



New products

2016.





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MILLING TOOLS

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MILLING INSERTS

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TURNING TOOLS

TURNING INSERTS

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TURNING INSERTS

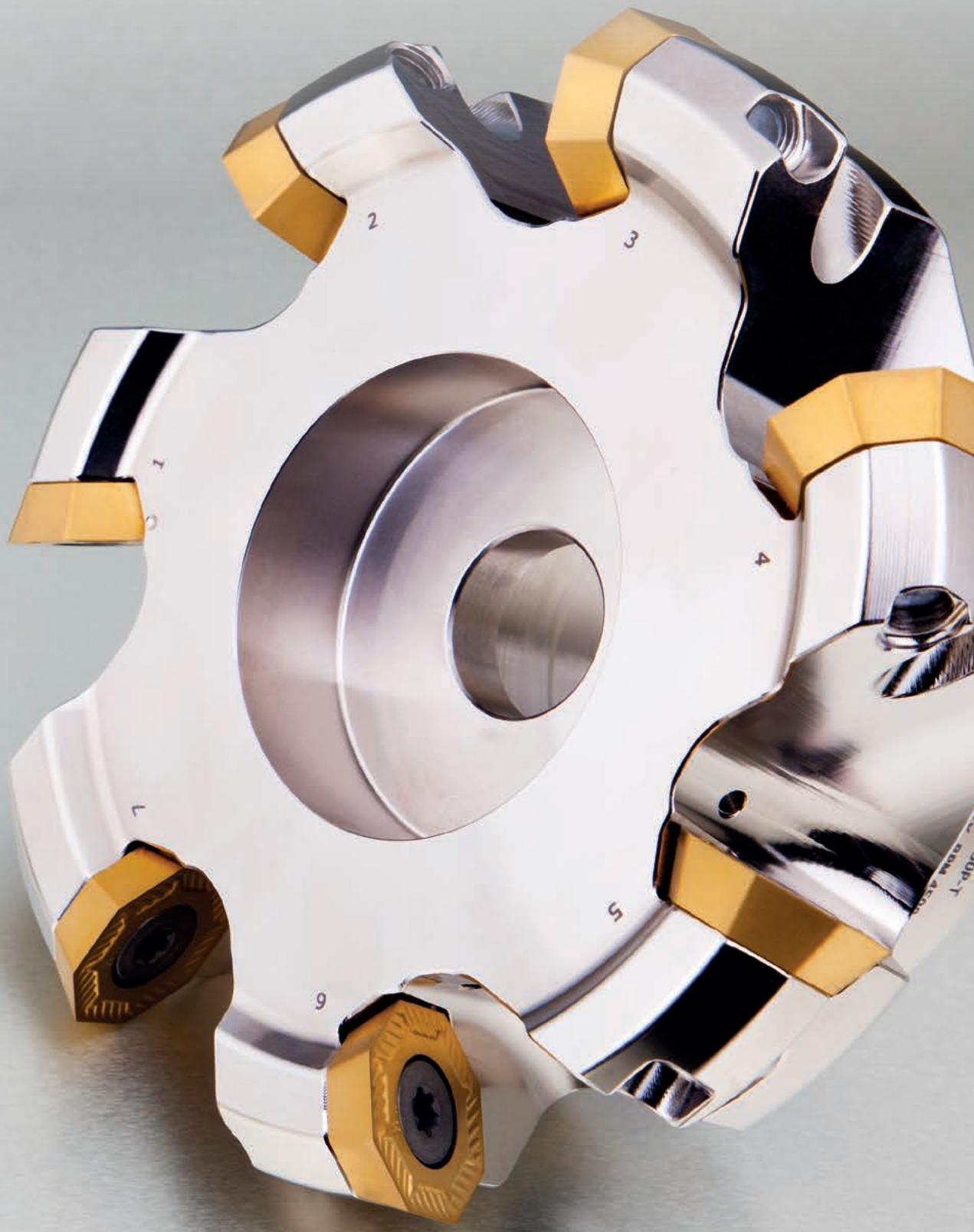
TECHNICAL SECTION

- Milling 112
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TECHNICAL SECTION

FACE MILLING CUTTERS





NEW RANGE OF FACE MILLING CUTTERS AND INSERTS FOR ECONOMICAL MILLING OF STAINLESS STEELS

A versatile tool for face milling soft and sticky materials. Our range has now been expanded with a new line of larger milling cutters and inserts designed for bigger depths of cut and larger machines.

The OEHT inserts featuring eight cutting edges are ideal for the economical milling of stainless steels and soft steels.

NEW PRODUCTS

- A bigger tool for more powerful machines
- **Wide range** of milling cutters - 80-315 mm diameter, including diameters of copy milling cutters
- Octagonal inserts OEHT 09 for depths up to 5 mm
- Round inserts REHT 24, for face and copy milling
- Wiper inserts XEHT 09
- **New geometries** designed for machining stainless steels

BENEFITS

- **Economical** OEHT inserts - low costs per cutting edge
- **Comprehensive** range for stainless steels - cutters and inserts with special chip breakers
- **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
- **Reliable clamping** even for difficult machining conditions - a large, robust screw



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



Each milling cutter supports internal delivery of coolant (including larger milling cutter diameters of 160-315 mm).

S45OE09Z

FACE MILLING CUTTERS

OEHT - MACHINING EXAMPLE

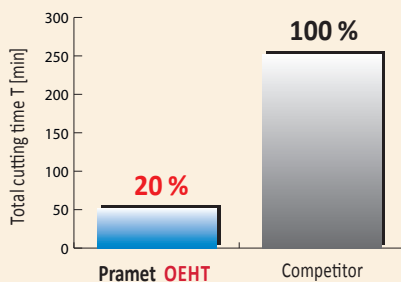
Material: DIN 1.0036
 Material group: P1
 Workpiece: 3900 x 3200 mm
 Insert: **OEHT0906AESR-M;M8340**
 Coolant: Yes

COST SAVING:
OEHT is capable
of roughing and finishing
at the same time

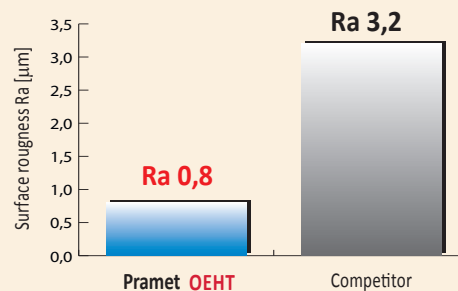


			PRAMET	Competitor	
Operation			Roughing + Finishing	Roughing	Finishing
Tool			200C09R-S45OE09Z-C D = 200 mm; 9 teeth	1st cutter D = 160 mm; 10 teeth	2nd cutter D = 300 mm; 16 teeth
Cutting speed	v_c	m.min ⁻¹	280	250	188
Feed	f_z	mm	0,37	0,30	0,10
Axial depth of cut	a_p	mm	(2,5 – 5,0)	(2,5 – 5,0)	0,5
Radial depth of cut	a_e	mm	160	120	225
Metal removal	Q	cm ³ .min ⁻¹	(600 – 1200)	(450 – 900)	34
Cutting time	t	min	52	70	182
Total cutting time	T	min	52		252
Surface roughness	R_a	μm	0,8	3,2	0,8

Saving 80% machining time



Surface roughness for roughing operation



OEHT INSERT GEOMETRIES



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

S45OE09Z

DOUBLE-POSITIVE FACE MILLING CUTTERS

MILLING TOOLS



MILLING INSERTS

γ_p	+10°	κ_r	43°
γ_f	+6°	$a_{p\ max}$	5 mm

Diagram illustrating the cutting angles and geometry of the milling insert. The diagram shows the insert's position relative to the workpiece, with labels for γ_p (rake angle), γ_f (flank angle), κ_r (clearance angle), and $a_{p\ max}$ (maximum depth of cut).

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

Technical drawings of the double-positive face milling cutter. The top drawing shows a side view with dimensions $\varnothing d$, b , L , $\varnothing d_1$, $\varnothing D$, and $\varnothing D_1$. The bottom drawing shows a front view with dimensions L , $\varnothing d$, b , $\varnothing d_1$, $\varnothing D$, and $\varnothing D_1$.

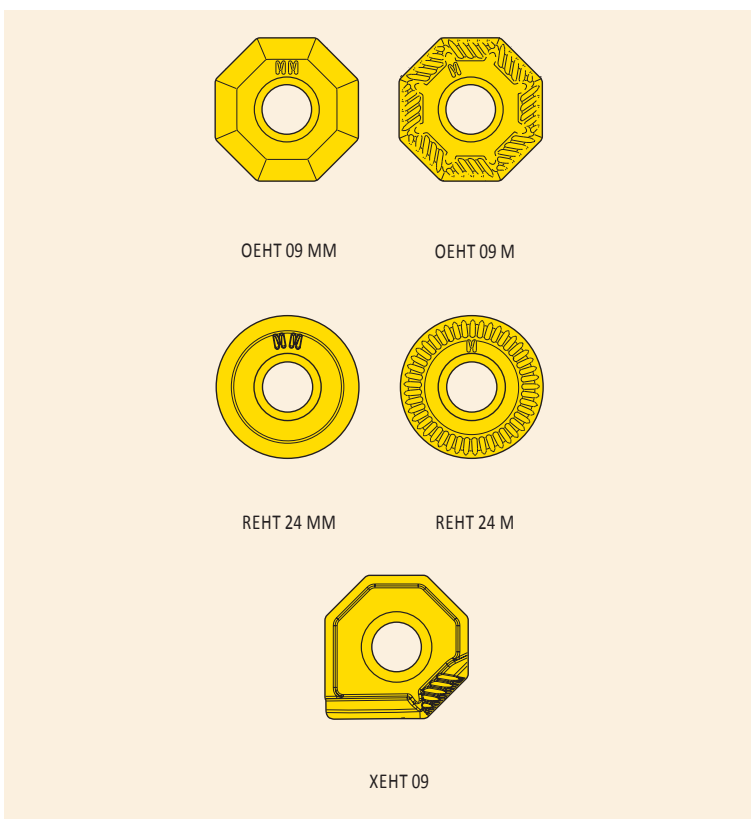
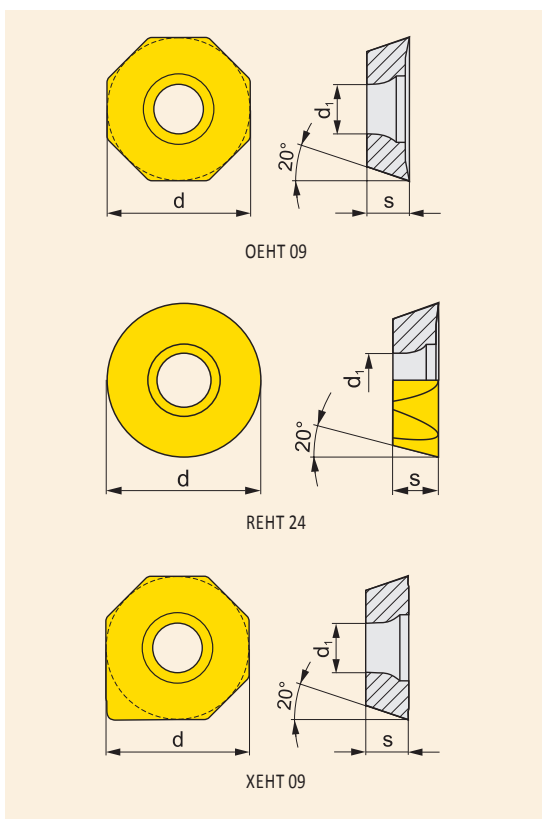
Z* - Number of teeth

ISO	Assortment	Dimensions								Through coolant	[kg]	
		D	d	d ₁	L	D ₁	b	t	Z*			
80A05R-S45OE09Z-C	●	80	27	38	50	95	12,4	7	5		+	1,0
100A06R-S45OE09Z-C	●	100	32	45	50	115	14,4	8	6		+	1,6
125A05R-S45OE09Z-C	●	125	40	56	63	140	16,4	9	5		+	3,2
125A07R-S45OE09Z-C	●	125	40	56	63	140	16,4	9	7		+	3,1
160C06R-S45OE09Z-C	●	160	40	66,7	63	175	16,4	9	6		+	5,0
160C08R-S45OE09Z-C	●	160	40	66,7	63	175	16,4	9	8		+	5,0
200C08R-S45OE09Z-C	●	200	60	101,6	63	215	25,7	14	8		+	8,1
200C10R-S45OE09Z-C	●	200	60	101,6	63	215	25,7	14	10		+	8,1
250C12R-S45OE09Z-C	●	250	60	101,6	63	265	25,7	14	12		+	14,3
315C14R-S45OE09Z-C	○	315	60	101,6	80	330	25,7	14	14		+	29,3

● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current stock information

S450E09Z

DOUBLE-POSITIVE FACE MILLING CUTTERS



INDEXABLE CUTTING INSERTS

ISO	Grades				Dimensions					
	M9325	M8310	M8340	8230	d	s	d ₁			
OEHT 0906AEER-MM	●	●	●	●	24,100	7,150	8,60			
OEHT 0906AESR-M	●	●	●	●	24,100	7,150	8,60			
REHT 2406MOEN-MM	●	●	●	●	24,000	7,150	8,60			
REHT 2406MOSN-M	●	●	●	●	24,000	7,150	8,60			
XEHT 0906AESR		●		●	24,100	7,150	8,60			

SPARE PARTS

Diameter of cutter	Clamping screw	Screw for taper clamping	Screw driver	Arbor cover	Cover screw	Key	Plug	Retaining ring
80	US 68020-T30P	HS 1230C	SDR T30P-T	-	-	-	-	-
100	US 68020-T30P	-	SDR T30P-T	-	-	-	-	-
125	US 68020-T30P	-	SDR T30P-T	-	-	-	-	-
160	US 68020-T30P	HS 1240C	SDR T30P-T	CAC160C	HSD 0825C	HXK 5	-	-
200	US 68020-T30P	HS 1655C	SDR T30P-T	CAC200C	HSD 1025C	HXK 7	-	-
250	US 68020-T30P	HS 1655C	SDR T30P-T	CAC250C	HSD 1025C	HXK 7	-	-
315	US 68020-T30P	HS 1655C	SDR T30P-T	CAC315C	HSD 1035C	HXK 7	CACP315C	RRH34

● New item in the assortment

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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

S45HN09

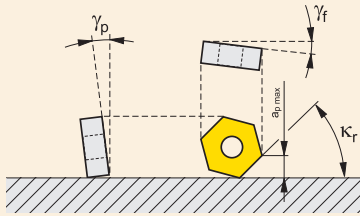
DOUBLE-NEGATIVE FACE MILLING CUTTERS

MILLING TOOLS



MILLING INSERTS

γ_p	-7°	κ_r	45°
γ_f	-7°	$a_{p\max}$	5 mm

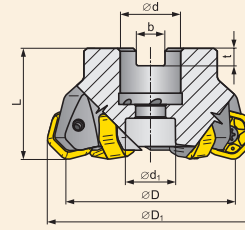


TURNING TOOLS

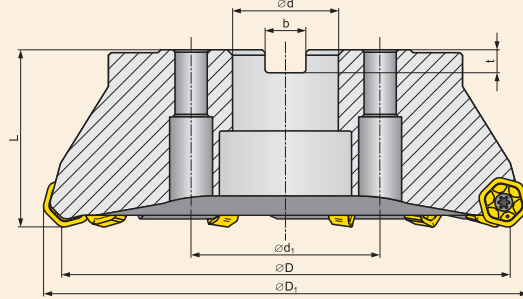
TURNING INSERTS

TECHNICAL SECTION

ECON HN



$\varnothing 50 \div 125$ mm



$\varnothing 160 \div 315$ mm

Z* - Number of teeth

ISO

Assortment

Dimensions

Through coolant

[kg]

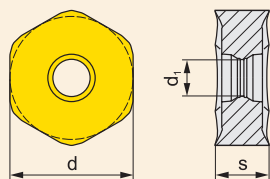
	Assortment	D	d	d ₁	L	D ₁	b	t	Z*		Through coolant	[kg]
50A04R-S45HN09C-CF	●	50	22	18,0	40	61,7	10,4	6,3	4		+	0,35
63A06R-S45HN09C-CF	●	63	22	18,0	40	74,7	10,4	6,3	6		+	0,49
80A06R-S45HN09C-CF	●	80	27	38,0	50	91,7	12,4	7,0	6		+	1,06
80A08R-S45HN09C-CF	●	80	27	38,0	50	91,7	12,4	7,0	8		+	1,06
100A06R-S45HN09C-CF	●	100	32	45,0	50	111,7	14,4	8,0	6		+	1,74
100A08R-S45HN09C-CF	●	100	32	45,0	50	111,7	14,4	8,0	8		+	1,74
100A10R-S45HN09C-CF	●	100	32	45,0	50	111,7	14,4	8,0	10		+	1,74
125A06R-S45HN09C-CF	●	125	40	56,0	63	136,7	16,4	9,0	6		+	3,24
125A08R-S45HN09C-CF	●	125	40	56,0	63	136,7	16,4	9,0	8		+	3,24
125A10R-S45HN09C-CF	●	125	40	56,0	63	136,7	16,4	9,0	10		+	3,24
125A12R-S45HN09C-CF	●	125	40	56,0	63	136,7	16,4	9,0	12		+	3,24
160C08R-S45HN09CF	●	160	40	66,7	63	171,7	16,4	9,0	8			5,70
160C12R-S45HN09CF	●	160	40	66,7	63	171,7	16,4	9,0	12			5,70
160C14R-S45HN09CF	●	160	40	66,7	63	171,7	16,4	9,0	14			5,70
200C10R-S45HN09CF	●	200	60	101,6	63	211,7	25,7	14,0	10			9,00
250C14R-S45HN09CF	●	250	60	101,6	63	261,7	25,7	14,0	14			12,80
315C16R-S45HN09CF	○	315	60	101,6	80	326,7	25,7	14,0	16			32,20

● New item in the assortment

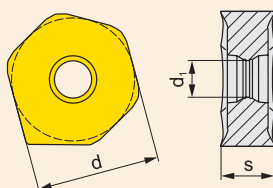
● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current stock information

S45HN09

DOUBLE-NEGATIVE FACE MILLING CUTTERS



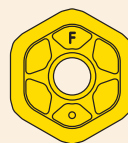
HNGX 09



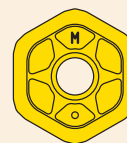
XNGX 09



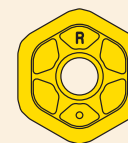
HNGX 09-FF



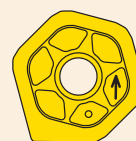
HNGX 09-F



HNGX 09-M



HNGX 09-R







XNGX 09 ANSN

INDEXABLE CUTTING INSERTS

ISO	Grades									Dimensions			
	M5315	M9315	M9325	M9340	M8310	M8340	M6330	8215	8230	8240	d	s	d ₁
HNGX 0906ANEN-FF				●				●	●		16,500	6,350	4,90
HNGX 0906ANSN-F				●	●	●		●	●	●	16,500	6,350	4,90
HNGX 0906ANSN-M	●	●	●	●	●	●	●	●	●	●	16,500	6,350	4,90
HNGX 0906ANSN-R	●	●	●		●	●		●	●	●	16,500	6,350	4,90
XNGX 0906ANSN								●	●		16,500	6,350	4,90

SPARE PARTS

Diameter of cutter	Clamping screw	Shank	Handle	Screw for taper clamping
50 – 63	 US 54511-T15P	 D-T08P/T15P	 FG-15	 HS 1030C
80 – 125	US 54511-T15P	D-T08P/T15P	FG-15	-
160	US 54511-T15P	D-T08P/T15P	FG-15	HS 1240C
200 – 315	US 54511-T15P	D-T08P/T15P	FG-15	HS 1655C

● New item in the assortment

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

SAD11E

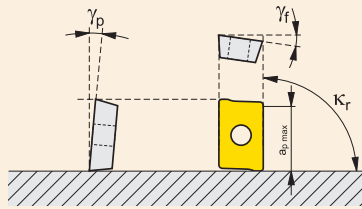
SHOULDER MILLING CUTTERS

MILLING TOOLS



MILLING INSERTS

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

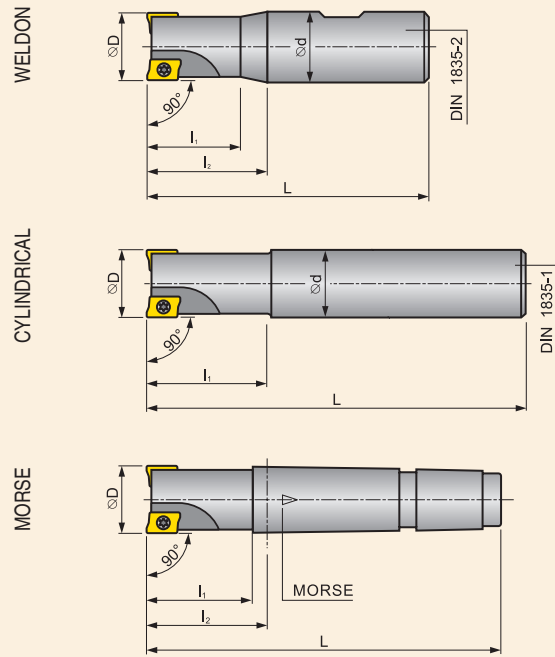


TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

FORCE AD



Z* - Number of teeth

ISO	Assortment	Dimensions							Through coolant	[kg]	
		D	L	l_1	l_2	d	Morse	Z*			
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
25A4R040A25-SAD11E-C	●	25	250	40	-	25	-	4		+	0,8

● New item in the assortment

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

SAD11E

SHOULDER MILLING CUTTERS

ISO	Assortment	Dimensions										Through coolant	[kg]	
		D	L	I ₁	I ₂	d	Morse	Z*						
30A3R080A32-SAD11E-C	●	30	200	80	-	32	-	3					+	1,0
32A3R090A32-SAD11E-C	●	32	195	90	-	32	-	3					+	0,9
32A5R034A32-SAD11E-C	●	32	195	34	-	32	-	5					+	0,9
35A5R025A32-SAD11E-C	●	35	200	25	-	32	-	5					+	1,1
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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

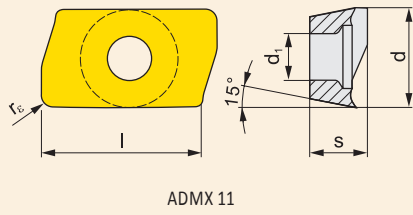
TECHNICAL SECTION

● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

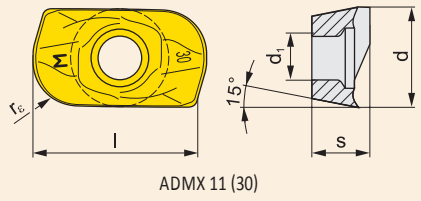
SAD11E

SHOULDER MILLING CUTTERS

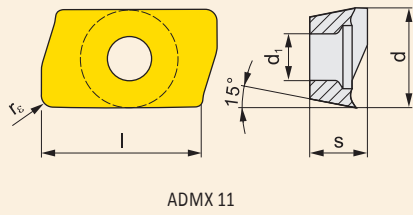
MILLING TOOLS



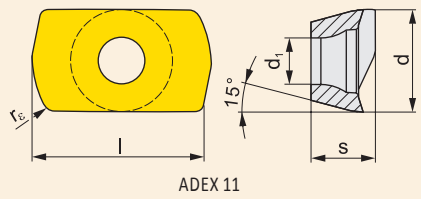
MILLING INSERTS



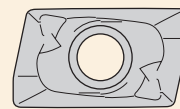
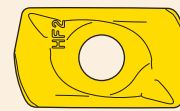
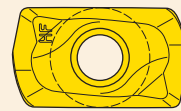
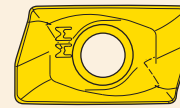
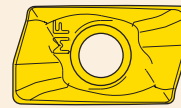
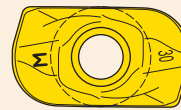
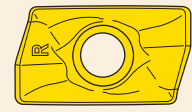
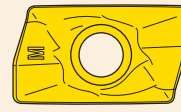
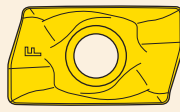
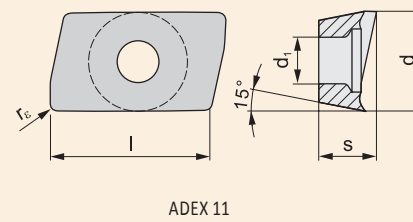
TURNING TOOLS



TURNING INSERTS



TECHNICAL SECTION




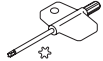
● New item in the assortment

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

INDEXABLE CUTTING INSERTS

ISO	Grades													Dimensions				
	M0315	M5315	M9315	M9325	M9340	M8310	M8340	M8345	M6330	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
ADEX 11T308SR-HF					●	●	●			●	●			10,665	6,530	3,97	2,90	0,8
ADEX 11T308SR-HF2				●	●	●	●				●			10,665	6,530	3,97	2,90	0,8
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 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	1,60

SPARE PARTS

Diameter of cutter	Clamping screw 	Screwdriver 
16 – 35	US 2505-T08P	FLAG T08P

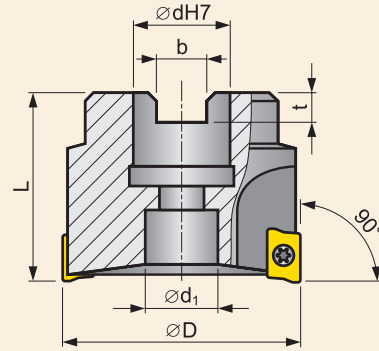
● New item in the assortment

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

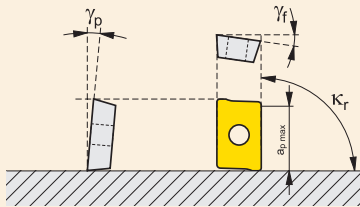
S90AD11E

SQUARE SHOULDER AND SLOT MILLING CUTTERS

FORCE AD



γ_p	+11° - +12°	κ_r	90°
γ_f	-5,2° - -8,1°	$a_{p\ max}$	9 mm



Z* - Number of teeth

ISO

Dimensions

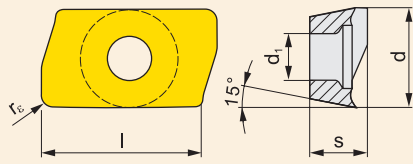
	Assortment	Dimensions								Through coolant	[kg]	
		D	dH7	d ₁	L	b	t	Z*				
40A04R-S90AD11E-C	●	40	16	14	40	8,4	5,6	4			+	0,2
40A05R-S90AD11E-C	●	40	16	14	40	8,4	5,6	5			+	0,2
40A06R-S90AD11E-C	●	40	16	14	40	8,4	5,6	6			+	0,2
50A05R-S90AD11E-C	●	50	22	18	40	10,4	6,3	5			+	0,3
50A07R-S90AD11E-C	●	50	22	18	40	10,4	6,3	7			+	0,3
63A06R-S90AD11E-C	●	63	22	18	40	10,4	6,3	6			+	0,5
63A09R-S90AD11E-C	●	63	22	18	40	10,4	6,3	9			+	0,5
80A10R-S90AD11E-C	●	80	27	38	50	12,4	7	10			+	1,0
100A11R-S90AD11E-C	●	100	32	45	50	14,4	8	11			+	1,7
125A12R-S90AD11E-C	●	125	40	56	63	16,4	9	12			+	3,5

● New item in the assortment

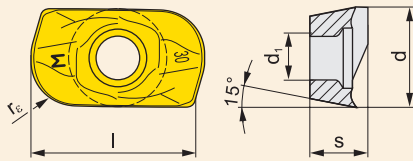
● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current stock information

S90AD11E

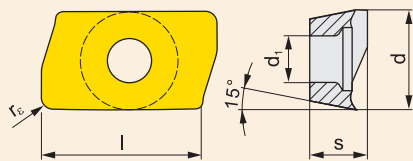
SQUARE SHOULDER AND SLOT MILLING CUTTERS



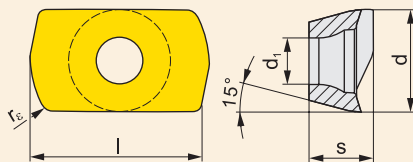
ADMX 11



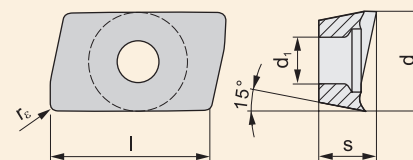
ADMX 11 (30)



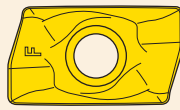
ADMX 11



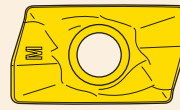
ADEX 11



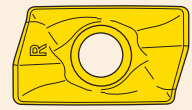
ADEX 11



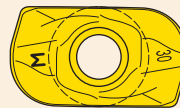
ADMX 11SR-F



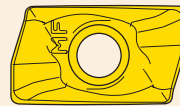
ADMX 11SR-M



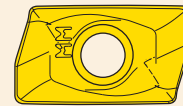
ADMX 11PR-R



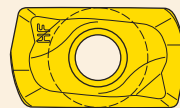
ADMX 11T330SR-M



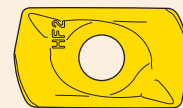
ADMX 11SR-MF



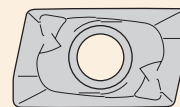
ADMX 11SR-MM



ADEX HF



ADEX HF2



ADEX FR-FA

● New item in the assortment

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





S90AD11E

SQUARE SHOULDER AND SLOT MILLING CUTTERS

INDEXABLE CUTTING INSERTS

ISO	Grades													Dimensions						
	M0315	M5315	M9315	M9325	M9340	M8310	M8340	M8345	M6330	8215	8230	8240	HF7			(l)	d	s	d ₁	r _e
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
ADEX 11T308SR-HF					•	•	•			•	•					10,665	6,530	3,97	2,90	0,8
ADEX 11T308SR-HF2				•	•	•	•				•					10,665	6,530	3,97	2,90	0,8
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 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	1,60

SPARE PARTS

	Clamping screw	Shank	Handle	Screw for taper clamping
Diameter of cutter				
40	US 2505-T08P	D-T08P/T15P	FG-15	HS 0830C
50 – 63	US 2505-T08P	D-T08P/T15P	FG-15	HS 1030C
80 – 125	US 2505-T08P	D-T08P/T15P	FG-15	-

• New item in the assortment

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



S19PD09

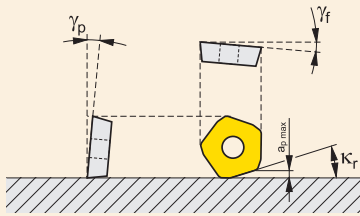
HIGH FEED MILLING CUTTERS

MILLING TOOLS



MILLING INSERTS

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

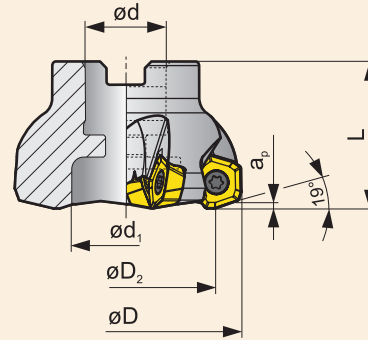


TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

PENTA HF

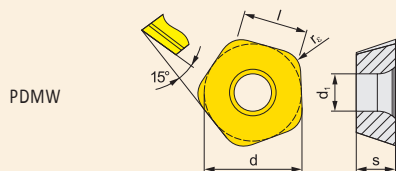
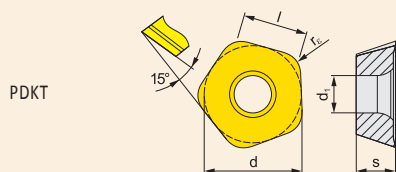
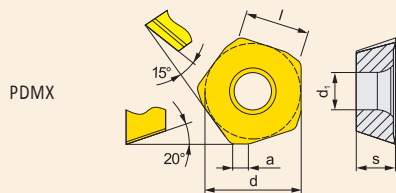
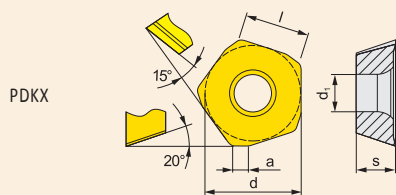


Z* - Number of teeth

ISO	Assortment	Dimensions							Through coolant	[kg]	
		D	d	d ₁	L	D ₂	Z*				
42A03R-S19PD09-C	●	42	16	12,0	40,0	27,8	3			+	0,18
50A04R-S19PD09-C	●	50	22	18,0	40,0	35,6	4			+	0,23
50A05R-S19PD09-C	●	50	22	18,0	40,0	36,0	5			+	0,21
52A04R-S19PD09-C	●	52	22	18,0	40,0	37,6	4			+	0,24
63A05R-S19PD09-C	●	63	22	18,0	40,0	48,6	5			+	0,31
63A06R-S19PD09-C	●	63	22	18,0	40,0	49,0	6			+	0,32
66A06R-S19PD09-C	●	66	22	18,0	40,0	51,6	6			+	0,32
66A06R-S19PD09-CF	●	66	27	22	50,0	52,0	6			+	0,52
80A05R-S19PD09-C	●	80	27	37	50,0	66,0	5			+	0,83
80A06R-S19PD09-C	●	80	27	37	50,0	66,0	6			+	0,76
100A06R-S19PD09-C	●	100	32	45	50,0	85,6	6			+	1,40
100A08R-S19PD09-C	●	100	32	45	50,0	85,6	8			+	1,38
125A08R-S19PD09-C	●	125	40	36	63,0	111,0	8			+	2,78
125A10R-S19PD09-C	●	125	40	36	63,0	111,0	10			+	2,78
140A08R-S19PD09-C	●	140	40	36	63,0	126,0	8			+	4,00

● New item in the assortment

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



PDKX-FM



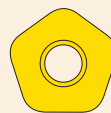
PDMX-M



PDMX-R



PDKT-FM



PDMW




S19PD09

HIGH FEED MILLING CUTTERS

INDEXABLE CUTTING INSERTS

ISO	Grades								Dimensions					
	M9315	M9325	M9340	M8310	M8345	M6330	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	-
PKDT 090530ER-FM		●		●	●	●	●	●	9,000	13,500	5,47	5,50	-	3
PDMW 090530SR	●	●		●	●				9,000	13,500	5,47	5,50	-	3

SPARE PARTS

Fréza	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	-
125A08R-S19PD09-C	US 45011-T20P	SDR T20P-T	HSD 2040
125A10R-S19PD09-C	US 45011-T20P	SDR T20P-T	HSD 2040
140A08R-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 stock information



SMOZD

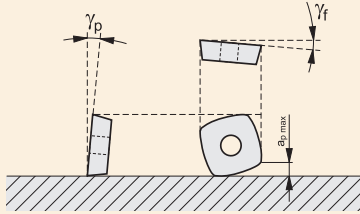
HIGH FEED MILLING CUTTERS

MILLING TOOLS



MILLING INSERTS

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

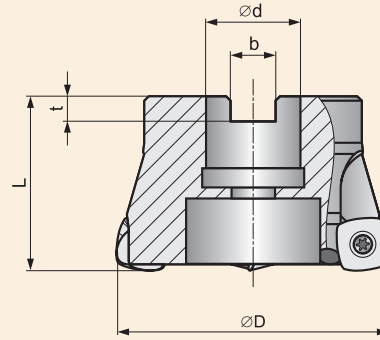


TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

FEED ZD



Z* - Number of teeth

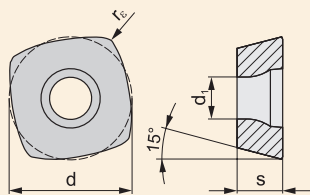
ISO	Assortment	Dimensions							Inserts	Through coolant	[kg]
		D	dH7	L	b	t	Z*				
40A03R-SMOZD09-C	●	40	16	40	8,4	5,6	3	ZD.. 09T3	+	0,2	
40A04R-SMOZD09-C	●	40	16	40	8,4	5,6	4	ZD.. 09T3	+	0,2	
50A05R-SMOZD09-C	●	50	22	40	10,4	6,4	5	ZD.. 09T3	+	0,3	
52A05R-SMOZD09-C	●	52	22	40	10,4	6,4	5	ZD.. 09T3	+	0,3	
63A06R-SMOZD09-C	●	63	22	40	10,4	6,4	6	ZD.. 09T3	+	0,6	
66A06R-SMOZD09-C	●	66	27	50	12	7	6	ZD.. 09T3	+	0,7	
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

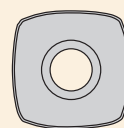
● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current stock information

SMOZD

HIGH FEED MILLING CUTTERS



ZDCW / ZDEW



ZDCW / ZDEW

INDEXABLE CUTTING INSERTS

ISO	Grades						Dimensions				
	M8310	M8325	M8345	7205	7215	7230	l	d	s	d ₁	r _e
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
40A03R-SMOZD09-C	US 3006-T09P	D-T07P/T09P	FG-15	HS 0830C
40A04R-SMOZD09-C	US 3006-T09P	D-T07P/T09P	FG-15	HS 0830C
50A05R-SMOZD09-C	US 3006-T09P	D-T07P/T09P	FG-15	HS 1030C
52A05R-SMOZD09-C	US 3006-T09P	D-T07P/T09P	FG-15	HS 1030C
63A06R-SMOZD09-C	US 3006-T09P	D-T07P/T09P	FG-15	HS 1030C
66A06R-SMOZD09-C	US 3006-T09P	D-T07P/T09P	FG-15	HS 1230C
50A04R-SMOZD12-C	US 4011-T15P	D-T08P/T15P	FG-15	HS 1030C
52A04R-SMOZD12-C	US 4011-T15P	D-T08P/T15P	FG-15	HS 1030C
63A04R-SMOZD12-C	US 4011-T15P	D-T08P/T15P	FG-15	HS 1030C
63A05R-SMOZD12-C	US 4011-T15P	D-T08P/T15P	FG-15	HS 1030C
66A05R-SMOZD12-C	US 4011-T15P	D-T08P/T15P	FG-15	HS 1230C
80A05R-SMOZD12-C	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 stock information

SRC-A

BALLNOSE EXCHANGEABLE HEADS

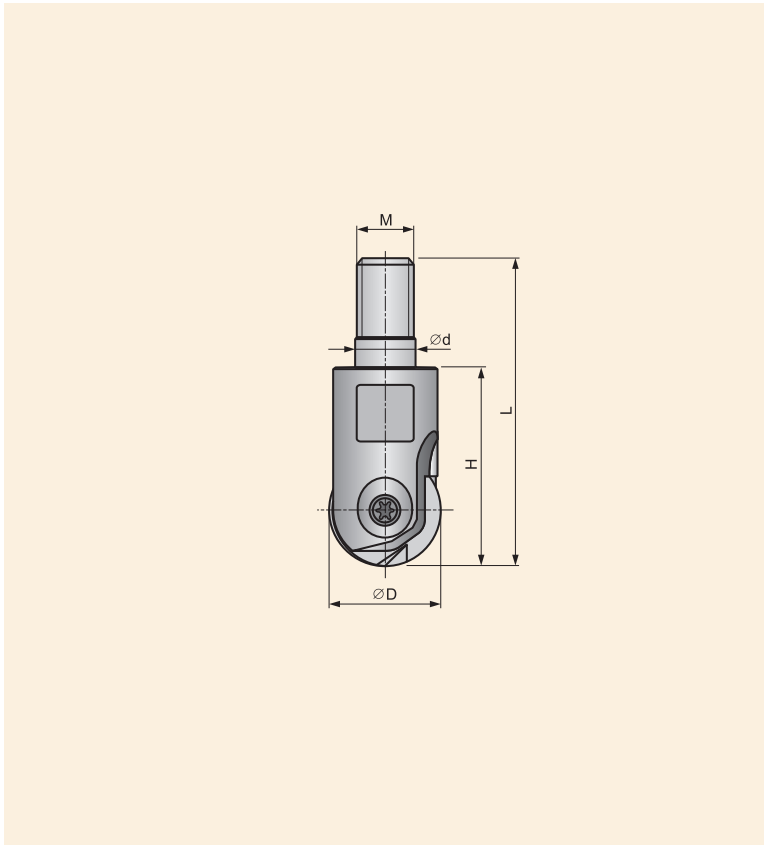
MILLING TOOLS



MILLING INSERTS

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

TURNING TOOLS



TURNING INSERTS

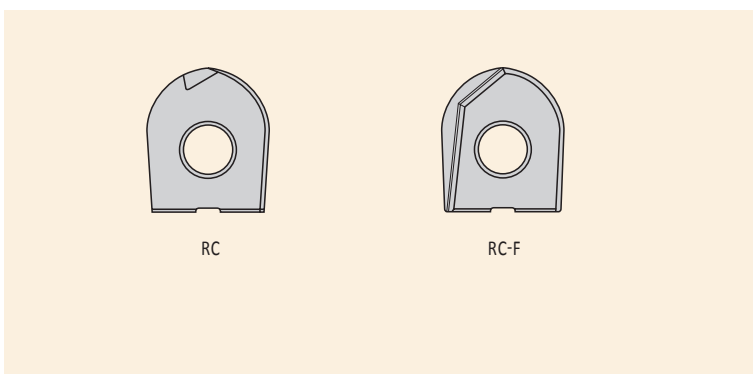
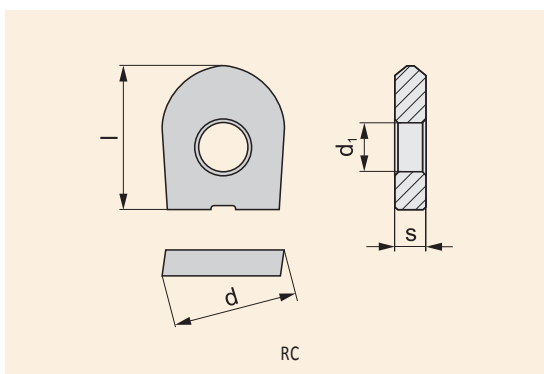
TECHNICAL SECTION

ISO	Assortment	Dimensions					Inserts	Through coolant	[kg]
		D	d	M	L	H			
08K2R30M06-SRC08-A	●	8	6,5	M6	45	30	RC 08, RC 08-F		0,10
10K2R30M06-SRC10-A	●	10	6,5	M6	45	30	RC 10, RC 10F		0,15
12K2R30M06-SRC12-A	●	12	6,5	M6	45	30	RC 12, RC 12-F		0,15
12K2R30M08-SRC12-A	●	12	8,5	M8	48	30	RC 12, RC 12-F		0,15
16K2R35M08-SRC16-A	●	16	8,5	M8	53	35	RC 16, RC 16-F		0,25
20K2R35M10-SRC20-A	●	20	10,5	M10	54	35	RC 20, RC 20-F		0,30

● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current stock information

SRC-A

BALLNOSE EXCHANGEABLE HEADS



INDEXABLE CUTTING INSERTS

ISO	Grades										Dimensions				
	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 stock information

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

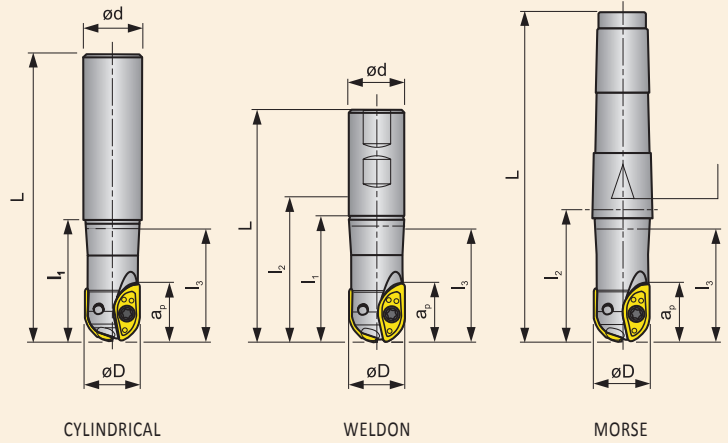
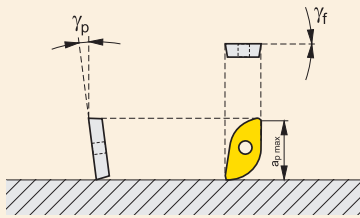
TECHNICAL SECTION

L2-SZP

COPY MILLING CUTTERS



γ_p	-10°	κ_r	-
γ_f	0°	$a_{p\max}$	-



Z* - Number of teeth

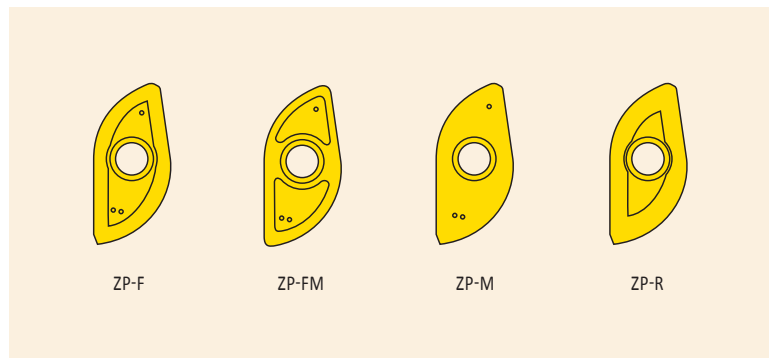
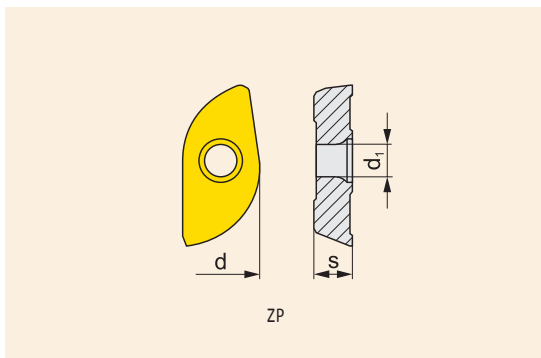
ISO

Assortment	Dimensions									Inserts	$a_{p\max}$	Through coolant	[kg]
	D	L	l_1	l_2	l_3	d	Z*						
CYLINDRICAL													
10L2R030A10-SZP10	●	10	130	30,0	-	30,0	10	-	2	ZP 10..	8,9		0,15
10L2R050A16-SZP10	●	10	160	50,0	-	22,3	16	-	2	ZP 10..	8,9		0,21
12L2R035A12-SZP12	●	12	140	35,0	-	35,0	12	-	2	ZP 12..	10,7		0,30
12L2R045A20-SZP12	●	12	200	44,8	-	22,0	20	-	2	ZP 12..	10,7		0,43
16L2R040A16-SZP16-C	●	16	160	40,0	-	40,0	16	-	2	ZP 16..	14,4	+	0,60
16L2R045A20-SZP16-C	●	16	200	44,5	-	29,4	20	-	2	ZP 16..	14,4	+	0,63
20L2R050A20-SZP20-C	●	20	250	50,0	-	-	20	-	2	ZP 20..	17,9	+	0,85
20L2R055A25-SZP20-C	●	20	200	54	-	36,1	25	-	2	ZP 20..	17,9	+	0,65
20L2R055A32-SZP20-C	●	20	250	56	-	34,5	32	-	2	ZP 20..	17,9	+	1,40
25L2R060A25-SZP25-C	●	25	250	60	-	-	25	-	2	ZP 25..	22,3	+	1,29
25L2R065A32-SZP25-C	●	25	250	65	-	43,0	32	-	2	ZP 25..	22,3	+	1,29
32L2R070A32-SZP32-C	●	32	250	70	-	-	32	-	2	ZP 32..	28,6	+	1,37
WELDON													
12L2R040B20-SZP12	●	12	91	40	66,5	21,5	20	-	2	ZP 12..	10,7		0,16
12L2R060B20-SZP12	●	12	111	60	86,5	23,8	20	-	2	ZP 12..	10,7		0,19
16L2R040B20-SZP16-C	●	16	91	40	66,5	28,3	20	-	2	ZP 16..	14,4	+	0,16
16L2R060B20-SZP16-C	●	16	111	60	86,5	32,9	20	-	2	ZP 16..	14,4	+	0,20
20L2R050B25-SZP20-C	●	20	107	50	75,5	35,1	25	-	2	ZP 20..	17,9	+	0,29
20L2R070B25-SZP20-C	●	20	127	70	95,5	39,5	25	-	2	ZP 20..	17,9	+	0,35
25L2R060B25-SZP25-C	●	25	117	60	85,5	-	25	-	2	ZP 25..	22,3	+	0,35
25L2R080B25-SZP25-C	●	25	137	80	105,0	-	25	-	2	ZP 25..	22,3	+	0,41

● New item in the assortment

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

ISO	Assortment	Dimensions										Through coolant	[kg]
		D	L	l ₁	l ₂	l ₃	d	Z*	Inserts	a _{pmax}			
32L2R070B32-SZP32-C	●	32	131	70,0	95,5	-	32	-	2	ZP 32..	28,6	+	0,62
32L2R100B32-SZP32-C	●	32	161	100,0	125,5	-	32	-	2	ZP 32..	28,6	+	0,79
40L2R070B32-SZP40-C	●	40	131	70,0	95,5	-	32	-	2	ZP 40..	35,7	+	0,72
40L2R100B40-SZP40-C	●	40	171	100,0	131,0	-	40	-	2	ZP 40..	35,7	+	1,33
50L2R100B50-SZP50-C	●	50	181	100,0	136,5	-	50	-	2	ZP 50..	44,7	+	2,13
MORSE													
10L2R050E02-SZP10	●	10	114	-	50	21,9	-	2	2	ZP 10..	8,9		0,12
12L2R040E02-SZP12	●	12	104	-	40	22,5	-	2	2	ZP 12..	10,7		0,11
12L2R060E02-SZP12	●	12	124	-	60	25,8	-	2	2	ZP 12..	10,7		0,14
12L2R090E02-SZP12	●	12	154	-	90	25,8	-	2	2	ZP 12..	10,7		0,19
16L2R040E02-SZP16	●	16	104	-	40	31,3	-	2	2	ZP 16..	14,4		0,12
16L2R060E02-SZP16	●	16	124	-	60	42,2	-	2	2	ZP 16..	14,4		0,15
16L2R090E02-SZP16	●	16	154	-	90	75,9	-	2	2	ZP 16..	14,4		0,19
20L2R050E03-SZP20	●	20	131	-	50	36,6	-	3	2	ZP 20..	17,9		0,27
20L2R070E03-SZP20	●	20	151	-	70	-	-	3	2	ZP 20..	17,9		0,33
20L2R100E03-SZP20	●	20	181	-	100	77,4	-	3	2	ZP 20..	17,9		0,39
25L2R080E03-SZP25	●	25	161	-	80	-	-	3	2	ZP 25..	22,3		0,39
25L2R110E04-SZP25	●	25	212,5	-	110	92,7	-	4	2	ZP 25..	22,3		0,76
32L2R100E04-SZP32	●	32	202,5	-	100	-	-	4	2	ZP 32..	28,6		0,83
32L2R150E04-SZP32	●	32	252,5	-	150	-	-	4	2	ZP 32..	28,6		1,10
50L2R100E05-SZP50	●	50	229,5	-	100	-	-	5	2	ZP 50..	44,7		2,00



INDEXABLE CUTTING INSERTS

ISO	Grades					Dimensions		
	M8310	M8340	M8345	8230	8240	d	s	d ₁
ZP 20ER-F	●					20,00	3,97	4,0
ZP 50ER-F	●					50,00	7,94	9,6
ZP 10ER-FM	●	●				10,00	1,70	2,2
ZP 12ER-FM	●	●				12,00	2,38	2,9
ZP 16ER-FM	●	●				16,00	3,18	2,9
ZP 20ER-FM	●	●				20,00	3,97	4,0

● New item in the assortment

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

L2-SZP

COPY MILLING CUTTERS

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

ISO	Grades										Dimensions		
	M8310	M8340	M8345	8230	8240						d	s	d ₁
ZP 25ER-FM	●		●								25,00	4,76	4,7
ZP 32ER-FM	●		●								32,00	6,35	5,9
ZP 12ER-M		●	●	●	●						12,00	2,38	2,9
ZP 16ER-M		●	●	●	●						16,00	3,18	2,9
ZP 20ER-M			●	●							20,00	3,97	4,0
ZP 25ER-M			●	●							25,00	4,76	4,7
ZP 32ER-M			●	●							32,00	6,35	5,9
ZP 16ER-R			●								16,00	3,18	2,9
ZP 20ER-R			●								20,00	3,97	4,0
ZP 25ER-R			●								25,00	4,76	4,7
ZP 32ER-R			●	●							32,00	6,35	5,9
ZP 40ER-R			●								40,00	7,94	7,0
ZP 50ER-R			●								50,00	7,94	9,6

SPARE PARTS

	Clamping screw	Screwdriver	Shim seat	Pad screw	Screwdriver
Marking of cutter					
SZP10	US 62004-T06P	FLAG T06P	-	-	-
SZP12	US 62506-T08P	FLAG T08P	-	-	-
SZP16	US 62508-T08P	FLAG T08P	-	-	-
SZP20	US 63510-T10P	FLAG T10P	-	-	-
SZP25	US 4011A-T15P	FLAG T15P	-	-	-
SZP32	US 65013-T20	SDR T20	-	-	-
SZP40	US 66015-T25P	SDR T25P	-	-	-
SZP50	US 68020-T30P	SDR T30	SZN 400322	US3508-T15P	FLAG T15P

● New item in the assortment

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



L2-SZP

EXCHANGEABLE HEADS FOR COPY MILLING

MILLING TOOLS



MILLING INSERTS

γ_p	-10°	κ_r	-
γ_f	0°	$a_{p\max}$	-

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

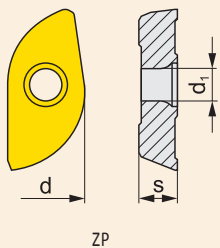
Z* - Number of teeth

ISO	Assortment	Dimensions							Through coolant	[kg]
		D	H	d	M	Z*	Inserts	$a_{p\max}$		
10L2R025M08-SZP10	●	10	25	8,5	M8	2	ZP 10..	8,9		0,02
12L2R025M06-SZP12	●	12	25	6,5	M6	2	ZP 12..	10,7		0,02
12L2R025M08-SZP12	●	12	25	8,5	M8	2	ZP 12..	10,7		0,02
16L2R025M08-SZP16	●	16	25	8,5	M8	2	ZP 16..	14,4		0,02
20L2R030M10-SZP20-C	●	20	30	10,5	M10	2	ZP 20..	17,9	+	0,04
25L2R035M12-SZP25-C	●	25	35	12,5	M12	2	ZP 25..	22,3	+	0,07
32L2R045M16-SZP32-C	●	32	45	17	M16	2	ZP 32..	27,9	+	0,15

● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current stock information

L2-SZP

EXCHANGEABLE HEADS FOR COPY MILLING



ZP



ZP-F



ZP-FM



ZP-M


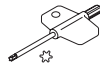


ZP-R

INDEXABLE CUTTING INSERTS

ISO	Grades					Dimensions		
	M8310	M8340	M8345	8230	8240	d	s	d ₁
ZP 20ER-F	●					20,00	3,97	4,0
ZP 10ER-FM	●	●				10,00	1,70	2,2
ZP 12ER-FM	●	●				12,00	2,38	2,9
ZP 16ER-FM	●	●				16,00	3,18	2,9
ZP 20ER-FM	●	●				20,00	3,97	4,0
ZP 25ER-FM	●	●				25,00	4,76	4,7
ZP 12ER-M		●	●	●	●	12,00	2,38	2,9
ZP 16ER-M		●	●	●	●	16,00	3,18	2,9
ZP 20ER-M			●	●		20,00	3,97	4,0
ZP 25ER-M			●	●		25,00	4,76	4,7
ZP 16ER-R		●				16,00	3,18	2,9
ZP 20ER-R		●				20,00	3,97	4,0
ZP 25ER-R		●				25,00	4,76	4,7

SPARE PARTS

Diameter of cutter	Clamping screw	Screwdriver
		
SZP10	US 62004-T06P	FLAG T06P
SZP12	US 62506-T08P	FLAG T08P
SZP16	US 62508-T08P	FLAG T08P
SZP20	US 63510-T10P	FLAG T10P
SZP25	US 4011A-T15P	FLAG T15P

● New item in the assortment

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

MILLING INSERTS



SPECIAL GRADE FOR MILLING STAINLESS STEELS

The M6330 grade has been developed specifically to achieve longer cutting edge durability and reliability in stainless steels and difficult-to-machine materials.

Particularly suited to coolant-fed applications and adverse cutting conditions.

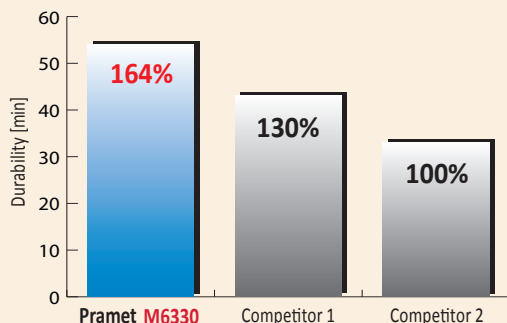
BENEFITS

- **High insert durability** when machining stainless steels with and without coolant
- **Improved abrasion resistance** thanks to the combination of the new substrate and PVD coating
- Higher resistance to heat-related cracks
- Higher operational reliability
- Better dissipation of heat from the cutting area

MACHINING EXAMPLE USING M6330 GRADE

Material: 17349.4 (155 HB)
 Material group: M3
 Insert: ADMX 160608SR-MM: M6330
 Coolant: **No**

Cutting speed	v_c	140	m per min
Feed per tooth	f_z	0,15	mm per tooth
Axial length of cut	a_p	2,5	mm



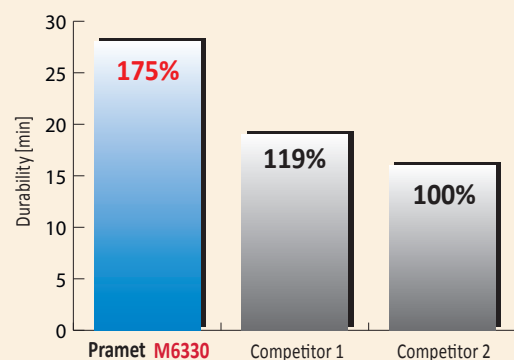
Where should M6330 be used?

- When the use of coolant leads to the onset of **thermal shocks**.
- In applications with **adverse cutting conditions**, such as interrupted cutting.

MACHINING EXAMPLE USING M6330 GRADE

Material: 17349.4 (155 HB)
 Material group: M3
 Insert: ADMX 160608SR-MM: M6330
 Coolant: **Yes** (technical reason)

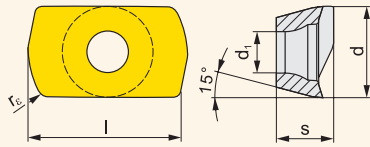
Cutting speed	v_c	70	m per min
Feed per tooth	f_z	0,12	mm per tooth
Axial length of cut	a_p	4	mm



- For milling stainless steels in combination with the new MF and MM insert geometries.

INDEXABLE CUTTING INSERTS FOR MILLING

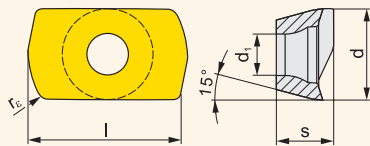
ADEX-HF



Dimensions	l	d	d ₁	s
1606	15,575	9,950	4,50	5,88
11T3	10,665	6,530	2,90	3,80

Geometry	ISO	Grade					Radius	Feed/tooth		Depth of cut	
		M9340	M8310	M8340	8215	8230	r _c	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

ADEX-HF2



Dimensions	l	d	d ₁	s
1606	15,575	9,950	4,50	5,88
11T3	10,665	6,530	2,90	3,80

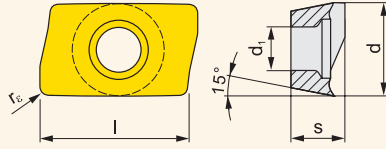
Geometry	ISO	Grade					Radius	Feed/tooth		Depth of cut	
		M9325	M9340	M8310	M8340	8230	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	ADEX 11T308SR-HF2	●	●	●	●	●	0,8	0,40	1,30	0,2	0,6
	ADEX 160612SR-HF2	●	●	●	●	●	1,2	0,50	1,30	0,3	1,3

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR MILLING

ADMX 07



Dimensions	l	d	s	d ₁
0702	6,950	4,482	2,48	2,20

Geometry	ISO	Grade						Radius		Feed/tooth		Depth of cut	
		M9340	M8310	M8340	M6330	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
	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 stock information

MILLING TOOLS

MILLING INSERTS

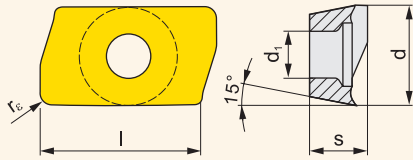
TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR MILLING

ADMX 11



Dimensions	l	d	d ₁	s
11T3	11,000	6,530	2,90	3,97

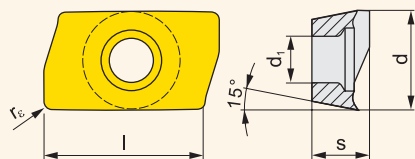
Geometry	ISO	Grade											Radius		Feed/tooth		Depth of cut		
		M5315	M9315	M9325	M9340	M8310	M8340	M8345	M6330	8215	8230	8240	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}		
	ADMX 11T304SR-F				●	●	●			●	●	●			0,4	0,07	0,12	0,2	9,0
	ADMX 11T308SR-F				●		●			●	●	●			0,8	0,07	0,12	0,2	9,0
	ADMX 11T302SR-M														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
	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
	ADMX 11T304SR-MF				●		●	●							0,4	0,05	0,14	0,2	9,0
	ADMX 11T308SR-MF				●		●	●							0,8	0,05	0,14	0,2	9,0
	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 stock information

INDEXABLE CUTTING INSERTS FOR MILLING

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	M8345	M6330	8215	8230	8240	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	ADMX 160608SR-F				●	●	●			●	●	●		0,8	0,07	0,15	0,3	13,0
	ADMX 160604SR-M									●	●			0,4	0,10	0,25	0,3	13,0
	ADMX 160608SR-M	●	●	●	●	●	●			●	●	●		0,8	0,10	0,25	0,3	13,0
	ADMX 160616SR-M			●		●	●			●	●	●		1,6	0,10	0,30	0,3	13,0
	ADMX 160620SR-M						●				●			2,0	0,10	0,25	0,3	13,0
	ADMX 160630SR-M						●				●			3,0	0,10	0,25	0,3	13,0
	ADMX 160632SR-M			●		●				●	●	●		3,2	0,10	0,30	0,3	13,0
	ADMX 160640SR-M						●				●			4,0	0,10	0,25	0,3	13,0
	ADMX 160650SR-M						●				●			5,0	0,10	0,25	0,3	13,0
	ADMX 160608PR-R	●	●	●		●	●			●	●	●		0,8	0,17	0,35	1,0	13,0
	ADMX 160616PR-R	●	●	●		●				●	●			1,6	0,17	0,35	1,0	13,0
	ADMX 160608SR-MF				●		●		●					0,8	0,05	0,16	0,3	13,0
																		
	ADMX 160604SR-MM				●		●		●					0,4	0,14	0,22	0,3	13,0
	ADMX 160608SR-MM				●		●	●	●					0,8	0,14	0,22	0,3	13,0
	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 stock information

MILLING TOOLS

MILLING INSERTS

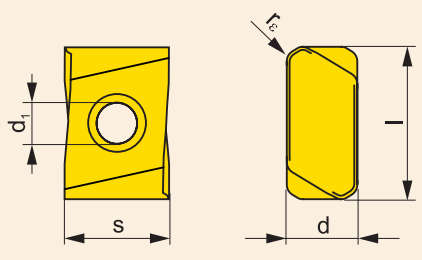
TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR MILLING

LNEX 15



Dimensions	l	d	d ₁	s
1513	20,750	9,600	5,70	14,30

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

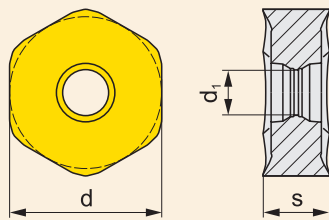
TECHNICAL SECTION

Geometry	ISO	Grade				Radius	Feed/tooth		Depth of cut	
		M5326	M9325	M8326	M8346		r _e	f _{min}	f _{max}	a _{p min}
	LNEX 1513DPSR-M	●	●	●	●		0,30	0,70	1,6	12,0
	LNEX 1513DPSR-KR	●	●	●	●		0,30	0,70	1,6	12,0

● New item in the assortment ○ Stock assortment ○ Non-stock assortment All dimensions [mm] See latest price list for current stock information

INDEXABLE CUTTING INSERTS FOR MILLING

HNGX 09



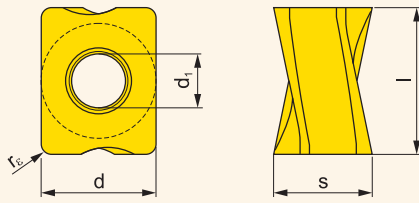
Dimensions	d	s	d ₁		
0906	16,500	6,350	4,90		

Geometry	ISO	Grade									Radius		Feed/tooth		Depth of cut		
		M5315	M9315	M9325	M9340	M8310	M8340	M6330	8215	8230	8240	r _c	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 stock information

INDEXABLE CUTTING INSERTS FOR MILLING

LNGX 12



Dimensions	l	d	s	d ₁
1205	12,000	9,500	7,10	4,50

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

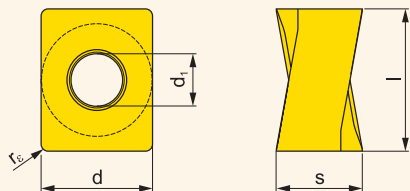
Geometry	ISO	Grade											Radius		Feed/tooth		Depth of cut		
		M0315	M5315	M9315	M9325	M9340	M8310	M8340	M8345	M6330	8215	8230	8240	HF7	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	LNGX 120504ER-F							●			●	●			0,4	0,04	0,15	0,2	9,0
	LNGX 120508ER-F						●	●			●	●			0,8	0,04	0,15	0,2	9,0
	LNGX 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
	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
	LNGX 120504ER-MF						●		●						0,4	0,04	0,15	0,3	9,0
	LNGX 120508ER-MF						●		●						0,8	0,04	0,15	0,3	9,0
	LNGX 120508SR-MM						●	●	●						0,8	0,08	0,20	0,3	9,0
	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 stock information

INDEXABLE CUTTING INSERTS FOR MILLING

LNMU 16



Dimensions	l	d	d ₁	s
1607	16,600	13,200	5,70	10,00

Geometry	ISO	Grade							Radius		Feed/tooth		Depth of cut	
		M5315	M9315	M9325	M8310	M8340	M6330	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

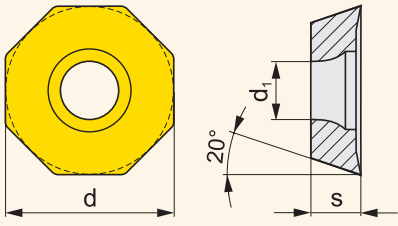
● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR MILLING

MILLING TOOLS

OEHT 06



Dimensions	d	s	d ₁				
0604	16,050	4,760	5,50				

MILLING INSERTS

Geometry	ISO	Grade								Radius r _e	Feed/tooth		Depth of cut		
		M0315	M9325	M9340	M8310	M8340	M8345	M6330	8230		HF7	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	0,5	3,3
	OEHT 0604AEFR-FA	●							●			0,08	0,20	0,5	3,3

TURNING TOOLS

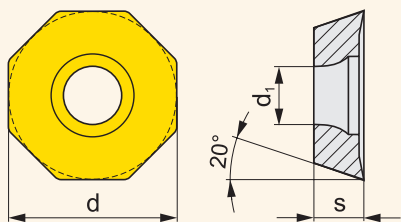
TURNING INSERTS

TECHNICAL SECTION

● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm] See latest price list for current stock information

INDEXABLE CUTTING INSERTS FOR MILLING

OEHT 09



Dimensions	d	s	d ₁			
0906	24,100	7,150	8,60			

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}								
	OEHT 0906AEER-MM	●	●	●	●					0,12	0,35	1,0	5,0	
	OEHT 0906AESR-M	●	●	●	●					0,12	0,45	1,2	5,0	

● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
See latest price list for current stock information

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

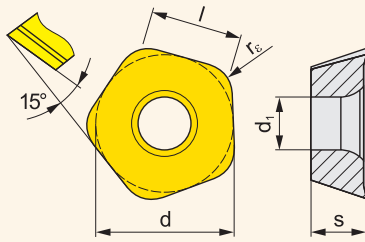
TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR MILLING


MILLING TOOLS

PDKT 09-FM



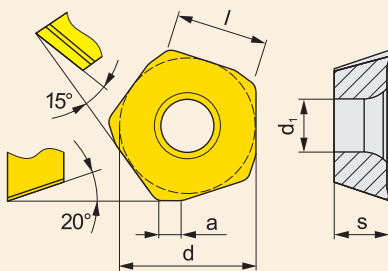
Dimensions	l	d	s	d ₁
0905	9,000	13,500	5,47	5,50

MILLING INSERTS

Geometry	ISO	Grade						Radius		Feed/tooth		Depth of cut	
		M9325	M8310	M8345	M6330	8215	8230	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	PDKT 090530ER-FM	●	●	●	●	●	●	3,0	0,50	2,50	0,3	2,0	
													


TURNING TOOLS

PDKX 09-FM



Dimensions	l	d	s	d ₁	a
0905	9,000	13,500	5,47	5,50	2,00

TURNING INSERTS

Geometry	ISO	Grade						Radius		Feed/tooth		Depth of cut	
		M9340	M8345	M6330				r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	PDKX 0905ZEER-FM	●	●	●					0,50	2,50	0,3	2,0	
													

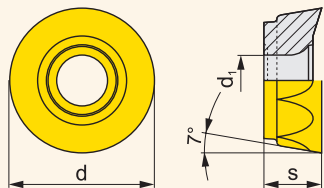
TECHNICAL SECTION

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR MILLING

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		

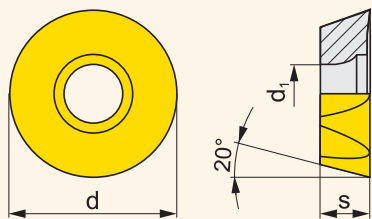
Geometry	ISO	Grade								Radius		Feed/tooth		Depth of cut	
		M9315	M9325	M9340	M8310	M8345	M6330	8215	8230	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	RCMT 1204MOEN-F				•		•	•				0,05	0,20	0,3	6,0
	RCMT 1606MOEN-F				•			•				0,05	0,25	0,3	8,0
	RCMT 2006MOSN-F			•					•			0,08	0,30	0,3	10,0
	RCMT 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 stock information

INDEXABLE CUTTING INSERTS FOR MILLING

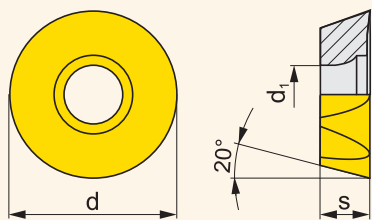
REHT 16



Dimensions	d	s	d ₁
1604	16,000	4,760	5,50

Geometry	ISO	Grade							Radius		Feed/tooth		Depth of cut	
		M9325	M9340	M8310	M8340	M8345	M6330	8230	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	REHT 1604M0EN-MM	●	●	●	●	●	●	●			0,08	0,25	0,8	4,0
	REHT 1604M0SN-M	●		●	●			●			0,08	0,35	0,8	4,0

REHT 24



Dimensions	d	s	d ₁
2406	24,000	7,150	8,60

Geometry	ISO	Grade				Radius		Feed/tooth		Depth of cut	
		M9325	M8310	M8340	8230	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	REHT 2406M0EN-MM	●	●	●	●			0,12	0,35	0,5	6,0
	REHT 2406M0SN-M	●	●	●	●			0,12	0,45	0,5	6,0

● New item in the assortment

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

MILLING TOOLS

MILLING INSERTS

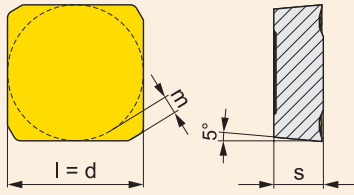
TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR MILLING

SBMR 22



Dimensions	l	d	s	m
2207	22,000	22,000	8,00	2,82

MILLING TOOLS

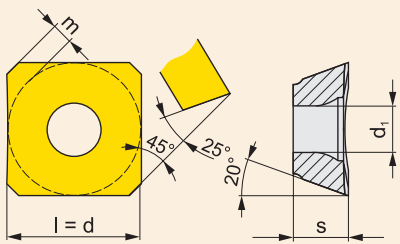
MILLING INSERTS

Geometry	ISO	Grade						Radius		Feed/tooth		Depth of cut	
		M5326	M9325	M8326	M8346	8240	8026T	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	SBMR 2207DZSR	●	●	●	●	●	●		0,35	0,80	1,2	15,0	
	SBMR 2207DZSR-R	●		●	●				0,35	0,80	1,2	15,0	

TURNING TOOLS

TURNING INSERTS

SEET 09



Dimensions	l	d	s	d ₁
09T3	9,525	9,525	3,97	3,50

Geometry	ISO	Grade						Radius		Feed/tooth		Depth of cut	
		M9325	M9340	M8340	M6330	8215	8230	8240	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	SEET 09T3AFEN	●	●	●	●	●	●		0,08	0,30	0,3	4,5	

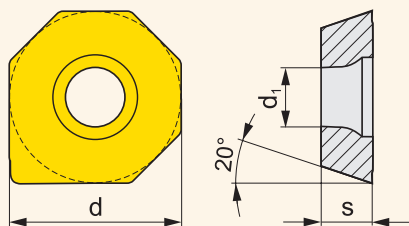
TECHNICAL SECTION

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR MILLING

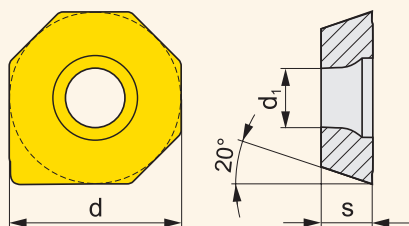
XEHT 06



Dimensions	d	s	d ₁		
0604	16,050	4,760	5,50		

Geometry	ISO	Grade				Radius	Feed/tooth		Depth of cut	
		M8310	8230			r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	XEHT 0604AESR	●	●				0,08	0,35	0,1	3,3

XEHT 09



Dimensions	d	s	d ₁		
0906	24,100	7,150	8,60		

Geometry	ISO	Grade				Radius	Feed/tooth		Depth of cut	
		M8310	8230			r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	XEHT 0906AESR	●	●				0,12	0,45	0,5	5,0

● New item in the assortment

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

TURNING TOOLS

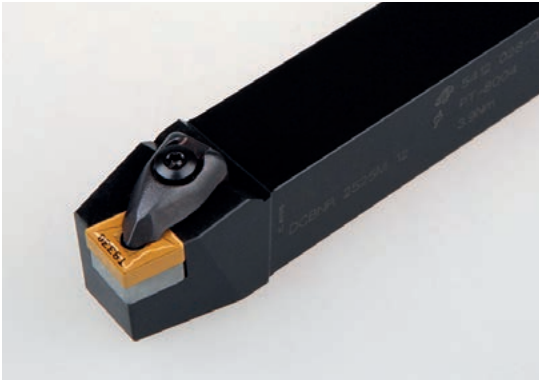




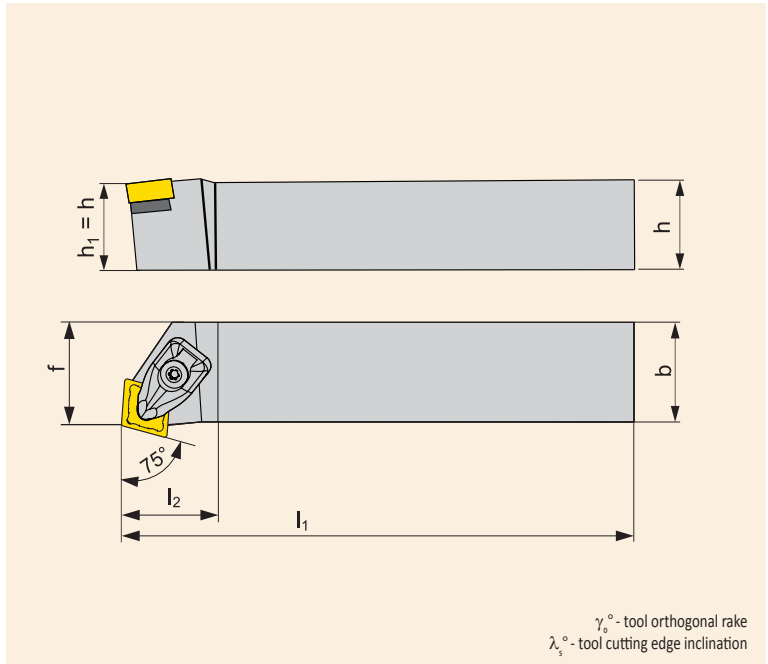
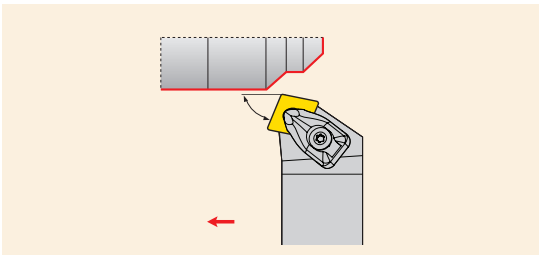
DCBNR/L

EXTERNAL TURNING - ISO D

MILLING TOOLS



MILLING INSERTS



TURNING TOOLS

TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_o°					
DCBNR/L 2020 K 12	■ / ■	20	20	17	125	34,2			-6	-6	0,40	DC12	CN.. 1204..
DCBNR/L 2525 M 12	■ / ■	25	25	22	150	34,6			-6	-6	0,80	DC12	CN.. 1204..
DCBNR/L 2525 M 16	■ / ■	25	25	22	150	41,5			-6	-6	0,80	DC16	CN.. 1606..
DCBNR/L 3225 P 12	■ / ■	32	25	22	170	34,6			-6	-6	1,10	DC12	CN.. 1204..
DCBNR/L 3225 P 16	■ / ■	32	25	22	170	32,0			-6	-6	1,10	DC16	CN.. 1606..
DCBNR/L 3232 P 19	■ / ■	32	32	27	170	46,1			-6	-6	1,40	DC19	CN.. 1906..
DCBNR/L 4040 S 19	■ / ■	40	40	35	250	46,7			-6	-6	3,10	DC19	CN.. 1906..

TURNING INSERTS

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DC12	DCS 12	DCS 234-01	SS 2002-T15P	FLAG T15P/3,5	-
DC16	DCS 16	DCS 234-03	SS 2007-T20P	FLAG T20P	-
DC19	DCS 19	DCS 236-01	SS 2007-T20P	-	LK T20P

TECHNICAL SECTION

OPTIONAL SPARE PARTS

Insert	Complete clamp set	Shim	Insert	Complete clamp set	Shim
CN.. 1207..	-	DDS 234-02	Ceramic insert without hole CN.. 12....	DCS 12C4	-
CN.. 1607..	-	DDS 234-04	Ceramic insert with hole CN.. 12....	DCS 12C2	-
			Ceramic insert without hole CN.. 16....	DCS 16C4	-
			Ceramic insert with hole CN.. 16....	DCS 16C2	-

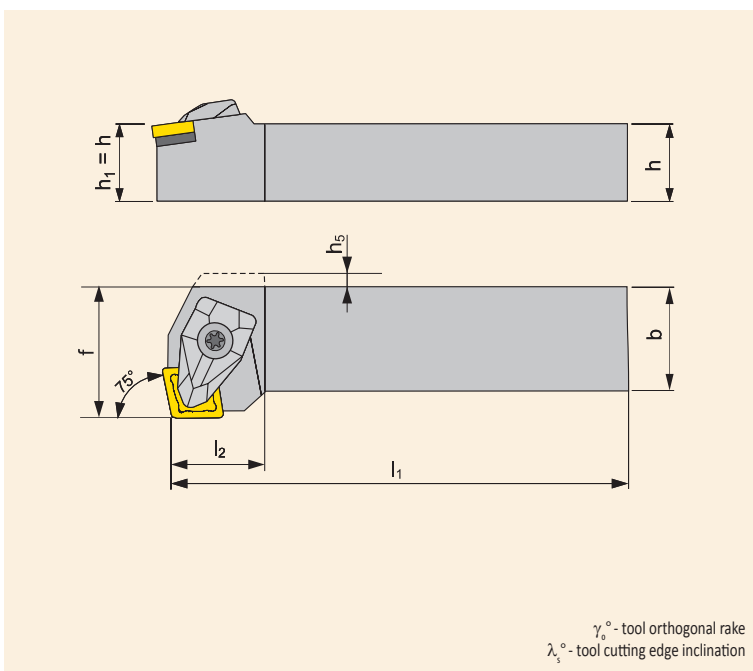
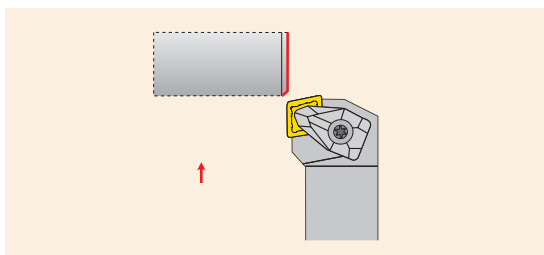
■ Available from 1.7. 2016

● New item in the assortment

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

DCKNR/L

EXTERNAL TURNING - ISO D



TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert		
		h=h ₁	b	f	l ₁	l ₂	h ₅	λ _s °	γ _o °					
DCKNR/L 2020 K 12	■ / ■	20	20	25	125	21,2	4,5			-6	-6	0,50	DC12	CN.. 1204..
DCKNR/L 2525 M 12	■ / ■	25	25	32	150	21,1	-			-6	-6	0,80	DC12	CN.. 1204..
DCKNR/L 3225 P 12	■ / ■	32	25	32	170	21,1	-			-6	-6	1,10	DC12	CN.. 1204..
DCKNR/L 3232 P 16	■ / ■	32	32	40	170	26,0	-			-6	-6	1,50	DC16	CN.. 1606..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DC12	DCS 12	DCS 234-01	US 2002-T15P	FLAG T15P/3,5	-
DC16	DCS 16	DCS 234-03	SS 2007-T20P	FLAG T20P	-

OPTIONAL SPARE PARTS






Insert	Complete clamp set	Shim	Insert	Complete clamp set	Shim
CN.. 1207..	-	DDS 234-02	Ceramic insert without hole CN.. 12....	DCS 12C4	-
CN.. 1607..	-	DDS 234-04	Ceramic insert with hole CN.. 12....	DCS 12C2	-
			Ceramic insert without hole CN.. 16....	DCS 16C4	-
			Ceramic insert with hole CN.. 16....	DCS 16C2	-

■ Available from 1.7. 2016



● New item in the assortment

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

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
					
DC09	DCS 09	DCS 236-04	US 2004-T09P	FLAG T09P	-
DC12	DCS 12	DCS 234-01	US 2002-T15P	FLAG T15P/3,5	-
DC16	DCS 16	DCS 234-03	US 2007-T20P	-	LK T20P
DC19	DCS 19	DCS 236-01	US 2007-T20P	-	LK T20P

OPTIONAL SPARE PARTS

Insert	Complete clamp set	Shim
		
CN.. 1207..	-	DDS 234-02
CN.. 1607..	-	DDS 234-04
Ceramic insert without hole CN.. 12....	DCS 12C4	-
Ceramic insert with hole CN.. 12....	DCS 12C2	-
Ceramic insert without hole CN.. 16....	DCS 16C4	-
Ceramic insert with hole CN.. 16....	DCS 16C2	-

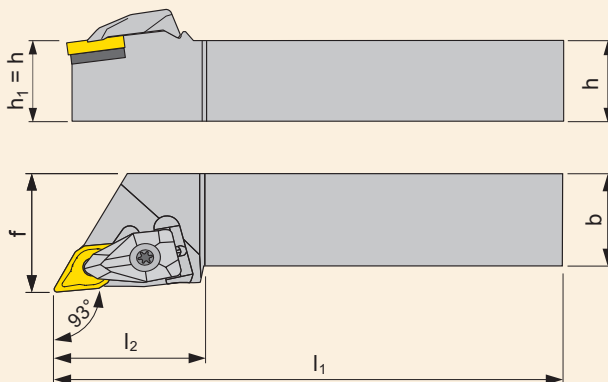
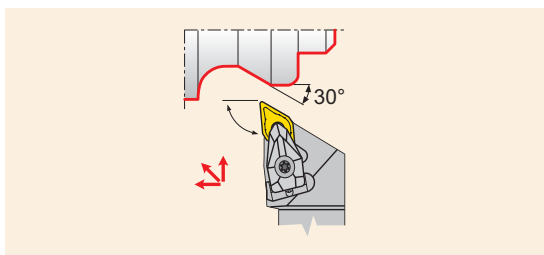
DDJNR/L

EXTERNAL TURNING - ISO D

MILLING TOOLS



MILLING INSERTS



γ_s° - tool orthogonal rake
 λ_s° - tool cutting edge inclination

TURNING TOOLS

TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_s°					
DDJNR/L 2020 K 11	■ / ■	20	20	25	125	30,2			-7	-6	0,40	DD11	DN.. 1104..
DDJNR/L 2020 K 15	■ / ■	20	20	25	125	39,4			-7	-6	0,40	DD1504	DN.. 1506..
DDJNR/L 2525 M 11	■ / ■	25	25	32	150	30,2			-7	-6	0,80	DD11	DN.. 1104..
DDJNR/L 2525 M 15	■ / ■	25	25	32	150	39,4			-7	-6	0,80	DD1504	DN.. 1506..
DDJNR/L 3225 P 15	■ / ■	32	25	32	170	39,4			-7	-6	1,10	DD1504	DN.. 1506..
DDJNR/L 3232 P 15	■ / ■	32	32	40	170	39,4			-7	-6	1,40	DD1504	DN.. 1506..

TURNING INSERTS

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DD11	DCS 09	DDS 267-01	US 2004-T09P	FLAG T09P	-
DD1504	DCS 12	DDS 266-02	US 2002-T15P	FLAG T15P/3,5	-

TECHNICAL SECTION

OPTIONAL SPARE PARTS

Insert	Complete clamp set	Shim
DN.. 1504..		DDS 266-01
Ceramic insert without hole DN.. 15....	DCS 12C4	
Ceramic insert with hole DN.. 15....	DCS 12C2	

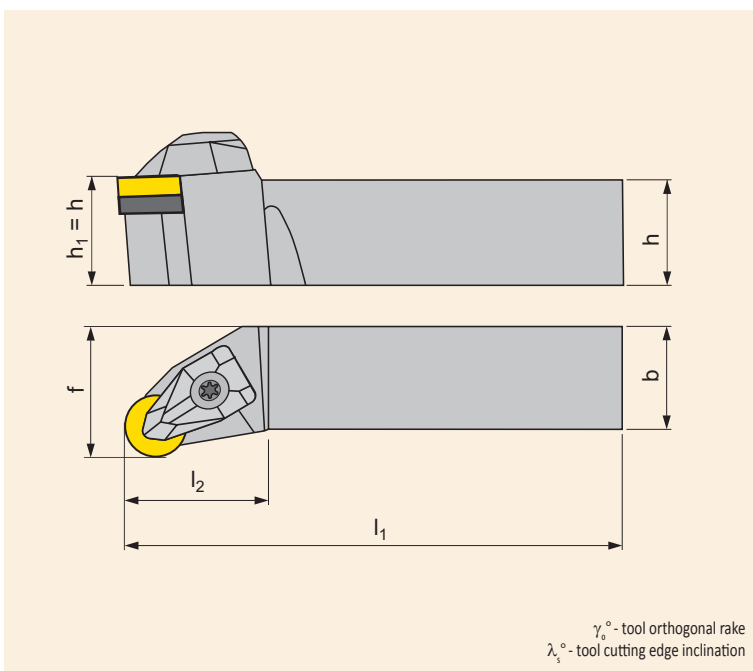
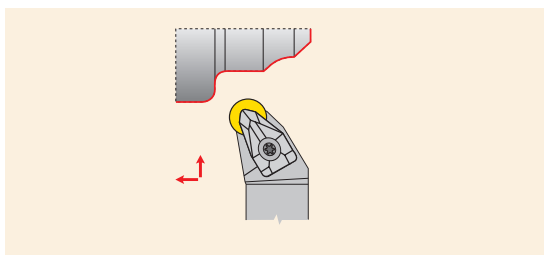
■ Available from 1.7. 2016

● New item in the assortment

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

DRSNR/L

EXTERNAL TURNING - ISO D



TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_o°					
DRSNR/L 2525 M 12	■ / ■	25	25	32	150	31,6			-6	-6	0,80	DR12	RN.. 1204..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DR12	DCS 12	DRS 155-02	US 2002-T15P	FLAG T15P/3,5	-

■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

MILLING TOOLS

MILLING INSERTS

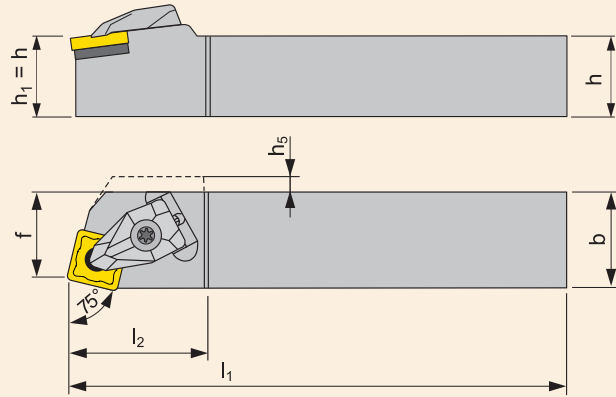
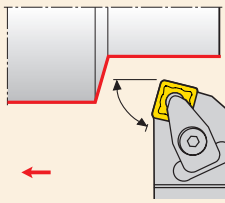
TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

DSBNR/L

EXTERNAL TURNING - ISO D



γ_s° - tool orthogonal rake
 λ_s° - tool cutting edge inclination

TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert		
		$h=h_1$	b	f	l_1	l_2	h_5	λ_s°	γ_s°					
DSBNR/L 2020 K 12	■ / ■	20	20	17	125	34,2	2,5			-6	-6	0,50	DS12	SN.. 1204..
DSBNR/L 2525 M 12	■ / ■	25	25	22	150	34,3	-			-6	-6	0,80	DS12	SN.. 1204..
DSBNR/L 2525 M 15	■ / ■	25	25	22	150	41,6	2,0			-6	-6	0,80	DS15	SN.. 1506..
DSBNR/L 3225 P 15	■ / ■	32	25	22	170	41,7	2,0			-6	-6	1,10	DS15	SN.. 1506..
DSBNR/L 3232 P 19	■ / ■	32	32	27	170	46,4	-			-6	-6	1,40	DS19	SN.. 1906..
DSBNR/L 4040 S 19	■ / ■	40	40	35	250	46,5	-			-6	-6	3,10	DS19	SN.. 1906..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DS12	DCS 12	DSS 425-01	US 2002-T15P	FLAG T15P/3,5	-
DS15	DCS 16	DSS 425-03	US 2007-T20P	-	LK T20P
DS19	DCS 19	DSS 425-04	US 2007-T20P	-	LK T20P

OPTIONAL SPARE PARTS

Insert	Complete clamp set	Shim	Insert	Complete clamp set	Shim
SN.. 1207..	-	DSS 425-02	Ceramic insert without hole SN.. 12....	DCS 12C4	-
SN.. 1507..	-	DSS 425-05	Ceramic insert with hole SN.. 12....	DCS 12C2	-
			Ceramic insert without hole SN.. 16....	DCS 16C4	-
			Ceramic insert with hole SN.. 16....	DCS 16C2	-

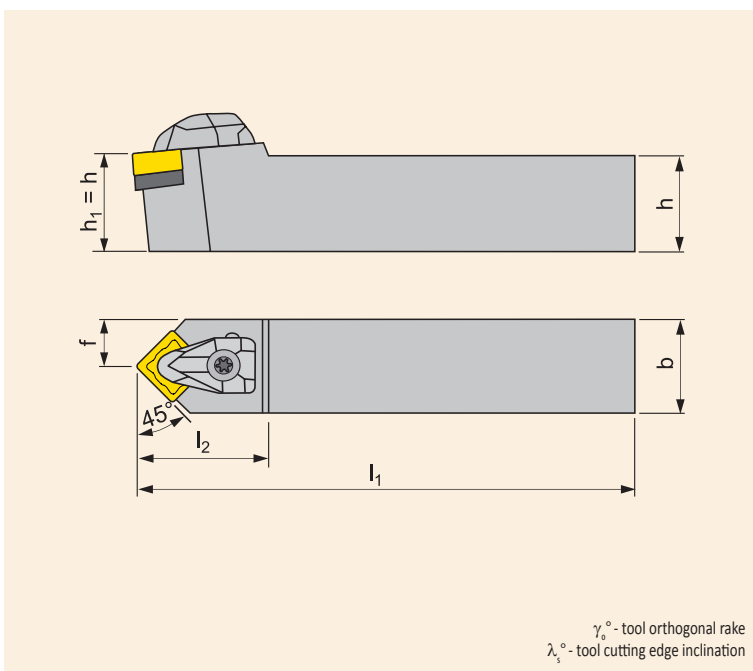
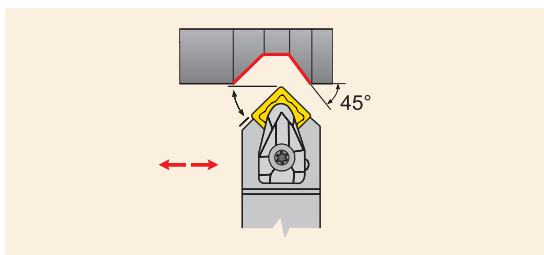
■ Available from 1.7. 2016

● New item in the assortment

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

DSDNN

EXTERNAL TURNING - ISO D



TOOLS FOR EXTERNAL TURNING

ISO	Sortiment	Dimensions								SP	Insert
		f	l_1	l_2			λ_s°	γ_s°			
DSDNN 2525 M 12	■	12,8	150	36,5			-6	-6	0,7	DS12	SN.. 1204..
DSDNN 2525 M 15	■	12,8	150	44,8			-6	-6	0,7	DS12	SN.. 1506..
DSDNN 3232 P 19	■	16,5	170	49,5			-6	-6	1,3	DS15	SN.. 1906..
DSDNN 4040 S 25	■	21,0	250	57,2			-6	-6	2,9	DS19	SN.. 2507..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DS12	DCS 12	DSS 425-01	US 2002-T15P	FLAG T15P/3,5	-
DS15	DCS 16	DSS 425-03	US 2007-T20P	-	LK T20P
DS19	DCS 19	DSS 425-04	US 2007-T20P	-	LK T20P
DS25	DCS 25	DSS 425-07	US 2008-T25P	-	LK T25P

OPTIONAL SPARE PARTS

Insert	Complete clamp set	Shim	Insert	Complete clamp set	Shim
SN.. 1207..	-	DSS 425-02	Ceramic insert without hole SN.. 12....	DCS 12C4	-
SN.. 1507..	-	DSS 425-05	Ceramic insert with hole SN.. 12....	DCS 12C2	-
			Ceramic insert without hole SN.. 15....	DCS 16C4	-
			Ceramic insert with hole SN.. 15....	DCS 16C2	-

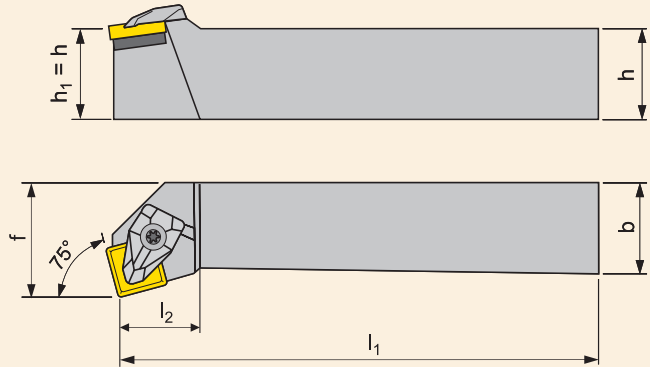
■ Available from 1.7. 2016

● New item in the assortment

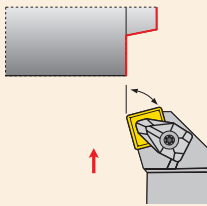
● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

DSKNR/L

EXTERNAL TURNING - ISO D



γ_o° - tool orthogonal rake
 λ_s° - tool cutting edge inclination



TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_o°					
DSKNR/L 2525 M 12	■ / ■	25	25	32	23,6	150			-6	-6	0,80	DS12	SN.. 1204..
DSKNR/L 3232 P 19	■ / ■	32	32	40	32,1	170			-6	-6	1,50	DS19	SN.. 1906..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DS12	DCS 12	DSS 425-01	US 2002-T15P	FLAG T15P/3,5	-
DS19	DCS 19	DSS 425-04	US 2007-T20P	-	LK T20P

OPTIONAL SPARE PARTS

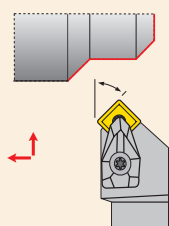
Insert	Complete clamp set	Shim
SN.. 1207..		DSS 425-02
Ceramic insert without hole SN.. 12....	DCS 12C4	
Ceramic insert with hole SN.. 12....	DCS 12C2	

■ Available from 1.7. 2016

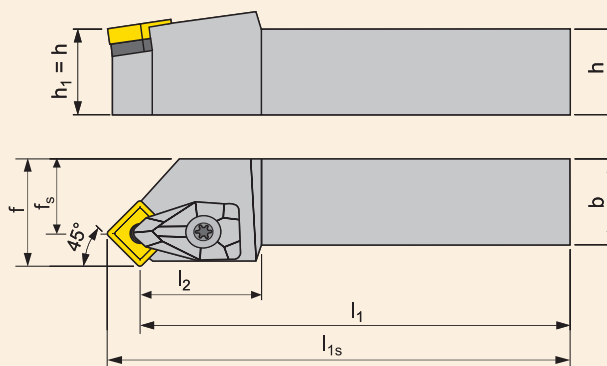
● New item in the assortment

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

DSSNR/L



EXTERNAL TURNING - ISO D



γ_o° - tool orthogonal rake
 λ_s° - tool cutting edge inclination









TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions									kg	SP	Insert
		$h=h_1$	b	f	f_s	l_1	l_{1s}	l_2	λ_s°	γ_o°			
DSSNR/L 2020 K 12	■ / ■	20	20	25	16,7	125	133,3	27,5	0	-8	0,50	DS12	SN.. 1204..
DSSNR/L 2525 M 12	■ / ■	25	25	32	23,7	150	158,3	27,5	0	-8	0,80	DS12	SN.. 1204..
DSSNR/L 2525 M 15	■ / ■	25	25	32	21,8	150	160,2	32,0	0	-8	0,80	DS15	SN.. 1506..
DSSNR/L 3225 P 15	■ / ■	32	25	32	21,8	170	180,2	34,9	0	-8	1,20	DS15	SN.. 1506..
DSSNR/L 3232 P 19	■ / ■	32	32	40	27,5	170	182,5	37,0	0	-8	1,50	DS19	SN.. 1906..
DSSNR/L 4040 S 19	■ / ■	40	40	50	37,5	250	262,5	37,7	0	-8	3,20	DS19	SN.. 1906..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DS12	 DCS 12	 DSS 425-01	 US 2002-T15P	 FLAG T15P/3,5	-
DS15	 DCS 16	 DSS 425-03	 US 2007-T20P	-	LK T20P
DS19	 DCS 19	 DSS 425-04	 US 2007-T20P	-	LK T20P

OPTIONAL SPARE PARTS

Insert	Complete clamp set	Shim	Insert	Complete clamp set	Shim
SN.. 1207..	 -	 DSS 425-02	Ceramic insert without hole SN.. 12....	 DCS 12C4	-
SN.. 1507..	 -	 DSS 425-05	Ceramic insert with hole SN.. 12....	 DCS 12C2	-
			Ceramic insert without hole SN.. 16....	 DCS 16C4	-
			Ceramic insert with hole SN.. 16....	 DCS 16C2	-

■ Available from 1.7. 2016

● New item in the assortment

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

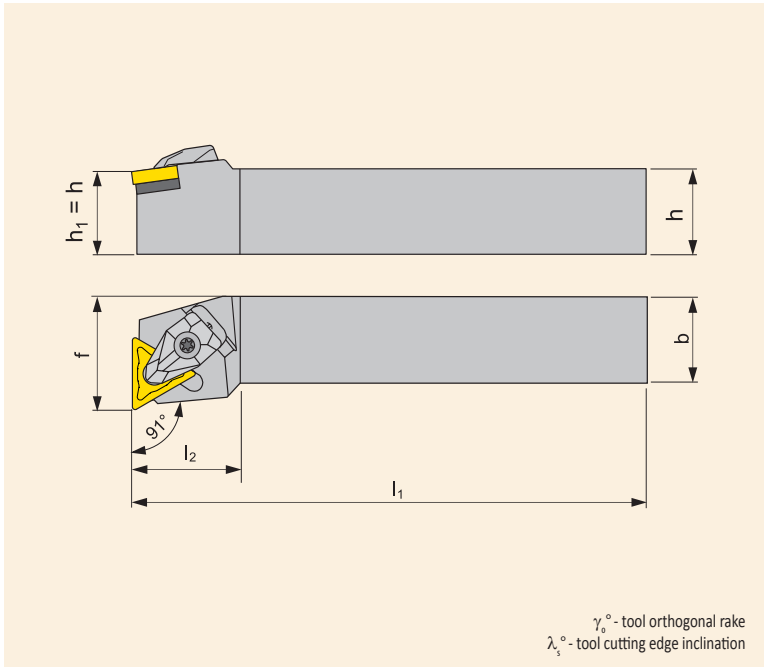
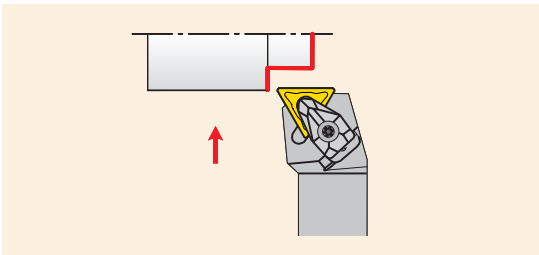
DTFNR/L

EXTERNAL TURNING - ISO D

MILLING TOOLS



MILLING INSERTS



TURNING TOOLS

TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_s°					
DTFNR/L 2020 K 16	■ / ■	20	20	25	125	23,6			-6	-6	0,40	DT16	TN.. 1604..
DTFNR/L 2525 M 16	■ / ■	25	25	32	150	23,6			-6	-6	0,80	DT16	TN.. 1604..
DTFNR/L 2525 M 22	■ / ■	25	25	32	150	30,5			-6	-6	0,80	DT22	TN.. 2204..

TURNING INSERTS

SPARE PARTS

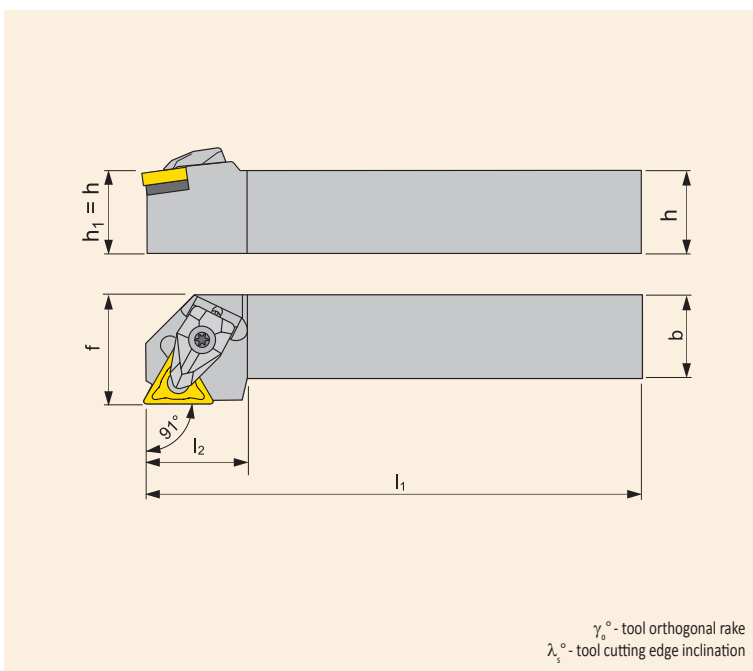
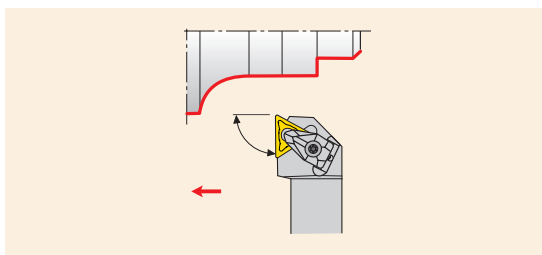
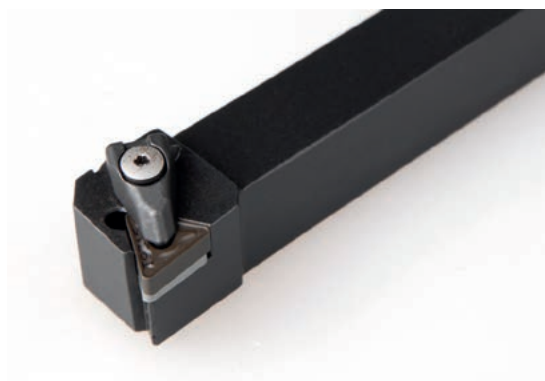
Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DT16	DCS 09	DTS 315-02	US 2004-T09P	FLAG T09P	-
DT22	DCS 12	DTS 315-04	US 2002-T15P	FLAG T15P/3,5	-

TECHNICAL SECTION

■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

DTGNR/L

EXTERNAL TURNING - ISO D



TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_o°					
DTGNR/L 2020 K 16	■ / ■	20	20	25	125	25,4			-6	-6	0,50	DT16	TN.. 1604..
DTGNR/L 2525 M 16	■ / ■	25	25	32	150	24,6			-6	-6	0,80	DT16	TN.. 1604..
DTGNR/L 2525 M 22	■ / ■	25	25	32	150	32,1			-6	-6	0,80	DT22	TN.. 2204..
DTGNR/L 3232 P 22	■ / ■	32	32	40	170	33,1			-6	-6	1,40	DT22	TN.. 2204..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DT16	DCS 09	DTS 315-02	US 2004-T09P	FLAG T09P	-
DT22	DCS 12	DTS 315-04	US 2002-T15P	FLAG T15P/3,5	-

■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

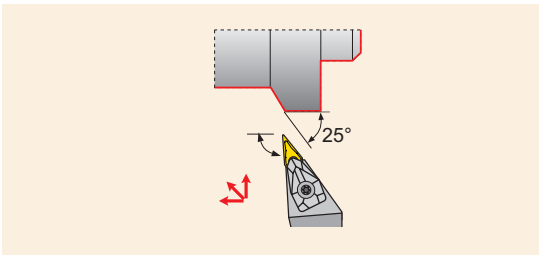
DVJNR/L

EXTERNAL TURNING - ISO D

MILLING TOOLS



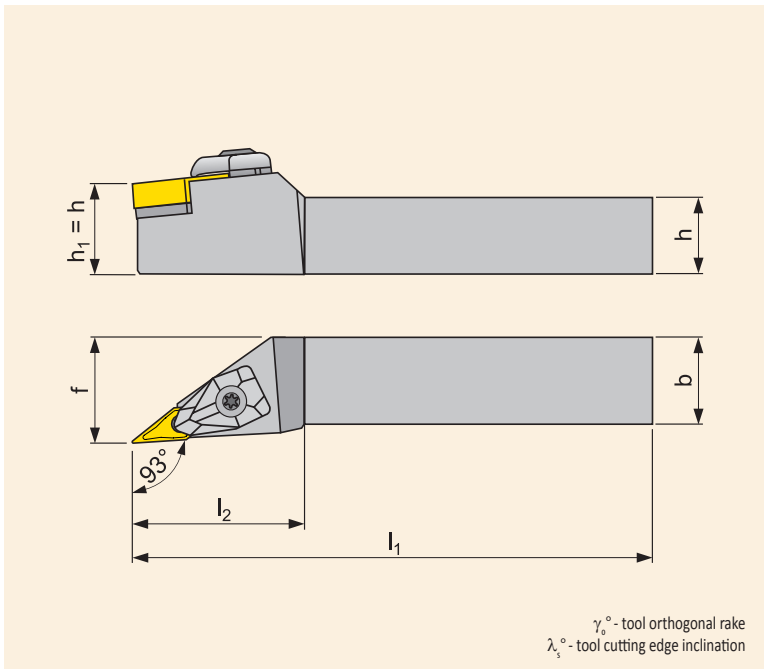
MILLING INSERTS



TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION



TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions							λ_s°	γ_o°	kg	SP	Insert
		$h=h_1$	b	f	l_1	l_2							
DVJNR/L 2020 K 16	■ / ■	20	20	25	125	46,6			-13	-4	0,40	DV16	VN.. 1604..
DVJNR/L 2525 M 16	■ / ■	25	25	32	150	46,6			-13	-4	0,70	DV16	VN.. 1604..
DVJNR/L 3225 P 16	■ / ■	32	25	32	170	46,6			-13	-4	1,00	DV16	VN.. 1604..

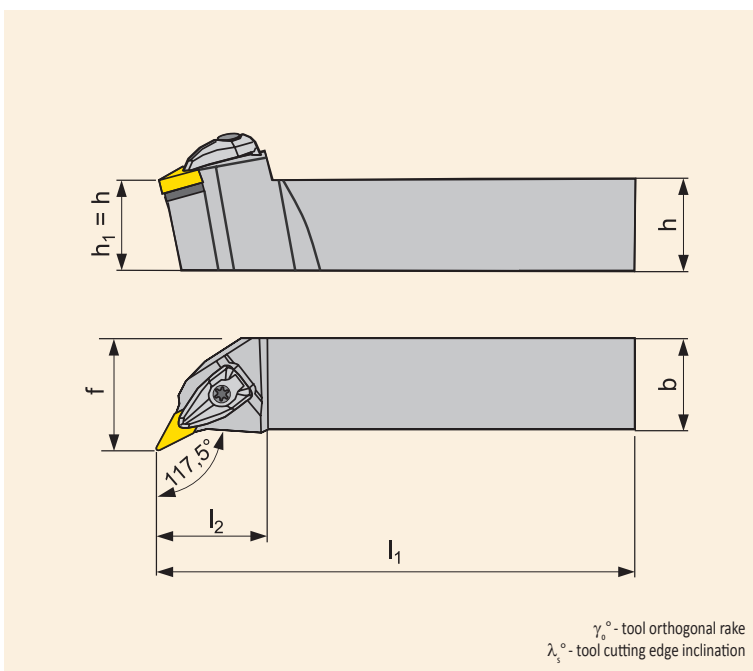
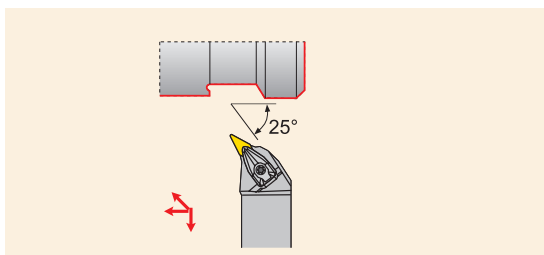
SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DV16	DCS 16V	DVS 269-01	US 2009-T15P	FLAG T15P/3,5	-

■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

DVPCR/L

EXTERNAL TURNING - ISO D



TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_o°					
DVPCR/L 2525 M 16	■ / ■	25	25	32	150	39,2			-13	-4	0,80	DV16	VN.. 1604..
DVPCR/L 3225 P 16	■ / ■	32	25	32	170	39,2			-13	-4	1,10	DV16	VN.. 1604..

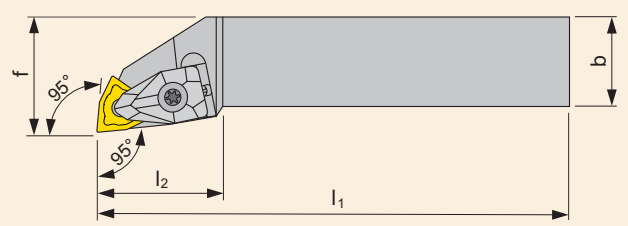
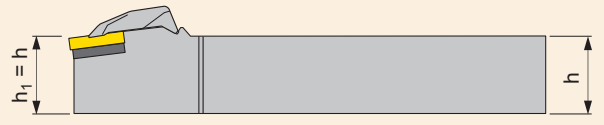
SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DV16	DCS 16V	DVS 269-01	US 2009-T15P	FLAG T15P/3,5	-

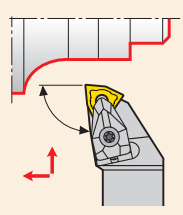
■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

DWLNR/L

EXTERNAL TURNING - ISO D



γ_o° - tool orthogonal rake
 λ_s° - tool cutting edge inclination




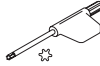
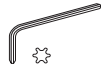


TOOLS FOR EXTERNAL TURNING


ISO	R/L	Dimensions								kg	SP	Insert	
		h=h ₁	b	f	l ₁	l ₂	λ_s°	γ_o°					
DWLNR/L 1616 H 06	■ / ■	16	16	20	100	26,4			-6	-6	0,30	DW06	WN.. 0604..
DWLNR/L 2020 K 06	■ / ■	20	20	25	125	27,1			-6	-6	0,40	DW06	WN.. 0604..
DWLNR/L 2020 K 08	■ / ■	20	20	25	125	34,3			-6	-6	0,40	DW08	WN.. 0804..
DWLNR/L 2525 M 06	■ / ■	25	25	32	150	27,1			-6	-6	0,80	DW06	WN.. 0604..
DWLNR/L 2525 M 08	■ / ■	25	25	32	150	35,0			-6	-6	0,80	DW08	WN.. 0804..
DWLNR/L 3225 P 08	■ / ■	32	25	32	170	35,0			-6	-6	1,10	DW08	WN.. 0804..
DWLNR/L 3225 P 10	■ / ■	32	25	32	170	36,0			-6	-6	1,10	DW10	WN.. 1006..
DWLNR/L 3232 P 13	■ / ■	32	32	40	170	40,0			-6	-6	1,40	DW13	WN.. 1306..
DWLNR/L 4040 S 13	■ / ■	40	40	50	250	40,0			-6	-6	3,10	DW13	WN.. 1306..

■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
					
DW06	DCS 09	DWS 328-01	US 2004-T09P	FLAG T09P	-
DW08	DCS 12	DWS 331-12	US 2002-T15P	FLAG T15P/3,5	-
DW10	DCS 16	DWN 100612	US 5018-T20P		LK T20P
DW13	DCS 19	DWN 130612	US 6013-T20P		LK T20P

OPTIONAL SPARE PARTS

Insert	Complete clamp set			
				
Ceramic insert without hole WN.. 08....	DCS 12C4			
Ceramic insert with hole WN.. 08....	DCS 12C4			

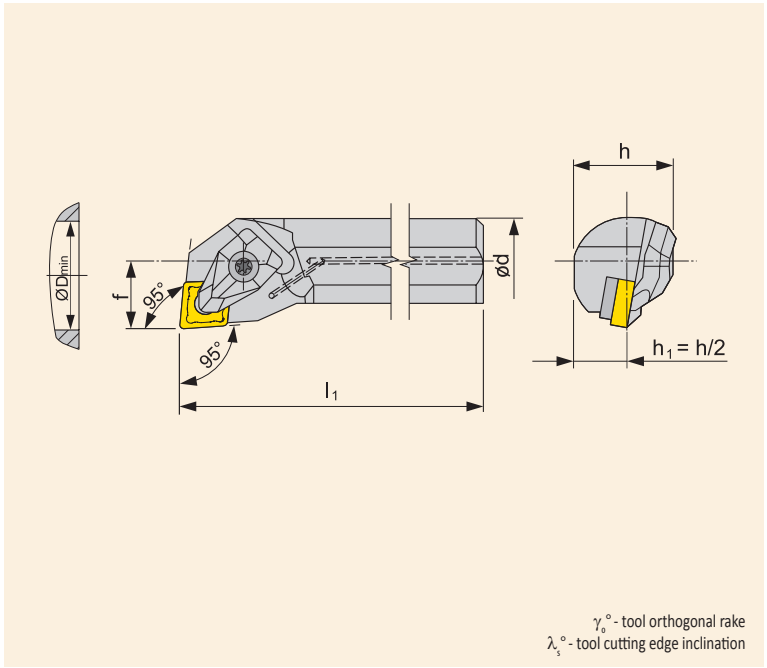
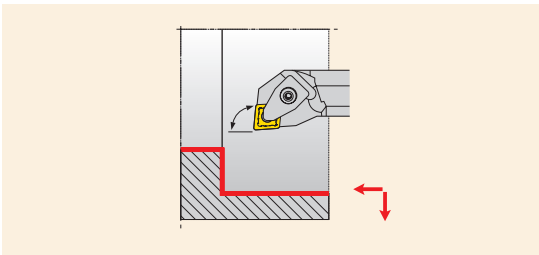
DCLNR/L

INTERNAL TURNING - ISO D

MILLING TOOLS



MILLING INSERTS



TURNING TOOLS

TOOLS FOR INTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_s°				
A25T-DCLNR/L 09	■ / ■	25	32	17	23	300	31			1,10	DC09	CN.. 0904..
A25T-DCLNR/L 12	■ / ■	25	32	17	23	300	31			1,10	DC12	CN.. 1204..
A32T-DCLNR/L 12	■ / ■	32	40	22	30	300	30			1,80	DC12	CN.. 1204..
A40T-DCLNR/L 12	■ / ■	40	50	27	37	300	32			2,60	DC12	CN.. 1204..

TURNING INSERTS

SPARE PARTS

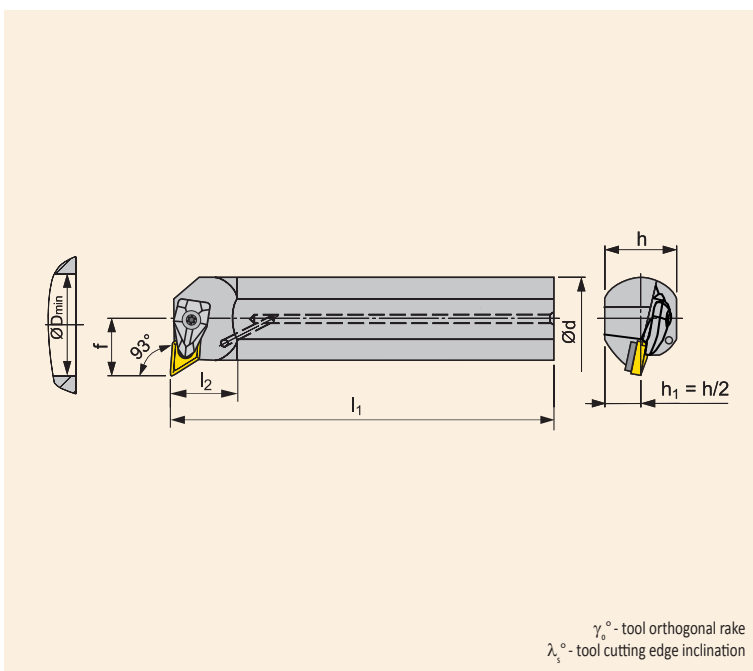
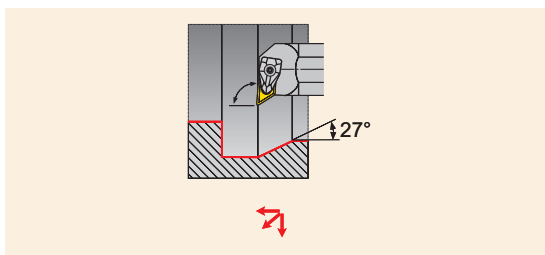
Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DC09	DCS 09	DCS 236-04	US 2004-T09P	FLAG T09P	-
DC12	DCS 12	DCS 236-03	US 2002-T15P	FLAG T15P/3,5	-
DC12	DCS 12	DCS 234-01	US 2002-T15P	FLAG T15P/3,5	

TECHNICAL SECTION

■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

DDUNR/L

INTERNAL TURNING - ISO D



TOOLS FOR INTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert		
		d	D _{min}	f	h	l ₁	l ₂	λ_s°	γ_o°					
A25T-DDUNR/L 11	■ / ■	25	32	17	23	300	28			-12	-6	1,20	DD11	DN.. 1104..
A32T-DDUNR/L 11	■ / ■	32	40	22	30	300	30			-10	-6	1,80	DD11	DN.. 1104..
A40T-DDUNR/L 15	■ / ■	40	50	27	37	300	36			-11	-6	2,90	DD1504	DN.. 1506..
A50U-DDUNR/L 15	■ / ■	50	63	35	47	350	39			-8	-6	5,20	DD1504	DN.. 1506..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DD11	DCS 09	DDS 267-01	US 2004-T09P	FLAG T09P	-
DD1504	DCS 12	DDS 266-02	US 2002-T15P	FLAG T15P/3,5	-

OPTIONAL SPARE PARTS

Insert	Shim
DN.. 1504..	DDS 266-01

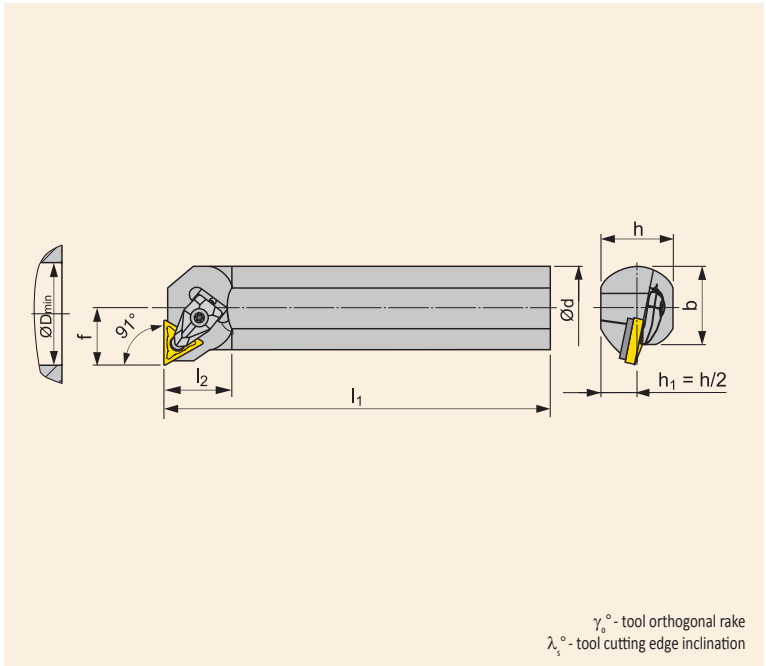
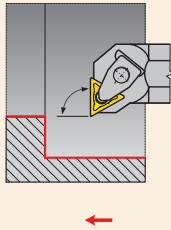
■ Available from 1.7. 2016

● New item in the assortment

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

DTFNR/L

INTERNAL TURNING - ISO D



TOOLS FOR INTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		d	D _{min}	f	h	l ₁	l ₂	λ _s °	γ _o °				
A25T-DTFNR/L 16	■ / ■	25	32	17	23	300	32		-12	-6	1,10	DT16	TN.. 1604..
A32T-DTFNR/L 16	■ / ■	32	40	22	30	300	33		-10	-6	1,80	DT16	TN.. 1604..
A40T-DTFNR/L 22	■ / ■	40	50	27	37	300	36		-13	-6	2,60	DT22	TN.. 2204..

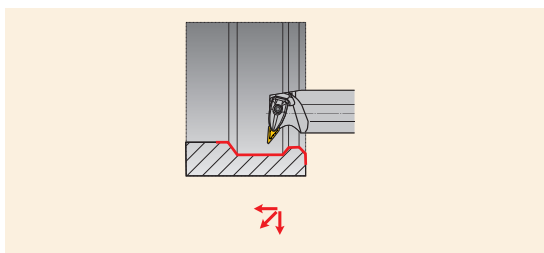
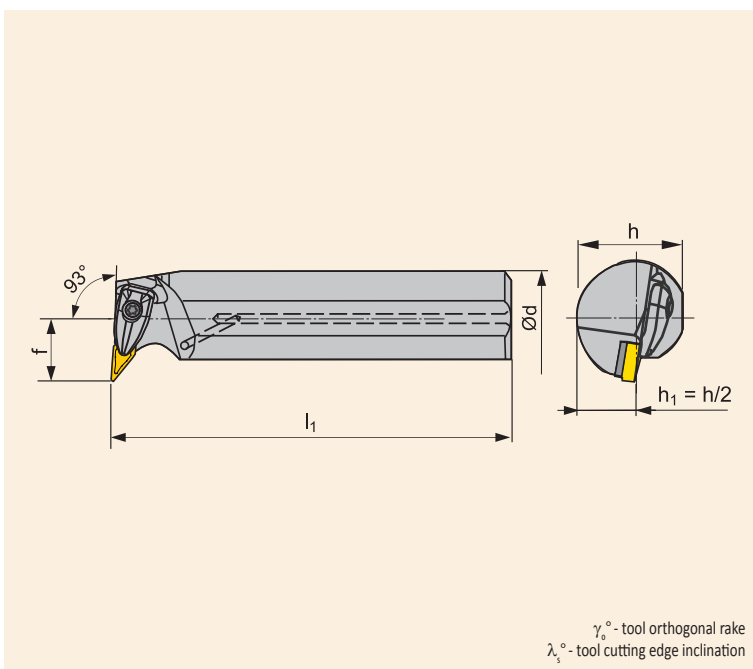
SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DT16	DCS 09	DTS 316-01	US 2004-T09P	FLAG T09P	-
DT22	DCS 12	DTS 315-04	US 2002-T15P	FLAG T15P/3,5	-

■ Available from 1.7. 2016
 ● New item in the assortment
 ● Stock assortment ○ Non-stock assortment
 All dimensions [mm] See latest price list for current stock information

DVUNR/L

INTERNAL TURNING - ISO D



TOOLS FOR INTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert		
		d	D _{min}	f	h	l ₁	l ₂	λ_s°	γ_o°					
A40T-DVUNR/L 16	■ / ■	40	50	27	37	300	36			-9	-6	2,60	DV16	VN.. 1604..

SPARE PARTS

Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DV16	 DCS 16V	 DVS 269-01	 US 2009-T15P	 FLAG T15P/3,5	 -

■ Available from 1.7. 2016
 ● New item in the assortment
 ● Stock assortment ○ Non-stock assortment
 All dimensions [mm]
 See latest price list for current stock information

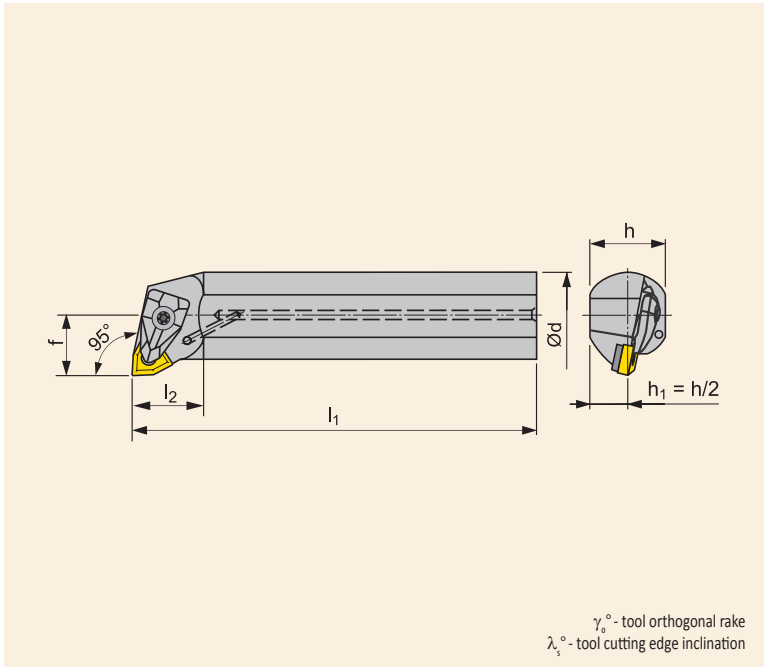
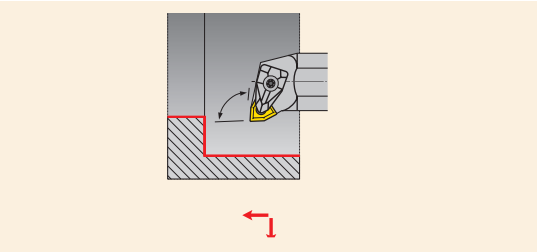
DWLNR/L

INTERNAL TURNING - ISO D

MILLING TOOLS



MILLING INSERTS



TURNING TOOLS

TOOLS FOR INTERNAL TURNING

ISO	R/L	Dimensions								λ_s°	γ_o°	kg	SP	Insert
		d	D _{min}	f	h	l ₁	l ₂							
A25T-DWLNR/L 06	■ / ■	25	32	17	23	300	31			-14	-6	1,10	DW06	WN.. 0604..
A25T-DWLNR/L 08	■ / ■	25	33	17	23	300	31			-12	-6	1,10	DWI08	WN.. 0804..
A32T-DWLNR/L 08	■ / ■	32	40	22	30	300	33			-10	-6	1,80	DWI08	WN.. 0804..
A40T-DWLNR/L 08	■ / ■	40	50	27	37	300	36			-13	-6	2,60	DW08	WN.. 0804..
A50U-DWLNR/L 08	■ / ■	50	63	35	47	350	39			-11	-6	5,20	DW08	WN.. 0804..

TURNING INSERTS

SPARE PARTS

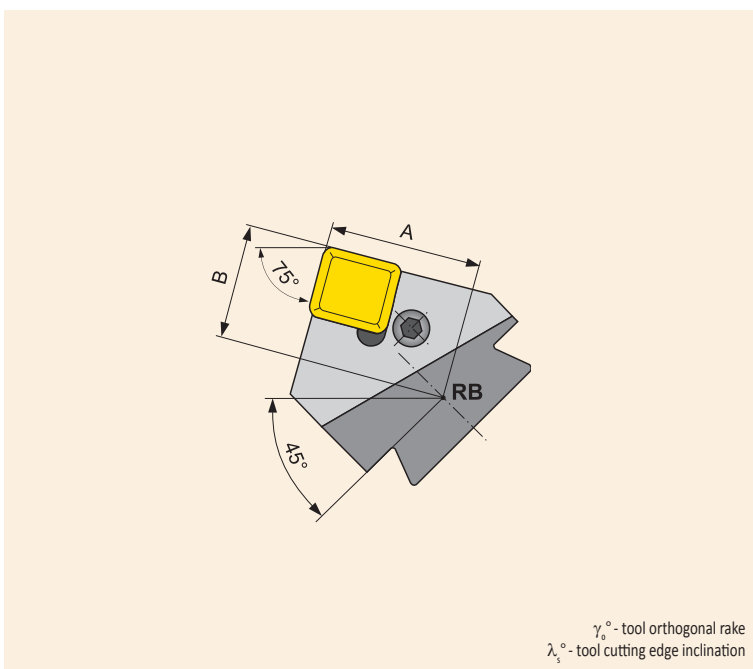
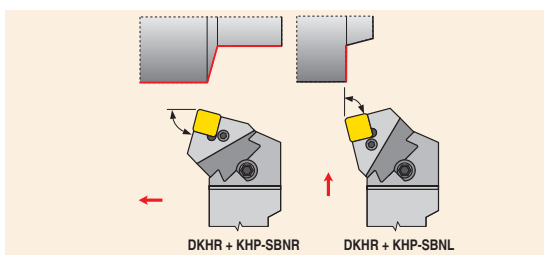
Type	Complete clamp set	Shim	Screw	Screwdriver	Key
DW06	DCS 09	DWS 328-01	US 2004-T09P	FLAG T09P	-
DWI08	DCS 12	DWS 328-02	US 2002-T15P	FLAG T15P/3,5	-
DW08	DCS 12	DWS 331-12	US 2002-T15P	FLAG T15P/3,5	-

TECHNICAL SECTION

■ Available from 1.7. 2016 ● New item in the assortment ● Stock assortment ○ Non-stock assortment All dimensions [mm]
 See latest price list for current stock information

KHP-SBNR/L

EXTERNAL TURNING - HEADS



TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions						kg	SP	Insert		
		A	B								λ_s°	γ_0°
KHP-SBNR/L 19	○/○	47	36					-6	-6	1,40	PS50	SNM. 1906..
KHP-SBNR/L 25	○/○	47	36					-6	-6	1,30	PS60	SNM. 2507..
KHP-SBNR/L 2509	●/●	47	36					-6	-6	1,30	PS70	SNM. 2509..
KHP-SBNR/L 2512-A	●/●	47	36					-6	-6	1,30	PS72	SNM. 2512..

SPARE PARTS

Type	Shim	Clamping lever	Screw	Tubular rivet	Mount. taper plug	Key
PS50	SNU 190416	PU 05	US 38 (M10x29,0)	NT 06	MT 06	HXK 5
PS60	SNU 250624	PU 06	US 39 (M10x33,0)	NT 08	MT 08	HXK 5
PS70	SNU 250624	PU 06	US 47 (M12x36,0)	NT 08	MT 08	HXK 5
PS72	SNU 250624	PU 10-N	PS 12040 (M12x40,0)	NT 08	MT 08	HXK 5

● New item in the assortment

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

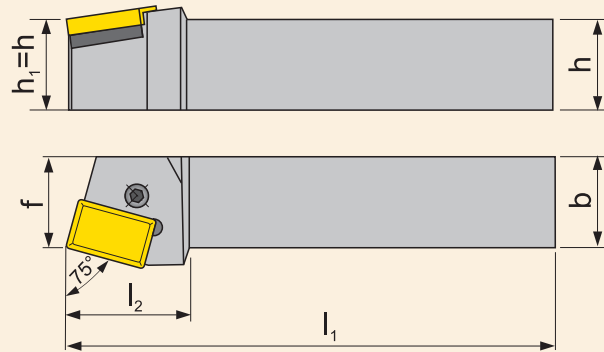
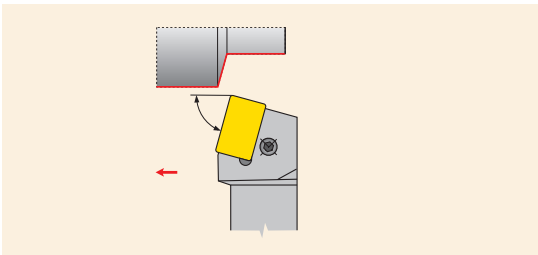
PLBNR/L

EXTERNAL TURNING - ISO P

MILLING TOOLS



MILLING INSERTS



γ_o° - tool orthogonal rake
 λ_s° - tool cutting edge inclination

TURNING TOOLS

TOOLS FOR EXTERNAL TURNING

ISO	R/L	Dimensions								kg	SP	Insert	
		$h=h_1$	b	f	l_1	l_2	λ_s°	γ_o°					
PLBNR/L 6060 V 40-A	●/●	60	60	60	400	64			-6	-6	11,30	PL71	LNUX 40....
PLBNR/L 6060 V 50	●/○	60	60	60	400	70			-6	-6	11,30	PL72	LNUX 50....
PLBNR/L 6060 V 50-2	○/○	60	60	60	400	70			-6	-6	11,30	PL73	LNMX 50....

TURNING INSERTS

SPARE PARTS

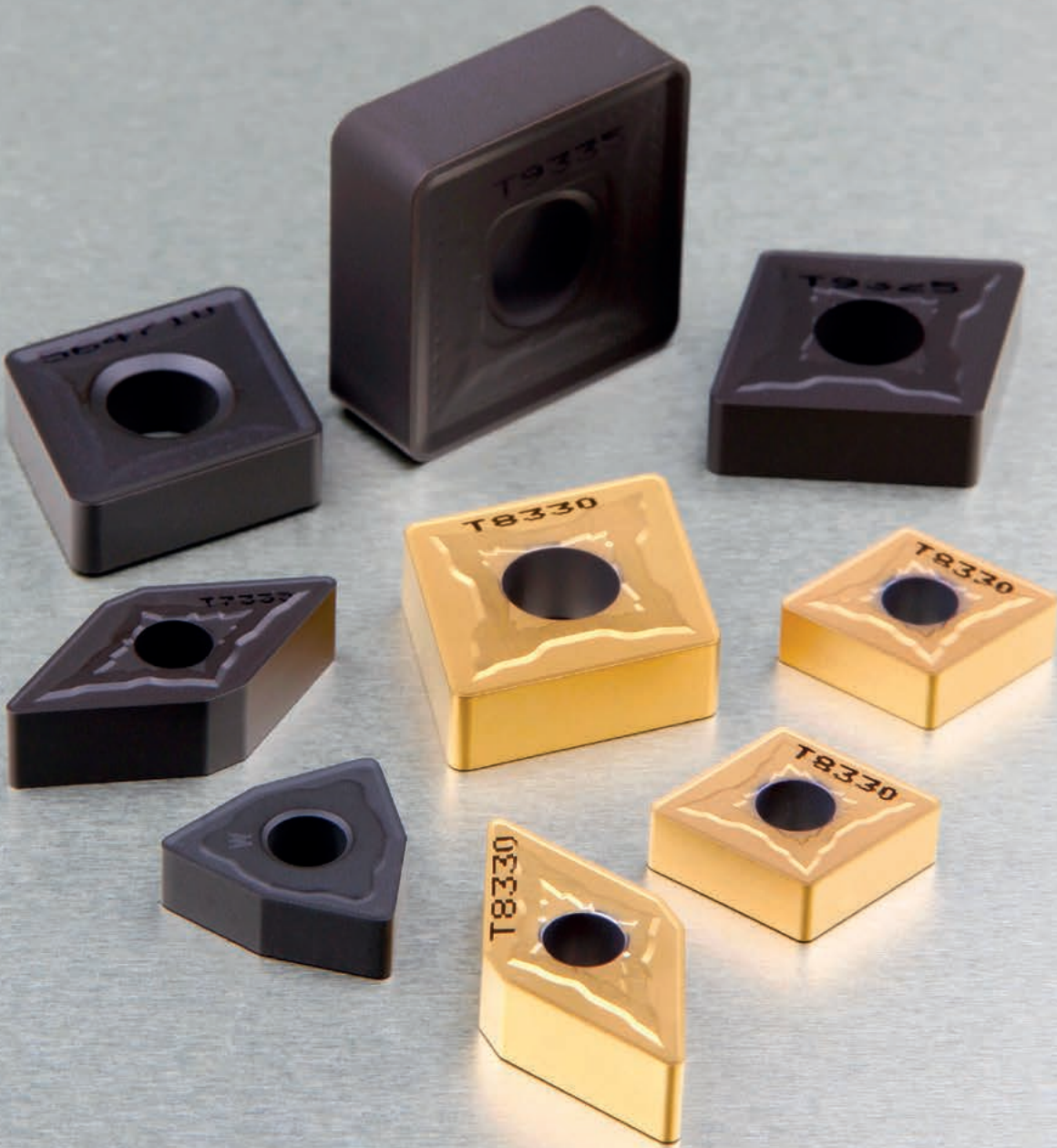
Type	Shim	Clamping lever	Screw	Tubular rivet	Mount. taper plug	Key	Clamping pin	Screwdriver
PL71	LNx 400632	PU 06	PS 12040 (M12x40,0)	NT 08	MT 08	HXK 5	-	-
PL72	LNx 500632	PU 06	PS 12040 (M12x40,0)	NT 08	MT 08	HXK 5	-	-
PL73	LNx 500432P	-	-	-	-	-	UP 1515A-T15P	SDR T15P

TECHNICAL SECTION

● New item in the assortment

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

TURNING INSERTS



NEW INSERTS FOR TURNING STAINLESS STEELS

Our range of chip breakers for turning stainless steels has been extended with the addition of a reliable NMR chip breaker, designed for medium and roughing operations.

NEW PRODUCT

- New NMR chip breaker for stainless steels.
- Suitable for medium and high feeds
- Comprehensive offer of double-sided chip breakers for turning stainless steels



NMR

NMR CHIP BREAKER

Positive geometry with a protective land

- Medium to roughing operations
- For stainless steels
- Suitable for longitudinal and face turning with high stock removal

BENEFITS

- High **productivity**, due to higher metal removal rates
- Predictable insert behaviour
- Increased **reliability** thanks to advanced cutting edge strength with protective peripheral land
- Ideal for heavy and less stable conditions

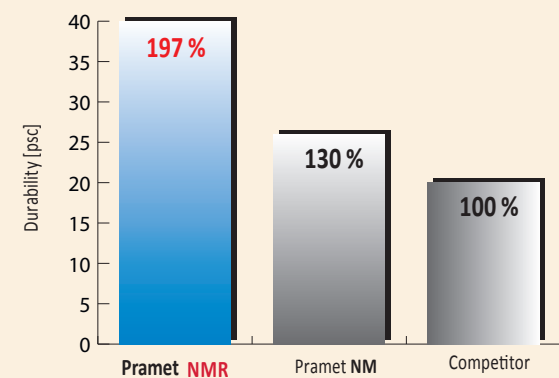
MACHINING EXAMPLE

Material: DIN 1.4301, AISI 304 (M3group)

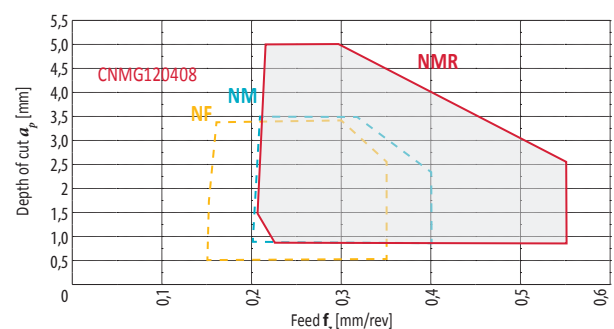
Insert: WNMG 080408E-NMR:T7335

Coolant: Yes

Cutting speed	v_c	130	m per min
Feed	f	0,35	[mm/rev]
Axial depth of cut	a_p	2,5	mm



New geometry expands the line of chip breakers for turning stainless steels:



Which chip breaker should be used for turning stainless steels?

- Medium to roughing operations, heavier and less stable conditions: **NMR**
- Medium turning: **NM**
- Finishing to medium turning: **NF**

NEW WIPER INSERTS FOR TURNING STAINLESS STEELS

Inserts with new wiper geometry to achieve lower roughness in turning applications. Compared with standard inserts, they promote increased productivity by using higher feeds while retaining the same roughness.

NEW PRODUCTS

- Two new chip breakers for stainless steels
- Improved wiper edge geometry
- For single-sided and double-sided inserts

BENEFITS

- **Productivity** – higher feeds due to the new wiper edge
- **Low roughness**, high-quality machined surface
- **High durability** as a result of the combination with UP!GRADE material



W-FM

W-FM CHIP BREAKER

Single-sided insert

Positive geometry with a positive front land

- Mainly for machining stainless steel, also suitable for steels



W-NM

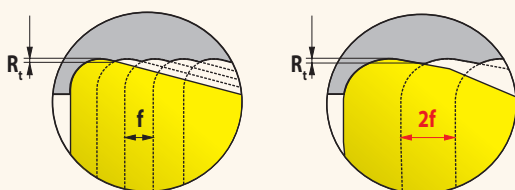
W-NM CHIP BREAKER

Double-sided insert

Highly positive geometry with a positive front land

- For machining stainless steel and low carbon steels

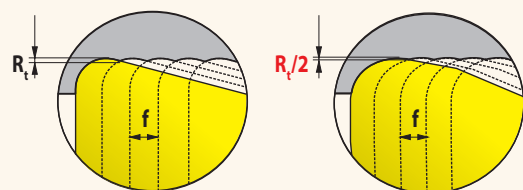
Double productivity = same roughness



Standard insert

New W-FM, W-MN geometry

Same productivity = half value of roughness



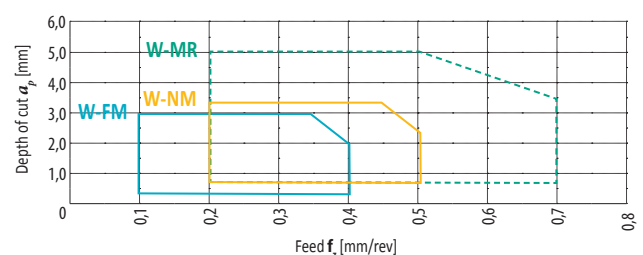
Standard insert

New W-FM, W-MN geometry



- The smoothing effect of the wiper appears in straight turning or facing operations resulting in lower values of surface roughness.
- If used properly, it can **prevent** the need for additional **grinding** operations
- High surface quality is achieved by using **coolant** (at high-pressure for best results).

New geometry expands the line of chip breakers for high productivity turning of stainless steels:



A NEW CHIP BREAKER FOR HEAVY ROUGHING WITH HIGH FEEDS

New HR2 geometry expands the range of negative single-sided inserts. This chip breaker is mainly designed for heavy roughing with high feeds. The solid and positive geometry improves the insert's durability and chip formation.

NEW PRODUCT

- HR2 geometry for heavy roughing with high feeds
- Positive, stable geometry

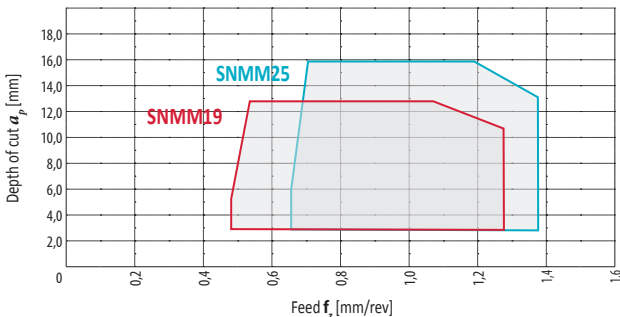

HR2

HR2 CHIP BREAKER

Positive, stable geometry with wide land

- Ideal for machining steels and cast irons
- Also suitable for machining stainless steels
- Designed for rough forgings and castings, e.g. cylinders, shafts, large pins

When using a smaller insert, the application area is shifted to lower depths and feeds.



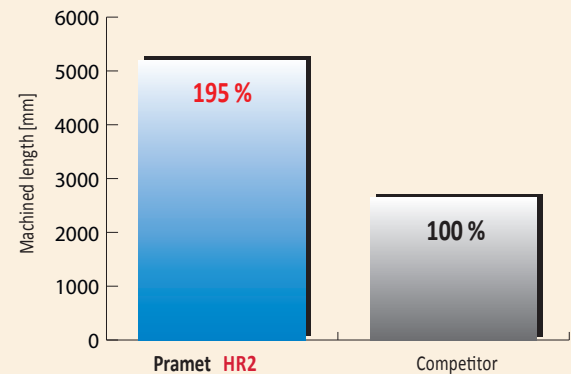
BENEFITS

- High **productivity**
- Reliable chip formation during heavy roughing with high feeds from 0.7 mm/rev (0.5 mm/rev for SNMM 19)
- Optimised chip evacuation from the machined surface
- **Stable cutting edge** thanks to a wide peripheral land
- High durability of inserts thanks to stable cutting edge in combination with the new T9226 Grade

MACHINING EXAMPLE

Material: S34MNV
Material group: P4
Insert: SNMM 250924-HR2: T9226

Cutting speed	v_c	56	m per min
Feed	f	1,0	[mm/rev]
Axial depth of cut	a_p	13	mm



Which chip breaker should be used when roughing steel?

- Heavy roughing with high feed: **HR2** chip breaker
- Semi-roughing to roughing: **HR** chip breaker

NEW GRADE FOR HEAVY ROUGHING AND PEELING

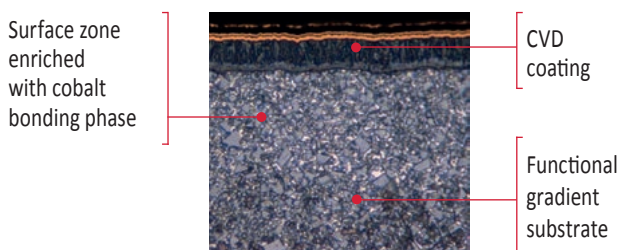
Versatile grade for heavy roughing to replace the existing 6630 grade, providing high insert reliability and durability in adverse cutting conditions.

NEW PRODUCT

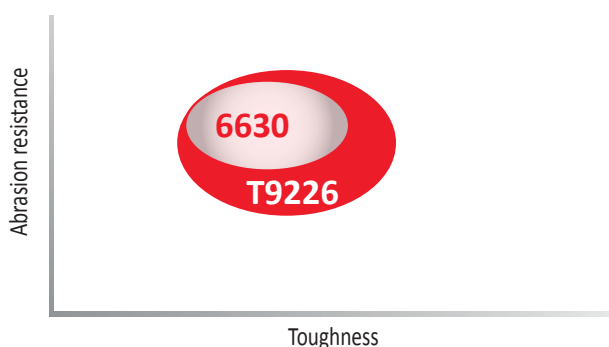
Compared to the current 6630 grade:

- Greater cutting edge strength with the new functional gradient substrate containing a higher cobalt bonding phase and finer grain
- Reduced adhesion of the workpiece material thanks to special treatment added to the coating's surface

CROSS SECTION OF THE STRUCTURE



APPLICATION AREAS



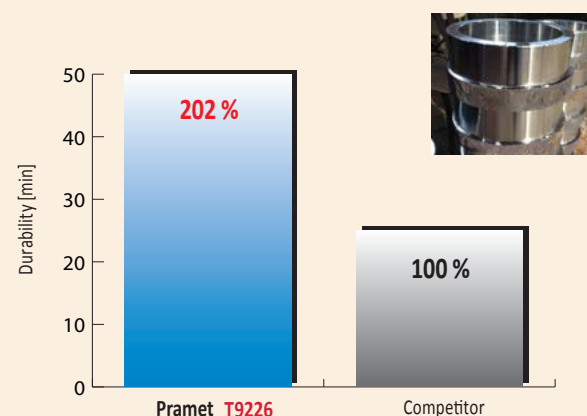
BENEFITS

- Exceptional performance in heavy turning operations
- Higher operational reliability
- Ideally suited to for adverse machining conditions
- Resistance to formation of heat-related cracks

MACHINING EXAMPLE

Material: 52SiCrNi5
 Material group: P4
 Insert: SNMM 250924E-HR: T9226
 Coolant: No
 Skin: Yes
 Interrupted cut: Yes

Cutting speed	v_c	55	m per min
Feed	f	0,8	[mm/rev]
Axial depth of cut	a_p	8	mm



First choice substrates:

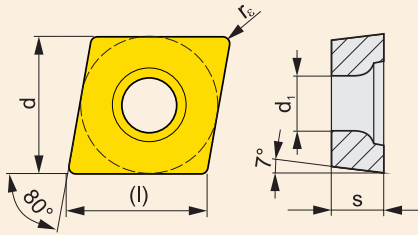
T9226 - for heavy roughing and peeling, in adverse cutting conditions with lower cutting speeds

T9315 - for productive machining under good conditions with higher cutting speeds

T9335, T7335, T8345 - for the worst cutting conditions, such as with interrupted cut

INDEXABLE CUTTING INSERTS FOR TURNING

CCMT



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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

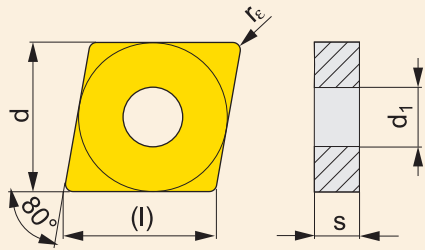
Chip-breaker	ISO	Grade										Radius		Feed/rev.		Depth of cut		
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	6630	T8315	T8330	TT010	TT310	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	CCMT 060202E-FF									●	●			0,2	0,05	0,15	0,2	2,0
	CCMT 060204E-FF									●	●			0,4	0,05	0,23	0,4	2,0
	CCMT 09T304E-FF									●	●			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	0,3	1,5
	CCMT 060208E-FM					●	●				●			0,8	0,12	0,30	0,5	2,0
	CCMT 09T302E-FM			●	●	●			●	●				0,2	0,05	0,15	0,2	3,0
	CCMT 09T304E-FM			●	●	●			●	●				0,4	0,10	0,30	0,3	3,0
	CCMT 09T308E-FM			●	●	●			●	●				0,8	0,15	0,35	0,5	3,0
	CCMT 120404E-FM			●	●	●			●	●				0,4	0,10	0,30	0,4	4,0
	CCMT 120408E-FM			●	●	●			●	●				0,8	0,15	0,35	0,5	4,0
	CCMT 120412E-FM					●	●				●			1,2	0,15	0,45	0,8	4,0
	CCMT 060204W-FM					●	●				●			0,4	0,10	0,40	0,3	2,0
	CCMT 09T304W-FM					●	●				●			0,4	0,10	0,40	0,3	2,0
	CCMT 09T308W-FM					●	●				●			0,8	0,15	0,40	0,5	3,0
	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

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR TURNING

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		

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

Chip-breaker	ISO	Grade														Radius		Feed/rev.		Depth of cut			
		T5305	T5315	T7335	T9226	T9310	T9315	T9325	T9335	6630	6640	T6310	T8310	T8315	T8330	H07	HF7	TT310	r _c	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	0,20	0,60	0,5	4,0
	CNMG 120408W-MR	•			•	•	•												0,8	0,20	0,70	0,8	5,0
	CNMG 120412W-MR	•			•	•	•												1,2	0,25	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 stock information

INDEXABLE CUTTING INSERTS FOR TURNING

Chip-breaker	ISO	Grade														Radius		Feed/rev.		Depth of cut			
		T5305	T5315	T7335	T9226	T9310	T9315	T9325	T9335	6630	6640	T6310	T8310	T8315	T8330	H07	HF7	TT310	r _c	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 120404W-NM			●				●	●										0,4	0,15	0,40	0,5	3,0
	CNMG 120408W-NM			●				●	●										0,8	0,20	0,50	0,8	3,0
	CNMG 120412W-NM			●				●	●										1,2	0,20	0,55	1,2	3,5
	CNMG 090308E-NMR			●				●											0,8	0,20	0,40	0,8	3,0
	CNMG 120404E-NMR			●				●	●					●					0,4	0,20	0,30	0,4	4,0
	CNMG 120408E-NMR			●				●	●					●					0,8	0,20	0,55	0,8	5,0
	CNMG 120412E-NMR			●				●	●					●					1,2	0,22	0,60	1,2	5,5
	CNMG 120416E-NMR			●				●											1,6	0,25	0,65	1,6	5,5
	CNMG 160608E-NMR			●				●	●										0,8	0,22	0,55	0,8	6,5
	CNMG 160612E-NMR			●				●	●						●				1,2	0,22	0,65	1,2	7,0
	CNMG 160616E-NMR			●				●							●				1,6	0,25	0,70	1,6	7,0
	CNMG 190608E-NMR			●				●	●										0,8	0,20	0,60	0,8	7,5
	CNMG 190612E-NMR			●				●	●						●				1,2	0,22	0,65	1,2	8,0
	CNMG 190616E-NMR			●				●	●										1,6	0,25	0,70	1,6	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

● New item in the assortment

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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR TURNING






MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

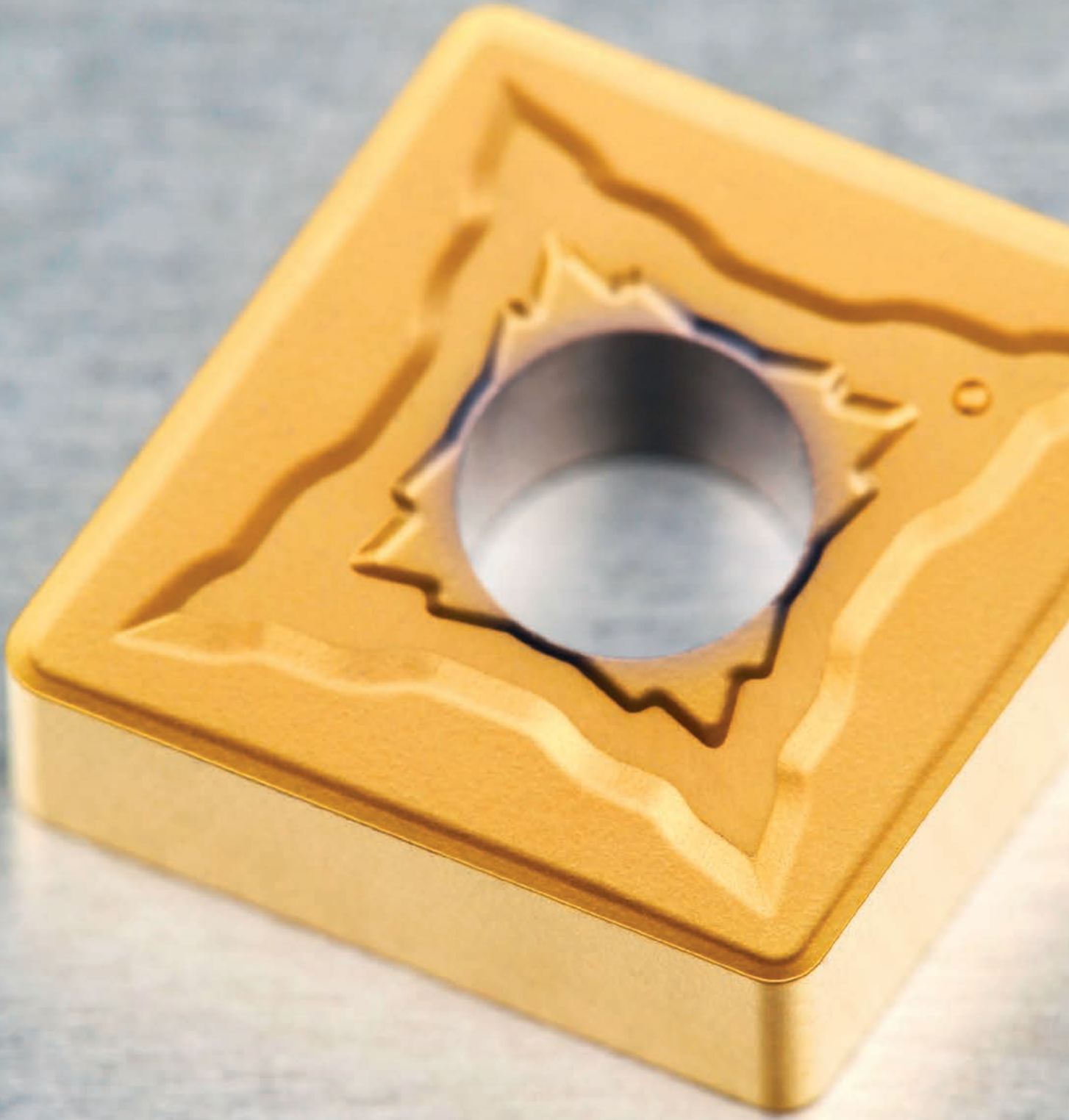
TURNING INSERTS

TECHNICAL SECTION

Chip-breaker	ISO	Grade														Radius		Feed/rev.		Depth of cut			
		T5305	T5315	T7335	T9226	T9310	T9315	T9325	T9335	6630	6640	T6310	T8310	T8315	T8330	H07	HF7	TT310	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	CNMG 190616E-RM	●	●	●		●	●	●	●			●	●						1,6	0,30	0,80	2,0	10,0
	CNMG 250924E-RM			●	●		●	●	●											2,4	0,40	1,00	2,5
	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
	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

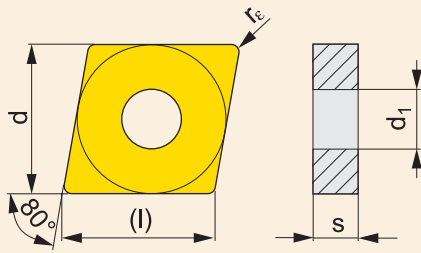
● New item in the assortment

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



INDEXABLE CUTTING INSERTS FOR TURNING

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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

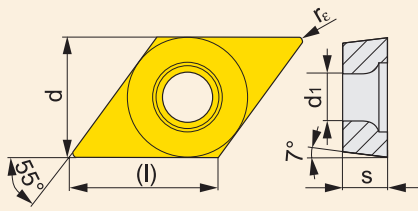
Chip-breaker	ISO	Grade										Radius		Feed/rev.		Depth of cut	
		T7335	T9226	T9315	T9325	T9335	6630	6640	T8310	T8330	T8345	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	CNMM 160612E-DR			●	●	●							1,2	0,30	0,85	2,5	9,0
	CNMM 190608E-DR			●	●	●	●						0,8	0,30	0,60	2,5	9,0
	CNMM 190612E-DR			●	●	●	●						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 190616-HR2		●	●		●							1,6	0,50	1,20	3,0	13,0
	CNMM 190624-HR2		●	●		●							2,4	0,50	1,30	3,0	13,0
	CNMM 250924-HR2		●	●	●	●							2,4	0,70	1,40	3,0	16,0
	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
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

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR TURNING

DCMT, DCMX



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

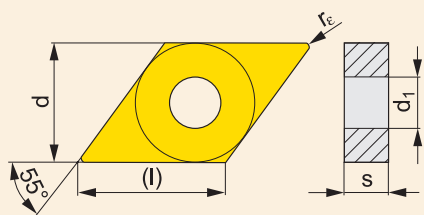
Chip-breaker	ISO	Grade								Radius		Feed/rev.		Depth of cut	
		T5305	T5315	T7335	T9315	T9325	6630	T8315	T8330	TT310	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	DCMT 11T302E-FF							●	●		0,2	0,05	0,12	0,2	2,0
	DCMT 11T304E-FF							●	●		0,4	0,05	0,23	0,4	2,0
	DCMT 11T308E-FF							●	●		0,8	0,05	0,23	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	0,2	2,0
	DCMT 11T302E-FM				●	●		●	●		0,2	0,08	0,12	0,2	2,0
	DCMT 11T304E-FM			●	●	●		●	●		0,4	0,10	0,24	0,3	3,0
	DCMT 11T308E-FM			●	●	●		●	●		0,8	0,10	0,30	0,5	3,0
	DCMT 11T312E-FM				●	●			●		1,2	0,20	0,40	0,9	3,3
	DCMX 11T304W-FM				●	●			●		0,4	0,10	0,40	0,3	2,0
	DCMX 11T308W-FM				●	●			●		0,8	0,15	0,40	0,5	3,0
	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 stock information

INDEXABLE CUTTING INSERTS FOR TURNING

DNMG, DNMX











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 _c	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 150608W-MR		•			•	•									0,8	0,20	0,55	0,8	4,0
	DNMG 150612W-MR		•			•	•									1,2	0,20	0,60	1,2	4,0
	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

• New item in the assortment

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




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_c	f_{min}	f_{max}	$a_{p min}$	$a_{p max}$
	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
	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 150408E-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
	DNMX 150604W-NM			●		●	●									0,4	0,15	0,40	0,5	3,0
	DNMX 150608W-NM			●		●	●									0,8	0,20	0,50	0,8	3,0
	DNMG 110404E-NMR					●	●									0,4	0,18	0,24	0,4	3,0
	DNMG 110408E-NMR					●	●									0,8	0,20	0,40	0,8	3,0
	DNMG 110412E-NMR					●	●									1,2	0,20	0,50	1,2	3,3
	DNMG 150404E-NMR			●			●									0,4	0,20	0,24	0,4	3,5
	DNMG 150408E-NMR			●		●	●					●				0,8	0,20	0,48	0,8	4,0
	DNMG 150604E-NMR			●		●	●					●				0,4	0,20	0,24	0,4	3,5
	DNMG 150608E-NMR			●		●	●					●				0,8	0,20	0,48	0,8	4,0
	DNMG 150612E-NMR			●		●	●					●				1,2	0,22	0,55	1,2	4,0
	DNMG 150408E-R			●												0,8	0,25	0,48	2,0	4,5
	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 150408E-RM					●	●	●								0,8	0,25	0,48	0,8	4,5
	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

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR TURNING

Chip-breaker	ISO	Grade											Radius		Feed/rev.		Depth of cut			
		T5305	T5315	T7335	T9310	T9315	T9325	T9335	G630	T6310	T8315	T8330	H07	HF7	TT310	r_c	f_{min}	f_{max}	$a_{p min}$	$a_{p max}$
	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 150404EL-SI					●										0,4	0,20	0,24	0,4	4,5
	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 150404ER-SI					●										0,4	0,20	0,24	0,4	4,5
	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

● New item in the assortment

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

MILLING TOOLS

MILLING INSERTS

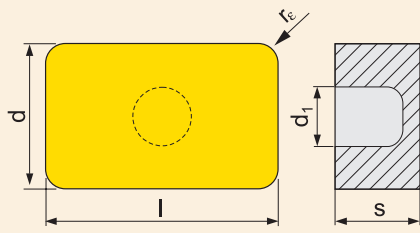
TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR TURNING

LNUX 40, 50; LNMX 50



Dimensions	l	d	d ₁	s
40-1	40,0	25,200	9,30	14,00
50-1	50,8	25,400	9,30	14,00
5014	50,8	25,400	6,35	14,00
50-2	50,8	25,400	6,45	14,00

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

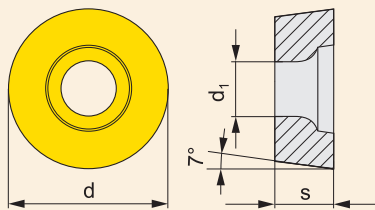
Chip-breaker	ISO	Grade						Radius		Feed/rev.		Depth of cut	
		T5305	T7335	T9226	T9315	T9325	T9335	6630	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	LNUX 40-1129002			●	●	●			3,2	1,30	2,60	10,0	27,0
	LNUX 40-1129003	●	●	●	●	●			3,2	1,20	2,50	10,0	27,0
	LNUX 50-1275000			●	●	●			3,2	1,20	2,50	10,0	36,0
	LNMX 501432E			●		●			3,2	1,20	2,60	10,0	36,0
	LNMX 50-2284000	●	●	●		●			3,2	1,40	2,50	10,0	36,0

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR TURNING

RCMT



Dimensions	(l)	d	d ₁			
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	T9316	T9325	T8330	r _c	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 stock information

MILLING TOOLS

MILLING INSERTS

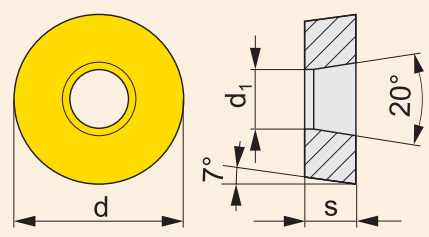
TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR TURNING

RCMX



Dimensions	(l)	d	d ₁
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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

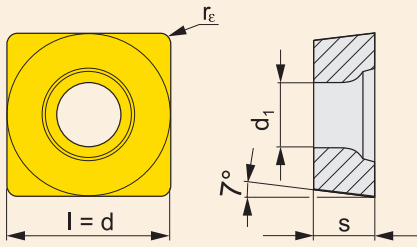
Chip-breaker	ISO	Grade										Radius		Feed/rev.		Depth of cut		
		T5305	T5315	T9310	T9315	T9316	T9325	T9335	6630	6640	T8345	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}		
	RCMX 1003MOS-31						●	●							0,40	1,00	1,5	2,5
	RCMX 1204MOS-321				●		●	●							0,40	1,00	1,0	3,0
	RCMX 1606MOS-331				●		●	●	●						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 3209MO-RM1			●	●	●	●	●							0,70	1,50	2,0	8,0
	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 stock information

INDEXABLE CUTTING INSERTS FOR TURNING

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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

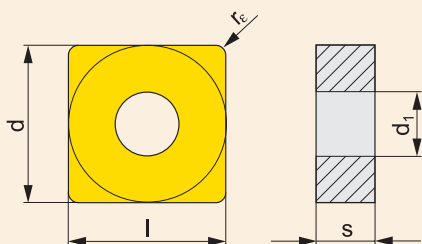
Chip-breaker	ISO	Grade										Radius		Feed/rev.		Depth of cut			
		T5305	T5315	T7335	T9226	T9315	T9325	T9335	6630	6635	T8315	T8330	TT310	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	SCMT 09T304E-FM			●		●	●					●	●		0,4	0,10	0,30	0,4	3,0
	SCMT 09T308E-FM			●		●	●					●	●		0,8	0,15	0,35	0,8	3,0
	SCMT 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 stock information

INDEXABLE CUTTING INSERTS FOR TURNING

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	T9226	T9310	T9315	T9325	T9335	6630	6640	T6310	T8315	T8330	H07	HF7	TT310	r _c	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-NMR			•		•	•						•					0,8	0,20	0,55	0,8	5,0
	SNMG 120412E-NMR			•		•	•											1,2	0,22	0,60	1,2	5,5
	SNMG 120416E-NMR			•			•											1,6	0,25	0,65	1,6	6,0
	SNMG 150612E-NMR					•	•											1,2	0,22	0,65	1,2	6,0
	SNMG 190612E-NMR			•		•	•											1,2	0,22	0,65	1,2	8,0
	SNMG 190616E-NMR			•		•	•											1,6	0,25	0,70	1,6	8,0
	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

• New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR TURNING





MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

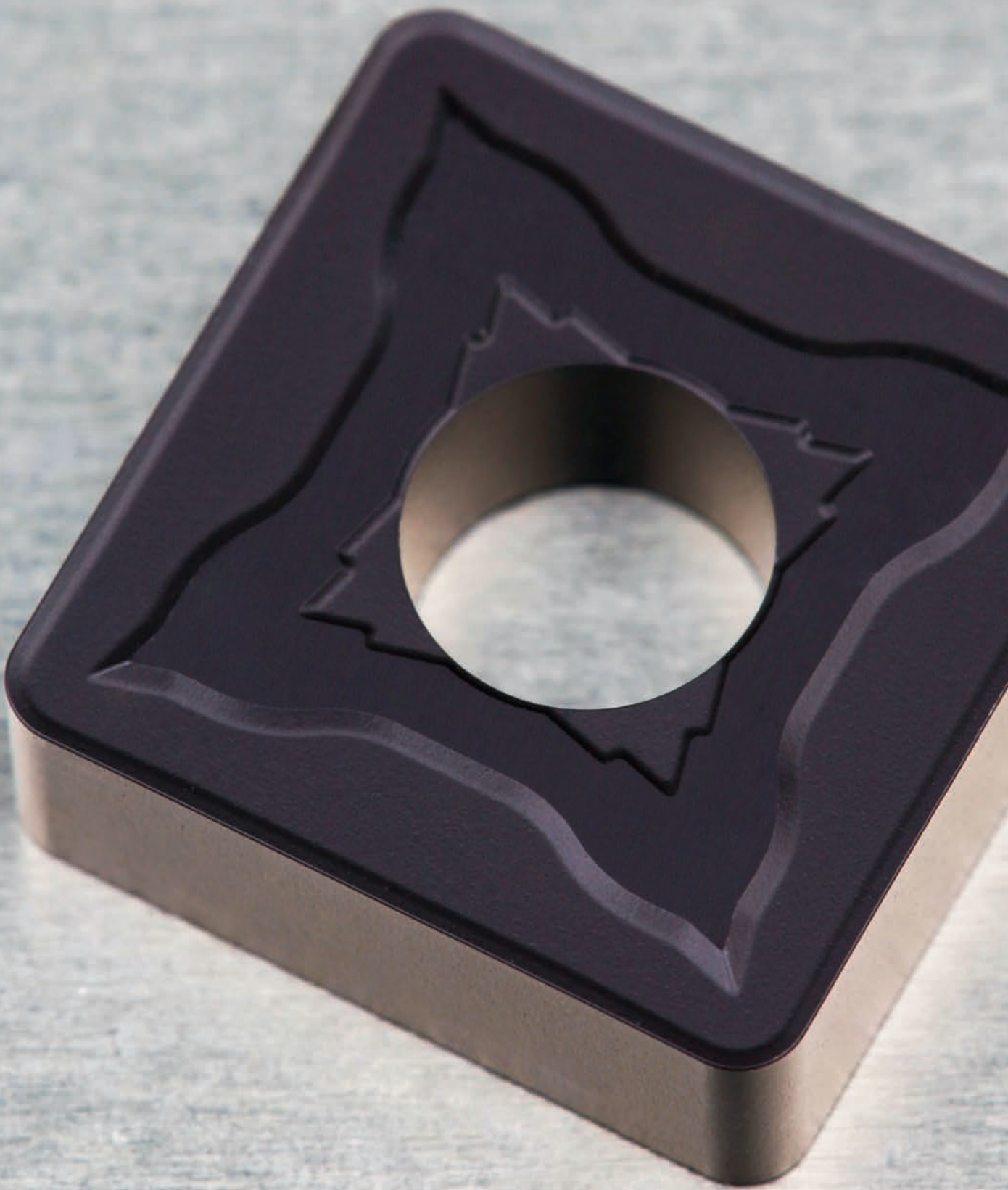
TURNING INSERTS

TECHNICAL SECTION

Chip-breaker	ISO	Grade													Radius		Feed/rev.		Depth of cut			
		T5305	T5315	T7335	T9226	T9310	T9315	T9325	T9335	6630	6640	T6310	T8315	T8330	H07	HF7	TT310	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	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
	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 120404E-SF								●									0,4	0,15	0,30	0,4	3,0
	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

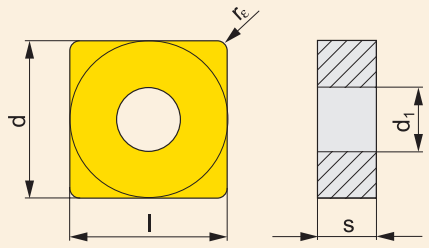
● New item in the assortment

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



INDEXABLE CUTTING INSERTS FOR TURNING

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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS





TECHNICAL SECTION

Chip-breaker	ISO	Grade										Radius		Feed/rev.		Depth of cut	
		T7335	T9226	T9315	T9325	T9335	6630	6640	T8310	T8330	T8345	r _c	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 190616-HR2		●	●		●							1,6	0,50	1,30	3,0	13,0
	SNMM 190624-HR2		●	●		●							2,4	0,50	1,30	3,0	13,0
	SNMM 250724-HR2		●	●		●							2,4	0,70	1,40	3,0	16,0
	SNMM 250732-HR2		●	●		●							3,2	0,70	1,40	3,2	16,0
	SNMM 250924-HR2		●	●	●	●	●						2,4	0,70	1,40	3,0	16,0
	SNMM 250932-HR2		●	●		●							3,2	0,70	1,40	3,2	16,0
	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

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR TURNING

Chip-breaker	ISO	Grade										Radius		Feed/rev.		Depth of cut	
		T7335	T9226	T9315	T9325	T9335	6630	6640	T8310	T8330	T8345						
													r_c	f_{min}	f_{max}	$a_{p min}$	$a_{p max}$
	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
	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
	SNMM 250932S-923		●								●		3,2	0,45	1,50	3,2	13,0

● New item in the assortment

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

MILLING TOOLS

MILLING INSERTS

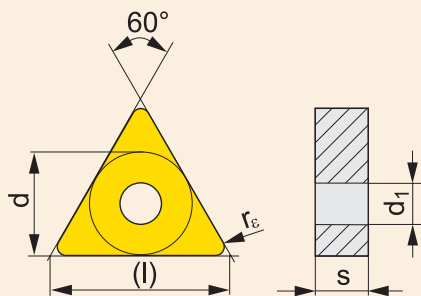
TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

INDEXABLE CUTTING INSERTS FOR TURNING

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	T9226	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310	r _c	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 160404E-NMR			●				●	●			●				0,4	0,20	0,24	0,4	4,0	
	TNMG 160408E-NMR			●				●	●			●				0,8	0,20	0,48	0,8	4,0	
	TNMG 160412E-NMR							●	●							1,2	0,22	0,55	1,2	4,5	
	TNMG 220408E-NMR			●				●	●			●				0,8	0,20	0,48	0,8	6,0	
	TNMG 220412E-NMR							●	●							1,2	0,22	0,70	1,2	6,0	

● New item in the assortment

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

INDEXABLE CUTTING INSERTS FOR TURNING

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

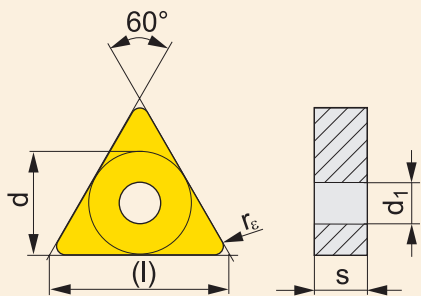
Chip-breaker	ISO	Grade											Radius	Feed/rev.		Depth of cut					
		T5305	T5315	T7335	T9226	T9310	T9315	T9325	T9335	6630	T6310	T8315	T8330	H07	HF7	TT310	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	TNMG 160408E-R	●	●			●	●	●	●								0,8	0,20	0,48	0,8	5,3
	TNMG 160412E-R		●			●	●	●	●								1,2	0,25	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
	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 stock information

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

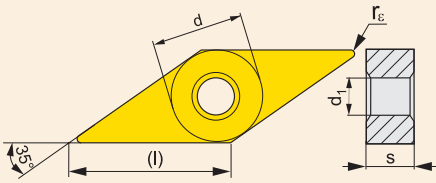
Chip-breaker	ISO	Grade						Radius		Feed/rev.		Depth of cut	
		T9226	T9315	T9325	T9335	6640	T8330	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}	
	TNMM 160408E-DR			●				0,8	0,30	0,48	2,5	5,3	
	TNMM 220408E-DR		●	●	●			0,8	0,30	0,48	2,5	7,3	
	TNMM 220412E-DR		●	●	●			1,2	0,30	0,72	2,5	7,3	
	TNMM 220416E-DR			●				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 stock information

INDEXABLE CUTTING INSERTS FOR TURNING

VNMG



Dimensions	l	d	d ₁	s
1604	16,6	9,525	3,81	4,76

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

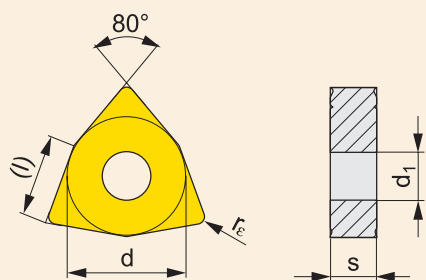
Chip-breaker	ISO	Grade								Radius		Feed/rev.		Depth of cut	
		T5315	T7335	T9310	T9315	T9325	T9335	T6310	T8315	T8330	r _c	f _{min}	f _{max}	a _{p min}	a _{p max}
	VNMG 160404E-FF								●	●	0,4	0,06	0,20	0,4	1,5
	VNMG 160404E-FM			●	●	●				●	0,4	0,10	0,20	0,5	3,0
	VNMG 160408E-FM			●	●	●				●	0,8	0,15	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-NMR		●			●					0,4	0,18	0,20	0,4	3,0
	VNMG 160408E-NMR		●		●	●			●		0,8	0,20	0,35	0,8	3,0
	VNMG 160412E-NMR					●			●		1,2	0,20	0,40	1,2	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 stock information

INDEXABLE CUTTING INSERTS FOR TURNING

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 _c	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

● New item in the assortment

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

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_c	f_{min}	f_{max}	$a_{p min}$	$a_{p max}$
	WNMG 060408W-MR					●	●									0,8	0,20	0,70	0,8	3,0
	WNMG 080404W-MR					●	●									0,4	0,20	0,60	0,5	4,0
	WNMG 080408W-MR		●		●	●	●									0,8	0,20	0,70	0,8	4,0
	WNMG 080412W-MR		●		●	●	●									1,2	0,25	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 060408W-NM			●		●	●									0,8	0,20	0,50	0,8	3,0
	WNMG 080404W-NM			●		●	●									0,4	0,15	0,40	0,5	3,0
	WNMG 080408W-NM			●		●	●									0,8	0,20	0,50	0,8	3,0
	WNMG 080412W-NM			●		●	●									1,2	0,20	0,55	1,2	3,5
	WNMG 060404E-NMR						●					●				0,4	0,20	0,30	0,4	3,5
	WNMG 060408E-NMR			●		●	●									0,8	0,20	0,45	0,8	3,5
	WNMG 080404E-NMR			●		●	●					●				0,4	0,20	0,30	0,4	4,0
	WNMG 080408E-NMR			●		●	●					●				0,8	0,20	0,55	0,8	5,0
	WNMG 080412E-NMR			●		●	●					●				1,2	0,22	0,60	1,2	5,0
	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

● New item in the assortment

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

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 of cutting speed 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-sorbite 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

MILLING TOOLS

ADEX 11T308SR-HF2

Group of machined materials	Milling					
	P	M	K	N	S	H
Light	■	□	■	□	■	■
Medium	■	□	■	□	■	■
Heavy	□	■	■	□	□	□

Operating diagram: Depth of cut a_p [mm] vs Feed f_z [mm/tooth].

Description: Used for inserts: **ADEX 11T308SR-HF2**

- Special geometry for HFC (High-Feed-Cutting)
- Mainly suitable for light to medium machining
- Suited to copy and general milling
- Primarily for machining material groups P, K and H
- Secondary also for hard stainless steels

Range of machining conditions:		Unit:
f_z	0,4 – 1,30	[mm/tooth]
a_p	0,15 – 0,6	[mm]

MILLING INSERTS

ADEX 160612SR-HF2

Group of machined materials	Milling					
	P	M	K	N	S	H
Light	■	□	■	□	■	■
Medium	■	□	■	□	■	■
Heavy	■	■	■	□	□	□

Operating diagram: Depth of cut a_p [mm] vs Feed f_z [mm/tooth].

Description: Used for inserts: **ADMX 160612SR-HF2**

- Special geometry for HFC (High-Feed-Cutting)
- Mainly suitable for light to medium machining
- Suited to copy and general machining
- Secondary suitable for heavy machining
- Primarily for machining material groups P, K and H

Range of machining conditions:		Unit:
f_z	0,5 – 1,3	[mm/tooth]
a_p	0,25 – 1,3	[mm]

TURNING TOOLS

OEHT 0906AEER-MM

Group of machined materials	Milling					
	P	M	K	N	S	H
Light	■	■	■	■	■	■
Medium	■	■	■	■	■	■
Heavy	□	□	□	□	□	□

Operating diagram: Depth of cut a_p [mm] vs Feed f_z [mm/tooth].

Description: Used for inserts: **OEHT 0906AEER-MM**

- Sharp geometry with a slightly positive rake angle
- Designed mainly for light and medium machining
- Conditionally suitable for heavy machining
- Possible to use all eight cutting edges depending on the depth of cut
- Primarily for machining material groups M, S, and secondary P and N

Range of machining conditions:		Unit:
f_z	0,12 – 0,35	[mm/tooth]
a_p	1,0 – 5,0 (6,4)	[mm]

TURNING INSERTS

OEHT 0906AESR-M

Group of machined materials	Milling					
	P	M	K	N	S	H
Light	■	■	■	■	■	■
Medium	■	■	■	■	■	■
Heavy	□	□	□	□	□	□

Operating diagram: Depth of cut a_p [mm] vs Feed f_z [mm/tooth].

Description: Used for inserts: **OEHT 0906AESR-M**

- Geometry with a positive rake angle and a narrow peripheral land
- Designed mainly for light and medium machining
- Conditionally suitable for heavy machining
- Possible to use all eight cutting edges depending on the depth of cut
- Primarily for milling material groups M, P, and potentially also for group S


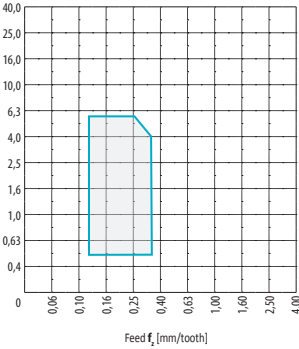

Range of machining conditions:		Unit:
f_z	0,12 – 0,45	[mm/tooth]
a_p	1,2 – 5,0 (6,4)	[mm]

TECHNICAL SECTION


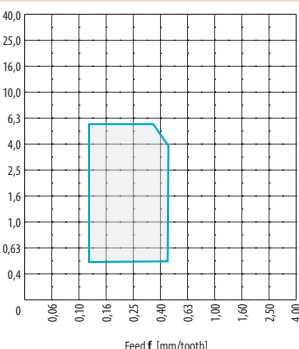
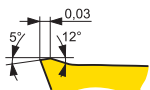
■ Main application area ■ Other applications □ Potential applications

GEOMETRY OF CUTTING INSERTS FOR MILLING


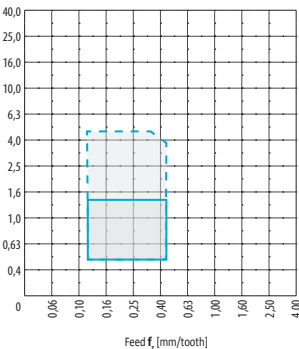
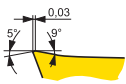
REHT 2406M0EN-MM

Geometry	Image	Group of machined materials						Operating diagram	Description	Used for inserts: REHT 2406M0EN-MM						
		Milling	P	M	K	N	S				H					
REHT 2406M0EN-MM		Light	■	■	□	□	□		<ul style="list-style-type: none"> - Geometry with a slightly positive rake angle - Designed mainly for light and medium machining, conditionally for heavy machining - Optional range for S450E09Z cutters - Primarily for machining material groups M, S - Secondary also for P-group materials 	Range of machining conditions: Unit:						
	Medium	■	■	□	□	□	<table border="1"> <tr> <td>f_z</td> <td>0,12 – 0,35</td> <td>[mm/tooth]</td> </tr> <tr> <td>a_p</td> <td>0,5 – 6,0</td> <td>[mm]</td> </tr> </table>				f_z	0,12 – 0,35	[mm/tooth]	a_p	0,5 – 6,0	[mm]
	f_z	0,12 – 0,35	[mm/tooth]													
a_p	0,5 – 6,0	[mm]														
Heavy	□	□	□	□	□											
																

REHT 2406M0SN-M

Geometry	Image	Group of machined materials						Operating diagram	Description	Used for inserts: REHT 2406M0SN-M						
		Milling	P	M	K	N	S				H					
REHT 2406M0SN-M		Light	■	■	□	□	■		<ul style="list-style-type: none"> - Geometry with a positive rake angle and a narrow peripheral land - Designed mainly for light and medium machining, conditionally for heavy machining - Optional range for S450E09Z cutters - Primarily for milling material groups M, P - Secondary for S-group materials 	Range of machining conditions: Unit:						
	Medium	■	■	□	□	■	<table border="1"> <tr> <td>f_z</td> <td>0,12 – 0,45</td> <td>[mm/tooth]</td> </tr> <tr> <td>a_p</td> <td>0,5 – 6,0</td> <td>[mm]</td> </tr> </table>				f_z	0,12 – 0,45	[mm/tooth]	a_p	0,5 – 6,0	[mm]
	f_z	0,12 – 0,45	[mm/tooth]													
a_p	0,5 – 6,0	[mm]														
Heavy	□	□	□	□	□											
																

XEHT 0906AESR

Geometry	Image	Group of machined materials						Operating diagram	Description	Used for inserts: XEHT 0906AESR						
		Milling	P	M	K	N	S				H					
XEHT 0906AESR		Light	■	■	□	□	□		<ul style="list-style-type: none"> - Smoothing geometry with a slightly positive rake angle - Geometry suited to light cutting conditions - Optional range for S450E09Z cutters - Primarily for machining material groups P - Secondary for M-group materials 	Range of machining conditions: Unit:						
	Medium	■	■	□	□	□	<table border="1"> <tr> <td>f_z</td> <td>0,12 – 0,45</td> <td>[mm/tooth]</td> </tr> <tr> <td>a_p</td> <td>0,5 – 1,5 (5,0)</td> <td>[mm]</td> </tr> </table>				f_z	0,12 – 0,45	[mm/tooth]	a_p	0,5 – 1,5 (5,0)	[mm]
	f_z	0,12 – 0,45	[mm/tooth]													
a_p	0,5 – 1,5 (5,0)	[mm]														
Heavy	□	□	□	□	□											
																

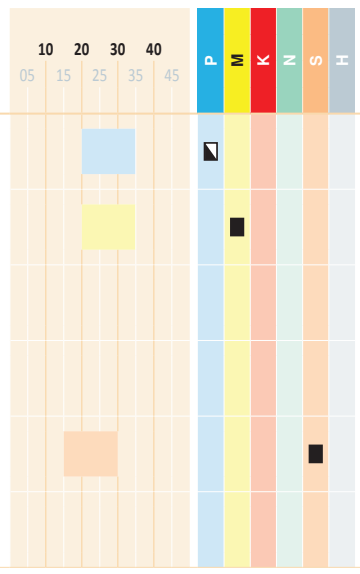
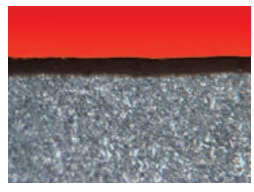
Note: To achieve the highest surface quality, we recommend a maximum depth of 0.5 mm

■ Main application area ■ Other applications □ Potential applications

GEOMETRY OF CUTTING INSERTS FOR MILLING

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

M6330



- Fine-grained H type substrate with high Cobalt content
- AlTiN based PVD coating
- Multi layer coating increases strength
- Resistance to spreading thermal micro fissures
- Medium chip cross-sections
- Wide range of cutting speeds
- Suitable for applications with coolant
- Primarily for machining material groups M and S, secondary for P-group materials

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

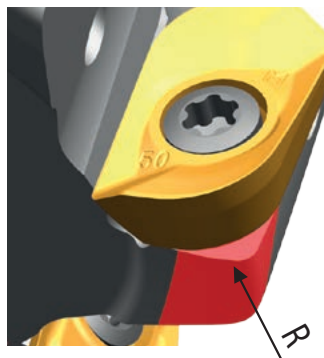
TECHNICAL SECTION

■ Main application area ■ Other applications □ Potential applications

ADEX .. -HF2

MILLING CUTTER MODIFICATION

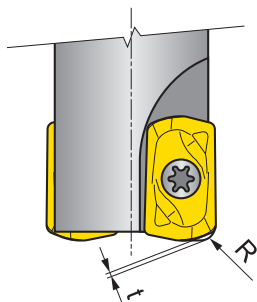
The body of the milling cutter must be modified when using inserts with a higher radius and HF, HF2 geometries



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
ADEX 11T308SR-HF2	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
ADEX 160612SR-HF2	3,0

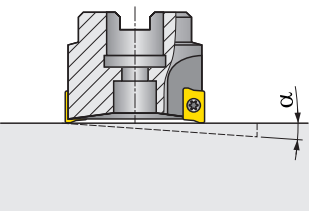
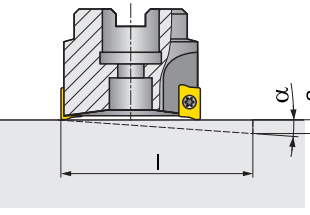
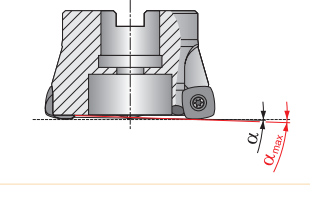
ADEX .. -HF2

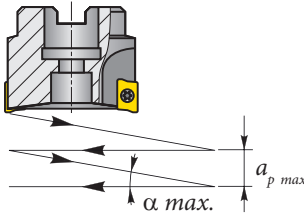
INFORMATION FOR CNC PROGRAMMING



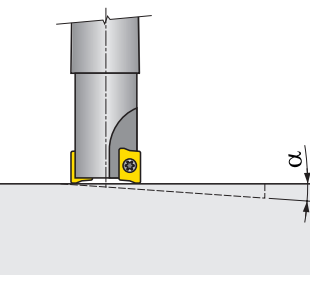
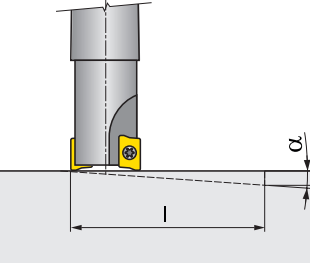
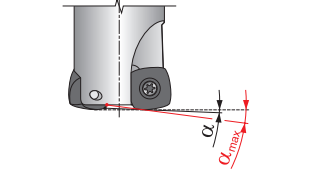
Insert	R	t
	[mm]	[mm]
ADEX 11T308SR-HF	1,42	0,35
ADEX 11T308SR-HF2	1,34	0,38
ADEX 160612SR-HF	2,59	0,56
ADEX 160612SR-HF2	2,48	0,57

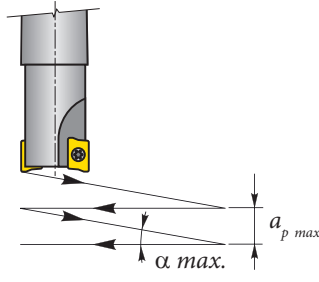
ADEX 11T308SR-HF2
ADEX 160612SR-HF2
RAMPING
SHELL CUTTER BODIES

	Tool	Insert	Milling cutter diameter	α_{max}	a_p/l
			[mm]	[°]	[mm]
	S90AD11E	ADEX 11T308SR-HF2 ADEX 11T308SR-HF	40	0,3** (2,9)*	0,6/100
			50	0,1** (2,1)*	0,6/100
			63	0** (1,4)*	-
			80	0** (1,0)*	-
			100	0** (0,6)*	-
			125	0** (0,3)*	-
	S90AD16E	ADEX 160612SR-HF2 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	α_{max}	a_p/l
			[mm]	[°]	[mm]
	SAD11E	ADEX 11T308SR-HF2 ADEX 11T308SR-HF	16	4,1** (5,7)*	0,6/8
			20	2,3** (4,3)*	0,6/15
			25	1,3** (6,7)*	0,6/26
			32	0,7** (4,3)*	0,6/49
	SAD16E	ADEX 160612SR-HF2 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



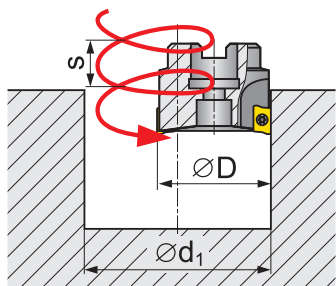
** Can be used for HFC milling
 * Valid for conventional milling

TECHNICAL INFORMATION - MILLING

ADEX 11T308SR-HF2
 ADEX 160612SR-HF2

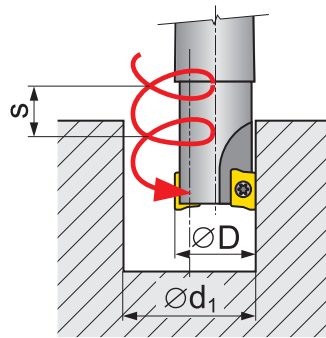
HELICAL INTERPOLATION MILLING

SHELL CUTTER BODIES



Tool	Insert	Milling cutter diameter	d _{min}	d _{max}	S _{max}
		[mm]			
S90AD11E	ADEX 11T308SR-HF2 ADEX 11T308SR-HF	40	68,5	78	0,6
		50	88,5	98	0,6
S90AD16E	ADEX 160612SR-HF2 ADEX 160612SR-HF	40	72	78	1,3
		50	92	98	1,3
		63	118	124	1,3
		80	136	158	1,3

END MILLING CUTTERS



Tool	Insert	Milling cutter diameter	d _{min}	d _{max}	S _{max}
		[mm]			
SAD11E	ADEX 11T308SR-HF2 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-HF2 ADEX 160612SR-HF	25	42	48	1,3
		32	55	62	1,3
		40	72	78	1,3

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

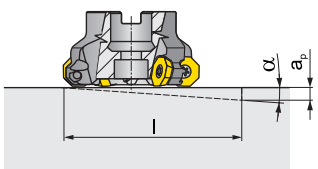
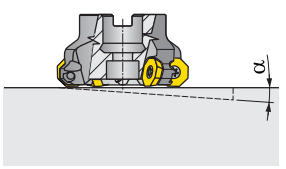
TECHNICAL SECTION

OEHT 0906...
REHT 2406...

RAMPING

SHELL CUTTER BODIES

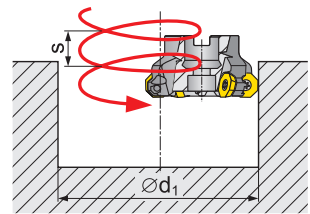
Tool	Insert	Milling cutter diameter	α_{max}	a_p / l
		[mm]	[°]	[mm]
S450E09Z	OEHT 0906 ...	80	4,99	8,7/100
		100	3,79	6,6/100
		125	2,91	5,1/100
		160	2,19	3,8/100
		200	1,71	3,0/100
	REHT 2406....	80	5,9	8,9/100
		100	3,82	6,7/100
		125	2,91	5,1/100
		160	2,18	3,8/100
		200	1,7	3,0/100



HELICAL INTERPOLATION MILLING

SHELL CUTTER BODIES

Tool	Insert	Milling cutter diameter	d_{min}	d_{max}	s_{max}
			[mm]		
S450E09Z	OEHT 0906 ...	80	146	191	7,5
		100	186	231	7,5
		125	235	281	7,5
		160	305	351	7,5
		200	385	430	7,5
	REHT 2406....	80	146	190	8,0
		100	186	230	8,0
		125	236	280	8,0
		160	306	350	8,0
		200	385	430	8,0



MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

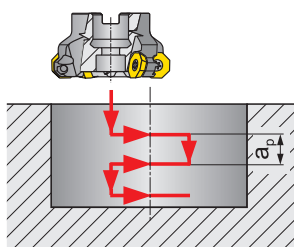
TURNING INSERTS

TECHNICAL SECTION

OEHT 0906...
REHT 2406...

PROGRESSIVE PLUNGING

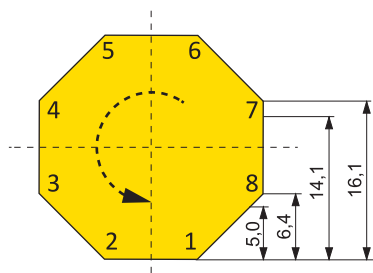
SHELL CUTTER BODIES



Tool	Insert	Milling cutter diameter	a_{pmax}
		[mm]	
S450E09Z	OEHT 0906 ...	80 – 315	5,5
	REHT 2406....	80 – 315	5,4

OEHT 09

NUMBER OF USABLE CUTTING EDGES OF THE OEHT 09 INSERTS BASED ON DEPTH OF CUT



Depth of cut a_p [mm]	Number of cutting edges
up to 5,0	8
up to 6,4	7
up to 14,1	4
up to 16,1	2

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 OEHT 09 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
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 TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

MILLING

CHOICE OF INITIAL CUTTING CONDITIONS

- 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 workpiece 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.
- In accordance with tables 1a – 6a page 122 - 132, 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.
- Use tables 1b – 6b on pages 123 - 133 to choose the initial cutting speed with regard to type of tool or cutting insert, cutting conditions and milling grade.
- In tables 1b – 6b on pages 123 - 133 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:

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

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.

Variations in the machinability and hardness of the workpiece material, machining conditions and expectations regarding economical tool life are the main reasons why the initial cutting speeds need to be re-calculated and adjusted.

Table 1a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	Tool type												Insert	Operating conditions of milling		
	1	2	3	4	5	6	7	8	9	10	11	12		Light	Medium	Heavy
1													M8315 M8315 S(E)	M9325 S	M9340 S	
2													M8315 M8315 S(E)	M9325 S	M9340 S	
3													M8315 M8315 S(E)	M9325 S	M9340 S	
4													M8315 M8315 S(E)	M9325 S	M9340 S	
5													M8315 M8315 S(E)	M9325 S	M9340 S	
6													M8315 M8315 S(E)	M9325 S	M9340 S	
7													M8315 M8315 S(E)	M9325 S	M9340 S	
8													M8315 M8315 S(E)	M9325 S	M9340 S	
9													M8315 M8315 S(E)	M9325 S	M9340 S	

Table 1b

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	P													ADJUSTMENT v_c											
	P													P1	P2	P3	P4								
	Cutting conditions													Subgroup											
1	Light	0.10	0.30	M5315	435	-	425	410	325	-	-	-	365	320	350	320	365	325	-	385	-	-	-		
				M9315	370	-	350	325	255	-	-	260	240	-	-	245	-	-	245	-	285	-	295	-	-
				M8345	370	-	390	370	285	-	-	305	280	330	380	280	285	-	-	285	-	395	-	395	-
2	Light	0.10	0.35	M5315	405	-	400	395	305	-	-	-	340	310	340	310	-	310	-	320	-	320	-	-	
				M9315	370	-	360	350	275	-	-	295	270	-	-	275	-	-	275	-	285	-	285	-	-
				M8325	370	-	335	310	240	-	-	250	230	-	-	235	-	-	235	-	245	-	245	-	-
3	Medium	0.10	0.25	M5315	380	-	370	360	280	-	-	225	280	-	-	280	-	280	-	290	-	290	-	-	
				M9315	365	-	350	330	260	-	-	210	275	255	-	260	-	-	260	-	270	-	270	-	-
				M8345	365	-	325	300	235	-	-	190	240	225	-	230	-	-	230	-	240	-	240	-	-
4	Heavy	0.10	0.15	M5315	345	-	325	300	235	-	-	225	270	-	-	270	-	275	-	285	-	285	-	-	
				M9315	345	-	350	330	260	-	-	210	275	255	-	260	-	-	260	-	270	-	270	-	-
				M8325	345	-	335	310	240	-	-	250	230	-	-	235	-	-	235	-	245	-	245	-	-
5	Light	-	-	M5315	-	-	-	420	330	260	265	350	320	380	-	-	325	-	345	-	345	-	-		
				M9315	-	-	-	385	300	240	245	320	295	350	-	300	-	-	300	-	310	-	290	-	-
				M8345	-	-	-	350	275	215	220	295	270	-	-	275	-	-	275	-	285	-	260	-	240
6	Medium	-	-	M5315	-	-	-	-	-	-	-	295	345	-	-	300	-	300	-	290	-	265	-	-	
				M9315	-	-	-	-	-	-	220	270	315	-	275	-	-	275	-	245	-	245	-	265	-
				M8325	-	-	-	-	-	-	200	245	200	-	245	-	-	245	-	270	-	270	-	290	-
7	Light	0.10	0.25	M5315	250	-	235	220	170	-	-	140	180	170	-	-	170	-	175	-	175	-	-		
				M9315	220	-	205	185	145	-	-	120	150	140	-	140	-	-	140	-	150	-	150	-	-
				M8345	220	-	150	120	95	-	-	95	110	-	-	115	-	-	115	-	120	-	120	-	-
8	Medium	0.08	0.15	M5315	-	-	-	-	-	-	-	250	270	-	-	270	-	270	-	180	-	180	-	-	
				M9315	-	-	-	-	-	-	215	170	-	-	215	-	-	215	-	180	-	180	-	-	
				M8325	-	-	-	-	-	-	190	155	-	-	175	-	-	175	-	140	-	140	-	-	
9	Heavy	0.20	0.40	M5315	235	-	200	145	120	-	-	170	-	-	155	-	-	155	-	120	-	120	-	-	
				M9315	235	-	185	145	120	-	-	135	170	-	-	180	-	-	180	-	150	-	150	-	-
				M8345	235	-	165	120	95	-	-	95	110	-	-	145	-	-	145	-	115	-	115	-	-
10	Light	0.20	0.60	M5315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				M9315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				M8325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	Medium	0.20	0.50	M5315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				M9315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				M8325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12	Heavy	0.20	0.40	M5315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				M9315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				M8325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Hardness [HB]	KV_{P1}	KV_{P2}	KV_{P3}	KV_{P4}
	120	1.53	1.18	0.94
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_p
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_p
30	1.23
60	1.00
90	0.89
120	0.81

Adjustment coefficient k_w	
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	Tool type										Insert	Operating conditions of milling		
	1	2	3	4	5	6	7	8	9	10		Light	Medium	Heavy
M											HXCB 06 HXCB09 HXCF09D5..... SMT13NKT1205AZ	I	I	I
											OBT106, OBT109 ODMT105, ODMT106 SDRW, SDRX09... SOMT10913... TCMT16T3 XPH13604...	I	I	I
											ADMX, ADEX11T3... ADMX, ADEX1606... APKT100PD APETAPKT1604... LNGX12...LNGU16... SOMT109130, SDMT12050SR... ADXX15T3...XOEN12T3...	I	I	I
											SKCB09T3...SC4812T3... ROHK, R0GT, R0HT, R0TL, R0T2... ROHK, R0GT, R0HT, R0T3... ROHK, R0GT, R0HT, R0T4... ROHK, R0GT, R0HT, R0T5... ROHK, R0GT, R0HT, R0T6... RCMT1204, RCMT1606, RCMT2006, ZDCW07, ZDCW09, ZDCW12, PD, S906...REHT16, REHT24, RPET15	I	I	I
											XPxER-FM ZPxER-xx VCGT220530 RC, RCA, LC	I	I	I
											SN...11 (Z) CN XN...1205	I	I	I
											ADMX, ADEX1606... LNFT1606BSR, SNGX1305 SNGX13052PN APFTW150412SPTW120440 ADMX, ADEX11T3... SDMK1205 CCMK1063... CCMK1073...CCMK1073...	I	I	I
											SPUN, SPGN Z506... SBMR22 PNMUL308...	I	I	I
											SPUN Z506... TBM1Z7...	I	I	I
												III	III	III

Table 3a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	Tool type											Insert			Operating conditions of milling		
													Light	Medium	Heavy		
1													M5315 S (E)	M9315 S	M9325 S		
													M8215 M8310	M8215 M8310 S	M8230 M8340 S		
2													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
3													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
4													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
5													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
6													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
7													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
8													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
9													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		
													M8215 M8315 S (E)	M8230 M8315 S	M8340 M8340 S		

Table 3b

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	K													K				
	Cutting conditions	Range of starting feeds	M5315	M5326	M9315	M9325	5040	M8325	8215	8230	M8310	M8326	M8340	M8346	7205	7215	7230	H7
			Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light
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	330	300	360	-	305	-	295	275	230	125
	Medium	-	-	-	-	-	365	225	300	280	330	-	285	-	275	250	210	115
	Heavy	-	-	-	-	-	330	200	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	160	-	-	160	-	-	-	-	65
	Medium	0.10	0.20	205	-	190	175	-	110	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	-	-	-	-	-	-

ADJUSTMENT v_c				
Subgroup	K1	K2	K3	K4
Adjustment for workpiece hardness				
Hardness (HB)	KV_{HB1}	KV_{HB2}	KV_{HB3}	KV_{HB4}
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_p			
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_p			
30	1.23			
60	1.00			
90	0.89			
120	0.81			
Adjustment coefficient k_v				
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 4b

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	N										Subgroup	
	Cutting conditions		Range of starting feeds		8215	8230	M8326	7205	7215	7230		HF7
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light		Medium
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_{nc}
Aluminium for electrical applications				2,00
Al alloys formed non-hardened HB60				1,50
Al alloys formed hardened HB100				1,00
Al alloys cast non-hardened HB75				0,90
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
Brasses and lead bronzes (<1% Pb)				0,75
Other brasses HB < 90				0,60
Other brasses HB > 90				0,54
Electrolytic bronze Cu				0,40
Hard and very hard bronzes				0,6 PKD / 0,20
Adjustment for durability (general machining)				
Durability [min]				k_{vr}
15				1,23
20				1,13
30				1,00
45				0,89
60				0,81
90				0,72
Adjustment coefficient k_{nc}				
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										Light	Medium	Heavy				
	Insert																
1												M8325 S(E)	M8215 S	I	8215 S	I	-
												M8310 S(E)	M8230 S	II	8230 S	II	-
2												M8340 S(E)	M8230 S	III	8230 S	III	-
												M8330 S(E)	M8330 S	I	8215 S	I	-
3												M8340 S(E)	M8340 S	III	8230 S	III	-
												M8310 S(E)	M8330 S	I	8215 S	I	-
4												M8310 S(E)	M8310 S	II	8230 S	II	-
												M8310 S(E)	M8310 S	II	8215 S	II	-
5												M8310 S(E)	M8310 S	I	7215 S(E)	I	-
												M8310 S(E)	M8310 S	II	8230 S(E)	II	-
6												M8310 S(E)	M8310 S	III	8215 S(E)	III	-
												M8310 S(E)	M8310 S	I	8230 S(E)	I	-
7												M8310 S(E)	M8310 S	II	8230 S	II	-
												M8310 S(E)	M8310 S	III	8230 S	III	-
8												M8310 S(E)	M8310 S	I	8230 S	I	-
												M8310 S(E)	M8310 S	II	8230 S	II	-
9												M8310 S(E)	M8310 S	III	8230 S	III	-
												M8310 S(E)	M8310 S	I	8230 S	I	-

Table 5b

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	S										ADJUSTMENT v_c						
	Cutting conditions										Subgroup						
	Range of starting feeds										S1	S2	S3	S4			
1	Light	0.10	0.30	120	M9325	M9340	M8345	8215	8230	M8310	M8326	M8340	M8346	M6330	7215	7230	HF7
	Medium	0.10	0.25	110		90	-	90	80	95	-	85	-	95	-	-	-
	Heavy	0.10	0.20	-		80	-	75	70	-	-	70	-	85	-	-	-
2	Light	0.10	0.35	115		100	-	100	90	-	-	90	-	105	-	35	
	Medium	0.10	0.30	105		90	-	85	80	-	-	80	-	90	-	30	
	Heavy	0.10	0.20	-		75	-	75	65	-	-	70	-	80	-	-	
3	Light	0.10	0.30	105		90	65	90	80	-	-	80	-	95	-	30	
	Medium	0.10	0.25	95		85	60	80	75	-	-	75	-	85	-	30	
	Heavy	0.10	0.15	-		75	-	70	65	-	-	65	-	75	-	-	
4	Light	-	-	125		105	75	105	95	110	-	95	-	110	85	70	40
	Medium	-	-	115		95	70	95	85	105	-	90	-	100	75	65	35
	Heavy	-	-	-		-	-	85	80	-	-	80	-	90	-	-	
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	-		55	-	50	50	-	-	50	-	55	-	-	
	Medium	0.10	0.20	-		45	-	45	40	-	-	40	-	45	-	-	
	Heavy	0.08	0.15	-		40	-	-	30	-	-	30	-	40	-	-	
8	Light	0.25	0.60	-		70	-	-	75	-	-	-	-	-	-	-	
	Medium	0.25	0.50	-		55	-	-	55	-	-	-	-	-	-	-	
	Heavy	0.25	0.40	-		45	-	-	50	-	-	-	-	-	-	-	
9	Light	0.20	0.60	-		-	-	-	-	-	-	-	-	-	-	-	
	Medium	0.20	0.50	-		-	-	-	-	-	-	-	-	-	-	-	
	Heavy	0.20	0.40	-		-	-	-	-	-	-	-	-	-	-	-	

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

S										ADJUSTMENT k_{vt}							
Adjustment for durability (general machining)										Adjustment coefficient k_{vt}							
Durability [min]																	
15	1,23																
20	1,13																
30	1,00																
45	0,89																
60	0,81																
90	0,72																

S										ADJUSTMENT k_{vt}							
Skin of forging and casting										Adjustment coefficient k_{vt}							
Machine in good condition																	
Machine in poor condition																	
0.70-0.90																	
1.05-1.20																	
0.85-0.95																	

Table 6a

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	Tool type										Insert	Operating conditions of milling		
	1	2	3	4	5	6	7	8	9	10		Light	Medium	Heavy
1											HNGX 06 HNGX 09 HREF 0905..... SNMT 1202AZ	I	I	I
												II	II	II
2											DEHT 06, DEHT 09 ODMTW105, ODMTW106 SEM109 SDEW, SDEK 09... SOMT1013... TCMT13073 XPH1 1604...	I	I	I
												II	II	II
3											ADMX ADEX 11T3... ADMX ADEX 1606... APKT 1003PD APET, APKT 1604... LINGX 12..._LINGU 16... SOMT 09130..._SOMT 120508R... ADMX 15T3..._XOEN 12 T3...	I	I	I
												II	II	II
4											SCXR 09T3..._SC08 T3T3..._RPHX 0504... RPHX R0GT R0HT 07T1..._0702... RPHX R0GT R0HT 0003... RPHX R0GT R0HT 12T3... RPHX R0GT R0HT 1604... RPHX R0GT R0HT 1604... RCMT 1204, RCMT1606, RCMT2006, ZDCW 07, ZDCW 09, ZDCW 12 PD..._0905..._DEHT 16..._REHT 24..._REHT 15	I	I	I
												II	II	II
5											XPXER-FM ZPXER-XX VCGT 220330 RC, RCA, LC	I	I	I
												II	II	II
6											SN...11 (12) CN XN...1205	I	I	I
												II	II	II
7											ADMX ADEX 1606... LNET 1606 (ISR, SNGX 1305 SNGX 1305) 2PN APET(W) 150412 SPET(W) 1204AD ADMX ADEX 11T3... SDMX 1205 CCMX 0603... CCMX 08T3..._CCMX 09T3...	I	I	I
												II	II	II
8											SPUN, SPEN 2506... SBMR 22 PNUU 1308...	I	I	I
												II	II	II
9											SPUN 2506... TBMR 27...	I	I	I
												II	II	II

Table 6b

CHOOSING THE MILLING TOOL AND THE INITIAL MACHINING CONDITIONS

Group	H										ADJUSTMENT v_c											
	H										H1	H2	H3	H4								
	H										Adjustment for workpiece hardness											
Cutting conditions	Range of starting feeds										Subgroup	Hardness [HB/HRC]				KV_{HP1}	KV_{HP2}	KV_{HP3}	KV_{HP4}			
1	Light	0.10	0.30	85	M9315	85	M9325	80	5040	M8310	70	8215	60	8230	7205	7215	7230	H7	-	-	-	-
	Medium	0.10	0.25	80	75	70	70	-	-	65	60	60	55	50	-	-	-	-	-	-	-	-
	Heavy	0.10	0.20	-	-	-	-	-	-	-	-	50	45	40	-	-	-	-	-	-	-	-
2	Light	0.10	0.35	80	80	75	70	70	70	70	65	60	55	50	45	40	35	25	-	-	-	-
	Medium	0.10	0.30	70	70	70	65	60	55	50	50	50	50	50	45	40	35	20	-	-	-	-
	Heavy	0.10	0.20	-	-	-	-	-	-	-	-	50	45	40	35	30	25	-	-	-	-	-
3	Light	0.10	0.30	75	70	70	70	70	70	65	60	55	50	45	40	35	30	20	-	-	-	-
	Medium	0.10	0.25	70	70	70	65	60	55	50	50	50	50	45	40	35	20	-	-	-	-	
	Heavy	0.10	0.15	-	-	-	-	-	-	-	-	45	40	35	30	25	20	-	-	-	-	-
4	Light	-	-	-	-	80	75	70	70	75	70	60	55	50	45	40	35	25	-	-	-	-
	Medium	-	-	-	-	75	70	60	45	70	60	55	50	45	40	35	25	-	-	-	-	
	Heavy	-	-	-	-	-	-	55	50	-	55	50	45	40	35	30	25	-	-	-	-	
5	Light	-	-	-	-	-	-	-	-	65	-	55	50	45	40	35	25	-	-	-	-	
	Medium	-	-	-	-	-	-	-	-	60	-	50	45	40	35	30	25	-	-	-	-	
	Heavy	-	-	-	-	-	-	-	-	-	-	45	40	35	30	25	20	-	-	-	-	
6	Light	0.10	0.50	-	-	-	-	-	-	-	55	50	45	40	35	30	25	-	-	-	-	
	Medium	0.10	0.30	-	-	-	-	-	-	-	50	45	40	35	30	25	20	-	-	-	-	
	Heavy	0.10	0.20	-	-	-	-	-	-	-	-	40	35	30	25	20	15	-	-	-	-	
7	Light	0.10	0.25	-	-	-	-	-	-	-	35	30	25	20	15	10	5	-	-	-	-	
	Medium	0.10	0.20	-	-	-	-	-	-	-	30	25	20	15	10	5	0	-	-	-	-	
	Heavy	0.08	0.15	-	-	-	-	-	-	-	-	20	15	10	5	0	-	-	-	-	-	
8	Light	0.25	0.60	-	-	-	-	-	-	-	-	50	45	40	35	30	25	-	-	-	-	
	Medium	0.25	0.50	-	-	-	-	-	-	-	-	35	30	25	20	15	10	-	-	-	-	
	Heavy	0.25	0.40	-	-	-	-	-	-	-	-	30	25	20	15	10	5	-	-	-	-	
9	Light	0.20	0.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Medium	0.20	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Heavy	0.20	0.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Adjustment for durability (general machining)

Durability [min]

 k_{vr}

15

20

30

45

60

90

1.23

1.13

1.00

0.89

0.81

0.72

Adjustment coefficient k_v

Skin of forging and casting

Machine in good condition

Machine in poor condition

0.70 - 0.90

1.05 - 1.20

0.85 - 0.95

GEOMETRY OF CUTTING INSERTS FOR TURNING

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

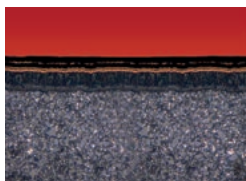
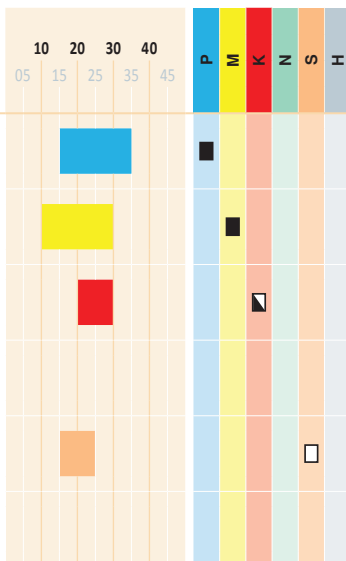
Chip-breaker	Photo	Group of machined materials	Operating diagram	Description	Used for inserts:																					
HR2		Turning P M K N S H		Description: CNMM, SNMM - Positive geometry primarily for roughing to heavy roughing turning - Continuous and interrupted cut - Main area of application – machining material group P - Secondary area of application – machining material groups M and K - Conditional use – machining material group S	Used for inserts: CNMM, SNMM																					
		<table border="1"> <tr> <td>M</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>R</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>SR</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>				M	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																				
SR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																				
<table border="1"> <tr> <td>f</td> <td>0,5 – 1,4</td> <td>[mm/rev]</td> </tr> <tr> <td>ap</td> <td>3,0 – 16,0</td> <td>[mm]</td> </tr> </table>	f	0,5 – 1,4	[mm/rev]	ap	3,0 – 16,0	[mm]																				
f	0,5 – 1,4	[mm/rev]																								
ap	3,0 – 16,0	[mm]																								
NMR		Turning P M K N S H		Description: CNMG, DNMG, SNMG, TNMG, VNMG, WNMG - Medium to roughing turning - Continuous and interrupted cut - Main area of application – machining material groups M and P (low carbon steels) - Secondary area of application – machining material group S	Used for inserts: CNMG, DNMG, SNMG, TNMG, VNMG, WNMG																					
		<table border="1"> <tr> <td>F</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>M</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>R</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>				F	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	M	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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<table border="1"> <tr> <td>f</td> <td>0,18 – 0,70</td> <td>[mm/rev]</td> </tr> <tr> <td>ap</td> <td>0,4 – 8,0</td> <td>[mm]</td> </tr> </table>	f	0,18 – 0,70	[mm/rev]	ap	0,4 – 8,0	[mm]																				
f	0,18 – 0,70	[mm/rev]																								
ap	0,4 – 8,0	[mm]																								
W-FM		Turning P M K N S H		Description: CCMT, DCMX - Positive geometry for finishing to semi-roughing turning and boring - Wiper geometry for productive machining - Continuous and slightly interrupted cut - For stainless steels using a coolant is recommended for optimal surface quality - Main area of application – machining material groups M and P - Conditional application – machining material groups K and S	Used for inserts: CCMT, DCMX																					
		<table border="1"> <tr> <td>F</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>M</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>R</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>				F	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	M	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	F	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
M	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																				
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<table border="1"> <tr> <td>f</td> <td>0,1 – 0,4</td> <td>[mm/rev]</td> </tr> <tr> <td>ap</td> <td>0,3 – 3,0</td> <td>[mm]</td> </tr> </table>	f	0,1 – 0,4	[mm/rev]	ap	0,3 – 3,0	[mm]																				
f	0,1 – 0,4	[mm/rev]																								
ap	0,3 – 3,0	[mm]																								
W-NM		Turning P M K N S H		Description: CNMG, DNMX, WNMG - Highly positive geometry suitable for finishing to medium turning - Wiper geometry for productive machining - Continuous cut - For stainless steels using a coolant is recommended for optimal surface quality - Main area of application – machining material groups P, M and S - Conditional - machining material groups K, N	Used for inserts: CNMG, DNMX, WNMG																					
		<table border="1"> <tr> <td>F</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>M</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>R</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>				F	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	M	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	F	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
M	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																				
R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																				
<table border="1"> <tr> <td>f</td> <td>0,15 – 0,5</td> <td>[mm/rev]</td> </tr> <tr> <td>ap</td> <td>0,5 – 3,5</td> <td>[mm]</td> </tr> </table>	f	0,15 – 0,5	[mm/rev]	ap	0,5 – 3,5	[mm]																				
f	0,15 – 0,5	[mm/rev]																								
ap	0,5 – 3,5	[mm]																								

Main application area
 Other applications
 Potential applications

NEW GRADES FOR TURNING

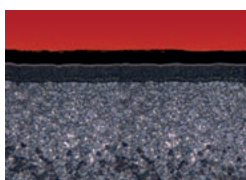
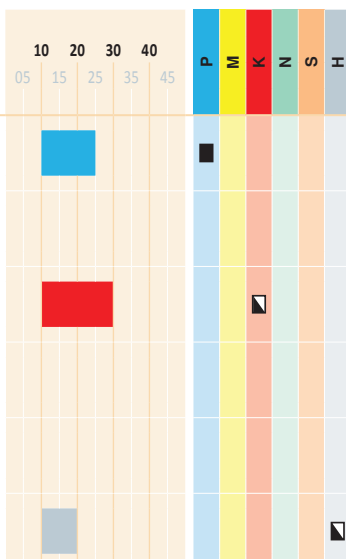
Identification code and microstructure	Application areas	Group of machined materials	Grade description and recommended application
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T9226



- Fine-grain functional gradient substrate
- Medium cobalt bonding phase content
- Medium thickness coating applied by the MT-CVD technique
- Special treatment of the surface after coating
- High cutting edge strength
- Medium and lower cutting speeds
- Continuous and interrupted cut
- Adverse cutting conditions
- Primarily for machining material groups ISO P and M
- Secondary for K and conditionally for S-group materials

T9316



- Functionally gradient substrate with fine structure
- Low cobalt content
- Medium thick MT-CVD coating
- Special surface finish for coating
- Grade for Railway segment
- Medium cutting speed
- Continuous and interrupted cut
- Primarily designed for machining of materials group P materials, second choice for materials group K and H

■ Main application area ▣ Other applications □ Potential applications

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

TURNING

CHOICE OF INITIAL CUTTING CONDITIONS

1. The first step is to assign the material to be machined into one of six groups according to the ISO 513 standard (see page 111).
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 137).
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 138 – 149). Three possible recommendations are shown in tables for each material group. You can also check your recommendation on page 134 and 135 .
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 150 - 151). 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 138 – 149, 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.

Variations in the machinability and hardness of the workpiece material, machining conditions and expectations regarding economical tool life are the main reasons why the initial cutting speeds need to be re-calculated and adjusted.

Choosing the shape and size of the insert

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

MILLING TOOLS

MILLING INSERTS

TURNING TOOLS

TURNING INSERTS

TECHNICAL SECTION

Table 1a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

OPERATING CONDITIONS FOR TURNING													
INDEXABLE INSERT TYPE in accordance with ISO	Fine turning		Finishing turning		Semi-roughing turning		Roughing turning		Heavy roughing turning		Parting off, grooving		Threading
	f = 0.05 - 0.1 [mm/rev] a _p = 0.2 - 1.0 [mm]		f = 0.1 - 0.2 [mm/rev] a _p = 0.8 - 2.0 [mm]		f = 0.2 - 0.4 [mm/rev] a _p = 1.5 - 4.0 [mm]		f = 0.4 - 0.8 [mm/rev] a _p = 4.0 - 10.0 [mm]		f > 1.0 [mm/rev] a _p > 10.0 [mm]		f = 0.5 - 0.3		
	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	Pre-machined surface Uninterrupted cut	Casting, forging interrupted cut	
..A ..M ..G ..J ..N	T8315	T8315	TT310	T8315	T9315	T9325	T9315	T9315	T9325	T9315	T9315	T9335	-
	FF	FM	FM	FM	W-NM	M (W-M)	RM (W-MR)	R (W-M)	OR	OR	-	-	-
	T6310	T9315	T9315	T8330	T9315	T9325	T9325	T9325	T9335	T9326	T9226	T9226	-
	SF	FM	FM	FM	FM (W-MR)	FM	RM (W-MR)	R (W-M)	OR	OR	OR	OR	-
	-	III	III	T9315	T9325	T8330	T9325	T8330	T9226	III	T9226	III	-
	-	III	III	W-F	NM	MN	OR (NR2)	NR2 (OF)	OR	OR	OR	SR	-
	-	I	T9325	T9325	6640	6640	6640	-	T9310	T9310	-	T9315	-
	-	I	72	72	73 (78)	73 (78)	73 (78)	-	-	-	-	-	-
	-	II	II	II	T9325	T9325	T9325	6640	T9315	T9315	II	T9325 (T9335)	-
	-	II	II	II	72	72	74 (79)	-	-	-	-	-	-
..W ..T	TT310	T8315	TT310	T8315	T9315	T9315	T9315	T9315	T9316	T9316	T9335	-	
	UR	FF	UR	FF	W-FM	RM	RM	RC...	RC...	OR	OR	-	
	T8315	T8330	T9315	T9325	T9315	T9325	T9325	T9325	T9325	T9325	T9335	-	
	FF	FM	FM	FM	RM	RM	RM	-	SR	SR	SR	-	
	8016	T8330	T8315	T8330	T9325	T8330	T8330	-	T9325	T9325	T9226	-	
	Al	FM	UR	FM	RM	RM	RM	-	SR	SR	SR	-	
	-	I	T9325	T9335	T9325	T9335	T9335	-	-	-	-	-	
	-	46	46	46	46	46	46	-	-	-	-	-	
	-	T9325	T9325	T9335	T9325	T9335	T9335	-	-	-	-	-	
	-	47	47	47	47	47	47	-	-	-	-	-	
..R ..N	-	T9335	T9325	T9335	T9325	T9335	T9335	-	-	-	-	-	
	-	48	48	48	48	48	48	-	-	-	-	-	
	-	III	III	III	III	III	III	-	-	-	-	-	
	-	III	III	III	III	III	III	-	-	-	-	-	
	-	8330	8330	8330	8330	8330	8330	-	-	-	-	-	
	-	8330	8330	8330	8330	8330	8330	-	-	-	-	-	
	-	II	II	II	II	II	II	-	-	-	-	-	
	-	II	II	II	II	II	II	-	-	-	-	-	
	-	III	III	III	III	III	III	-	-	-	-	-	
	-	III	III	III	III	III	III	-	-	-	-	-	
..X	T8330	T8330	T8330	T8330	-	-	-	-	-	-	T8330	T8330	
	-	-	-	-	-	-	-	-	-	-	-	T8330	
..X	-	-	-	-	-	-	-	-	-	-	-	T9325 (6630)	
	-	-	-	-	-	-	-	-	-	-	-	T9325 (6640)	
..X	II	II	II	II	II	II	II	II	II	II	II	II	
..X	I	I	I	I	I	I	I	I	I	I	I	I	
..X	I	I	I	I	I	I	I	I	I	I	I	I	

Machined material, main ISO group

P

Table 1b

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Type of operation		Selection priority				Feeds and depth of cut				P												ADJUSTMENT v_c																
										Adjustment for workpiece hardness												P1	P2	P3	P4													
Subgroup	Hardness [HB]	$k_{V_{opt}}$			$k_{V_{opt}}$			$k_{V_{opt}}$			$k_{V_{opt}}$			$k_{V_{opt}}$	$k_{V_{opt}}$	$k_{V_{opt}}$	$k_{V_{opt}}$																					
				1.53	1.46	1.37	1.30	1.24	1.17	1.12	1.07	1.04	1.00	0.96	0.92	0.88	0.85	1.18	1.12	1.05	1.00	0.95	0.94	0.90	0.84	0.80	0.76	0.72	0.69	0.66	0.64	0.62	0.59	0.57	0.54	0.52		
		120	140	160	180	200	220	240	260	280	300	320	340	360	375																							
		Adjustment for durability (general machining)																																				
	Durability [min]	k_{V_r}			k_{V_r}			k_{V_r}			k_{V_r}			k_{V_r}			k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}			
		10	15	20																																		
		Adjustment for durability (heavy roughing)																																				
	Durability [min]	k_{V_r}			k_{V_r}			k_{V_r}			k_{V_r}			k_{V_r}			k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}	k_{V_r}		
		30	45																																			
		Adjustment coefficient k_{v_s}																																				
		Skin off-forging and casting																																				
		Internal turning																																				
		Interrupted cut																																				
		Machine in good condition																																				
		Machine in poor condition																																				
		Adjustment to the shape of the insert																																				
		Shape of insert																																				
		S..., C..., W...																																				
		T..., D..., K...																																				
		V..., L... (parting off and grooving)																																				
		R..., L... (roughing)																																				

Figures in blue are valid for machining with coolant.

Table 2b

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Type of operation		Selection priority		Feeds and depth of cut		M												ADJUSTMENT v_c			
						Adjustment for workpiece hardness												M1	M2	M3	M3
				Depth of cut a_p [mm]		Feed f [mm/rev]		Durability		Durability		Durability		Durability		Durability		Durability		Durability	
								V_{15} [m/min]		V_{15} [m/min]		V_{15} [m/min]		V_{15} [m/min]		V_{15} [m/min]		k_{v1}		k_{v2}	
Fine turning	I	0,05	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II	0,08	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	III	0,10	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finishing turning	I	0,10	1,5	200	170	215	195	200	165	200	165	200	165	200	165	200	165	200	165	200	165
	II	0,15	1,5	165	145	200	165	180	150	180	150	180	150	180	150	180	150	180	150	180	150
	III	0,20	1,5	150	125	185	145	170	140	170	140	170	140	170	140	170	140	170	140	170	140
Semi-roughing turning	I	0,20	2,5	140	120	180	140	160	135	160	135	160	135	160	135	160	135	160	135	160	135
	II	0,30	2,5	115	100	165	120	145	120	145	120	145	120	145	120	145	120	145	120	145	120
	III	0,40	2,5	105	90	155	105	135	115	135	115	135	115	135	115	135	115	135	115	135	115
Roughing turning	I	0,40	5,0	95	80	145	100	125	105	125	105	125	105	125	105	125	105	125	105	125	105
	II	0,60	5,0	80	70	130	85	115	95	80	70	115	95	80	70	115	95	80	70	115	95
	III	0,80	5,0	70	60	125	75	105	90	70	60	105	90	70	60	105	90	70	60	105	90
Heavy roughing turning	I	0,80	12,0	50	45	85	55	80	60	60	50	80	60	50	80	60	50	80	60	50	80
	II	1,00	12,0	45	40	80	50	75	60	45	60	45	60	45	60	45	60	45	60	45	60
	III	1,30	12,0	40	35	75	45	70	55	40	50	40	50	40	50	40	50	40	50	40	50
Parting off, circumferential grooving and contouring (CTP)		0,10	-	130	110	-	-	130	-	-	-	90	-	-	-	-	-	-	-	-	-
		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																					

Figures in blue are valid for machining with coolant.

Table 4b

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

Type of operation		Selection priority	Feeds and depth of cut		N										ADJUSTMENT v_c				
					T0315	T8030	T8310	T8315	T8330	H07	Hf7	D720	PC30	Pd1	Subgroup	N1	N2	N3	N4
Fine turning	I	I	0,05	0,5	1170	-	1140	-	-	-	-	835	1995	1995	1995	1495	Alloys for electrical applications	2,00	N1
	II	II	0,08	0,5	975	-	985	-	-	-	695	1945	1945	1945	1460	Al alloys formed non-hardened HB60	1,50		
	III	III	0,10	0,5	890	-	915	-	-	-	635	1925	1925	1925	1445	Al alloys formed hardened HB100	1,00		
Finishing turning	I	I	0,10	1,5	800	-	820	745	580	570	570	570	1820	1820	1820	1365	Al alloys cast non-hardened HB75	0,90	N2
	II	II	0,15	1,5	680	-	725	660	520	485	485	1785	1785	1785	1340	Al alloys cast hardened HB90	0,65		
	III	III	0,20	1,5	610	-	660	600	485	435	435	1760	1760	1760	1320	Al alloys cast non-hardened HB 130 > 12% Si	1,0 PKD / 0,20		
Semi-roughing turning	I	I	0,20	2,5	580	-	630	570	460	415	415	-	-	-	-	-	Alloys type	k_{vc}	N3
	II	II	0,30	2,5	495	-	555	505	415	350	350	-	-	-	-	Very easy to machine alloys (>1% Pb)	0,90		
	III	III	0,40	2,5	440	-	505	460	385	315	315	-	-	-	-	Brasses and lead bronzes (<1% Pb)	0,75		
Roughing turning	I	I	0,40	5,0	-	-	-	-	-	-	-	-	-	-	-	-	Other bronzes HB < 90	0,60	N4
	II	II	0,60	5,0	-	-	-	-	-	-	-	-	-	-	-	Other bronzes HB > 90	0,54		
	III	III	0,80	5,0	-	-	-	-	-	-	-	-	-	-	-	Electrolytic bronze Cu	0,40		
Heavy roughing turning	I	I	0,80	12,0	-	-	-	-	-	-	-	-	-	-	-	-	Hard and very hard bronzes	0,6 PKD / 0,20	Subgroup
	II	II	1,00	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-		
	III	III	1,30	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-		
Parting off, circumferential grooving and contouring (CTP)	I	I	0,10	-	-	-	-	-	380	-	-	-	-	-	-	-	Skin of forging and casting	0,70 - 0,80	Subgroup
	II	II	0,15	-	-	-	-	365	-	-	-	-	-	-	-	-	Internal turning	0,75 - 0,85	
	III	III	0,20	-	-	-	-	340	-	-	-	-	-	-	-	-	Interrupted cut	0,80 - 0,90	
	IV	IV	0,30	-	-	-	-	310	-	-	-	-	-	-	-	-	Machine in good condition	1,05 - 1,20	
Face and internal grooving	I	I	0,10	-	-	-	-	300	-	-	-	-	-	-	-	-	Machine in poor condition	0,85 - 0,95	Subgroup
	II	II	0,15	-	-	-	-	290	-	-	-	-	-	-	-	-	-		
	III	III	0,20	-	-	-	-	270	-	-	-	-	-	-	-	-	-		
	IV	IV	0,30	-	-	-	-	245	-	-	-	-	-	-	-	-	-		
Threading	I	I	-	-	-	280	-	-	335	-	-	-	-	-	-	-	Shape of insert	k_{step}	Subgroup
	II	II	-	-	-	255	-	-	310	-	-	-	-	-	-	-	S..., C..., W...	1,00	
	III	III	-	-	-	235	-	-	290	-	-	-	-	-	-	-	T..., D..., K...	0,95	
																	V..., L..., (parting off and grooving)	0,88	
																	R..., L..., (roughing)	1,10	

Figures in blue are valid for machining with coolant.

Machined material, main ISO group

Table 5a

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

OPERATING CONDITIONS FOR TURNING												
INDEXABLE INSERT TYPE in accordance with ISO	Fine turning		Finishing turning		Semi-finishing turning		Roughing turning		Heavy roughing turning		Parting off, grooving	Threading
	f = 0.05 - 0.1 [mm/rev] a _p = 0.2 - 1.0 [mm]		f = 0.1 - 0.2 [mm/rev] a _p = 0.8 - 2.0 [mm]		f = 0.2 - 0.4 [mm/rev] a _p = 1.5 - 4.0 [mm]		f = 0.4 - 0.8 [mm/rev] a _p = 4.0 - 10.0 [mm]		f > 1.0 [mm/rev] 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		
.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	T6310	I	T9325	I	T9325	I	T7335	I	-
	II	FF	II	SF	II	SM	II	SM	II	RM	II	-
	III	T8330	III	T9315	III	T7335	III	T7335	III	NR	III	-
	I	-	I	NF	I	NM(SI)	I	NR	I	OR, HR2	I	-
	II	T8315	II	T9315	II	T6310	II	T7335	II	T8330	II	-
	III	FF	III	FM	III	SM(SI)	III	FM	III	NR2 (OR)	III	-
	I	T8330	I	T9325	I	6640	I	6640	I	6640	I	-
	II	-	II	72	II	73 (78)	II	73 (78)	II	73 (78)	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	II	-	II	-	II	-	II	-	II	-	II	-
.X KNUX	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	II	-	II	-	II	-	II	-	II	-	II	-
.W .T CCMW, CCMT, SCMW, SCMT, DCMW, DCMT, TCMW, TGMT, VCMW, VCMT, WCMW, WCMT, RCMW, RCMT, RCMX	I	TT310	I	TT310	I	T5315	I	T5315	I	T9315	I	-
	II	UR	II	UR	II	RM	II	RM	II	RM	II	-
	III	T8315	III	T9315	III	T9315	III	T7335	III	T7335	III	-
	I	FF	I	FF	I	FM	I	FM	I	RM	I	-
	II	T8330	II	T7335	II	RM	II	RM	II	RM	II	-
	III	FF	III	FM	III	RM	III	RM	III	RM	III	-
	I	-	I	T8330	I	T7335	I	T8330	I	T8330	I	-
	II	-	II	FM	II	RM	II	RM	II	RM	II	-
	III	-	III	UR	III	RM	III	RM	III	RM	III	-
	II	-	II	-	II	-	II	-	II	-	II	-
.R .N SPMR, SPGR, SPUN, SPGN, TPMR, TPGR, TPUN, TPGN	I	-	I	T9325	I	T9325	I	T9325	I	T9335	I	-
	II	-	II	46	II	46	II	46	II	46	II	-
	III	-	III	T9325	III	T9325	III	T9325	III	T9335	III	-
	I	-	I	47	I	47	I	47	I	47	I	-
	II	-	II	48	II	48	II	48	II	48	II	-
	III	-	III	T9335	III	T9335	III	T9335	III	T9335	III	-
	I	-	I	48	I	48	I	48	I	48	I	-
	II	-	II	T8330	II	T8330	II	T8330	II	T8330	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	II	-	II	-	II	-	II	-	II	-	II	-
.X LFMX, LFUX, LCMX, TN11., TN16., TN22..	I	T8330	I	T8330	I	T8330	I	T8330	I	T8330	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	II	-	II	-	II	-	II	-	II	-	II	-
TN11., TN16., TN 22	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	I	-	I	-	I	-	I	-	I	-	I	-
	II	-	II	-	II	-	II	-	II	-	II	-
	III	-	III	-	III	-	III	-	III	-	III	-
	II	-	II	-	II	-	II	-	II	-	II	-



Table 5b

CHOOSING THE INITIAL MACHINING CONDITIONS - TURNING

		ADJUSTMENT v_c																			
		S1			S2			S3			S4										
Type of operation	Selection priority	Adjustment for workpiece hardness																			
		Feeds and depth of cut		Feeds and depth of cut		Feeds and depth of cut		Feeds and depth of cut		Feeds and depth of cut		Feeds and depth of cut									
		Feed f [mm/rev]	Depth of cut a_p [mm]	6630	6640	7735	7925	7935	7926	76310	78030	78310	78315	78330	78345	H07	HF7	TC100	TB310	Durability	
Fine turning	I	0,05	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	$k_{V_{opt}}$
	II	0,08	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	380	$k_{V_{opt}}$
	III	0,10	0,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	$k_{V_{opt}}$
Finishing turning	I	0,10	1,5	100	85	95	100	80	-	105	-	95	85	65	65	65	65	225	240	330	$k_{V_{opt}}$
	II	0,15	1,5	80	70	80	90	75	-	90	-	85	75	55	55	55	195	175	320	$k_{V_{opt}}$	
	III	0,20	1,5	75	60	70	85	70	-	80	-	75	70	50	50	50	175	170	310	$k_{V_{opt}}$	
Semi-roughing turning	I	0,20	2,5	70	60	70	80	65	-	75	-	75	65	45	45	45	170	-	-	-	V_{15} [m/min]
	II	0,30	2,5	55	50	60	70	60	-	65	-	65	60	40	40	40	150	-	-	-	V_{15} [m/min]
	III	0,40	2,5	50	45	50	65	55	-	55	-	60	55	35	35	35	135	-	-	-	V_{15} [m/min]
Roughing turning	I	0,40	5,0	45	40	50	60	50	45	50	-	-	-	40	35	-	-	-	-	-	$k_{V_{opt}}$
	II	0,60	5,0	40	35	40	55	45	40	45	-	-	-	-	-	-	-	-	-	-	$k_{V_{opt}}$
	III	0,80	5,0	35	30	35	50	45	35	40	-	-	-	-	-	-	-	-	-	-	$k_{V_{opt}}$
Heavy roughing turning	I	0,80	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$k_{V_{opt}}$
	II	1,00	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$k_{V_{opt}}$
	III	1,30	12,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	$k_{V_{opt}}$
Parting off, circumferential grooving (CTP) and contouring		0,10	-	65	55	-	65	-	-	-	-	-	-	45	-	-	-	-	-	-	$k_{V_{opt}}$
		0,15	-	55	50	-	60	-	-	-	-	-	-	40	-	-	-	-	-	-	$k_{V_{opt}}$
		0,20	-	50	45	-	60	-	-	-	-	-	-	40	-	-	-	-	-	-	$k_{V_{opt}}$
		0,30	-	40	35	-	55	-	-	-	-	-	-	35	-	-	-	-	-	-	$k_{V_{opt}}$
Face and internal grooving		0,10	-	50	40	-	50	-	-	-	-	-	-	35	-	-	-	-	-	-	$k_{V_{opt}}$
		0,15	-	40	40	-	45	-	-	-	-	-	-	30	-	-	-	-	-	-	$k_{V_{opt}}$
		0,20	-	40	35	-	45	-	-	-	-	-	-	30	-	-	-	-	-	-	$k_{V_{opt}}$
Threading		0,30	-	30	25	-	40	-	-	-	-	-	-	25	-	-	-	-	-	-	$k_{V_{opt}}$
										30				40							$k_{V_{opt}}$
										30				35							$k_{V_{opt}}$
										25				30							$k_{V_{opt}}$
Adjustment for durability (general machining)																					
Durability [min]		$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	Durability [min]	$k_{V_{opt}}$	$k_{V_{opt}}$
10		1,10	30	0,84	30	0,84	30	0,84	30	0,84	30	0,84	30	0,84	30	0,84	30	0,84	30	0,84	0,84
15		1,00	45	0,76	45	0,76	45	0,76	45	0,76	45	0,76	45	0,76	45	0,76	45	0,76	45	0,76	0,76
20		0,93	60	0,71	60	0,71	60	0,71	60	0,71	60	0,71	60	0,71	60	0,71	60	0,71	60	0,71	0,71
Adjustment coefficient $k_{V_{opt}}$																					
Skin of forging and casting																					
Internal turning																					
Interrupted cut																					
Machine in good condition																					
Machine in poor condition																					
Adjustment to the shape of the insert																					
Shape of insert																					
$S_{...}, C_{...}, W_{...}$																					
$T_{...}, D_{...}, K_{...}$																					
$V_{...}, L_{...}$ (parting off and grooving)																					
$R_{...}, L_{...}$ (roughing)																					

Figures in blue are valid for machining with coolant.

CHOICE OF INITIAL CUTTING CONDITIONS

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.

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

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

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

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

TECHNICAL SECTION	
TURNING INSERTS	
TURNING TOOLS	
MILLING INSERTS	
MILLING TOOLS	



SIMPLY RELIABLE

As a professional you can judge the quality of work by just looking at the chip. Our chip is a clean and uncomplicated shape that in itself tells a story. It is a clear and consistent signal and that's why we use it as a symbol for being **simply reliable**.

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