N-SSO09	2516-45		SXP16						III	–	III	–	III	–
3													ADMX ,ADEX 11T3.. ADMX ,ADEX 1606.. APKT 1003PD APET, APKT 1604.. LNGX 12..., LNGU 16... SOMT 09T30.., SDMT 120508SR.. ADKX 15T3...., XOEN 12 T3...	I	8215 7010 F (E)	I	8215 7010 F (E)	I	8215 7010 F (E)
														II	–	II	–	II	–
	S90AD11E, S90AD16E S90AP10D, S90AP16D	SAD07D-C SAD11E SAD16E	SAD07D-C SAD11E, SAD16E SAP10D, SAP16D	S90LN12 S90LN16	SLN12	SLN12	S90SO09 S90SD12	SSO09	C90AD15	CAD15	CAD15	W90XO12		III	–	III	–	III	–
4													SCKR 09T3.., SCKR 12T3..., RDHX 0501.. RDHX, RDGT, RDHT 07T1..,0702.. RDHX, RDGT, RDHT 1003.. RDHX, RDGT, RDHT 12T3.. RDHX, RDGT, RDHT 1604.. RCMT 1204, RCMT1606, RCMT2006, ZDCW 07, ZDCW 09, ZDEW 12 PD.. 0905..., REHT 16, RPET 15	I	HF7 F (E)	I	HF7 F (E)	I	HF7 F (E)
														II	7010 F (E)	II	7010 F (E)	II	7010 F (E)
	C90SC09, 12	CSC09, 12	SCRD12, 16	SRD05, 07, 10, 12, 16	B-SRD07, 10	SMORC12,16,20	SMOZD09, 12	SZD07, 09, 12	SZD07 SZD09 SZD12	S19SPD09	SPD09	S45OE06Z S45OD06D		III	–	III	–	III	–
5													XP xxER-FM ZPxxER-xx VCGT 220530 RC, RCA, LC	I	HF7 F	I	HF7 F	I	HF7 F
														II	M8310 E	II	M8310 E	II	M8310 E
	CXP16, 20, 25, 32	CXP16, 20, 25, 32	SZP10,12,16, 20, 25	SZP10, 12, 16, 20, 25, 32, 40, 50	K2-SRC	SRCA	K2-SLC	S90VC22C	SVC22C	A-SVC22C				III	–	III	–	III	–
6													SN.. 11 (12) CN XN.. 1205	I	8215 8230 E	I	8215 8230 E	I	8215 8230 E
														II	–	II	–	II	–
	S90SN	S90SN-R	S90CN S90XN	S90CN-R S90XN-R										III	–	III	–	III	–
7													ADMX, ADEX 1606.. LNET 1606165R ,SNGX 1305 SNGX 130512PN APET(W) 150412 SPET(W) 1204AD ADMX, ADEX 11T3.. SDMX 1205 CCMX 0603.. CCMX 08T3.., CCMX 09T3..	I	–	I	–	I	–
														II	–	II	–	II	–
	SLSN	SSAP	SSAP-A	S90AD11E S90AD16E	SAD11E SAD16E	C90SD12X	CSD12X		SCC06, SSC08 SSC09					III	–	III	–	III	–
8													SPUN,SPGN 2506.. SBMR 22 PNMU 1308..	I	–	I	–	I	–
														II	–	II	–	II	–
	W60SP25P	F60SB22	S57PN13											III	–	III	–	III	–
9													SPUN 2506.. TBMR 27....	I	–	I	–	I	–
														II	–	II	–	II	–
	W90SP25P	F90TB27X												III	–	III	–	III	–

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	N								
	Cutting conditions	Range of starting feeds		8215	8230	M8326	7205	7215	7230	HF7
1	Light	0,10	0,30	875	800	-	-	-	-	-
	Medium	0,10	0,25	760	700	-	-	-	-	-
	Heavy	0,10	0,20	650	600	-	-	-	-	-
2	Light	0,10	0,35	850	775	-	-	-	-	325
	Medium	0,10	0,30	735	675	-	-	-	-	285
	Heavy	0,10	0,20	625	575	-	-	-	-	-
3	Light	0,10	0,30	760	700	-	-	-	-	285
	Medium	0,10	0,25	685	635	-	-	-	-	275
	Heavy	0,10	0,15	600	560	-	-	-	-	-
4	Light	-	-	875	800	-	785	725	610	335
	Medium	-	-	800	735	-	725	660	560	310
	Heavy	-	-	735	675	-	650	600	510	-
5	Light	-	-	-	735	-	-	-	-	-
	Medium	-	-	-	675	-	-	-	-	-
	Heavy	-	-	-	610	-	-	-	-	-
6	Light	0,10	0,50	725	675	-	-	-	-	-
	Medium	0,10	0,30	660	610	-	-	-	-	-
	Heavy	0,10	0,20	-	550	-	-	-	-	-
7	Light	0,10	0,25	450	425	-	-	-	-	-
	Medium	0,10	0,20	375	350	-	-	-	-	-
	Heavy	0,08	0,15	-	275	-	-	-	-	-
8	Light	0,25	0,60	-	625	535	-	-	-	-
	Medium	0,25	0,50	-	485	435	-	-	-	-
	Heavy	0,25	0,40	-	425	385	-	-	-	-
9	Light	0,20	0,60	-	-	450	-	-	-	-
	Medium	0,20	0,50	-	-	360	-	-	-	-
	Heavy	0,20	0,40	-	-	310	-	-	-	-

N

ADJUSTMENT v_c

Subgroup	N1	N2	N3	N4

Adjustment for workpiece hardness

Alloy type	k_{vx}	Subgroup
Aluminium for electrical applications	2,00	N1
Al alloys formed non-hardened HB60	1,50	
Al alloys formed hardened HB100	**1,00**	
Al alloys cast non-hardened HB75	0,90	N2
Al alloys cast hardened HB90	0,65	
Al alloys cast non-hardened HB 130 >12% Si	1,0 PKD / 0,20	
Very easy to machine alloys (>1% Pb)	0,90	N3
Brasses and lead bronzes (<1% Pb)	0,75	
Other brasses HB <90	0,60	
Other brasses HB >90	0,54	N4
Electrolytic bronze Cu	0,40	
Hard and very hard bronzes	0,6 PKD / 0,20	

Adjustment for durability (general machining)

Durability [min]	k_{vT}
15	1,23
20	1,13
30	1,00
45	0,89
60	0,81
90	0,72

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Table 5a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	S													Operating conditions of milling					
	Tool type												Insert	Light		Medium		Heavy	
1													HNGX 06 HNGX 09 HNEF 0905..... SNMT SNKT 1205AZ	I	M9325 S (E)	I	8215 S	I	–
	S45HN06C S45HN09C	SNH06	SNH06	C60HN09	S45SN12Z									II	8215 (M8310) S (E)	II	8230 S	II	–
														III	M9340 S (E)	III	8230 S	III	–
2													OEHT 06 ODMT(W) 05, ODMT(W) 06 SEMT 09 SDEW, SDEX 09.. SOMT 09T3::: TCMT 16T3 XPHT 1604..	I	8215 S (E)	I	8230 M9325 S	I	–
	S45OE06Z S45OD05D S45OD06D	S45SE09F	SSE09	SSD09	N-SSO09	2516-45		SXP16						II	8230 S (E)	II	8230 S	II	–
														III	8230 S (E)	III	8240 S	III	–
3													ADMX ,ADEX 11T3.. ADMX ,ADEX 1606.. APKT 1003PD APET, APKT 1604.. LNGX 12..., LNGU 16... SOMT 09T30.., SDMT 120508SR.. ADKX 15T3...., XOEN 12 T3...	I	8215 7010 S (E)	I	8230 M9325 S	I	–
	S90AD11E, S90AD16E S90AP10D, S90AP16D	SAD07D-C SAD11E SAD16E	SAD07D-C SAD11E, SAD16E SAP10D, SAP16D	S90LN12 S90LN16	SLN12	SLN12	S90SO09 S90SD12	SSO09	C90AD15	CAD15	CAD15	W90XO12		II	8215 7010 S (E)	II	8230 S	II	–
														III	8230 7025 S (E)	III	8240 S	III	–
4													SCKR 09T3.., SCKR 12T3..., RDHX 0501.. RDHX, RDGT, RDHT 07T1..,0702.. RDHX, RDGT, RDHT 1003.. RDHX, RDGT, RDHT 12T3.. RDHX, RDGT, RDHT 1604.. RCMT 1204, RCMT1606, RCMT2006, ZDCW 07, ZDCW 09, ZDEW 12 PD.. 0905..., REHT 16, RPET 15	I	7010 7205 E (S)	I	7025 7215 S (E)	I	–
	C90SC09, 12	CSC09, 12	SCRD12, 16	SRD05, 07, 10, 12, 16	B-SRD07, 10	SMORC12,16,20	SMOZD09, 12	SZD07, 09, 12	SZD07 SZD09 SZD12	S19SPD09	SPD09	S45OE06Z S45OD06D		II	M8310 8215 E (S)	II	M8325 8230 S (E)	II	–
														III	8215 E (S)	III	8230 S (E)	III	–
5													XP xxER-FM ZPxxER-xx VCGT 220530 RC, RCA, LC	I	M8310	I	8230 M8325	I	–
														II	–	II	–	II	–
	CXP16, 20, 25, 32	CXP16, 20, 25, 32	SZP10,12,16,20, 25	SZP10, 12, 16, 20, 25, 32, 40, 50	K2-SRC	SRCA	K2-SLC	S90VC22C	SVC22C	A-SVC22C				III	–	III	–	III	–
6													SN.. 11 (12) CN XN.. 1205	I	8215 E (S)	I	8230 S (E)	I	–
														II	8230 S (E)	II	8240 S	II	–
	S90SN	S90SN-R	S90CN S90XN	S90CN-R S90XN-R										III	–	III	–	III	–
7													ADMX, ADEX 1606.. LNET 160616SR ,SNGX 1305 SNGX 130512PN APET(W) 150412 SPET(W) 1204AD ADMX, ADEX 11T3.. SDMX 1205 CCMX 0603.. CCMX 08T3.., CCMX 09T3..	I	–	I	–	I	–
														II	–	II	–	II	–
	SLSN	SSAP	SSAP-A	S90AD11E S90AD16E	SAD11E SAD16E	C90SD12X	CSD12X		SCC06, SSC08 SSC09					III	–	III	–	III	–
8													SPUN,SPGN 2506.. SBMR 22 PNMU 1308..	I	–	I	–	I	–
														II	–	II	–	II	–
	W60SP25P	F60SB22	S57PN13											III	–	III	–	III	–
9													SPUN 2506.. TBMR 27....	I	–	I	–	I	–
														II	–	II	–	II	–
	W90SP25P	F90TB27X												III	–	III	–	III	–

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	S													
	Cutting conditions	Range of starting feeds		M9325	M9340	M8345	8215	8230	M8310	M8326	M8340	M8346	7215	7230	HF7
1	Light	0,10	0,30	120	80	-	105	95	105	-	95	-	-	-	-
	Medium	0,10	0,25	110	75	-	90	80	95	-	85	-	-	-	-
	Heavy	0,10	0,20	-	-	-	75	70	-	-	70	-	-	-	-
2	Light	0,10	0,35	115	70	-	100	90	-	-	90	-	-	-	35
	Medium	0,10	0,30	105	65	-	85	80	-	-	80	-	-	-	30
	Heavy	0,10	0,20	-	-	-	75	65	-	-	70	-	-	-	-
3	Light	0,10	0,30	105	70	65	90	80	-	-	80	-	-	-	30
	Medium	0,10	0,25	95	70	60	80	75	-	-	75	-	-	-	30
	Heavy	0,10	0,15	-	-	-	70	65	-	-	65	-	-	-	-
4	Light	-	-	125	90	75	105	95	110	-	95	-	85	70	40
	Medium	-	-	115	80	70	95	85	105	-	90	-	75	65	35
	Heavy	-	-	-	-	-	85	80	-	-	80	-	-	-	-
5	Light	-	-	-	-	70	-	85	100	-	90	-	-	-	-
	Medium	-	-	-	-	65	-	80	90	-	80	-	-	-	-
	Heavy	-	-	-	-	-	-	70	-	-	70	-	-	-	-
6	Light	0,10	0,50	-	-	-	85	80	-	-	80	-	-	-	-
	Medium	0,10	0,30	-	-	-	75	70	-	-	70	-	-	-	-
	Heavy	0,10	0,20	-	-	-	-	65	-	-	65	-	-	-	-
7	Light	0,10	0,25	-	-	-	50	50	-	-	50	-	-	-	-
	Medium	0,10	0,20	-	-	-	45	40	-	-	40	-	-	-	-
	Heavy	0,08	0,15	-	-	-	-	30	-	-	30	-	-	-	-
8	Light	0,25	0,60	-	-	-	-	75	-	-	-	-	-	-	-
	Medium	0,25	0,50	-	-	-	-	55	-	-	-	-	-	-	-
	Heavy	0,25	0,40	-	-	-	-	50	-	-	-	-	-	-	-
9	Light	0,20	0,60	-	-	-	-	-	-	-	-	-	-	-	-
	Medium	0,20	0,50	-	-	-	-	-	-	-	-	-	-	-	-
	Heavy	0,20	0,40	-	-	-	-	-	-	-	-	-	-	-	-

S

ADJUSTMENT v_c

Subgroup	S1	S2	S3	S4
Adjustment for workpiece hardness				
Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
180	**2,14**	**1,46**	1,22	0,92
200	**2,01**	**1,38**	1,15	**0,93**
210	**1,93**	**1,32**	1,10	**0,83**
220	**1,89**	**1,30**	1,08	**0,81**
230	**1,84**	**1,26**	**1,05**	**0,79**
240	**1,80**	**1,24**	**1,03**	**0,77**
250	**1,75**	**1,20**	**1,00**	**0,75**
260	**1,70**	**1,16**	**0,97**	**0,73**
280	**1,61**	**1,10**	**0,92**	**0,69**
300	**1,54**	1,06	**0,88**	**0,66**
320	**1,47**	1,01	**0,84**	**0,63**
340	**1,40**	0,96	**0,80**	0,60
350	**1,37**	0,94	**0,78**	0,59
360	**1,30**	0,89	0,74	0,56

Adjustment for durability (general machining)

Durability [min]	k_{vT}
15	1,23
20	1,13
30	1,00
45	0,89
60	0,81
90	0,72

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Table 6a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

H

Group	Tool type												Insert	Operating conditions of milling					
														Light		Medium		Heavy	
1													HNGX 06 HNGX 09 HNEF 0905..... SNMT SNKT 1205AZ	I	M5315 S (E)	I	M9315 S	I	–
														II	8215 M8310	II	8215 M8310 S	II	–
	S45HN06C S45HN09C	SNH06	SNH06	C60HN09	S45SN12Z									III	8230 S (E)	III	8230 S	III	–
2													OEHT 06 ODMT(W)05, ODMT(W)06 SEMT09 SDEW, SDEX 09.. SOMT09T3:: TCMT16T3 XPHT 1604..	I	8215 M5315 S (E)	I	8230 M9315 S	I	–
														II	8230 S (E)	II	8230 S	II	–
	S45OD05D S45OD06D	S45SE09F	SSE09	SSD09	N-SSO09	2516-45		SXP16						III	8230 S (E)	III	8240 S	III	–
3													ADMX ,ADEX 11T3.. ADMX ,ADEX 1606.. APKT 1003PD APET, APKT 1604.. LNGX 12..., LNGU 16... SOMT 09T30.., SDMT 120508SR.. ADKX 15T3...., XOEN 12 T3...	I	8215 M5315 S (E)	I	8230 M9315 S	I	–
														II	8215 S (E)	II	8230 S	II	–
	S90AD11E, S90AD16E S90AP10D, S90AP16D	SAD07D-C SAD11E SAD16E	SAD07D-C SAD11E, SAD16E SAP10D, SAP16D	S90LN12 S90LN16	SLN12	SLN12	S90SO09 S90SD12	SSO09	C90AD15	CAD15	CAD15	W90XO12		III	8230 S (E)	III	8230 S	III	–
4													SCKR 09T3.., SCKR 12T3..., RDHX 0501.. RDHX, RDGT, RDHT 07T1..,0702.. RDHX, RDGT, RDHT 1003.. RDHX, RDGT, RDHT 12T3.. RDHX, RDGT, RDHT 1604.. RCMT 1204, RCMT1606, RCMT2006, ZDCW 07, ZDCW 09, ZDEW 12 PD.. 0905..., REHT 16, RPET 15	I	7010 7205 E (S)	I	7025 7215 S (E)	I	–
														II	M8310 8215 E (S)	II	M8325 8230 S (E)	II	–
	C90SC09, 12	CSC09, 12	SCRD12, 16	SRD05, 07, 10, 12, 16	B-SRD07, 10	SMORC12,16,20	SMCD009, 12	SZD07, 09, 12	SZD07 SZD09 SZD12	S19SPD09	SPD09			III	8215 E (S)	III	8230 S (E)	III	–
5													XPxxER-FM ZPxxER-xx VCGT 220530 RC, RCA, LC	I	M8310 7215	I	M8325 8230 7230	I	–
														II	–	II	–	II	–
	CXP16, 20, 25, 32	CXP16, 20, 25, 32	SZP10,12,16,20, 25	SZP10, 12, 16, 20, 25, 32, 40, 50	K2-SRC	SRCA	K2-SLC	S90VC22C	SVC22C	A-SVC22C				III	–	III	–	III	–
6													SN.. 11 (12) CN XN.. 1205	I	8215 E (S)	I	8230 S (E)	I	–
														II	–	II	–	II	–
	S90SN	S90SN-R	S90CN S90XN	S90CN-R S90XN-R										III	–	III	–	III	–
7													ADMX, ADEX 1606.. LNET 160616SR ,SNGX 1305 SNGX 130512PN APET(W) 150412 SPET(W) 1204AD ADMX, ADEX 11T3.. SDMX 1205 CCMX 0603.. CCMX 08T3.., CCMX 09T3..	I	–	I	–	I	–
														II	–	II	–	II	–
	SLSN	SSAP	SSAP-A	S90AD11E S90AD16E	SAD11E SAD16E	C90SD12X	CSD12X		SCC06, SSC08 SSC09					III	–	III	–	III	–
8													SPUN,SPGN 2506.. SBMR 22 PNMU 1308..	I	–	I	–	I	–
														II	–	II	–	II	–
	W60SP25P	F60SB22	C60HN09											III	–	III	–	III	–
9													SPUN 2506.. TBMR 27....	I	–	I	–	I	–
														II	–	II	–	II	–
	W90SP25P	F90TB27X												III	–	III	–	III	–

Group	H												
	Cutting conditions	Range of starting feeds		M5315	M9315	M9325	5040	M8310	8215	8230	7205	7215	7230	HF7
1	Light	0,10	0,30	85	85	80	-	70	70	60	-	-	-	-
	Medium	0,10	0,25	80	75	70	-	65	60	55	-	-	-	-
	Heavy	0,10	0,20	-	-	-	-	-	50	45	-	-	-	-
2	Light	0,10	0,35	80	80	75	-	-	65	60	-	-	-	25
	Medium	0,10	0,30	70	70	70	-	-	55	50	-	-	-	20
	Heavy	0,10	0,20	-	-	-	-	-	50	45	-	-	-	-
3	Light	0,10	0,30	75	70	70	-	-	60	55	-	-	-	20
	Medium	0,10	0,25	70	70	65	-	-	55	50	-	-	-	20
	Heavy	0,10	0,15	-	-	-	-	-	45	45	-	-	-	-
4	Light	-	-	-	-	80	50	75	70	60	60	55	45	25
	Medium	-	-	-	-	75	45	70	60	55	55	50	45	25
	Heavy	-	-	-	-	-	-	-	55	50	-	-	-	-
5	Light	-	-	-	-	-	-	65	-	55	-	90	75	-
	Medium	-	-	-	-	-	-	60	-	50	-	85	75	-
	Heavy	-	-	-	-	-	-	-	-	45	-	-	-	-
6	Light	0,10	0,50	-	-	-	-	-	55	50	-	-	-	-
	Medium	0,10	0,30	-	-	-	-	-	50	45	-	-	-	-
	Heavy	0,10	0,20	-	-	-	-	-	-	40	-	-	-	-
7	Light	0,10	0,25	-	-	-	-	-	35	30	-	-	-	-
	Medium	0,10	0,20	-	-	-	-	-	30	25	-	-	-	-
	Heavy	0,08	0,15	-	-	-	-	-	-	20	-	-	-	-
8	Light	0,25	0,60	-	-	-	-	-	-	50	-	-	-	-
	Medium	0,25	0,50	-	-	-	-	-	-	35	-	-	-	-
	Heavy	0,25	0,40	-	-	-	-	-	-	30	-	-	-	-
9	Light	0,20	0,60	-	-	-	-	-	-	-	-	-	-	-
	Medium	0,20	0,50	-	-	-	-	-	-	-	-	-	-	-
	Heavy	0,20	0,40	-	-	-	-	-	-	-	-	-	-	-

H

ADJUSTMENT v_c

Subgroup	H1	H2	H3	H4
Adjustment for workpiece hardness				
Hardness [HB/HRC]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
380 / 40,8	**1,84**	**1,76**	1,60	1,52
400 / 42,7	**1,73**	**1,65**	1,50	1,43
420 / 44,6	**1,61**	**1,54**	1,40	1,33
440 / 46,5	**1,50**	**1,43**	1,30	1,24
460 / 48,1	**1,38**	**1,32**	1,20	1,14
500 / 50,8	**1,15**	**1,10**	**1,00**	0,95
520 / 52,0	1,09	1,05	**0,95**	0,90
540 / 53,5	1,04	0,99	**0,90**	0,96
560 / 54,7	0,98	0,94	**0,85**	0,81
580 / 55,7	0,92	0,88	**0,80**	**0,76**
600 / 56,8	0,86	0,93	0,75	**0,71**
620 / 57,9	0,81	0,77	0,70	**0,67**
640 / 59,0	0,75	0,72	0,65	**0,62**
>640 / >59	0,69	0,66	0,60	**0,57**

Adjustment for durability (general machining)

Durability [min]	k_{vT}
15	1,23
20	1,13
30	1,00
45	0,89
60	0,81
90	0,72

Adjustment coefficient k_{vx}

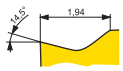
Skin of forging and casting	0,70 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

GEOMETRY OF CUTTING INSERTS FOR TURNING

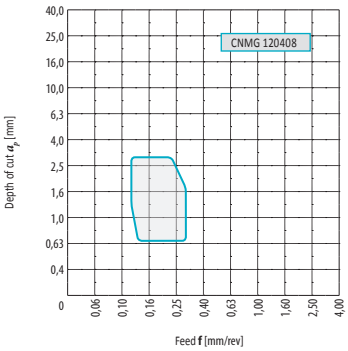
Chip-breaker	Photo	Group of machined materials	Operating diagram	Description	Used for inserts:
		Turning P M K N S H			CNGG, CNMG, DNMG, SNMG, TNMG, VNMG, WNMG

SF

Cutting edge profile



F	◪ ■	■
M	◪ ■	■
R		



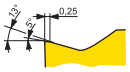
- Positive sharp geometry (without a peripheral stabilising land)
- Suitable for finishing to light and medium machining
- Main area of application – machined materials in groups S and M
- Additional area of application – machined materials in group P
- Continuous cut

Range of machining conditions:		Unit:
f	0,08 ÷ 0,35	[mm/rev]
a_p	0,2 ÷ 3,5	[mm]

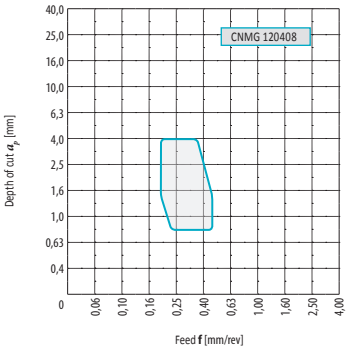
Chip-breaker	Photo	Group of machined materials	Operating diagram	Description	Used for inserts:
		Turning P M K N S H			CNMG, DNMG, SNMG, TNMG, VNMG, WNMG

SM

Cutting edge profile



F	◪ ■ □	■
M	◪ ■ □	■
R	◪ ■ □	■



- Slightly positive geometry with a peripheral stabilising land
- Suitable for medium machining
- Main area of application – machined materials in groups S and M
- Additional area of application – machined materials in group P
- Potential application – machined materials in group K
- Continuous and interrupted cut

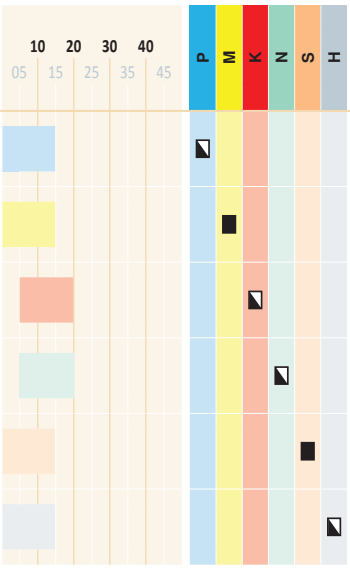
Range of machining conditions:		Unit:
f	0,15 ÷ 0,55	[mm/rev]
a_p	0,4 ÷ 6,0	[mm]

■ Main application area ◪ Other applications □ Potential applications

NEW GRADES FOR TURNING

Identification code and microstructure	Application areas	Group of machined materials	Grade description and recommended application

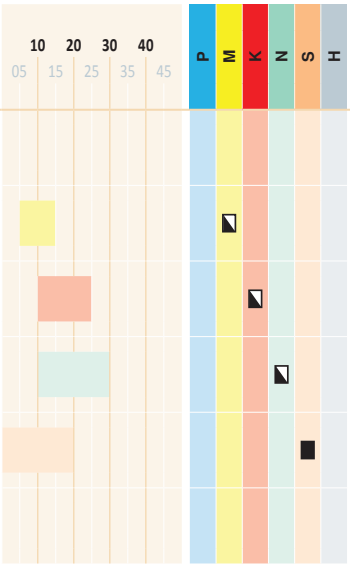
T6310



UP! GRADE®

- Type H ultra submicron substrate
- Medium cobalt bonding phase content
- New multilayer PVD coating with a top layer that is highly wear-resistant (AlTiSiN)
- High wear resistance combined with effective resistance to the formation of ridgeline cracks
- Cutting edge is extremely strong and stable
- Special material for machining ISO S difficult-to-machine materials and ISO M stainless steels
- Suitable for machining material groups P, K, N and H
- Suitable for applications that require coolant and also for dry machining
- Can potentially be used in unstable conditions

H07



UP! GRADE®

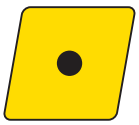
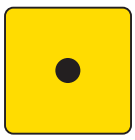
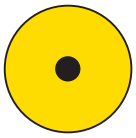
- Uncoated turning material
- H type fine-grain material (without cubic carbides) with low cobalt bonding phase content
- Special grade for machining titanium alloys
- Also suitable for machining material groups K, N and M
- Small to medium cross-sections of chip
- Suitable for continuous to slightly interrupted cut

■ Main application area ◪ Other applications ☐ Potential applications

Choosing the shape and size of the insert

Increasing the accessibility of the cutting edge for profiling and fewer vibrations.

Increasing the strength of the cutting edge and suitability for interrupted cut.

Priority of choice	Insert shape		Insert size	Maximum length of cutting edge L_{max} [mm]	
		V	11	0,25L	2,8
			16		4,2
		D	07	0,25L	2,0
			11		2,9
			15		3,9
		K	16	0,25L	4,7
			19		4,7
		T	11	0,33L	3,6
			16		5,5
			22		7,3
			27		9,1
		W	06	0,50L	3,3
			08		4,4
		C	06	0,66L	4,2
			09		6,4
			12		8,5
			16		10,6
			19		12,7
			25		16,5
		S	09	0,66L	6,3
			12		8,4
			15		10,4
			19		12,6
			25		16,8
			38		25,0
		R	06	0,40D	2,4
			08		3,2
			10		4,0
			12		4,8
			15		6,0
			16		6,4
			19		7,6
			20		8,0
			25		10,0
			32		12,8

Surface quality in turning

The quality of the machined surface in turning depends on the feed rate f and the radius of the insert r_ε. The values of surface roughness R_{max} and R_a are given in following tables.

There are other factors that can influence surface roughness, please take the given values as a guide.

$$R_{max} = \frac{f^2}{8.r_\varepsilon} \cdot 1000$$

Feed f (mm/rev.)	r_ε Radius																		
	0,1	0,2	0,4	0,5	0,8	1,0	1,2	1,5	1,6	2,0	2,4	2,5	3,0	3,2	3,5	4,0	5,0	6,0	8,0
	Surface R_{max} (µm)																		
0,05	3,13	1,56	0,78	0,63	0,39	0,31	0,26	0,21	0,20	0,16	0,13	0,13	0,10	0,10	0,09	0,08	0,06	0,05	0,04
0,07	6,1	3,06	1,53	1,23	0,77	0,61	0,51	0,41	0,38	0,31	0,26	0,25	0,20	0,19	0,18	0,15	0,12	0,10	0,08
0,08	8,0	4,0	2,00	1,60	1,00	0,80	0,67	0,53	0,50	0,40	0,33	0,32	0,27	0,25	0,23	0,20	0,16	0,13	0,10
0,10		6,3	3,13	2,50	1,56	1,25	1,04	0,83	0,78	0,63	0,52	0,50	0,42	0,39	0,36	0,31	0,25	0,21	0,16
0,12		9,0	4,50	3,60	2,25	1,80	1,50	1,20	1,13	0,90	0,75	0,72	0,60	0,56	0,51	0,45	0,36	0,30	0,23
0,15		14	7,0	5,6	3,52	2,81	2,34	1,88	1,76	1,41	1,17	1,13	0,94	0,88	0,80	0,70	0,56	0,47	0,35
0,16		16	8,0	6,4	4,00	3,20	2,67	2,13	2,00	1,60	1,33	1,28	1,07	1,00	0,91	0,80	0,64	0,53	0,40
0,18		20	10,1	8,1	5,1	4,05	3,38	2,70	2,53	2,03	1,69	1,62	1,35	1,27	1,16	1,01	0,81	0,68	0,51
0,20			13	10,0	6,3	5,0	4,17	3,33	3,13	2,50	2,08	2,00	1,67	1,56	1,43	1,25	1,00	0,83	0,63
0,22			15	12,1	7,6	6,1	5,0	4,03	3,78	3,03	2,52	2,42	2,02	1,89	1,73	1,51	1,21	1,01	0,76
0,25			20	16	9,8	7,8	6,5	5,2	4,88	3,91	3,26	3,13	2,60	2,44	2,23	1,95	1,56	1,30	0,98
0,27			23	18	11,4	9,1	7,6	6,1	5,7	4,56	3,80	3,65	3,04	2,85	2,60	2,28	1,82	1,52	1,14
0,30			28	23	14	11,3	9,4	7,5	7,0	5,6	4,69	4,50	3,75	3,52	3,21	2,81	2,25	1,88	1,41
0,32			32	26	16	13	10,7	8,5	8,0	6,4	5,3	5,1	4,27	4,00	3,66	3,20	2,56	2,13	1,60
0,35			38	31	19	15	13	10,2	9,6	7,7	6,4	6,1	5,1	4,79	4,38	3,83	3,06	2,55	1,91
0,37			43	34	21	17	14	11,4	10,7	8,6	7,1	6,8	5,7	5,3	4,89	4,28	3,42	2,85	2,14
0,40				40	25	20	17	13	13	10,0	8,3	8,0	6,7	6,3	5,7	5,0	4,00	3,33	2,50
0,45				51	32	25	21	17	16	13	10,5	10,1	8,4	7,9	7,2	6,3	5,1	4,22	3,16
0,50					39	31	26	21	20	16	13	13	10,4	9,8	8,9	7,8	6,3	5,2	3,91
0,55					47	38	32	25	24	19	16	15	13	11,8	10,8	9,5	7,6	6,3	4,73
0,60					56	45	38	30	28	23	19	18	15	14	13	11,3	9,0	7,5	5,6
0,65					66	53	44	35	33	26	22	21	18	17	15	13	10,6	8,8	6,6
0,70					77	61	51	41	38	31	26	25	20	19	18	15	12,3	10,2	7,7
0,75					88	70	59	47	44	35	29	28	23	22	20	18	14	11,7	8,8
0,80						80	67	53	50	40	33	32	27	25	23	20	16	13	10,0
0,85						90	75	60	56	45	38	36	30	28	26	23	18	15	11,3
0,90						101	84	68	63	51	42	41	34	32	29	25	20	17	13
0,95						113	94	75	71	56	47	45	38	35	32	28	23	19	14
1,00							104	83	78	63	52	50	42	39	36	31	25	21	16
1,20								120	113	90	75	72	60	56	51	45	36	30	23
1,30								141	132	106	88	85	70	66	60	53	42	35	26
1,40								163	153	123	102	98	82	77	70	61	49	41	31
1,50									176	141	117	113	94	88	80	70	56	47	35
1,60										160	133	128	107	100	91	80	64	53	40
1,70										181	151	145	120	113	103	90	72	60	45
1,80										203	169	162	135	127	116	101	81	68	51
1,90										226	188	181	150	141	129	113	90	75	56
2,00											208	200	167	156	143	125	100	83	63
2,20											252	242	202	189	173	151	121	101	76
2,50													260	244	223	195	156	130	98

☐ danger of hard chipbreaking

CHOICE OF INITIAL CUTTING CONDITIONS

$$R_a = 43{,}9 \frac{f^{1,88}}{r_\varepsilon^{0,97}}$$

Feed f (mm/rev.)	r_ε Radius																			
	0,1	0,2	0,4	0,5	0,8	1,0	1,2	1,5	1,6	2,0	2,4	2,5	3,0	3,2	3,5	4,0	5,0	6,0	8,0
	Surface R_a (µm)																		
0,05	1,47	0,75	0,38	0,31	0,20	0,16	0,13	0,11	0,10	0,08	0,07	0,06	0,05	0,05	0,05	0,04	0,03	0,03	0,02
0,07	2,76	1,41	0,72	0,58	0,37	0,30	0,25	0,20	0,19	0,15	0,13	0,12	0,10	0,10	0,09	0,08	0,06	0,05	0,04
0,08	3,55	1,81	0,93	0,75	0,47	0,38	0,32	0,26	0,24	0,19	0,16	0,16	0,13	0,12	0,11	0,10	0,08	0,07	0,05
0,10		2,76	1,41	1,13	0,72	0,58	0,48	0,39	0,37	0,30	0,25	0,24	0,20	0,19	0,17	0,15	0,12	0,10	0,08
0,12		3,88	1,98	1,60	1,01	0,82	0,68	0,55	0,52	0,42	0,35	0,34	0,28	0,26	0,24	0,21	0,17	0,14	0,11
0,15		5,9	3,02	2,43	1,54	1,24	1,04	0,84	0,79	0,63	0,53	0,51	0,43	0,40	0,37	0,32	0,26	0,22	0,17
0,16		6,7	3,41	2,74	1,74	1,40	1,17	0,94	0,89	0,71	0,60	0,58	0,48	0,45	0,42	0,36	0,29	0,25	0,19
0,18		8,3	4,25	3,42	2,17	1,75	1,46	1,18	1,11	0,89	0,75	0,72	0,60	0,57	0,52	0,46	0,37	0,31	0,23
0,20			5,2	4,17	2,64	2,13	1,78	1,44	1,35	1,09	0,91	0,88	0,73	0,69	0,63	0,56	0,45	0,37	0,28
0,22			6,2	4,99	3,16	2,55	2,14	1,72	1,62	1,30	1,09	1,05	0,88	0,82	0,76	0,66	0,53	0,45	0,34
0,25			7,9	6,3	4,02	3,24	2,72	2,19	2,05	1,65	1,39	1,33	1,12	1,05	0,96	0,84	0,68	0,57	0,43
0,27			9,1	7,3	4,65	3,74	3,14	2,53	2,37	1,91	1,60	1,54	1,29	1,21	1,11	0,98	0,79	0,66	0,50
0,30			11,1	8,9	5,7	4,57	3,83	3,08	2,89	2,33	1,95	1,88	1,57	1,48	1,35	1,19	0,96	0,80	0,61
0,32			13	10,1	6,4	5,2	4,32	3,48	3,27	2,63	2,20	2,12	1,78	1,67	1,53	1,34	1,08	0,91	0,69
0,35			15	11,9	7,6	6,1	5,1	4,12	3,87	3,11	2,61	2,51	2,10	1,97	1,81	1,59	1,28	1,07	0,81
0,37			16	13	8,4	6,8	5,7	4,57	4,29	3,46	2,90	2,78	2,33	2,19	2,01	1,76	1,42	1,19	0,90
0,40				15	9,7	7,8	6,6	5,3	4,97	4,00	3,35	3,22	2,70	2,54	2,33	2,04	1,65	1,38	1,04
0,45				19	12,1	9,8	8,2	6,6	6,2	4,99	4,19	4,02	3,37	3,17	2,90	2,55	2,05	1,72	1,30
0,50					15	11,9	10,0	8,0	7,6	6,1	5,1	4,90	4,11	3,86	3,54	3,11	2,50	2,10	1,59
0,55					18	14	12,0	9,6	9,0	7,3	6,1	5,9	4,92	4,62	4,23	3,72	2,99	2,51	1,90
0,60					21	17	14	11,3	10,7	8,6	7,2	6,9	5,8	5,4	4,98	4,38	3,53	2,96	2,24
0,65					24	20	16	13	12,4	10,0	8,4	8,0	6,7	6,3	5,8	5,1	4,10	3,44	2,60
0,70					28	22	19	15	14	11,5	9,6	9,2	7,7	7,3	6,7	5,9	4,71	3,95	2,99
0,75					32	26	21	17	16	13	10,9	10,5	8,8	8,3	7,6	6,7	5,4	4,50	3,40
0,80						29	24	19	18	15	12,3	11,9	9,9	9,3	8,6	7,5	6,1	5,1	3,84
0,85						32	27	22	21	17	14	13	11,1	10,5	9,6	8,4	6,8	5,7	4,30
0,90						36	30	24	23	18	15	15	12,4	11,7	10,7	9,4	7,6	6,3	4,79
0,95						40	33	27	25	20	17	16	14	13	11,8	10,4	8,4	7,0	5,3
1,00							37	30	28	22	19	18	15	14	13	11,4	9,2	7,7	5,8
1,20								42	39	32	26	25	21	20	18	16	13	10,9	8,2
1,30								49	46	37	31	30	25	23	21	19	15	13	9,6
1,40								56	52	42	35	34	28	27	25	22	17	15	11,0
1,50									60	48	40	39	32	30	28	25	20	17	13
1,60										54	45	44	37	34	32	28	22	19	14
1,70										61	51	49	41	39	35	31	25	21	16
1,80										68	57	54	46	43	39	35	28	23	18
1,90										75	63	60	51	47	44	38	31	26	20
2,00											69	66	56	52	48	42	34	28	21
2,20											83	79	67	63	57	50	41	34	26
2,50													85	80	73	64	52	43	33

☐ danger of hard chipbreaking

1. The first step is to assign the material to be machined into one of six groups according the ISO 513 standard (see page 130).
2. Basic insert shape is dependent on the type of machining, material and workpiece shape. Cutting edge length is then selected based on the depth of cut (see page 158).
3. Select the right combination of grade and chip-breaker with regard to the materials being machined and the turning operation (see tables 1a – 6b on page 162 – 173). Three possible recommendations are shown in tables for each material group. You can also check your recommendation on page 156 and 157 .
4. Choose the nose radius of the cutting insert with respect to the depth of cut, the feed and the cutting conditions. If there is a particular requirement for Ra, choose the radius according to tables (see pages 159 - 160). Preferred choice is the wiper insert.
5. Selecting the correct size of square section tool holder is determined by the shape of the cutting insert and the make up of the machine tool. For internal tool holders select the largest diameter tool possible in relation to the insert shape and bore diameter. Try and limit tool overhang to a maximum of 3 x tool diameter.
6. In tables no. 1a – 6b on page 162 – 173, select the initial cutting speed with regard to insert grade, shape, depth of cut and feed. Initial cutting condition are valid for tool life 15 min. (45 min. for heavy roughing), without coolant.

   Threading, cutting off and recessing – with coolant.
7. The tables also contain correction factors for recalculating cutting speeds with regard to tool life, grades and work piece hardness.If necessary use these factors and adjust accordingly.

$$v_c = v_{15} \cdot k_{vx} \cdot k_{vT} \cdot k_{vHB} \cdot (k_{vN})$$

Please note that cutting speed determined in this way is the initial value (default) defining the basic level of cutting speed for a given operation.

Above all, the range of machinability values of the workpiece material, which may be as much as two grades of machinability for high-grade steels, is often the reason for modifying a certain cutting speed if you require to achieve relatively accurate economical tool life.

Table 1a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Machined material, main ISO group		INDEXABLE INSERT TYPE in accordance with ISO	OPERATING CONDITIONS FOR TURNING																							
			Fine turning				Finishing turning				Semi-roughing turning				Roughing turning				Heavy roughing turning				Parting off, grooving				Threading	
			f = 0.05 ÷ 0.1 [mm/rev]				f = 0.1 ÷ 0.2 [mm/rev]				f = 0.2 ÷ 0.4 [mm/rev]				f = 0.4 ÷ 0.8 [mm/rev]				f > 1.0 [mm/rev]				f = 0.5 ÷ 0.3					
			a_p = 0.2 ÷ 1.0 [mm]				a_p = 0.8 ÷ 2.0 [mm]				a_p = 1.5 ÷ 4.0 [mm]				a_p = 4.0÷10.0 [mm]				a_p > 10.0 [mm]									
			Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Circumferential grooving and parting off		Face grooving and parting off		-	
P	..A ..M ..G ..U ..N	CNMA, CNMM, CNMG, DNMA, DNMM, DNMG, DNMU, SNMA, SNMM, SNMG, SNMX, TNMA, TNMM, TNMG, VNMU, RNMA, RNMM, RNMG, WNMA, WNMM, WNMG	I	T8315	I	T8315	I	TT310	I	T8315	I	T9315	I	T9325	I	T9315	I	T9315	I	T9325	I	T9325	I	-	I	-	I	-
				FF		FF		FM		FM		W-MR		M (W-M)		RM (W-MR)		R (W-M)		OR		SR		-		-		-
			II	T6310	II	T8330	II	T9315	II	T8330	II	T9315	II	T9325	II	T9325	II	T9325	II	T9335	II	T9335	II	-	II	-	II	-
				SF		SF		FM		FM		FM		FM		RM (W-MR)		R (W-M)		OR		SR		-		-		-
			III	-	III	-	III	T9315	III	T9315	III	T9325	III	T8330	III	T9325	III	T8330	III	T8330	III	T8345	III	-	III	-	III	-
				-		-		W-F		W-F		NM		MN		OR (NR2)		NR2 (OR)		OR		SR		-		-		-
	..X	KNUX LNUX	I	-	I	-	I	T9325	I	T9325	I	6640	I	6640	I	6640	I	-	I	T9310	I	T9315	I	-	I	-	I	-
				-		-		72		72		73 (78)		73 (78)		73 (78)		-						-		-		-
			II	-	II	-	II		II		II	T9325	II	T9325	II	6640	II	-	II	T9315	II	T9325 (T9335)	II	-	II	-	II	-
				-		-						72		72		74 (79)		-						-		-		-
	..W ..T	CCMW, CCMT, SCMW, SCMT, DCMW, DCMT, TCMW, TCMT, VCMW, VCMT, WCMW, WCMT, RCMW, RCMT, RCMX	I	TT310	I	T8315	I	TT310	I	T8315	I	T5315	I	T9315	I	-	I	-	I	T9325	I	T9335	I	-	I	-	I	-
				UR		FF		UR		FF		RM		RM		-		-		OR		OR		-		-		-
			II	T8315	II	T8330	II	T9315	II	T9325	II	T9315	II	T9325	II	-	II	-	II	T9325	II	T9335	II	-	II	-	II	-
				FF		FF		FM		FM		RM		RM		-		-		SR		SR		-		-		-
			III	8016	III	-	III	T8315	III	T8330	III	T9325	III	T8330	III	-	III	-	III	-	III	-	III	-	III	-	III	-
				Al		-		UR		FM		RM		RM		-		-		-		-		-		-		-
	..R ..N	SPMR, SPGR, SPUN, SPGN, TPMR, TPGR, TPUN, TPGN	I	-	I	-	I	T9325	I	T9335	I	T9325	I	T9335	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				-		-		46		46		46		46		-		-		-		-		-		-		-
			II	-	II	-	II	T9325	II	T9335	II	T9325	II	T9335	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		47		47		47		47		-		-		-		-		-		-		-
			III	-	III	-	III	T9325	III	T9335	III	T9325	III	T9335	III	-	III	-	III	-	III	-	III	-	III	-	III	-
				-		-		48		48		48		48		-		-		-		-		-		-		-
	..X	LFMX, LFUX, LCMX, TN11.., TN16.., TN22..	I	T8330	I	T8330	I	T8330	I	T8330	I	-	I	-	I	-	I	-	I	-	I	-	I	T8330	I	T8330	I	-
				-		-		-		-		-		-		-		-		-		-						-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	T9325 (6630)	II	T9325 (6640)	II	-
				-		-		-		-		-		-		-		-		-		-						-
		TN11.., TN16.., TN 22	I		I		I		I		I		I		I		I		I		I		I	-	I	-	I	T8030

Type of operation	Selection priority	Feeds and depth of cut		P																
				6630	6640	T5305	T5315	T7335	T9310	T9315	T9325	T9335	T6310	T8030	T8310	T8315	T8330	T8345	TT010	TT310
		Feed f [mm/rev]	Depth of cut a_p [mm]	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..
Fine turning	I	0,05	0,5	-	-	630	-	-	-	-	-	-	-	-	455	410	310	305	680	515
	II	0,08	0,5	-	-	540	-	-	-	-	-	-	-	-	390	355	275	260	580	445
	III	0,10	0,5	-	-	500	-	-	-	-	-	-	-	-	365	330	260	240	535	415
Finishing turning	I	0,10	1,5	335	285	450	365	325	370	340	330	280	355	-	325	295	230	215	505	370
	II	0,15	1,5	280	240	390	335	275	330	315	300	255	300	-	290	260	205	185	440	325
	III	0,20	1,5	250	210	355	315	245	305	295	280	235	270	-	265	240	190	165	395	295
Semi-roughing Turning	I	0,20	2,5	235	200	340	300	235	290	280	270	225	255	-	250	225	185	160	-	-
	II	0,30	2,5	195	170	295	275	200	260	260	245	205	215	-	220	200	165	135	-	-
	III	0,40	2,5	175	150	270	255	175	240	245	230	190	190	-	200	185	150	125	-	-
Roughing turning	I	0,40	5,0	160	140	250	240	165	225	230	210	175	180	-	-	170	140	115	-	-
	II	0,60	5,0	135	115	220	220	140	200	210	195	160	150	-	-	150	125	100	-	-
	III	0,80	5,0	120	100	200	205	125	185	200	180	150	135	-	-	135	120	90	-	-
Heavy roughing Turning	I	0,80	12,0	85	75	110	140	95	-	145	130	105	-	-	-	-	85	60	-	-
	II	1,00	12,0	75	65	105	135	85	-	135	125	100	-	-	-	-	80	55	-	-
	III	1,30	12,0	70	60	95	130	80	-	130	120	90	-	-	-	-	75	50	-	-
Parting off, circumferential grooving and contouring (CTP)		0,10	-	220	190	-	-	-	-	-	220	-	-	-	-	-	150	-	-	-
		0,15	-	195	170	-	-	-	-	-	210	-	-	-	-	-	145	-	-	-
		0,20	-	175	150	-	-	-	-	-	200	-	-	-	-	-	135	-	-	-
		0,30	-	145	125	-	-	-	-	-	180	-	-	-	-	-	120	-	-	-
Face and internal grooving		0,10	-	175	150	-	-	-	-	-	175	-	-	-	-	-	120	-	-	-
		0,15	-	155	135	-	-	-	-	-	165	-	-	-	-	-	115	-	-	-
		0,20	-	140	120	-	-	-	-	-	160	-	-	-	-	-	105	-	-	-
		0,30	-	115	100	-	-	-	-	-	140	-	-	-	-	-	95	-	-	-
Threading				-	-	-	-	-	-	-	-	-	-	110	-	-	130	-	-	-
				-	-	-	-	-	-	-	-	-	-	100	-	-	120	-	-	-
				-	-	-	-	-	-	-	-	-	-	95	-	-	115	-	-	-

Durability

V_{cs} [m/min]

V_{cs} [m/min]

V_{cs} [m/min]

Figures in blue are valid for machining with coolant.

ADJUSTMENT v_c

Subgroup	P1	P2	P3	P4
Adjustment for workpiece hardness				
Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
120	**1,53**	1,18	0,94	0,71
140	**1,46**	1,12	0,90	0,67
160	**1,37**	1,05	0,84	0,63
180	**1,30**	**1,00**	0,80	0,60
200	**1,24**	**0,95**	0,76	0,57
220	**1,17**	**0,90**	**0,72**	0,54
240	**1,12**	**0,86**	**0,69**	0,52
260	**1,07**	**0,82**	**0,66**	**0,49**
280	1,04	**0,80**	**0,64**	**0,48**
300	1,00	**0,77**	**0,62**	**0,46**
320	0,96	0,74	**0,59**	**0,44**
340	0,92	0,71	**0,57**	**0,43**
360	0,88	0,68	0,54	**0,41**
375	0,85	0,65	0,52	**0,39**

Adjustment for durability (general machining)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
10	1,10	30	0,84
15	1,00	45	0,76
20	0,93	60	0,71

Adjustment for durability (heavy roughing)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
30	1,10	60	0,93
45	1,00		

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,80
Internal turning	0,75 - 0,85
Interrupted cut	0,80 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Adjustment to the shape of the insert

Shape of insert	k_{VBD}
S..., C..., W...	1,00
T..., D..., K...	0,95
V..., L... (parting off and grooving)	0,88
R..., L... (roughing)	1,10

Table 2a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Machined material, main ISO group	INDEXABLE INSERT TYPE in accordance with ISO		OPERATING CONDITIONS FOR TURNING																											
			Fine turning				Finishing turning				Semi-roughing turning				Roughing turning				Heavy roughing turning				Parting off, grooving				Threading			
			f = 0.05 ÷ 0.1 [mm/rev]				f = 0.1 ÷ 0.2 [mm/rev]				f = 0.2 ÷ 0.4 [mm/rev]				f = 0.4 ÷ 0.8 [mm/rev]				f > 1.0 [mm/rev]				f = 0.5 ÷ 0.3							
			a_p = 0.2 ÷ 1.0 [mm]				a_p = 0.8 ÷ 2.0 [mm]				a_p = 1.5 ÷ 4.0 [mm]				a_p = 4.0÷10.0 [mm]				a_p > 10.0 [mm]											
			Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Circumferential grooving and parting off		Face grooving and parting off		-			
M	..A ..M ..G ..U ..N	CNMA, CNMM, CNMG, DNMA, DNMM, DNMG, DNMU, SNMA, SNMM, SNMG, SNMX, TNMA, TNMM, TNMG, VNMU, RNMA, RNMM, RNMG, WNMA, WNMM, WNMG	I	T8315	I	T8315	I	TT310	I	T8315	I	T9325	I	T7335	I	T9325	I	T8315	I	T9325	I	T9335	I	-	I	-	I	-		
				FF		FF		FM		NF		SM (W-MR)		SM		RM (W-MR)		RM		NR2 (OR)		NR2 (OR)		-		-		-		
			II	T6310	II	T8330	II	T6310	II	T8330	II	T7335	II	T7335	II	T7335	II	T7335	II	T7335	II	T9335	II	-	II	-	II	-		
				SF		SF		SF		SM		NM (SI)		FM		NR		R		NR2 (OR)		SR		-		-		-		
			III	-	III	-	III	T9315	III	T8330	III	T8330	III	T8330	III	T7335	III	T8330	III	-	III	-	III	-	III	-	III	-		
				-		-		NF		FM		NM (SI)		FM		RM		NR2 (OR)		-		-		-		-		-		
	..X	KNUX LNUX	I	-	I	-	I	T9325	I	T9325	I	6640	I	6640	I	6640	I	-	I	T9310	I	T9315	I	-	I	-	I	-		
				-		-		72		72		73 (78)		73 (78)		73 (78)		-						-		-		-		
			II	-	II	-	II		II		II	T9325	II	T9325	II	6640	II	-	II	T9315	II	T9325 (T9335)	II	-	II	-	II	-		
				-		-						72		72		74 (79)		-						-		-		-		
	..W ..T	CCMW, CCMT, SCMW, SCMT, DCMW, DCMT, TCMW, TCMT, VCMW, VCMT, WCMW, WCM, RCMW, RCMT, RCMX	I	TT310	I	T8315	I	TT310	I	T8315	I	T5315	I	T9315	I	-	I	-	I	T9325	I	T9335	I	-	I	-	I	-		
				UR		FF		UR		FF		RM		RM		-		-		OR		OR		-		-		-		
			II	T8315	II	T8330	II	T9315	II	T7335	II	T9315	II	T7335	II	-	II	-	II	T9325	II	T9335	II	-	II	-	II	-		
				FF		FF		FM		FM		RM		RM		-		-		SR		SR		-		-		-		
			III	8016	III	-	III	T8315	III	T8330	III	T7335	III	T8330	III	-	III	-	III	-	III	-	III	-	III	-	III	-		
				Al		-		UR		FM		RM		RM		-		-		-		-		-		-		-		
	..R ..N	SPMR, SPGR, SPUN, SPGN, TPMR, TPGR, TPUN, TPGN	I	-	I	-	I	T9325	I	T9335	I	T9325	I	T9335	I	-	I	-	I	-	I	-	I	-	I	-	I	-		
				-		-		46		46		46		46		-		-		-		-		-		-		-		
			II	-	II	-	II	T9325	II	T9335	II	T9325	II	T9335	II	-	II	-	II	-	II	-	II	-	II	-	II	-		
				-		-		47		47		47		47		-		-		-		-		-		-		-		
			III	-	III	-	III	T9325	III	T9335	III	T9325	III	T9335	III	-	III	-	III	-	III	-	III	-	III	-	III	-		
				-		-		48		48		48		48		-		-		-		-		-		-		-		
	..X	LFMX, LFUX, LCMX, TN11.., TN16.., TN22..	I	T8330	I	T8330	I	T8330	I	T8330	I	-	I	-	I	-	I	-	I	-	I	-	I	T8330	I	T8330	I	-		
				-		-		-		-		-		-		-		-		-		-						-		
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	T9325 (6630)	II	T9325 (6640)	II	-		
				-		-		-		-		-		-		-		-		-		-						-		
		TN11.., TN16.., TN 22	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	T8030		

Type of operation	Selection priority	Feeds and depth of cut		M																
				6630	6640	T5315	T7335	T9325	T9335	T6310	T8030	T8310	T8315	T8330	T8345	H07	HF7	TT010	TT310	
		Feed f [mm/rev]	Depth of cut a_p [mm]	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	Durability
Fine turning	I	0,05	0,5	-	-	-	-	-	-	-	-	270	245	185	180	-	200	410	310	V_{15} [m/min]
	II	0,08	0,5	-	-	-	-	-	-	-	-	235	215	165	155	-	165	345	265	
	III	0,10	0,5	-	-	-	-	-	-	-	-	220	200	155	140	-	150	320	245	
Finishing turning	I	0,10	1,5	200	170	215	195	200	165	210	-	195	175	135	125	135	135	305	220	
	II	0,15	1,5	165	145	200	165	180	150	180	-	170	155	125	110	115	115	260	195	
	III	0,20	1,5	150	125	185	145	170	140	160	-	155	145	115	100	100	100	235	175	
Semi-roughing Turning	I	0,20	2,5	140	120	180	140	160	135	150	-	150	135	110	95	95	95	-	-	
	II	0,30	2,5	115	100	165	120	145	120	130	-	130	120	95	80	85	85	-	-	
	III	0,40	2,5	105	90	155	105	135	115	115	-	120	110	90	75	75	75	-	-	
Roughing turning	I	0,40	5,0	95	80	145	100	125	105	105	-	-	100	85	70	-	-	-	-	
	II	0,60	5,0	80	70	130	85	115	95	90	-	-	90	75	60	-	-	-	-	
	III	0,80	5,0	70	60	125	75	105	90	80	-	-	80	70	55	-	-	-	-	
Heavy roughing Turning	I	0,80	12,0	50	45	85	55	80	60	-	-	-	-	50	35	-	-	-	-	V_{15} [m/min]
	II	1,00	12,0	45	40	80	50	75	60	-	-	-	-	45	30	-	-	-	-	
	III	1,30	12,0	40	35	75	45	70	55	-	-	-	-	45	30	-	-	-	-	
Parting off, circumferential grooving and contouring (CTP)		0,10	-	130	110	-	-	130	-	-	-	-	-	90	-	-	-	-	-	V_{15} [m/min]
		0,15	-	115	100	-	-	125	-	-	-	-	-	85	-	-	-	-	-	
		0,20	-	105	90	-	-	120	-	-	-	-	-	80	-	-	-	-	-	
		0,30	-	85	75	-	-	110	-	-	-	-	-	70	-	-	-	-	-	
Face and internal grooving		0,10	-	100	85	-	-	100	-	-	-	-	-	70	-	-	-	-	-	
		0,15	-	90	80	-	-	100	-	-	-	-	-	65	-	-	-	-	-	
		0,20	-	80	70	-	-	95	-	-	-	-	-	60	-	-	-	-	-	
		0,30	-	65	60	-	-	85	-	-	-	-	-	55	-	-	-	-	-	
Threading				-	-	-	-	-	-	-	65	-	-	80	-	-	-	-	-	
				-	-	-	-	-	-	-	60	-	-	70	-	-	-	-	-	
				-	-	-	-	-	-	-	55	-	-	65	-	-	-	-	-	

Figures in blue are valid for machining with coolant.

ADJUSTMENT v_c

Subgroup	M1	M2	M3	M3
Adjustment for workpiece hardness				
Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
120	**1,35**	1,31	1,24	1,15
140	**1,28**	**1,24**	1,18	1,10
160	**1,22**	**1,18**	**1,12**	1,04
180	**1,14**	**1,11**	**1,05**	0,98
200	**1,09**	**1,06**	**1,00**	0,93
220	**1,03**	**1,00**	**0,95**	0,88
240	0,98	**0,95**	**0,90**	**0,84**
260	0,93	**0,91**	**0,86**	**0,80**
280	0,89	**0,87**	**0,82**	**0,76**
300	0,87	**0,84**	**0,80**	**0,74**
320	0,84	**0,81**	0,77	**0,72**
340	0,80	0,78	0,74	**0,69**
360	0,77	0,75	0,71	**0,66**
375	0,74	0,72	0,68	**0,63**

Adjustment for durability (general machining)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
10	1,10	30	0,84
15	1,00	45	0,76
20	0,93	60	0,71

Adjustment for durability (heavy roughing)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
30	1,10	60	0,93
45	1,00		

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,80
Internal turning	0,75 - 0,85
Interrupted cut	0,80 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Adjustment to the shape of the insert

Shape of insert	k_{VBO}
S..., C..., W...	1,00
T..., D..., K...	0,95
V..., L... (parting off and grooving)	0,88
R..., L... (roughing)	1,10

Table 3a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Machined material, main ISO group	INDEXABLE INSERT TYPE in accordance with ISO		OPERATING CONDITIONS FOR TURNING																									
			Fine turning				Finishing turning				Semi-roughing turning				Roughing turning				Heavy roughing turning				Parting off, grooving				Threading	
			f = 0.05 ÷ 0.1 [mm/rev]				f = 0.1 ÷ 0.2 [mm/rev]				f = 0.2 ÷ 0.4 [mm/rev]				f = 0.4 ÷ 0.8 [mm/rev]				f > 1.0 [mm/rev]				f = 0.5 ÷ 0.3					
			a_p = 0.2 ÷ 1.0 [mm]				a_p = 0.8 ÷ 2.0 [mm]				a_p = 1.5 ÷ 4.0 [mm]				a_p = 4.0÷10.0 [mm]				a_p > 10.0 [mm]									
			Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Circumferential grooving and parting off		Face grooving and parting off		-	
K	..A ..M ..G ..U ..N	CNMA, CNMM, CNMG, DNMA, DNMM, DNMG, DNMU, SNMA, SNMM, SNMG, SNMX, TNMA, TNMM, TNMG, VNMU, RNMA, RNMM, RNMG, WNMA, WNMM, WNMG	I	TC100	I	T5305	I	TC100	I	T5305	I	TC100	I	T5305	I	T5305	I	T5315	I	T9325	I	T9325	I	-	I	-	I	-
														M		RM		RM		OR		SR		-		-		-
			II	TB310	II	T5315	II	TB310	II	T5315	II	T5305	II	T5315	II	T5305	II	T5315	II	T9335	II	T9335	II	-	II	-	II	-
												M		M (W-MR)		R (RM)		R (RM)		OR		SR		-		-		-
			III	T5305	III	T8315	III	T5305	III	T8315	III	T5305	III	T9325	III	T9325	III	T9325	III	T8330	III	T8345	III	-	III	-	III	-
						FF				FF		R(RM)		R (W-M)		RM		R (W-M)		OR		SR		-		-		-
	..X	KNUX LNUX	I	-	I	-	I	T9325	I	T9325	I	6640	I	6640	I	6640	I	-	I	T9310	I	T9315	I	-	I	-	I	-
				-		-		72		72		73 (78)		73 (78)		73 (78)		-						-		-		-
			II	-	II	-	II	-	II	-	II	T9325	II	T9325	II	6640	II	-	II	T9315	II	T9325 (T9335)	II	-	II	-	II	-
				-		-						72		72		74 (79)		-						-		-		-
	..W ..T	CCMW, CCMT, SCMW, SCMT, DCMW, DCMT, TCMW, TCMT, VCMW, VCMT, WCMW, WCMT, RCMW, RCMT, RCMX	I	T5305	I	T5305	I	T5305	I	T5305	I	T5305	I	T9315	I	-	I	-	I	T9325	I	T9335	I	-	I	-	I	-
				UR		-		UR		-		RM		RM		-		-		OR		OR		-		-		-
			II	T5305	II	T5315	II	T5305	II	T5315	II	T5315	II	T9325	II	-	II	-	II	T9325	II	T9335	II	-	II	-	II	-
				_		-		_		-		RM		RM		-		-		SR		SR		-		-		-
			III	T5315	III	T8315	III	T5315	III	T8315	III	T9315	III	T8330	III	-	III	-	III	-	III	-	III	-	III	-	III	-
				UR		FF		UR		FF(FM)		RM		RM		-		-		-		-		-		-		-
	..R ..N	SPMR, SPGR, SPUN, SPGN, TPMR, TPGR, TPUN, TPGN	I	-	I	-	I	T9325	I	T9335	I	T9325	I	T9335	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				-		-		46		46		46		46		-		-		-		-		-		-		-
			II	-	II	-	II	T9325	II	T9335	II	T9325	II	T9335	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		47		47		47		47		-		-		-		-		-		-		-
			III	-	III	-	III	T9325	III	T9335	III	T9325	III	T9335	III	-	III	-	III	-	III	-	III	-	III	-	III	-
				-		-		48		48		48		48		-		-		-		-		-		-		-
	..X	LFMX, LFUX, LCMX, TN11.., TN16.., TN22..	I	T8330	I	T8330	I	T8330	I	T8330	I	-	I	-	I	-	I	-	I	-	I	-	I	T8330	I	T8330	I	-
				-		-		-		-		-		-		-		-		-		-						-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	T9325 (6630)	II	T9325 (6640)	II	-
		TN11.., TN16.., TN 22	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	T8030

Type of operation	Selection priority	Feeds and depth of cut		K																		
				6630	6640	T5305	T5315	T9310	T9315	T9325	T6310	T8030	T8315	T8330	T8345	H07	SN100	TC100	TB310	PB10	Durability
		Feed f [mm/rev]	Depth of cut a_p [mm]	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	S.. C.. W..	
Fine turning	I	0,05	0,5	-	-	600	-	-	-	-	-	-	390	295	290	-	885	970	250	0	V_{15} [m/min]
	II	0,08	0,5	-	-	510	-	-	-	-	-	-	340	260	245	-	750	820	250	0	
	III	0,10	0,5	-	-	475	-	-	-	-	-	-	315	245	225	-	695	760	250	0	
Finishing turning	I	0,10	1,5	320	270	425	345	350	325	315	335	-	280	220	205	215	655	720	250	0	
	II	0,15	1,5	265	230	370	315	315	300	285	285	-	250	195	175	185	570	625	250	0	
	III	0,20	1,5	235	200	340	300	290	280	270	255	-	225	185	160	165	515	565	250	0	
Semi-roughing Turning	I	0,20	2,5	225	190	320	285	275	270	255	240	-	215	175	150	155	500	550	0	0	
	II	0,30	2,5	185	160	280	260	245	245	230	205	-	190	155	130	130	435	475	0	0	
	III	0,40	2,5	165	140	255	245	230	235	215	180	-	175	145	120	120	395	430	0	0	
Roughing turning	I	0,40	5,0	155	130	235	230	215	215	200	170	-	160	135	110	-	380	415	0	0	
	II	0,60	5,0	130	110	205	210	190	200	185	145	-	140	120	95	-	330	360	0	0	
	III	0,80	5,0	115	95	190	195	175	190	170	130	-	130	110	85	-	295	325	0	0	
Heavy roughing Turning	I	0,80	12,0	80	70	105	135	-	135	125	-	-	-	80	55	-	205	-	0	0	V_{45} [m/min]
	II	1,00	12,0	75	60	100	130	-	130	120	-	-	-	75	50	-	190	-	0	0	
	III	1,30	12,0	65	55	90	120	-	125	110	-	-	-	70	45	-	170	-	0	0	
Parting off, circumferential grooving and contouring (CTP)		0,10	-	210	180	-	-	-	-	205	-	-	-	145	-	-	-	-	-	-	V_{15} [m/min]
		0,15	-	185	160	-	-	-	-	200	-	-	-	140	-	-	-	-	-	-	
		0,20	-	165	140	-	-	-	-	190	-	-	-	130	-	-	-	-	-	-	
		0,30	-	140	120	-	-	-	-	170	-	-	-	115	-	-	-	-	-	-	
Face and internal grooving		0,10	-	165	140	-	-	-	-	160	-	-	-	115	-	-	-	-	-	-	
		0,15	-	145	125	-	-	-	-	160	-	-	-	110	-	-	-	-	-	-	
		0,20	-	130	110	-	-	-	-	150	-	-	-	100	-	-	-	-	-	-	
		0,30	-	110	95	-	-	-	-	135	-	-	-	90	-	-	-	-	-	-	
Threading				-	-	-	-	-	-	-	-	105	-	125	-	-	-	-	-	-	
				-	-	-	-	-	-	-	-	95	-	115	-	-	-	-	-	-	
				-	-	-	-	-	-	-	-	90	-	110	-	-	-	-	-	-	

Figures in blue are valid for machining with coolant.

ADJUSTMENT v_c

Subgroup	K1	K2	K3	K4

Adjustment for workpiece hardness

Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
120	1,60	1,52	1,44	1,36
140	1,45	1,38	1,31	1,23
160	1,35	**1,28**	1,22	1,15
180	1,25	**1,19**	**1,13**	1,06
200	**1,10**	**1,05**	**0,99**	0,94
220	**1,00**	**0,95**	**0,90**	0,85
240	**0,90**	**0,86**	**0,81**	0,77
260	**0,80**	0,76	0,72	0,68
280	**0,70**	0,67	0,63	**0,60**
300	0,65	0,62	0,59	**0,55**
320	0,60	0,57	0,54	**0,51**
340	0,55	0,52	0,50	**0,47**
360	0,50	0,48	0,45	0,43
375	0,40	0,38	0,36	0,34

Adjustment for durability (general machining)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
10	1,10	30	0,84
15	1,00	45	0,76
20	0,93	60	0,71

Adjustment for durability (heavy roughing)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
30	1,10	60	0,93
45	1,00		

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,80
Internal turning	0,75 - 0,85
Interrupted cut	0,80 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Adjustment to the shape of the insert

Shape of insert	k_{VBD}
S..., C..., W...	1,00
T..., D..., K...	0,95
V..., L... (parting off and grooving)	0,88
R..., L... (roughing)	1,10

Table 4a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Machined material, main ISO group	INDEXABLE INSERT TYPE in accordance with ISO		OPERATING CONDITIONS FOR TURNING																							
			Fine turning				Finishing turning				Semi-roughing turning				Roughing turning				Heavy roughing turning				Parting off, grooving				Threading	
			f = 0.05 ÷ 0.1 [mm/rev]				f = 0.1 ÷ 0.2 [mm/rev]				f = 0.2 ÷ 0.4 [mm/rev]				f = 0.4 ÷ 0.8 [mm/rev]				f > 1.0 [mm/rev]				f = 0.5 ÷ 0.3					
			a_p = 0.2 ÷ 1.0 [mm]				a_p = 0.8 ÷ 2.0 [mm]				a_p = 1.5 ÷ 4.0 [mm]				a_p = 4.0÷10.0 [mm]				a_p > 10.0 [mm]									
			Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Circumferential grooving and parting off		Face grooving and parting off		-	
N	..A ..M ..G ..U ..N	CNMA, CNMM, CNMG, DNMA, DNMM, DNMG, DNMU, SNMA, SNMM, SNMG, SNMX, TNMA, TNMM, TNMG, VNMU, RNMA, RNMM, RNMG, WNMA, WNMM, WNMG	I	-	I	-	I	T6310	I	T8330	I	T6310	I	T8315	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				-		-		SF		SF		NF		NF		-		-		-		-		-		-		-
			II	-	II	-	II	T6310	II	T8330	II	T8315	II	T8330	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		NF		NF		NF		NF		-		-		-		-		-		-		-
			III	T8315	III	T8315	III	T8330	III	T8330	III	T8330	III	T8330	III	T8330	III	T8330	III	-	III	-	III	-	III	-	III	-
				FF		FF		SI		SI		NM		NM		NM		NR		-		-		-		-		-
	..X	KNUX	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
	..W ..T	CCMW, CCMT, SCMW, SCMT, DCMW, DCMT, TCMW, TCMT, VCMW, VCMT, WCMW, WCMT, RCMW, RCMT, RCMX	I	PC300	I	PC300	I	PC300	I	PC300	I	PC300	I	PC300	I	-	I	-	I	-	I	-	I	-	I	-	I	-
																-		-		-		-		-		-		-
			II	HF7	II	HF7	II	HF7	II	HF7	II	HF7	II	HF7	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				AL		AL		AL		AL		AL		AL		-		-		-		-		-		-		-
			III	8016	III	8016	III	8016	III	8016	III	8016	III	8016	III	-	III	-	III	-	III	-	III	-	III	-	III	-
				Al		Al		Al		Al		Al		Al		-		-		-		-		-		-		-
	..R ..N	SPMR, SPGR, SPUN, SPGN, TPMR, TPGR, TPUN, TPGN	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
			III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
	..X	LFMX, LFUX, LCMX, TN11.., TN16.., TN22..	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	T8330	I	T8330	I	-
				-		-		-		-		-		-		-		-		-		-						-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	T9325	II	T9325	II	-
				-		-		-		-		-		-		-		-		-		-						-
		TN11.., TN16.., TN 22	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	T8030

Type of operation	Selection priority	Feeds and depth of cut		N										
				T0315	T8030	T8310	T8315	T8330	H07	HF7	D720	PC30	PD1	Durability
		Feed f [mm/rev]	Depth of cut a_p [mm]	S..	S..	S..	S..	S..	S..	S..	S..	S..	S..	
				C..	C..	C..	C..	C..	C..	C..	C..	C..	C..	
				W..	W..	W..	W..	W..	W..	W..	W..	W..	W..	
Fine turning	I	0,05	0,5	1170	-	1140	-	-	-	835	1995	1995	1495	V_{15} [m/min]
	II	0,08	0,5	975	-	985	-	-	-	695	1945	1945	1460	
	III	0,10	0,5	890	-	915	-	-	-	635	1925	1925	1445	
Finishing turning	I	0,10	1,5	800	-	820	745	580	570	570	1820	1820	1365	
	II	0,15	1,5	680	-	725	660	520	485	485	1785	1785	1340	
	III	0,20	1,5	610	-	660	600	485	435	435	1760	1760	1320	
Semi-roughing Turning	I	0,20	2,5	580	-	630	570	460	415	415	-	-	-	
	II	0,30	2,5	495	-	555	505	415	350	350	-	-	-	
	III	0,40	2,5	440	-	505	460	385	315	315	-	-	-	
Roughing turning	I	0,40	5,0	-	-	-	-	-	-	-	-	-	-	
	II	0,60	5,0	-	-	-	-	-	-	-	-	-	-	
	III	0,80	5,0	-	-	-	-	-	-	-	-	-	-	
Heavy roughing Turning	I	0,80	12,0	-	-	-	-	-	-	-	-	-	-	V_{15} [m/min]
	II	1,00	12,0	-	-	-	-	-	-	-	-	-	-	
	III	1,30	12,0	-	-	-	-	-	-	-	-	-	-	
Parting off, circumferential grooving and contouring (CTP)		0,10	-	-	-	-	-	380	-	-	-	-	-	V_{15} [m/min]
		0,15	-	-	-	-	-	365	-	-	-	-	-	
		0,20	-	-	-	-	-	340	-	-	-	-	-	
		0,30	-	-	-	-	-	310	-	-	-	-	-	
Face and internal grooving		0,10	-	-	-	-	-	300	-	-	-	-	-	
		0,15	-	-	-	-	-	290	-	-	-	-	-	
		0,20	-	-	-	-	-	270	-	-	-	-	-	
		0,30	-	-	-	-	-	245	-	-	-	-	-	
Threading				-	280	-	-	335	-	-	-	-	-	
				-	255	-	-	310	-	-	-	-	-	
				-	235	-	-	290	-	-	-	-	-	

Figures in blue are valid for machining with coolant.

ADJUSTMENT v_c

Subgroup	N1	N2	N3	N4

Adjustment for workpiece material

Alloy type	k_{vx}	Subgroup
Aluminium for electrical applications	2,00	N1
Al alloys formed non-hardened HB60	1,50	
Al alloys formed hardened HB100	**1,00**	
Al alloys cast non-hardened HB75	0,90	N2
Al alloys cast hardened HB90	0,65	
Al alloys cast non-hardened HB 130 >12% Si	1,0 PKD / 0,20	

Alloy type	k_{vx}	Subgroup
Very easy to machine alloys (>1% Pb)	0,90	N3
Brasses and lead bronzes (<1% Pb)	0,75	
Other brasses HB <90	0,60	
Other brasses HB >90	0,54	N4
Electrolytic bronze Cu	0,40	
Hard and very hard bronzes	0,6 PKD / 0,20	

Adjustment for durability (general machining)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
10	1,10	30	0,84
15	1,00	45	0,76
20	0,93	60	0,71

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,80
Internal turning	0,75 - 0,85
Interrupted cut	0,80 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Adjustment to the shape of the insert

Shape of insert	k_{VBD}
S..., C..., W...	1,00
T..., D..., K...	0,95
V..., L... (parting off and grooving)	0,88
R..., L... (roughing)	1,10

Table 5a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Machined material, main ISO group	INDEXABLE INSERT TYPE in accordance with ISO		OPERATING CONDITIONS FOR TURNING																											
			Fine turning				Finishing turning				Semi-roughing turning				Roughing turning				Heavy roughing turning				Parting off, grooving				Threading			
			f = 0.05 ÷ 0.1 [mm/rev]				f = 0.1 ÷ 0.2 [mm/rev]				f = 0.2 ÷ 0.4 [mm/rev]				f = 0.4 ÷ 0.8 [mm/rev]				f > 1.0 [mm/rev]				f = 0.5 ÷ 0.3							
			a_p = 0.2 ÷ 1.0 [mm]				a_p = 0.8 ÷ 2.0 [mm]				a_p = 1.5 ÷ 4.0 [mm]				a_p = 4.0÷10.0 [mm]				a_p > 10.0 [mm]											
			Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Circumferential grooving and parting off		Face grooving and parting off		-			
S	..A ..M ..G ..U ..N	CNMA, CNMM, CNMG, DNMA, DNMM, DNMG, DNMU, SNMA, SNMM, SNMG, SNMX, TNMA, TNMM, TNMG, VNMU, RNMA, RNMM, RNMG, WNMA, WNMM, WNMG	I	T8315	I	T8315	I	T6310	I	T8330	I	T9325	I	T7335	I	T9325	I	T8315	I	-	I	-	I	-	I	-	I	-		
				FF		FF		SF		NF		SM		SM		RM		RM		-		-		-		-		-		
			II	T6310	II	T8330	II	T9315	II	T8330	II	T7335	II	T7335	II	T7335	II	T7335	II	-	II	-	II	-	II	-	II	-		
				SF		SF		NF		SM		NM (SI)		FM		NR		R		-		-		-		-		-		
			III	-	III	-	III	T9315	III	T8330	III	T8330	III	T8330	III	T7335	III	T8330	III	-	III	-	III	-	III	-	III	-		
				-		-		FM		FM		NM (SI)		FM		RM		NR2 (OR)		-		-		-		-		-		
	..X	KNUX	I	-	I	-	I	T9325	I	T9325	I	6640	I	6640	I	6640	I	-	I	-	I	-	I	-	I	-	I	-		
				-		-		72		72		73 (78)		73 (78)		73 (78)		-		-		-		-		-		-		
			II	-	II	-	II		II		II	T9325	II	T9325	II	6640	II	-	II	-	II	-	II	-	II	-	II	-		
				-		-						72		72		74 (79)		-		-		-		-		-		-		
	..W ..T	CCMW, CCMT, SCMW, SCMT, DCMW, DCMT, TCMW, TCMT, VCMW, VCMT, WCMW, WCMT, RCMW, RCMT, RCMX	I	TT310	I	T8315	I	TT310	I	T8315	I	T5315	I	T9315	I	-	I	-	I	-	I	-	I	-	I	-	I	-		
				UR		FF		UR		FF		RM		RM		-		-		-		-		-		-		-		
			II	T8315	II	T8330	II	T9315	II	T7335	II	T9315	II	T7335	II	-	II	-	II	-	II	-	II	-	II	-	II	-		
				FF		FF		FM		FM		RM		RM		-		-		-		-		-		-		-		
			III	8016	III	-	III	T8315	III	T8330	III	T7335	III	T8330	III	-	III	-	III	-	III	-	III	-	III	-	III	-		
				Al		-		UR		FM		RM		RM		-		-		-		-		-		-		-		
	..R ..N	SPMR, SPGR, SPUN, SPGN, TPMR, TPGR, TPUN, TPGN	I	-	I	-	I	T9325	I	T9335	I	T9325	I	T9335	I	-	I	-	I	-	I	-	I	-	I	-	I	-		
				-		-		46		46		46		46		-		-		-		-		-		-		-		
			II	-	II	-	II	T9325	II	T9335	II	T9325	II	T9335	II	-	II	-	II	-	II	-	II	-	II	-	II	-		
				-		-		47		47		47		47		-		-		-		-		-		-		-		
			III	-	III	-	III	T9325	III	T9335	III	T9325	III	T9335	III	-	III	-	III	-	III	-	III	-	III	-	III	-		
				-		-		48		48		48		48		-		-		-		-		-		-		-		
	..X	LFMX, LFUX, LCMX, TN11.., TN16.., TN22..	I	T8330	I	T8330	I	T8330	I	T8330	I	-	I	-	I	-	I	-	I	-	I	-	I	T8330	I	T8330	I	-		
				-		-		-		-		-		-		-		-		-		-						-		
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	T9325 (6630)	II	T9325 (6640)	II	-		
				-		-		-		-		-		-		-		-		-		-						-		
		TN11.., TN16.., TN 22	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	T8030		

Type of operation	Selection priority	Feeds and depth of cut		S																
				6630	6640	T7335	T9325	T9335	T6310	T8030	T8310	T8315	T8330	T8345	H07	HF7	TC100	TB310	Durability	
		Feed f [mm/rev]	Depth of cut a_p [mm]	S..	S..	S..	S..	S..	S..	S..	S..	S..	S..	S..		S..	S..	S..		
				C..	C..	C..	C..	C..	C..	C..	C..	C..	C..	C..		C..	C..	C.		
				W..	W..	W..	W..	W..	W..	W..	W..	W..	W..	W..		W..	W..	W..		
Fine turning	I	0,05	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	305	400	V_{1S} [m/min]	
	II	0,08	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	255	380		
	III	0,10	0,5	-	-	-	-	-	-	-	110	100	-	-	-	-	240	350		
Finishing turning	I	0,10	1,5	100	85	95	100	80	105	-	95	85	65	-	65	65	225	330		
	II	0,15	1,5	80	70	80	90	75	90	-	85	75	60	55	55	55	195	320		
	III	0,20	1,5	75	60	70	85	70	80	-	75	70	55	50	50	50	175	310		
Semi-roughing Turning	I	0,20	2,5	70	60	70	80	65	75	-	75	65	55	45	45	45	170	-		
	II	0,30	2,5	55	50	60	70	60	65	-	65	60	45	40	40	40	150	-		
	III	0,40	2,5	50	45	50	65	55	55	-	60	55	45	35	35	35	135	-		
Roughing turning	I	0,40	5,0	45	40	50	60	50	50	-	-	-	40	35	-	-	-	-		
	II	0,60	5,0	40	35	40	55	45	45	-	-	-	-	-	-	-	-	-		
	III	0,80	5,0	35	30	35	50	45	40	-	-	-	-	-	-	-	-	-		
Heavy roughing Turning	I	0,80	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	V_{1S} [m/min]	
	II	1,00	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	III	1,30	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Parting off, circumferential grooving and contouring (CTP)		0,10	-	65	55	-	65	-	-	-	-	-	45	-	-	-	-	-		
		0,15	-	55	50	-	60	-	-	-	-	-	40	-	-	-	-	-		
		0,20	-	50	45	-	60	-	-	-	-	-	40	-	-	-	-	-		
		0,30	-	40	35	-	55	-	-	-	-	-	35	-	-	-	-	-		
Face and internal grooving		0,10	-	50	40	-	50	-	-	-	-	-	35	-	-	-	-	-		
		0,15	-	40	40	-	45	-	-	-	-	-	30	-	-	-	-	-		
		0,20	-	40	35	-	45	-	-	-	-	-	30	-	-	-	-	-		
		0,30	-	30	25	-	40	-	-	-	-	-	25	-	-	-	-	-		
Threading				-	-	-	-	-	-	30	-	-	40	-	-	-	-	-		
				-	-	-	-	-	-	30	-	-	35	-	-	-	-	-		
				-	-	-	-	-	-	25	-	-	30	-	-	-	-	-		

Figures in blue are valid for machining with coolant.

ADJUSTMENT v_c

Subgroup	S1	S2	S3	S4

Adjustment for workpiece hardness

Hardness [HB]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
120	**2,14**	**1,46**	1,22	0,92
140	**2,01**	**1,38**	1,15	**0,86**
160	**1,93**	**1,32**	1,10	**0,83**
180	**1,89**	**1,30**	1,08	**0,81**
200	**1,84**	**1,26**	**1,05**	**0,79**
220	**1,80**	**1,24**	**1,03**	**0,77**
240	**1,75**	**1,20**	**1,00**	**0,75**
260	**1,70**	**1,16**	**0,97**	**0,73**
280	**1,61**	**1,10**	**0,92**	**0,69**
300	**1,54**	1,06	**0,88**	**0,66**
320	**1,47**	1,01	**0,84**	**0,63**
340	**1,40**	0,96	**0,80**	0,60
360	**1,37**	0,94	**0,78**	0,59
375	**1,30**	0,89	0,74	0,56

Adjustment for durability (general machining)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
10	1,10	30	0,84
15	1,00	45	0,76
20	0,93	60	0,71

Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,80
Internal turning	0,75 - 0,85
Interrupted cut	0,80 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Adjustment to the shape of the insert

Shape of insert	k_{VBD}
S..., C..., W...	1,00
T..., D..., K...	0,95
V..., L... (parting off and grooving)	0,88
R..., L... (roughing)	1,10

Table 6a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Machined material, main ISO group	INDEXABLE INSERT TYPE in accordance with ISO		OPERATING CONDITIONS FOR TURNING																									
			Fine turning				Finishing turning				Semi-roughing turning				Roughing turning				Heavy roughing turning				Parting off, grooving				Threading	
			f = 0.05 ÷ 0.1 [mm/rev]				f = 0.1 ÷ 0.2 [mm/rev]				f = 0.2 ÷ 0.4 [mm/rev]				f = 0.4 ÷ 0.8 [mm/rev]				f > 1.0 [mm/rev]				f = 0.5 ÷ 0.3					
			a_p = 0.2 ÷ 1.0 [mm]				a_p = 0.8 ÷ 2.0 [mm]				a_p = 1.5 ÷ 4.0 [mm]				a_p = 4.0÷10.0 [mm]				a_p > 10.0 [mm]									
			Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Pre-machined surface Uninterrupted cut		Casting, forging Interrupted cut		Circumferential grooving and parting off		Face grooving and parting off		-	
H	..A ..M ..G ..U ..N	CNMA, CNMM, CNMG, DNMA, DNMM, DNMG, DNMU, SNMA, SNMM, SNMG, SNMX, TNMA, TNMM, TNMG, VNMU, RNMA, RNMM, RNMG, WNMA, WNMM, WNMG	I	TC100	I	T5305	I	TC100	I	T5305	I	TC100	I	T5305	I	-	I	-	I	-	I	-	I	-	I	-	I	-
														M		-		-		-		-		-		-		-
			II	TB310	II	T5305	II	TB310	II	T5305	II	T5305	II	T5315	II	-	II	-	II	-	II	-	II	-	II	-	II	-
						R (RM)				R (RM)		M		M (W-M)		-		-		-		-		-		-		-
			III	T5305	III	T5315	III	T5305	III	T5315	III	T5305	III	T5315	III	-	III	-	III	-	III	-	III	-	III	-	III	-
						R (RM)				R (RM)		R(RM)		R (RM)		-		-		-		-		-		-		-
	..X	KNUX	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
	..W ..T	CCMW, CCMT, SCMW, SCMT, DCMW, DCMT, TCMW, TCMT, VCMW, VCMT, WCMW, WCMT, RCMW, RCMT, RCMX	I	T5305	I	T5305	I	T5305	I	T5305	I	T5305	I	T9315	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				RM		-		RM		-		RM		RM		-		-		-		-		-		-		-
			II	T5305	II	T5315	II	T5305	II	T5315	II	T5315	II	T8330	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				_		RM		_		RM		RM		RM		-		-		-		-		-		-		-
			III	T5315	III	T8330	III	T5315	III	T8330	III	T9315	III		III	-	III	-	III	-	III	-	III	-	III	-	III	-
				RM		RM		RM		RM		RM				-		-		-		-		-		-		-
	..R ..N	SPMR, SPGR, SPUN, SPGN, TPMR, TPGR, TPUN, TPGN	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
			III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-	III	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
	..X	LFMX, LFUX, LCMX, TN11.., TN16.., TN22..	I	T8330	I	T8330	I	T8330	I	T8330	I	-	I	-	I	-	I	-	I	-	I	-	I	T8330	I	T8330	I	-
				-		-		-		-		-		-		-		-		-		-						-
			II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-	II	-
				-		-		-		-		-		-		-		-		-		-		-		-		-
		TN11.., TN16.., TN 22	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	-	I	T8030

Type of operation	Selection priority	Feeds and depth of cut		H										
				T5305	T5315	T9310	T9315	T6310	T8030	T8315	T8330	TC100	TB310	Durability
		Feed f [mm/rev]	Depth of cut a_p [mm]	S..	S..	S..	S..	S..	S..	S..	S..	S..	S..	
				C..	C..	C..	C..	C..	C..	C..	C..	C..	C..	
				W..	W..	W..	W..	W..	W..	W..	W..	W..	W..	
Fine turning	I	0,05	0,5	-	-	-	-	-	-	-	-	200	200	V_{15} [m/min]
	II	0,08	0,5	-	-	-	-	-	-	-	-	170	180	
	III	0,10	0,5	100	-	-	-	-	-	65	-	160	160	
Finishing turning	I	0,10	1,5	90	70	70	65	70	-	55	45	150	145	
	II	0,15	1,5	75	65	65	60	60	-	50	40	130	130	
	III	0,20	1,5	70	60	60	55	50	-	45	35	115	115	
Semi-roughing Turning	I	0,20	2,5	65	60	55	55	50	-	45	35	115	-	
	II	0,30	2,5	55	55	50	50	40	-	40	30	100	-	
	III	0,40	2,5	50	50	45	45	35	-	-	30	90	-	
Roughing turning	I	0,40	5,0	-	-	-	-	35	-	-	-	-	-	
	II	0,60	5,0	-	-	-	-	30	-	-	-	-	-	
	III	0,80	5,0	-	-	-	-	25	-	-	-	-	-	
Heavy roughing Turning	I	0,80	12,0	-	-	-	-	-	-	-	-	-	-	V_{45} [m/min]
	II	1,00	12,0	-	-	-	-	-	-	-	-	-	-	
	III	1,30	12,0	-	-	-	-	-	-	-	-	-	-	
Parting off, circumferential grooving and contouring (CTP)		0,10	-	-	-	-	-	-	-	-	30	-	-	V_{15} [m/min]
		0,15	-	-	-	-	-	-	-	-	25	-	-	
		0,20	-	-	-	-	-	-	-	-	25	-	-	
		0,30	-	-	-	-	-	-	-	-	20	-	-	
Face and internal grooving		0,10	-	-	-	-	-	-	-	-	35	-	-	
		0,15	-	-	-	-	-	-	-	-	30	-	-	
		0,20	-	-	-	-	-	-	-	-	30	-	-	
		0,30	-	-	-	-	-	-	-	-	25	-	-	
Threading				-	-	-	-	-	20	-	25	-	-	
				-	-	-	-	-	20	-	20	-	-	
				-	-	-	-	-	25	-	30	-	-	

Figures in blue are valid for machining with coolant.

ADJUSTMENT v_c

Subgroup	H1	H2	H3	H4

Adjustment for workpiece hardness

Hardness [HB/HRC]	kv_{HBP1}	kv_{HBP2}	kv_{HBP3}	kv_{HBP4}
380 / 40,8	**1,84**	**1,76**	1,60	1,52
400 / 42,7	**1,73**	**1,65**	1,50	1,43
420 / 44,6	**1,61**	**1,54**	1,40	1,33
440 / 46,5	**1,50**	**1,43**	1,30	1,24
460 / 48,1	**1,38**	**1,32**	**1,20**	1,14
500 / 50,8	**1,15**	**1,10**	**1,00**	0,95
520 / 52,0	1,09	1,05	**0,95**	0,90
540 / 53,5	1,04	0,99	**0,90**	0,86
560 / 54,7	0,98	0,94	**0,85**	0,81
580 / 55,7	0,92	0,88	**0,80**	**0,76**
600 / 56,8	0,86	0,83	0,75	**0,71**
620 / 57,9	0,81	0,77	0,70	**0,67**
640 / 59,0	0,75	0,72	0,65	**0,62**
>640 / >59	0,69	0,66	0,60	**0,57**

Adjustment for durability (general machining)

Durability [min]	k_{vT}	Durability [min]	k_{vT}
10	1,10	30	0,84
15	1,00	45	0,76
20	0,93	60	0,71

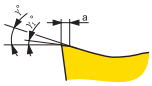
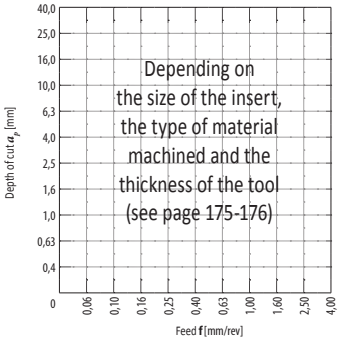
Adjustment coefficient k_{vx}

Skin of forging and casting	0,70 - 0,80
Internal turning	0,75 - 0,85
Interrupted cut	0,80 - 0,90
Machine in good condition	1,05 - 1,20
Machine in poor condition	0,85 - 0,95

Adjustment to the shape of the insert

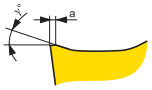
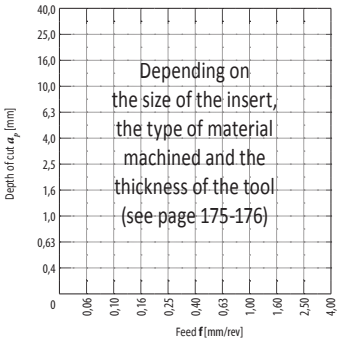
Shape of insert	k_{VBD}
S..., C..., W...	1,00
T..., D..., K...	0,95
V..., L... (parting off and grooving)	0,88
R..., L... (roughing)	1,10

GEOMETRY OF CUTTING INSERTS FOR DRILLING

Chip-breaker	Photo	Group of machined materials (Drilling) P	M	K	N	S	H	Operating diagram	Description	Used for inserts: SCET.....-SD
SCET.....-SD	 Cutting edge profile 	2D - 3D ■ ■ □ ◪ ◪							- Slightly positive geometry with a peripheral stabilising land - Suitable for peripheral inserts of drill - Main application area: Materials in groups P and M - Other application areas: Materials in groups N and S - Potential application: Materials in group K - Available in sizes 05, 06, 07, 09, 12 and 15	
		3D - 4D ■ ■ □ ◪ ◪								
		4D - 5D ■ ■ □ ◪ ◪								

	a	γ_1	γ
SCET 05	0,04	5	18
SCET 06	0,06	5	18
SCET 07	0,08	5	18
SCET 09	0,1	5	18
SCET 12	0,1	5	18
SCET 15	0,1	5	18

Range of machining conditions:		Unit:
f	see page 175-176	[mm/rev]

Chip-breaker	Photo	Group of machined materials (Drilling) P	M	K	N	S	H	Operating diagram	Description	Used for inserts: XPET....AP-SD
XPET.....-SD	 Cutting edge profile 	2D - 3D ■ ■ □ ◪ ◪							- Positive geometry for central inserts of drill - Main application area: Materials in groups P and M - Other application areas: Materials in groups N and S - Potential application: Materials in group K - Available in sizes 05, 06, 07, 09, 11, 12, 15 and 19	
		3D - 4D ■ ■ □ ◪ ◪								
		4D - 5D ■ ■ □ ◪ ◪								

	a	γ_1	γ
XPET 05	0,04	0	16
XPET 06	0,05	0	16
XPET 07	0,08	0	16
XPET 09	0,1	0	16
XPET 11	0,1	0	16
XPET 12	0,1	0	16
XPET 15	0,1	10	16
XPET 19	0,12	11	16

Range of machining conditions:		Unit:
f	see page 175-176	[mm/rev]

For best results use the same SD chip breaker for both inner and outer inserts.

■ Main application area ◪ Other applications □ Potential applications

RECOMMENDED MACHINING CONDITIONS FOR INDEXABLE DRILLS

802D / 803D - chip-breaker SD

Pramet Material	Dormer AMG *	D9335		D8330		D8345	Feed f [mm/rev^{-1}]					
			V_c		V_c		∅ 15	∅ 20	∅ 25	∅ 30	∅ 40	∅ 58
P1	1.1, 1.2	■	335	■	270	■	0,08	0,09	0,10	0,11	0,14	0,18
P2	1.3	■	250	■	200	■	0,11	0,13	0,15	0,17	0,21	0,28
P3	1.4	□	200	□	160	□	0,13	0,15	0,18	0,20	0,24	0,32
P4	1.5	-	-	-	-	-	-	-	-	-	-	-
M1	2.1	■	140	■	130	■	0,12	0,14	0,16	0,18	0,22	0,30
M2	(2.1, 2.4)	■	135	■	125	■	0,11	0,13	0,15	0,17	0,21	0,28
M3	2.2	□	125	□	115	□	0,07	0,08	0,09	0,10	0,12	0,16
M4	2.3, 2.4	□	120	□	110	□	0,07	0,08	0,09	0,10	0,12	0,16
K1	3.1, 3.2	□	190	□	150	□	0,14	0,16	0,19	0,21	0,26	0,34
K2	3.1, 3.2	-	-	-	-	-	-	-	-	-	-	-
K3	3.3	-	-	-	-	-	-	-	-	-	-	-
K4	3.4	-	-	-	-	-	-	-	-	-	-	-
N1	7.1	□	450	□	400	□	0,13	0,15	0,18	0,20	0,24	0,32
N2	7.2, 7.3, 7.4	□	295	□	260	□	0,13	0,15	0,18	0,20	0,24	0,32
N3	6.1, 6.2, 6.3	■	270	■	240	■	0,13	0,15	0,18	0,20	0,24	0,32
N4	6.4	□	180	□	160	□	0,12	0,14	0,16	0,18	0,22	0,30
S1	4.1, 4.2, 4.3	□	65	□	55	□	0,08	0,09	0,10	0,11	0,14	0,18
S2	5.1, 5.2, 5.3	□	45	□	40	□	0,08	0,09	0,10	0,11	0,14	0,18
S3	5.1, 5.2, 5.3	□	35	□	30	□	0,07	0,08	0,09	0,10	0,12	0,16
S4	5.1, 5.2, 5.3	□	30	□	25	□	0,07	0,08	0,09	0,10	0,12	0,16
H1	1.6	-	-	-	-	-	-	-	-	-	-	-
H2	-	-	-	-	-	-	-	-	-	-	-	-
H3	1.7	-	-	-	-	-	-	-	-	-	-	-
H4	1.8	-	-	-	-	-	-	-	-	-	-	-

804D - chip-breaker SD

Pramet Material	Dormer AMG *	D9335		D8330		D8345	Feed f [mm/rev^{-1}]					
			V_c		V_c		∅ 15	∅ 20	∅ 25	∅ 30	∅ 40	∅ 58
P1	1.1, 1.2	■	335	■	270	■	0,07	0,08	0,09	0,10	0,12	0,16
P2	1.3	■	250	■	200	■	0,10	0,12	0,14	0,16	0,19	0,25
P3	1.4	□	200	□	160	□	0,12	0,14	0,16	0,18	0,22	0,30
P4	1.5	-	-	-	-	-	-	-	-	-	-	-
M1	2.1	■	140	■	130	■	0,11	0,13	0,15	0,17	0,21	0,28
M2	(2.1, 2.4)	■	135	■	125	■	0,10	0,12	0,14	0,16	0,19	0,25
M3	2.2	□	125	□	115	□	0,06	0,07	0,08	0,09	0,10	0,14
M4	2.3, 2.4	□	120	□	110	□	0,06	0,07	0,08	0,09	0,10	0,14
K1	3.1, 3.2	□	190	□	150	□	0,13	0,15	0,18	0,20	0,24	0,32
K2	3.1, 3.2	-	-	-	-	-	-	-	-	-	-	-
K3	3.3	-	-	-	-	-	-	-	-	-	-	-
K4	3.4	-	-	-	-	-	-	-	-	-	-	-
N1	7.1	□	450	□	400	□	0,12	0,14	0,16	0,18	0,22	0,30
N2	7.2, 7.3, 7.4	□	295	□	260	□	0,12	0,14	0,16	0,18	0,22	0,30
N3	6.1, 6.2, 6.3	■	270	■	240	■	0,12	0,14	0,16	0,18	0,22	0,30
N4	6.4	□	180	□	160	□	0,11	0,13	0,15	0,17	0,21	0,28
S1	4.1, 4.2, 4.3	□	65	□	55	□	0,07	0,08	0,09	0,10	0,12	0,16
S2	5.1, 5.2, 5.3	□	45	□	40	□	0,07	0,08	0,09	0,10	0,12	0,16
S3	5.1, 5.2, 5.3	□	35	□	30	□	0,06	0,07	0,08	0,09	0,10	0,14
S4	5.1, 5.2, 5.3	□	30	□	25	□	0,06	0,07	0,08	0,09	0,10	0,14
H1	1.6	-	-	-	-	-	-	-	-	-	-	-
H2	-	-	-	-	-	-	-	-	-	-	-	-
H3	1.7	-	-	-	-	-	-	-	-	-	-	-
H4	1.8	-	-	-	-	-	-	-	-	-	-	-

* The material classification code used by Dormer is added here for cross reference purposes and should be used only as a guide.

RECOMMENDED MACHINING CONDITIONS FOR INDEXABLE DRILLS

805D - chip-breaker SD

Pramet Material	Dormer AMG *	D9335		D8330		D8345	Feed f [mm/rev^{-1}]					
			V_c		V_c		∅ 15	∅ 20	∅ 25	∅ 30	∅ 40	∅ 58
P1	1.1, 1.2	■	270	■	215	■	0,07	0,08	0,09	0,10	0,12	0,16
P2	1.3	■	200	■	160	■	0,10	0,12	0,14	0,16	0,19	0,25
P3	1.4	□	160	□	130	□	0,12	0,14	0,16	0,18	0,22	0,30
P4	1.5	-	-	-	-	-	-	-	-	-	-	-
M1	2.1	■	110	■	105	■	0,11	0,13	0,15	0,17	0,21	0,28
M2	(2.1, 2.4)	■	110	■	100	■	0,10	0,12	0,14	0,16	0,19	0,25
M3	2.2	□	100	□	95	□	0,06	0,07	0,08	0,09	0,10	0,14
M4	2.3, 2.4	□	95	□	90	□	0,06	0,07	0,08	0,09	0,10	0,14
K1	3.1, 3.2	□	155	□	120	□	0,13	0,15	0,18	0,20	0,24	0,32
K2	3.1, 3.2	-	-	-	-	-	-	-	-	-	-	-
K3	3.3	-	-	-	-	-	-	-	-	-	-	-
K4	3.4	-	-	-	-	-	-	-	-	-	-	-
N1	7.1	□	360	□	320	□	0,12	0,14	0,16	0,18	0,22	0,30
N2	7.2, 7.3, 7.4	□	235	□	210	□	0,12	0,14	0,16	0,18	0,22	0,30
N3	6.1, 6.2, 6.3	■	220	■	195	■	0,12	0,14	0,16	0,18	0,22	0,30
N4	6.4	□	145	□	130	□	0,11	0,13	0,15	0,17	0,21	0,28
S1	4.1, 4.2, 4.3	□	50	□	45	□	0,07	0,08	0,09	0,10	0,12	0,16
S2	5.1, 5.2, 5.3	□	35	□	30	□	0,07	0,08	0,09	0,10	0,12	0,16
S3	5.1, 5.2, 5.3	□	30	□	25	□	0,06	0,07	0,08	0,09	0,10	0,14
S4	5.1, 5.2, 5.3	□	25	□	20	□	0,06	0,07	0,08	0,09	0,10	0,14
H1	1.6	-	-	-	-	-	-	-	-	-	-	-
H2	-	-	-	-	-	-	-	-	-	-	-	-
H3	1.7	-	-	-	-	-	-	-	-	-	-	-
H4	1.8	-	-	-	-	-	-	-	-	-	-	-

* The material classification code used by Dormer is added here for cross reference purposes and should be used only as a guide.

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