

MillLine



SOLIDMEISTER

www.tungaloy.com

Tungaloy Report No. 396-G

Powerful endmill with excellent performance



INDUSTRY 4.0
FEED the SPEED!



ACCELERATED MACHINING

MillLine

SOLIDMEISTER

TUNGALOY



SolidMeister - our wide range of solid carbide endmills enhances your machining efficiency and stability in a broad spectrum of applications.

Selection Guide

For roughing to semi-finishing operations

TEC...H4S/M...CF-E

P M K



VARIABLEMEISTER
TUNGALOY
ECOMEISTER
TUNGALOY

- General-purpose square endmill
- Excellent chatter dampening ability
- High performance on low power machine (BT40)

Page p.20

Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø20	1xD 2xD	-	4	C	Variable	-

For good surface finish in roughing to semi-finishing

TEFS...E44...CF

P K



FINISHMEISTER
TUNGALOY
VARIABLEMEISTER
TUNGALOY

- Excellent chatter dampening ability
- Good surface finish by the edge combination
- Highly efficient roughing operation

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø25	2xD	-	4	C	38°	-

High performance roughing

TECR...B.M

P K H



SHREDMEISTER
TUNGALOY

- High-performing roughing endmill
- Serrated cutting edges for optimal chip breaking
- Chatter free

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø5 - ø25	2xD	-	4 , 5 , 7	C , (R)	45°	-

For finishing operation

TECH...B6

P H K



- 6 cutting edged square endmill for finishing operation
- High stability

Page p.37(AH725) / p.55(AH750)

Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø20	2xD	-	6	-	45°	-

Selection Guide

For roughing to semi-finishing of stainless steel

TEC...H4L...CF-R

M S P H



VARIABLEMEISTER

- Square endmill with corner radii
- Excellent chatter dampening ability
- Suitable for alloy steel and carbon steel

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø1 - ø20	2xD	3xD	4	R	Variable	-

For roughing to semi-finishing for titanium alloy

TECK...H4M...CF-R

S M P



VARIABLEMEISTER

- Dedicated for titanium alloy
- Excellent chatter dampening ability
- Also suitable for alloy steel and carbon steel

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø20	2xD	-	4	R	Variable	optional

For efficient roughing for superalloys

TEFS...B44

S M P



FINISHMEISTER

- Two-in-one tool
- High metal removal rate
- Good wall surface thanks to the edge combination

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø4 - ø25	2xD	3xD	4	C	45°	optional

For finishing operation

TEC-H7-CF

H P M K



VARIABLEMEISTER

- 7 cutting edges for finishing operation
- Seamless milling wide cutting width
- Good performance for trochoid milling

Page p.22

Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø20	2 - 6xD	-	7	C, R	Variable	-

Selection Guide

Roughing to semi-finishing for aluminum alloy

TECA...H3...CF-R

N



VARIABLEMEISTER

- 3 cutting edged square endmill
- Excellent chatter dampening ability
- High efficiency for slotting and shoulder milling

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø1 - ø25	2xD	3 - 5xD	3	R	Variable	-

Roughing to semi-finishing for aluminum alloy

TECA...H4...CF-R

N



VARIABLEMEISTER

- 4 cutting edged square endmill
- Excellent chatter dampening ability
- High efficiency for slotting and shoulder milling at high cutting speeds

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø16	2xD	3 , 5xD	4	R	Variable	-

High-efficiency roughing for aluminum alloy

TECR...B3...R

N



SHREDMEISTER

- 3 cutting edged roughing endmill for aluminum alloys
- Innovative serrated cutting edges with high rake angle
- High performance thanks to smooth chip control

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø20	1xD	3 , 5xD	3	R	45°	-

Roughing to semi-finishing for aluminum alloy

TECA...B3

N



- 3 cutting edged square endmill
- Excellent surface finish quality
- Top performance due to optimized flute design

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø4 - ø20	2xD	-	3	R	45°	-

Selection Guide

High feed endmill for profile milling

TEFF...N4

H P M S



FEEDMEISTER
TUNGALOY

- Optimized for die and mold profile milling (<65HRC)
- Usable various milling operation
- Dramatically shortens machining time vs ball nose endmills

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø20	0.05xD	-	4	R	0°	-

Ceramic endmill line ideal for heat-resistant superalloys

TCFF...A3

S K N



FEEDMEISTER
TUNGALOY

- High feed geometry at DOC = 0.25 mm - 1 mm
- Made of SiAlON ceramic. Suitable for high speed milling.

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø6 - ø20	0.25 - 1.00	-	3	R	30°	-

Highly efficient 4 cutting edge ball nose

TEB...E4L...CF

H P M S



VARIABLEMEISTER
TUNGALOY

- Excellent chatter dampening ability
- Roughing to finishing operations (<65 HRC)
- Longer tool life and high efficiency in profiling

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø3 - ø16	2xD	3xD	4	r1.5 - r8	Variable	-

For roughing to semi-finishing

TEC...E4L...CF

P M K



VARIABLEMEISTER
TUNGALOY

- High-performing square endmill line
- Excellent chatter dampening ability
- Stable milling due to optimal flute-core design

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Diameter	ap	Neck length	No. of teeth	Corner form	Helix angle	Thru-coolant
ø1 - ø25	2xD	3xD	4	C	38°	-

FINISHMEISTER • VARIABLEMEISTER

A Powerful Hybrid Solid Carbide Endmill with Extraordinary Performance

FinishMeister is known for its sophisticated geometries, enabling the tool to perform roughing and finishing operations at the same time. The result is the ability to apply roughing machining conditions, while obtaining excellent surface finish. The **FinishMeister** is also known for its high metal removal rates and long tool life, useful on a wide range of materials.

Reduction in machining time is one of the advantages when using **FinishMeister**, as well as decreased tool inventory. The shorter lead time, which delivers higher production rates, can easily be converted into high values of profitability.

VariableMeister is known for its sophisticated characteristics, which consist of a variable pitch configuration that enables a machining depth of up to 2xD on a full slot application, while eliminating vibration. The **VariableMeister** operates at a large metal removal rate, producing excellent surface finish and tremendously reducing machining time. By doing that, the **VariableMeister** not only improves productivity levels immensely, but also raises profitability values.

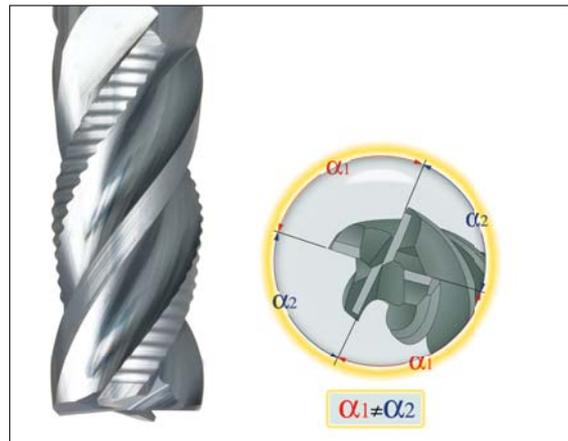
The **FinishMeister** VARIABLE PITCH, a new generation of solid carbide endmill, combines all the remarkable features detailed above, and the advantages of the two families. **The user gets a “3-in-1” rather than just a “2-in-1” version of the FinishMeister.**

The **FinishMeister** VARIABLE PITCH dramatically increases productivity, while reducing production cost and inventory.

Tool diameter range: $\varnothing 6$ - $\varnothing 25$ mm

Features

- 4 flutes with a 38° helix - two serrated flutes and two continuous flutes
- Fully effective, 4 cutting edges enable running at rough machining parameters, while obtaining excellent surface finish quality
- The tool produces short and long chips simultaneously. This chip mixture is evacuated more easily than each individual chip type - an excellent solution in slotting and cavity milling applications.
- Reduces vibration at high load applications
- High productivity
- Reduces power consumption by 25 - 30%
- Excellent performance and tool life
- One tool change and setup time can be eliminated
- A single tool replaces the roughing and finishing endmills, dramatically reducing cycle time and increasing productivity
- Extra tool position is gained on the machine
- Reduces the amount of tool inventory
- Suitable for all types of steel and high temperature alloys



VARIABLEMEISTER Expansion of Solid Carbide Endmills Line

Tungaloy's new **VariableMeister** endmills are used for roughing and finishing operations and, due to their variable pitch, feature excellent chatter dampening ability.

These endmills are an excellent solution for low power machines with ISO40, BT40, or CAT40 adaptations, improving their material removal rate and eliminating vibration. They can be used for full slot machining of up to 2xD with solid carbide endmills.

The **VariableMeister** endmills maximize stock removal and reduce cycle time in most milling operations.

Their unique ground geometry provides excellent surface finish and long tool life, while machining at high material removal rates.

Cutting conditions for rough machining of alloy steel:

Cutting speed : $V_C = 180 - 220$ m/min

Feed per tooth : $f_z = 0.03 - 0.05$ mm/z

Depth of cut : $a_P = 2 \times D$

Width of cut : $a_e = \text{full slot}$

Flushing method : Air (it is vital to keep the air tube in the direction opposite of the tool's motion).

The new endmills feature longer necks for machining next to higher shoulders. They were designed for both roughing and finishing operations, featuring excellent chatter dampening ability. They can be used with external coolant at very high cutting speeds for full slot machining of aluminum up to 2xD depth of cut in up to 4xD slot depth or next to high shoulders.

Tungaloy's new **VariableMeister** endmills for machining aluminum are an excellent solution for low power machines with ISO40 or BT40 adaptations, improving their material removal rate and eliminating vibration. They maximize stock removal rate and reduce cycle time in most milling operations. Their unique ground and polished geometry provides excellent bottom and side surface finish with no mismatch. Extended tool life can be expected when machining at high material removal rates.

The new **TEC...H5M...CF-R, VariableMeister** incorporates 5 cutting edges, while **TEC...H7...CF** features 7 cutting edges in a variety of length-to-diameter ratios, ranging from 2 to 6, making a perfect, chatter-free solution in a trochoidal milling or wall finishing in a single pass to avoid steps on the wall surface, where a tool is prone to chatter due to fully engaging cutting edges to the work surface.

TECA...H3...CF-R and **TECA...H4...CF-R** are developed for machining aluminum. Their unique ground and polished geometries combined with optimized flute designs and variable pitches allow for high cutting parameters to be applied in various aluminum milling. 4-edged **TECK...H4M...CF-R** and 7- or 9-edged **TECK...H7/9...CF-R** are all dedicated for difficult materials including titanium alloys.



SHREDMEISTER

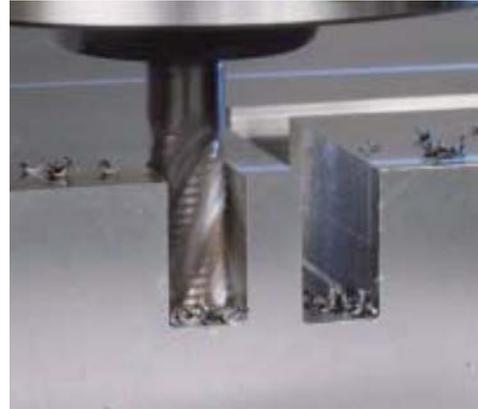
The **ShredMeister** endmill series carries the widest variety of roughing endmills in unique serrated cutting edges, optimized according to different types of workpiece materials. **ShredMeister** helps reduce manufacturing cycle time in every roughing and semi-finishing operation.

TECR...B, the core line of the **ShredMeister** series, is made for standard steel milling. Its standard ratios of effective cutting edge length to diameter include 1 and 2; while L/D ratios of 3 and 4 are also available for high efficient milling in long reach areas.

TECR...B...MF incorporates robust, serrated geometry optimized for a high metal removal in milling difficult materials like titanium alloys and hardened steels.

TECR...T-M features a moderate helix for a high cutting depth at high feed rate. **TERF...A3/E4** is suitable for alloy steel milling thanks to its fine-pitched serrations on the cutting edges.

In milling stainless steel, serrated cutting edges with a chip-splitting geometry are preferred. **TECP...H4L...CF-R** features variable leads with radius corners for milling stability. Both the 3-edged **TECP...E3L** and 4-edged **TECP...E4L** styles cover rough and semi-finish millings.



For aluminum, three standard lines of endmills are available to significantly improve the metal removal rate in applications where a roughing process takes up most of the machining process. aerospace component machining

For aluminum, three standard lines of endmills are available; each designed to deliver a maximum metal removal rate. This is especially effective in aerospace applications where substantial material must be removed quickly.

TEAP...H3...CF-R : Variable leads and chipsplitter geometry ensures step-free wall finish. Suited for roughing and semi-finishing

TERC...E3 : Suitable for high feed milling thanks to optimized core design and serrated cutting edges

TECR...B3 : Excellent chip evacuation thanks to its optimal edge geometry and polished flutes



FEEDMEISTER High Productivity Solid Carbide Endmills

The new solid carbide **FeedMeister** endmills utilize a large radius cutting edge configuration that allows for greatly increased feed rates. The unique cutting edge geometry axially directs the resultant cutting forces towards the spindle. This results in high stability and enables machining at high feeds, even with long overhang.



Due to this geometry, the solid **FeedMeister** can operate at feed per tooth (f_z) rates up to 0.5 mm/z, at 0.3 to 0.7 mm depth of cut (a_p), providing a significant reduction in cycle time, which thus increases productivity.

In addition, the tool features 4 flutes comprised of an ultra-fine grain substrate and is protected by the advanced coating technology. This combination provides outstanding wear resistance and toughness.

The unique radius geometry of the solid **FeedMeister** enables high productivity when milling slots, pockets, helical interpolation or contouring up to 3XD deep. In fact, the feed rate obtained by the solid **FeedMeister** is 5 to 10 times higher, when compared to conventional ball nose endmills.

These features are particularly attractive for the die & mold industry, when rough machining is required on materials such as hardened steel up to 65 HRC, P20 or H13. Similarly, the solid **FeedMeister** exhibits excellent performance on cast iron, stainless steel, titanium and nickel based alloys.

Features:

- An optimal solution for roughing operations; highly useful for the die & mold industry
- Covers a wide range of applications, including slotting, pocketing, helical interpolation and 3XD contouring
- Useful for machining materials such as hardened steel up to 65 HRC, P20, H13, cast iron, stainless steel, titanium and high temperature alloys
- 5 to 10 times higher feed rates, when compared to conventional ball nose endmills
- 4 flutes and a durable bottom radius geometry reduces cycle time and increases productivity

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRC	No. of Flutes	Diameter Range		Page
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Square endmills (Variable type)



TEC...H4S...CF-E 36° / 40° Short <55 4 ø6 - 20 **VARIABLEMEISTER** 20



TEC...H4M...CF-E 37° / 39° Medium <55 4 ø6 - 20 **VARIABLEMEISTER** 20



TEC...E4L...CF
TEC...E5L...CF 38° Medium 4, 5 ø1 - 25 **VARIABLEMEISTER** 21



TEC...H7...CF 35 - 38° Medium ~ Long < 55 7 ø6 - 20 **VARIABLEMEISTER** 22



TEC...H...CF 30 - 45° Medium < 55 6 - 20 ø6 - 20 **VARIABLEMEISTER** 23

Square endmills (Variable type with corner R)



TECK...H4M...CFR 35° / 37° Medium Titanium alloy 4 ø4 - 20 **VARIABLEMEISTER** 24



TECK...H7/9...CFR 36 - 38° Medium Titanium alloy 4 ø6 - 20 **VARIABLEMEISTER** 25



TEC...H4M...CFR 35° / 37° Medium <55 4 ø6 - 25 **VARIABLEMEISTER** 25



TEC...H4L...CFR 35° / 37° Medium Necklong <55 4 ø1 - 20 **VARIABLEMEISTER** 26



TEC...H4X...CFR 35° / 37° Medium Necklong <55 4 ø6 - 20 **VARIABLEMEISTER** 26



TEC...H5M...CFR 36 - 38° Medium <55 5 ø4 - 20 **VARIABLEMEISTER** 27

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRC	No. of Flutes	Diameter Range		Page
Square and Rougher combination endmills							
	TEFS...E44...CF	38°	Medium		4	ø6 - 25	FINISHMEISTER VARIABLEMEISTER 29
	TEFS...B44	45°	Medium		4	ø4 - 25	FINISHMEISTER 30
	TEFS...B44...C	45°	Medium		4	ø6 - 16	FINISHMEISTER 31
Rougher endmills							
	TECR...B4,5,7S	45°	Medium	< 55	4, 5, 7	ø5 - 20	SHREDMEISTER 32
	TECR...B4,5,7M	45°	Long	< 55	4, 5, 7	ø5 - 20	SHREDMEISTER 32
	TECR...B4,6MF	45°	Long	< 55	4, 6	ø6 - 25	SHREDMEISTER 33
	TECR...B4,5,7L	45°	Extra Long	< 55	4, 5, 7	ø6 - 20	SHREDMEISTER 34
	TECR...B4,5X	45°	Medium	< 55	4, 5	ø8 - 16	SHREDMEISTER 34
	TERF...A/E3,4	30° 38°	Medium	< 55	3, 4	ø4 - 20	SHREDMEISTER Fine pitch 35
	TECR...T4M	20°	Medium	< 55	4	ø6 - 20	SHREDMEISTER 35
	TECP...H4L...CFR	35°/37°	Medium	<55	4	ø6 - 20	VARIABLEMEISTER SHREDMEISTER 36
	TECP...E3L	38°	Medium	<55 Stainless steel	3, 4	ø5 - 20	SHREDMEISTER 36
	TECP...E4L						

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRC	No. of Flutes	Diameter Range		Page
Square endmills							
	TECL...B-4,6	45°	Long	55 - 70 Hard material	4 , 6	ø6 - 20	38
	TECX...B-4,6	45°	Extra Long	< 45	4 , 6	ø10 - 20	38
	TECC...A/B2	30°	Medium	< 45	2	ø2 - 20	39
	TECS/TECCS...E3	38°	Medium	< 45	3	ø2 - 16	39
	TECC...B/E3	45°	Medium	< 45	3	ø2 - 20	40
	TEC...B3	45°	Medium	< 45	3	ø3 - 18	41
	TECC...A/B4	30°	Medium	< 45	4	ø2 - 20	42
	TEC...B4	45°	Medium	< 45	4	ø2 - 20	42
	TEC...B4...R	45°	Medium	< 45	4	ø6 - 20 Corner radii	43
High feed and trochoid endmills							
	TEFF...N4		Short Necklong	< 45	4	ø6 - 20 FEEDMEISTER High Feed	44
	TCFF...A3	30°	Medium	heat-resistant superalloys	3	ø6 - 20 FEEDMEISTER High Feed	44
	TETR...A2...R		Neck long	< 45	2	ø2 - 10 Toroidal	45

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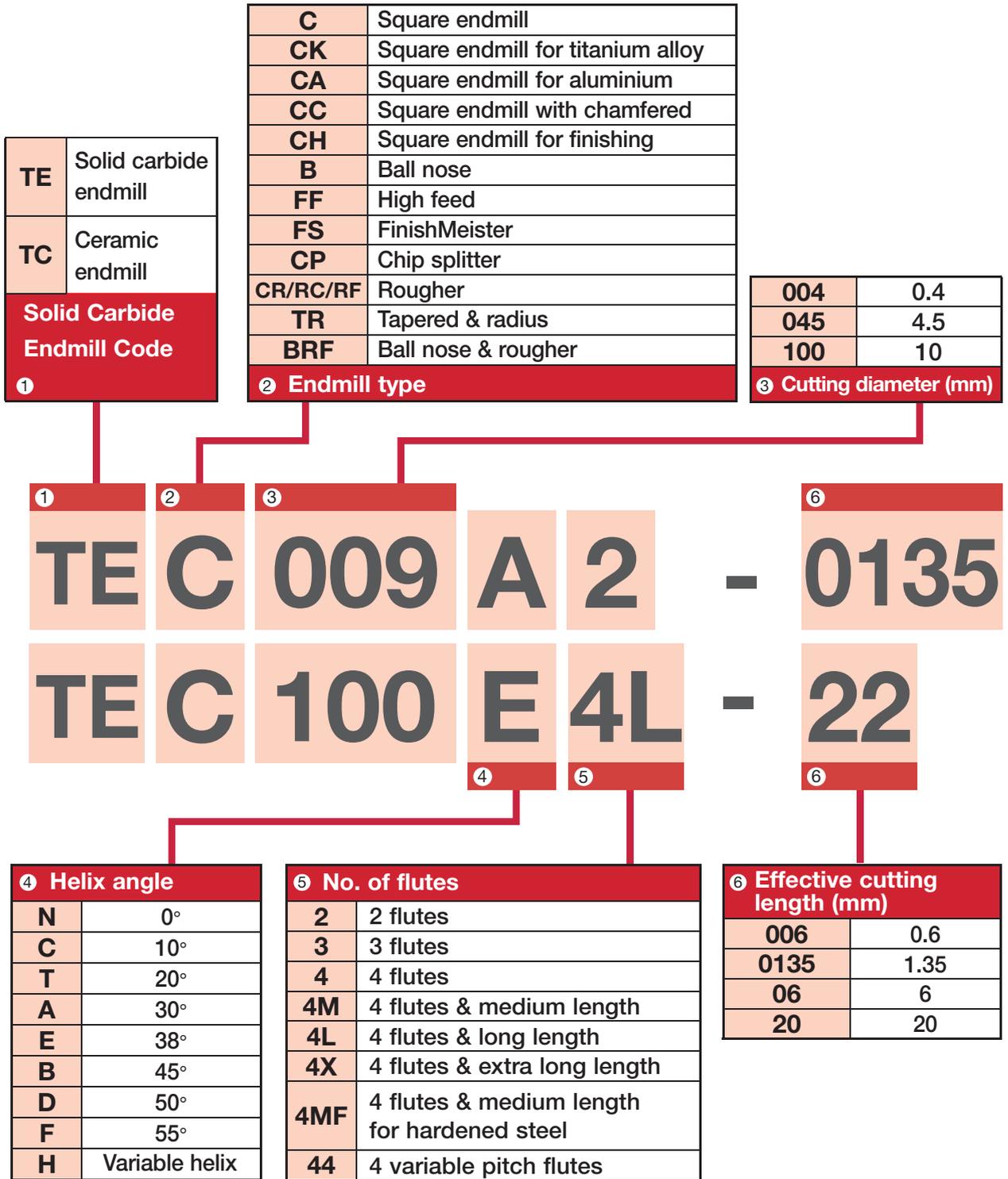
Type	Helix Angle	Cutting Length	Workpiece Hardness HRC	No. of Flutes	Diameter Range		Page
Square endmills for aluminum alloy							
	TECA...H3...CF-R	39° 41°	Medium	Aluminium	3	Ø1 - 25 VARIABLEMEISTER High feed machining	46
	TECA...H4...CF-R	39° 41°	Medium	Aluminium	4	Ø6 - 16 VARIABLEMEISTER High efficiency	48
	TECA...B2	45°	Medium	Aluminium	2	Ø4 - 20 High Speed Machining	48
	TECA...B3	45°	Medium	Aluminium	3	Ø4 - 20 High Speed Machining	49
	TECA...F2	55°	Medium	Aluminium	2	Ø4 - 20	50
	TECA...H3... CF-R...C	38°	Medium	Aluminium	3	Ø6 - 25 VARIABLEMEISTER	51
Rougher endmills for aluminum alloy							
	TEAP...H3... CF-R...C	39° 41°	Medium	Aluminium	3	Ø10 - 20 VARIABLEMEISTER SHREDMEISTER	50
	TERC...E3	38°	Medium	Aluminium	3	Ø6 - 25 SHREDMEISTER	51
	TECR...B3	45°	Short Necklong	Aluminium	3	Ø6 - 20 SHREDMEISTER	52

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRC	No. of Flutes	Diameter Range		Page
Square endmills							
	TEC...A2...	30°	Medium	< 65 Hard material	2	ø0.4 - 3	53
	TEC...A4	30°	Medium	< 65 Hard material	4	ø4 - 20	55
	TECH...B6	45°	Medium	55 - 70 Hard material	6	ø6 - 20	55
	TEC...B6	45°	Extra Long	< 65 Hard material	6	ø6 - 25	56
	TEC...D6	50°	Medium	< 65	6	ø6 - 20	56
Square endmills (Eco type)							
	TEC-A2	30°	Short		2	ø2 - 20	 57
	TEC-A2	30°	Medium		2	ø1 - 20	 58
	TEC...A/E3	30° 38°	Short		3	ø2 - 9	 59
	TEC...A/E3	30°	Medium		3	ø3 - 20	 59
	TEC...B3	45°	Short		3	ø2 - 20	 60
	TEC...A4	30°	Medium		4	ø2 - 20	 61
	TEC...A4	30°	Extra Long		4	ø3 - 20	 61

Type	Helix Angle	Cutting Length	Workpiece Hardness HRC	No. of Flutes	Diameter Range		Page
Ball Nose Endmills							
	TEB...E4L...CF	38°		< 65 Hard material	4	ø3 - 16	VARIABLEMEISTER 4 cutting edge 62
	TEBRF...T3, 4	20°	Long	< 55	3, 4	ø6 - 20	SHREDMEISTER 63
	TEB...A2	30°	Medium	< 65 Hard material	2	ø0.4 - 3	64
	TEB...A2	30°	Medium	55 - 70 Hard material	2	ø1 - 20	65
	TEB...A2	30°	Long	< 65 Hard material	2	ø3 - 16	66
	TEB...A2	30°	Long	< 65	2	ø1 - 12	Tapered neck 66
	TEB...A2	30°	Short		2	ø3 - 16	67
	TEB...A2...E	30°	Short		2	ø2 - 20	ECOMEISTER 68
	TEB...A3	30°	Short		3	ø3 - 12	69
	TEB...A4	30°	Short		4	ø3 - 20	69

SOLIDMEISTER Designation



AH725

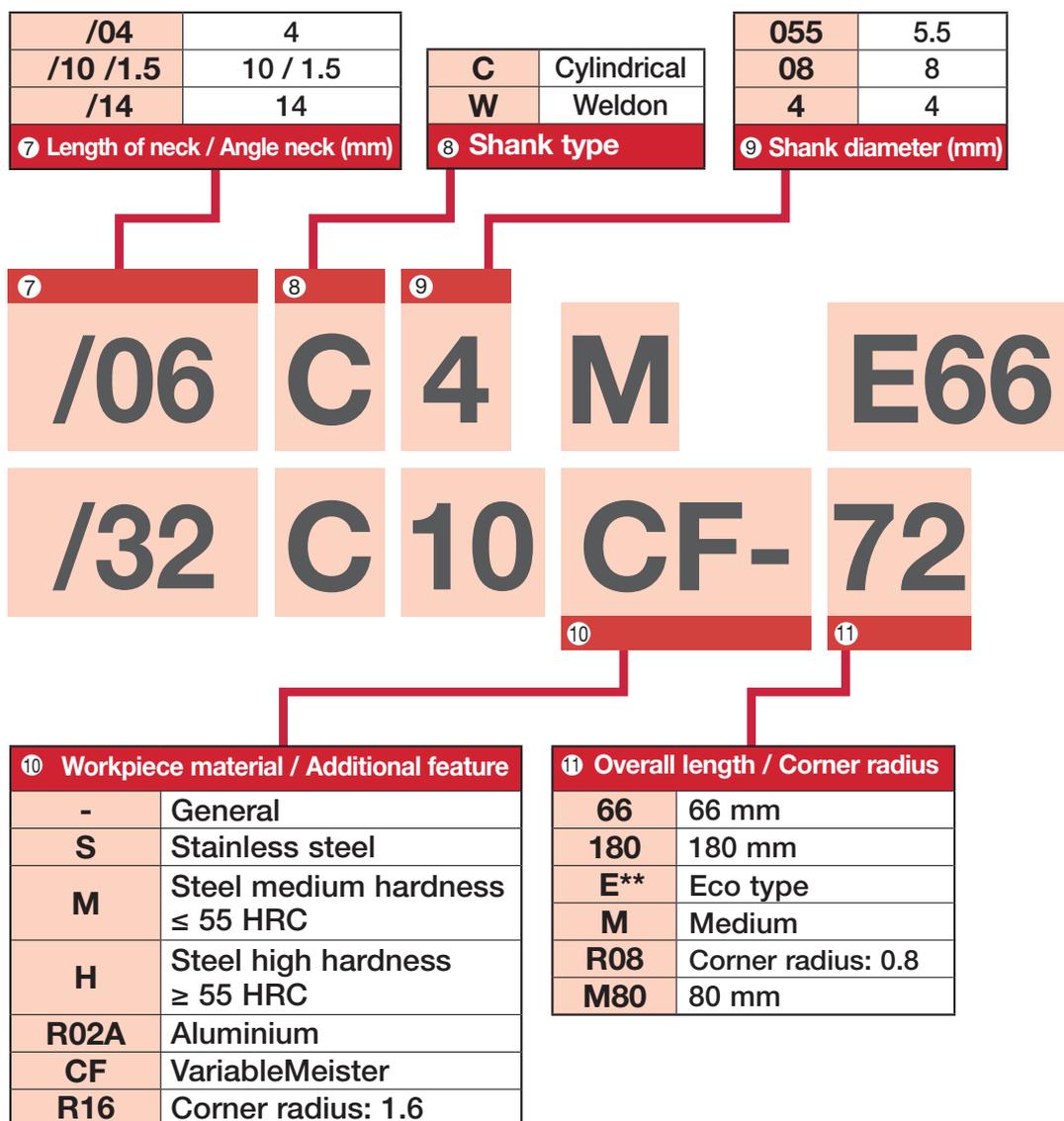
- High thermal and chemical stability.
- High hardness 3500 HV makes higher speeds, machining of harder materials, and dry machining possible. The TiAlN coating can be applied at 800° C.
- Recommended for hardened steel, high-temperature and steel alloys.
- Improves and expedites finishing on dies and molds.
- Longer tool life in high speed machining.

AH750 / AH710

- Excellent for machining hard steel up to 70 HRC and high temperature alloys.
- The small grain size improves cutting edge strength and tends to chip less.

Tolerances

Diameter range	Cutting diameter ϕD^{e8}	Shank ϕd^{h6}
< 3	-0.014 - 0.028	0 - 0.007
3 - 6	-0.020 - 0.038	0 - 0.008
6 - 10	-0.025 - 0.047	0 - 0.009
10 - 18	-0.032 - 0.059	0 - 0.011
18 - 30	-0.040 - 0.073	0 - 0.013



KS15F

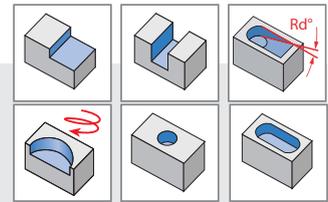
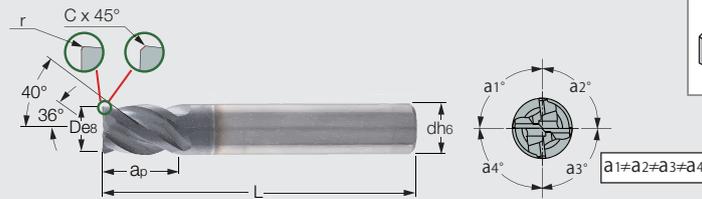
- Suited for aluminum alloys and non-ferrous metals.
- Excellent edge sharpness for super mirror surface finish quality.

FX510

- Suitable for nickel-based heat-resistant superalloys.
- SiAlON ceramic grade enables high speed milling.
- Also good for cast iron and specialty graphite materials.

TEC...H4S...CF-E

4 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening

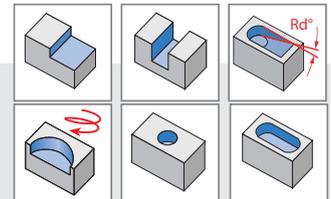
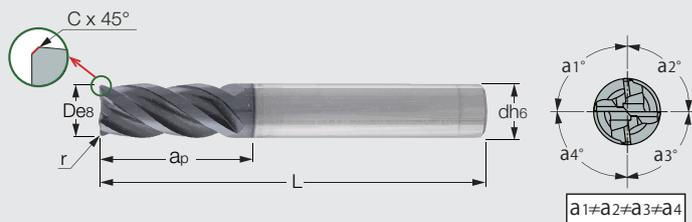


Available grade: AH725

Cat. No.	D	d	C	r	ap	L	Shank
TEC060H4S-06C06CF-E50	6	6	0.25	-	6	50	C
TEC060H4S-06C06CF-R02E50	6	6	-	0.2	6	50	C
TEC060H4S-06W06CF-E50	6	6	0.25	-	6	50	W
TEC080H4S-08C08CF-E63	8	8	0.3	-	8	63	C
TEC080H4S-08C08CF-R04E63	8	8	-	0.4	8	63	C
TEC080H4S-08W08CF-E63	8	8	0.3	-	8	63	W
TEC100H4S-10C10CF-E66	10	10	0.4	-	10	66	C
TEC100H4S-10C10CFR.5E66	10	10	-	0.5	10	66	C
TEC100H4S-10W10CF-E66	10	10	0.4	-	10	66	W
TEC120H4S-12C12CF-E73	12	12	0.5	-	12	73	C
TEC120H4S-12C12CF-R06E73	12	12	-	0.6	12	73	C
TEC120H4S-12W12CF-E73	12	12	0.5	-	12	73	W
TEC160H4S-16C16CF-E82	16	16	0.6	-	16	82	C
TEC160H4S-16W16CF-E82	16	16	0.6	-	16	82	W
TEC200H4S-20C20CF-E92	20	20	0.6	-	20	92	C
TEC200H4S-20W20CF-E92	20	20	0.6	-	20	92	W

TEC...H4M...CF-E

4 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening

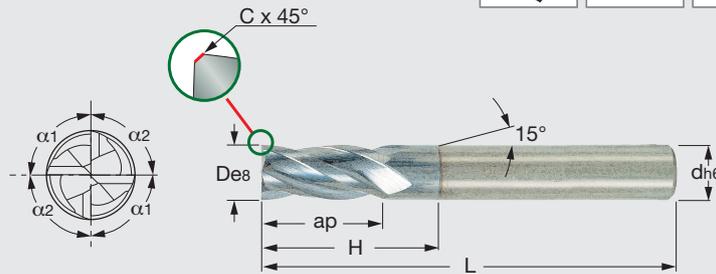
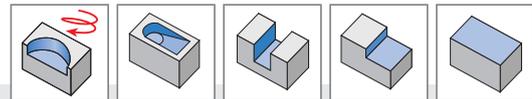


Available grade: AH725

Cat. No.	D	d	C	ap	L	Shank
TEC060H4M-12C06CF-E57	6	6	0.25	12	57	C
TEC060H4M-12W06CF-E57	6	6	0.25	12	57	W
TEC080H4M-16C08CF-E63	8	8	0.3	16	63	C
TEC080H4M-16W08CF-E63	8	8	0.3	16	63	W
TEC100H4M-20C10CF-E72	10	10	0.4	20	72	C
TEC100H4M-20W10CF-E72	10	10	0.4	20	72	W
TEC120H4M-24C12CF-E83	12	12	0.5	24	83	C
TEC120H4M-24W12CF-E83	12	12	0.5	24	83	W
TEC160H4M-32C16CF-E92	16	16	0.6	32	92	C
TEC160H4M-32W16CF-E92	16	16	0.6	32	92	W
TEC200H4M-40C20CF-E104	20	20	0.6	40	104	C
TEC200H4M-40W20CF-E104	20	20	0.6	40	104	W

TEC...E4L...CF

4 Flute, 38° Helix Endmills with 3xD Relieved Necks and Variable Pitch for Chatter Dampening

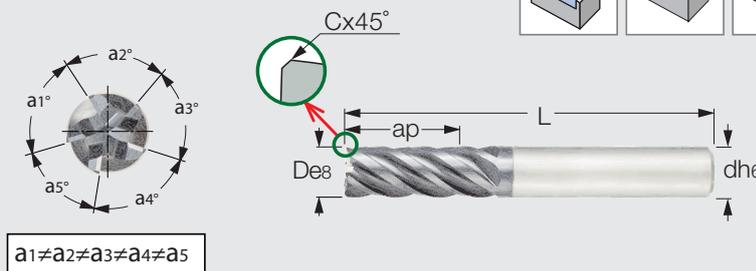
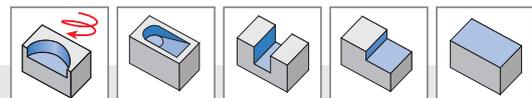


Available grade: AH725

Cat. No.	D	d	C	ap	H	L	Shank
TEC010E4L-2/04C04CF50	1	4	0.04	2.2	4	50	C
TEC020E4L-4/06C04CF50	2	4	0.08	4.3	6.1	50	C
TEC030E4L-8/11C06CF-57	3	6	0.1	8	11	57	C
TEC040E4L-10/14C06CF-57	4	6	0.15	10	14	57	C
TEC050E4L-12/17C06CF-57	5	6	0.18	12	17	57	C
TEC060E4L-14/20C06CF-57	6	6	0.25	14	20	57	C
TEC080E4L-18/26C08CFS63	8	8	-	18	26	63	C
TEC080E4L-18/26C08CF-63	8	8	0.3	18	26	63	C
TEC080E4L-18/26W08CF63	8	8	0.3	18	26	63	W
TEC100E4L-22/32C10CFS72	10	10	-	22	32	72	C
TEC100E4L-22/32C10CF-72	10	10	0.4	22	32	72	C
TEC100E4L-22/32W10CF72	10	10	0.4	22	32	72	W
TEC120E4L-26/38C12CFS83	12	12	-	26	38	83	C
TEC120E4L-26/38C12CF-83	12	12	0.5	26	38	83	C
TEC120E4L-26/38W12CF83	12	12	0.5	26	38	83	W
TEC160E4L-34/50C16CF-100	16	16	0.6	34	50	100	C
TEC160E4L-34/50W16CF-100	16	16	0.6	34	50	100	W
TEC200E4L-42/60C20CF-110	20	20	0.6	42	60	110	C
TEC200E4L-42/60W20CF-110	20	20	0.6	42	60	110	W
TEC250E4L-50/65C25CF-121	25	25	0.6	50	65	121	C
TEC250E4L-50/65W25CF121	25	25	0.6	50	65	121	W

TEC...E5L...CF

5 Flutes CHATTER FREE, 38° Helix, Medium Length Endmills

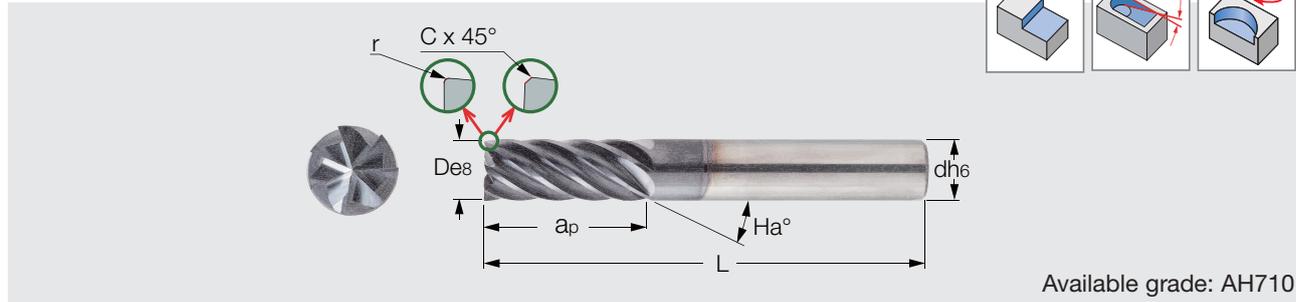


Available grade: AH725

Cat. No.	D	d	C	ap	L	Shank
TEC060E5L-15C06CF-57	6	6	0.2	15	57	C
TEC080E5L-20C08CF-63	8	8	0.25	20	63	C
TEC100E5L-25C10CF-72	10	10	0.3	25	72	C
TEC120E5L-30C12CF-83	12	12	0.4	30	83	C
TEC160E5L-40C16CF-100	16	16	0.5	40	100	C
TEC200E5L-50C20CF-125	20	20	0.5	50	125	C

TEC...H7...CF

7 Flute Endmills with Different Helix and Variable Pitch for Chatter Free High Speed Finish Milling

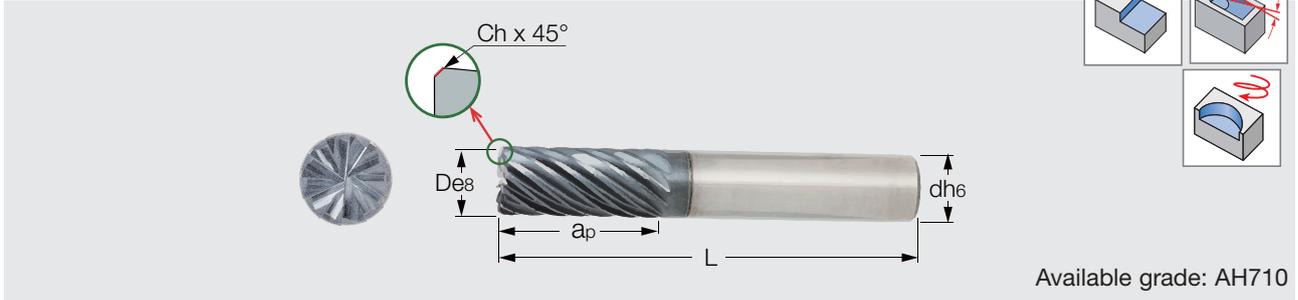


Available grade: AH710

Cat. No.	D	d	r	C	ap	Ha°	L	Shank
TEC060H7-12C06CF-M57	6	6	-	-	12	37	57	C
TEC060H7-12C06CF-R02M57	6	6	0.2	-	12	37	57	C
TEC060H7-18C06CF-M65	6	6	-	0.2	18	37	65	C
TEC060H7-24C06CF-70	6	6	-	0.2	24	37	70	C
TEC060H7-36C06CF-90	6	6	-	0.2	36	37	90	C
TEC080H7-16C08CF-M63	8	8	-	-	16	37	63	C
TEC080H7-16C08CF-R04M63	8	8	0.4	-	16	37	63	C
TEC080H7-24C08CF-M90	8	8	-	0.2	24	37	90	C
TEC080H7-32C08CF-90	8	8	-	0.2	32	37	90	C
TEC080H7-48C08CF-110	8	8	-	0.2	48	37	110	C
TEC100H7-20C10CF-M72	10	10	-	-	20	37	72	C
TEC100H7-20C10CF-R05M72	10	10	0.5	-	20	37	72	C
TEC100H7-20W10CF-M72	10	10	-	-	20	37	72	W
TEC100H7-30C10CF-M100	10	10	-	0.3	30	37	100	C
TEC100H7-40C10CF-100	10	10	-	0.3	40	37	100	C
TEC100H7-60C10CF-130	10	10	-	0.3	60	37	130	C
TEC120H7-24C12CF-M83	12	12	-	-	24	37	83	C
TEC120H7-24C12CF-R06M83	12	12	0.6	-	24	37	83	C
TEC120H7-24W12CF-M83	12	12	-	-	24	37	83	W
TEC120H7-36C12CF-M110	12	12	-	0.3	36	37	110	C
TEC120H7-48C12CF-110	12	12	-	0.3	48	37	110	C
TEC120H7-72C12CF-140	12	12	-	0.3	72	37	140	C
TEC160H7-32C16CF-M92	16	16	-	-	32	37	92	C
TEC160H7-32C16CF-R08M92	16	16	0.8	-	32	37	92	C
TEC160H7-32W16CF-M92	16	16	-	-	32	37	92	W
TEC160H7-48C12CF-M131	16	16	-	0.3	48	37	131	C
TEC160H7-64C16CF-131	16	16	-	0.3	64	37	131	C
TEC160H7-96C16CF-175	16	16	-	0.3	96	37	175	C
TEC200H7-40C20CF-M104	20	20	-	-	40	37	104	C
TEC200H7-40C20CF-R10M104	20	20	1	-	40	37	104	C
TEC200H7-40W20CF-M104	20	20	-	-	40	37	104	W
TEC200H7-60C20CF-M140	20	20	-	0.4	60	37	140	C
TEC200H7-80C20CF-140	20	20	-	0.4	80	37	140	C

TEC...H...CF

6-20 Flute Endmills with Different Helix and Variable Pitch for CHATTER FREE High Speed Finish Milling

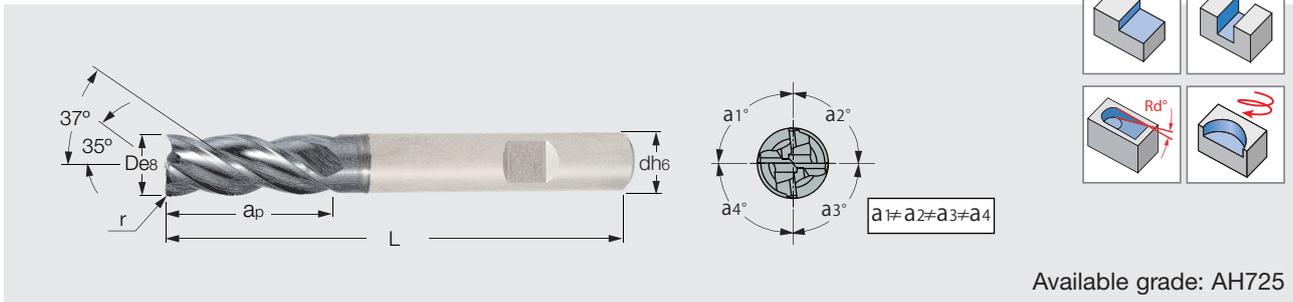


Available grade: AH710

Cat. No.	D	d	C	ap	Ha°	L	Flutes	Shank
TEC060H6-12C06CF-H57	6	6	0.2	12	45	57	6	C
TEC080H8-16C08CF-H63	8	8	0.2	16	45	63	8	C
TEC100H10-20C10CF-H72	10	10	0.3	20	35	72	10	C
TEC120H12-24C12CF-H83	12	12	0.3	24	35	83	12	C
TEC160H16-32C16CF-H92	16	16	0.3	32	35	92	16	C
TEC200H20-40C20CFH104	20	20	0.4	40	30	104	20	C

TECK...H4M...CF-R

4 Flute Endmills with Different Helix and Variable Pitch, for Chatter Dampening with Assorted Radii

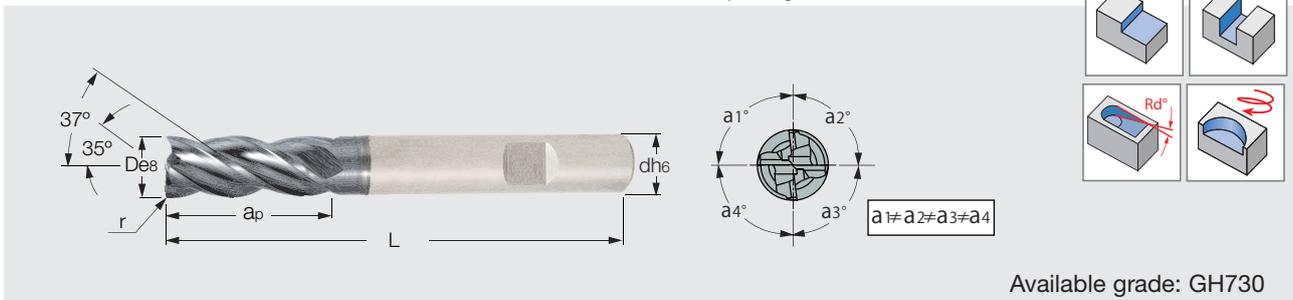


Available grade: AH725

Cat. No.	D	d	r	ap	Rd°	L	Shank
TECK040H4M-08C06CF-R02	4	6	0.2	8	5	57	C
TECK050H4M-10C06CF-R02	5	6	0.2	10	5	57	C
TECK060H4M-12C06CF-R02	6	6	0.2	12	5	57	C
TECK060H4M-12W06CF-R02	6	6	0.2	12	5	57	W
TECK080H4M-16C08CF-R04	8	8	0.4	16	5	63	C
TECK080H4M-16W08CF-R04	8	8	0.4	16	5	63	W
TECK100H4M-20C10CF-R05	10	10	0.5	20	5	72	C
TECK100H4M-20W10CF-R05	10	10	0.5	20	5	72	W
TECK120H4M-24C12CF-R06	12	12	0.6	24	5	83	C
TECK120H4M-24W12CF-R06	12	12	0.6	24	5	83	W
TECK160H4M-32C16CF-R08	16	16	0.8	32	5	92	C
TECK160H4M-32W16CF-R08	16	16	0.8	32	5	92	W
TECK200H4M-40C20CF-R10	20	20	1	40	5	104	C
TECK200H4M-40W20CF-R10	20	20	1	40	5	104	W

TECK...H4M...CF-R...C

4 Flute Endmills with Different Helix and Variable Pitch, for Chatter Dampening with Assorted Radii

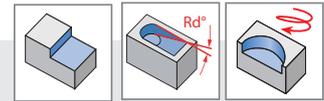


Available grade: GH730

Cat. No.	D	d	r	ap	Rd°	L	Oil hole	Shank
TECK060H4M-12C06CF-R02C	6	6	0.2	12	5	57	●	C
TECK080H4M-16W08CF-R04C	8	8	0.4	16	5	63	●	W
TECK100H4M-20W10CF-R05C	10	10	0.5	20	5	72	●	W
TECK120H4M-24W12CF-R06C	12	12	0.6	24	5	83	●	W
TECK160H4M-32W16CF-R08C	16	16	0.8	32	5	92	●	W

TECK...H7/9...CFR

7 and 9 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening on Titanium

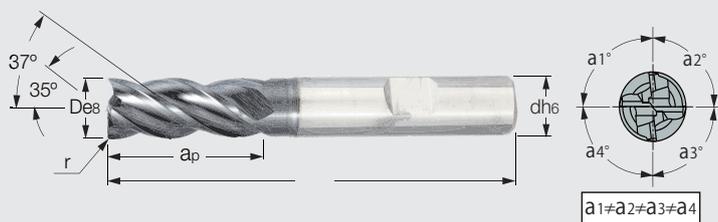
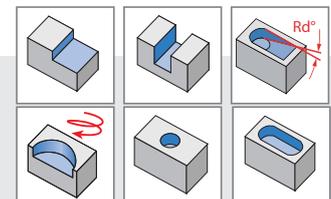


Available grade: AH725

Cat. No.	D	d	r	ap	Rd°	L	Flutes	Shank
TECK060H7-13C06CF-R02T57	6	6	0.2	13	5	57	7	C
TECK060H7-13W06CF-R02T57	6	6	0.2	13	5	57	7	W
TECK080H7-19C08CF-R04T63	8	8	0.4	19	5	63	7	C
TECK080H7-19W08CF-R04T63	8	8	0.4	19	5	63	7	W
TECK100H7-22C10CF-R05T72	10	10	0.5	22	5	72	7	C
TECK100H7-22W10CF-R05T72	10	10	0.5	22	5	72	7	W
TECK120H7-26C12CF-R06T83	12	12	0.6	26	5	83	7	C
TECK120H7-26W12CF-R06T83	12	12	0.6	26	5	83	7	W
TECK160H9-32C16CF-R08T92	16	16	0.8	32	5	92	9	C
TECK160H9-32W16CF-R08T92	16	16	0.8	32	5	92	9	W
TECK200H9-38C20CF-R10T104	20	20	1	38	5	104	9	C
TECK200H9-38W20CF-R10T104	20	20	1	38	5	104	9	W

TEC...H4M...CF-R

4 Flute Endmills with Different Helix and Variable Pitch, for Chatter Dampening with Assorted Radii

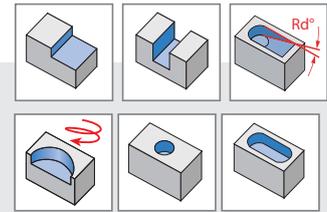
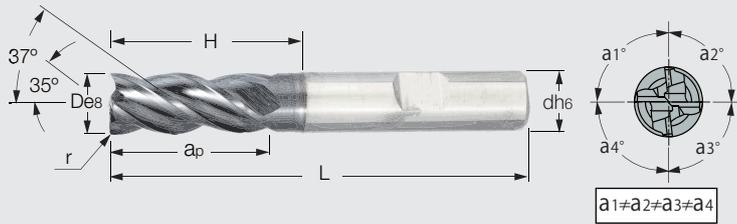


Available grade: AH725

Cat. No.	D	d	r	ap	Rd°	L	Shank
TEC060H4M-12C06CF-R02-57	6	6	0.2	12	5	57	C
TEC060H4M-12W06CF-R02-57	6	6	0.2	12	5	57	W
TEC080H4M-16C08CF-R04-63	8	8	0.4	16	5	63	C
TEC080H4M-16W08CF-R04-63	8	8	0.4	16	5	63	W
TEC100H4M-20C10CF-R05-72	10	10	0.5	20	5	72	C
TEC100H4M-20W10CF-R05-72	10	10	0.5	20	5	72	W
TEC120H4M-24C12CF-R06-83	12	12	0.6	24	5	83	C
TEC120H4M-24W12CF-R06-83	12	12	0.6	24	5	83	W
TEC140H4M-28C14CFR0.7-83	14	14	0.7	28	5	83	C
TEC140H4M-28W14CFR0.7-83	14	14	0.7	28	5	83	W
TEC160H4M-32C16CF-R08-92	16	16	0.8	32	5	92	C
TEC160H4M-32W16CF-R08-92	16	16	0.8	32	5	92	W
TEC200H4M-40C20CF-R10-104	20	20	1	40	5	104	C
TEC200H4M-40W20CF-R10-104	20	20	1	40	5	104	W
TEC250H4M-50C25CF-R12-121	25	25	1.2	50	5	121	C
TEC250H4M-50W25CF-R12-121	25	25	1.2	50	5	121	W

TEC...H4L...CF-R

4 Flute Solid Carbide Endmills with Different Helix, Variable Pitch and Chip Splitting Cutting Edges for Roughing

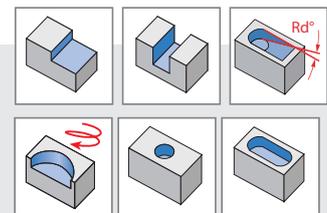
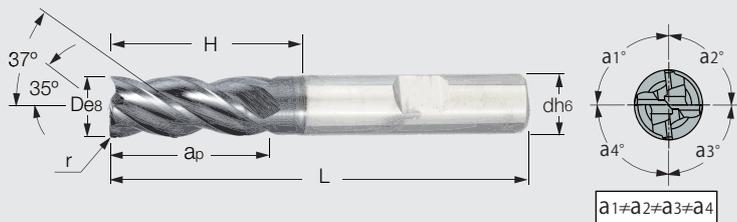


Available grade: AH725

Cat. No.	D	d	r	ap	Rd°	H	L	Shank
TEC010H4L-02/3C4CF-R05	1	4	0.1	2	5	3	50	C
TEC020H4L-04/6C4CF-R01	2	4	0.1	4	5	6	50	C
TEC030H4L-06/9C4CF-R015	3	6	0.2	6	5	9	57	C
TEC040H4L-08/12C6CF-R02	4	6	0.2	8	5	12	57	C
TEC050H4L-10/15C6CF-R02	5	6	0.2	10	5	15	57	C
TEC060H4L-12/20C6CF-R02	6	6	0.2	12	5	20	57	C
TEC060H4L-12/20W6CF-R02	6	6	0.2	12	5	20	57	W
TEC080H4L-16/26C8CF-R04	8	8	0.4	16	5	26	63	C
TEC080H4L-16/26W8CF-R04	8	8	0.4	16	5	26	63	W
TEC100H4L-20/32C10CF-R05	10	10	0.5	20	5	32	72	C
TEC100H4L-20/32W10CF-R05	10	10	0.5	20	5	32	72	W
TEC120H4L-24/38C12CF-R06	12	12	0.6	24	5	38	83	C
TEC120H4L-24/38W12CF-R06	12	12	0.6	24	5	38	83	W
TEC160H4L-32/50C16CF-R08	16	16	0.8	32	5	50	100	C
TEC160H4L-32/50W16CF-R08	16	16	0.8	32	5	50	100	W
TEC200H4L-40/60C20CF-R10	20	20	1	40	5	60	110	C
TEC200H4L-40/60W20CF-R10	20	20	1	40	5	60	110	W

TEC...H4X...CF-R

4 Flute Endmills with Different Helix and Variable Pitch, for Chatter Dampening with Assorted Radii

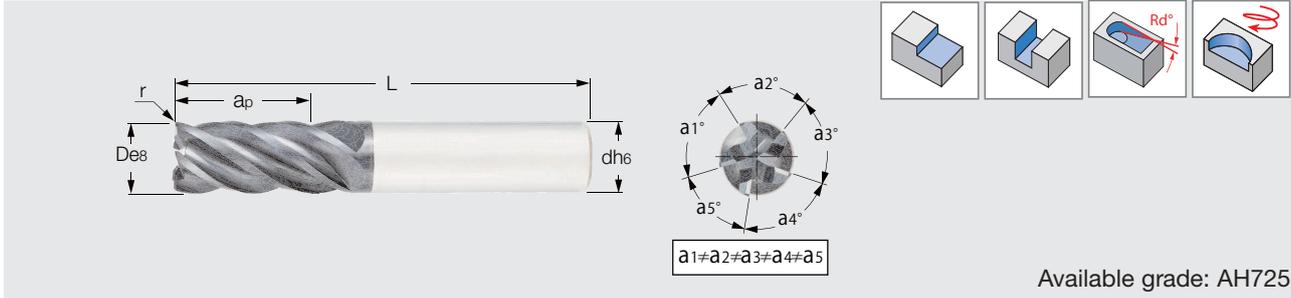


Available grade: AH725

Cat. No.	D	d	r	ap	Rd°	H	L	Shank
TEC060H4X-12/25C06CF-R02	6	6	0.2	12	5	25	61	C
TEC060H4X-12/25W06CF-R02	6	6	0.2	12	5	25	61	W
TEC080H4X-16/32C08CF-R04	8	8	0.4	16	5	32	68	C
TEC080H4X-16/32W08CF-R04	8	8	0.4	16	5	32	68	W
TEC100H4X-20/40C10CF-R05	10	10	0.5	20	5	40	80	C
TEC100H4X-20/40W10CF-R05	10	10	0.5	20	5	40	80	W
TEC120H4X-24/50C12CF-R06	12	12	0.6	24	5	50	95	C
TEC120H4X-24/50W12CF-R06	12	12	0.6	24	5	50	95	W
TEC160H4X-32/64C16CF-R08	16	16	0.8	32	5	64	115	C
TEC160H4X-32/64W16CF-R08	16	16	0.8	32	5	64	115	W
TEC200H4X-40/75C20CF-R10	20	20	1	40	5	75	125	C
TEC200H4X-40/75W20CF-R10	20	20	1	40	5	75	125	W

TEC...H5M...CF-R

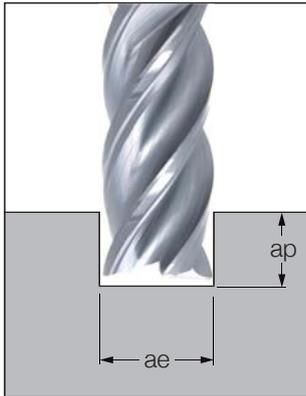
5 Flute Endmills with Different Helix (36 - 38°) and Variable Pitch for Chatter Dampening with Assorted Radii



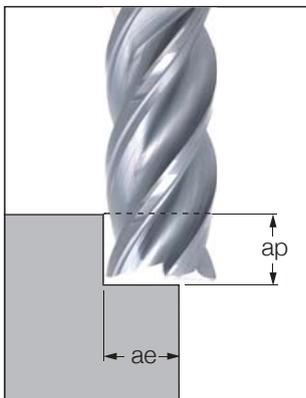
Available grade: AH725

Cat. No.	D	d	r	ap	Rd°	L	Shank
TEC040H5M-09C06CF-R02-57	4	6	0.2	9	5	57	C
TEC050H5M-11C06CF-R02-57	5	6	0.2	11	5	57	C
TEC060H5M-13C06CF-R02-57	6	6	0.2	13	5	57	C
TEC060H5M-13W06CF-R02-57	6	6	0.2	13	5	57	W
TEC080H5M-19C08CF-R04-63	8	8	0.4	19	5	63	C
TEC080H5M-19W08CF-R04-63	8	8	0.4	19	5	63	W
TEC100H5M-22C10CF-R05-72	10	10	0.5	22	5	72	C
TEC100H5M-22W10CF-R05-72	10	10	0.5	22	5	72	W
TEC120H5M-26C12CFR0.6-83	12	12	0.6	26	5	83	C
TEC120H5M-26W12CF-R06-83	12	12	0.6	26	5	83	W
TEC160H5M-32C16CF-R08-92	16	16	0.8	32	5	92	C
TEC160H5M-32W16CF-R08-92	16	16	0.8	32	5	92	W
TEC200H5M-38C20CF-R10-104	20	20	1	38	5	104	C
TEC200H5M-38W20CF-R10-104	20	20	1	38	5	104	W

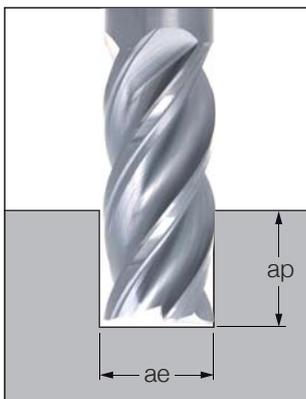
Recommended Feed - VariableMeister Solid Carbide Endmills



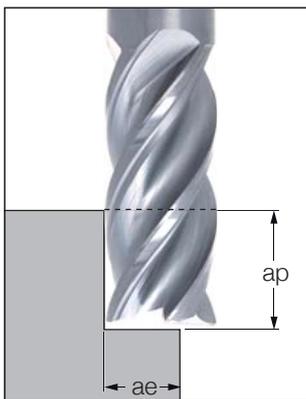
øD mm	Slotting	ae = D ap = 0.5 - 1 X D	
		Min. fz	Max. fz
6		0.025	0.06
8		0.03	0.08
10		0.03	0.09
12		0.035	0.1
16		0.05	0.12
20		0.05	0.15



øD mm	Side Milling	ae = 0.45-0.75XD ap = 0.5 - 1 X D	
		Min. fz	Max. fz
6		0.025	0.07
8		0.03	0.09
10		0.03	0.1
12		0.035	0.11
16		0.05	0.13
20		0.05	0.17



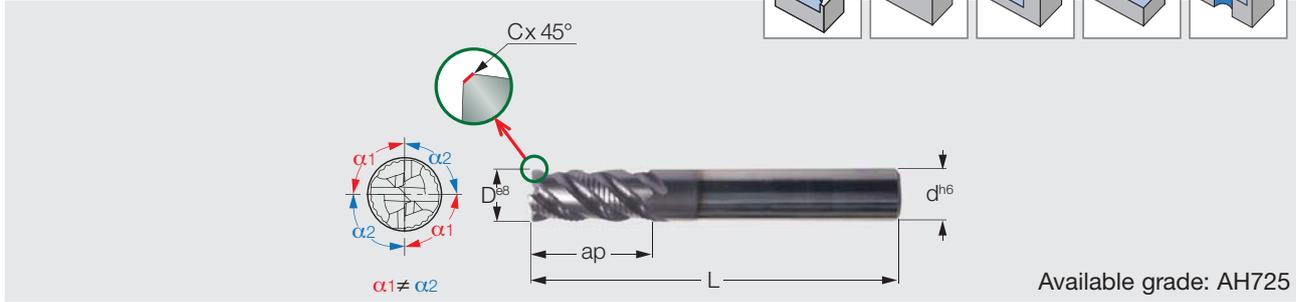
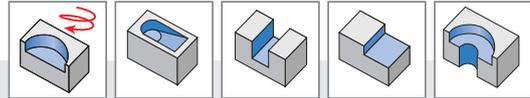
øD mm	Slotting	ae = D ap = 1 - 2 X D	
		Min. fz	Max. fz
6		0.025	0.05
8		0.03	0.05
10		0.03	0.05
12		0.035	0.06
16		0.04	0.07
20		0.05	0.08



øD mm	Side Milling	ae = 0.45-0.75XD ap = 1 - 2 X D	
		Min. fz	Max. fz
6		0.025	0.06
8		0.03	0.08
10		0.03	0.09
12		0.035	0.1
16		0.05	0.11
20		0.05	0.11

TEFS...E44...CF

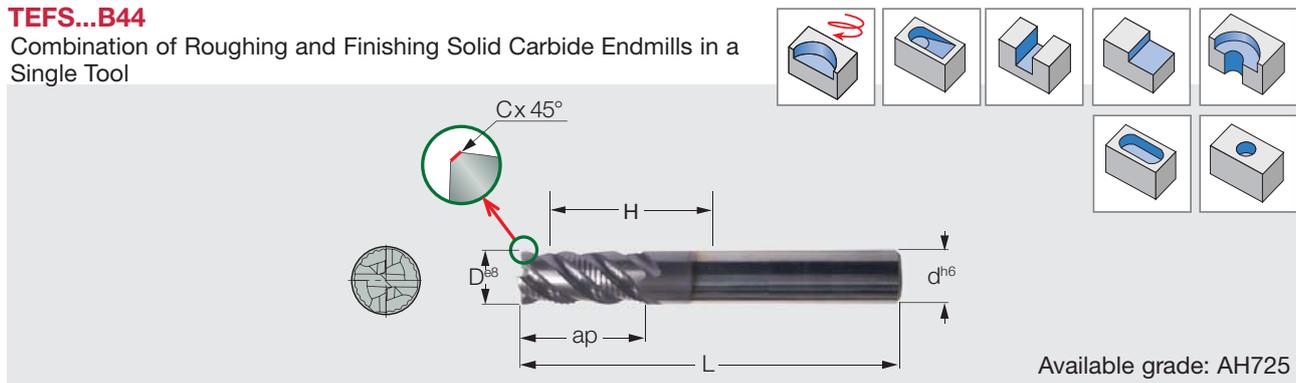
4 Flutes, VARIABLE PITCH Rougher, 38° Helix, Medium Length



Cat. No.	D	d	C	ap	L	Shank
TEFS060E44-14C06CF57	6	6	0.25	14	57	C
TEFS060E44-14W06CF-57	6	6	0.25	14	57	W
TEFS080E44-18C08CF63	8	8	0.3	18	63	C
TEFS080E44-18W08CF-63	8	8	0.3	18	63	W
TEFS100E44-22C10CF72	10	10	0.4	22	72	C
TEFS100E44-22W10CF-72	10	10	0.4	22	72	W
TEFS120E44-26C12CF83	12	12	0.5	26	83	C
TEFS120E44-26W12CF-83	12	12	0.5	26	83	W
TEFS140E44-30C14CF83	14	14	0.5	30	83	C
TEFS140E44-30W14CF-83	14	14	0.5	30	83	W
TEFS160E44-34C16CF92	16	16	0.6	34	92	C
TEFS160E44-34W16CF-92	16	16	0.6	34	92	W
TEFS200E44-42C20CF104	20	20	0.6	42	104	C
TEFS200E44-42W20CF-104	20	20	0.6	42	104	W
TEFS250E44-52C25CF121	25	25	0.6	52	121	C
TEFS250E44-52W25CF-121	25	25	0.6	52	121	W

TEFS...B44

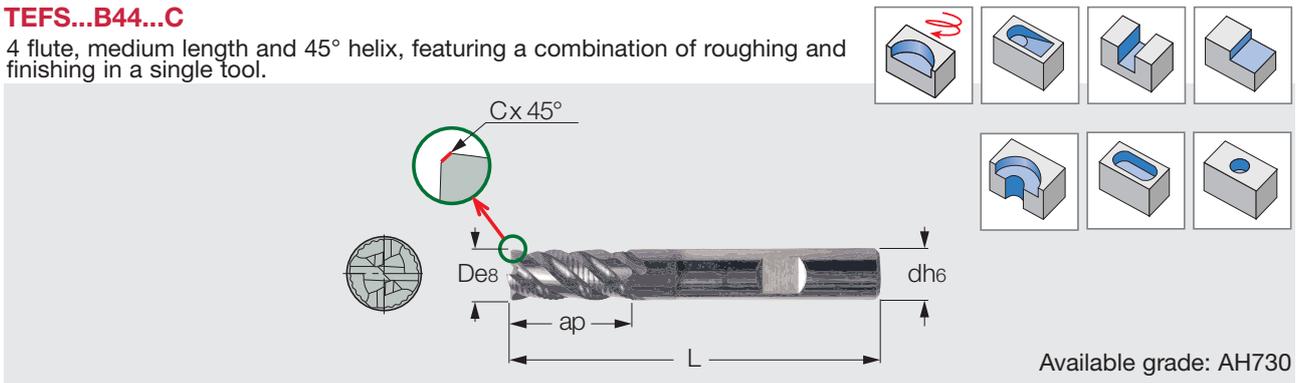
Combination of Roughing and Finishing Solid Carbide Endmills in a Single Tool



Cat. No.	D	d	C	ap	H	L	Shank
TEFS040B44-10C06-57	4	6	0.12	10	-	57	C
TEFS050B44-12C06-57	5	6	0.18	12	-	57	C
TEFS060B44-14/20C06-57	6	6	0.25	14	20	57	C
TEFS060B44-14/20W06-57	6	6	0.25	14	20	57	W
TEFS060B44-14C06-57	6	6	0.25	14	-	57	C
TEFS060B44-14W06-57	6	6	0.25	14	-	57	W
TEFS080B44-18/26C08-63	8	8	0.3	18	26	63	C
TEFS080B44-18/26W08-63	8	8	0.3	18	26	63	W
TEFS080B44-18C08-63	8	8	0.3	18	-	63	C
TEFS080B44-18W08-63	8	8	0.3	18	-	63	W
TEFS100B44-22/32C10-72	10	10	0.3	22	32	72	C
TEFS100B44-22/32W10-72	10	10	0.3	22	32	72	W
TEFS100B44-22C10-72	10	10	0.3	22	-	72	C
TEFS100B44-22W10-72	10	10	0.3	22	-	72	W
TEFS120B44-26/38C12-83	12	12	0.4	26	38	83	C
TEFS120B44-26/38W12-83	12	12	0.4	26	38	83	W
TEFS120B44-26C12-83	12	12	0.4	26	-	83	C
TEFS120B44-26W12-83	12	12	0.4	26	-	83	W
TEFS140B44-30C14-83	14	14	0.4	30	-	83	C
TEFS140B44-30W14-83	14	14	0.4	30	-	83	W
TEFS160B44-34/50C16-100	16	16	0.6	34	50	100	C
TEFS160B44-34/50W16-100	16	16	0.6	34	50	100	W
TEFS160B44-34C16-92	16	16	0.6	34	-	92	C
TEFS160B44-34W16-92	16	16	0.6	34	-	92	W
TEFS200B44-42/62C20-125	20	20	0.6	42	62	125	C
TEFS200B44-42/62W20-125	20	20	0.6	42	62	125	W
TEFS200B44-42C20-104	20	20	0.6	42	-	104	C
TEFS200B44-42W20-104	20	20	0.6	42	-	104	W
TEFS250B44-52C25-121	25	25	0.6	52	-	121	C
TEFS250B44-52W25-121	25	25	0.6	52	-	121	W

TEFS...B44...C

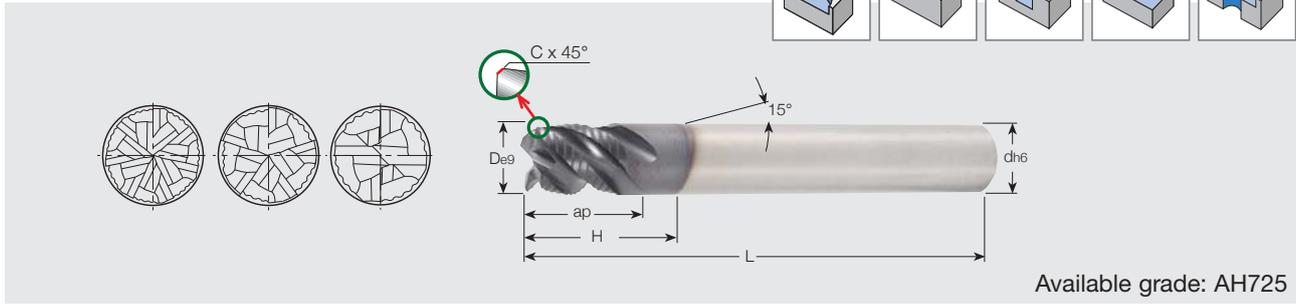
4 flute, medium length and 45° helix, featuring a combination of roughing and finishing in a single tool.



Cat. No.	D	d	C	ap	L	Oil hole	Shank
TEFS060B44-14C06-57C	6	6	0.25	14	57	●	C
TEFS080B44-18W08-63C	8	8	0.3	18	63	●	C
TEFS100B44-22W10-72C	10	10	0.3	22	72	●	C
TEFS120B44-26W12-83C	12	12	0.4	26	83	●	C
TEFS160B44-34W16-92C	16	16	0.6	34	92	●	C

TECR...B4, 5, 7S

4 - 7 Flutes Rougher, 45° Helix, Short Length (1xD)

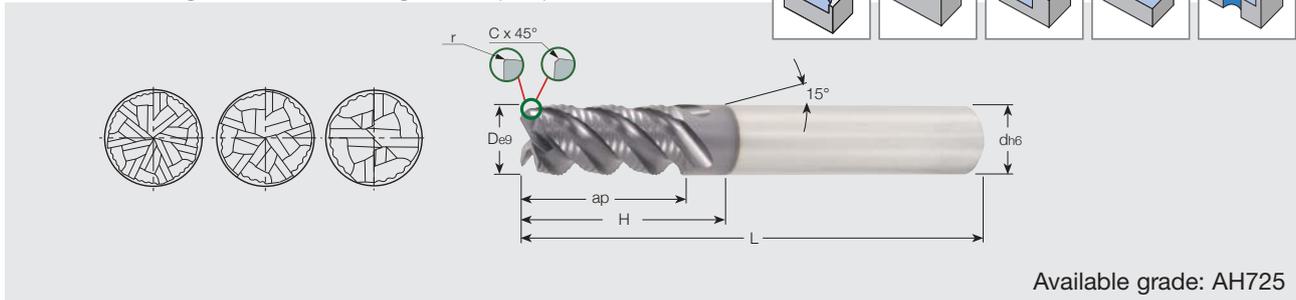


Available grade: AH725

Cat. No.	D	d	C	ap	H	L	Flutes	Shank
TECR050B4S-05W06-57	5	6	0.2	5	10	57	4	W
TECR060B4S-06W06-57	6	6	0.25	6	-	57	4	W
TECR080B4S-08W08-63	8	8	0.25	8	-	63	4	W
TECR100B4S-10W10-72	10	10	0.3	10	-	72	4	W
TECR120B4S-12W12-83	12	12	0.35	12	-	83	4	W
TECR160B5S-16W16-92	16	16	0.4	16	-	92	5	W
TECR200B7S-20W20-104	20	20	0.4	20	-	104	7	W

TECR...B4, 5, 7M

4 - 7 Flutes Rougher, 45° Helix, Long Reach (3xD)



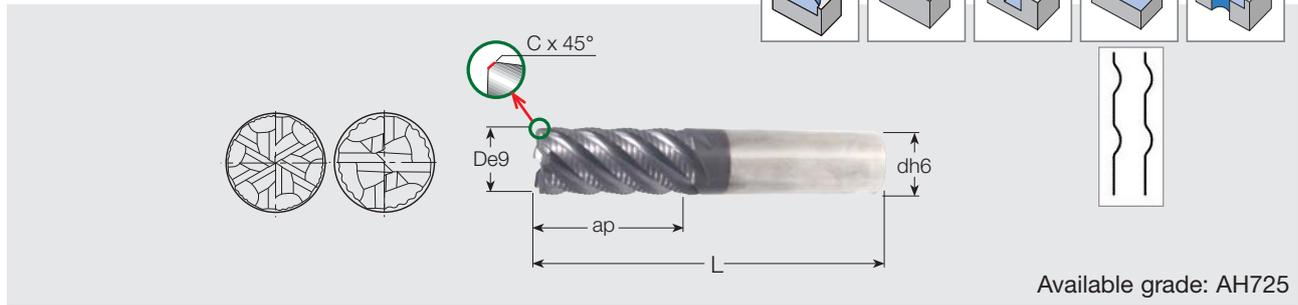
Available grade: AH725

Cat. No.	D	d	C	r	ap	H	L	Flutes	Shank
TECR050B4M-10C06-57	5	6	0.2	-	10	15	57	4	C
TECR050B4M-10W06-57	5	6	0.2	-	10	15	57	4	W
TECR060B4M-12C06-57	6	6	0.25	-	12	-	57	4	C
TECR060B4M-12W06-57	6	6	0.25	-	12	-	57	4	W
TECR080B4M-16C08-63	8	8	0.25	-	16	-	63	4	C
TECR080B4M-16W08-63	8	8	0.25	-	16	-	63	4	W
TECR100B4M-20C10-72	10	10	0.3	-	20	-	72	4	C
TECR100B4M-20C10-72R10	10	10	-	1	20	-	72	4	C
TECR100B4M-20W10-72	10	10	0.3	-	20	-	72	4	W
TECR120B4M-24C12-83	12	12	0.35	-	24	-	83	4	C
TECR120B4M-24C12-83R12	12	12	-	1.2	24	-	83	4	C
TECR120B4M-24W12-83	12	12	0.35	-	24	-	83	4	W
TECR120B4M-24W12-83R12	12	12	-	1.2	24	-	83	4	W
TECR160B5M-32C16-92	16	16	0.4	-	32	-	92	5	C
TECR160B5M-32C16-92R16	16	16	-	1.6	32	-	92	5	C
TECR160B5M-32W16-92	16	16	0.4	-	32	-	92	5	W
TECR160B5M-32W16-92R16	16	16	-	1.6	32	-	92	5	W
TECR200B7M-40W20-104	20	20	0.4	-	40	-	104	7	W

First choice in roughing applications.

TECR...B4, 6MF

4, 6 Flutes Rougher, 45° Helix, Medium Length, for Machining Hardened Steel and Titanium Alloys

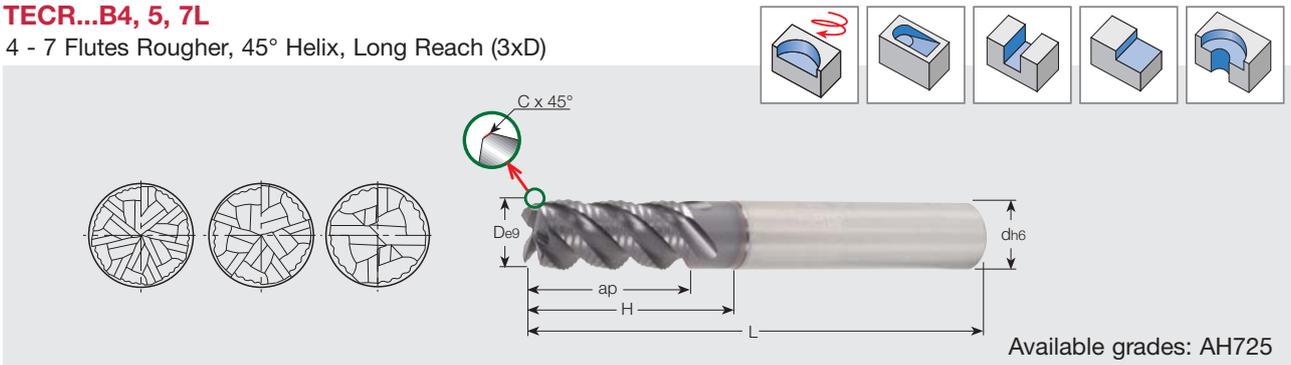


Cat. No.	D	d	C	ap	L	Flutes	Shank
TECR060B4MF-14W06-57	6	6	0.25	14	57	4	W
TECR080B4MF-18W08-63	8	8	0.3	18	63	4	W
TECR100B4MF-22W10-72	10	10	0.3	22	72	4	W
TECR120B4MF-26W12-83	12	12	0.4	26	83	4	W
TECR140B4MF-30W14-83	14	14	0.4	30	83	4	W
TECR160B6MF-34W16-92	16	16	0.5	34	92	6	W
TECR200B6MF-42W20-104	20	20	0.7	42	104	6	W
TECR250B6MF-52W25-121	25	25	0.9	52	121	6	W

The rougher's cutting edge profile has shallow serrations. This is a very durable design which leaves only a small amount of material for the finishing cut.

TECR...B4, 5, 7L

4 - 7 Flutes Rougher, 45° Helix, Long Reach (3xD)

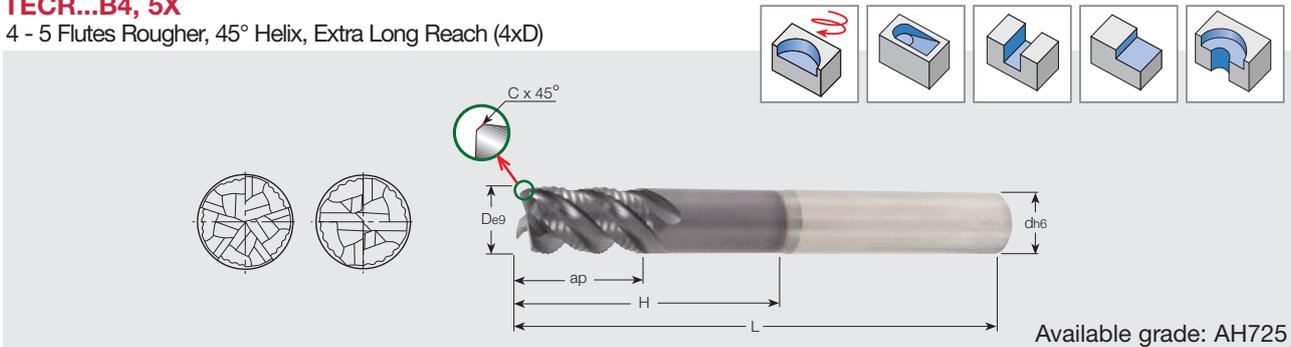


Available grades: AH725

Cat. No.	D	d	C	ap	H	L	Flutes	Shank
TECR060B4L-12/18W06-57	6	6	0.25	12	18	57	4	W
TECR080B4L-16/24W08-63	8	8	0.25	16	24	63	4	W
TECR100B4L-20/30W10-72	10	10	0.3	20	30	72	4	W
TECR120B4L-24/36W12-83	12	12	0.35	24	36	83	4	W
TECR160B5L-32/48W16-100	16	16	0.4	32	48	100	5	W
TECR200B7L-40/60W20-110	20	20	0.4	40	60	110	7	W

TECR...B4, 5X

4 - 5 Flutes Rougher, 45° Helix, Extra Long Reach (4xD)



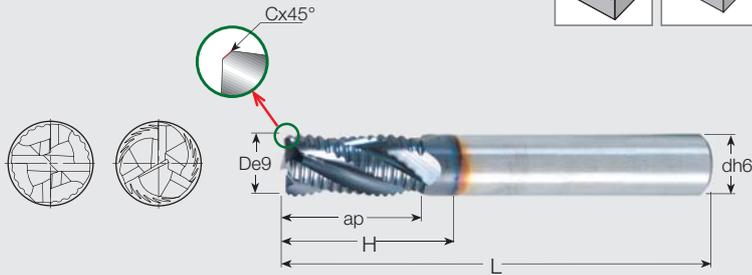
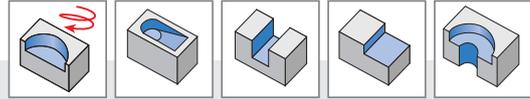
Available grade: AH725

Cat. No.	D	d	C	ap	H	L	Flutes	Shank
TECR080B4X-12/32W08-68	8	8	0.25	12	32	68	4	W
TECR100B4X-15/40W10-80	10	10	0.3	15	40	80	4	W
TECR120B4X-18/48W12-100	12	12	0.35	18	48	100	4	W
TECR160B5X-24/64W16-115	16	16	0.4	24	64	115	5	W

First choice in roughing applications.

TERF...A/E3, 4

3 - 4 Flutes Rougher, 30° and 38° Helix, Medium Length Fine Pitch for Alloy Steel, Stainless Steel

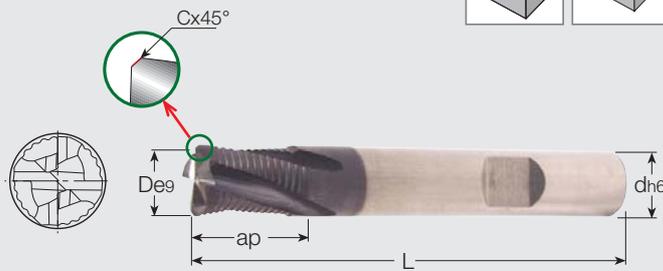
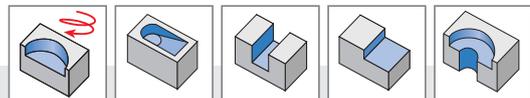


Available grade: AH725

Cat. No.	D	d	C	ap	H	L	Helix	Flutes	Shank
TERF040E3-08C06-57	4	6	0.25	8	13	57	38°	3	C
TERF050E3-10C06-57	5	6	0.3	10	17	57	38°	3	C
TERF060E3-13C06-57	6	6	0.3	13	21	57	38°	3	C
TERF070E3-20C08-63	7	8	0.3	20	26	63	38°	3	C
TERF080E3-20C08-63	8	8	0.3	20	28	63	38°	3	C
TERF090A4-22C10-72	9	10	0.3	22	30	72	30°	4	C
TERF100A4-22C10-72	10	10	0.3	22	30	72	30°	4	C
TERF110A4-25C12-83	11	12	0.3	25	32	83	30°	4	C
TERF120A4-25C12-83	12	12	0.4	25	37	83	30°	4	C
TERF140A4-25C14-83	14	14	0.5	25	37	83	30°	4	C
TERF160A4-32C16-92	16	16	0.5	32	44	92	30°	4	C
TERF180A4-32C18-92	18	18	0.5	32	44	92	30°	4	C
TERF200A4-38C20-104	20	20	0.6	38	55	104	30°	4	C

TECR...T4M

4 Flutes Rougher, 20° Helix, Medium Length



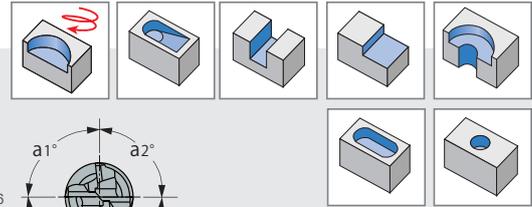
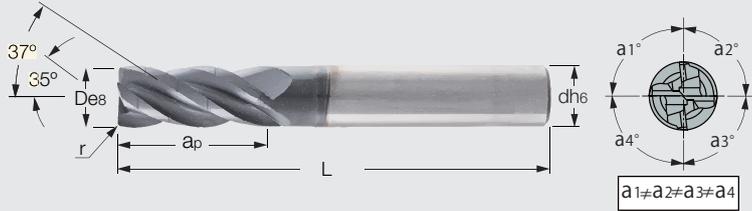
Available grade: AH725

Cat. No.	D	d	C	ap	L	Flutes	Shank
TECR060T4M-10W06-57	6	6	0.3	10	57	4	W
TECR080T4M-16W08-63	8	8	0.4	16	63	4	W
TECR100T4M-20W10-72	10	10	0.4	20	72	4	W
TECR120T4M-24W12-83	12	12	0.4	24	83	4	W
TECR160T4M-32W16-92	16	16	0.5	32	92	4	W
TECR200T4M-40W20-104	20	20	0.5	40	104	4	W

For maximum stock removal.

TECP...H4L...CFR

4 Flute Solid Carbide Endmills with Different Helix, Variable Pitch and Chip Splitting Cutting Edges for Roughing

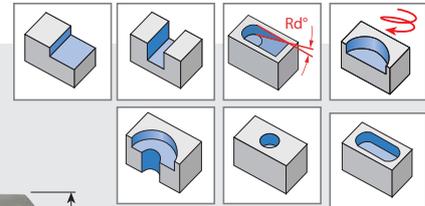
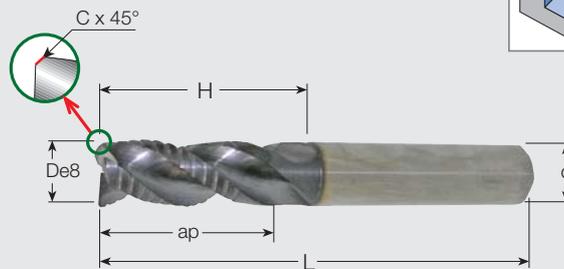


Available grade: AH725

Cat. No.	D	d	r	ap	H	L	Flutes	Shank
TECP060H4L-12/20C6CF-R02	6	6	0.2	12	20	57	4	C
TECP060H4L-12/20W6CF-R02	6	6	0.2	12	20	57	4	W
TECP080H4L-16/26C8CF-R04	8	8	0.4	16	26	63	4	C
TECP080H4L-16/26W8CF-R04	8	8	0.4	16	26	63	4	W
TECP100H4L-20/32C10CF-R05	10	10	0.5	20	32	72	4	C
TECP100H4L-20/32W10CF-R05	10	10	0.5	20	32	72	4	W
TECP120H4L-24/38C12CF-R06	12	12	0.6	24	38	83	4	C
TECP120H4L-24/38W12CF-R06	12	12	0.6	24	38	83	4	W
TECP160H4L-32/50C16CF-R08	16	16	0.8	32	50	100	4	C
TECP160H4L-32/50W16CF-R08	16	16	0.8	32	50	100	4	W
TECP200H4L-40/60C20CF-R10	20	20	1	40	60	110	4	C
TECP200H4L-40/60W20CF-R10	20	20	1	40	60	110	4	W

TECP...E3L

3 Flutes Chip Splitter Rougher, 38° Helix, Medium Length

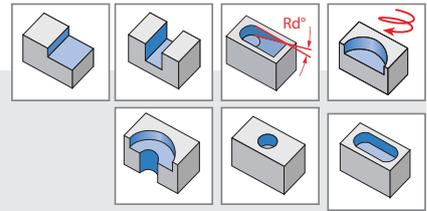


Available grade: AH725

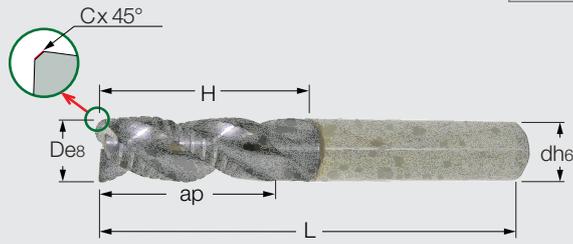
Cat. No.	D	d	C	ap	H	L	Shank
TECP050E3L-12/17W06S57	5	6	0.3	12	17	57	W
TECP060E3L-14/20W06S57	6	6	0.4	14	20	57	W
TECP080E3L-18/26W08S63	8	8	0.4	18	26	63	W
TECP100E3L-22/32W10S72	10	10	0.4	22	32	72	W
TECP120E3L-26/38W12S83	12	12	0.4	26	38	83	W
TECP140E3L-30/44W14S100	14	14	0.6	30	44	100	W
TECP160E3L-34/50W16S100	16	16	0.5	34	50	100	W
TECP200E3L-42/62W20S125	20	20	0.5	42	62	125	W

TECP...E4L

4 Flutes Chip Splitter Rougher, 38° Helix, Medium Length



Stainless



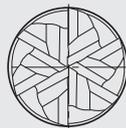
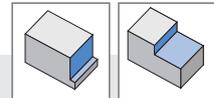
Available grade: AH725

Cat. No.	D	d	C	ap	H	L	Shank
TECP050E4L-12/17W06S57	5	6	0.3	12	17	57	W
TECP060E4L-14/20W06S57	6	6	0.4	14	20	57	W
TECP080E4L-18/26W08S63	8	8	0.4	18	26	63	W
TECP100E4L-22/32W10S72	10	10	0.4	22	32	72	W
TECP120E4L-26/38W12S83	12	12	0.4	26	38	83	W
TECP140E4L-30/44W14S100	14	14	0.6	30	44	100	W
TECP160E4L-34/50W16S100	16	16	0.5	34	50	100	W
TECP200E4L-42/62W20S125	20	20	0.5	42	62	125	W

Most recommended for machining stainless steel

TECH...B6

6 Flutes Endmill, 45° Helix, Medium Length for Finishing

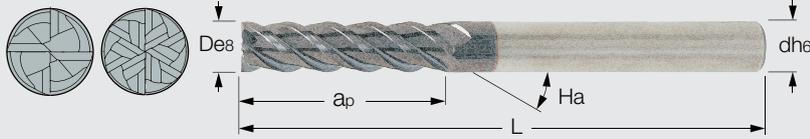
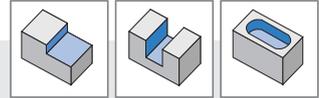


Available grades: AH725

Cat. No.	D	d	ap	L	Shank
TECH060B6-16C06-57	6	6	16	57	C
TECH060B6-16W06-57	6	6	16	57	W
TECH080B6-20C08-63	8	8	20	63	C
TECH080B6-20W08-63	8	8	20	63	W
TECH100B6-22C10-72	10	10	22	72	C
TECH100B6-22W10-72	10	10	22	72	W
TECH120B6-25C12-83	12	12	25	83	C
TECH120B6-25W12-83	12	12	25	83	W
TECH160B6-32C16-92	16	16	32	92	C
TECH160B6-32W16-92	16	16	32	92	W
TECH200B6-38C20-104	20	20	38	104	C
TECH200B6-38W20-104	20	20	38	104	W

TECL...B-4,6

4 & 6 Flute, 45° Helix Long Solid Carbide Endmills

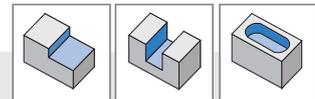


Available grade: AH725

Cat. No.	D	d	ap	Ha°	L	Flutes		Shank
TEC060B4L-24C06-65	6	6	24	45	65	4	●	C
TEC060B4L-24W06-65	6	6	24	45	65	4	●	W
TEC080B4L-32C08-79	8	8	32	45	79	4	●	C
TEC080B4L-32W08-79	8	8	32	45	79	4	●	W
TEC100B4L-40C10-100	10	10	40	45	100	4	●	C
TEC100B4L-40W10-100	10	10	40	45	100	4	●	W
TEC120B4L-48C12-100	12	12	48	45	100	4	●	C
TEC120B4L-48W12-100	12	12	48	45	100	4	●	W
TEC140B4L-50C14-100	14	14	50	45	100	4	●	C
TEC140B4L-50W14-100	14	14	50	45	100	4	●	W
TEC160B6L-56C16-115	16	16	56	45	115	6		C
TEC160B6L-56W16-115	16	16	56	45	115	6		W
TEC200B6L-60C20-125	20	20	60	45	125	6		C
TEC200B6L-60W20-125	20	20	60	45	125	6		W

TECX...B-4,6

4 & 6 Flute, 45° Helix Extra Long Solid Carbide Endmills

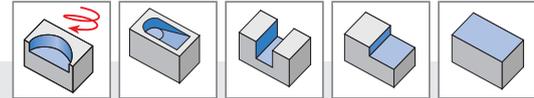


Available grade: AH725

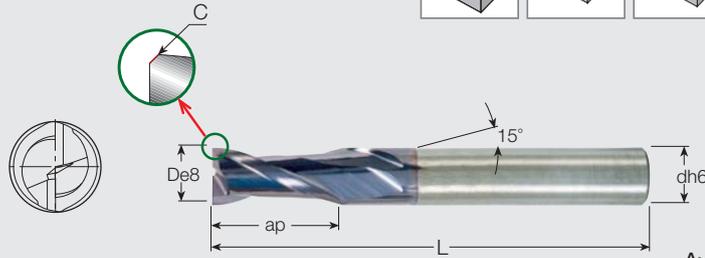
Cat. No.	D	d	ap	Ha°	L	Flutes		Shank
TEC100B4X-60C10-112	10	10	60	45	112	4	●	C
TEC100B4X-60W10-112	10	10	60	45	112	4	●	W
TEC120B4X-72C12-150	12	12	72	45	150	4	●	C
TEC120B4X-72W12-150	12	12	72	45	150	4	●	W
TEC160B6X-80C16-150	16	16	80	45	150	6		C
TEC160B6X-80W16-150	16	16	80	45	150	6		W
TEC200B6X-80C20-150	20	20	80	45	150	6		C

TECC...A/B2

2 Flutes, 30° and 45° Helix, Medium Length



ϕD	C
$D \leq 4$	0.10x45°
$4 < D \leq 10$	0.15x45°
$10 < D$	0.25x45°

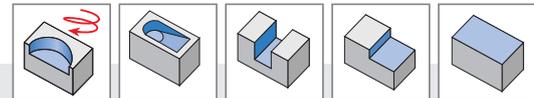


Available grade: AH725

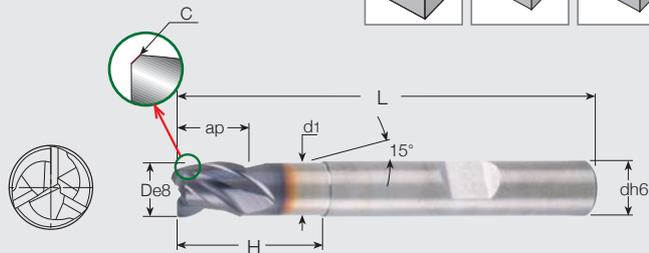
Cat. No.	D	d	ap	L	Helix	Shank
TECC020B2-07C03-38	2	3	7	38	45°	C
TECC030A2-10C03-38	3	3	10	38	30°	C
TECC040A2-12C04-50	4	4	12	50	30°	C
TECC050A2-14C05-50	5	5	14	50	30°	C
TECC060A2-16C06-57	6	6	16	57	30°	C
TECC080A2-20C08-63	8	8	20	63	30°	C
TECC100A2-22C10-72	10	10	22	72	30°	C
TECC120A2-25C12-83	12	12	25	83	30°	C
TECC160A2-32C16-92	16	16	32	92	30°	C
TECC200A2-38C20-104	20	20	38	104	30°	C

TECS/TECCS...E3

3 Flutes, 38° Helix, Short Length



ϕD	C
$D \leq 4$	0.10x45°
$4 < D \leq 10$	0.15x45°
$D > 10$	0.25x45°



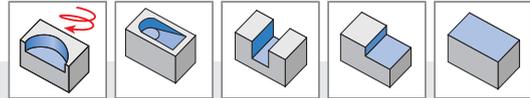
Available grade: AH725

Cat. No.	D	d	d1	ap	H	L	Shank
TECS020E3-03W06-57	2	6	1.9	3	7	57	W
TECS030E3-04W06-57	3	6	2.9	4	10	57	W
TECS040E3-05W06-57	4	6	3.9	5	12	57	W
TECS050E3-06W06-57	5	6	4.9	6	14	57	W
TECCS060E3-07W06-57	6	6	5.9	7	16	57	W
TECCS080E3-09W08-63	8	8	7.6	9	20	63	W
TECCS100E3-11W10-72	10	10	9.5	11	22	72	W
TECCS120E3-12W12-83	12	12	11.3	12	25	83	W
TECCS160E3-16W16-92	16	16	15.2	16	32	92	W

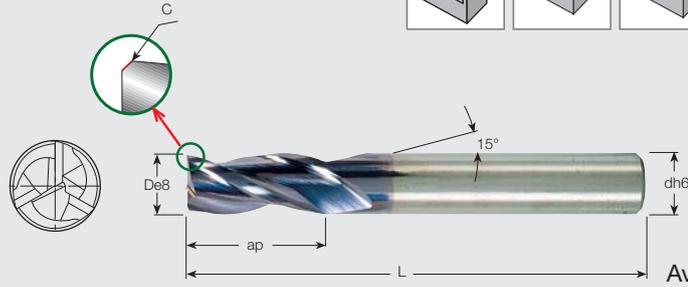
Due to short and stable design, feed can be increased.

TECC...B/E3

3 Flutes, 38° and 45° Helix, Medium Length



$\varnothing D$	C
$D \leq 4$	0.10x45°
$4 < D \leq 10$	0.15x45°
$10 < D$	0.25x45°



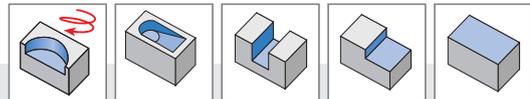
Available grade: GH730

Cat. No.	D	d	ap	L	Helix	Shank
TECC020B3-07C03-38	2	3	7	38	45°	C
TECC030E3-10C03-38	3	3	10	38	38°	C

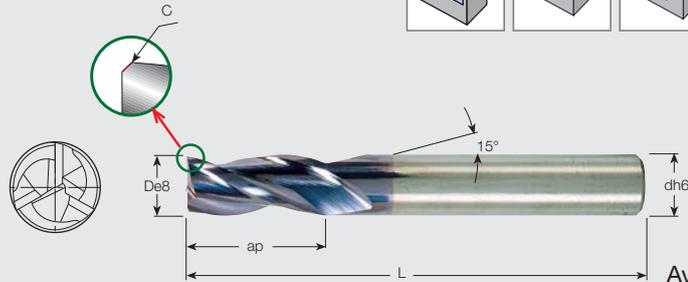
Multi-purpose endmills.
Also suitable for deep slotting.

TECC...B/E3

3 Flutes, 38° Helix, Medium Length



$\varnothing D$	C
$D \leq 4$	0.10x45°
$4 < D \leq 10$	0.15x45°
$10 < D$	0.25x45°



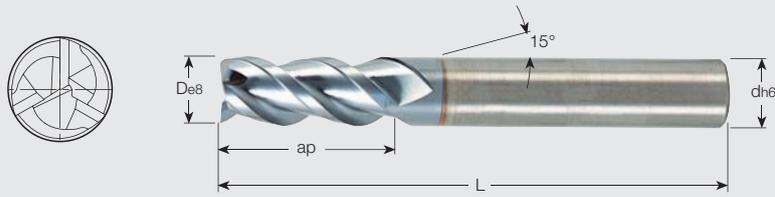
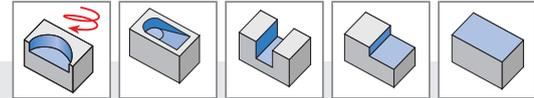
Available grade: AH725

Cat. No.	D	d	ap	L	Helix	Shank
TECC040E3-12C04-50	4	4	12	50	38°	C
TECC050E3-14C05-50	5	5	14	50	38°	C
TECC060E3-16C06-57	6	6	16	57	38°	C
TECC080E3-20C08-63	8	8	20	63	38°	C
TECC100E3-22C10-72	10	10	22	72	38°	C
TECC120E3-25C12-83	12	12	25	83	38°	C
TECC160E3-32C16-92	16	16	32	92	38°	C
TECC200E3-38C20-104	20	20	38	104	38°	C

Multi-purpose endmills.
Also suitable for deep slotting.

TEC...B3

3 Flutes, 45° Helix, Medium Length



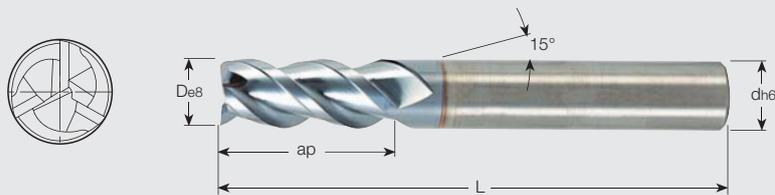
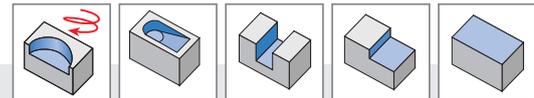
Available grade: GH730

Cat. No.	D	d	ap	L	Shank
TEC030B3-10C06-57	3	6	10	57	C
TEC040B3-12C06-57	4	6	12	57	C
TEC050B3-14C06-57	5	6	14	57	C
TEC070B3-16C07-60	7	7	16	60	C
TEC140B3-25C14-75	14	14	25	75	C

Excellent for deep slotting and shoulder milling.

TEC...B3

3 Flutes, 45° Helix, Medium Length



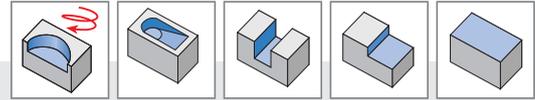
Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEC060B3-16C06-57	6	6	16	57	C
TEC080B3-20C08-63	8	8	20	63	C
TEC090B3-20C09-67	9	9	20	67	C
TEC100B3-22C10-72	10	10	22	72	C
TEC120B3-25C12-83	12	12	25	83	C
TEC180B3-32C18-92	18	18	32	92	C

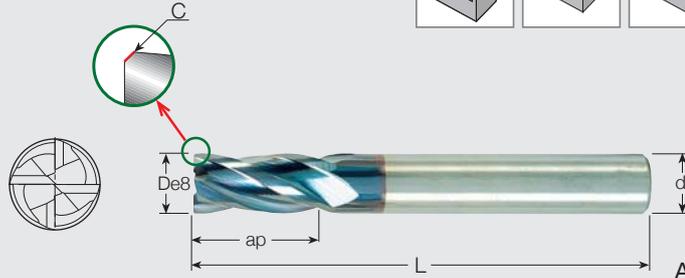
Excellent for deep slotting and shoulder milling.

TECC...A/B4

4 Flutes Endmill, 30° and 45° Helix, Medium Length



ϕD	C
$D \leq 4$	0.10x45°
$4 < D \leq 10$	0.15x45°
$10 < D$	0.25x45°

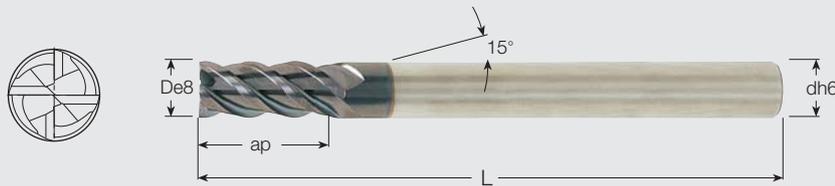
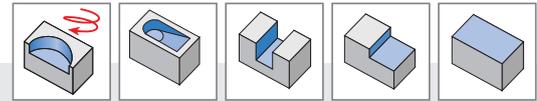


Available grade: AH725

Cat. No.	D	d	ap	L	Helix	Shank
TECC020B4-07C03-38	2	3	7	38	45°	C
TECC030A4-10C03-38	3	3	10	38	30°	C
TECC040A4-12C04-50	4	4	12	50	30°	C
TECC050A4-14C05-50	5	5	14	50	30°	C
TECC060A4-16C06-57	6	6	16	57	30°	C
TECC080A4-20C08-63	8	8	20	63	30°	C
TECC100A4-22C10-72	10	10	22	72	30°	C
TECC120A4-25C12-83	12	12	25	83	30°	C
TECC160A4-32C16-92	16	16	32	92	30°	C
TECC200A4-38C20-104	20	20	38	104	30°	C

TEC...B4

4 Flutes Endmill, 45° Helix, Medium Length

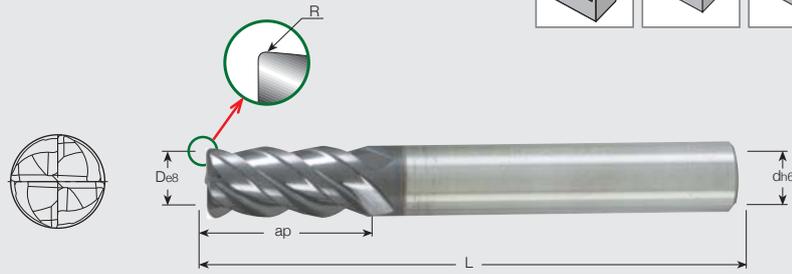
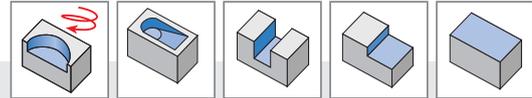


Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEC020B4-07C06-57	2	6	7	57	C
TEC030B4-10C06-57	3	6	10	57	C
TEC040B4-12C06-57	4	6	12	57	C
TEC050B4-14C06-57	5	6	14	57	C
TEC060B4-16C06-57	6	6	16	57	C
TEC080B4-20C08-63	8	8	20	63	C
TEC100B4-22C10-72	10	10	22	72	C
TEC120B4-25C12-83	12	12	25	83	C
TEC140B4-25C14-83	14	14	25	83	C
TEC160B4-32C16-92	16	16	32	92	C
TEC180B4-32C18-92	18	18	32	92	C
TEC200B4-38C20-104	20	20	38	104	C

TEC...B4...R

4 Flutes Endmill with Radius Corner, 45° Helix, Medium Length

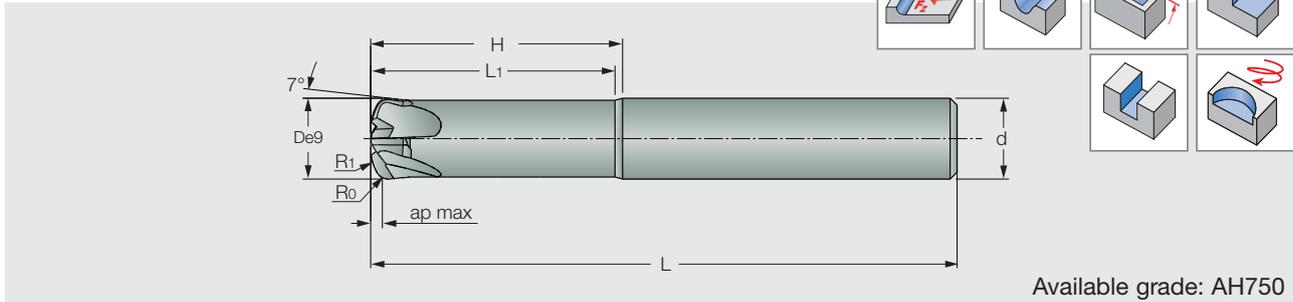


Available grade: AH725

Cat. No.	D	d	R	ap	L	Shank
TEC060B4-16C06R05-57	6	6	0.5	16	57	C
TEC060B4-16C06R1-57	6	6	1	16	57	C
TEC080B4-20C08R05-63	8	8	0.5	20	63	C
TEC080B4-20C08R1-63	8	8	1	20	63	C
TEC080B4-20C08R15-63	8	8	1.5	20	63	C
TEC080B4-20C08R2-63	8	8	2	20	63	C
TEC100B4-22C10R05-72	10	10	0.5	22	72	C
TEC100B4-22C10R1-72	10	10	1	22	72	C
TEC100B4-22C10R15-72	10	10	1.5	22	72	C
TEC100B4-22C10R2-72	10	10	2	22	72	C
TEC100B4-22C10R3-72	10	10	3	22	72	C
TEC120B4-25C12R05-83	12	12	0.5	25	83	C
TEC120B4-25C12R1-83	12	12	1	25	83	C
TEC120B4-25C12R15-83	12	12	1.5	25	83	C
TEC120B4-25C12R2-83	12	12	2	25	83	C
TEC120B4-25C12R3-83	12	12	3	25	83	C
TEC160B4-32C16R05-92	16	16	0.5	32	92	C
TEC160B4-32C16R1-92	16	16	1	32	92	C
TEC160B4-32C16R2-92	16	16	2	32	92	C
TEC160B4-32C16R3-92	16	16	3	32	92	C
TEC200B4-38C20R05-104	20	20	0.5	38	104	C
TEC200B4-38C20R1-104	20	20	1	38	104	C
TEC200B4-38C20R2-104	20	20	2	38	104	C
TEC200B4-38C20R3-104	20	20	3	38	104	C
TEC200B4-38C20R4-104	20	20	4	38	104	C

TEFF...N4

Fast Feed, 4 Flutes Solid Carbide Endmills



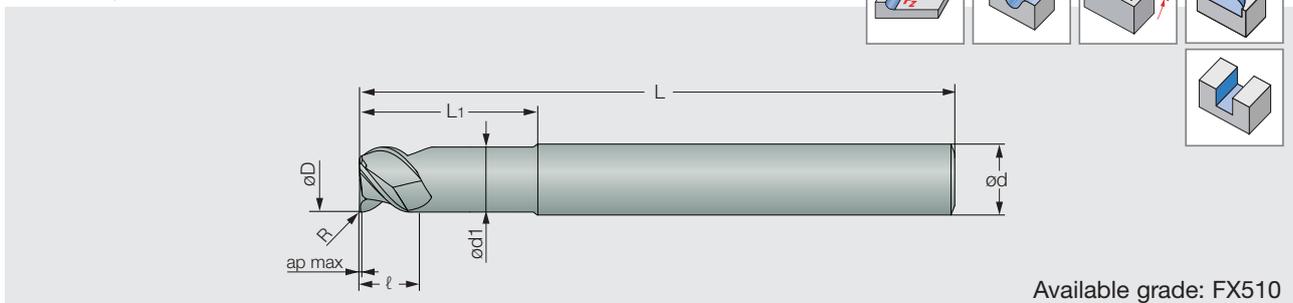
Available grade: AH750

Cat. No.	D	d	R0 ⁽¹⁾	R1	Max. ap	L1	L	Max. fz mm/t
TEFF060N4-030/20C06R10M	6	6	1.0	5.3	0.3	20	57	0.3
TEFF080N4-035/26C08R13M	8	8	1.3	7.0	0.4	26	63	0.4
TEFF100N4-040/30C10R16M	10	10	1.6	8.8	0.5	30	72	0.5
TEFF120N4-045/34C12R20M	12	12	2.0	10.6	0.6	34	83	0.5
TEFF160N4-055/42C16R26M	16	16	2.6	14.0	0.8	42	92	0.6
TEFF200N4-060/46C20R32M	20	20	3.2	17.7	1.0	46	104	0.7

⁽¹⁾ R0 should be used for programming.

TCFF...A3

Fast Feed, 3 Flutes Solid Ceramic Endmills



Available grade: FX510

Cat. No.	øD	ød	ød1	R*	Max. ap	L1	L	ℓ	Flutes
TCFF060A3-06/15C6-50	6	6	5.5	0.42	0.25	15	50	6	3
TCFF080A3-08/20C8-57	8	8	7.5	0.56	0.4	20	57	8	3
TCFF100A3-08/25C10-65	10	10	9.5	0.7	0.5	25	65	8	3
TCFF120A3-10/30C12-72	12	12	11.5	1.1	0.6	30	72	10	3
TCFF160A3-12/35C16-83	16	16	15.5	1.9	0.75	35	83	12	3
TCFF200A3-15/40C20-93	20	20	19.5	2.5	1	40	93	15	3

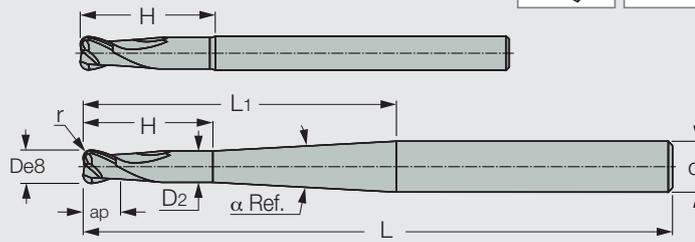
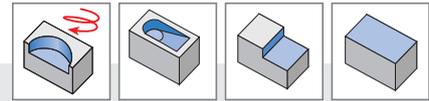
Caution:

High speed machining generates heat in the tool and chuck holder. Thermal expansion of the holder will often lead to tool damage. Use an air coolant during machining to cool the tool holder.

Milling chucks are recommended for the tool holder.

*Use these corner radius values for programming.

TETR...A2...R
2 Flutes Toroidal endmills

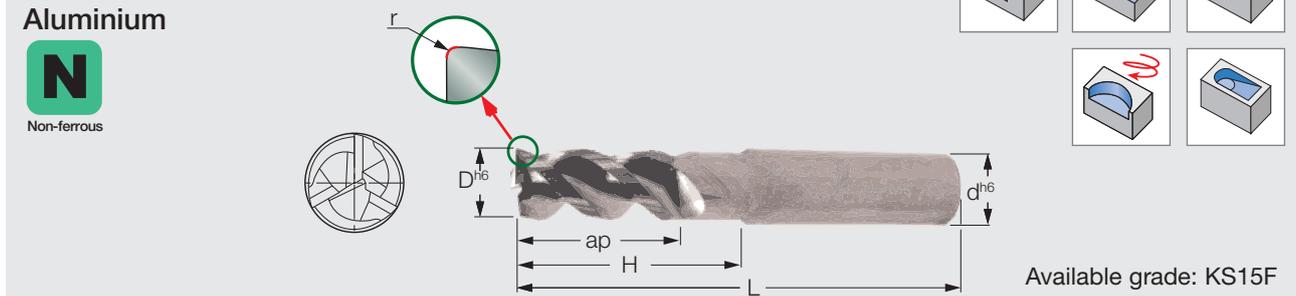


Available grade: AH725

Cat. No.	D	d	D2	r	ap	H	L1	α	L	Shank
TETR020A2-2/08C06R05M80	2	6	1.9	0.5	2	8	40	3.6°	80	C
TETR030A2-2/12C06R05M80	3	6	2.8	0.5	2	12	40	3.3°	80	C
TETR040A2-3/16C06R1M80	4	6	3.7	1	3	16	40	2.8°	80	C
TETR060A2-4/25C08R2M100	6	8	5.6	2	4	25	66	2.0°	100	C
TETR100A2-6/40C12R3M160	10	12	9.6	3	6	40	110	1.0°	160	C

TECA...H3...CF-R

Solid Carbide Endmills for Aluminium, Center Cutting, 3 Flutes,
39 - 41° Variable Helix for Chatter Dampening

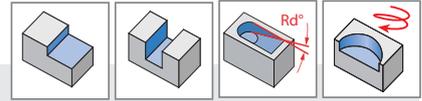


Cat. No.	D	d	r	ap	H	L	Shank
TECA010H3-04C06CF-R.05	1	6	0.05	4	6	57	C
TECA015H3-04/06C06CF-R01	1.5	6	0.1	4	6	57	C
TECA020H3-05/08C06CF-R01	2	6	0.1	5	8	57	C
TECA025H3-05/08C06CF-R01	2.5	6	0.1	5	8	57	C
TECA030H3-07/12C06CF-R01	3	6	0.1	7	12	57	C
TECA040H3-10/16C06CF-R02	4	6	0.2	10	16	57	C
TECA050H3-12/20C06CF-R02	5	6	0.2	12	20	57	C
TECA060H3-09/18C06CF-R02	6	6	0.2	9	18	57	C
TECA060H3-09/18C06CF-R04	6	6	0.4	9	18	57	C
TECA060H3-09/18C06CF-R08	6	6	0.8	9	18	57	C
TECA060H3-09/30C06CF-R02	6	6	0.2	9	30	65	C
TECA060H3-09/30C06CF-R04	6	6	0.4	9	30	65	C
TECA060H3-09/30C06CF-R08	6	6	0.8	9	30	65	C
TECA060H3-14/24C06CF-R02	6	6	0.2	14	24	60	C
TECA080H3-12/24C08CF-R02	8	8	0.2	12	24	63	C
TECA080H3-12/24C08CF-R04	8	8	0.4	12	24	63	C
TECA080H3-12/24C08CF-R08	8	8	0.8	12	24	63	C
TECA080H3-12/24C08CF-R30	8	8	3	12	24	63	C
TECA080H3-12/40C08CF-R02	8	8	0.2	12	40	79	C
TECA080H3-12/40C08CF-R04	8	8	0.4	12	40	79	C
TECA080H3-12/40C08CF-R08	8	8	0.8	12	40	79	C
TECA080H3-18/32C08CF-R02	8	8	0.2	18	32	68	C
TECA100H3-15/30C10CF-R02	10	10	0.2	15	30	72	C
TECA100H3-15/30C10CF-R04	10	10	0.4	15	30	72	C
TECA100H3-15/30C10CF-R08	10	10	0.8	15	30	72	C
TECA100H3-15/30C10CF-R16	10	10	1.6	15	30	72	C
TECA100H3-15/30C10CF-R30	10	10	3	15	30	72	C
TECA100H3-15/50C10CF-R02	10	10	0.2	15	50	92	C
TECA100H3-15/50C10CF-R04	10	10	0.4	15	50	92	C
TECA100H3-15/50C10CF-R08	10	10	0.8	15	50	92	C
TECA100H3-15/50C10CF-R16	10	10	1.6	15	50	92	C
TECA100H3-15/50C10CF-R20	10	10	2	15	50	92	C
TECA100H3-15/50C10CF-R30	10	10	3	15	50	92	C
TECA100H3-22/40C10CF-R02	10	10	0.2	22	40	80	C
TECA100H3-22/40C10CF-R30	10	10	3	22	40	80	C
TECA120H3-18/36C12CF-R02	12	12	0.2	18	36	83	C
TECA120H3-18/36C12CF-R04	12	12	0.4	18	36	83	C
TECA120H3-18/36C12CF-R08	12	12	0.8	18	36	83	C
TECA120H3-18/36C12CF-R16	12	12	1.6	18	36	83	C
TECA120H3-18/36C12CF-R20	12	12	2	18	36	83	C
TECA120H3-18/36C12CF-R25	12	12	2.5	18	36	83	C
TECA120H3-18/36C12CF-R30	12	12	3	18	36	57	C
TECA120H3-18/60C12CF-R02	12	12	0.2	18	60	100	C
TECA120H3-18/60C12CF-R04	12	12	0.4	18	60	100	C

Cat. No.	D	d	r	ap	H	L	Shank
TECA120H3-18/60C12CF-R08	12	12	0.8	18	60	100	C
TECA120H3-18/60C12CF-R16	12	12	1.6	18	60	100	C
TECA120H3-18/60C12CF-R20	12	12	2	18	60	100	C
TECA120H3-18/60C12CF-R25	12	12	2.5	18	60	100	C
TECA120H3-18/60C12CF-R30	12	12	3	18	60	100	C
TECA160H3-24/48C16CF-R02	16	16	0.2	24	48	92	C
TECA160H3-24/48C16CF-R04	16	16	0.4	24	48	92	C
TECA160H3-24/48C16CF-R08	16	16	0.8	24	48	92	C
TECA160H3-24/48C16CF-R16	16	16	1.6	24	48	92	C
TECA160H3-24/48C16CF-R20	16	16	2	24	48	92	C
TECA160H3-24/48C16CF-R25	16	16	2.5	24	48	92	C
TECA160H3-24/48C16CF-R30	16	16	3	24	48	92	C
TECA160H3-24/48C16CF-R32	16	16	3.2	24	48	92	C
TECA160H3-24/48C16CF-R40	16	16	4	24	48	92	C
TECA160H3-24/48C16CF-R50	16	16	5	24	48	92	C
TECA160H3-24/80C16CF-R02	16	16	0.2	24	80	128	C
TECA160H3-24/80C16CF-R04	16	16	0.4	24	80	128	C
TECA160H3-24/80C16CF-R08	16	16	0.8	24	80	128	C
TECA160H3-24/80C16CF-R16	16	16	1.6	24	80	128	C
TECA160H3-24/80C16CF-R20	16	16	2	24	80	128	C
TECA160H3-24/80C16CF-R25	16	16	2.5	24	80	128	C
TECA160H3-24/80C16CF-R30	16	16	3	24	80	128	C
TECA160H3-24/80C16CF-R32	16	16	3.2	24	80	128	C
TECA160H3-24/80C16CF-R40	16	16	4	24	80	128	C
TECA160H3-24/80C16CF-R50	16	16	5	24	80	128	C
TECA160H3-34/64C16CF-R02	16	16	0.2	34	64	115	C
TECA200H3-30/100C20CF-R02	20	20	0.2	30	100	150	C
TECA200H3-30/100C20CF-R04	20	20	0.4	30	100	150	C
TECA200H3-30/100C20CF-R08	20	20	0.8	30	100	150	C
TECA200H3-30/100C20CF-R20	20	20	2	30	100	150	C
TECA200H3-30/100C20CF-R32	20	20	3.2	30	100	150	C
TECA200H3-30/100C20CF-R40	20	20	4	30	100	150	C
TECA200H3-30/100C20CF-R50	20	20	5	30	100	150	C
TECA200H3-30/60C20CF-R02	20	20	0.2	30	60	110	C
TECA200H3-30/60C20CF-R04	20	20	0.4	30	60	110	C
TECA200H3-30/60C20CF-R08	20	20	0.8	30	60	110	C
TECA200H3-30/60C20CF-R16	20	20	1.6	30	60	110	C
TECA200H3-30/60C20CF-R20	20	20	2	30	60	110	C
TECA200H3-30/60C20CF-R32	20	20	3.2	30	60	110	C
TECA200H3-30/60C20CF-R40	20	20	4	30	60	110	C
TECA200H3-30/60C20CF-R50	20	20	5	30	60	110	C
TECA200H3-42/80C20CF-R02	20	20	0.2	42	80	130	C
TECA250H3-38/125C25CF-R02	25	25	0.2	38	125	185	C
TECA250H3-38/125C25CF-R08	25	25	0.8	38	125	185	C
TECA250H3-38/125C25CF-R16	25	25	1.6	38	125	185	C
TECA250H3-38/125C25CF-R20	25	25	2	38	125	185	C
TECA250H3-38/125C25CF-R32	25	25	3.2	38	125	185	C
TECA250H3-38/125C25CF-R40	25	25	4	38	125	185	C
TECA250H3-38/125C25CF-R50	25	25	5	38	125	185	C
TECA250H3-38/75C25CF-R02	25	25	0.2	38	75	130	C
TECA250H3-38/75C25CF-R04	25	25	0.4	38	75	130	C
TECA250H3-38/75C25CF-R16	25	25	1.6	38	75	130	C
TECA250H3-38/75C25CF-R20	25	25	2	38	75	130	C
TECA250H3-38/75C25CF-R32	25	25	3.2	38	75	130	C
TECA250H3-38/75C25CF-R40	25	25	4	38	75	130	C
TECA250H3-38/75C25CF-R50	25	25	5	38	75	130	C
TECA250H3-52/100C25CF-R02	25	25	0.2	52	100	156	C

TECA...H4...CF-R

Solid Carbide Endmills with variable Helix and Long Neck Relief for Machining Aluminum



Aluminium



Non-ferrous

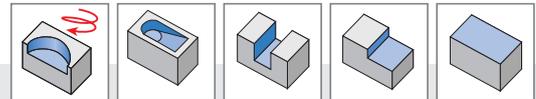


Available grades: KS15F

Cat. No.	D	d	r	ap	H	L	Shank
TECA060H4-09/30C06CF-R02	6	6	0.2	9	30	65	C
TECA060H4-12/18C06CF-R02	6	6	0.2	12	18	57	C
TECA080H4-12/40C08CF-R02	8	8	0.2	12	40	79	C
TECA080H4-16/24C08CF-R02	8	8	0.2	16	24	63	C
TECA100H4-15/50C10CF-R02	10	10	0.2	15	50	92	C
TECA100H4-20/30C10CF-R02	10	10	0.2	20	30	72	C
TECA120H4-18/60C12CF-R02	12	12	0.2	18	60	100	C
TECA120H4-24/36C12CF-R02	12	12	0.2	24	36	83	C
TECA160H4-24/80C16CF-R02	16	16	0.2	24	80	128	C
TECA160H4-32/48C16CF-R02	16	16	0.2	32	48	100	C

TECA...B2

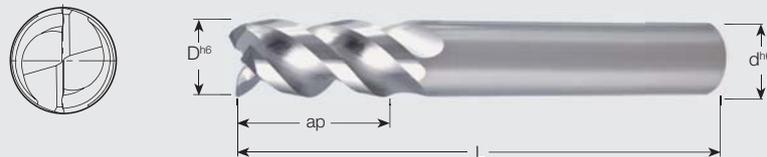
2 Flutes, 45° Helix, Medium Length



Aluminium



Non-ferrous



Available grade: KS15F

Cat. No.	D	d	ap	L	Shank
TECA040B2-12C06-57	4	6	12	57	C
TECA050B2-14C06-57	5	6	14	57	C
TECA060B2-16C06-57	6	6	16	57	C
TECA080B2-20C08-63	8	8	20	63	C
TECA100B2-22C10-72	10	10	22	72	C
TECA120B2-25C12-83	12	12	25	83	C
TECA160B2-32C16-92	16	16	32	92	C
TECA200B2-38C20-104	20	20	38	104	C

Special design for aluminium

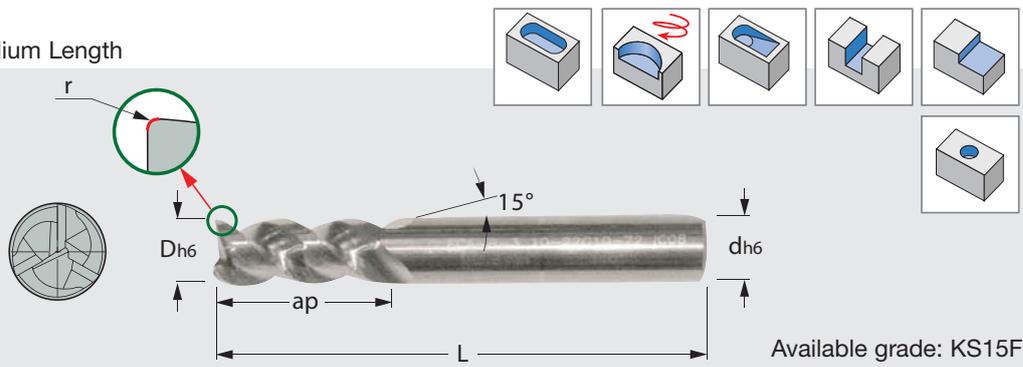
TECA...B3

3 Flutes, 45° Helix, Medium Length

Aluminium



Non-ferrous

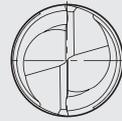
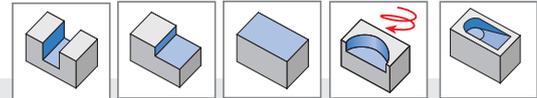


Cat. No.	D	d	r	ap	L	Shank
TECA040B3-12C06-57	4	6	0.1	12	57	C
TECA040B3-12W06-57	4	6	0.1	12	57	W
TECA050B3-14C06-57	5	6	0.2	14	57	C
TECA050B3-14W06-57	5	6	0.2	14	57	W
TECA060B3-16C06-57	6	6	0.2	16	57	C
TECA060B3-16W06-57	6	6	0.2	16	57	W
TECA080B3-20C08-63	8	8	0.2	20	63	C
TECA080B3-20C08R30-63	8	8	3	20	63	C
TECA080B3-20W08-63	8	8	0.2	20	63	W
TECA100B3-22C10-72	10	10	0.2	22	72	C
TECA100B3-22W10-72	10	10	0.2	22	72	W
TECA100B3-25C10R30-72	10	10	3	25	72	C
TECA100B3-25C10R40-72	10	10	4	25	72	C
TECA120B3-25C12-83	12	12	0.2	25	83	C
TECA120B3-25W12-83	12	12	0.2	25	83	W
TECA120B3-30C12R30-83	12	12	3	30	83	C
TECA120B3-30C12R40-83	12	12	4	30	83	C
TECA140B3-30C14-83	14	14	0.2	30	83	C
TECA140B3-30W14-83	14	14	0.2	30	83	W
TECA160B3-32C16-92	16	16	0.2	32	92	C
TECA160B3-32W16-92	16	16	0.2	32	92	W
TECA200B3-38C20-104	20	20	0.2	38	104	C
TECA200B3-38W20-104	20	20	0.2	38	104	W

Special design for aluminium

TECA...F2...

2 Flute, 55° Helix Medium Length Solid Carbide Endmills for Machining Aluminum



Available grade: KS15F

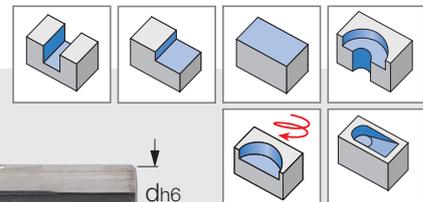
Cat. No.	$\varnothing D$	$\varnothing d$	ap	L	Shank
TECA040F2-11C04 -50	4	4	11	50	C
TECA060F2-13C06-57	6	6	13	57	C
TECA080F2-20C08-63	8	8	20	63	C
TECA100F2-22C10-72	10	10	22	72	C
TECA120F2-25C12-83	12	12	25	83	C
TECA160F2-32C16-92	16	16	32	92	C
TECA200F2-38C20-104	20	20	38	104	C
TECA250F2-45C25-121	25	25	45	121	C

VARIABLEMEISTER
TUNGALOY

SHREDMEISTER
TUNGALOY

TEAP...H3...CFR...C

3 flute, 39-41° different helix solid carbide endmills with chip splitters, neck relief and central coolant holes. Excellent chip evacuation, chatter free and reduced power consumption, for aluminum roughing applications.

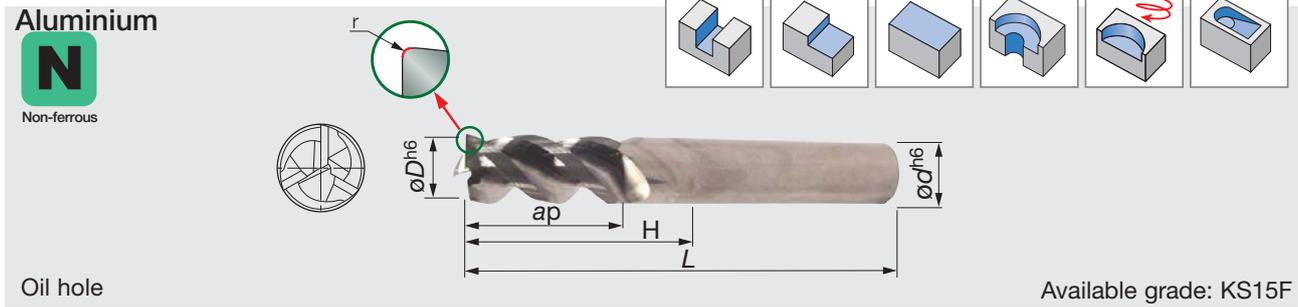


Available grade: KS15F

Cat. No.	D	d	r	ap	H	L	Oil hole	Shank
TEAP100H3-15/50C10CFR02C	10	10	0.2	15	50	92	●	C
TEAP100H3-22/40C10CFR02C	10	10	0.2	22	40	80	●	C
TEAP120H3-18/60C12CFR02C	12	12	0.2	18	60	100	●	C
TEAP120H3-26/48C12CFR02C	12	12	0.2	26	48	93	●	C
TEAP160H3-24/80C16CFR02C	16	16	0.2	24	80	128	●	C
TEAP160H3-34/64C16CFR02C	16	16	0.2	34	64	115	●	C
TEAP200H3-42/80C20CFR02C	20	20	0.2	42	80	130	●	C
TEAP200H3-30/100C20CFR02C	20	20	0.2	30	100	150	●	C

TECA...H3...CF-R...C

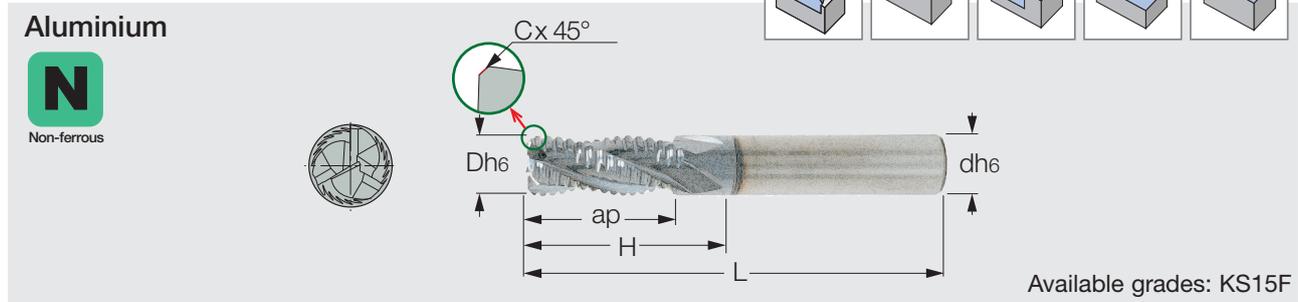
Solid Carbide Endmills with variable Helix, Variable Pitch, Coolant Holes and Neck Relief for Machining Aluminium



Cat. No.	ϕD	ϕd	r	ap	H	L	Oil hole	Shank
TECA060H3-12/18C06CF-R02C	6	6	0.2	12	18	57	●	C
TECA060H3-12/30C06CF-R02C	6	6	0.2	12	30	65	●	C
TECA080H3-16/24C08CF-R02C	8	8	0.2	16	24	63	●	C
TECA080H3-16/40C08CF-R02C	8	8	0.2	16	40	79	●	C
TECA100H3-20/30C10CF-R02C	10	10	0.2	20	30	72	●	C
TECA100H3-20/50C10CF-R02C	10	10	0.2	20	50	100	●	C
TECA120H3-24/36C12CF-R02C	12	12	0.2	24	36	83	●	C
TECA120H3-24/60C12CF-R02C	12	12	0.2	24	60	100	●	C
TECA160H3-32/48C16CF-R02C	16	16	0.2	32	48	92	●	C
TECA160H3-32/80C16CF-R02C	16	16	0.2	32	80	128	●	C
TECA250H3-50/75C25CF-R02C	25	25	0.2	50	75	130	●	C

TERC...E3

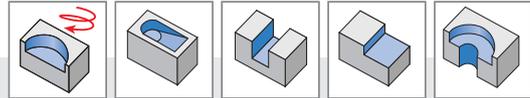
3 Flutes Rougher, 38° Helix, Medium Length
For maximum stock removal in aluminium.
Coarse pitch for aluminium and nonferrous materials.



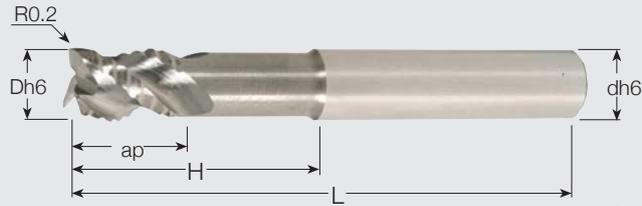
Cat. No.	D	d	C	ap	H	L	Shank
TERC060E3-13C06-57	6	6	0.5	13	21	57	C
TERC080E3-20C08-63	8	8	0.5	20	28	63	C
TERC100E3-22C10-72	10	10	0.6	22	30	72	C
TERC120E3-25C12-83	12	12	0.6	25	37	83	C
TERC140E3-25C14-83	14	14	0.6	25	37	83	C
TERC160E3-32C16-92	16	16	0.6	32	44	92	C
TERC200E3-38C20-104	20	20	0.7	38	55	104	C
TERC250E3-45C25-121	25	25	0.7	45	64	121	C

TECR...B3

3 Flutes Rougher for Aluminium, 45° Helix, Medium Length

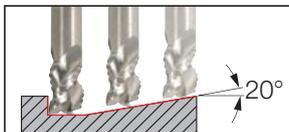


Aluminium



Available grade: KS15F

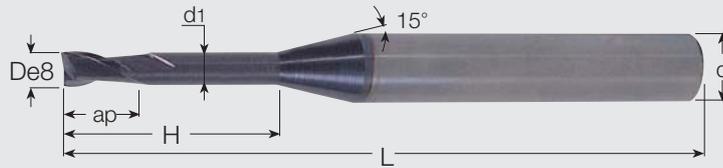
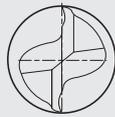
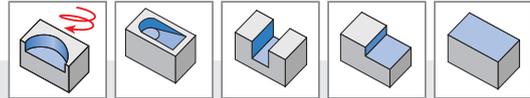
Cat. No.	D	d	ap	H	L	Shank
TECR060B3-09/21C06R02A57	6	6	9	21	57	C
TECR060B3-09/21W06R02A57	6	6	9	21	57	W
TECR060B3-09/30C06R02A65	6	6	9	30	65	C
TECR060B3-09/30W06R02A65	6	6	9	30	65	W
TECR080B3-12/27C08R02A63	8	8	12	27	63	C
TECR080B3-12/27W08R02A63	8	8	12	27	63	W
TECR080B3-12/40C08R02A78	8	8	12	40	78	C
TECR080B3-12/40W08R02A78	8	8	12	40	78	W
TECR100B3-12/31C10R02A72	10	10	12	31	72	C
TECR100B3-12/31W10R02A72	10	10	12	31	72	W
TECR100B3-12/50C10R02A100	10	10	12	50	100	C
TECR100B3-12/50W10R02A100	10	10	12	50	100	W
TECR120B3-12/37C12R02A83	12	12	12	37	83	C
TECR120B3-12/37W12R02A83	12	12	12	37	83	W
TECR120B3-14/55C12R02A100	12	12	14	55	100	C
TECR120B3-14/55W12R02A100	12	12	14	55	100	W
TECR160B3-14/43C16R02A92	16	16	14	43	92	C
TECR160B3-14/43W16R02A92	16	16	14	43	92	W
TECR160B3-18/80C16R02A150	16	16	18	80	150	C
TECR160B3-18/80W16R02A150	16	16	18	80	150	W
TECR200B3-17/53C20R02A104	20	20	17	53	104	C
TECR200B3-17/53W20R02A104	20	20	17	53	104	W
TECR200B3-22/80C20R02A150	20	20	22	80	150	C
TECR200B3-22/80W20R02A150	20	20	22	80	150	W



Rampdown angle

TEC...A2-...

2 Flutes Endmill for Rib Processing, 30° Helix for Materials up to 55 HRC

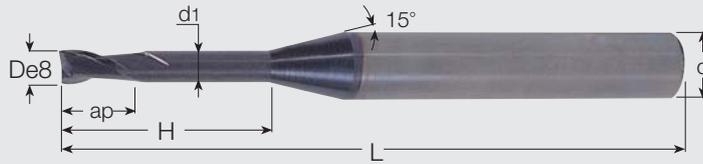
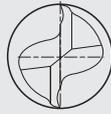
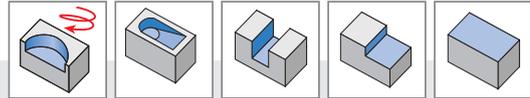


Available grade: AH750

Cat. No.	D	d	d1	ap	H	L	Shank
TEC004A2-006/02C4M45	0.4	4	0.37	0.6	2	45	C
TEC004A2-006/04C4M45	0.4	4	0.37	0.6	4	45	C
TEC005A2-007/02C4M45	0.5	4	0.45	0.7	2	45	C
TEC005A2-007/04C4M45	0.5	4	0.45	0.7	4	45	C
TEC005A2-007/06C4M45	0.5	4	0.45	0.7	6	45	C
TEC006A2-009/02C4M45	0.6	4	0.55	0.9	2	45	C
TEC006A2-009/04C4M45	0.6	4	0.55	0.9	4	45	C
TEC006A2-009/06C4M45	0.6	4	0.55	0.9	6	45	C
TEC007A2-010/02C4M45	0.7	4	0.65	1	2	45	C
TEC008A2-012/04C4M45	0.8	4	0.75	1.2	4	45	C
TEC008A2-012/06C4M45	0.8	4	0.75	1.2	6	45	C
TEC008A2-012/08C4M45	0.8	4	0.75	1.2	8	45	C
TEC009A2-0135/06C4M45	0.9	4	0.85	1.35	6	45	C
TEC009A2-0135/08C4M45	0.9	4	0.85	1.35	8	45	C
TEC009A2-0135/10C4M45	0.9	4	0.85	1.35	10	45	C
TEC010A2-015/04C4M45	1	4	0.97	1.5	4	45	C
TEC010A2-015/06C4M45	1	4	0.97	1.5	6	45	C
TEC010A2-015/08C4M45	1	4	0.95	1.5	8	45	C
TEC010A2-015/10C4M45	1	4	0.95	1.5	10	45	C
TEC010A2-015/12C4M45	1	4	0.93	1.5	12	45	C
TEC010A2-015/16C4M50	1	4	0.93	1.5	16	50	C
TEC012A2-018/06C4M45	1.2	4	1.17	1.8	6	45	C
TEC012A2-018/08C4M45	1.2	4	1.15	1.8	8	45	C
TEC012A2-018/10C4M45	1.2	4	1.15	1.8	10	45	C
TEC012A2-018/16C4M50	1.2	4	1.13	1.8	16	50	C
TEC014A2-021/06C4M45	1.4	4	1.35	2.1	6	45	C
TEC014A2-021/08C4M45	1.4	4	1.35	2.1	8	45	C
TEC014A2-021/10C4M45	1.4	4	1.35	2.1	10	45	C
TEC015A2-023/06C4M45	1.5	4	1.47	2.3	6	45	C
TEC015A2-023/08C4M45	1.5	4	1.45	2.3	8	45	C
TEC015A2-023/10C4M45	1.5	4	1.45	2.3	10	45	C
TEC015A2-023/12C4M45	1.5	4	1.43	2.3	12	45	C
TEC015A2-023/16C4M50	1.5	4	1.41	2.3	16	50	C

TEC...A2...

2 Flutes Endmill for Rib Processing, 30° Helix for Materials up to 55 HRC

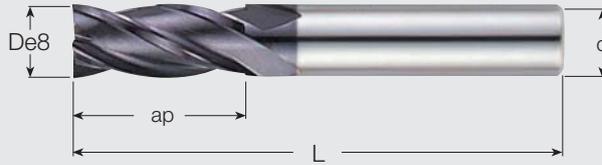
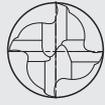
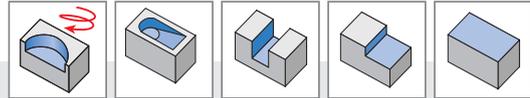


Available grade: AH750

Cat. No.	D	d	d1	ap	H	L	Shank
TEC015A2-023/18C4M55	1.5	4	1.41	2.3	18	55	C
TEC015A2-023/20C4M55	1.5	4	1.41	2.3	20	55	C
TEC016A2-024/06C4M45	1.6	4	1.57	2.4	6	45	C
TEC016A2-024/08C4M45	1.6	4	1.55	2.4	8	45	C
TEC016A2-024/10C4M45	1.6	4	1.55	2.4	10	45	C
TEC016A2-024/18C4M55	1.6	4	1.53	2.4	18	55	C
TEC016A2-024/26C4M60	1.6	4	1.53	2.4	26	60	C
TEC018A2-027/06C4M45	1.8	4	1.77	2.7	6	45	C
TEC018A2-027/08C4M45	1.8	4	1.75	2.7	8	45	C
TEC018A2-027/10C4M45	1.8	4	1.75	2.7	10	45	C
TEC018A2-027/12C4M45	1.8	4	1.73	2.7	12	45	C
TEC020A2-030/06C4M45	2	4	1.97	3	6	45	C
TEC020A2-030/08C4M45	2	4	1.95	3	8	45	C
TEC020A2-030/10C4M45	2	4	1.95	3	10	45	C
TEC020A2-030/12C4M45	2	4	1.93	3	12	45	C
TEC020A2-030/14C4M50	2	4	1.93	3	14	50	C
TEC020A2-030/16C4M50	2	4	1.91	3	16	50	C
TEC020A2-030/18C4M55	2	4	1.91	3	18	55	C
TEC020A2-030/20C4M55	2	4	1.89	3	20	55	C
TEC020A2-030/25C4M60	2	4	1.89	3	25	60	C
TEC020A2-030/30C4M70	2	4	1.89	3	30	70	C
TEC025A2-037/08C4M45	2.5	4	2.4	3.7	8	45	C
TEC025A2-037/10C4M45	2.5	4	2.4	3.7	10	45	C
TEC025A2-037/12C4M45	2.5	4	2.4	3.7	12	45	C
TEC025A2-037/14C4M50	2.5	4	2.4	3.7	14	50	C
TEC025A2-037/16C4M55	2.5	4	2.4	3.7	16	55	C
TEC025A2-037/18C4M55	2.5	4	2.4	3.7	18	55	C
TEC025A2-037/20C4M60	2.5	4	2.4	3.7	20	60	C
TEC025A2-037/25C4M70	2.5	4	2.4	3.7	25	70	C
TEC025A2-037/30C4M80	2.5	4	2.4	3.7	30	80	C
TEC030A2-045/08C6M45	3	6	2.85	4.5	8	45	C
TEC030A2-045/10C6M45	3	6	2.85	4.5	10	45	C
TEC030A2-045/12C6M45	3	6	2.85	4.5	12	45	C
TEC030A2-045/14C6M50	3	6	2.85	4.5	14	50	C
TEC030A2-045/16C6M55	3	6	2.85	4.5	16	55	C
TEC030A2-045/18C6M55	3	6	2.85	4.5	18	55	C
TEC030A2-045/20C6M60	3	6	2.85	4.5	20	60	C
TEC030A2-045/25C6M65	3	6	2.85	4.5	25	65	C
TEC030A2-045/30C6M70	3	6	2.85	4.5	30	70	C
TEC030A2-045/35C6M80	3	6	2.85	4.5	35	80	C
TEC030A2-045/40C6M90	3	6	2.85	4.5	40	90	C

TEC...A4

4 Flutes, 30° Helix, Medium Length for Materials up to 65 HRC

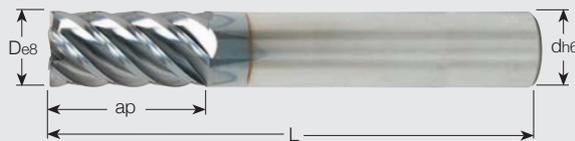
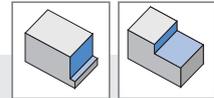


Available grade: AH750

Cat. No.	D	d	ap	L	Shank
TEC040A4-11C06-50	4	6	11	50	C
TEC050A4-13C06-50	5	6	13	50	C
TEC060A4-13C06-50	6	6	13	50	C
TEC070A4-16C08-63	7	8	16	63	C
TEC080A4-19C08-63	8	8	19	63	C
TEC090A4-19C10-72	9	10	19	72	C
TEC100A4-22C10-72	10	10	22	72	C
TEC120A4-26C12-73	12	12	26	73	C
TEC140A4-26C14-83	14	14	26	83	C
TEC160A4-32C16-92	16	16	32	92	C
TEC180A4-32C18-100	18	18	32	100	C
TEC200A4-38C20-104	20	20	38	104	C

TECH...B6

6 Flutes Endmill, 45° Helix, Medium Length for Finishing, for Materials up to 65 HRC

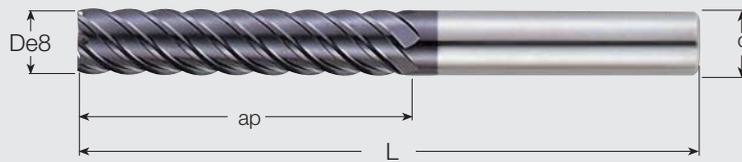
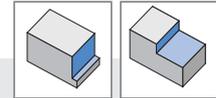


Available grades: AH750

Cat. No.	D	d	ap	L	Shank
TECH060B6-16C06-57	6	6	16	57	C
TECH080B6-20C08-63	8	8	20	63	C
TECH100B6-22C10-72	10	10	22	72	C
TECH120B6-25C12-83	12	12	25	83	C
TECH160B6-32C16-92	16	16	32	92	C
TECH200B6-38C20-104	20	20	38	104	C

TEC...B6

6 Flutes, 45° Helix, Extra Long Length, for Materials up to 65 HRC

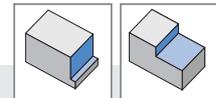


Available grade: AH750

Cat. No.	D	d	ap	L	Shank
TEC060B6-26C06-70	6	6	26	70	C
TEC080B6-36C08-90	8	8	36	90	C
TEC100B6-46C10-100	10	10	46	100	C
TEC120B6-56C12-110	12	12	56	110	C
TEC160B6-66C16-130	16	16	66	130	C
TEC200B6-76C20-140	20	20	76	140	C
TEC250B6-92C25-180	25	25	92	180	C

TEC...D6

6 Flutes Endmill, 50° Helix, Medium Length, for Materials up to 65 HRC

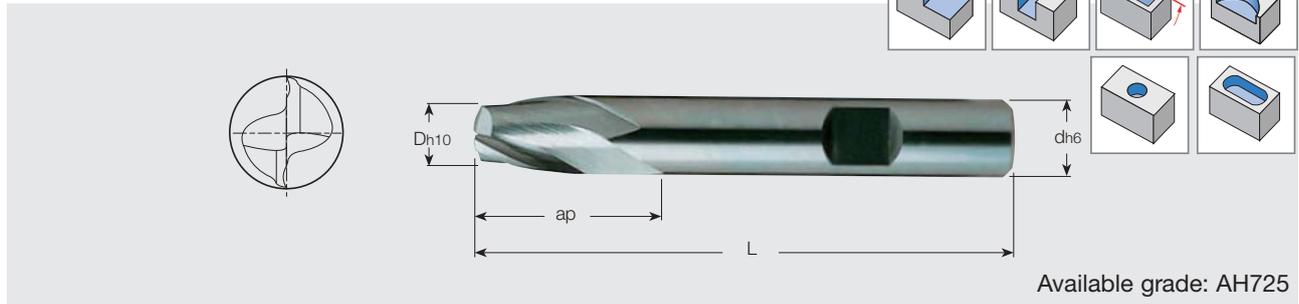


Available grades: AH750

Cat. No.	D	d	ap	L	Shank
TEC060D6-13C06H57	6	6	13	57	C
TEC080D6-20C08H63	8	8	20	63	C
TEC100D6-22C10H72	10	10	22	72	C
TEC120D6-25C12H83	12	12	25	83	C
TEC140D6-30C14H83	14	14	30	83	C
TEC160D6-32C16H92	16	16	32	92	C
TEC200D6-38C20H104	20	20	38	104	C

TEC...A2

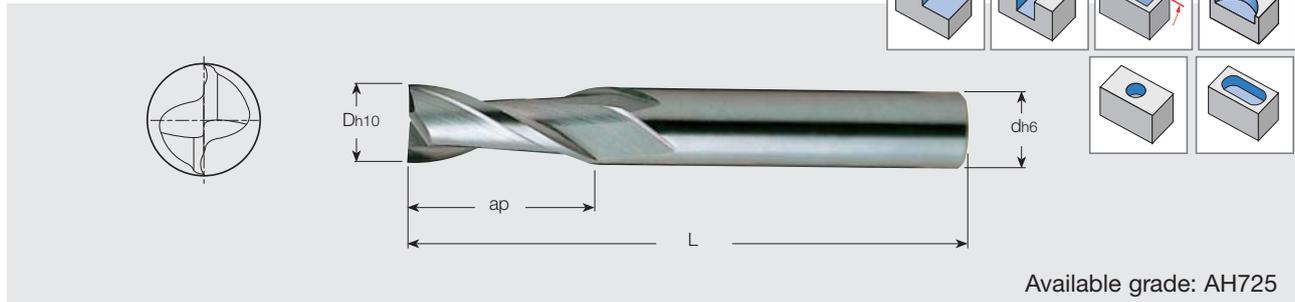
2 Flutes, 30° Helix, Short Cutting Length



Cat. No.	D	d	ap	L	Shank
TEC020A2-03W06-E50	2	6	3	50	W
TEC030A2-04W06-E50	3	6	4	50	W
TEC040A2-05W06-E54	4	6	5	54	W
TEC045A2-05W06-E54	4.5	6	5	54	W
TEC050A2-06W06-E54	5	6	6	54	W
TEC060A2-07W06-E54	6	6	7	54	W
TEC070A2-08W08-E58	7	8	8	58	W
TEC080A2-09W08-E58	8	8	9	58	W
TEC090A2-10W10-E66	9	10	10	66	W
TEC100A2-11W10-E66	10	10	11	66	W
TEC140A2-14W14-E75	14	14	14	75	W
TEC180A2-18W18-E84	18	18	18	84	W
TEC200A2-20W20-E92	20	20	20	92	W

TEC...A2

2 Flutes, Medium Length, 30° Helix

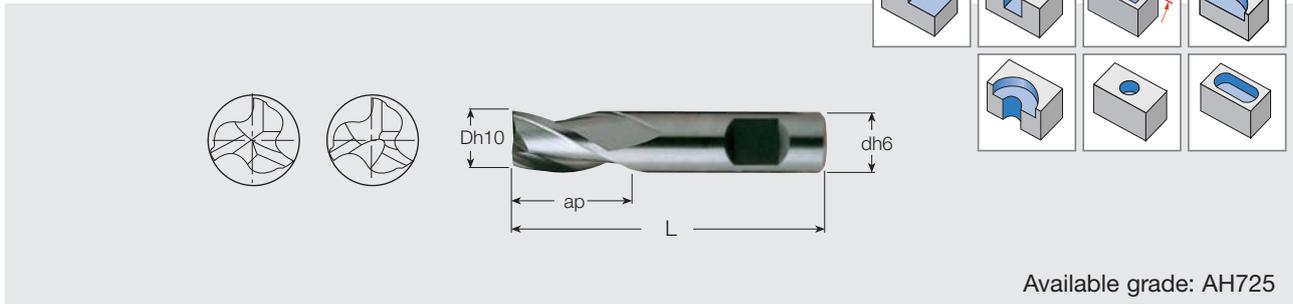


Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEC010A2-03C04-E50	1	4	3	50	C
TEC015A2-045C04-E50	1.5	4	4.5	50	C
TEC020A2-08C02-E32	2	2	8	32	C
TEC025A2-08C025-E32	2.5	2.5	8	32	C
TEC030A2-12C03-E38	3	3	12	38	C
TEC035A2-12C035-E32	3.5	3.5	12	32	C
TEC040A2-12C04-E50	4	4	12	50	C
TEC050A2-14C05-E50	5	5	14	50	C
TEC055A2-16C055-E50	5.5	5.5	16	50	C
TEC060A2-16C06-E50	6	6	16	50	C
TEC070A2-20C07-E60	7	7	20	60	C
TEC080A2-20C08-E63	8	8	20	63	C
TEC090A2-20C09-E60	9	9	20	60	C
TEC100A2-22C10-E72	10	10	22	72	C
TEC120A2-22C12-E70	12	12	22	70	C
TEC140A2-25C14-E75	14	14	25	75	C
TEC160A2-25C16-E75	16	16	25	75	C
TEC200A2-32C20-E100	20	20	32	100	C

TEC...A/E3

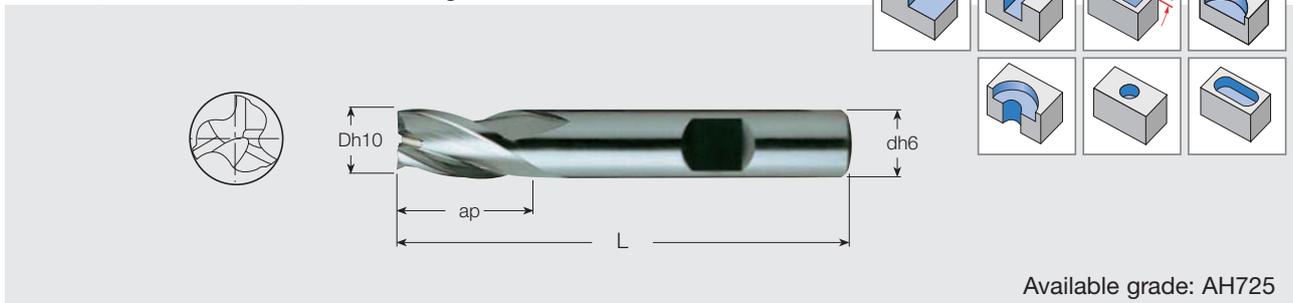
3 Flutes, 30° and 38° Helix, Short Length



Cat. No.	D	d	ap	L	Helix	Shank
TEC020E3-04C06-E35	2	6	4	35	38°	C
TEC025E3-05C06-E36	2.5	6	5	36	38°	C
TEC030E3-05C06-E36	3	6	5	36	38°	C
TEC040E3-07C06-E39	4	6	7	39	38°	C
TEC050A3-08C06-E39	5	6	8	39	30°	C
TEC060E3-08C06-E39	6	6	8	39	38°	C
TEC080E3-11C08-E43	8	8	11	43	38°	C
TEC100E3-13C10-E50	10	10	13	50	38°	C
TEC035A3-06W06-E37	3.5	6	6	37	30°	W
TEC045A3-08W06-E38	4.5	6	8	38	30°	W
TEC055A3-08W06-E39	5.5	6	8	39	30°	W
TEC070A3-10W08-E42	7	8	10	42	30°	W
TEC090A3-11W10-E48	9	10	11	48	30°	W

TEC...A/E3

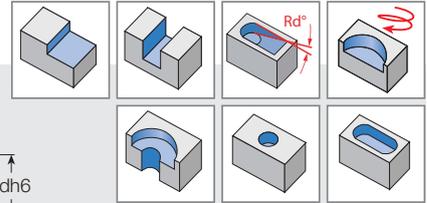
3 Flutes, 30° and 38° Helix, Medium Length



Cat. No.	D	d	ap	L	Helix	Shank
TEC020E3-08C02-E32	2	2	8	32	38°	C
TEC030E3-12C03-E38	3	3	12	38	38°	C
TEC040E3-12C04-E50	4	4	12	50	38°	C
TEC050E3-14C05-E50	5	5	14	50	38°	C
TEC060E3-16C06-E50	6	6	16	50	38°	C
TEC070E3-20C07-E60	7	7	20	60	38°	C
TEC080E3-20C08-E63	8	8	20	63	38°	C
TEC090A3-20C09-E60	9	9	20	60	30°	C
TEC100E3-22C10-E72	10	10	22	72	38°	C
TEC120E3-15C12-E55	12	12	15	55	38°	C
TEC120E3-22C12-E73	12	12	22	73	38°	C
TEC140A3-25C14-E75	14	14	25	75	30°	C
TEC160A3-25C16-E75	16	16	25	75	30°	C

TEC...B3

3 Flutes, 45° Helix, Short Length

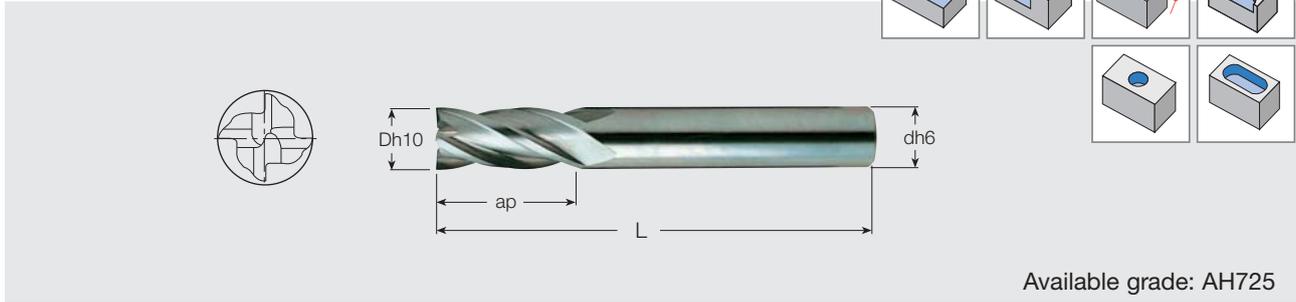


Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEC020B3-03W06-50	2	6	3	50	W
TEC030B3-04W06-50	3	6	4	50	W
TEC040B3-05W06-54	4	6	5	54	W
TEC050B3-06W06-57	5	6	6	57	W
TEC060B3-07W06-54	6	6	7	54	W
TEC080B3-09W08-58	8	8	9	58	W
TEC100B3-11W10-66	10	10	11	66	W
TEC120B3-12W12-73	12	12	12	73	W
TEC140B3-14W14-75	14	14	14	75	W
TEC160B3-16W16-82	16	16	16	82	W
TEC200B3-20W20-92	20	20	20	92	W

TEC...A4

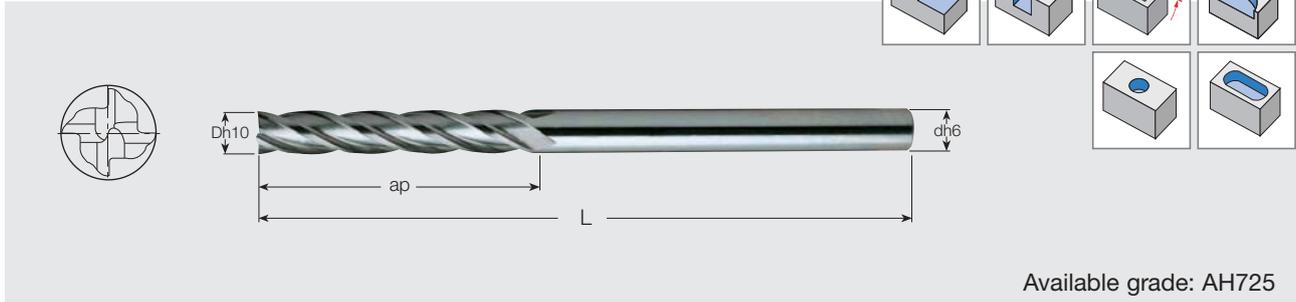
4 Flutes, 30° Helix, Medium Length



Cat. No.	D	d	ap	L	Shank
TEC020A4-08C02-E32	2	2	8	32	C
TEC025A4-08C025-E32	2.5	2.5	8	32	C
TEC030A4-12C03-E38	3	3	12	38	C
TEC040A4-12C04-E50	4	4	12	50	C
TEC050A4-14C05-E50	5	5	14	50	C
TEC055A4-16C055-E50	5.5	5.5	16	50	C
TEC060A4-16C06-E50	6	6	16	50	C
TEC070A4-20C07-E60	7	7	20	60	C
TEC080A4-20C08-E63	8	8	20	63	C
TEC090A4-20C09-E60	9	9	20	60	C
TEC100A4-22C10-E72	10	10	22	72	C
TEC120A4-22C12-E73	12	12	22	73	C
TEC140A4-25C14-E83	14	14	25	83	C
TEC160A4-25C16-E82	16	16	25	82	C
TEC200A4-32C20-E104	20	20	32	104	C

TEC...A4

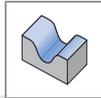
4 Flutes, 30° Helix, Extra Long



Cat. No.	D	d	ap	L	Shank
TEC030A4-30C03-E75	3	3	30	75	C
TEC040A4-30C04-E75	4	4	30	75	C
TEC050A4-40C05-E100	5	5	40	100	C
TEC060A4-50C06-E150	6	6	50	150	C
TEC080A4-50C08-E150	8	8	50	150	C
TEC100A4-60C10-E150	10	10	60	150	C
TEC120A4-75C12-E150	12	12	75	150	C
TEC140A4-65C14-E150	14	14	65	150	C
TEC160A4-65C16-E150	16	16	65	150	C
TEC200A4-65C20-E150	20	20	65	150	C

TEB...E4L...CF

4 Flute, 38° Helix Ball Nose Endmills with 2xD Relieved Necks and Variable Pitch for Chatter Dampening on Hard Materials

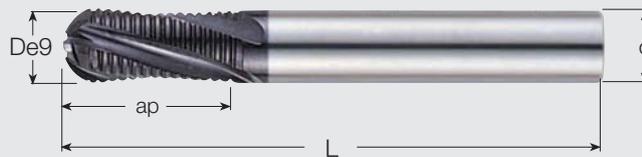
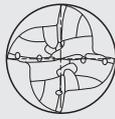
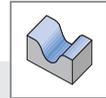


Available grade: AH710

Cat. No.	D	d	a _p	H	L	Shank
TEB030E4L-06/09C06CFH57	3	6	6	9	57	C
TEB040E4L-08/12C06CFH57	4	6	8	12	57	C
TEB050E4L-10/15C06CFH57	5	6	10	15	57	C
TEB060E4L-12/18C06CFH57	6	6	12	18	57	C
TEB080E4L-16/24C08CFH63	8	8	16	24	63	C
TEB100E4L-20/30C10CFH72	10	10	20	30	72	C
TEB120E4L-24/36C12CFH83	12	12	24	36	83	C
TEB160E4L-32/48C16CFH92	16	16	32	48	92	C

TEBRF...T3, 4

3, 4 Flutes Roughing Ball Nose, 20° Helix Long Length for Materials up to 55 HRC

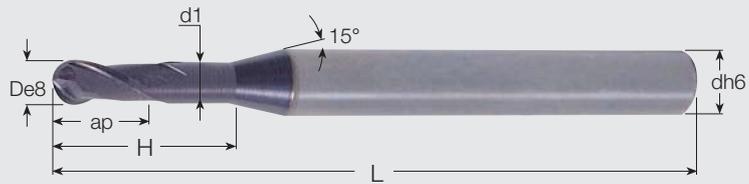
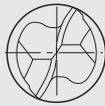
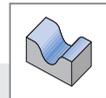


Available grade: AH750

Cat. No.	D	d	R±0.02	ap	L	Flutes	Shank
TEBRF060T3-16C06M57	6	6	3	16	57	3	C
TEBRF080T3-16C08M63	8	8	4	16	63	3	C
TEBRF100T4-22C10M72	10	10	5	22	72	4	C
TEBRF120T4-26C12M83	12	12	6	26	83	4	C
TEBRF140T4-26C14M83	14	14	7	26	83	4	C
TEBRF160T4-32C16M92	16	16	8	32	92	4	C
TEBRF180T4-32C18M92	18	18	9	32	92	4	C
TEBRF200T4-38C20M104	20	20	10	38	104	4	C

TEB...A2

2 Flutes Ball Nose for Rib Processing, 30° Helix for Materials up to 55 HRC

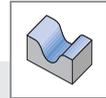


Available grade: AH750

Cat. No.	D	d	d1	ap	H	L	Shank
TEB004A2-006/02C4M45	0.4	4	0.36	0.6	2	45	C
TEB004A2-006/03C4M45	0.4	4	0.36	0.6	3	45	C
TEB005A2-007/02C4M45	0.5	4	0.45	0.7	2	45	C
TEB005A2-007/04C4M45	0.5	4	0.45	0.7	4	45	C
TEB005A2-007/06C4M45	0.5	4	0.45	0.7	6	45	C
TEB006A2-009/02C4M45	0.6	4	0.55	0.9	2	45	C
TEB006A2-009/04C4M45	0.6	4	0.55	0.9	4	45	C
TEB008A2-012/04C4M45	0.8	4	0.75	1.2	4	45	C
TEB008A2-012/06C4M45	0.8	4	0.75	1.2	6	45	C
TEB008A2-012/10C4M45	0.8	4	0.8	1.2	10	45	C
TEB010A2-015/04C4M45	1	4	0.97	1.5	4	45	C
TEB010A2-015/06C4M45	1	4	0.97	1.5	6	45	C
TEB010A2-015/08C4M45	1	4	0.95	1.5	8	45	C
TEB010A2-015/10C4M45	1	4	0.95	1.5	10	45	C
TEB010A2-015/12C4M45	1	4	0.93	1.5	12	45	C
TEB010A2-015/16C4M50	1	4	0.93	1.5	16	50	C
TEB012A2-018/08C4M45	1.2	4	1.17	1.8	8	45	C
TEB012A2-018/12C4M45	1.2	4	1.13	1.8	12	45	C
TEB014A2-021/08C4M45	1.4	4	1.35	2.1	8	45	C
TEB014A2-021/16C4M50	1.4	4	1.31	2.1	16	50	C
TEB015A2-023/06C4M45	1.5	4	1.47	2.3	6	45	C
TEB015A2-023/08C4M45	1.5	4	1.45	2.3	8	45	C
TEB015A2-023/10C4M45	1.5	4	1.45	2.3	10	45	C
TEB015A2-023/12C4M45	1.5	4	1.43	2.3	12	45	C
TEB015A2-023/16C4M50	1.5	4	1.41	2.3	16	50	C
TEB015A2-023/20C4M55	1.5	4	1.39	2.3	20	55	C
TEB016A2-024/08C4M45	1.6	4	1.55	2.4	8	45	C
TEB016A2-024/12C4M45	1.6	4	1.53	2.4	12	45	C

TEB...A2

2 Flutes Ball Nose for Rib Processing, 30° Helix for Materials up to 55 HRC

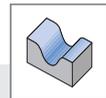


Available grade: AH750

Cat. No.	D	d	d1	ap	H	L	Shank
TEB018A2-027/08C4M45	1.8	4	1.75	2.7	8	45	C
TEB018A2-027/12C4M45	1.8	4	1.73	2.7	12	45	C
TEB018A2-027/16C4M50	1.8	4	1.71	2.7	16	50	C
TEB020A2-030/06C4M45	2	4	1.97	3	6	45	C
TEB020A2-030/10C4M45	2	4	1.93	3	10	45	C
TEB020A2-030/12C4M50	2	4	1.93	3	12	50	C
TEB020A2-030/14C4M50	2	4	1.93	3	14	50	C
TEB020A2-030/16C4M50	2	4	1.91	3	16	50	C
TEB020A2-030/20C4M55	2	4	1.89	3	20	55	C
TEB020A2-030/25C4M60	2	4	1.89	3	25	60	C
TEB020A2-030/30C4M70	2	4	1.89	3	30	70	C
TEB030A2-045/08C6M50	3	6	2.85	4.5	8	50	C
TEB030A2-045/10C6M50	3	6	2.85	4.5	10	50	C
TEB030A2-045/12C6M50	3	6	2.85	4.5	12	50	C
TEB030A2-045/16C6M55	3	6	2.85	4.5	16	55	C
TEB030A2-045/20C6M60	3	6	2.85	4.5	20	60	C
TEB030A2-045/25C6M65	3	6	2.85	4.5	25	65	C
TEB030A2-045/30C6M70	3	6	2.85	4.5	30	70	C
TEB030A2-045/35C6M80	3	6	2.85	4.5	35	80	C

TEB...A2

2 Flutes Ball Nose, 30° Helix, Stub Cut Length for Materials up to 55 - 70 HRC

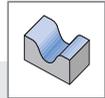


Available grade: AH750

Cat. No.	D	d	d1	R±0.01	ap	H	L	Shank
TEB010A2-01/02C04H50	1	4	0.95	0.5	1	2.2	50	C
TEB020A2-02/04C06H50	2	6	1.9	1	2	4	50	C
TEB030A2-03/06C06H60	3	6	2.9	1.5	3	6	60	C
TEB040A2-04/08C06H70	4	6	3.9	2	4	8	70	C
TEB050A2-05/10C06H80	5	6	4.9	2.5	5	10	80	C
TEB060A2-06/12C06H90	6	6	5.9	3	6	12	90	C
TEB080A2-08/16C08H100	8	8	7.9	4	8	16	100	C
TEB100A2-10/20C10H100	10	10	9.9	5	10	20	100	C
TEB120A2-12/24C12H110	12	12	11.9	6	12	24	110	C
TEB160A2-16/32C16H140	16	16	15.8	8	16	32	140	C
TEB200A2-20/40C20H160	20	20	19.8	10	20	40	160	C

TEB...A2

2 Flutes Long Ball Nose with Neck, 30° Helix for Materials up to 65 HRC

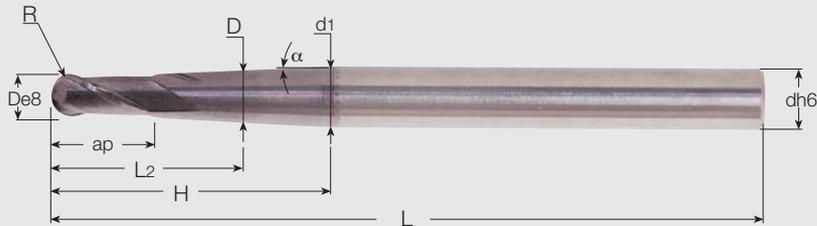
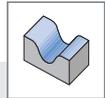


Available grade: AH750

Cat. No.	D	d	d1	R	ap	H	L	Shank
TEB030A2-08C03M100	3	3	-	1.5	8	-	100	C
TEB030A2-08C06M70	3	6	-	1.5	8	-	70	C
TEB040A2-08C06M70	4	6	-	2	8	-	70	C
TEB040A2-08C04M100	4	4	-	2	8	-	100	C
TEB050A2-12C06M80	5	6	-	2.5	12	-	80	C
TEB060A2-10C06M120	6	6	-	3	10	-	120	C
TEB060A2-12/22C06M80	6	6	5.8	3	12	22	80	C
TEB080A2-14/27C08M90	8	8	7.8	4	14	27	90	C
TEB100A2-18/31C10M100	10	10	9.8	5	18	31	100	C
TEB120A2-22/35C12M110	12	12	11.8	6	22	35	110	C
TEB160A2-30/50C16M140	16	16	15.8	8	30	50	140	C

TEB...A2

2 Flutes Ball Nose, Tapered Neck for Materials up to 65 HRC

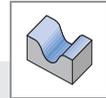


Available grade: AH750

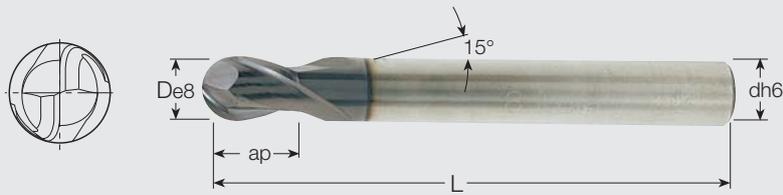
Cat. No.	D	d	d1	R±0.01	ap	L2	H	α	L	Shank
TEB010A2-02/04/3.0C06M80	1	6	5	0.5	2	4	42	3.0°	80	C
TEB020A2-04/06/3.0C06M80	2	6	5.7	1	4	6	41	3.0°	80	C
TEB030A2-06/08/3.0C06M70	3	6	5.6	1.5	6	8	32	3.0°	70	C
TEB040A2-08/10/1.5C06M90	4	6	6	2	8	10	49	1.5°	90	C
TEB050A2-10/12/1.5C08M110	5	8	7.6	2.5	10	12	61	1.5°	110	C
TEB060A2-12/15/1.5C08M110	6	8	8	3	12	15	53	1.5°	110	C
TEB080A2-14/17/1.5C10M120	8	10	10	4	14	17	55	1.5°	120	C
TEB100A2-18/21/1.5C12M130	10	12	12	5	18	21	59	1.5°	130	C
TEB120A2-22/25/1.5C16M160	12	16	15	6	22	25	83	1.5°	160	C

TEB...A2

2 Flutes Ball Nose, 30° Helix, Short Length



Hard Materials



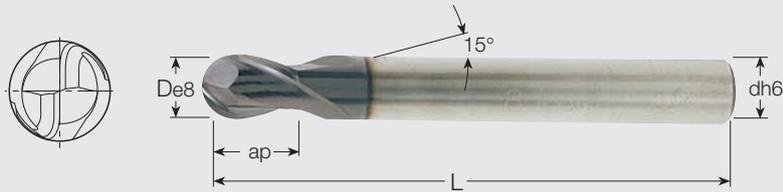
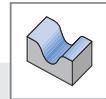
Available grade: AH750

Cat. No.	D	d	ap	L	Shank
TEB030A2-05C06-57	3	6	5	57	C
TEB040A2-07C06-57	4	6	7	57	C
TEB050A2-08C06-57	5	6	8	57	C
TEB060A2-08C06-57	6	6	8	57	C
TEB080A2-11C08-63	8	8	11	63	C
TEB100A2-13C10-72	10	10	13	72	C
TEB120A2-14C12-83	12	12	14	83	C
TEB160A2-16C16-92	16	16	16	92	C

Short and stable design for profiling (roughing).

TEB...A2

2 Flutes Ball Nose, 30° Helix, Short Length



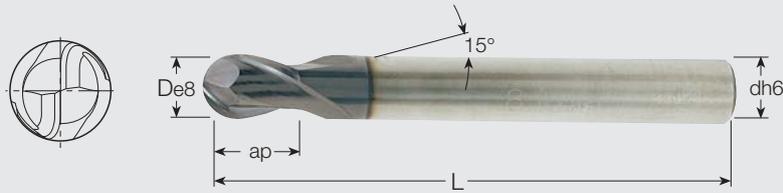
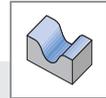
Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEB030A2-05C06-57	3	6	5	57	C
TEB040A2-07C06-57	4	6	7	57	C
TEB050A2-08C06-57	5	6	8	57	C
TEB060A2-08C06-57	6	6	8	57	C
TEB080A2-11C08-63	8	8	11	63	C
TEB100A2-13C10-72	10	10	13	72	C
TEB120A2-14C12-83	12	12	14	83	C
TEB160A2-16C16-92	16	16	16	92	C
TEB200A2-20C20-104	20	20	20	104	C

Short and stable design for profiling (roughing).

TEB...A2...E

2 Flutes Ball Nose, 30° Helix, Short Length



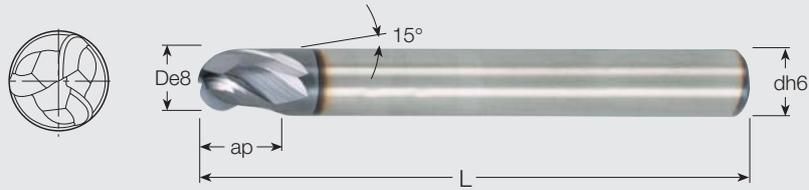
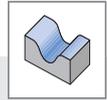
Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEB020A2-04C06-E48	2	6	4	48	C
TEB020A2-06C03-E38	2	3	6	38	C
TEB025A2-04C06-E48	2.5	6	4	48	C
TEB030A2-04C06-E48	3	6	4	48	C
TEB040A2-06C06-E50	4	6	6	50	C
TEB040A2-08W06-E57	4	6	8	57	W
TEB060A2-07C06-E51	6	6	7	51	C
TEB060A2-10W06-E57	6	6	10	57	W
TEB080A2-09C08-E59	8	8	9	59	C
TEB100A2-10C10-E60	10	10	10	60	C
TEB120A2-14C12-E71	12	12	14	71	C
TEB140A2-14C14-E71	14	14	14	71	C
TEB160A2-16C16-E76	16	16	16	76	C
TEB180A2-18C18-E76	18	18	18	76	C
TEB200A2-20C20-E82	20	20	20	82	C

Short and stable design for profiling (roughing).

TEB...A3

3 Flutes Ball Nose, 30° Helix, Short Length



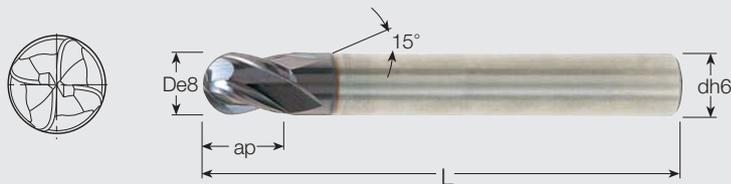
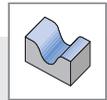
Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEB030A3-05C06-57	3	6	5	57	C
TEB040A3-07C06-57	4	6	7	57	C
TEB050A3-08C06-57	5	6	8	57	C
TEB060A3-08C06-57	6	6	9	57	C
TEB080A3-11C08-63	8	8	11	63	C
TEB100A3-13C10-72	10	10	13	72	C
TEB120A3-14C12-83	12	12	14	83	C

Short and stable design for contouring (roughing)

TEB...A4

4 Flutes Ball Nose, 30° Helix, Short Length



Available grade: AH725

Cat. No.	D	d	ap	L	Shank
TEB030A4-05C06-57	3	6	5	57	C
TEB040A4-07C06-50	4	6	7	50	C
TEB050A4-08C06-57	5	6	8	57	C
TEB060A4-08C06-57	6	6	8	57	C
TEB080A4-11C08-63	8	8	11	63	C
TEB100A4-13C10-72	10	10	13	72	C
TEB120A4-14C12-83	12	12	14	83	C
TEB200A4-20C20-104	20	20	20	104	C

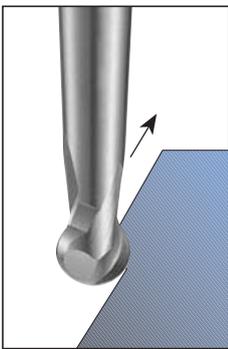
Short and stable design for profiling (finishing)

Ball Nose Characteristics

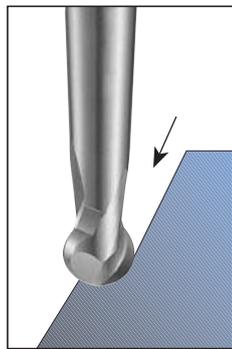
- Die & mold making, turbine manufacturing and aircraft industry, etc.
- Useful for intricate-shaped surfaces.
- Profiling of up to 70 HRC high hardened steels and alloy steels, nickel based alloys, titanium alloys.
- Ultra-fine grain carbide which increases both toughness and hardness.
- Suitable for dry and high speed cutting.
- Special sphere shaped tool geometry provides increased tool life and enables higher speed and feed operations.

Milling Features

- Operating angle 208° - 212°
- Excellent surface roughness and high milling process.
- Enables milling with high speed and feed in back milling mode.



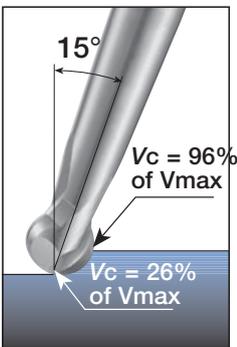
Favorable Back Milling ✓



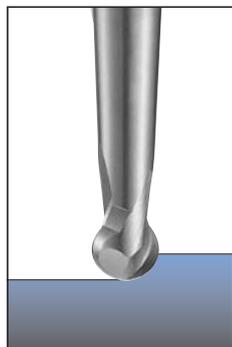
Unfavorable Drilling

Operating Recommendations

- It is recommended to machine with the tool inclined at a 15° angle. This technique eliminates cutting at nearly zero speed at the tool axis. Cutting is more efficient, and tool life substantially improves.
- Decreased cutting force.
- Excellent surface roughness and brightness.



Favorable Profiling ✓



Unfavorable Profiling

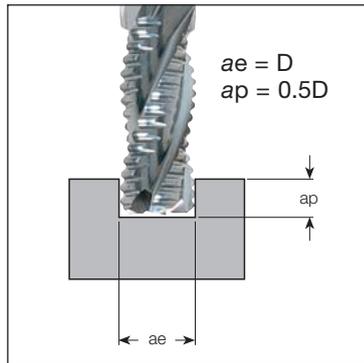
Machining Data for ShredMeister Rougher Endmills

ISO	Material	Condition	Tensile Strength (N/mm ²)	Hardness HB		
P Steel	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	
		≥ 0.25 %C	Annealed	650	190	
		< 0.55 %C	Quenched and tempered	850	250	
		≥ 0.55 %C	Annealed	750	220	
		≥ 0.55 %C	Quenched and tempered	1000	300	
	Low alloy steel and cast steel (less than 5% all elements)	Annealed		600	200	
		Quenched and tempered		930	275	
				1000	300	
				1200	350	
	High alloy steel, cast steel, and tool steel	Annealed		680	200	
Quenched and tempered		1100	325			
M Stainless	Stainless steel and cast steel	Ferritic / martensitic		680	200	
		Martensitic		820	240	
		Austenitic		600	180	
K Cast Iron	Cast iron nodular (GGG)	Ferritic / pearlitic			180	
		Pearlitic			260	
	Grey cast iron (GG)	Ferritic			160	
		Pearlitic			250	
	Malleable cast iron	Ferritic			130	
		Pearlitic			230	
N Non-ferrous	Aluminium-wrought alloy	Not cureable			60	
		Cured			100	
	Aluminium-cast, alloyed	≤ 12% Si	Not cureable			75
			Cured			90
	Copper alloys	> 12% Si	High temperature			130
		> 1% Pb	Free cutting			110
		Brass			90	
		Electrolitic copper			100	
	Non-metallic	Duroplastics, fiber plastics				
		Hard rubber				
S Superalloys	High temp. alloys	Fe based	Annealed			200
			Cured			280
		Ni or Co based	Annealed			250
			Cured			350
			Cast			320
	Titanium and Ti alloys			RM 400		
		Alpha + beta alloys cured		RM 1050		
H Hard Materials	Hardened steel	Hardened			55 HRC	
		Hardened			60 HRC	
	Chilled cast iron	Cast			400	
	Cast iron	Hardened			55 HRC	

Cutting speed: Vc (m/min)	
min	max
260	280
200	230
160	190
160	180
140	160
160	190
120	140
130	150
140	160
130	160
70	90
110	200
60	180
80	120
80	260
130	240
150	280
90	280
150	280
140	240
810	840
730	830
800	840
730	830
320	340
400	430
400	430
270	300
20	40
20	30
20	30
20	30
30	70
30	70
30	70
30	50
30	40
60	80
30	50

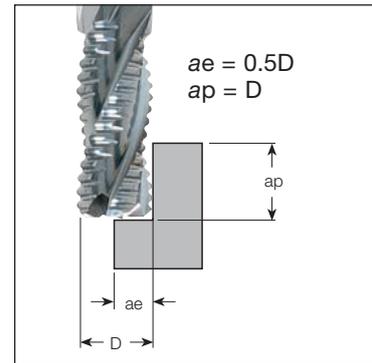
■ Recommended Feeds

Slotting



D (mm)	Min. fz	Max. fz
1	0.006	0.01
1.3	0.006	0.02
1.5	0.006	0.04
1.8	0.01	0.05
2	0.01	0.06
2.3	0.01	0.06
2.5	0.01	0.06
2.8	0.02	0.07
3	0.02	0.08
3.3	0.02	0.08
4	0.03	0.09
4.3	0.03	0.09
5	0.04	0.10
6	0.05	0.12
7	0.06	0.14
8	0.06	0.16
9	0.06	0.16
10	0.06	0.18
12	0.07	0.20
14	0.08	0.22
16	0.10	0.24
18	0.10	0.26
20	0.10	0.30
25	0.12	0.30

Shoulder milling



D (mm)	Min. fz	Max. fz
1	0.006	0.014
1.3	0.006	0.024
1.5	0.006	0.044
1.8	0.010	0.056
2	0.010	0.066
2.3	0.010	0.066
2.5	0.010	0.066
2.8	0.02	0.076
3	0.02	0.088
3.3	0.02	0.088
4	0.03	0.098
4.3	0.03	0.098
5	0.04	0.110
6	0.05	0.132
7	0.06	0.154
8	0.06	0.176
9	0.06	0.176
10	0.06	0.196
12	0.07	0.216
14	0.08	0.238
16	0.10	0.260
18	0.10	0.280
20	0.10	0.340
25	0.12	0.360

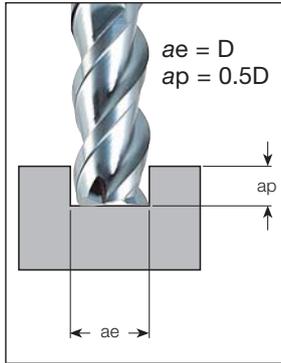
Machining Data for Solid Carbide Endmills

ISO	Material	Condition	Tensile Strength (N/mm ²)	Hardness HB	
P Steel	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125
		≥ 0.25 %C	Annealed	650	190
		< 0.55 %C	Quenched and tempered	850	250
		≥ 0.55 %C	Annealed	750	220
		≥ 0.55 %C	Quenched and tempered	1000	300
	Low alloy steel and cast steel (less than 5% all elements)	Annealed	600	200	
		Quenched and tempered	930	275	
			1000	300	
			1200	350	
	High alloy steel, cast steel, and tool steel	Annealed	680	200	
Quenched and tempered		1100	325		
M Stainless	Stainless steel and cast steel	Ferritic / martensitic	680	200	
		Martensitic	820	240	
		Austenitic	600	180	
K Cast Iron	Cast iron nodular (GGG)	Ferritic / pearlitic		180	
		Pearlitic		260	
	Grey cast iron (GG)	Ferritic		160	
		Pearlitic		250	
	Malleable cast iron	Ferritic		130	
		Pearlitic		230	
N Non-ferrous	Aluminium-wrought alloy	Not cureable		60	
		Cured		100	
	Aluminium-cast, alloyed	≤ 12% Si	Not cureable		75
			Cured		90
	Copper alloys	> 12% Si	High temperature		130
		> 1% Pb	Free cutting		110
		Brass			90
		Electrolitic copper			100
	Non-metallic	Duroplastics, fiber plastics			
		Hard rubber			
S Superalloys	High temp. alloys	Fe based	Annealed		200
			Cured		280
		Ni or Co based	Annealed		250
			Cured		350
			Cast		320
	Titanium and Ti alloys		RM 400		
	Alpha + beta alloys cured	RM 1050			
H Hard Materials	Hardened steel	Hardened		55 HRC	
		Hardened		60 HRC	
	Chilled cast iron	Cast		400	
	Cast iron	Hardened		55 HRC	

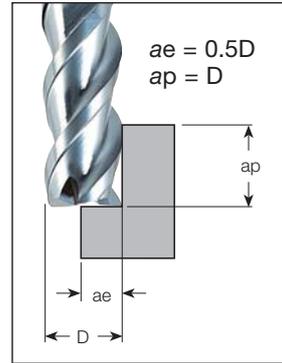
Cutting speed: Vc (m/min)	
min	max
220	230
170	190
140	150
140	150
120	130
140	150
100	110
110	120
120	130
110	130
60	70
100	170
60	150
70	100
70	220
110	200
130	230
70	230
130	230
110	200
670	700
610	690
670	700
610	690
270	280
330	350
330	350
230	250
20	30
20	20
20	20
20	20
30	60
30	60
30	60
30	40
30	30
50	60
30	40

Recommended Feeds

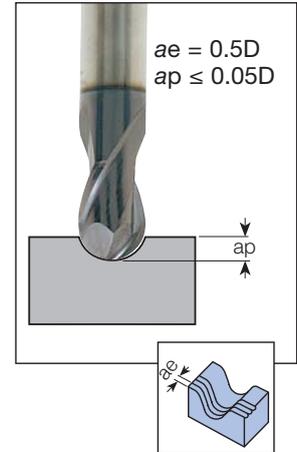
Slotting



Shoulder milling



Profiling



D (mm)	Slotting		Shoulder milling / Profiling	
	Min. fz	Max. fz	Min. fz	Max. fz
1	0.003	0.005	0.003	0.007
1.3	0.003	0.010	0.003	0.012
1.5	0.003	0.020	0.003	0.022
1.8	0.005	0.025	0.005	0.028
2	0.005	0.030	0.005	0.033
2.3	0.005	0.030	0.005	0.033
2.5	0.005	0.030	0.005	0.030
2.8	0.010	0.035	0.010	0.038
3	0.010	0.040	0.010	0.044
3.3	0.015	0.040	0.010	0.044
4	0.015	0.045	0.015	0.049
4.3	0.020	0.045	0.015	0.049
5	0.025	0.050	0.020	0.055
6	0.030	0.060	0.025	0.066
7	0.030	0.070	0.030	0.077
8	0.030	0.080	0.030	0.088
9	0.030	0.080	0.030	0.088
10	0.035	0.090	0.030	0.098
12	0.040	0.10	0.035	0.108
14	0.050	0.11	0.04	0.119
16	0.050	0.12	0.05	0.130
18	0.050	0.13	0.05	0.140
20	0.050	0.15	0.05	0.170
25	0.060	0.15	0.06	0.180

- For Slotting
 - M type materials — ap max = 0.5D
 - S type materials — ap max = 0.25D
- For Finishing
 - P type materials — ap max = 1.5D
- For Roughing
 - ap max = 1.5D
 - V = 1.25 x Vc

High speed cutting on Hard materials (up to 60 HRC):
Apply small depth of cut: ap (0.1 - 0.3 mm) at Vc 80 - 160 m/min

Recommended cutting conditions

ISO	Material	Hardness	Max D.O.C (mm)	Cutting speed Vc(m/min)	Feed per tooth (mm / tooth)					
					ø6	ø8	ø10	ø12	ø16	ø20
K	Cast iron	180- 260HB	0.25-1.0	250-1000	0.10	0.15	0.17	0.19	0.23	0.25
	Nodular iron	160- 250HB	0.25-1.0	250-1000	0.10	0.15	0.17	0.19	0.23	0.25
	Malleable iron	130- 230HB	0.25-1.0	250-1000	0.10	0.15	0.17	0.19	0.23	0.25
N	Non ferrous/ graphite products	-	0.25-1.0	500-1500	0.10	0.15	0.17	0.19	0.23	0.25
S	Ni-based superalloys	-	0.25-1.0	250-1000	0.10	0.13	0.15	0.18	0.20	0.22

For machining nickel-based alloys, use a cutting speed of 250 m/min or more in dry cutting.

Grade Priorities for Solid Carbide Endmills

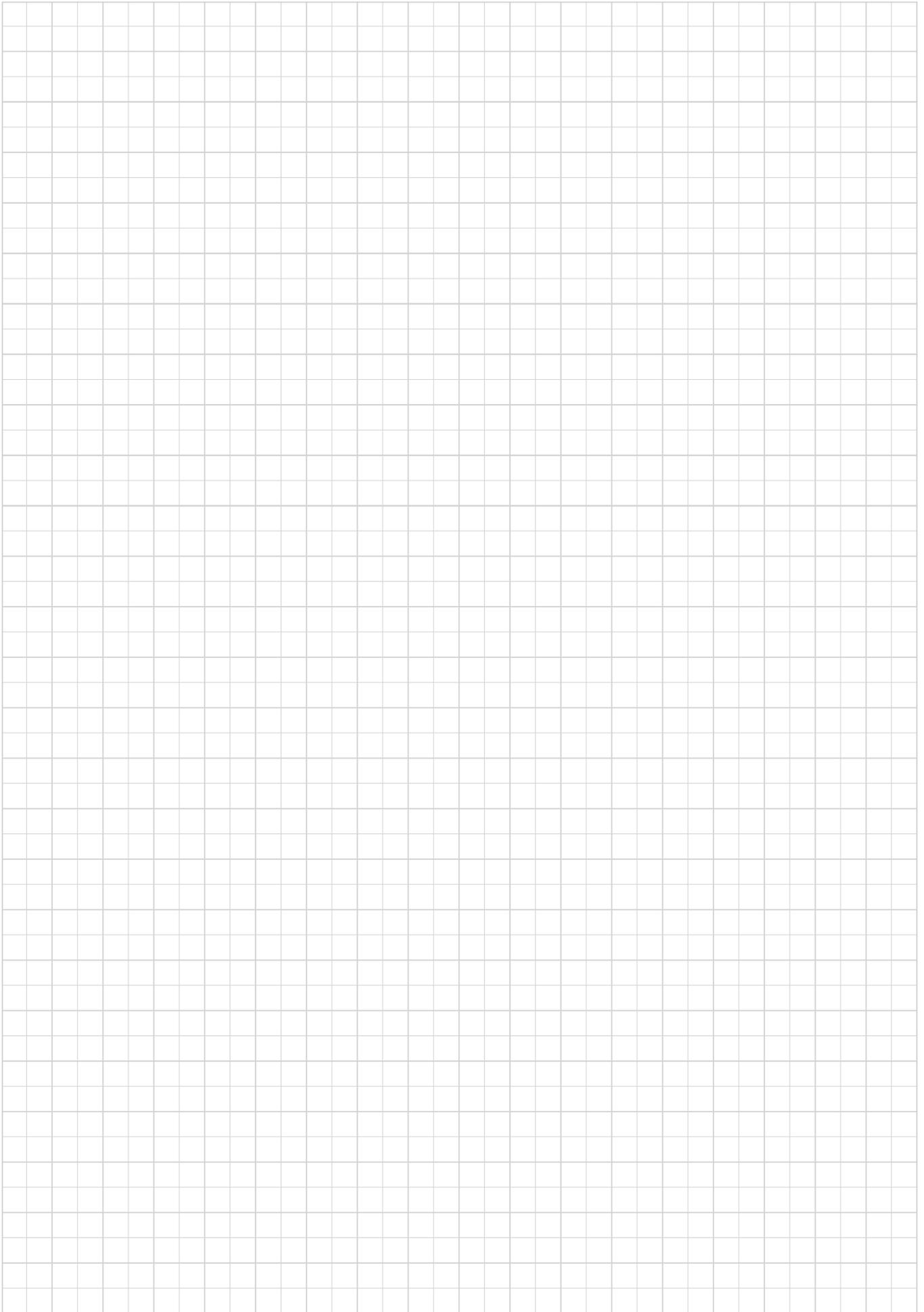
In most cases the best performance can be attained without using coolant for specific grades. However, it should be noted that if for any reason coolant must be used, it could possibly affect tool life and sometimes cause insert failure, due to thermal shock.

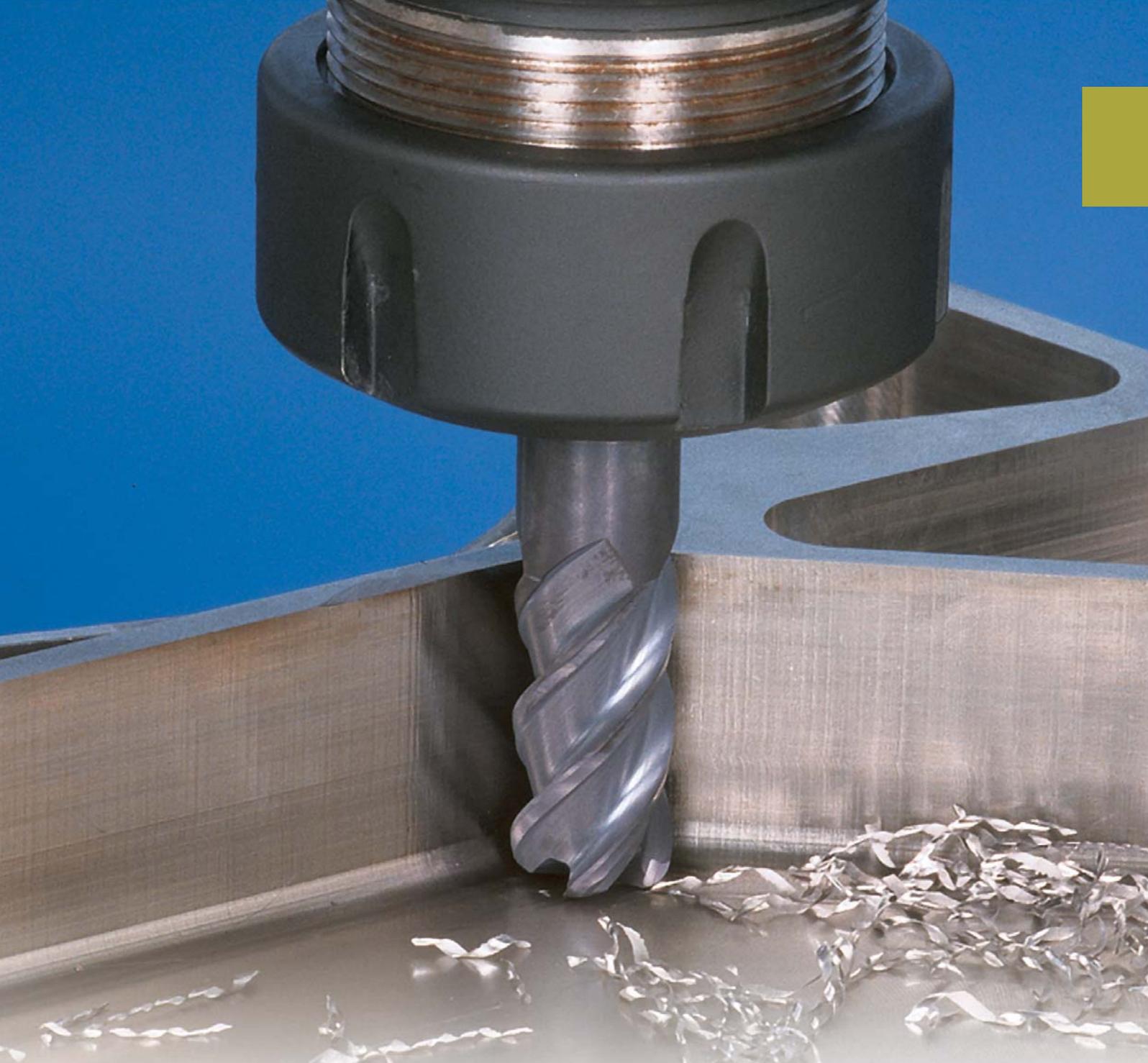
Material Groups	 ISO P	 ISO H	 ISO M	 ISO S	 ISO K	 ISO N
	Steel	Hard Materials	Stainless	Superalloys	Cast Iron	Non-ferrous
	Harder ↑ AH750 ↓ AH725 ↓ Tougher	Harder ↑ AH750 ↓ AH725 ↓ Tougher	Harder ↑ AH725 ↓ Tougher	Harder ↑ AH750 ↓ AH725 ↓ KS15F ↓ Tougher	Harder ↑ AH750 ↓ AH725 ↓ Tougher	Harder ↑ AH725 ↓ KS15F ↓ Tougher

■ First choice

MEMO

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.





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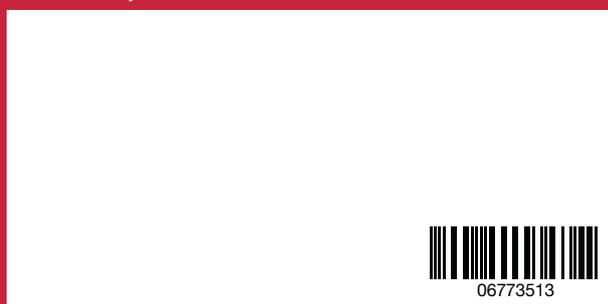
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