



"TFC MillCut"

The *next generation* of Diamond Milling Tools

- ✓ First choice for composites
- ✓ Dramatically improved tool life
- ✓ Reduced cutting pressure
- ✓ Extreme hardness
- ✓ Superior surface finish

TFC Features & Benefits

- Harder, more wear resistant
2 to 10x life of PCD
- Pure diamond (no binder)
no edge erosion or chemical interaction
- Highest thermal conductivity
lowest cutting temperatures
- Sharpest cutting edge
reduced cutting forces
smoother more consistent finish

Application Materials

- Silicon aluminum alloys
- Metal matrix composites
- Carbon fiber reinforced plastic
- Platinum and gold
- High temperature plastics
- Glass reinforced epoxy



CFK
Carbon Fiber



GFK
EGS 619:
80% Glass & 20% Epoxy Resin

"TFC" Thick Film CVD diamond. This outstanding new program of cutting tools from Becker has such extreme consistent hardness that its wear properties are anywhere from 2 to 10x that of PCD. This pure diamond has no binders which allows extreme cutting edge sharpness giving you excellent surface finishes with virtually no cutting pressure. The absence of binders at the cutting edge allows for excellent thermal conductivity which reduces heat produced at the cutting zone. The extreme sharpness and the pure diamond cutting edge of the Becker "TFC" tools avoids chemical interactions with materials or cutting fluids which eliminates failures due to cutting edge erosion. This pure diamond maintains a sharper cutting edge far longer than that of the standard polycrystalline diamond tools. All of the "TFC" tips produced at Becker are adhered using a high vacuum brazing process that ensures excellent quality. Due to the extreme hardness, the cutting edge must be lasered using High Tech lasers which not only prepare the cutting edges to the highest quality but also allows the 3D cutting edge geometries in various formations prepared in the same quality.

RTC Rani Tool Corp.

™ 205 Kelsey St., Unit #103, Newington, CT 06111

Tel: (888) 554-RANI or (860) 665-7771 • Fax: (860) 665-7319

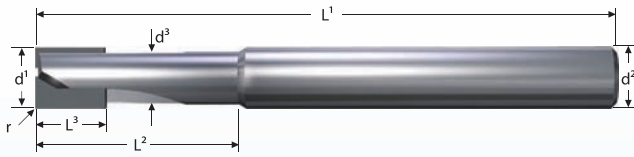
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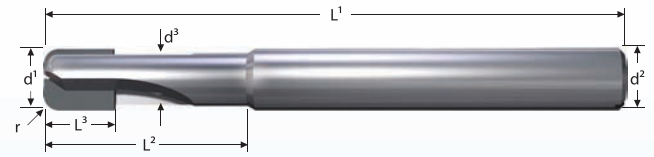
Check out the BECKER videos on our website!

BECKER "TFC MillCut" End Mills



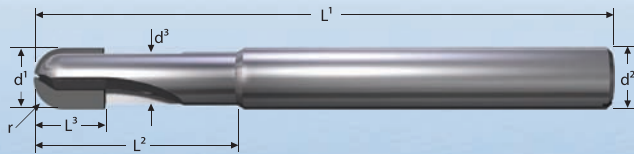
2 Flutes Square End Mill

Designation	d ¹	r	d ²	d ³	flutes	Axial Angle	L ¹	L ²	L ³	TFC Thickness
BMC-S04.85 TFC	.157	.004	.236	.138	2	+2°	1.969	.394	.197	.020
BMC-S05.85 TFC	.197	.004	.236	.169	2	+2°	1.969	.472	.236	.020
BMC-S06.85 TFC	.236	.008	.236	.201	2	+2°	2.244	.591	.315	.020
BMC-S08.85 TFC	.315	.008	.315	.272	2	+2°	2.480	.787	.394	.031
BMC-S10.85 TFC	.394	.008	.394	.335	2	+2°	2.835	1.024	.472	.039
BMC-S12.85 TFC	.472	.008	.472	.398	3	+2°	3.268	1.260	.591	.039
BMC-S04.35 TFC	.157	.004	.236	.138	2	-2°	1.969	.394	.197	.020
BMC-S05.35 TFC	.197	.004	.236	.169	2	-2°	1.969	.472	.236	.020
BMC-S06.35 TFC	.236	.008	.236	.201	2	-2°	2.244	.591	.315	.020
BMC-S08.35 TFC	.315	.008	.315	.272	2	-2°	2.480	.787	.394	.031
BMC-S10.35 TFC	.394	.008	.394	.335	2	-2°	2.835	1.024	.472	.039
BMC-S12.35 TFC	.472	.008	.472	.398	3	-2°	3.268	1.260	.591	.039



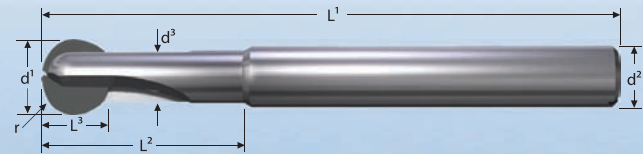
2 Flutes Toroid End Mill

Designation	d ¹	r	d ²	d ³	flutes	Axial Angle	L ¹	L ²	L ³	TFC Thickness
BMC-T04.R05 TFC	.157	.020	.236	.138	2	0°	1.969	.394	.157	.020
BMC-T05.R05 TFC	.197	.020	.236	.169	2	0°	1.969	.472	.185	.020
BMC-T05.R10 TFC	.197	.039	.236	.169	2	0°	1.969	.472	.185	.020
BMC-T06.R10 TFC	.236	.039	.236	.201	2	0°	2.244	.591	.205	.020
BMC-T06.R15 TFC	.236	.059	.236	.201	2	0°	2.244	.591	.205	.020
BMC-T08.R10 TFC	.315	.039	.315	.272	2	0°	2.480	.787	.240	.031
BMC-T08.R15 TFC	.315	.059	.315	.272	2	0°	2.480	.787	.240	.031
BMC-T08.R20 TFC	.315	.079	.315	.272	2	0°	2.480	.787	.240	.031
BMC-T10.R10 TFC	.394	.039	.394	.335	2	0°	2.835	1.024	.295	.039
BMC-T10.R20 TFC	.394	.079	.394	.335	2	0°	2.835	1.024	.295	.039
BMC-T10.R25 TFC	.394	.098	.394	.335	2	0°	2.835	1.024	.177	.039
BMC-T12.R10 TFC	.472	.039	.472	.398	2	0°	3.268	1.260	.335	.039
BMC-T12.R30 TFC	.472	.118	.472	.398	2	0°	3.268	1.260	.335	.039
BMC-T12.R40 TFC	.472	.157	.472	.398	2	0°	3.268	1.260	.335	.039



2 Flutes Radius End Mill

Designation	d ¹	r	d ²	d ³	flutes	Axial Angle	L ¹	L ²	L ³	TFC Thickness
BMC-R04 TFC	.157	.079	.236	.138	2	0°	1.969	.787	.236	.020
BMC-R05 TFC	.197	.098	.236	.138	2	0°	1.969	.984	.236	.020
BMC-R06 TFC	.236	.118	.236	.138	2	0°	2.244	.984	.236	.031
BMC-R08 TFC	.315	.157	.315	.272	2	0°	2.480	1.181	.315	.031
BMC-R10 TFC	.394	.197	.394	.335	2	0°	2.835	1.378	.394	.039
BMC-R12 TFC	.394	.236	.472	.398	2	0°	3.268	1.260	.472	.039



2 Flutes Ball End Mill

Designation	d ¹	r	d ²	flutes	Axial Angle	L ¹	L ²	L ³	TFC Thickness
BMC-K04 TFC	.157	.079 - 200°	.236	2	0°	1.969	.787	.098	.020
BMC-K05 TFC	.197	.098 - 200°	.236	2	0°	1.969	.984	.126	.020
BMC-K06 TFC	.236	.118 - 210°	.236	2	0°	2.244	.984	.146	.031
BMC-K08 TFC	.315	.157 - 220°	.315	2	0°	2.480	1.181	.197	.031
BMC-K10 TFC	.394	.197 - 220°	.394	2	0°	2.835	1.378	.256	.039
BMC-K12 TFC	.394	.236 - 220°	.472	2	0°	3.268	1.260	.295	.039

Application: 10mm Square End End Mill

Trimming CFK Plates 16.5 inches long

Cutting Data:

0.394" (10mm) diameter cutter (Z=2)
 DOC: 0.394" (10mm)
 WOC: 0.039" (1mm)
 FPT: 0.004" (0.1mm)

BECKER TFC:

Vc: 1220 SFM (11,830 RPM)
 IPM: 94.6
 29 passes @ 16.5"
 478.5 Linear Inches

Competitor PCD:

Vc: 975 SFM (9453 RPM)
 IPM: 75.6
 4 passes @ 16.5"
 66 Linear Inches

Cutting Data for Non-Ferrous Applications

Cutting Parameters		
Material	Cutting Speed	Cutting Feed (FPT)
AL <4% Si	1000 - 10000	.001 - .008
AL 4 - 8% Si	1000 - 10000	.001 - .008
AL 9 - 13% Si	700 - 10000	.001 - .008
AL >13% Si	500 - 7000	.001 - .006
Magnesium Alloys	1000 - 10000	.001 - .012
Copper Alloys	1000 - 10000	.001 - .016
Brass Alloys	1000 - 10000	.001 - .010
Graphite	1000 - 7000	.001 - .008
CFK / GFK	500 - 7000	.001 - .030

700% Increase in tool life & 20% Faster using TFC!