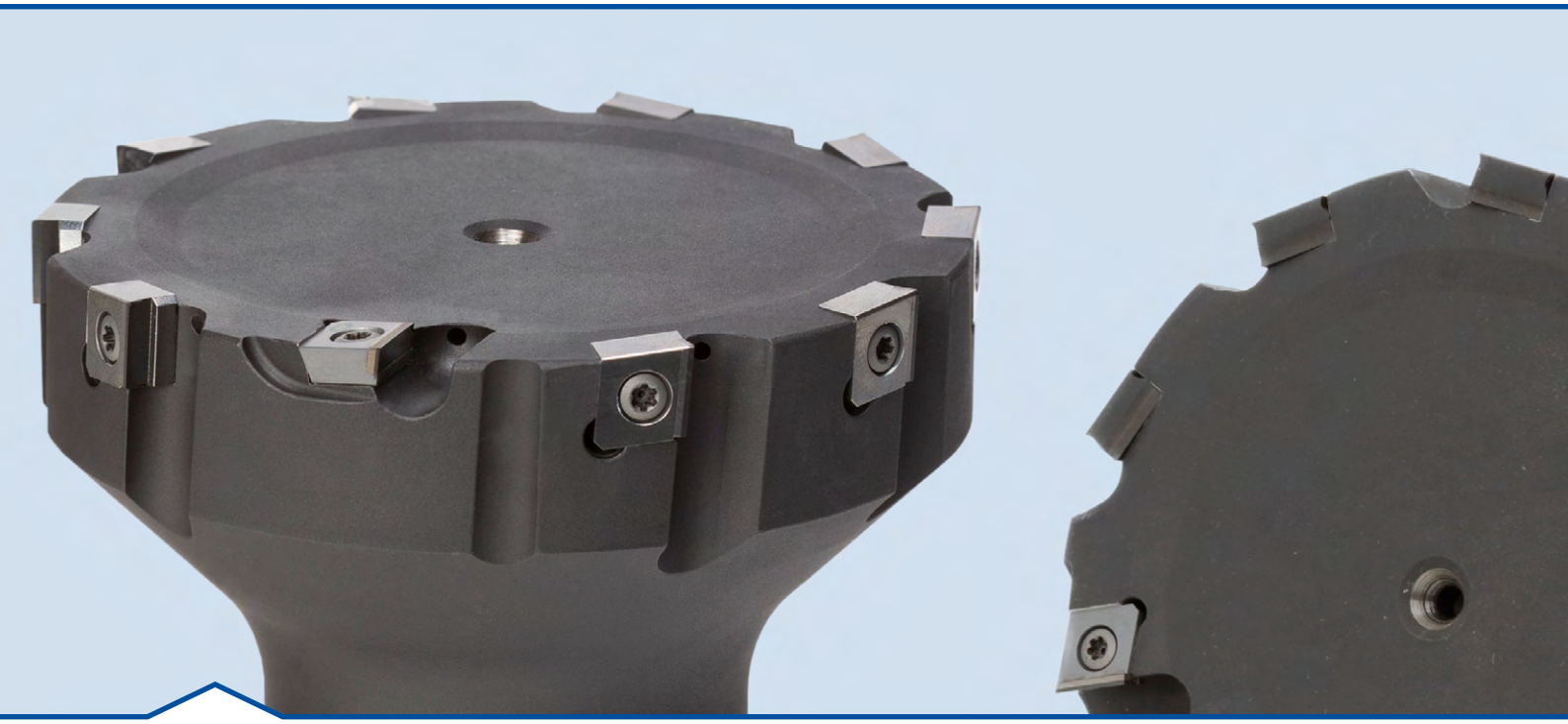


Your technology partner for cost-effective machining

NeoMill®-T-Finish

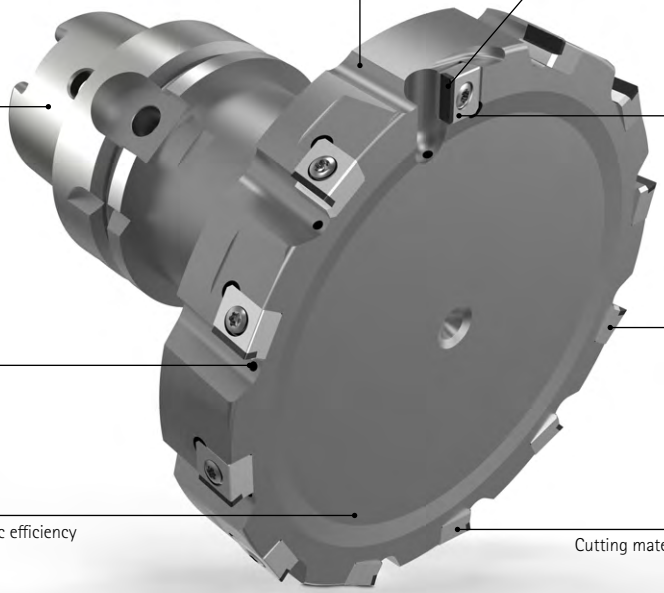
NeoMill®-T-Finish

Finishing with the highest accuracy and without adjustment

The NeoMill-T-Finish indexable insert milling cutter is designed for economical and process-reliable finish machining in series production. The milling cutter is impressive thanks to its very easy handling: The cutting edges can be interchanged on site and do not need to be adjusted – MAPAL calls this principle Plug & Mill. Thank to its high cutting material variance, the NeoMill-T-Finish can be used for all aluminium alloys as well as sand casting. The patent-pending cutting edge assembly ensures quiet running, low burr formation, even wear and tear, and therefore the best surfaces.

Wiper (geometry)
with a large operating radius for an excellent surface finish

NeoMill®-T-Finish
Face-milling finishing for aluminium materials



Tool adapter
Monolithic or adaptive

Finish cutting edge
No tool adjustment necessary → Plug & Mill

Peripheral cutting edge
Pre-cutting stage – low burr formation

Cooling
Emulsion, MQL, dry or air cooling

Tool body
Individual design → maximum efficacy and economic efficiency

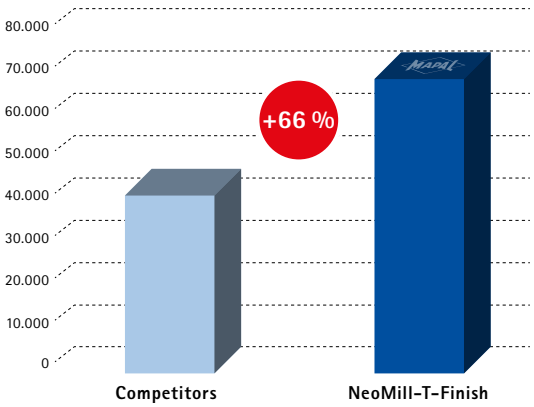
Cutting materials
Cutting material variants for all applications in aluminium

Features

Preferred series in stock:
- Diameter range: 80.00 - 160.00 mm
- Connection: Milling cutter arbor
- Design according to effective facing diameter for more finishing width

Configurable features:
- Diameter range: 50.00 - 315.00 mm
- Connection: HSK, SK, CAT, BT
- Connection: Milling cutter arbor
- Number of teeth: For maximum efficiency and economy, tool configuration and cutting data are defined for each application

Tool life [units]

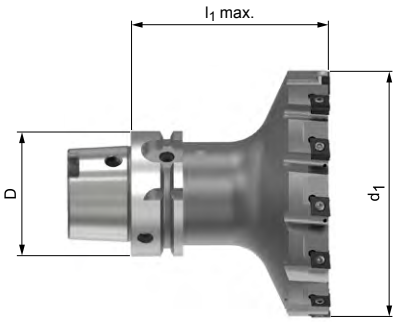


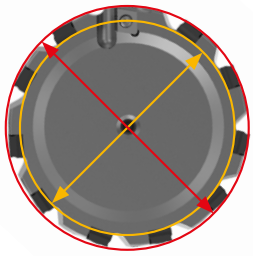
Workpiece:	**Cylinder head**
Material:	AlSi7Cu0.5
Tool ø:	125 mm
v_c:	2,513 m/min
f_u:	1.8 mm
a_p:	0.3 mm
a_e:	varies depending on part

Scan the QR code for more information,
or click on the link: www.mapal.com

NeoMill®-T-Finish

Finish face milling cutter, monolithic design with tangential technology
CTH_09



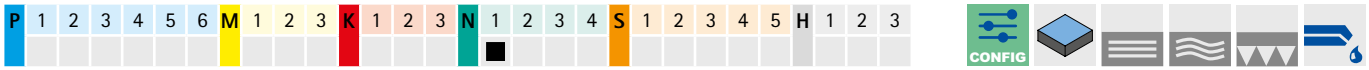


Nominal diameter [d_1]
Effective facing diameter

Design:

Diameter of milling cutter:	50.00 – 315.00 mm
Max. no. of cutting edges:	5 – 17
Surface quality:	R_a = 0.3 µm / R_z = 1.5 µm
Special features:	No adjustment necessary, very good surface value, Plug & Mill

Application:
Universal face milling cutter for finishing with up to 2.5 mm stock removal.



Configuration | Metric by outside diameter

Dimensions			$z_{eff\ max.}$ [incl. 1 wiper]	Connection
d_1	Facing diameter	l_1 max.		
50,00	38,50	D x 2,5	5	HSK, SK, CAT, BT
63,00	51,50		7	
80,00	68,60		9	
100,00	88,60		11	
125,00	113,60		13	
160,00	148,60		17	
200,00	188,60		17	
250,00	238,60		17	
315,00	303,60		17	

Configuration | Metric according to effective facing diameter for more finishing width

Dimensions			$z_{eff\ max.}$ [incl. 1 wiper]	Connection
d_1	Facing diameter	l_1 max.		
61,50	50,00	D x 2,5	5	HSK, SK, CAT, BT
74,50	63,00		7	
91,50	80,00		9	
111,50	100,00		11	
136,50	125,00		13	
171,50	160,00		17	
211,50	200,00		17	
261,50	250,00		17	
326,50	315,00		17	

Configurable features

Diameter:
ø 50.00 mm – ø 315.00 mm

Length:
Length to l_1 max. (D x 2.5) configurable

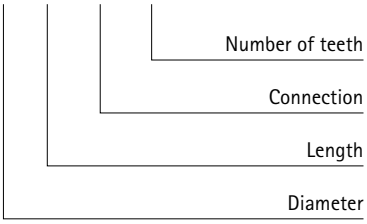
Connection:
Various connections available
(see table on the right)

Number of teeth and feed rate:
Diameter, length, number of teeth and cutting data are determined individually for each application, for maximum efficiency and economy.

Maximum length l1 max. depending on the connection

Connection	D Connection	l_1 max. (D x 2.5)
HSK-A 63 / C 63	63,00	157,500
HSK-A 80 / C 80	80,00	200,000
HSK-A 100 / C 100	100,00	250,000
SK40	44,45	111,125
SK50	69,85	174,625
CAT40	44,45	111,125
CAT50	69,85	174,625
BT40	44,45	111,125
BT50	69,85	174,625

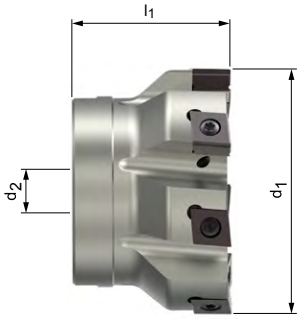
Example:
T-Finish-1-**050-090-A063-Z05R**

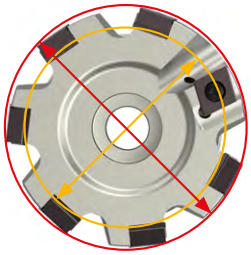


Dimensions in mm.
For accessories and spare parts see page 12.

NeoMill®-T-Finish

Finish face milling cutter, milling cutter with tangential technology
CTH_09





Nominal diameter [d_1]
Effective facing diameter

Design:

Diameter of milling cutter:	50.00 – 315.00 mm
Max. no. of cutting edges:	5 – 17
Surface quality:	R_a = 0.3 µm / R_z = 1.5 µm
Special features:	No adjustment necessary, very good surface value, Plug & Mill

Application:
Universal face milling cutter for finishing with up to 2.5 mm stock removal.

Configuration | Metric by outside diameter

Dimensions				Z_{eff} max. [incl. 1 wiper]	Order-No.
d_1	Facing diameter	l_1	d_2		
50,00	38,50	40,00	22,00	5	–
63,00	51,50	40,00	27,00	7	–
80,00	68,60	50,00	32,00	9	–
100,00	88,60	50,00	32,00	11	–
125,00	113,60	63,00	40,00	13	–
160,00	148,60	63,00	40,00	17	–
200,00	188,60	63,00	60,00	17	–
250,00	238,60	63,00	60,00	17	–
315,00	303,60	80,00	60,00	17	–

Configuration | Metric according to effective facing diameter for more finishing width

Dimensions				Z_{eff} max. [incl. 1 wiper]	Order-No.
d_1	Facing diameter	l_1	d_2		
61,50	50,00	40,00	22,00	5	–
74,50	63,00	50,00	27,00	7	–
91,50	80,00	50,00	32,00	9	–
111,50	100,00	50,00	32,00	11	–
136,50	125,00	63,00	40,00	13	–
171,50	160,00	63,00	40,00	17	–
211,50	200,00	63,00	60,00	17	–
261,50	250,00	63,00	60,00	17	–
326,50	315,00	80,00	60,00	17	–

Preferred series in stock | Metric according to effective facing diameter for more finishing width

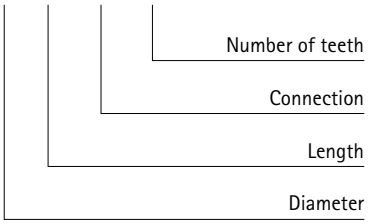
Dimensions				Z_{eff} max. [incl. 1 wiper]	Specification	Order-No.
d_1	Facing diameter	l_1	d_2			
91,50	80,00	50,00	32,00	9	T-Finish-1-091-050-CA27-Z09R	31461790
111,50	100,00	50,00	32,00	11	T-Finish-1-111-050-CA32-Z11R	31461791
136,50	125,00	63,00	40,00	13	T-Finish-1-136-063-CA40-Z13R	31461792
171,50	160,00	63,00	40,00	17	T-Finish-1-171-063-CA40-Z17R	31461793

Configurable features

Diameter:
ø 50.00 mm – ø 315.00 mm

Number of teeth and feed rate:
Diameter, number of teeth and cutting data are determined individually for each application for maximum efficiency and economy.

Example:
T-Finish-1-**050-040-CA22-Z05R**

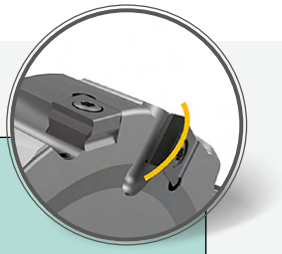


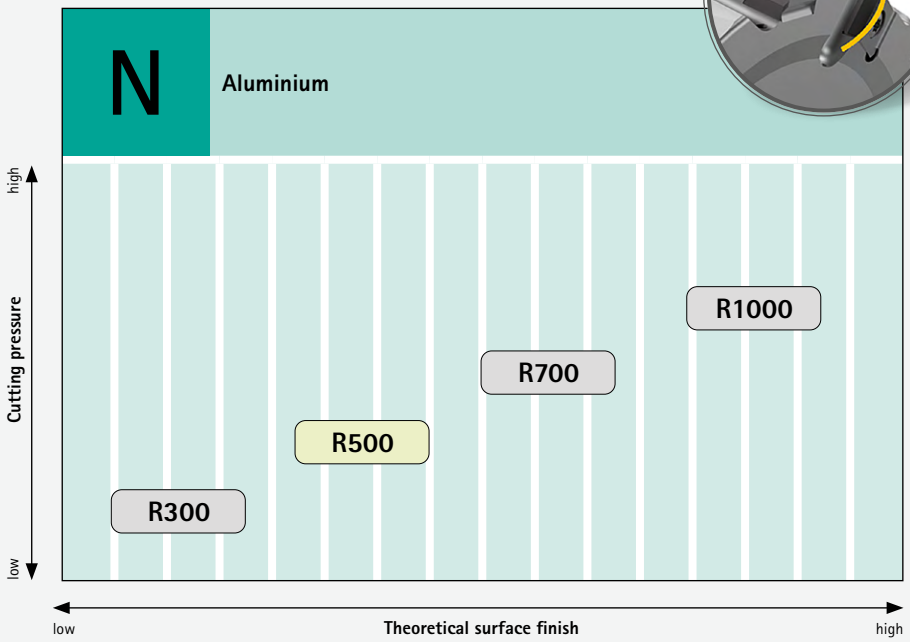
Dimensions in mm.
For accessories and spare parts see page 12.

Cutting materials overview: Selecting the right cutting material

Workpiece material	N	Aluminium				
Type of cast	Wrought alloys	Sand casting		Pressure die casting / permanent mould casting	Pressure die casting / permanent mould casting / all aluminium variants	
Material	AlSi 0.1 – 7	ALSi 7 – 12 / All aluminium variants for sand casting		All aluminium variants < 12% Silicon	All aluminium variants	
Lot size	Small to medium lot sizes			Medium to large lot sizes	Series production	
	< 1,000 parts / month			~1,000 - 10,000 month	> 10,000 parts per month / series production	
Other	Cost savings due to PCD handling errors			Lowest total costs cpp (machine and cutting material costs)	Maximum tool life, best surfaces	
Cutting data	200 - 500 m/min	200 - 700 m/min		400 - 1,800 m/min	500 - 6,000 m/min (AlSi17 500 - 800 m/min)	
Cutting material type	HU616	HP616	HP626	HC695	PU617	PU620

Overview of wiper geometry





Recommendation:
1. Choice R500
Ideal ratio of theoretical surface finish to low cutting pressure.

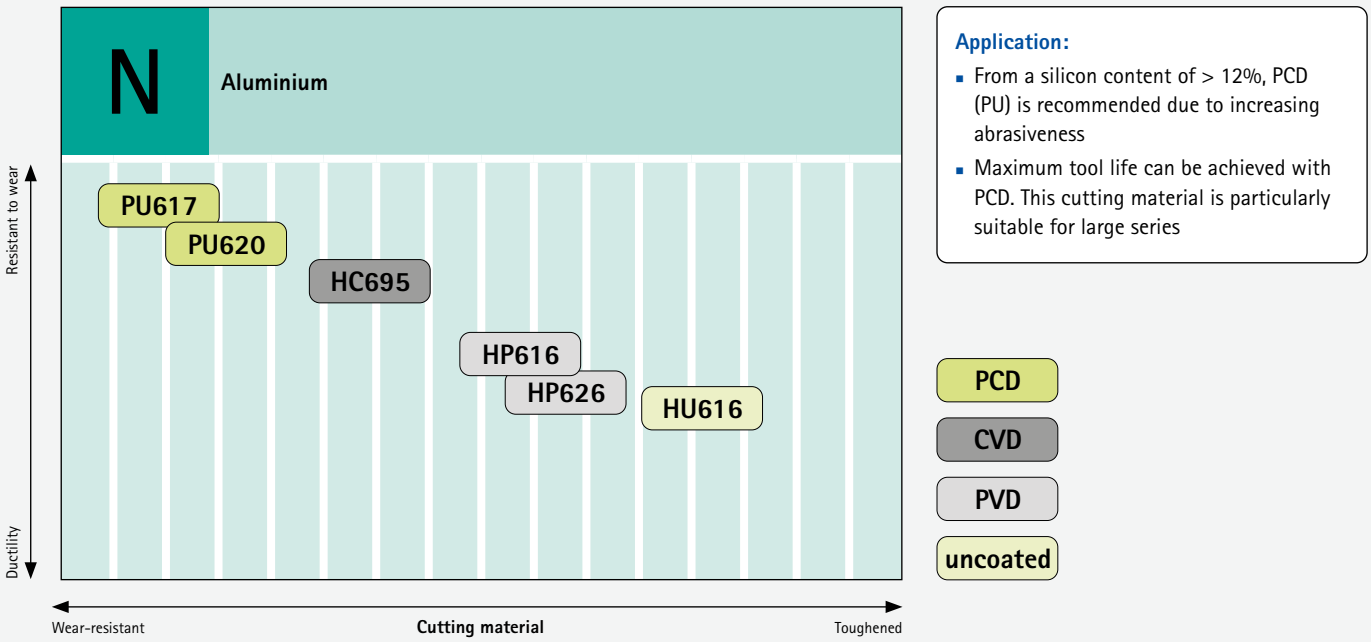
Cutting materials overview: Types and type description

Milling cutters with indexable inserts

Cutting material		Name of cutting material	Coating composition	Colour of coating	Field of application	Recommended application
Carbide	Uncoated	HU616	–	–	●	Fine grain carbide with very smooth surface for the general machining of aluminium wrought alloys and aluminium cast alloys with Si contents < 3%.
	PVD-coated	HP616	TiB2	Silver	●	Wear resistant fine grain carbide with TiB2 coating is characterised by a high level of resistance to wear and excellent coating adhesion. In addition, the extremely smooth coating surface reduces the formation of built-up edges.
		HP626	AlTiN	Grey anthracite	●	Fine grain carbide with balanced wear resistance. The thermally resistant AlTiN-based PVD coating is characterised by its low sticking tendency.
	CVD-coated	HC695	Diamond	Black anthracite	●	Fine-grain carbide with CVD diamond coating for machining aluminium.
	PCD	PU617	–	–	●	PCD grade with medium particle size for semi-machining in aluminium and for machining very abrasive materials, such as AlSi17.
		PU620	–	–	●	Fine grain PCD grade for finishing in aluminium, guarantees highest surface qualities.

Field of application: ● General machining

Cutting materials overview

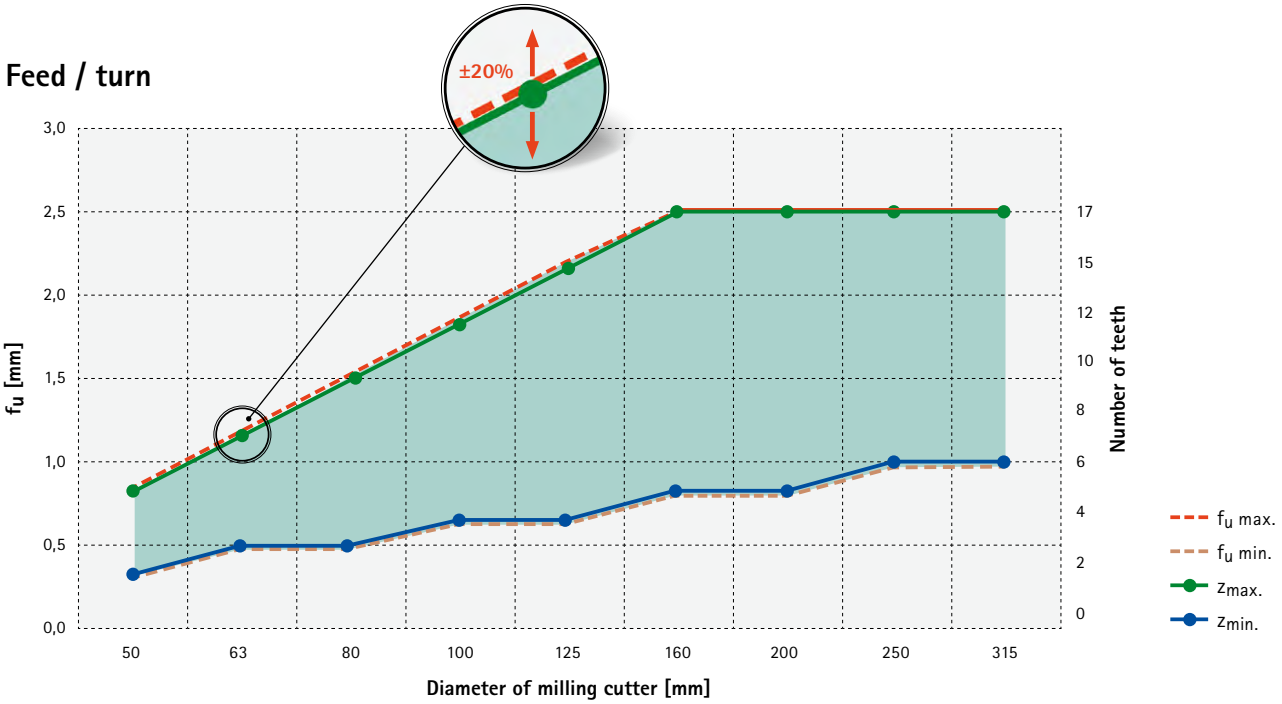


Application:

- From a silicon content of > 12%, PCD (PU) is recommended due to increasing abrasiveness
- Maximum tool life can be achieved with PCD. This cutting material is particularly suitable for large series

Cutting data recommendations for face milling cutter

Feed / turn

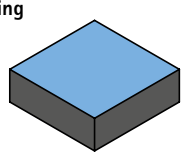


f_u = feed/turn | f_z = ideal feed is designed with 0.17 mm and can be varied according to the machining operation

Cutting speed

NeoMill-T-Finish

Face milling



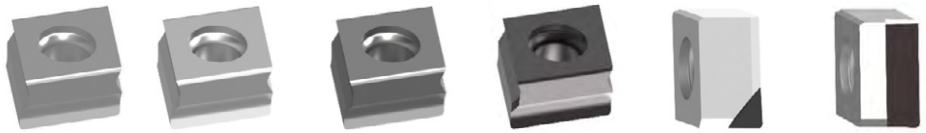
MAPAL machining groups			Workpiece material	Cooling			HU616		HP616		HP626		HC695		PU617		PU620	
				MQL/Air	Dry	KSS	>0.6	<0.6	>0.6	<0.6	>0.6	<0.6	>0.6	<0.6	>0.6	<0.6	>0.6	<0.6
N	N1	N1.1	Aluminium, unalloyed and alloyed < 3% Si	✓	✓	✓	500	500	700	700	700	700	1,200	1,800	5,600	6,000	5,600	6,000
		N1.2	Aluminium, alloyed < 7% Si	✓	✓	✓	300	360	400	480	400	480	1,000	1,100	4,800	5,000	4,800	5,000
		N1.3	Aluminium, alloyed > 7 - 12% Si	✓	✓	✓	230	280	300	360	300	360	800	900	3,450	3,600	3,450	3,600
		N1.4	Aluminium, alloyed > 12% Si	✓	✓	✓			220	270	220	270	500	600	1,100	1,500	1,100	1,500

The lower Vc value always applies in the case of different tipping between periphery and wiper.
Cutting data is recommended when preparing a quotation.

The specified machining values are guide values.
The optimum data for the respective machining task should be determined during the test or machining.

CTHQ

Tangential indexable inserts – cutting on the periphery
Carbide four-edged – PCD single-edged



Workpiece material		N	Aluminium				
Substrate		Carbide				PCD	
Coating		uncoated	PVD		CVD	–	–
Cutting material type		HU616	HP616	HP626	HC695	PU617	PU617
Cutting edge design		H20	H20	H20	H20	A60	A80
CTHQ09	**a_p max. [mm]**						
CTHQ090504...R-...	*	31389667	31389680	31389683	31091137	31418394	31418397
CTHQ090508...R-...	*	31316862	31389687	31389689	31126185	31389694	31418398

CTHD

Tangential indexable inserts – face-side wiper blade
Carbide double-edged – PCD single-edged

Workpiece material			N	Aluminium		
Substrate			Carbide		PCD	
Coating			PVD		–	
Cutting material type			HP616	HP626	PU620	
Cutting edge design			D00	D00	D80	
CTHD09		**a_p max. [mm]**				
CTHD09T304...L00M300-	R300	*	31389725	31389729	31389698	
CTHD09T304...L00M500-	R500	*	31389726	31389731	31389720	
CTHD09T304...L00M700-	R700	*	31389727	31389732	31389722	
CTHD09T304...L00M1T0-	R1000	*	31389728	31389733	31389724	

Recommendation: Whenever the indexable inserts are changed, replace the clamping screws as well.
* a_p max. depends on the type of milling cutter and application.

Accessories and spare parts

Accessories

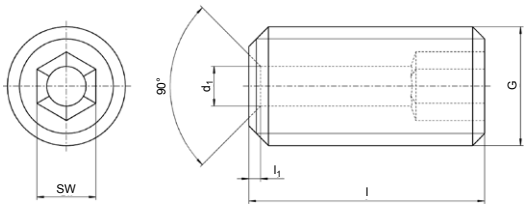
	CTHQ09...	Indexable inserts	Page 11
	CTHD09...	Indexable inserts	Page 11
		Milling cutter arbor for milling cutter see MAPAL catalogue "CLAMPING"	

Spare parts*

	CTHQ09.. CTHD09..	Clamping screw M3.5x11-TX10-IP	Order no. 10105079
		Threaded pin with coolant bore	See below
		Milling cutter clamping screw for arbor milling cutters, see MAPAL catalogue "CLAMPING"	

*Included in scope of delivery.
Only use milling cutter with milling cutter arbor with enlarged face connection.
Do not use milling cutter arbors for milling cutters with longitudinal groove / cross slot with drive ring.

Threaded pin with coolant bore



Dimensions of shape AD

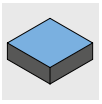
G	l	l1	d1	SW	Specification	Order no.
M3	4	0,6	0,5	1,5	MN 620-AD M3x4-Ø0.5	31291816
M3	4	0,35	1	1,5	MN 620-AD M3x4-Ø1.0	31291814
M3	4	0,1	1,5	1,5	MN 620-AD M3x4-Ø1.5	31291811
M4	6	0,6	0,5	2	MN 620-AD M4x6-Ø0.5	31404731
M4	6	0,35	1	2	MN 620-AD M4x6-Ø1.0	31404732
M4	6	0,1	1,5	2	MN 620-AD M4x6-Ø1.5	31404733
M4	6	0,1	2	2	MN 620-AD M4x6-Ø2.0	31404734
M5	8	0,6	0,5	2,5	MN 620-AD M5x8-Ø0.5	31404735
M5	8	0,35	1	2,5	MN 620-AD M5x8-Ø1.0	31404736
M5	8	0,1	1,5	2,5	MN 620-AD M5x8-Ø1.5	31404737
M5	8	0,1	2	2,5	MN 620-AD M5x8-Ø2.0	31404738
M6	8	0,6	0,5	3	MN 620-AD M6x8-Ø0.5	31404739
M6	8	0,35	1	3	MN 620-AD M6x8-Ø1.0	31404760
M6	8	0,1	1,5	3	MN 620-AD M6x8-Ø1.5	31404761
M6	8	0,1	2	3	MN 620-AD M6x8-Ø2.0	31404762

Dimensions in mm.

Type

Pictograms

Product with configurable features


Face milling


Process conditions good


Process conditions unfavourable


Finishing


Internal cooling

Material suitability

■ Highly suitable

◧ Suitable in some situations

Example standard material suitability table

P	1	2	3	4	5	6	M	1	2	3	K	1	2	3	N	1	2	3	4	S	1	2	3	4	5	H	1	2	3
																■	■	■	◧										

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