passion
for precision

fraisa

FRAISA E-Cut – the versatile range

High-performance machining made easy!

Inch version

FRAISA E-Cut – easy to use, highly effective, and extremely economical

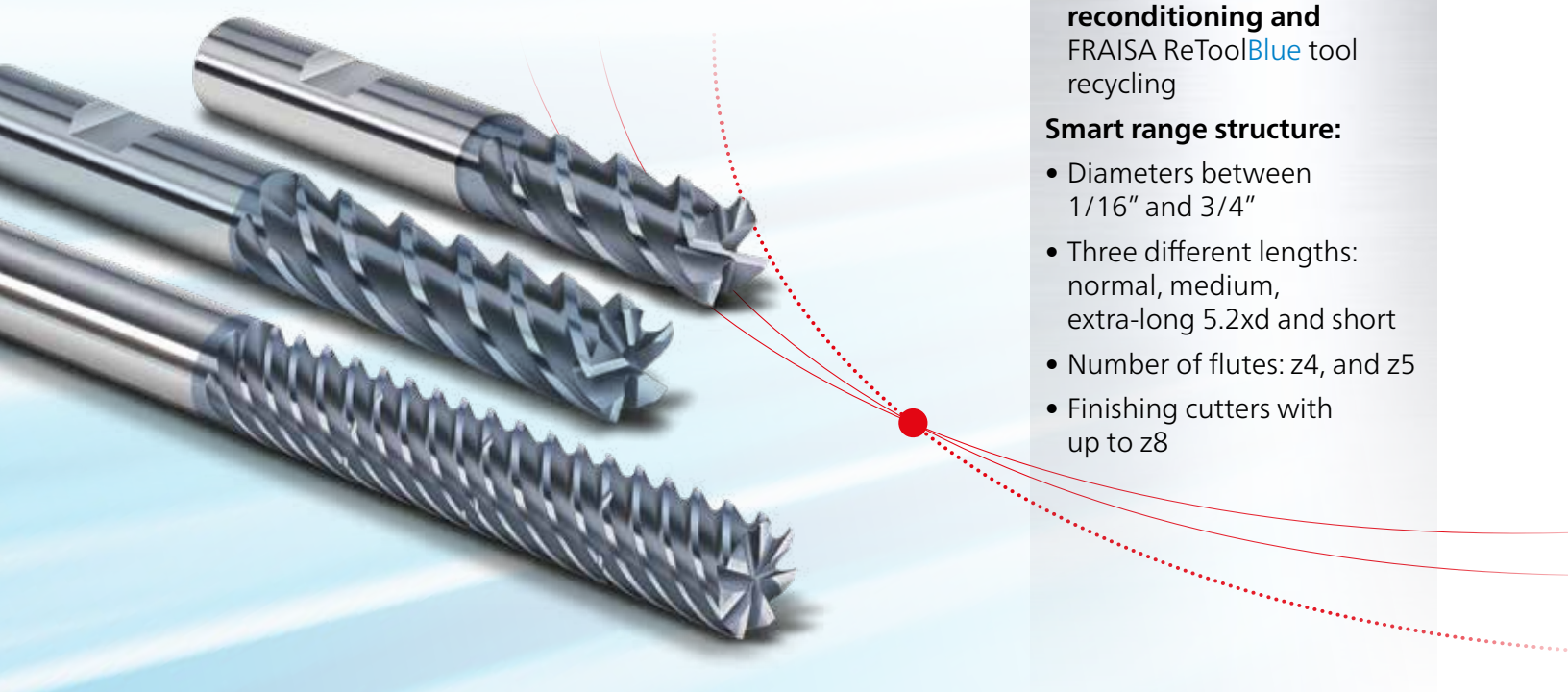
The **FRAISA E-Cut** milling concept combines a very wide range of applications with precisely calculated and verified application data. This makes the tools extremely easy to work with. With just a few clicks, ToolExpert delivers perfectly coordinated cutting data. The verified application data guarantee long tool life with high stock removal rates. Simply easy to use!

The versatile tools of the **FRAISA E-Cut** range can be used to machine various materials without any problems. You can also rely on these robust and easy-cutting tools in autonomous production – they guarantee both **smooth running** and **low power consumption**.

FRAISA E-Cut also saves you valuable time when selecting the right cutting parameters. **ToolExpert®** quickly and easily finds verified cutting data that has been tested in more than 1,000 test cycles.

FRAISA E-Cut is available in four different lengths, with between 4 and 5 flutes, and also as a finishing tool. This provides you with a versatile range of products that can be used for a wide variety of machining operations and offer **sustainability and cost-efficiency.**

The tools, cutting data, and application range of **FRAISA E-Cut** are perfectly coordinated. Put your trust in the excellent quality of these new FRAISA tools and benefit from their **ease of use, reliable performance, and cost-effective versatility.**



The benefits:

Excellent cost-performance ratio:

- Great performance at an attractive price
- Flexibility and speed in the production process
- Easy to handle, safe and reliable

Additional benefits through innovative services:

- Best possible performance thanks to the **FRAISA ToolExpert®** cutting data calculator
- Service tools available: **FRAISA ReTool® tool reconditioning and** FRAISA ReToolBlue tool recycling

Smart range structure:

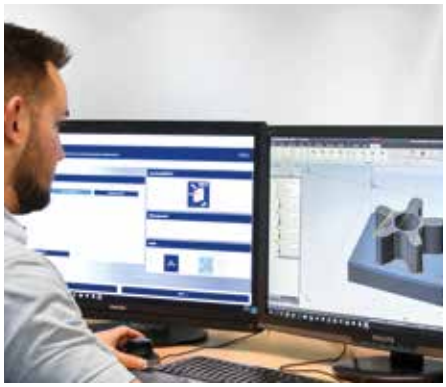
- Diameters between 1/16" and 3/4"
- Three different lengths: normal, medium, extra-long 5.2xd and short
- Number of flutes: z4, and z5
- Finishing cutters with up to z8

FRAISA ToolExpert®

FRAISA's cutting data calculator **FRAISA ToolExpert®** provides tool- and material-specific cutting data for production – and is the basis for precision use of **FRAISA E-Cut** tools.

This innovative software solution is **very user-friendly**: Simply select the material, application, and tool and the software provides you with the right cutting data. **FRAISA ToolExpert®** can then transfer the tool geometry data straight to your CAM system.

Fast, safe, and reliable.



Selecting the material, application, and tool to obtain the right cutting data

Transferring the cutting data and tool geometry data to the CAM system

To complement existing solutions and for all future applications

EASY TO USE
EFFECTIVE
ECONOMICAL

Try out our **FRAISA ToolExpert®** now online – it's simple

www.fraisa.com

Innovative technologies facilitate a variety of milling strategies in a variety of materials

Cylindrical, high-performance E-Cut milling cutters

The new product range is available in four lengths and with **4 to 5 flutes.**

This means it offers brilliant, easy-cutting, and quiet performance for both HPC and HDC machining.

Normal version

Medium version

Extra-long 5.2xd version

Short version

Version	λ 45° γ 10°	r	Vario					
Normal	■	■	■	■	■	■	■	
Medium	■	■	■	■	■	■		■
Extra-long	■	■	■	■	■	■		■
Short	■	■	■	■	■	■		

Detailed descriptions of each technology can be found on the following page and in the FRAISA catalog.

Cylindrical E-Cut finishing cutters

Normal version

Medium version

Extra-long 5.2xd version

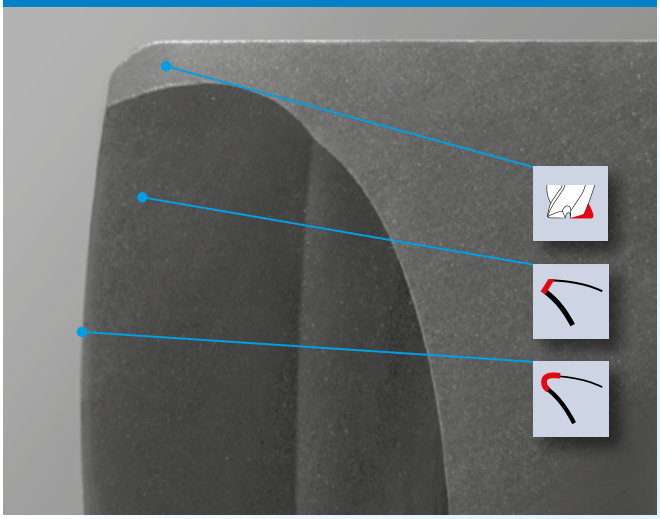
FRAISA E-Cut finishing cutters are also available in three length variants and with a chip breaker from the medium-long version upwards.

Extremely smooth-running and easy-cutting, it produces perfect surfaces in all steels up to 54 HRC, stainless steel, titanium, and cast iron.

Version	λ 55° γ 10°	r				
Normal	■	■	■	■	■	
Medium	■	■	■	■		■
Extra-long	■	■	■	■		■

Detailed descriptions of each technology can be found on the following page and in the FRAISA catalog.

Technology highlights



As a special feature, **FRAISA E-Cut** tools have a protective chamfer with a chip former and they also have a small corner radius. This reinforces the cutting edge and enhances performance.

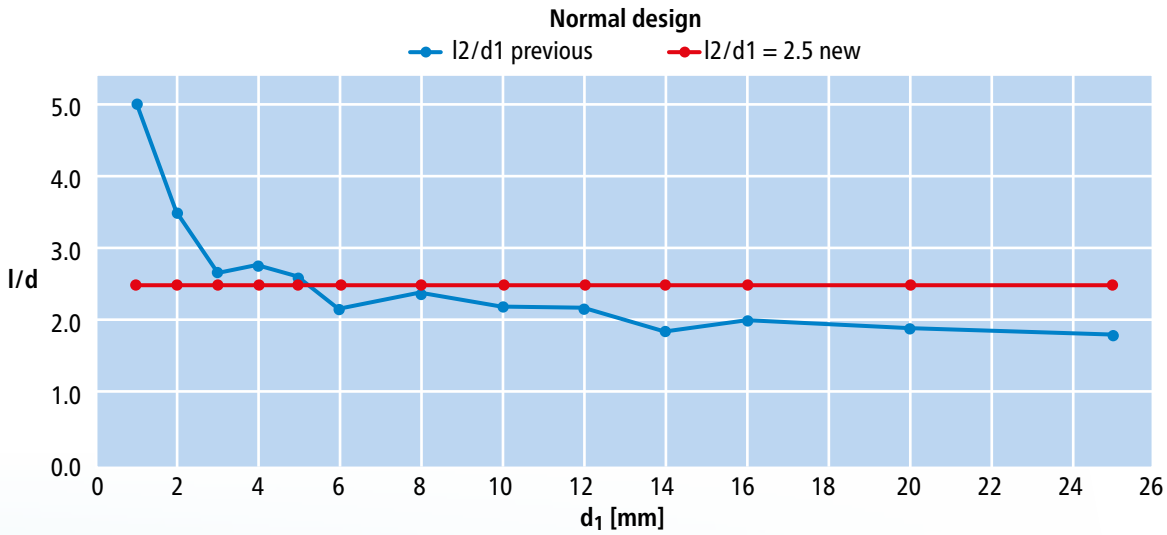
To improve performance, process reliability, and service life, the cutting edges of these high-performance milling cutters are conditioned.

Noteworthy is the chip former at the main cutting edge. This has been designed such that the chips are formed perfectly and the length of time the chip and the tool are in contact with each other is only short. This results in smooth running characteristics and a long service life.

Geared up for the future: Constant cutting edge length/diameter ratios

What is a 3xd tool? Simple question, complex answer:
In accordance with DIN 6527, the cutting edge length/diameter ratio is dependent on the diameter. As such, it cannot be kept constant over a continuous function, as shown by the blue curve:

[6]



In the CAM programming, consideration must be given to both the diameter-related and length-related decrease of stiffness.
This is particularly challenging with tools with small diameters – the cutting edge length increases disproportionately in relation to the diameter and the tool loses stability. Meanwhile, for large diameters, it is the other way around: The tool gains stiffness, but the cutting edge length/diameter ratio decreases. The relatively short cutting edge lengths limit the infeed options and have a negative impact on the performance.

Advantages of a constant l/d ratio:

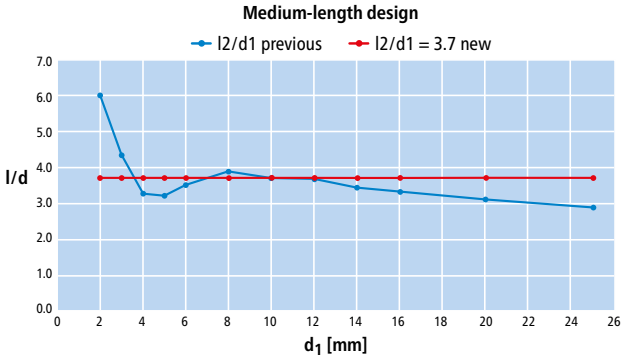
- ☑ **Greater process reliability and performance**
- ☑ **Simple tool selection**
- ☑ **Greater cutting edge length with larger diameters**
- ☑ **Time savings (no need to compare lengths)**

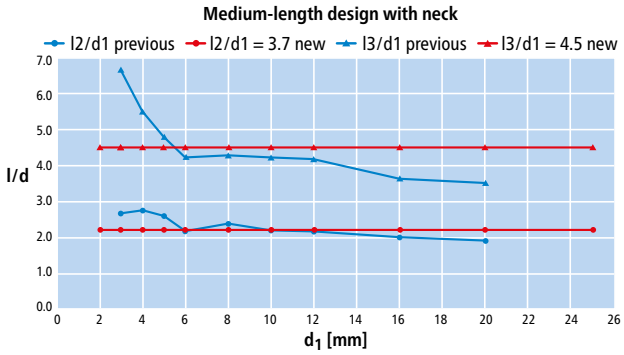
New tool structure

Quality that delivers:

Constant cutting edge length/diameter ratio in tools with and without necks

1.5x	Design short without neck	$l_2/d_1 = 1.5$ $l_3/d_1 = –$
2.5x	Design normal without neck	$l_2/d_1 = 2.5$ $l_3/d_1 = –$
3.7x	Design medium without neck	$l_2/d_1 = 3.7$ $l_3/d_1 = –$
5.2x	Design long without neck	$l_2/d_1 = 5.2$ $l_3/d_1 = –$
3.0x 2.2x	Design normal with short neck	$l_2/d_1 = 2.2$ $l_3/d_1 = 3.0$
4.5x 2.2x	Design medium with neck	$l_2/d_1 = 2.2$ $l_3/d_1 = 4.5$
4.5x 3.7x	Design medium with short neck	$l_2/d_1 = 3.7$ $l_3/d_1 = 4.5$
5.6x 2.2x	Design long with neck	$l_2/d_1 = 2.2$ $l_3/d_1 = 5.6$





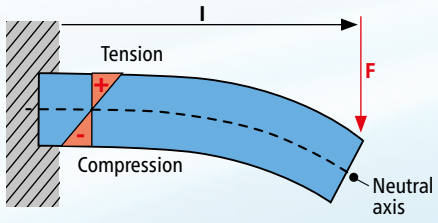
The calculation

The formula for bending stress shows very clearly that the length is connected linearly and the diameter to the power of three.

This means that when the diameter decreases, bending stress rises rapidly.

$$M_b = F \cdot l \qquad W_b = \frac{\pi}{32} \cdot d_1^3 \qquad \sigma_b = \frac{M_b}{W_b}\ [Nm^2]$$

σ_b – bending stress
M_b – bending moment
W – moment of resistance



Advantages for the customer

- **Logical, coherent, clear**
- **Even more precise application data**
- **Simple tool substitution**

Information on the length/diameter ratio in the new catalog 2023: fraisa.com

End milling tools for steel, stainless steel, titanium and nickel

Inch

Smooth-edged, square

Normal version

N° 98300 / 98400 — **E-Cut**

$l_2 = 2.2xd_1$ $l_3 = 3.0xd_1$

Roughing HPC
Roughing HDC
Finishing
d_1 0.1875-0.7500
r

HRC < 24-48 | Inox Stainless

N° 98305 / 98405 — **E-Cut**

$l_2 = 2.2xd_1$ $l_3 = 3.0xd_1$

Roughing HPC
Roughing HDC
Finishing
d_1 0.1875-0.7500
r

HRC < 24-48 | Inox Stainless

Medium version

N° 98310 / 98410 — **E-Cut**

$l_2 = 3.7xd_1$

Roughing HPC
Roughing HDC
Finishing
d_1 0.1250-0.7500
r

HRC < 24-48 | Inox Stainless

N° 98315 / 98415 — **E-Cut**

$l_2 = 3.7xd_1$

Roughing HPC
Roughing HDC
Finishing
d_1 0.1875-0.7500
r

HRC < 24-48 | Inox Stainless

5.2xd version

N° 98320 / 98420 — **E-Cut**

Roughing HPC
Roughing HDC
Finishing
d_1 0.1250-0.7500
r

HRC < 24-48 | Inox Stainless

Short version

N° 98302 / 98402 — **E-Cut**

$l_2 = 1.5xd_1$

Roughing HPC
Roughing HDC
Finishing
d_1 0.0625-0.5000
r

HRC < 24-48 | Inox Stainless

Smooth-edged, corner radius

Normal version

N° 98307 / 98407

E-Cut

$l_2 = 2.2xd_1$ $l_3 = 3.0xd_1$

Roughing HPC
Roughing HDC
Finishing
d_1 0.1250-0.7500
r

HRC < 24-48

Inox Stainless

Medium version

N° 98317 / 98417

E-Cut

$l_2 = 3.7xd_1$

Roughing HPC
Roughing HDC
Finishing
d_1 0.1250-0.7500
r

HRC < 24-48

Inox Stainless

Finishing, square

Normal version

N° 98301

E-Cut

$l_2 = 2.2xd_1$ $l_3 = 3.0xd_1$

Roughing
Finishing
d_1 0.1250-0.7500
r

HRC < 24-48

Inox Stainless

Medium version

N° 98311

E-Cut

$l_2 = 3.7xd_1$

Roughing
Finishing
d_1 0.1250-0.7500
r

HRC < 24-48

Inox Stainless

5.2xd version

N° 98321

E-Cut

Roughing
Finishing
d_1 0.2500-0.7500
r

HRC < 24-48

Inox Stainless

The technologies of FRAISA E-Cut tools
Easy-cutting, productive, and reliable

The technological features of FRAISA E-Cut tools at a glance

λ 45°
γ 10°

Cylindrical FRAISA E-Cut cutters

- λ = 45° helix angle
- γ = 10° cutting angle

λ 55°
γ 10°

Cylindrical FRAISA E-Cut finishing cutters

- λ = 55° helix angle
- γ = 10° cutting angle

Tools with polished teeth

- Reinforcement of the exposed cutting edge
- Absorption of higher cutting forces

Milling tool with variable helix angle

- Minimization of oscillations and vibrations
- Increase in chip removal rate and tool life

Milling tool with special protective chamfer

- Strengthening of the main cutting wedge against chipping
- High tooth feed rates with smooth-edged tools

Milling tools with special edge conditioning

- Conditioning of the main cutting edge for greater cutting-edge stability
- Increased mechanical and thermal loading of the cutting edge
- Overall lengthening of tool life

Small corner radius

- The cylindrical tool has a small corner radius to strengthen the cutting edge
- Higher thermal and mechanical resistance for better performance

Smooth transitions

- The transitions between the shank, neck, and cutting edge have smooth gradients and radii
- Improved tool rigidity and therefore less radial deflection
- Higher mechanical resistance for better performance

Tools with chip breaker

- The tool has a special chip breaker geometry
- Shorter chip lengths with high axial infeeds, resulting in better chip removal from the component and machine
- Better automation and process reliability
- High multi-functionality of the smooth-edged tool is maintained

Cylindrical/Square end mills E-Cut

Smooth-edged, normal version, short neck

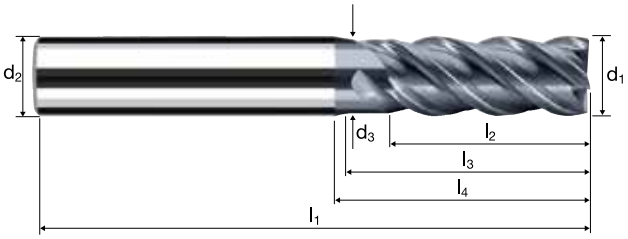
$l_2 = 2.2 \times d_1$

$l_3 = 3.0 \times d_1$

HM MG10 | λ 45° γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

Example: **Order-N°.** Coating **P** | Article-N°. **98300** | ø-Code **124**

Ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_4	r	α		fl	POLYCHROM P98300	POLYCHROM P98400
124	0.0625	0.2500	0.059	2.00	0.138	0.188	0.389	0.0020	10.0°		4	●	
188	0.1250	0.2500	0.114	2.25	0.275	0.375	0.524	0.0020	6.0°		4	●	
252	0.1875	0.2500	0.171	2.25	0.413	0.563	0.655	0.0040	2.5°		4	●	
312	0.2500	0.2500	0.226	2.25	0.550	0.750	0.830	0.0040	0.0°		4	●	
new! 372	0.3125	0.3125	0.289	2.50	0.688	0.938	1.030	0.0060	0.0°		4	●	
432	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0080	0.0°		4	●	
530	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0080	0.0°		4	●	
605	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0080	0.0°		4	●	
652	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0080	0.0°		4	●	
432	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0080	0.0°	◆	4	●	
530	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0080	0.0°	◆	4	●	
605	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0080	0.0°	◆	4	●	
652	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0080	0.0°	◆	4	●	

Cylindrical/Square end mills E-Cut

Smooth-edged, normal version, short neck

$l_2 = 2.2 \times d_1$

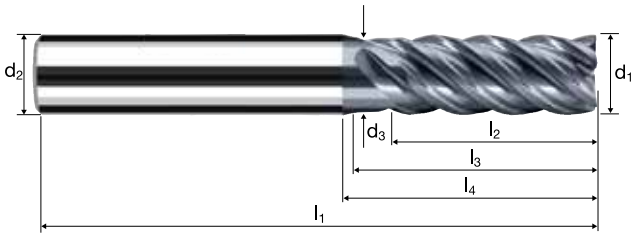
$l_3 = 3.0 \times d_1$

HM MG10

λ 45°
γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

[12]

Example: **Order-N°.** Coating **P** | Article-N°. **98305** | ø-Code **252**

	Ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_4	r	α		fl	POLYCHROM P98305	POLYCHROM P98405
	252	0.1875	0.2500	0.171	2.25	0.413	0.563	0.655	0.0040	2.5°		5	●	
	312	0.2500	0.2500	0.226	2.25	0.550	0.750	0.830	0.0040	0.0°		5	●	
new!	372	0.3125	0.3125	0.289	2.50	0.688	0.938	1.030	0.0060	0.0°		5	●	
	432	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0080	0.0°		5	●	
	530	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0080	0.0°		5	●	
	605	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0080	0.0°		5	●	
	652	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0080	0.0°		5	●	
	432	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0080	0.0°	◆	5	●	
	530	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0080	0.0°	◆	5	●	
	605	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0080	0.0°	◆	5	●	
	652	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0080	0.0°	◆	5	●	

Cylindrical/Square end mills E-Cut

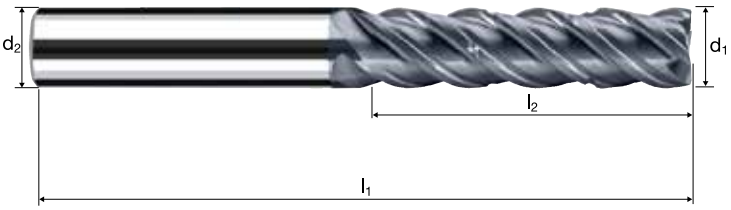
Smooth-edged, chip breaker, medium version

$l_2 = 3.7 \times d_1$

HM MG10 | λ 45° γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 **HRC** < 24 | **Rm** 850-1100 **HRC** 24-34 | **Rm** 1100-1300 **HRC** 34-42 | **Rm** 1300-1500 **HRC** 42-48 | **HRC** 48-56 | **Inox** Stainless | **Ti** Titanium | **Cast Iron Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **98310** ø-Code **188**

Ø Code	d_1 e8	d_2 h6	l_1	l_2	r	α	◆	fl	POLYCHROM P98310	POLYCHROM P98410
188*	0.1250	0.2500	2.25	0.463	0.0020	5.0°		4	●	
252*	0.1875	0.2500	2.50	0.694	0.0040	2.5°		4	●	
312	0.2500	0.2500	2.75	0.925	0.0040	0.0°		4	●	
new! **372**	0.3125	0.3125	3.00	1.157	0.0060	0.0°		4	●	
432	0.3750	0.3750	3.50	1.388	0.0080	0.0°		4	●	
530	0.5000	0.5000	4.25	1.850	0.0080	0.0°		4	●	
605	0.6250	0.6250	5.00	2.313	0.0080	0.0°		4	●	
652	0.7500	0.7500	5.75	2.775	0.0080	0.0°		4	●	
432	0.3750	0.3750	3.50	1.388	0.0080	0.0°	◆	4	●	
530	0.5000	0.5000	4.25	1.850	0.0080	0.0°	◆	4	●	
605	0.6250	0.6250	5.00	2.313	0.0080	0.0°	◆	4	●	
652	0.7500	0.7500	5.75	2.775	0.0080	0.0°	◆	4	●	

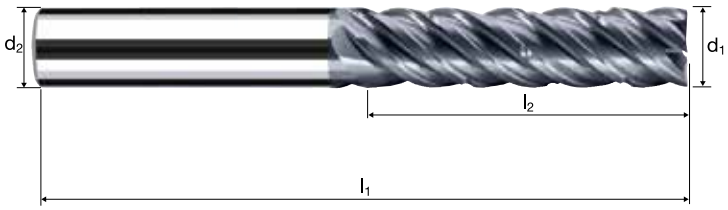
* without chip breaker only

Cylindrical/Square end mills E-Cut

Smooth-edged, chip breaker, medium version

$l_2 = 3.7 \times d_1$

HM MG10 | λ 45° γ 10°



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

[14]

Example: **Order-N°.** Coating **P** | Article-N°. **98315** | ø-Code **252**

	Ø Code	d_1 e8	d_2 h6	l_1	l_2	r	α		fl	POLYCHROM P98315	POLYCHROM P98415
	252*	0.1875	0.2500	2.50	0.694	0.0040	2.5°		5		●
	312	0.2500	0.2500	2.75	0.925	0.0040	0.0°		5		●
new!	372	0.3125	0.3125	3.00	1.157	0.0060	0.0°		5		●
	432	0.3750	0.3750	3.50	1.388	0.0080	0.0°		5		●
	530	0.5000	0.5000	4.25	1.850	0.0080	0.0°		5		●
	605	0.6250	0.6250	5.00	2.313	0.0080	0.0°		5		●
	652	0.7500	0.7500	5.75	2.775	0.0080	0.0°		5		●
	432	0.3750	0.3750	3.50	1.388	0.0080	0.0°	◆	5		●
	530	0.5000	0.5000	4.25	1.850	0.0080	0.0°	◆	5		●
	605	0.6250	0.6250	5.00	2.313	0.0080	0.0°	◆	5		●
	652	0.7500	0.7500	5.75	2.775	0.0080	0.0°	◆	5		●

* without chip breaker only

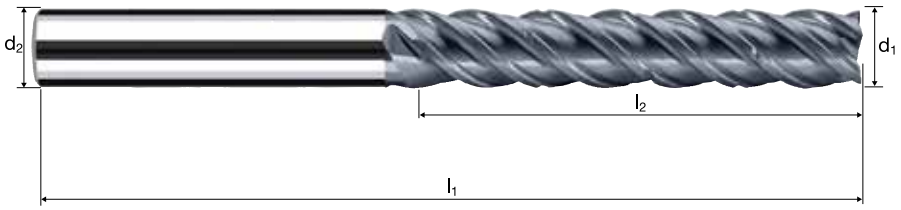
Cylindrical/Square end mills E-Cut

Smooth-edged, chip breaker, extra-long version

HM MG10 | λ 45° γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

Example: **Order-N°.** Coating **P** | Article-N°. **98320** | ø-Code **188**

Ø Code	d_1 e8	d_2 h6	l_1	l_2	r	α		fl	POLYCHROM P98320	POLYCHROM P98420
188*	0.1250	0.2500	2.50	0.652	0.0020	4.0°		4	●	
252	0.1875	0.2500	2.75	1.000	0.0040	1.5°		4	●	
312	0.2500	0.2500	3.00	1.376	0.0040	0.0°		4	●	
new! **372**	0.3125	0.3125	3.50	1.625	0.0060	0.0°		4	●	
432	0.3750	0.3750	3.75	2.000	0.0080	0.0°		4	●	
530	0.5000	0.5000	4.75	2.626	0.0080	0.0°		4	●	
605	0.6250	0.6250	5.50	3.250	0.0080	0.0°		4	●	
652	0.7500	0.7500	6.50	4.000	0.0080	0.0°		4	●	
432	0.3750	0.3750	3.75	2.000	0.0080	0.0°	◆	4	●	
530	0.5000	0.5000	4.75	2.626	0.0080	0.0°	◆	4	●	
605	0.6250	0.6250	5.50	3.250	0.0080	0.0°	◆	4	●	
652	0.7500	0.7500	6.50	4.000	0.0080	0.0°	◆	4	●	

* without chip breaker only

Cylindrical/Square end mills E-Cut

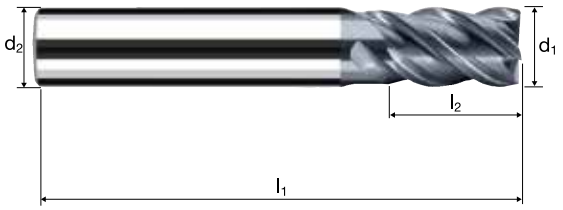
Smooth-edged, short version

$l_2 = 1.5 \times d_1$

HM MG10	λ 45° γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

[16]

Example: **Order-N°.** Coating **P** Article-N°. **98302** ø-Code **124**

Ø Code	d_1 e8	d_2 h6	l_1	l_2	r	α		fl	POLYCHROM P98302	POLYCHROM P98402
124	0.0625	0.2500	2.00	0.094	0.0020	10.5°		4	●	
188	0.1250	0.2500	2.00	0.188	0.0020	6.5°		4	●	
252	0.1875	0.2500	2.00	0.282	0.0040	3.5°		4	●	
312	0.2500	0.2500	2.25	0.376	0.0040	0.0°		4	●	
new! **372**	0.3125	0.3125	2.25	0.469	0.0060	0.0°		4	●	
432	0.3750	0.3750	2.50	0.563	0.0080	0.0°		4	●	
530	0.5000	0.5000	3.00	0.750	0.0080	0.0°		4	●	
432	0.3750	0.3750	2.50	0.563	0.0080	0.0°	◆	4	●	
530	0.5000	0.5000	3.00	0.750	0.0080	0.0°	◆	4	●	

Corner radius end mills E-Cut

Smooth-edged, normal version, short neck

$l_2 = 2.2 \times d_1$

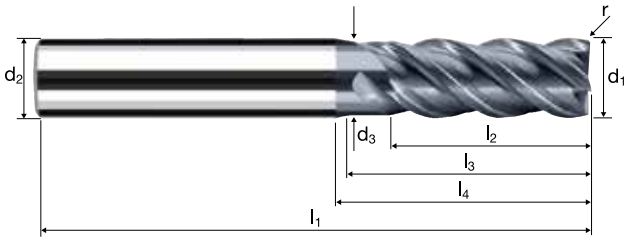
$l_3 = 3.0 \times d_1$

HM MG10

λ 45°
γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

Example: **Order-N°.** Coating **P** | Article-N°. **98307** | ø-Code **188**

	Ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_4	r 0/+0.03	α	fl	POLYCHROM P98307 / P98407
	188	0.1250	0.2500	0.114	2.25	0.275	0.375	0.524	0.0100	6.0°	4	●
	196	0.1250	0.2500	0.114	2.25	0.275	0.375	0.524	0.0200	6.0°	4	●
	254	0.1875	0.2500	0.171	2.25	0.413	0.563	0.655	0.0200	2.5°	4	●
	256	0.1875	0.2500	0.171	2.25	0.413	0.563	0.655	0.0300	2.5°	4	●
	314	0.2500	0.2500	0.226	2.25	0.550	0.750	0.830	0.0200	0.0°	4	●
	316	0.2500	0.2500	0.226	2.25	0.550	0.750	0.830	0.0300	0.0°	4	●
new!	372	0.3125	0.3125	0.289	2.50	0.688	0.938	1.030	0.0200	0.0°	4	●
new!	374	0.3125	0.3125	0.289	2.50	0.688	0.938	1.030	0.0300	0.0°	4	●
	432	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0200	0.0°	4	●
	434	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0300	0.0°	4	●
	530	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0300	0.0°	4	●
	532	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0600	0.0°	4	●
	605	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0300	0.0°	4	●
	607	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0600	0.0°	4	●
	652	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0300	0.0°	4	●
	654	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0600	0.0°	4	●

Corner radius end mills E-Cut

Smooth-edged, normal version, short neck

$l_2 = 2.2 \times d_1$

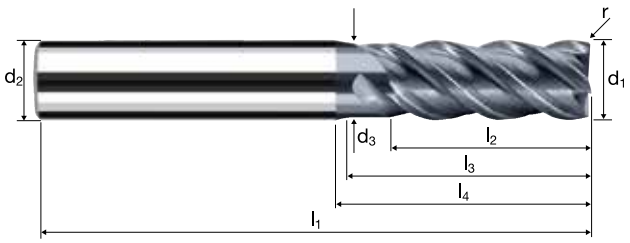
$l_3 = 3.0 \times d_1$

HM MG10

λ 45°
γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

[18]

Example: **Order-N°.** Coating **P** | Article-N°. **98307** | ø-Code **432**

Ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_4	r 0/+0.03	α		fl	POLYCHROM P98307	POLYCHROM P98407
432	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0200	0.0°	◆	4	●	
434	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0300	0.0°	◆	4	●	
530	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0300	0.0°	◆	4	●	
532	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0600	0.0°	◆	4	●	
605	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0300	0.0°	◆	4	●	
607	0.6250	0.6250	0.587	4.00	1.375	1.875	2.041	0.0600	0.0°	◆	4	●	
652	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0300	0.0°	◆	4	●	
654	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0600	0.0°	◆	4	●	

Corner radius end mills E-Cut

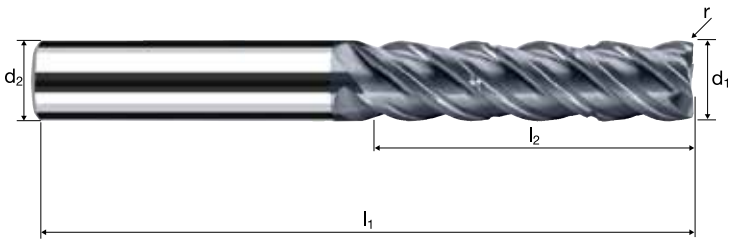
Smooth-edged, chip breaker, medium version

$l_2 = 3.7 \times d_1$

HM MG10 | λ 45° γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

Example: **Order-N°.** Coating **P** | Article-N°. **98317** | ø-Code **188**

	Ø Code	d_1 e8	d_2 h6	l_1	l_2	r 0/+0.03	α	fl	POLYCHROM P98317	POLYCHROM P98417
	188*	0.1250	0.2500	2.25	0.463	0.0100	5.0°	4		●
	196*	0.1250	0.2500	2.25	0.463	0.0200	5.0°	4	●	
	254*	0.1875	0.2500	2.50	0.694	0.0200	2.5°	4		●
	256*	0.1875	0.2500	2.50	0.694	0.0300	2.5°	4	●	
	314	0.2500	0.2500	2.75	0.925	0.0200	0.0°	4		●
	316	0.2500	0.2500	2.75	0.925	0.0300	0.0°	4	●	
new!	372	0.3125	0.3125	3.00	1.157	0.0200	0.0°	4		●
new!	374	0.3125	0.3125	3.00	1.157	0.0300	0.0°	4	●	
	432	0.3750	0.3750	3.50	1.388	0.0200	0.0°	4		●
	434	0.3750	0.3750	3.50	1.388	0.0300	0.0°	4	●	
	530	0.5000	0.5000	4.25	1.850	0.0300	0.0°	4		●
	532	0.5000	0.5000	4.25	1.850	0.0600	0.0°	4	●	
	605	0.6250	0.6250	5.00	2.313	0.0300	0.0°	4		●
	607	0.6250	0.6250	5.00	2.313	0.0600	0.0°	4	●	
	652	0.7500	0.7500	5.75	2.775	0.0300	0.0°	4		●
	654	0.7500	0.7500	5.75	2.775	0.0600	0.0°	4	●	

* without chip breaker only

Corner radius end mills E-Cut

Smooth-edged, chip breaker, medium version

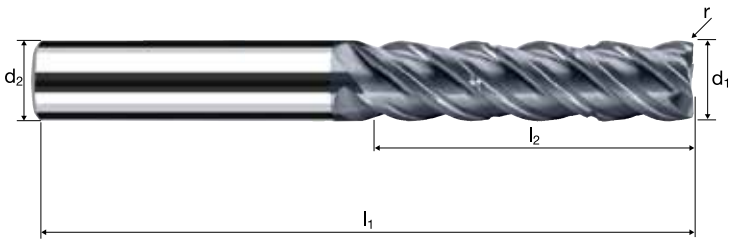
$l_2 = 3.7 \times d_1$

HM MG10

λ 45°
γ 10°

r

Vario



Roughing HPC | Roughing HDC | Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

[20]

Example: **Order-N°.** Coating **P** | Article-N°. **98317** | ø-Code **432**

POLYCHROM **P98317** / **P98417**

Ø Code	d_1 e8	d_2 h6	l_1	l_2	r 0/+0.03	α		fl	
432	0.3750	0.3750	3.50	1.388	0.0200	0.0°	◆	4	●
434	0.3750	0.3750	3.50	1.388	0.0300	0.0°	◆	4	●
530	0.5000	0.5000	4.25	1.850	0.0300	0.0°	◆	4	●
532	0.5000	0.5000	4.25	1.850	0.0600	0.0°	◆	4	●
605	0.6250	0.6250	5.00	2.313	0.0300	0.0°	◆	4	●
607	0.6250	0.6250	5.00	2.313	0.0600	0.0°	◆	4	●
652	0.7500	0.7500	5.75	2.775	0.0300	0.0°	◆	4	●
654	0.7500	0.7500	5.75	2.775	0.0600	0.0°	◆	4	●

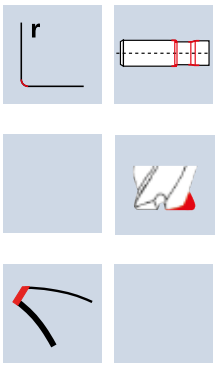
Cylindrical/Square end mills E-Cut

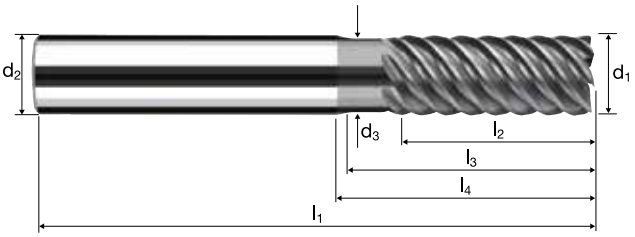
Finishing, normal version, short neck

$l_2 = 2.2 \times d_1$

$l_3 = 3.0 \times d_1$

HM MG10 | λ 55° γ 10°





Roughing Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **98301** ø-Code **188**

POLYCHROM **P98301**

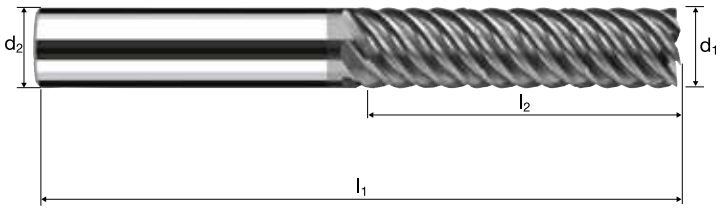
Ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_4	r	α	fl	
188	0.1250	0.2500	0.114	2.25	0.275	0.375	0.524	0.0020	6.0°	4	●
252	0.1875	0.2500	0.171	2.25	0.413	0.563	0.655	0.0040	2.5°	5	●
312	0.2500	0.2500	0.226	2.25	0.550	0.750	0.830	0.0040	0.0°	6	●
new! **372**	0.3125	0.3125	0.289	2.50	0.688	0.938	1.030	0.0060	0.0°	6	●
432	0.3750	0.3750	0.344	3.00	0.825	1.125	1.242	0.0080	0.0°	7	●
530	0.5000	0.5000	0.461	3.50	1.100	1.500	1.651	0.0080	0.0°	7	●
605	0.6250	0.6250	0.585	4.00	1.375	1.875	2.041	0.0080	0.0°	8	●
652	0.7500	0.7500	0.711	4.50	1.650	2.250	2.431	0.0080	0.0°	8	●

Cylindrical/Square end mills E-Cut

Finishing, chip breaker, medium version

$l_2 = 3.7 \times d_1$

HM MG10 | λ 55° | γ 10°



Roughing

Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

[22]

Example: **Order-N°.** Coating **P** | Article-N°. **98311** | ø-Code **188**

POLYCHROM **P98311**

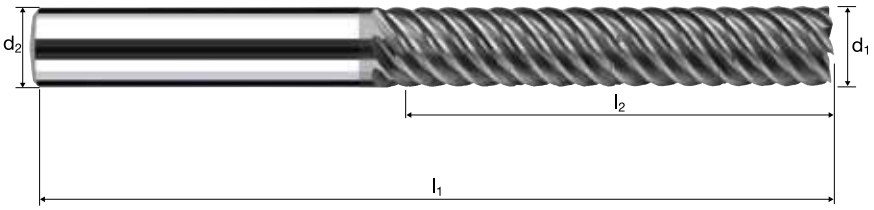
	Ø Code	d_1 e8	d_2 h6	l_1	l_2	r	α	fl	
	188*	0.1250	0.2500	2.25	0.463	0.0020	5.0°	4	●
	252*	0.1875	0.2500	2.50	0.694	0.0040	2.5°	5	●
	312	0.2500	0.2500	2.75	0.925	0.0040	0.0°	6	●
new!	**372**	0.3125	0.3125	3.00	1.157	0.0060	0.0°	6	●
	432	0.3750	0.3750	3.50	1.388	0.0080	0.0°	7	●
	530	0.5000	0.5000	4.25	1.850	0.0080	0.0°	7	●
	605	0.6250	0.6250	5.00	2.313	0.0080	0.0°	8	●
	652	0.7500	0.7500	5.75	2.775	0.0080	0.0°	8	●

* without chip breaker only

Cylindrical/Square end mills E-Cut

Finishing, chip breaker, extra-long version

HM MG10 | λ **55°** γ **10°**



Roughing Finishing

Rm < 850 HRC < 24	Rm 850-1100 HRC 24-34	Rm 1100-1300 HRC 34-42	Rm 1300-1500 HRC 42-48	HRC 48-56			Inox Stainless	Ti Titanium	Cast Iron Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **98321** ø-Code **312**

	Ø Code	d_1 e8	d_2 h6	l_1	l_2	r	fl	POLYCHROM P98321
	312	0.2500	0.2500	3.00	1.376	0.0040	6	●
new!	**372**	0.3125	0.3125	3.50	1.625	0.0060	6	●
	432	0.3750	0.3750	3.75	2.000	0.0080	7	●
	530	0.5000	0.5000	4.75	2.626	0.0080	7	●
	605	0.6250	0.6250	5.50	3.250	0.0080	8	●
	652	0.7500	0.7500	6.50	4.000	0.0080	8	●

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