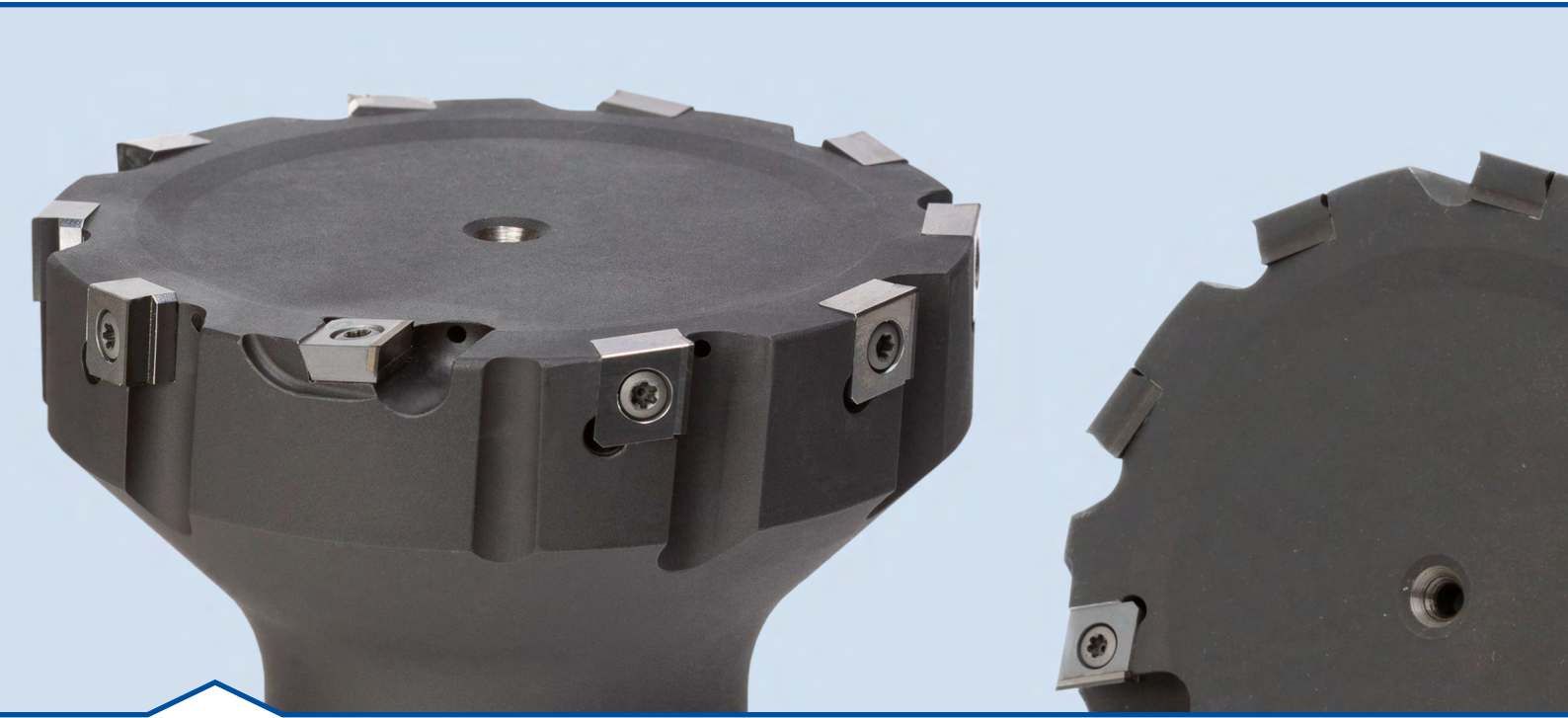




Your technology partner for cost-effective machining

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

Cooling

Emulsion, MQL, dry or air cooling

Peripheral cutting edge

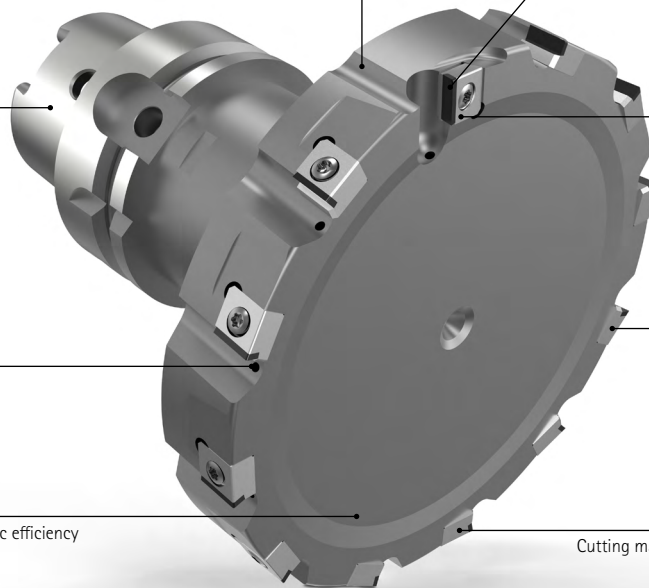
Pre-cutting stage – low burr formation

Tool body

Individual design → maximum efficacy and economic efficiency

Cutting materials

Cutting material variants for all applications in aluminium



Features

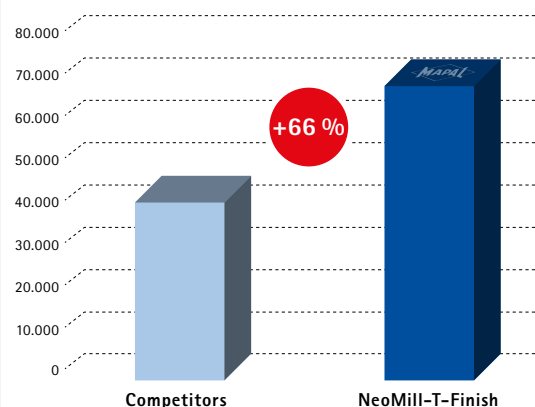
Preferred series in stock:

- 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

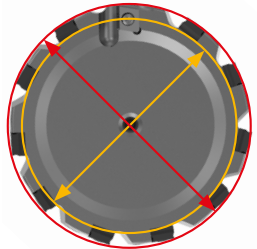
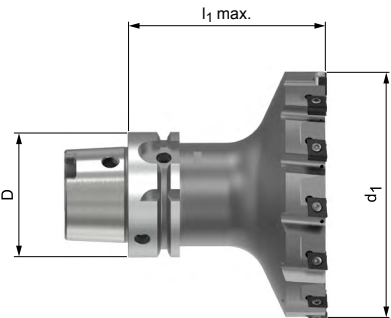
a_e : varies depending on part



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



— Max. diameter [d₁]
— Effective facing diameter



Configuration | Metric by outside diameter

Dimensions		Facing diameter	Z _{eff} max. [incl. 1 Wiper]	Connection
d ₁	l ₁ max.			
50,00	D x 2,5	38,50	5	HSK, SK, CAT, BT
63,00		51,50	7	
80,00		68,50	9	
100,00		88,50	11	
125,00		113,50	13	
160,00		148,50	17	
200,00		188,50	17	
250,00		238,50	17	
315,00		303,50	17	

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

Dimensions		Facing diameter	Z _{eff} max. [incl. 1 Wiper]	Connection
d ₁	l ₁ max.			
61,50	D x 2,5	50,00	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:

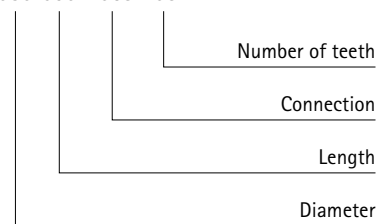
Diameter, length, number of teeth and cutting data are determined individually for each application, for maximum efficiency and economy.

Maximum length l_1 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

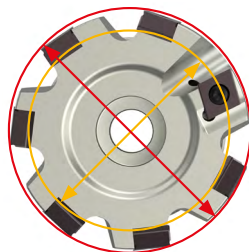
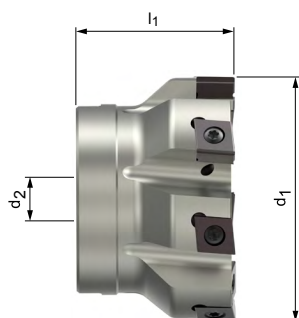
Example:

T-Finish-1-050-090-A063-Z05R



NeoMill®-T-Finish

Finish face milling cutter, milling cutter with tangential technology
CTH_09



— Max. diameter [d₁]
— Effective facing diameter

Design:

Diameter of milling cutter: 50.00 – 315.00 mm

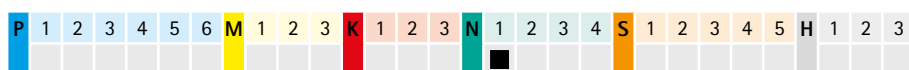
Max. no. of cutting edges: 5 – 17

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			Facing diameter	Z _{eff} max. [incl. 1 Wiper]	Order-No.
d ₁	l ₁	d ₂			
50,00	40,00	22,00	38,50	5	–
63,00	40,00	27,00	51,50	7	–
80,00	50,00	32,00	68,50	9	–
100,00	50,00	32,00	88,50	11	–
125,00	63,00	40,00	113,50	13	–
160,00	63,00	40,00	148,50	17	–
200,00	63,00	60,00	188,50	17	–
250,00	63,00	60,00	238,50	17	–
315,00	80,00	60,00	303,50	17	–

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

Dimensions			Facing diameter	Z _{eff} max. [incl. 1 Wiper]	Order-No.
d ₁	l ₁	d ₂			
61,50	40,00	22,00	50,00	5	–
74,50	50,00	27,00	63,00	7	–
91,50	50,00	32,00	80,00	9	–
111,50	50,00	32,00	100,00	11	–
136,50	63,00	40,00	125,00	13	–
171,50	63,00	40,00	160,00	17	–
211,50	63,00	60,00	200,00	17	–
261,50	63,00	60,00	250,00	17	–
326,50	80,00	60,00	315,00	17	–

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

Dimensions			Facing diameter	Z _{eff} max. [incl. 1 Wiper]	Specification	Order-No.
d ₁	l ₁	d ₂				
91,50	50,00	32,00	80,00	9	T-Finish-1-091-050-CA27-Z09R	31461790
111,50	50,00	32,00	100,00	11	T-Finish-1-111-050-CA32-Z11R	31461791
136,50	63,00	40,00	125,00	13	T-Finish-1-136-063-CA40-Z13R	31461792
171,50	63,00	40,00	160,00	17	T-Finish-1-171-063-CA40-Z17R	31461793

Configurable features

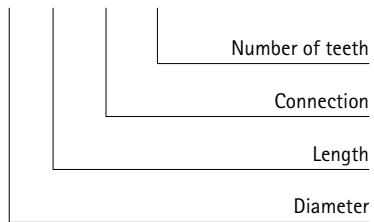
Diameter:
ø 50.00 mm – ø 315.00 mm

**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:

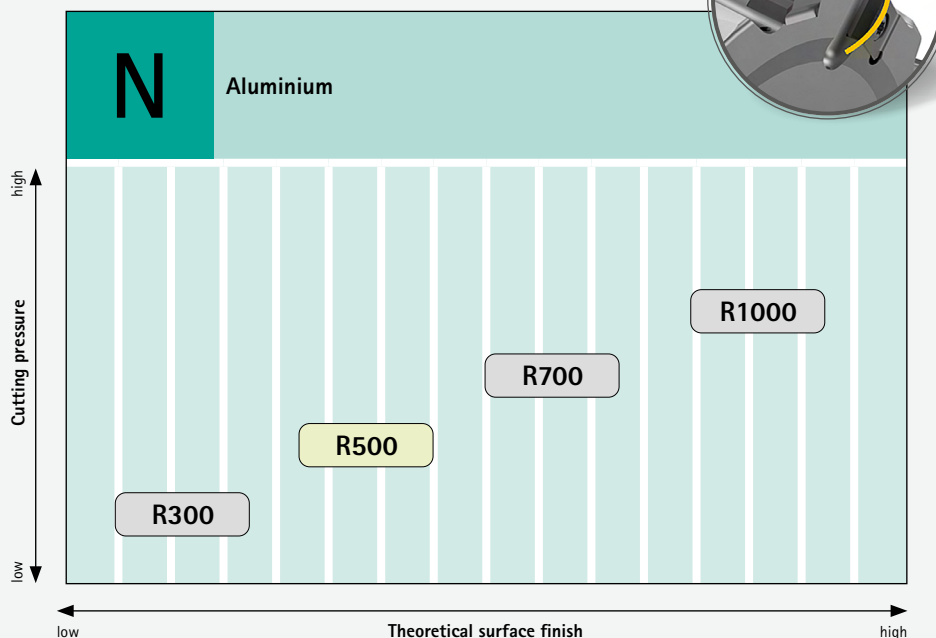
T-Finish-1-050-040-CA22-Z05R



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.

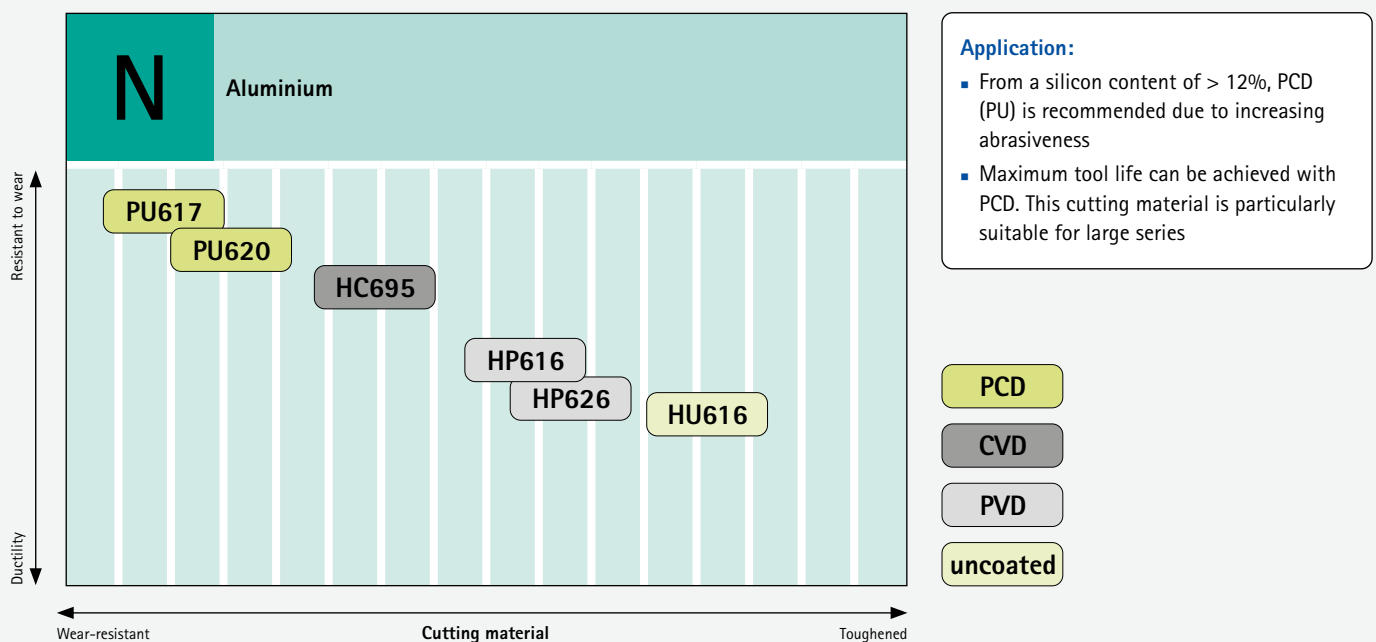
Cutting materials overview: Types and type description

Milling cutters with indexable inserts

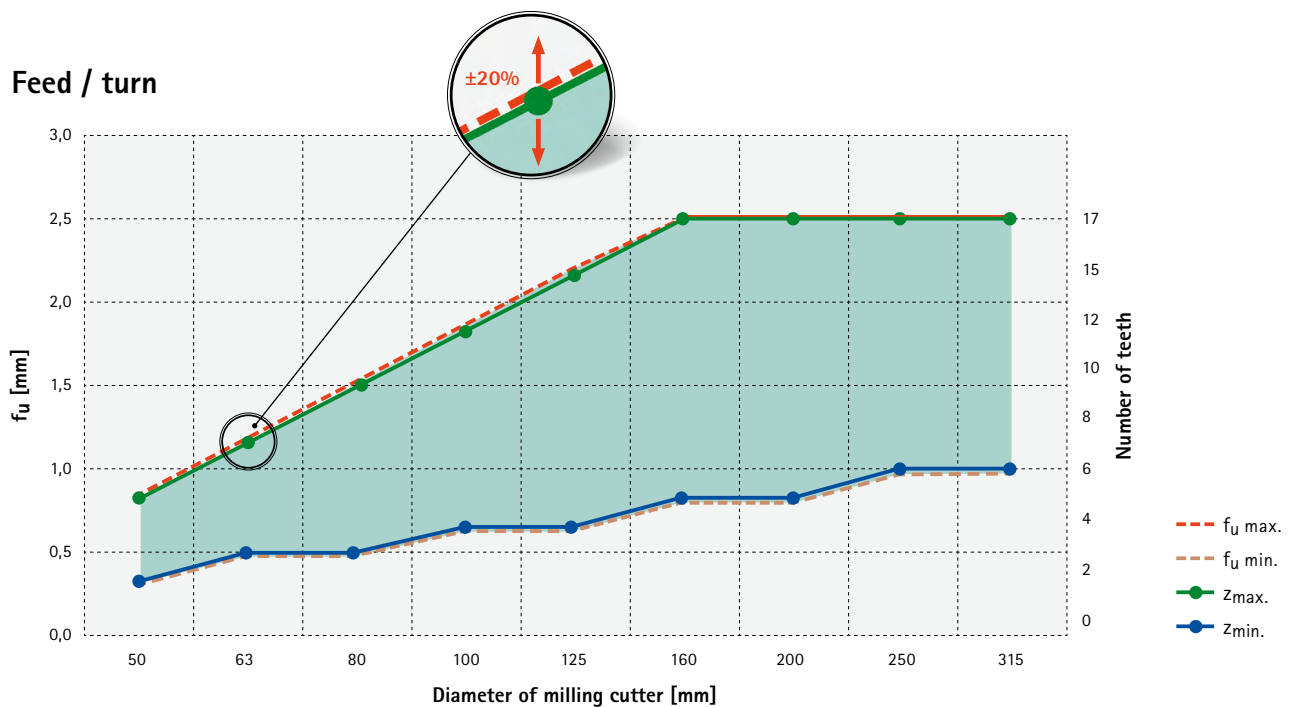
Cutting material		Name of cutting material	Coating composition	Colour of coating	Field of application	Recommended application
Carbide	Uncoated	HU616	-	-		Fine grain carbide with very smooth surface for the general machining of aluminium wrought alloys and aluminium cast alloys with Si contents < 3%.
	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



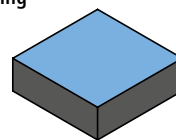
Cutting data recommendations for face milling cutter



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

Face milling



NeoMill-T-Finish

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	N1.1	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

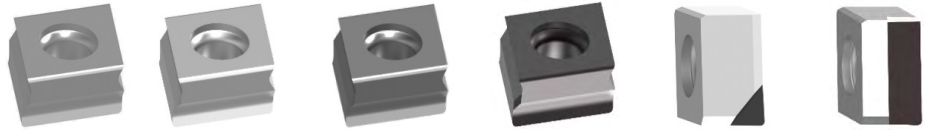
The lower V_c value always applies in the case of different tipping between periphery and wiper.
Cutting data is recommended when preparing a quotation.

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
CTHQ090508...R-...	*	31316862	31389687	31389689	31126185	31389694
						31418397
						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*

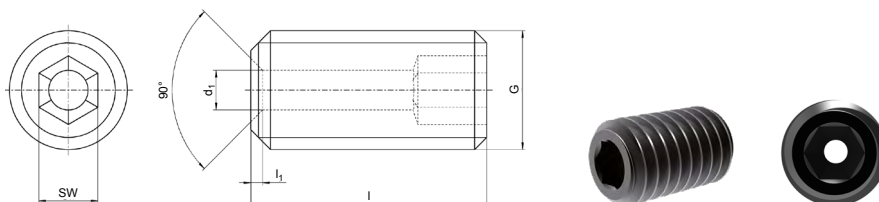
	CTHQ09.. CTHD09..	Clamping screw M3.5x11-TX10-IP	Order no. 10105079
		Threaded pin with coolant bore	See below
		Milling cutter clamping screw for arbor milling cutters, see MAPAL catalogue "CLAMPING"	

*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



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