NEW PRODUCT NEWS

MEGA TECH
METAL WORK CO.,LTD

Taegutec Solid End Mill Line

CERAMICSFEED

HARDPART & EXOTIC MATERIALS

Ceramic End Mills Expansion for HRSA High-speed Milling Solutions

Speed to Feed

ADVANCE CUTTING
TaeguTec

TaeguTec
Member IMC Group

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Taegutec Solid End Mill Line

MEGA TECH METAL WORK CO.,LTD

KEY POINT

TaeguTec's CERAMIC-SFEED line now includes brazed ceramic-type end mills and MAXI-RUSH heads.

TaeguTec's CERAMIC-SFEED product line provides innovative milling solutions for high-speed and high feed machining on heat-resistant alloys. The ceramic end mill type is coated with the TC3030 ceramic grade, which is characterized by excellent heat resistance and high-temperature hardness. It is designed with unevenly spaced cutting edges and a high helix angle for optimized edge geometry. It boasts excellent machining performance and tool life while machining nickel alloys and cobalt alloys at cutting speeds over 700 m/min. In particular, the 6-flute corner radius ceramic end mill is capable of high feed machining in shallow depth of cut conditions, resulting in improved productivity.

The CERAMIC-SFEED product line now offers both ceramic brazed end mills and MAXI-RUSH head types, further expanding its range of tooling options. Ceramic brazed end mills with carbide shanks are less brittle than those with ceramic shanks, minimizing vibrations during operation due to the stronger grip. Additionally, the ceramic brazed MAXI-RUSH heads offer a variety of shank options to accommodate a wide range of machining conditions. The shanks are available in various shapes and materials to suit all cutting conditions.

NPN

NPN Download

Youtube

Machining Video Link

CERAMIC-SFEED product line

new MXCRF		6 flute, corner radius type & ceramic brazed MAXI-RUSH heads Suitable for shouldering, facing and ramping applications Compatible with MAXI-RUSH holders
new CRFB 6		6 flute, corner radius type ceramic brazed end mills Suitable for shouldering, facing and ramping applications
CRF 4		4 flute, corner radius type ceramic end mills Suitable for shouldering, slotting and ramping applications
CRF 6		6 flute, corner radius type ceramic end mills Suitable for shouldering, facing and ramping applications
CRH 4		4 flute, ceramic end mills for high feed machining Suitable for facing, ramping applications

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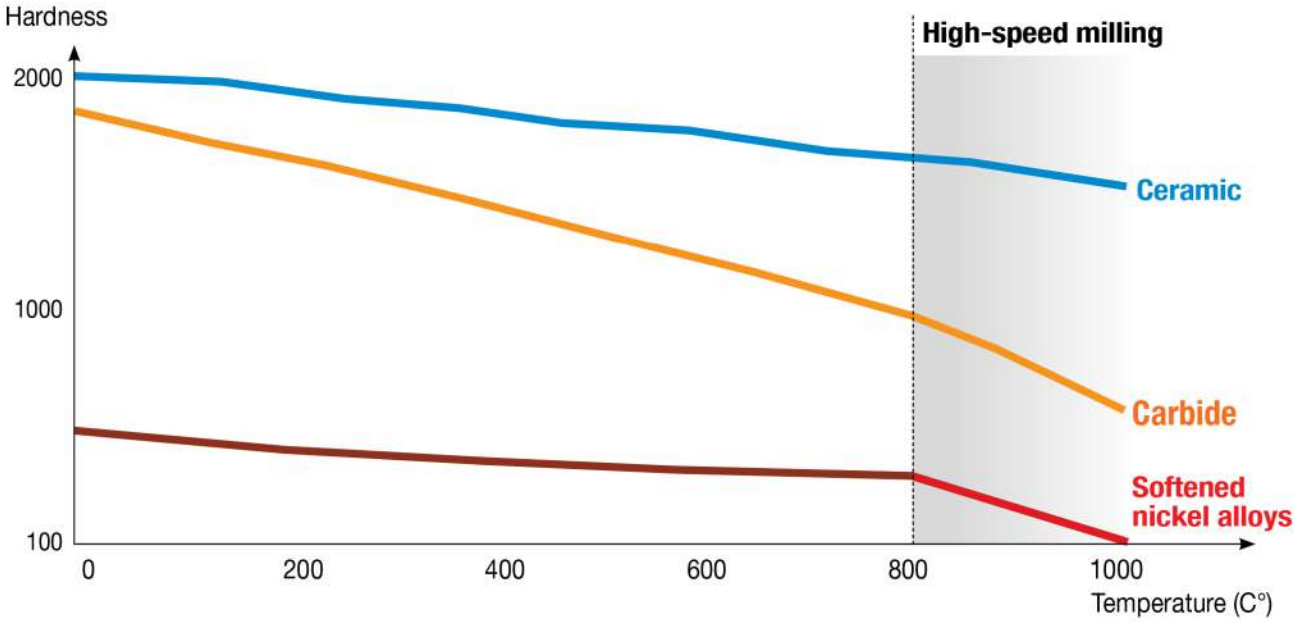
Features

- Excellent high-temperature hardness SiAlON series TC3030 ceramic grade
- 700 m/min cutting speed for superior improvement in productivity
- Excellent vibration resistance due to the ceramic-brazed carbide shanks
- MAXI-RUSH heads are compatible with a variety of holders

HRSA high-speed milling solution with ceramic tools

- Carbide tools experience rapid tool life deterioration at high temperatures. Therefore, cutting speeds around 50 m/min are required when machining heat-resistant alloys. Whereas ceramic tools, characterized by excellent heat resistance but vulnerable to impact, can achieve superior tool life and productivity by generating enough heat to soften the workpiece through high-speed machining. As a result, ceramic tools need to operate at cutting speeds exceeding 700 m/min to produce enough heat in the workpiece. During this machining process, both the tool and the workpiece become red-hot, enabling dynamic rough machining with sparks flying.



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Taegutec Solid End Mill Line

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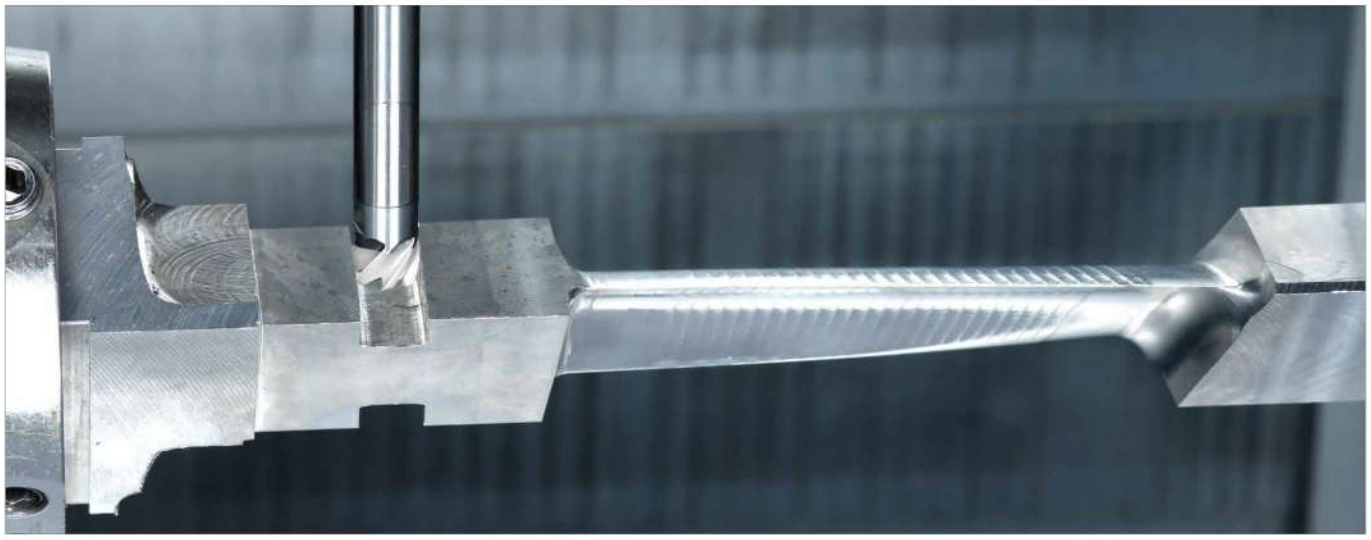
Ceramic tools application range

- Applicable to nickel- or cobalt-based HRSA roughing
- Suitable for both power generation and aerospace industry parts machining

Workpiece material type	TC3030
Nickel alloy	Excellent
Cobalt alloy	Good
Titanium alloy	Not recommended
Stainless steel	



NEW PRODUCT NEWS

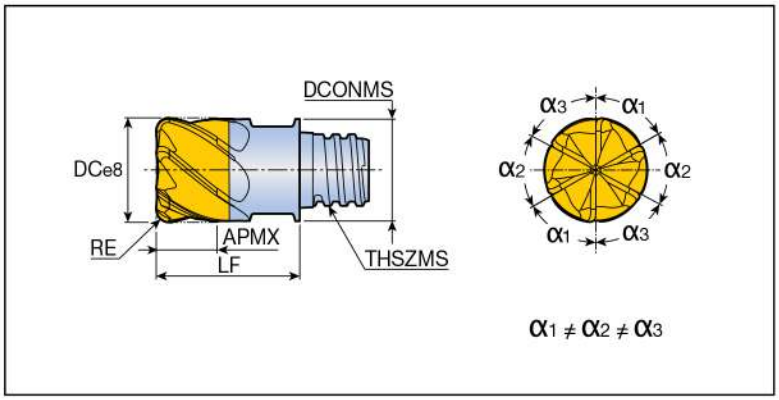
Taegutec Solid End Mill Line

MEGA TECH METAL WORK CO.,LTD

MXCRF new

CERAMICSFEED HARD PART & EXOTIC MATERIALS

6 flute, ceramic brazed heads



6 H•A 40°

Designation		Feed (mm/tooth)	Dimension (mm)						Grade
			DC	RE	APMX	LF	THSZMS	DCONMS	TC3030
MXCRF	100L07R10-06S06	0.02-0.04	10	1.0	7	13.0	S06	9.7	●
	120L07R15-06S08	0.03-0.05	12	1.5	7	16.5	S08	11.7	●
	160L09R20-06S10	0.03-0.05	16	2.0	9	20.5	S10	15.3	●

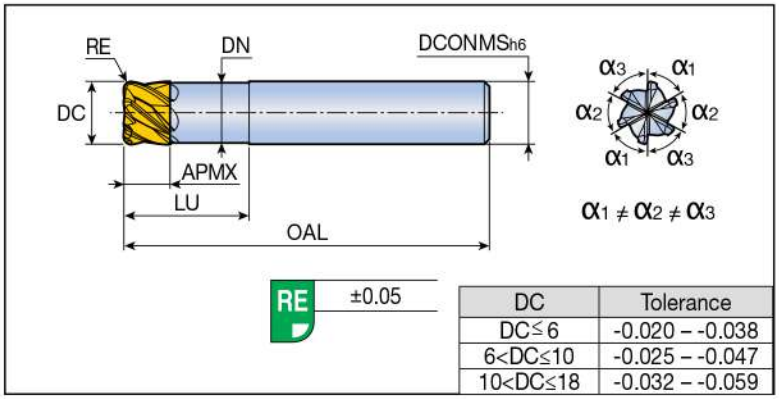
▸ Wrench should be ordered separately

●: Standard items

CRFB 6 new

CERAMICSFEED HARD PART & EXOTIC MATERIALS

6 flute, ceramic brazed end mills



DC	Tolerance
DC≤6	-0.020 – -0.038
6<DC≤10	-0.025 – -0.047
10<DC≤18	-0.032 – -0.059

6 H•A 40°

Designation		Feed (mm/tooth)	Dimension (mm)							Grade
			DC	RE	OAL	APMX	LU	DN	DCONMS	TC3030
CRFB	6060 050 120	0.02-0.03	6	0.5	50	4.5	12	5.8	6	●
	6080 100 160	0.02-0.03	8	1.0	57	6.0	16	7.7	8	●
	6100 100 200	0.02-0.04	10	1.0	63	7.5	20	9.6	10	●
	6120 150 240	0.03-0.05	12	1.5	70	9.0	24	11.5	12	●
	6160 200 320	0.03-0.05	16	2.0	83	12.0	32	15.5	16	●

●: Standard items

NEW PRODUCT NEWS

Taegutec Solid End Mill Line

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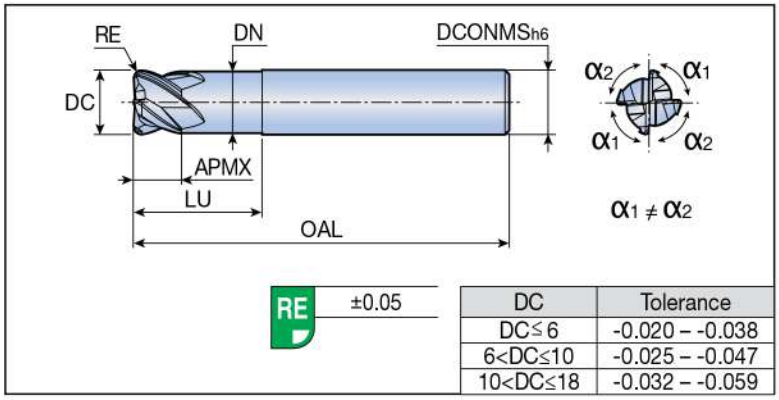
CRF 4

CERAMICSFEED HARD PART & EXOTIC MATERIALS

4 flute, ceramic end mills



4 | H•A 40°

RE ±0.05

DC	Tolerance
DC≤6	-0.020 – -0.038
6<DC≤10	-0.025 – -0.047
10<DC≤18	-0.032 – -0.059

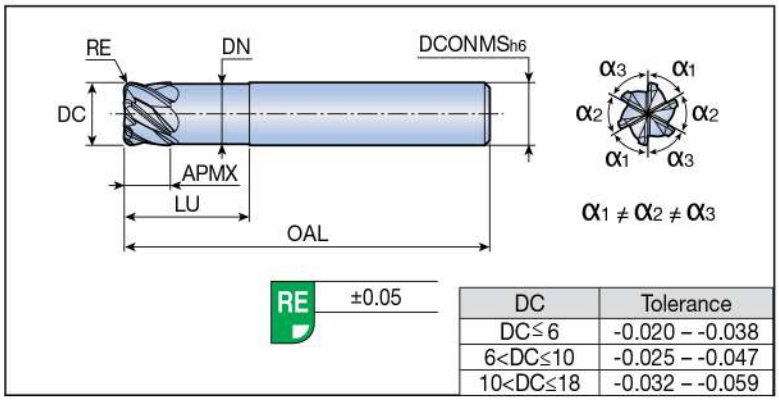
Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	TC3030
CRF 4060 050 120	0.02-0.03	6	0.5	50	4.5	12	5.8	6	●
4080 100 160	0.02-0.03	8	1.0	57	6.0	16	7.7	8	●
4100 100 200	0.02-0.04	10	1.0	63	7.5	20	9.6	10	●
4120 150 240	0.03-0.05	12	1.5	70	9.0	24	11.5	12	●
4160 200 320	0.03-0.05	16	2.0	83	12.0	32	15.5	16	●

●: Standard items

CRF 6

CERAMICSFEED HARD PART & EXOTIC MATERIALS

6 flute, ceramic end mills



6 | H•A 40°

RE ±0.05

DC	Tolerance
DC≤6	-0.020 – -0.038
6<DC≤10	-0.025 – -0.047
10<DC≤18	-0.032 – -0.059

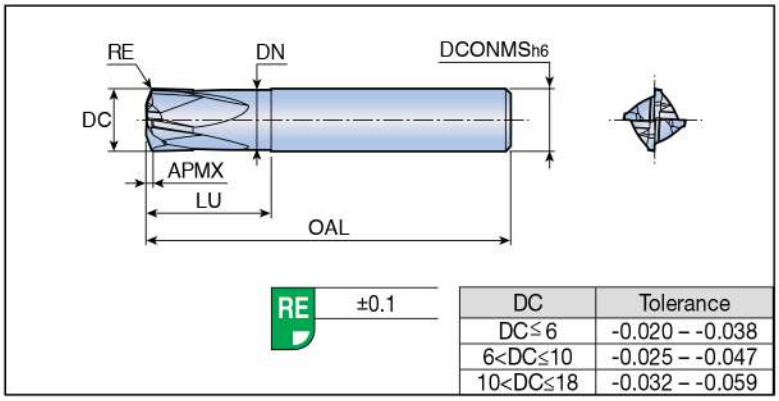
Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	TC3030
CRF 6060 050 120	0.02-0.03	6	0.5	50	4.5	12	5.8	6	●
6080 100 160	0.02-0.03	8	1.0	57	6.0	16	7.7	8	●
6100 100 200	0.02-0.04	10	1.0	63	7.5	20	9.6	10	●
6120 150 240	0.03-0.05	12	1.5	70	9.0	24	11.5	12	●
6160 200 320	0.03-0.05	16	2.0	83	12.0	32	15.5	16	●

●: Standard items

CRH 4

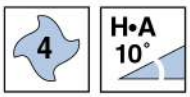
CERAMICSFEED HARD PART & EXOTIC MATERIALS

4 flute, ceramic end mills for high feed milling



RE	±0.1

DC	Tolerance
DC≤6	-0.020 – -0.038
6<DC≤10	-0.025 – -0.047
10<DC≤18	-0.032 – -0.059



Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	TC3030
CRH 4060	0.1-0.15	6	0.7	50	0.55	12	5.8	6	●
4080	0.1-0.2	8	0.9	57	0.75	16	7.7	8	●
4100	0.1-0.2	10	1.0	63	0.85	20	9.6	10	●
4120	0.1-0.3	12	1.4	70	1.15	24	11.5	12	●
4160	0.1-0.3	16	1.8	83	1.55	32	15.5	16	●

▸ RE: Program corner R

●: Standard items

Recommended Cutting Conditions

CERAMICSFEED HARD PART & EXOTIC MATERIALS

Machining data for ceramic end mill

CRF 4 teeth & 6 teeth

(Unit: mm)

Diameter	Cutting speed (m/min)	Feed (mm/tooth)	Shouldering, profiling		Slotting
			ap	ae	ap
Ø6	300-1000	0.02-0.03	-0.6xD	-0.1xD	-0.05xD
Ø8	300-1000	0.02-0.03	-0.6xD	-0.1xD	-0.05xD
Ø10	300-1000	0.02-0.04	-0.6xD	-0.1xD	-0.05xD
Ø12	300-1000	0.03-0.05	-0.6xD	-0.1xD	-0.05xD
Ø16	300-1000	0.03-0.05	-0.6xD	-0.1xD	-0.05xD

- ap must not exceed a maximum 1 mm
- Apply a 30% reduction in feed during slotting, ramping (less 2.5°)

ap: axial direction DOC
ae: radial direction DOC

CRH 4 teeth

(Unit: mm)

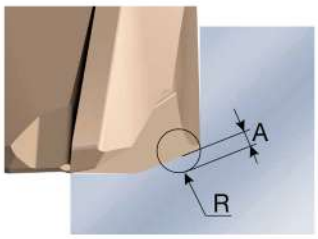
Diameter	Cutting speed (m/min)	Feed (mm/tooth)	Shouldering, profiling	
			ap	ae
Ø6	300-1000	0.1-0.15	-0.05xD	-0.6xD
Ø8	300-1000	0.1-0.2	-0.05xD	-0.6xD
Ø10	300-1000	0.1-0.2	-0.05xD	-0.6xD
Ø12	300-1000	0.1-0.3	-0.05xD	-0.6xD
Ø16	300-1000	0.1-0.3	-0.05xD	-0.6xD

- ap must not exceed a maximum 1 mm
- Apply a 30% reduction in feed during ramping (less 2.5°)

ap: axial direction DOC
ae: radial direction DOC

Programming tip - CRH

Diameter (CRH 4 teeth)	R (Program)	A Un-machined material thickness
Ø6	0.7	0.35
Ø8	0.9	0.47
Ø10	1.0	0.50
Ø12	1.4	0.70
Ø16	1.8	0.95



Optimal conditions for TaeguTec ceramic end mills

Recommendations	Details	Remarks
Down cutting	Down cutting is highly recommended Up cutting can lead to rapid wear of the cutting edge and the possibility of the workpiece material's hardened surface	Finish margin: over 0.3 mm
High cutting speed	By maintaining a high cutting speed, the cutting tool minimizes wear and damage by generating the heat needed to soften the material	
Do not use coolant	To prevent the occurrence of thermal crack, it is recommended not to use coolant or air blowing	Air blowing is only recommended for use when good chip evacuation is required
Tool holder	Recommendation for tool holding is a hydraulic chuck or a precision milling chuck for stable machining	Heating chuck is disabled
Do not remove built-up-edges	Do not manually remove any built-up-edge as this may cause damage to the insert's cutting edge	

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