

8

# DIE & MOLD

DIFFICULT JOBS REQUIRE  
EXTRAORDINARY TOOLS



There are differences in the demands of many industries, but we are always on the cutting edge of the latest technology.

We appreciate the opportunity to demonstrate the ability of our tools, right before your eyes, every time you run them on your machines.

## DIVERSITY

We offer a massive assortment of carbide cutting tools designed specifically for the Die and Mold industry. Whether milling parts large or small, we have the right tool to achieve maximum performance. Enhance your production with our Die and Mold end mills. Let our experience go to work for you.

## RESULTS

These Die and Mold end mills are designed to run at faster speeds and feeds resulting in reduced cycle times. Many are standard with the most advanced coatings available, which allows for dry machining and extends the life of the tool. These solid carbide end mills are made from sub micron and ultra fine carbide grades for longer tool life and exceptional efficiency all around.

(888) 531.8500 | [info@conicaltool.com](mailto:info@conicaltool.com) | [www.conicalendmills.com](http://www.conicalendmills.com)





## 70 YEARS OF INNOVATION



### UNPARALLELED EXCELLENCE

The Global Die & Mold Cutters are the best choice for high feed finishing of ferrous materials when speed and surface finish are critical. Tool steels and exotic alloys demand the most rugged carbide end mills on the market and that's where we come in. Our Global Die & Mold end mills stand up to difficult to machine material without showing immediate signs of wear. Hardened tool steels need end mills with the ability to perform. With an AlTiN/Si3N4 coating for added lubricity and heat resistance, these tools reach new

levels of performance and incredible tool longevity. These end mills deliver, beyond expectations.

Always consider three important factors when choosing your end mills: application, material and performance. When machining detail features and cavities in ferrous materials, the Global Die & Mold Cutters perform. We will continue to expand this product offering over the upcoming months, if there is a standard tool you desire, please don't hesitate to call.

### CHANGING DEMANDS

We strive to remain at the forefront of progress, while building lasting partnerships throughout the supply chain. We work every day to better understand the changing demands of the industry and anticipate them whenever possible. We like to imagine our customers proudly placing our tools in their machine holders, confident they have the longest lasting and most efficient end mill available on the market.

Global Cutting Tools  
Conical Tool Company

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Global Cutting Tools are distributed by:



Made in the U.S.A.

OVER 7,000  
DISTRIBUTORS WORLDWIDE

DIE & MOLD END MILLS



**GLOBAL™**  
DIE & MOLD CUTTERS

AMERICAN  
MADE



GLOBAL  
RENNOWNED

DIE & MOLD END MILLS

FOR HIGH FEED RATE FINISHING OF FERROUS MATERIALS

 **GLOBAL™**  
CUTTING TOOLS



GLOBAL™  
DIE & MOLD CUTTERS

# HIGH FEED RATE FINISHING

OF FERROUS MATERIALS

## FEATURES & BENEFITS

These tools are ideal for contour machining of mold and die cavities. Premium AlTiN-X Nano coating protects the tool from tool steel and hardened materials, while a larger core design adds stability, rigidity and reduces run out. The high strength flutes were engineered for any difficult to machine material, including hardened tool steels, stainless steels, and high temp alloys. Running at higher speeds and feeds with vibration dampening geometry, our Die and Mold cutters can eliminate the need for expensive hand finishing operations.

### General Inquiries:

3890 Buchanann Ave SW  
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**P:** (616) 531-8500

**F:** (616) 531-7742

**E:** info@conicaltool.com

### Sales & Distribution:

**T:** (888) 531-8500

**E:** sales@conicaltool.com

### Custom Tooling:

**E:** quotes@conicaltool.com

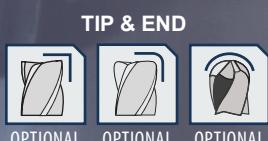
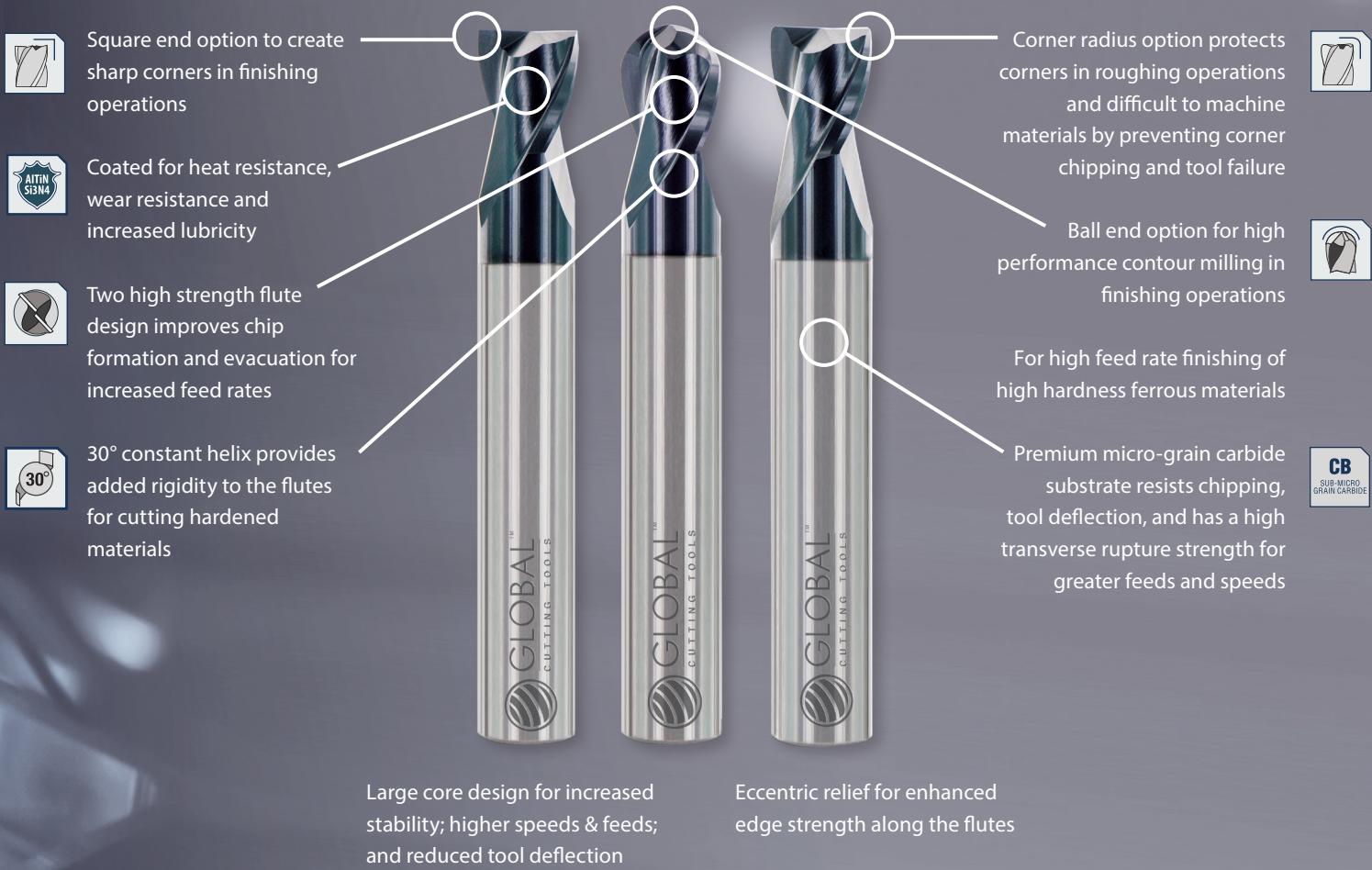
**W:** conicalendmills.com/custom-tool-ordering



GLOBAL™  
CUTTING TOOLS

## SERIES: DMX

For high feed rate finishing of high hardness ferrous materials to maximize productivity and surface finish while roughing, slotting, pocketing, contouring and finishing; wet or dry; mold & tools steels, alloy steels and high hardness materials.



## RESULTS

Removing material is only part of the battle, to be truly effective, a Die & Mold cutter must speed up slow finishing and contouring operations. The option to use wet or dry, in roughing and finishing, will make your set-up time one of the easiest parts of your day. Our Die and

Mold cutters will leave your finishing operations, finished in record time. These tools have incredible longevity and versatility, making them a staple in most tools rooms and vending machines.

**Series DMX:** Micro-Grain Carbide, 2 Flutes, 30° Constant Helix, AlTiN/Si3N4 Coated  
**Subseries:** DM2SS, DM2SR, DM2SL, DM2CS, DM2CR, DM2CL, DM2BS, DM2BR, DM2BL  
**Configuration:** Varying Diameters; Stub, Regular & Long Lengths;  
30° Constant Helix; Square End, Corner Radius & Ball End

# DIE & MOLD CUTTERS

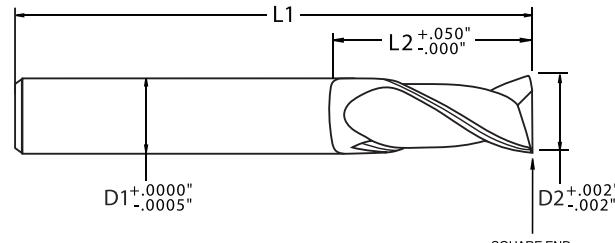
**GLOBAL™**

## SERIES DMX - CARBIDE, 2 FLUTE, 30° CONSTANT HELIX

### NEW LEVELS OF PERFORMANCE

With an AlTiN/Si3N4 coating for added lubricity and heat resistance, these tools reach new levels of performance and incredible tool longevity. These end mills deliver, beyond expectations.

- Square end option to create sharp corners in finishing operations
- Coated for heat resistance, wear resistance and increased lubricity
- Two high strength flute design improves chip formation and evacuation for increased feed rates
- For high feed rate finishing of high hardness ferrous materials



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

## TIP &amp; END



## SHANK &amp; LENGTH



## FLUTE CONFIGURATION



## MATERIAL



## COATINGS



### SERIES DM2SS - SQUARE END, STUB LENGTH



SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	PLAIN SHANK	PART #	EDP #	
1/8	0.125	1/8	0.250	2	2.000	DM2-0204-SQ	D001S
3/16	0.188	3/16	0.313	2 1/2	2.500	DM2-0305-SQ	D002S
1/4	0.250	1/4	0.375	3	3.000	DM2-0406-SQ	D003S
5/16	0.313	5/16	0.438	3	3.000	DM2-0507-SQ	D004S
3/8	0.375	3/8	0.500	3 1/2	3.500	DM2-0608-SQ	D005S
1/2	0.500	1/2	0.625	3 1/2	3.500	DM2-0810-SQ	D006S

### SERIES DM2SR - SQUARE END, REGULAR LENGTH



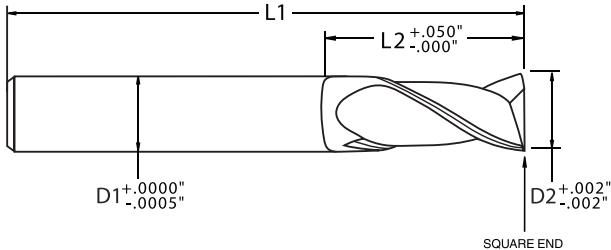
SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	PLAIN SHANK	PART #	EDP #	
1/8	0.125	5/8	0.625	2 1/2	2.500	DM2-0210-SQ	D101S
3/16	0.188	3/8	0.625	2 1/2	2.500	DM2-0310-SQ	D102S
1/4	0.250	7/16	0.875	2 1/2	2.500	DM2-0414-SQ	D103S
5/16	0.313	7/16	0.875	2 1/2	2.500	DM2-0514-SQ	D104S
3/8	0.375	11/8	1.125	3	3.000	DM2-0618-SQ	D105S
7/16	0.438	11/8	1.125	3	3.000	DM2-0718-SQ	D106S
1/2	0.500	13/8	1.375	3 1/2	3.500	DM2-0822-SQ	D107S
5/8	0.625	13/8	1.375	3 1/2	3.500	DM2-1022-SQ	D108S
3/4	0.750	15/8	1.625	4	4.000	DM2-1226-SQ	D109S
1	1.000	15/8	1.625	4	4.000	DM2-1626-SQ	D110S

## SERIES DMX - CARBIDE, 2 FLUTE, 30° CONSTANT HELIX

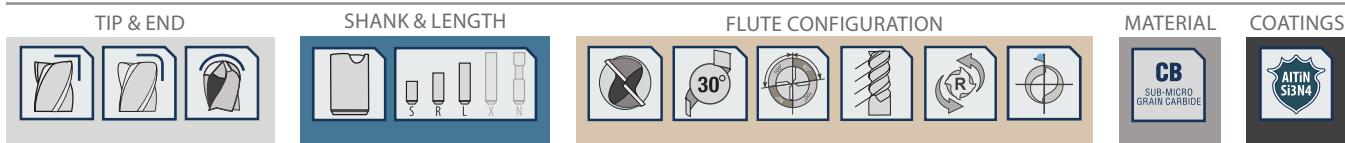
### CONSIDER IMPORTANT FACTORS

Always consider three important factors when choosing your end mills: application, material and performance. When machining detail features and cavities in ferrous materials, the Global Die & Mold Cutters perform.

- 30° constant helix provides added rigidity to the flutes for cutting hardened materials
- Ball end option for high performance contour milling in finishing operations
- Corner radius option protects corners in roughing operations and difficult to machine materials by preventing corner chipping and tool failure



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



### SERIES DM2SL - SQUARE END, LONG LENGTH

SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	PLAIN SHANK	
				PART #	EDP #
1/8	0.125	1/8	0.875	2 1/2	2.500
3/16	0.188	3/16	0.875	2 1/2	2.500
1/4	0.250	1/4	1.375	3	3.000
5/16	0.313	5/16	1.375	3	3.000
3/8	0.375	3/8	1.875	3 1/2	3.500
7/16	0.438	7/16	1.875	3 1/2	3.500
1/2	0.500	1/2	2.125	4	4.000
5/8	0.625	5/8	2.125	4	4.000
3/4	0.750	3/4	2.375	5	5.000
1	1.000	1	2.375	5	5.000

# DIE & MOLD CUTTERS

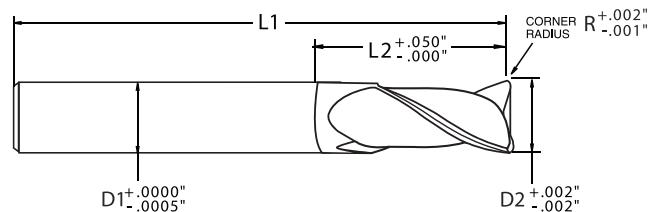

**GLOBAL™**

## SERIES DMX - CARBIDE, 2 FLUTE, 30° CONSTANT HELIX

### IMPROVED RIGIDITY

These tools are ideal for contour machining of mold and die cavities. Premium AlTiN-X Nano coating protects the tool from tool steel and hardened materials, while a larger core design adds stability, rigidity and reduces run out.

- Premium micro-grain carbide substrate resists chipping, tool deflection, and has a high transverse rupture strength for greater feeds and speeds
- Large core design for increased stability; higher speeds & feeds; and reduced tool deflection
- Eccentric relief for enhanced edge strength along the flutes



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

TIP & END	SHANK & LENGTH	FLUTE CONFIGURATION	MATERIAL	COATINGS

### SERIES DM2CS - CORNER RADIUS, STUB LENGTH

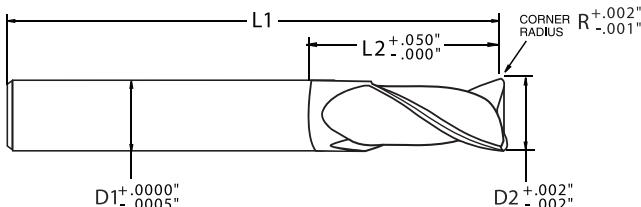


SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	CORNER RADIUS (R)	PLAIN SHANK	
					PART #	EDP #
1/8	0.125	1/8	0.250	2	0.010	DM2-0204-R1
					0.020	DM2-0204-R2
					0.030	DM2-0204-R3
3/16	0.188	3/16	0.313	2 1/2	0.010	DM2-0305-R1
					0.020	DM2-0305-R2
					0.030	DM2-0305-R3
1/4	0.250	1/4	0.375	3	0.010	DM2-0406-R1
					0.020	DM2-0406-R2
					0.030	DM2-0406-R3
5/16	0.313	5/16	0.438	3	0.020	DM2-0507-R2
					0.030	DM2-0507-R3
					0.060	DM2-0507-R6
					0.090	DM2-0507-R9
3/8	0.375	3/8	0.500	3 1/2	0.020	DM2-0608-R2
					0.030	DM2-0608-R3
					0.060	DM2-0608-R6
					0.090	DM2-0608-R9
1/2	0.500	1/2	0.625	3 1/2	0.020	DM2-0810-R2
					0.030	DM2-0810-R3
					0.060	DM2-0810-R6
					0.090	DM2-0810-R9

**SERIES DMX - CARBIDE, 2 FLUTE, 30° CONSTANT HELIX**
**HIGHER SPEEDS AND FEEDS**

Running at higher speeds and feeds with vibration dampening geometry, our Die and Mold cutters can eliminate the need for expensive hand finishing operations.

- Square end option to create sharp corners in finishing operations
- Coated for heat resistance, wear resistance and increased lubricity
- Two high strength flute design improves chip formation and evacuation for increased feed rates
- For high feed rate finishing of high hardness ferrous materials



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

TIP & END	SHANK & LENGTH	FLUTE CONFIGURATION	MATERIAL	COATINGS
	S R L X N			

**SERIES DM2CR - CORNER RADIUS, REGULAR LENGTH**

SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	CORNER RADIUS (R)	PLAIN SHANK PART #	EDP #		
1/8	0.125	1/8	0.125	5/8	0.625	2 1/2	2.500	
						0.010	DM2-0210-R1	D1011
						0.020	DM2-0210-R2	D1022
3/16	0.188	3/16	0.188	5/8	0.625	2 1/2	2.500	
						0.010	DM2-0310-R1	D1041
						0.020	DM2-0310-R2	D1052
1/4	0.250	1/4	0.250	7/8	0.875	2 1/2	2.500	
						0.010	DM2-0414-R1	D1071
						0.020	DM2-0414-R2	D1082
5/16	0.313	5/16	0.313	7/8	0.875	2 1/2	2.500	
						0.020	DM2-0514-R2	D1102
						0.030	DM2-0514-R3	D1113
						0.060	DM2-0514-R6	D1126
3/8	0.375	3/8	0.375	1 1/8	1.125	3	3.000	
						0.020	DM2-0618-R2	D1142
						0.030	DM2-0618-R3	D1153
						0.060	DM2-0618-R6	D1166
7/16	0.438	7/16	0.438	1 1/8	1.125	3	3.000	
						0.090	DM2-0618-R9	D1177
						0.030	DM2-0718-R3	D1183
1/2	0.500	1/2	0.500	1 3/8	1.375	3 1/2	3.500	
						0.060	DM2-0718-R6	D1196
						0.020	DM2-0822-R2	D1202
						0.030	DM2-0822-R3	D1213
						0.060	DM2-0822-R6	D1226
						0.090	DM2-0822-R9	D1237

# DIE & MOLD CUTTERS

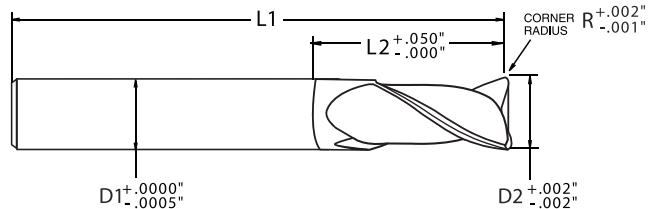

**GLOBAL™**

## SERIES DMX - CARBIDE, 2 FLUTE, 30° CONSTANT HELIX

### COMPLETED IN RECORD TIME

The option to use wet or dry, in roughing and finishing, will make your setup time one of the easiest parts of your day. Our Die and Mold cutters will have your finishing operations completed in record time.

- 30° constant helix provides added rigidity to the flutes for cutting hardened materials
- Ball end option for high performance contour milling in finishing operations
- Corner radius option protects corners in roughing operations and difficult to machine materials by preventing corner chipping and tool failure



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

TIP & END	SHANK & LENGTH	FLUTE CONFIGURATION	MATERIAL	COATINGS

### SERIES DM2CL - CORNER RADIUS, LONG LENGTH

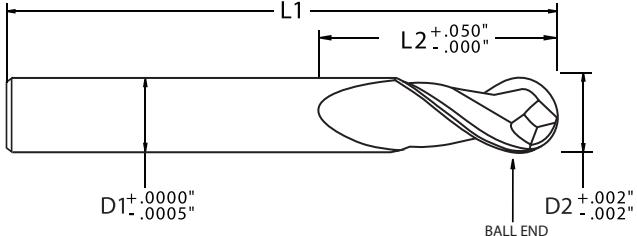


SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	CORNER RADIUS (R)	PLAIN SHANK	
					PART #	EDP #
1/8	0.125	1/8	0.875	3	0.010	DM2-0214-R1 D2011
					0.020	DM2-0214-R2 D2022
					0.030	DM2-0214-R3 D2033
3/16	0.188	3/16	0.875	3	0.010	DM2-0314-R1 D2041
					0.020	DM2-0314-R2 D2052
					0.030	DM2-0314-R3 D2063
1/4	0.250	1/4	1.375	3	0.010	DM2-0422-R1 D2071
					0.020	DM2-0422-R2 D2082
					0.030	DM2-0422-R3 D2093
5/16	0.313	5/16	1.375	3	0.020	DM2-0522-R2 D2102
					0.030	DM2-0522-R3 D2113
					0.060	DM2-0522-R6 D2126
3/8	0.375	3/8	1.875	3 1/2	0.090	DM2-0522-R9 D2137
					0.020	DM2-0630-R2 D2142
					0.030	DM2-0630-R3 D2153
7/16	0.438	7/16	1.875	3 1/2	0.060	DM2-0630-R6 D2166
					0.090	DM2-0630-R9 D2177
					0.030	DM2-0730-R3 D2183
1/2	0.500	1/2	2.125	4	0.060	DM2-0730-R6 D2196
					0.020	DM2-0834-R2 D2202
					0.030	DM2-0834-R3 D2213
					0.060	DM2-0834-R6 D2226
					0.090	DM2-0834-R9 D2237

**SERIES DMX - CARBIDE, 2 FLUTE, 30° CONSTANT HELIX**
**HIGH STRENGTH FLUTES**

The high strength flutes were engineered for any difficult to machine material, including hardened tool steel, stainless steel, and high temp alloys.

- Premium micro-grain carbide substrate resists chipping, tool deflection, and has a high transverse rupture strength for greater feeds and speeds
- Large core design for increased stability; higher speeds & feeds; and reduced tool deflection
- Eccentric relief for enhanced edge strength along the flutes



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

TIP & END	SHANK & LENGTH	FLUTE CONFIGURATION	MATERIAL	COATINGS

**SERIES DM2BS - BALL END, STUB LENGTH**

SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	PLAIN SHANK					
				PART #	EDP #				
1/8	0.125	1/8	0.125	1/4	0.250	2	2.000	DM2-0204-BE	D001B
3/16	0.188	3/16	0.188	5/16	0.313	2 1/2	2.500	DM2-0305-BE	D002B
1/4	0.250	1/4	0.250	3/8	0.375	3	3.000	DM2-0406-BE	D003B
5/16	0.313	5/16	0.313	7/16	0.438	3	3.000	DM2-0507-BE	D004B
3/8	0.375	3/8	0.375	1/2	0.500	3 1/2	3.500	DM2-0608-BE	D005B
1/2	0.500	1/2	0.500	5/8	0.625	3 1/2	3.500	DM2-0810-BE	D006B

**SERIES DM2BR - BALL END, REGULAR LENGTH**

SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	PLAIN SHANK					
				PART #	EDP #				
1/8	0.125	1/8	0.125	5/8	0.625	2 1/2	2.500	DM2-0210-BE	D101B
3/16	0.188	3/16	0.188	5/8	0.625	2 1/2	2.500	DM2-0310-BE	D102B
1/4	0.250	1/4	0.250	7/8	0.875	2 1/2	2.500	DM2-0414-BE	D103B
5/16	0.313	5/16	0.313	7/8	0.875	2 1/2	2.500	DM2-0514-BE	D104B
3/8	0.375	3/8	0.375	1 1/8	1.125	3	3.000	DM2-0618-BE	D105B
7/16	0.438	7/16	0.438	1 1/8	1.125	3	3.000	DM2-0718-BE	D106B
1/2	0.500	1/2	0.500	1 3/8	1.375	3 1/2	3.500	DM2-0822-BE	D107B
5/8	0.625	5/8	0.625	1 3/8	1.375	3 1/2	3.500	DM2-1022-BE	D108B
3/4	0.750	3/4	0.750	1 5/8	1.625	4	4.000	DM2-1226-BE	D109B
1	1.000	1	1.000	1 5/8	1.625	4	4.000	DM2-1626-BE	D110B

**SERIES DM2BL - BALL END, LONG LENGTH**

SHANK DIAMETER (D1)	CUTTER DIAMETER (D2)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	PLAIN SHANK					
				PART #	EDP #				
1/8	0.125	1/8	0.125	7/8	0.875	2 1/2	2.500	DM2-0214-BE	D201B
3/16	0.188	3/16	0.188	7/8	0.875	2 1/2	2.500	DM2-0314-BE	D202B
1/4	0.250	1/4	0.250	1 3/8	1.375	3	3.000	DM2-0422-BE	D203B
5/16	0.313	5/16	0.313	1 3/8	1.375	3	3.000	DM2-0522-BE	D204B
3/8	0.375	3/8	0.375	1 7/8	1.875	3 1/2	3.500	DM2-0630-BE	D205B
7/16	0.438	7/16	0.438	1 7/8	1.875	3 1/2	3.500	DM2-0730-BE	D206B
1/2	0.500	1/2	0.500	2 1/8	2.125	4	4.000	DM2-0834-BE	D207B
5/8	0.625	5/8	0.625	2 1/8	2.125	4	4.000	DM2-1034-BE	D208B
3/4	0.750	3/4	0.750	2 3/8	2.375	5	5.000	DM2-1238-BE	D209B
1	1.000	1	1.000	2 3/8	2.375	5	5.000	DM2-1638-BE	D210B

CB  
CARBIDEHSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM  
2 & 3 FLUTECONICAL  
TAPERED  
CARBIDECONICAL  
TAPERED  
HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
CUTTERSTAPERED  
MINIATURESAUTOMOTIVE  
TAPERSDIE & MOLD  
CUTTERSPROFILE  
RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

## DM APPLICATION GUIDE • SPEED &amp; FEED

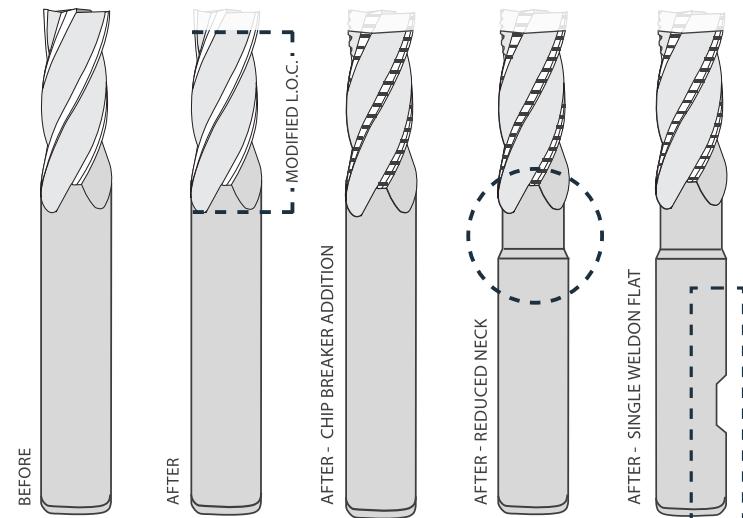
WORK MATERIAL	TYPE OF CUT	AXIAL DOC	RADIAL DOC	NO. OF FLUTES	SPEED (SFM)	FEED (INCHES PER TOOTH)						
						1/8" (2 FL)	1/4" (2 FL)	3/8" (2 FL)	1/2" (2 FL)	5/8" (2 FL)	3/4" (2 FL)	1" (2FL)
PRE-HARDENED STEELS 25 to 48 HRC	Roughing	.06 x D	.30 x D	2	140 - 185	0.0020 - 0.0022	0.0039 - 0.0043	0.0059 - 0.0065	0.0078 - 0.0086	0.0097 - 0.0107	0.0117 - 0.0129	0.0156 - 0.0172
	High Efficiency (HEM)	.06 x D	.30 x D	2	265 - 345	0.0020 - 0.0024	0.0039 - 0.0044	0.0058 - 0.0066	0.0078 - 0.0088	0.0097 - 0.0110	0.0117 - 0.0132	0.0155 - 0.0176
	Finishing	.07 x D	.015 x D	2	170 - 220	0.0030 - 0.0034	0.0059 - 0.0064	0.0089 - 0.0096	0.0118 - 0.0127	0.0148 - 0.0159	0.0177 - 0.0191	0.0236 - 0.0255
HARDENED STEELS Less than 48 HRC	Roughing	.06 x D	.30 x D	2	140 - 185	0.0020 - 0.0022	0.0039 - 0.0043	0.0059 - 0.0065	0.0078 - 0.0086	0.0097 - 0.0107	0.0117 - 0.0129	0.0156 - 0.0172
	High Efficiency (HEM)	.06 x D	.30 x D	2	265 - 345	0.0020 - 0.0024	0.0039 - 0.0044	0.0058 - 0.0066	0.0078 - 0.0088	0.0097 - 0.0110	0.0117 - 0.0132	0.0155 - 0.0176
	Finishing	.07 x D	.015 x D	2	170 - 220	0.0030 - 0.0034	0.0059 - 0.0064	0.0089 - 0.0096	0.0118 - 0.0127	0.0148 - 0.0159	0.0177 - 0.0191	0.0236 - 0.0255
HARDENED STEELS 48 to 57 HRC	Roughing	.05 x D	.25 x D	2	110 - 140	0.0020 - 0.0022	0.0039 - 0.0043	0.0059 - 0.0065	0.0078 - 0.0086	0.0097 - 0.0107	0.0117 - 0.0129	0.0156 - 0.0172
	High Efficiency (HEM)	.05 x D	.25 x D	2	225 - 295	0.0020 - 0.0024	0.0039 - 0.0044	0.0058 - 0.0066	0.0078 - 0.0088	0.0097 - 0.0110	0.0117 - 0.0132	0.0155 - 0.0176
	Finishing	.06 x D	.015 x D	2	115 - 150	0.0030 - 0.0034	0.0059 - 0.0064	0.0089 - 0.0096	0.0118 - 0.0127	0.0148 - 0.0159	0.0177 - 0.0191	0.0236 - 0.0255
HARDENED STEELS 58 to 65 HRC	Roughing	.04 x D	.25 x D	2	90 - 120	0.0020 - 0.0022	0.0039 - 0.0043	0.0059 - 0.0065	0.0078 - 0.0086	0.0097 - 0.0107	0.0117 - 0.0129	0.0156 - 0.0172
	High Efficiency (HEM)	.04 x D	.25 x D	2	185 - 240	0.0020 - 0.0024	0.0039 - 0.0044	0.0058 - 0.0066	0.0078 - 0.0088	0.0097 - 0.0110	0.0117 - 0.0132	0.0155 - 0.0176
	Finishing	.03 x D	.01 x D	2	115 - 150	0.0020 - 0.0024	0.0039 - 0.0044	0.0059 - 0.0066	0.0078 - 0.0087	0.0098 - 0.0109	0.0117 - 0.0131	0.0156 - 0.0175
HARDENED STEELS Greater than 65 HRC	Roughing	.025 x D	.20 x D	2	55 - 75	0.0010 - 0.0012	0.0019 - 0.0023	0.0029 - 0.0035	0.0038 - 0.0046	0.0047 - 0.0057	0.0057 - 0.0069	0.0076 - 0.0092
	High Efficiency (HEM)	.025 x D	.20 x D	2	125 - 165	0.0020 - 0.0024	0.0039 - 0.0044	0.0058 - 0.0066	0.0078 - 0.0088	0.0097 - 0.0110	0.0117 - 0.0132	0.0155 - 0.0176
	Finishing	.02 x D	.01 x D	2	90 - 120	0.0020 - 0.0024	0.0039 - 0.0044	0.0059 - 0.0066	0.0078 - 0.0087	0.0098 - 0.0109	0.0117 - 0.0131	0.0156 - 0.0175

# MODIFICATION PROGRAM

## MODIFICATION OF IN-STOCK TOOLS



SEE PAGE 16 - 21 FOR DETAILS



## WE CAN MODIFY MOST ANY TOOL

We can modify our standard tools or manufacture a highly specialized tool to your exact specifications. Modifications ensure fast delivery of your tool (subject to availability) and decrease costs on small batch runs. Most modifications ship within 2 - 3 business days. Please allow additional time when adding coatings. If you need assistance with modification selection or have any questions, please contact us.

# GUARANTEED TEST TOOL

\*TEST OUR STANDARD END MILLS

CARBIDE | HSS | COBALT



## SELECTING YOUR END MILL

We realize that selecting the optimal end mill for your particular job can be confusing. That's why our team of experts are here to help. Our outstanding customer service can help you select the best end mill for your job, as well as the expertise needed to choose the most advantageous tool for your machining needs.

VISIT OUR WEBSITE OR CALL  
FOR YOUR TOOL TODAY!

## TOOL PERFORMANCE REPORT

In order to serve you better, please print out our "tool performance report" on pg. 272. Fill in the information completely and fax it to: (616) 531-7742. We are always striving for excellence in everything we do. By filling out this form, we will continue to do everything we can to make your experience with Conical Tool as efficient and effective as possible.





70 YEARS OF INNOVATION



### SOPHISTICATED ENGINEERING

The Conical Profile Rib Cutters are fabricated from ultra-fine grain carbide and finished with a premium, multi-layer PVD AlTiN/Si3N4 coating.

These end mills provide the necessary precision required for machining finished features and ribs in a huge array of materials and operations. It has varying angles, diameters, lengths and end configurations that work in combination to maximize smooth surface finish and maintain high levels of productivity.

Perfect features are cut in the workpiece through our proprietary design which combines tool engagement with vibration dampening geometries.

The Conical Profile Rib Cutters elegant and detailed performance is showcased in the finished products it creates. Maximum core diameters are still a focal point on these tools, as an increase in even a few thousandths on a small diameter tool can have vast impacts on the rigidity and speeds generated.

### PROCESS ENGINEERING

Our company has the talent to troubleshoot even the most challenging machining problems in the industry today. We know there are more ways to accomplish cost saving efficiencies than just having a quality tool. We provide machining recommendation and process improvements to maximize the goals of our customers, whether that be speed, finish or cost. Our engineering strategy goes beyond the tools we manufacture.

#### Global Cutting Tools Conical Tool Company

3890 Buchanan Ave SW  
Grand Rapids, MI 49548  
T: 888.531.8500 | P: 616.531.8500  
F: 616.531.7742 | E: info@conicaltool.com  
W: [www.conicalendmills.com](http://www.conicalendmills.com)  
W: [www.globalcuttingtools.com](http://www.globalcuttingtools.com)



Global Cutting Tools are distributed by:



Made in the U.S.A.

OVER 7,000  
DISTRIBUTORS WORLDWIDE

DIE & MOLD END MILLS



CONICAL™  
PROFILE RIB CUTTERS

AMERICAN  
MADE

GLOBALLY  
RENNOWNED



DIE & MOLD END MILLS

FOR PRECISION FINISHING OF RIBS & FEATURES IN FERROUS MATERIALS

CONICAL™  
CUTTING TOOLS



CONICAL™  
PROFILE RIB CUTTERS

# PRECISION FINISHING

OF FEATURES IN FERROUS MATERIALS



## FEATURES & BENEFITS

Our expertise and proprietary designs are once again combined to create our Conical Profile Rib Cutters. These tools have multiple configurations of angle, tip size and offer an optional extra-long length. The Profile Rib Cutters are capable of precision machining mold ribs and performance finishing profile walls in a wide range of materials from low carbon steel to titanium. They turn hardened die steels into finished products with the exact specifications you demand. Every tool is built to create consistency, reliability and performance for our customers.

### General Inquiries:

3890 Buchanann Ave SW  
Grand Rapids, MI 49548

**P:** (616) 531-8500

**F:** (616) 531-7742

**E:** info@conicaltool.com

### Sales & Distribution:

**T:** (888) 531-8500

**E:** sales@conicaltool.com

### Custom Tooling:

**E:** quotes@conicaltool.com

**W:** conicalendmills.com/custom-tool-ordering



CONICAL™  
CUTTING TOOLS

# SERIES: PRX

For precision finishing of high hardness ferrous materials to maximize productivity and surface finish while detail machining features and ribs in ferrous material; wet or dry; mold & tools steels, alloy steels and high hardness materials



## TIP & END



NON STOCK

## SHANK & LENGTH



## FLUTE CONFIGURATION



## MATERIAL



**CB**  
SUB-MICRO GRAIN CARBIDE

## COATING



## RESULTS

Combining an eccentric relief, AITIN-X Nano coating and proprietary flute design gives the tool greater strength, rigidity and added longevity. This structure also enables a high feed/material removal rate and chatter-free milling, for most ferrous materials. Don't spend unnecessary time

with set-ups when you can count on our experience to make things easier for you, by ensuring you have the knowledge and proper tools to get the job done right.

Series PRX: Ultra-Fine Grain Carbide, 4 Flute; Variable Lead Helix

Subseries: PR00R, PROXR, PR01R, PR1XR, PRO2R, PR03R, PR05R, PR07R, PR10R

Subseries: PR00B, PROXB, PR01B, PR1XB, PRO2B, PR03B, PR05B, PR07B, PR10B

Configuration: Varying Angles; Varying Diameters; 7 x D Length & 14 x D Lengths;

25 - 30° Variable Lead Helix; Square End, Corner Radius & Ball End

CB  
CARBIDEHSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM  
2 & 3 FLUTECONICAL  
TAPERED  
CARBIDECONICAL  
TAPERED  
HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
CUTTERSTAPERED  
MINIATURESAUTOMOTIVE  
TAPERSDIE & MOLD  
CUTTERSPROFILE  
RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

# PROFILE RIB CUTTERS

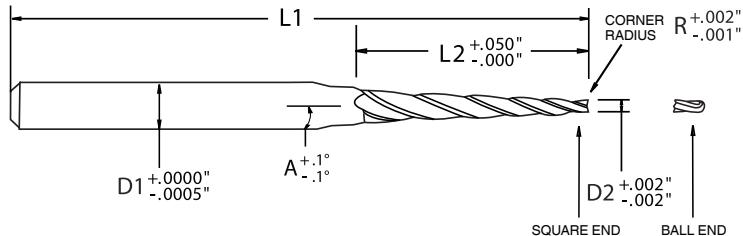
## CONICAL™

### SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

#### REQUIRED PRECISION

These end mills provide the necessary precision required for machining finishing features and ribs in a huge array of materials and operations.

- Square end option to create sharp corners in finishing operations
- Coated for heat resistance, wear resistance and increased lubricity
- Improved tool engagement through four flute design creates a superior surface finish



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

TIP & END	SHANK & LENGTH	FLUTE CONFIGURATION	MATERIAL	COATINGS
NON STOCK	S R E Y N	25°-30° R P	CB SUB-MICRO GRAIN CARBIDE	AITN SBNA

#### SERIES PROOR & PROOB - 0 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
0°	0.030	3/16	0.188	3.000	4	SL01.030R	5S011	SL01.030B
	0.040						SL01.040R	5S021
	0.050						SL01.050R	5S031
	0.060						SL01.060R	5S041
	0.070						SL01.070R	5S051
	0.080						SL01.080R	5S061
	0.090						SL01.090R	5S071
	0.100						SL01.100R	5S081

#### SERIES PROOR & PROOB - 0 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
0°	0.030	3/16	0.188	3.000	4	SL02.030R	5S091	SL02.030B
	0.040						SL02.040R	5S101
	0.050						SL02.050R	5S111
	0.060						SL02.060R	5S121
	0.070						SL02.070R	5S131
	0.080						SL02.080R	5S141
	0.090						SL02.090R	5S151
	0.100						SL02.100R	5S161

# PROFILE RIB CUTTERS

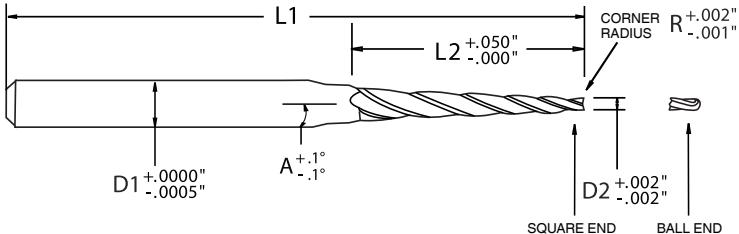
# CONICAL™

## SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

### THE BEST MATERIALS AND COATINGS

The Conical Profile Rib Cutters are fabricated from ultra-fine grain carbide and finished with a premium, AlTiN/Si3N4 coating.

- Variable lead helix provides increased tool engagement and rigidity
- Eccentric relief for enhanced edge strength along the flutes
- Ball end option for high performance contour milling, and radius forming in finishing operations



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

TIP & END	SHANK & LENGTH	FLUTE CONFIGURATIONS	MATERIAL	COATINGS
NON STOCK				

### SERIES PROXR & PROXB - 1/2 DEGREE, 7xD, STUB LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
.5°	0.030	3/16	0.188	3.000	4	AX01.030R	5Y011	AX01.030B	5Y01B
	0.040								
	0.050								
	0.060								
	0.070								
	0.080								
	0.090								
	0.100								

### SERIES PROXR & PROXB - 1/2 DEGREE, 14xD, STUB & REGULAR

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
.5°	0.030	3/16	0.188	3.000	4	AX02.030R	5Y091	AX02.030B	5Y09B
	0.040								
	0.050								
	0.060								
	0.070								
	0.080								
	0.090								
	0.100								

CB  
CARBIDE

HSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM 2 & 3 FLUTE

CONICAL TAPERED CARBIDE

CONICAL TAPERED HSS

CONICAL TAPERED LHS - RHC

CHAMFER CUTTERS

TAPERED MINIATURES

AUTOMOTIVE TAPERS

DIE & MOLD CUTTERS

PROFILE RIB CUTTERS

RUNNER CUTTERS

DIE SINKS

GENERAL PURPOSE

CB  
CARBIDEHSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM  
2 & 3 FLUTECONICAL  
TAPERED  
CARBIDECONICAL  
TAPERED  
HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
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RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

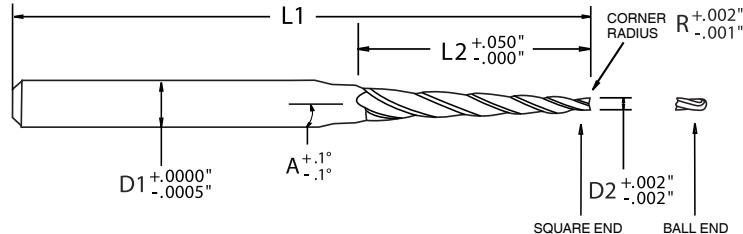
# PROFILE RIB CUTTERS

## CONICAL™ SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

### MAXIMIZE PRODUCTIVITY AND PERFORMANCE

Our Profile Rib Cutters have varying angles, diameters, lengths and end configurations that work in conjunction to maximize smooth surface finish and maintain high levels of productivity.

- Corner radius option protects corners in rib cutting operations and difficult to machine materials by preventing corner chipping and tool failure
- Variable Core Design maximizes chip evacuation and provides increased rigidity when the cutter is fully engaged
- Improved tool engagement through four flute design creates a superior surface finish



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

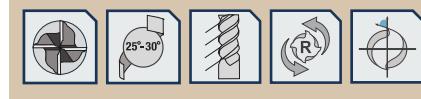
#### TIP & END



#### SHANK & LENGTH



#### FLUTE CONFIGURATIONS



#### MATERIAL



#### COATINGS



### SERIES PRO1R & PRO1B - 1 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
1°	0.030	3/16	0.210	3.000	4	A01.030R	5A011	A01.030B
	0.040		0.280			A01.040R	5A021	A01.040B
	0.050		0.350			A01.050R	5A031	A01.050B
	0.060		0.420			A01.060R	5A041	A01.060B
	0.070		0.490			A01.070R	5A051	A01.070B
	0.080		0.560			A01.080R	5A061	A01.080B
	0.090		0.630			A01.090R	5A071	A01.090B
	0.100		0.700			A01.100R	5A081	A01.100B

### SERIES PRO1R & PRO1B - 1 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
1°	0.030	3/16	0.188	3.000	4	A02.030R	5A091	A02.030B
	0.040		0.560			A02.040R	5A101	A02.040B
	0.050		0.700			A02.050R	5A111	A02.050B
	0.060		0.840			A02.060R	5A121	A02.060B
	0.070		0.980			A02.070R	5A131	A02.070B
	0.080		1.120			A02.080R	5A141	A02.080B
	0.090		1.260			A02.090R	5A151	A02.090B
	0.100		1.400			A02.100R	5A161	A02.100B

# PROFILE RIB CUTTERS

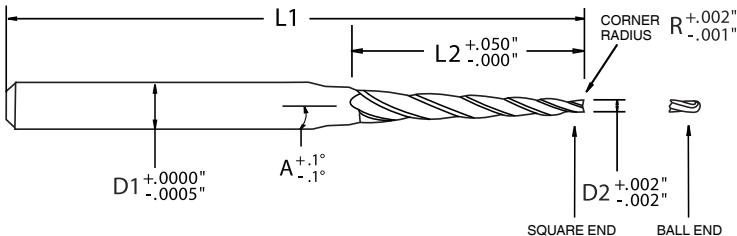
# CONICAL™

## SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

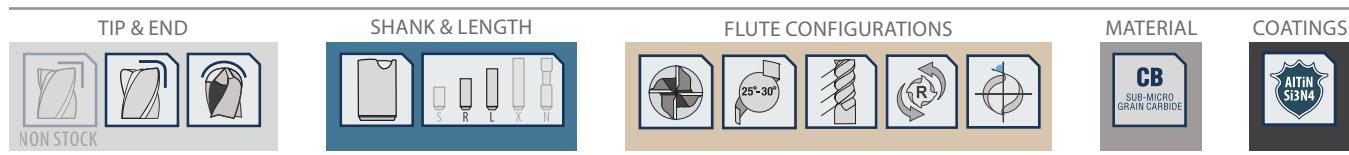
### COMBINING FEATURES

Perfect features are cut in the workpiece through our proprietary design which combines tool engagement with vibration dampening geometries.

- Square end option to create sharp corners in finishing operations
- Coated for heat resistance, wear resistance and increased lubricity
- Premium micro-grain carbide substrate resists chipping, tool deflection, and has a high transverse rupture strength for greater feeds and speeds



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



### SERIES PR1XR & PR1XB - 1 1/2 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
1.5°	0.030	3/16	0.188	3.000	4	AAX01.030R	5X011	AAX01.030B	5X01B
	0.040					AAX01.040R	5X021	AAX01.040B	5X02B
	0.050					AAX01.050R	5X031	AAX01.050B	5X03B
	0.060					AAX01.060R	5X041	AAX01.060B	5X04B
	0.070					AAX01.070R	5X051	AAX01.070B	5X05B
	0.080					AAX01.080R	5X061	AAX01.080B	5X06B
	0.090					AAX01.090R	5X071	AAX01.090B	5X07B
	0.100					AAX01.100R	5X081	AAX01.100B	5X08B

### SERIES PR1XR & PR1XB - 1 1/2 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
1.5°	0.030	3/16	0.188	3.000	4	AAX02.030R	5X091	AAX02.030B	5X09B
	0.040					AAX02.040R	5X101	AAX02.040B	5X10B
	0.050					AAX02.050R	5X111	AAX02.050B	5X11B
	0.060					AAX02.060R	5X121	AAX02.060B	5X12B
	0.070					AAX02.070R	5X131	AAX02.070B	5X13B
	0.080					AAX02.080R	5X141	AAX02.080B	5X14B
	0.090					AAX02.090R	5X151	AAX02.090B	5X15B
	0.100					AAX02.100R	5X161	AAX02.100B	5X16B

CB  
CARBIDE

HSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM 2 & 3 FLUTE

CONICAL TAPERED CARBIDE

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GENERAL PURPOSE

CB  
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2 & 3 FLUTECONICAL  
TAPERED  
CARBIDECONICAL  
TAPERED  
HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
CUTTERSTAPERED  
MINIATURESAUTOMOTIVE  
TAPERSDIE & MOLD  
CUTTERSPROFILE  
RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

# PROFILE RIB CUTTERS

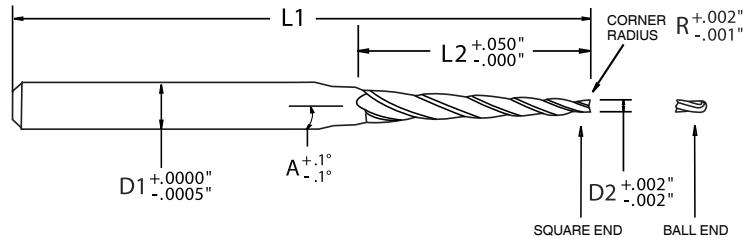
## CONICAL™

### SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

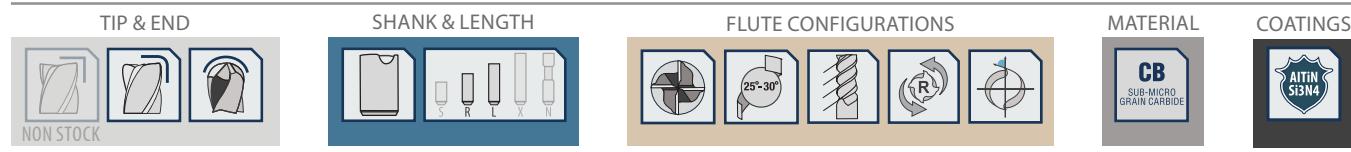
#### MULTIPLE CONFIGURATIONS

Our Profile Rib Cutters have multiple configurations of angle, tip size and offer an optional extra-long length. No matter what your application demands, we have the specifications you need.

- Constant spiral helix provides increased tool engagement and rigidity
- Eccentric relief for enhanced edge strength along the flutes
- Ball end option for high performance contour milling, and radius forming in finishing operations



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



#### SERIES PRO2R & PRO2B - 2 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
2°	0.030	3/16	0.210	3.000	4	B01.030R	5B011	B01.030B
	0.040		0.280			B01.040R	5B021	B01.040B
	0.050		0.350			B01.050R	5B031	B01.050B
	0.060		0.420			B01.060R	5B041	B01.060B
	0.070		0.490			B01.070R	5B051	B01.070B
	0.080		0.560			B01.080R	5B061	B01.080B
	0.090		0.630			B01.090R	5B071	B01.090B
	0.100		0.700			B01.100R	5B081	B01.100B

#### SERIES PRO2R & PRO2B - 2 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
2°	0.030	3/16	0.188	3.000	4	B02.030R	5B091	B02.030B
	0.040		0.560			B02.040R	5B101	B02.040B
	0.050		0.700			B02.050R	5B111	B02.050B
	0.060		0.840			B02.060R	5B121	B02.060B
	0.070		0.980			B02.070R	5B131	B02.070B
	0.080		1.120			B02.080R	5B141	B02.080B
	0.090		1.260			B02.090R	5B151	B02.090B
	0.100	1/4	1.400			B02.100R	5B161	B02.100B

# PROFILE RIB CUTTERS

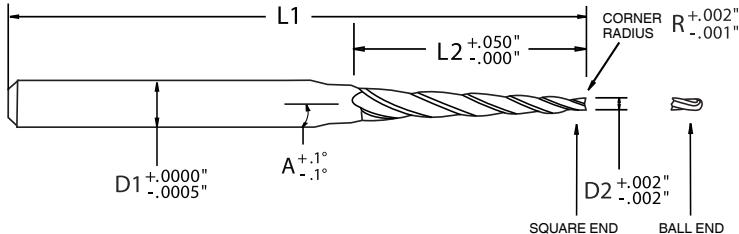
CONICAL™

## SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

### CONSISTENCY, RELIABILITY & PERFORMANCE

Our Profile Rib Cutters turn hardened die steels into finished products with the exact specifications you demand. Every tool is built to create consistency, reliability and performance for our customers.

- Corner radius option protects corners in rib cutting operations and difficult to machine materials by preventing corner chipping and tool failure
- Variable Core Design maximizes chip evacuation and provides increased rigidity when the cutter is fully engaged
- Improved tool engagement through four flute design creates a superior surface finish



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

TIP & END	SHANK & LENGTH	FLUTE CONFIGURATIONS	MATERIAL	COATINGS
NON STOCK			CB SUB-MICRO GRAIN CARBIDE	ALTiN Si3N4

### SERIES PRO3R & PRO3B - 3 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
3°	0.030	3/16	0.188	3.000	4	C01.030R	SC011	C01.030B	SC01B
	0.040					C01.040R	SC021	C01.040B	SC02B
	0.050					C01.050R	SC031	C01.050B	SC03B
	0.060					C01.060R	SC041	C01.060B	SC04B
	0.070					C01.070R	SC051	C01.070B	SC05B
	0.080					C01.080R	SC061	C01.080B	SC06B
	0.090					C01.090R	SC071	C01.090B	SC07B
	0.100					C01.100R	SC081	C01.100B	SC08B

### SERIES PRO3R & PRO3B - 3 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
3°	0.030	3/16	0.188	3.000	4	C02.030R	SC091	C02.030B	SC09B
	0.040					C02.040R	SC101	C02.040B	SC10B
	0.050					C02.050R	SC111	C02.050B	SC11B
	0.060					C02.060R	SC121	C02.060B	SC12B
	0.070					C02.070R	SC131	C02.070B	SC13B
	0.080					C02.080R	SC141	C02.080B	SC14B
	0.090					C02.090R	SC151	C02.090B	SC15B
	0.100					C02.100R	SC161	C02.100B	SC16B

CB  
CARBIDE

HSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM 2 & 3 FLUTE

CONICAL TAPERED CARBIDE

CONICAL TAPERED HSS

CONICAL TAPERED LHS - RHC

CHAMFER CUTTERS

TAPERED MINIATURES

AUTOMOTIVE TAPERS

DIE & MOLD CUTTERS

PROFILE RIB CUTTERS

RUNNER CUTTERS

DIE SINKS

GENERAL PURPOSE

CB  
CARBIDEHSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM  
2 & 3 FLUTECONICAL  
TAPERED  
CARBIDECONICAL  
TAPERED  
HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
CUTTERSTAPERED  
MINIATURESAUTOMOTIVE  
TAPERSDIE & MOLD  
CUTTERSPROFILE  
RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

# PROFILE RIB CUTTERS

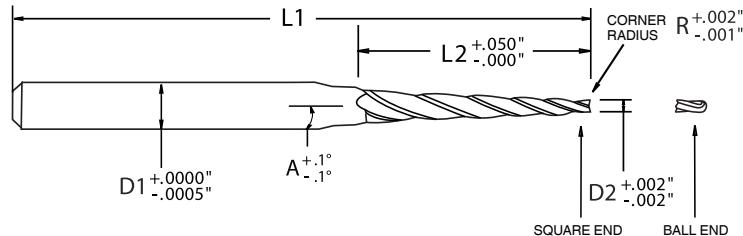
## CONICAL™

### SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

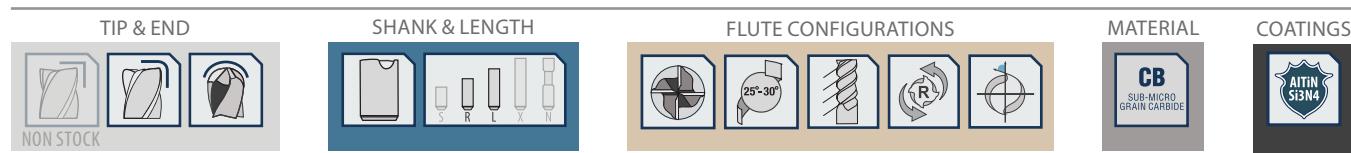
#### STRENGTH, RIGIDITY AND LONGEVITY

Our Profile Rib Cutters combine an eccentric relief, AlTiN-X Nano coating and proprietary flute design to give the tool greater strength, rigidity and added longevity.

- Square end option to create sharp corners in finishing operations
- Coated for heat resistance, wear resistance and increased lubricity
- Improved tool engagement through four flute design creates a superior surface finish



To order a corner radius, use code "CR" & actual radius in the part number. For example, standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



#### SERIES PRO5R & PRO5B - 5 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
5°	0.030	3/16	0.210	3.000	4	E01.030R	SE011	E01.030B
	0.040		0.280			E01.040R	SE021	E01.040B
	0.050		0.350			E01.050R	SE031	E01.050B
	0.060		0.420			E01.060R	SE041	E01.060B
	0.070		0.490			E01.070R	SE051	E01.070B
	0.080		0.560			E01.080R	SE061	E01.080B
	0.090		0.630			E01.090R	SE071	E01.090B
	0.100	1/4	0.700			E01.100R	SE081	E01.100B

#### SERIES PRO5R & PRO5B - 5 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
5°	0.030	3/16	0.188	3.000	4	E02.030R	SE091	E02.030B
	0.040		0.560			E02.040R	SE101	E02.040B
	0.050		0.700			E02.050R	SE111	E02.050B
	0.060		0.250			E02.060R	SE121	E02.060B
	0.070		0.980			E02.070R	SE131	E02.070B
	0.080		0.375			E02.080R	SE141	E02.080B
	0.090		1.260			E02.090R	SE151	E02.090B
	0.100		1.400			E02.100R	SE161	E02.100B

# PROFILE RIB CUTTERS

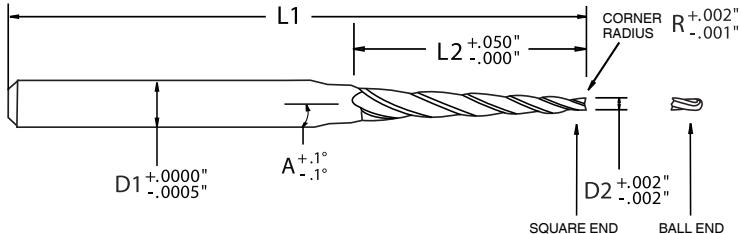
# CONICAL™

## SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

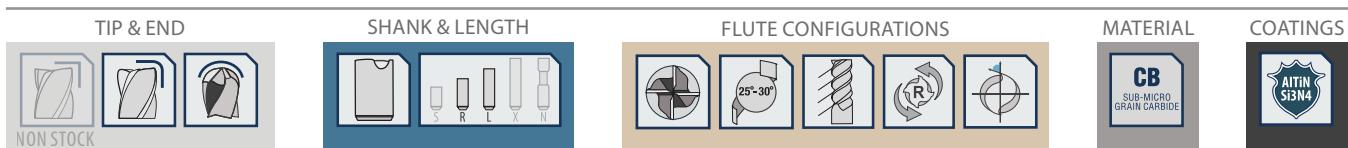
### WIDE RANGE OF APPLICATIONS

Our Profile Rib Cutters enable high feed/material removal rates and chatter-free milling, for most ferrous materials. The Profile Rib Cutters are capable of precision machining mold ribs and performance finishing profile walls in a wide range of materials.

- Constant spiral helix provides increased tool engagement and rigidity
- Eccentric relief for enhanced edge strength along the flutes
- Ball end option for high performance contour milling, and radius forming in finishing operations



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



### SERIES PRO7R & PRO7B - 7 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
7°	0.030	3/16	0.210	3.000	4	G01.030R	5G011	G01.030B	5G01B
	0.040		0.280			G01.040R	5G021	G01.040B	5G02B
	0.050		0.350			G01.050R	5G031	G01.050B	5G03B
	0.060		0.420			G01.060R	5G041	G01.060B	5G04B
	0.070		0.490			G01.070R	5G051	G01.070B	5G05B
	0.080	1/4	0.560			G01.080R	5G061	G01.080B	5G06B
	0.090		0.630			G01.090R	5G071	G01.090B	5G07B

### SERIES PRO7R & PRO7B - 7 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	PART #	EDP #
7°	0.030	3/16	0.188	3.000	4	G02.030R	5G081	G02.030B	5G08B
	0.040		0.560			G02.040R	5G091	G02.040B	5G09B
	0.050	1/4	0.700			G02.050R	5G101	G02.050B	5G10B
	0.060	0.375	G02.060R			5G111	G02.060B	5G11B	
	0.070	3/8	0.980			G02.070R	5G121	G02.070B	5G12B
	0.080		1.120			G02.080R	5G131	G02.080B	5G13B
	0.090	1/2	1.260			G02.090R	5G141	G02.090B	5G14B

CB  
CARBIDE

HSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM 2 & 3 FLUTE

CONICAL TAPERED CARBIDE

CONICAL TAPERED HSS

CONICAL TAPERED LHS - RHC

CHAMFER CUTTERS

TAPERED MINIATURES

AUTOMOTIVE TAPERS

DIE & MOLD CUTTERS

PROFILE RIB CUTTERS

RUNNER CUTTERS

DIE SINKS

GENERAL PURPOSE

CB  
CARBIDEHSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM  
2 & 3 FLUTECONICAL  
TAPERED  
CARBIDECONICAL  
TAPERED  
HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
CUTTERSTAPERED  
MINIATURESAUTOMOTIVE  
TAPERSDIE & MOLD  
CUTTERSPROFILE  
RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

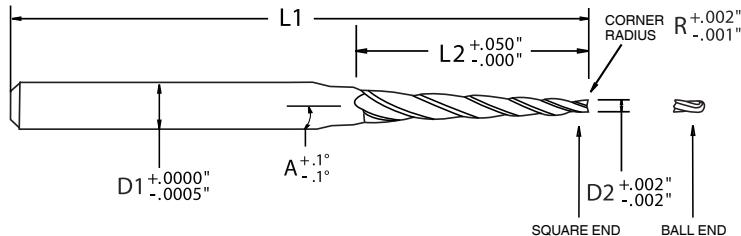
# PROFILE RIB CUTTERS

## CONICAL™ SERIES PRX - CARBIDE, 4 FLUTE, PRECISION MACHINING

### REQUIRED PRECISION

These end mills provide the necessary precision required for machining finishing features and ribs in a huge array of materials and operations.

- Corner radius option protects corners in rib cutting operations and difficult to machine materials by preventing corner chipping and tool failure
- Variable Core Design maximizes chip evacuation and provides increased rigidity when the cutter is fully engaged
- Improved tool engagement through four flute design creates a superior surface finish



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.

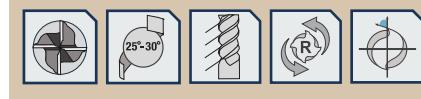
TIP &amp; END



SHANK &amp; LENGTH



FLUTE CONFIGURATIONS



MATERIAL



COATINGS



### SERIES PR10R & PR10B - 10 DEGREE, 7xD, REGULAR LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
10°	0.030	3/16	0.210	3.000	4	J01.030R	5J011	J01.030B
	0.040		0.280			J01.040R	5J021	J01.040B
	0.050		0.350			J01.050R	5J031	J01.050B
	0.060		0.420			J01.060R	5J041	J01.060B
	0.070	1/4	0.490			J01.070R	5J051	J01.070B

### SERIES PR10R & PR10B - 10 DEGREE, 14xD, LONG LENGTH

ANGLE PER SIDE (A)	TIP DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	CORNER RADIUS (R)	BALL END	
							PART #	EDP #
10°	0.030	3/16	0.188	3.000	4	J02.030R	5J061	J02.030B
	0.040	1/4	0.250			J02.040R	5J071	J02.040B
	0.050	3/8	0.375			J02.050R	5J081	J02.050B
	0.060		0.840			J02.060R	5J091	J02.060B
	0.070	1/2	0.980			J02.070R	5J101	J02.070B

## PRX APPLICATION GUIDE • SPEED &amp; FEED

WORK MATERIAL	TYPE OF CUT	AXIAL DOC	RADIAL DOC	NO. OF FLUTES	SPEED (SFM)	FEED (INCHES PER TOOTH) BASED ON EFFECTIVE CUTTING DIAMETER								
						.030 (4 FL)	.040 (4 FL)	.050 (4 FL)	.060 (4 FL)	.070 (4 FL)	.080 (4 FL)	.090 (4 FL)	.100 (4 FL)	
ALUMINUM	Finishing	7xD	.05xD	4	850 - 1100	0.00009 - 0.00012	0.00011 - 0.00014	0.00013 - 0.00016	0.00016 - 0.00019	0.00019 - 0.00022	0.00023 - 0.00026	0.00028 - 0.00031	0.00034 - 0.00037	
	Finishing	14xD	.03xD	4	850 - 1100	0.00009 - 0.00012	0.00011 - 0.00014	0.00014 - 0.00017	0.00018 - 0.00021	0.00023 - 0.00026	0.00029 - 0.00032	0.00037 - 0.00040	0.00046 - 0.00049	
ALUMINUM DIE CAST ALLOY	Finishing	7xD	.05xD	4	635 - 825	0.00008 - 0.00011	0.00010 - 0.00013	0.00013 - 0.00016	0.00016 - 0.00019	0.00020 - 0.00023	0.00026 - 0.00029	0.00033 - 0.00036	0.00041 - 0.00044	
	Finishing	14xD	.03xD	4	635 - 825	0.00008 - 0.00011	0.00010 - 0.00013	0.00013 - 0.00016	0.00016 - 0.00019	0.00020 - 0.00023	0.00026 - 0.00029	0.00033 - 0.00036	0.00041 - 0.00044	
NONFERROUS	MAGNESIUM ALLOYS ≤ 38 HRc	Finishing	7xD	.05xD	4	1275 - 1650	0.00009 - 0.00012	0.00011 - 0.00014	0.00014 - 0.00017	0.00018 - 0.00021	0.00023 - 0.00026	0.00029 - 0.00032	0.00037 - 0.00040	0.00046 - 0.00049
	COPPER ALLOYS, BRASS & BRONZE 39 to 48 HRc	Finishing	7xD	.05xD	4	340 - 440	0.00007 - 0.00010	0.00009 - 0.00012	0.00011 - 0.00014	0.00014 - 0.00017	0.00018 - 0.00021	0.00023 - 0.00026	0.00029 - 0.00032	0.00037 - 0.00040
COMPOSITES, PLASTICS & FIBERGLASS ABS, Polycarbonate, PVC	Finishing	7xD	.05xD	4	550 - 715	0.00079 - 0.00082	0.00099 - 0.00102	0.00124 - 0.00127	0.00155 - 0.00158	0.00194 - 0.00197	0.00243 - 0.00246	0.00304 - 0.00307	0.00380 - 0.00383	
	Finishing	14xD	.03xD	4	550 - 715	0.00079 - 0.00082	0.00099 - 0.00102	0.00124 - 0.00127	0.00155 - 0.00158	0.00194 - 0.00197	0.00243 - 0.00246	0.00304 - 0.00307	0.00380 - 0.00383	
CARBON STEEL	LOW CARBON STEELS ≤ 38 HRc	Finishing	7xD	.05xD	4	510 - 660	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012
	Finishing	14xD	.03xD	4	510 - 660	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
MEDIUM CARBON STEELS ≤ 38 HRc	Finishing	7xD	.05xD	4	170 - 220	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
	Finishing	14xD	.03xD	4	170 - 220	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
TOOL STEEL	TOOL & DIE STEELS ≤ 38 HRc	Finishing	7xD	.05xD	4	170 - 220	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012
	Finishing	14xD	.03xD	4	170 - 220	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
HARDENED STEEL	TOOL & DIE STEELS 39 to 48 HRc	Finishing	7xD	.05xD	4	125 - 165	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009
	Finishing	14xD	.03xD	4	125 - 165	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009	
STAINLESS STEEL	HARDENED STEELS 48 to 57 HRc	Finishing	7xD	.05xD	4	85 - 110	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005
	Finishing	14xD	.03xD	4	85 - 110	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	
HARDENED STEELS 58 to 65HRc	Finishing	7xD	.05xD	4	75 - 95	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	
	Finishing	14xD	.03xD	4	75 - 95	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	
STAINLESS STEEL	EASY TO MACHINE 72 - 85 HRb	Finishing	7xD	.05xD	4	380 - 495	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012
	Finishing	14xD	.03xD	4	380 - 495	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
MODERATELY DIFFICULT 79 - 85 HRb; 25 - 41 HRc	Finishing	7xD	.05xD	4	170 - 220	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
	Finishing	14xD	.03xD	4	170 - 220	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
DIFFICULT TO MACHINE 31 - 50 HRc	Finishing	7xD	.05xD	4	125 - 165	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009	
	Finishing	14xD	.03xD	4	125 - 165	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009	
CAST IRON	GRAY 100 - 200 HRb	Finishing	7xD	.05xD	4	465 - 605	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012
	Finishing	14xD	.03xD	4	465 - 605	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
DUCTILE 150 - 300 HRb	Finishing	7xD	.05xD	4	425 - 550	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
	Finishing	14xD	.03xD	4	425 - 550	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
MALLEABLE 150 - 310 HRb	Finishing	7xD	.05xD	4	340 - 440	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
	Finishing	14xD	.03xD	4	340 - 440	0.00002 - 0.00005	0.00002 - 0.00005	0.00003 - 0.00006	0.00004 - 0.00007	0.00005 - 0.00008	0.00006 - 0.00009	0.00007 - 0.00010	0.00009 - 0.00012	
TITANIUM ALLOYS 70 - 100 HRb; 25 - 36 HRc	Finishing	7xD	.05xD	4	110 - 145	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009	
	Finishing	14xD	.03xD	4	110 - 145	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009	
HIGH TEMP ALLOYS 83 - 99 HRb; 30 - 52 HRc	Finishing	7xD	.05xD	4	55 - 75	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009	
	Finishing	14xD	.03xD	4	55 - 75	0.00001 - 0.00004	0.00001 - 0.00004	0.00001 - 0.00004	0.00002 - 0.00005	0.00003 - 0.00006	0.00003 - 0.00006	0.00004 - 0.00007	0.00006 - 0.00009	



## 70 YEARS OF INNOVATION



### UNQUESTIONABLE RESOURCES

Our Global Runner Cutters are an essential part of any mold maker's tool room. High performance slotting a perfect modified trapezoidal runner in record time, these tools let mold makers design for minimum waste and maximum mold performance.

With a huge tapered core, staged eccentric relief, slight positive rake, 12 degree helix and premium AlTiN/Si3N4 coating, they perform in all ferrous materials, whether the work piece is easily machinable, hardened or exotic.

Applications may include: mold and tool steels, alloy steels and high hardness materials, for use wet or dry. The true efficiencies of this tool may not even be possible to determine as they improve the performance of the mold and efficiencies of the supply chain. Its high strength flute design improves chip formation and evacuation, to such a high degree, our tools will become a standard practice in our customers' operations. We request customers let us know their results and always keep our experience in mind.

### GROWING SPEED

We design our tools for exceptional machining characteristics, and design our operations for exceptional turnarounds. Whether our customers need a modification or custom tool, we can perform many in as little as 24 hours. The performance of a tool won't matter, if it doesn't arrive before the job is complete. You can rely on us for thousands of in-stock items, and thousands of available modifications.

Global Cutting Tools  
Conical Tool Company

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Grand Rapids, MI 49548  
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F: 616.531.7742 | E: info@conicaltool.com  
W: [www.conicalendmills.com](http://www.conicalendmills.com)  
W: [www.globalcuttingtools.com](http://www.globalcuttingtools.com)



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DIE & MOLD END MILLS



**GLOBAL™**  
RUNNER CUTTERS

AMERICAN  
MADE



GLOBALLY  
RENNOWNED

DIE & MOLD END MILLS

FOR SLOTTING MODIFIED TRAPEZOIDAL RUNNER CHANNELS

 GLOBAL  
CUTTING TOOLS



# GLOBAL<sup>TM</sup>

## RUNNER CUTTERS

### FOR SLOTTING CHANNELS

IN FERROUS MATERIALS

#### FEATURES & BENEFITS

The Conical Runner Cutter is another premium micro-grain carbide tool that can easily handle tough slotting operations in tool steel and difficult to machine materials. Machining modified trapezoidal and full round runners with our Conical Runner Cutters saves massive time for the tool and die makers. Featuring AlTiN-X coating, a high strength two flute design and 12 degree helix, it is well suited for abrasion resistance and offers exceptional lubricity, wet or dry. Once again Conical Cutting Tools advances end mill technologies, one end mill at a time.

#### General Inquiries:

3890 Buchanann Ave SW  
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**P:** (616) 531-8500

**F:** (616) 531-7742

**E:** info@conicaltool.com

#### Sales & Distribution:

**T:** (888) 531-8500

**E:** sales@conicaltool.com

#### Custom Tooling:

**E:** quotes@conicaltool.com

**W:** conicalendmills.com/custom-tool-ordering



GLOBAL<sup>TM</sup>  
CUTTING TOOLS

# SERIES: RCX

For slotting of high hardness ferrous materials to create the most effective modified trapezoidal runner channels to minimize pressure and heat loss in molds and dies; wet or dry; mold & tools steels, alloy steels and high hardness materials.



Post polishing is performed after the tools are coated to remove surface inconsistencies and increase lubricity. This also increases feed rates and allows for smoother operations. The tool runs cooler and performs longer

## TIP & END



## SHANK & LENGTH



## FLUTE CONFIGURATION



## MATERIAL



## COATING



## RESULTS

Conical Runner Cutters mill channels in molds for use in various plastic injection and tool and die processes. They are specifically designed to mill modified trapezoidal runner channels, varying in degrees, as well as full round runners. Their versatile design is great for maximum tool

life and eliminating a second operation needed to create a full round runner. When you use only the best materials, rely on our accumulated 70 years' experience and trust in our end mills to do their assigned tasks, there is nothing that can stop you from succeeding

Series RCX: Micro-Grain Carbide, 2 Flute; 12° Constant Helix

Subseries: RC10B, RC15B, RC20B

Configuration: Varying Angles; Varying Diameters;

Regular Length; 12° Constant Helix; Ball End

CB  
CARBIDEHSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM  
2 & 3 FLUTECONICAL  
TAPERED  
CARBIDECONICAL  
TAPERED  
HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
CUTTERSTAPERED  
MINIATURESAUTOMOTIVE  
TAPERSDIE & MOLD  
CUTTERSPROFILE  
RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

# RUNNER CUTTERS

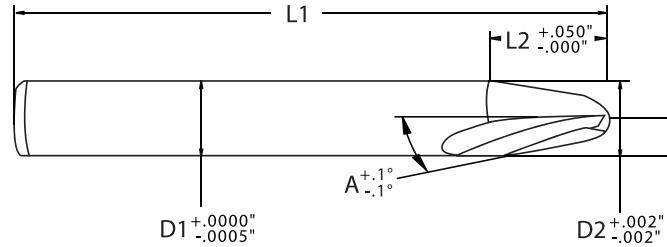
 GLOBAL™

## SERIES RCX - CARBIDE, 2 FLUTE, VARYING ANGLES

### MINIMUM WASTE, MAXIMUM PERFORMANCE

High performance slotting a perfect modified trapezoidal runner in record time, these tools let mold makers design for minimum waste and maximum mold performance.

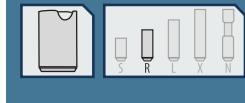
- Ball end designed for high performance slotting and milling of runners
- Two high strength flute design improves chip formation and evacuation for increased feed rates
- Creates modified round trapezoidal runner channels in molds and dies, the most efficient shape design after full round, while machining only one half of the mold



TIP &amp; END



SHANK &amp; LENGTH



FLUTE CONFIGURATION



MATERIAL



COATING



### SERIES RC10B - 10 DEGREE, REGULAR LENGTH

ANGLE PER SIDE (A)	CUTTER DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	CORNER RADIUS (R)	ALTIN COATED	PART #	EDP #	
10°	1/16	0.0625	3/16	0.188	0.385	2	2.000	1/32	0.0313
	3/32	0.0938	3/16	0.188	0.308	2	2.000	3/64	0.0625
	1/8	0.1250	1/4	0.250	0.413	2 1/2	2.500	1/16	0.0938
	5/32	0.1563	1/4	0.250	0.338	2 1/2	2.500	5/64	0.1250
	3/16	0.1875	5/16	0.313	0.442	2 1/2	2.500	3/32	0.1875
	7/32	0.2188	5/16	0.313	0.366	2 1/2	2.500	7/64	0.2500
	1/4	0.2500	3/8	0.375	0.468	2 1/2	2.500	1/8	0.3750
	5/16	0.3125	1/2	0.500	0.675	3	3.000	5/32	0.3750

### SERIES RC15B - 15 DEGREE, REGULAR LENGTH

ANGLE PER SIDE (A)	CUTTER DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	CORNER RADIUS (R)	ALTIN COATED	PART #	EDP #	
15°	1/16	0.0625	3/16	0.188	0.261	2	2.000	1/32	0.0313
	3/32	0.0938	3/16	0.188	0.216	2	2.000	3/64	0.0625
	1/8	0.1250	1/4	0.250	0.288	2 1/2	2.500	1/16	0.0938
	5/32	0.1563	1/4	0.250	0.243	2 1/2	2.500	5/64	0.1250
	3/16	0.1875	5/16	0.313	0.314	2 1/2	2.500	3/32	0.1875
	7/32	0.2188	5/16	0.313	0.271	2 1/2	2.500	7/64	0.2500
	1/4	0.2500	3/8	0.375	0.342	2 1/2	2.500	1/8	0.3750
	5/16	0.3125	1/2	0.500	0.490	3	3.000	5/32	0.3750

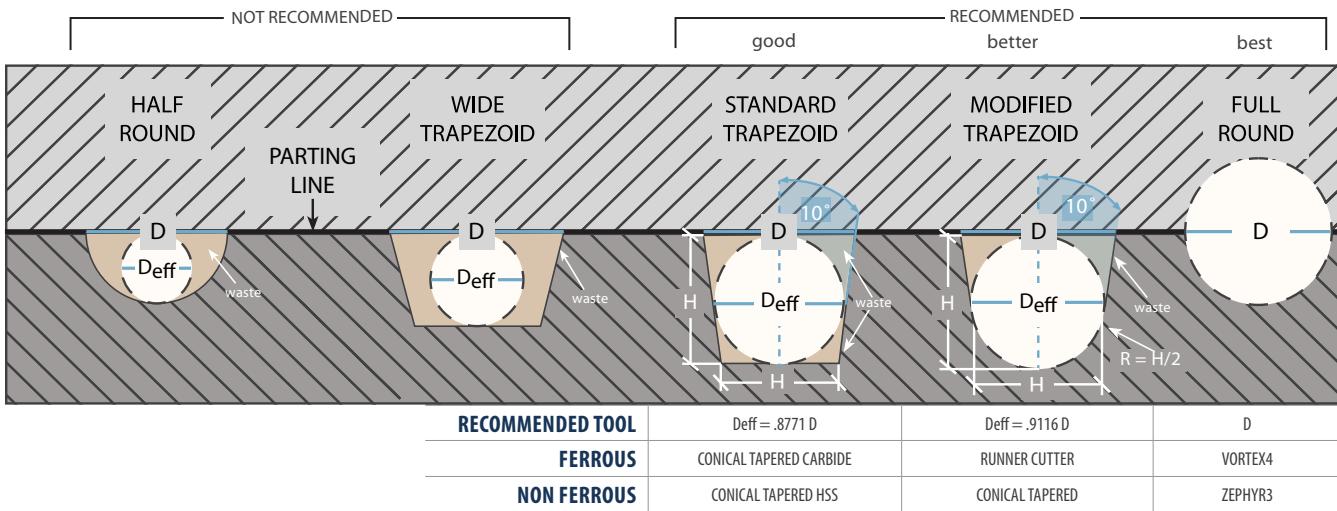
### SERIES RC20B - 20 DEGREE, REGULAR LENGTH

ANGLE PER SIDE (A)	CUTTER DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	CORNER RADIUS (R)	ALTIN COATED	PART #	EDP #	
20°	1/16	0.0625	3/16	0.188	0.197	2	2.000	1/32	0.0313
	3/32	0.0938	3/16	0.188	0.167	2	2.000	3/64	0.0625
	1/8	0.1250	1/4	0.250	0.225	2 1/2	2.500	1/16	0.0938
	5/32	0.1563	1/4	0.250	0.194	2 1/2	2.500	5/64	0.1250
	1/4	0.2500	3/8	0.375	0.275	2 1/2	2.500	1/8	0.3750
	5/16	0.3125	1/2	0.500	0.387	3	3.000	5/32	0.3750

# RUNNER CUTTERS

GLOBAL™

## SERIES RCX - CARBIDE, 2 FLUTE, VARYING ANGLES



Above are common cross section designs for runners. The last three designs are generally recommended and each have unique properties which add pros and cons to their use.

The standard trapezoid is the last recommended design. With nearly twice the waste as the modified trapezoid, its primary attribute is the ability to machine its shape in a single half of the mold without losing considerable effective diameter.

The modified trapezoid is the next most efficient design as it can be machined in a single side of the mold. With minimum waste, resistance and heat loss, its shape has the closest effective hydraulic diameter to a full round runner.

The full-round runner is most ideal in terms of volume to surface ratio, which minimizes flow resistance, pressure drop and heat loss. Its design is the most complicated to employ and requires modifying both halves of the mold to align perfectly when the mold is closed.

## RCX APPLICATION GUIDE • SPEED & FEED

WORK MATERIAL	TYPE OF CUT	AXIAL DOC	RADIAL DOC	NO. OF FLUTES	SPEED (SFM)	FEED (INCHES PER TOOTH)							
						< 3/32" (2 FL)	1/8" (2 FL)	5/32" (2 FL)	3/16" (2 FL)	7/32" (2 FL)	1/4" (2 FL)	5/16" (2 FL)	
ALUMINUM NONFERROUS	ALUMINUM ALLOYS Low Silicon Content	Slotting	1 x D	1 x D	2	765 - 990	0.0009 - 0.0011	0.0012 - 0.0015	0.0016 - 0.0019	0.0020 - 0.0023	0.0019 - 0.0023	0.0027 - 0.0031	0.0031 - 0.0036
	ALUMINUM DIE CAST ALLOY High Silicon Content	Slotting	1 x D	1 x D	2	635 - 825	0.0008 - 0.0010	0.0011 - 0.0014	0.0015 - 0.0018	0.0018 - 0.0022	0.0017 - 0.0021	0.0025 - 0.0029	0.0028 - 0.0033
	MAGNESIUM ALLOYS ≤ 38 HRc	Slotting	1 x D	1 x D	2	1275 - 1650	0.0009 - 0.0011	0.0012 - 0.0015	0.0016 - 0.0019	0.0020 - 0.0023	0.0019 - 0.0023	0.0027 - 0.0031	0.0031 - 0.0036
	COPPER ALLOYS, BRASS & BRONZE 39 to 48 HRc	Slotting	1 x D	1 x D	2	255 - 330	0.0007 - 0.0009	0.0010 - 0.0013	0.0013 - 0.0016	0.0016 - 0.0020	0.0015 - 0.0019	0.0022 - 0.0027	0.0026 - 0.0031
CARBON STEEL TOOL STEEL	LOW CARBON STEELS ≤ 38 HRc	Slotting	1 x D	1 x D	2	510 - 660	0.0003 - 0.0005	0.0005 - 0.0007	0.0007 - 0.0010	0.0008 - 0.0012	0.0006 - 0.0010	0.0012 - 0.0016	0.0014 - 0.0019
	MEDIUM CARBON STEELS ≤ 38 HRc	Slotting	1 x D	1 x D	2	170 - 220	0.0003 - 0.0005	0.0004 - 0.0007	0.0006 - 0.0009	0.0008 - 0.0011	0.0005 - 0.0009	0.0011 - 0.0015	0.0013 - 0.0018
	TOOL & DIE STEELS ≤ 38 HRc	Slotting	1 x D	1 x D	2	170 - 220	0.0003 - 0.0005	0.0004 - 0.0007	0.0006 - 0.0009	0.0008 - 0.0011	0.0005 - 0.0009	0.0011 - 0.0015	0.0013 - 0.0018
	TOOL & DIE STEELS 39 to 48 HRc	Slotting	1 x D	1 x D	2	125 - 165	0.0002 - 0.0004	0.0003 - 0.0006	0.0004 - 0.0007	0.0006 - 0.0009	0.0002 - 0.0006	0.0008 - 0.0013	0.0010 - 0.0015
HARDENED STEEL STAINLESS STEEL	HARDENED STEELS 48 to 57 HRc	Slotting	1 x D	1 x D	2	85 - 110	0.0001 - 0.0003	0.0002 - 0.0004	0.0002 - 0.0005	0.0002 - 0.0006	-0.0002 - 0.0002	0.0002 - 0.0007	0.0003 - 0.0008
	HARDENED STEELS 58 to 65HRc	Slotting	1 x D	1 x D	2	75 - 95	0.0001 - 0.0003	0.0001 - 0.0003	0.0001 - 0.0004	0.0001 - 0.0005	-0.0003 - 0.0001	0.0001 - 0.0006	0.0001 - 0.0006
	EASY TO MACHINE 72 - 85 HRc	Slotting	1 x D	1 x D	2	380 - 495	0.0003 - 0.0005	0.0004 - 0.0006	0.0005 - 0.0008	0.0005 - 0.0009	0.0002 - 0.0006	0.0007 - 0.0011	0.0008 - 0.0013
	MODERATELY DIFFICULT 79 - 85 HRc; 25 - 41 HRc	Slotting	1 x D	1 x D	2	170 - 220	0.0003 - 0.0005	0.0003 - 0.0006	0.0004 - 0.0007	0.0005 - 0.0008	0.0001 - 0.0005	0.0006 - 0.0010	0.0007 - 0.0012
CAST IRON ALLOYS	DIFFICULT TO MACHINE 31 - 50 HRc	Slotting	1 x D	1 x D	2	125 - 165	0.0002 - 0.0004	0.0002 - 0.0005	0.0002 - 0.0005	0.0003 - 0.0006	-0.0002 - 0.0002	0.0003 - 0.0008	0.0004 - 0.0009
	GRAY 100 - 200 HRb	Slotting	1 x D	1 x D	2	295 - 385	0.0004 - 0.0006	0.0006 - 0.0008	0.0008 - 0.0011	0.0010 - 0.0013	0.0007 - 0.0011	0.0014 - 0.0018	0.0016 - 0.0021
	DUCTILE 150 - 300 HRb	Slotting	1 x D	1 x D	2	210 - 275	0.0004 - 0.0006	0.0006 - 0.0008	0.0008 - 0.0011	0.0010 - 0.0013	0.0007 - 0.0011	0.0014 - 0.0018	0.0016 - 0.0021
	MALLEABLE 150 - 310 HRb	Slotting	1 x D	1 x D	2	170 - 220	0.0004 - 0.0006	0.0006 - 0.0008	0.0008 - 0.0011	0.0010 - 0.0013	0.0007 - 0.0011	0.0014 - 0.0018	0.0016 - 0.0021
TITANIUM ALLOYS HIGH TEMP ALLOYS	TITANIUM ALLOYS 70 - 100 HRb; 25 - 36 HRc	Slotting	1 x D	1 x D	2	125 - 165	0.0002 - 0.0004	0.0002 - 0.0005	0.0002 - 0.0005	0.0003 - 0.0006	-0.0002 - 0.0002	0.0003 - 0.0008	0.0004 - 0.0009
	HIGH TEMP ALLOYS 83 - 99 HRb; 30 - 52 HRc	Slotting	1 x D	1 x D	2	55 - 75	0.0002 - 0.0004	0.0002 - 0.0005	0.0002 - 0.0005	0.0003 - 0.0006	-0.0002 - 0.0002	0.0003 - 0.0008	0.0004 - 0.0009

CB  
CARBIDE

HSS  
HIGH SPEED STEEL

VORTEX4

VORTEX5

CYCLONE MX

HYDRA FX

XTERRA3

EXTREME3

ZEPHYR3

ALUMINUM  
2 & 3 FLUTE

CONICAL  
TAPERED  
CARBIDE

CONICAL  
TAPERED  
HSS

CONICAL  
TAPERED  
LHS - RHC

CHAMFER  
CUTTERS

TAPERED  
MINIATURES

AUTOMOTIVE  
TAPERS

DIE & MOLD  
CUTTERS

PROFILE  
RIB CUTTERS

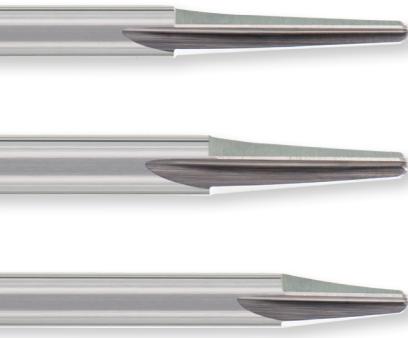
RUNNER  
CUTTERS

DIE  
SINKS

GENERAL  
PURPOSE



## 70 YEARS OF INNOVATION



### UNCOMPROMISING VALUE

The Global Die Sink end mills add flexibility and versatility to our massive line of available in stock specialty die and mold cutters. To accomplish precisely plunged holes and slot runner channels, in any material, these end mills come in a vast array of flute, end and angle configurations.

Our Global Die Sinks come uncoated for versatility and have over 16 coatings that can be added to increase tool life, based on your specific application and

workpiece material. Rigidity is enhanced by the straight flute design, variable core and cylindrical flute, which together create a tool that will stand the tests of any machine process and material. A three flute configuration is available for enhanced productivity in easy to machine materials.

These tool tackles everything from plunge opening tapered holes in molds and dies, to slotting runner channels and gates. The Global Die Sink end mill guarantees versatility, without compromising value.

### PERFORMANCE WE STAND BEHIND

We offer our 30 day return policy on standard and non-modified stock tools. Not because it's an industry standard practice, but because we know our tools and our customers rarely need it. We will take unused tools back after evaluation for as long as the tool line remains unchanged. We stand behind our tools and support them through their entire use cycle, which in our case, is a very long time.

#### Global Cutting Tools Conical Tool Company

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W: [www.globalcuttingtools.com](http://www.globalcuttingtools.com)



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DIE & MOLD END MILLS  
FOR PLUNGE OPENING HOLES & SLOTTING RUNNER CHANNELS

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HIGH SPEED STEEL

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HSSCONICAL  
TAPERED  
LHS - RHCCHAMFER  
CUTTERSTAPERED  
MINIATURESAUTOMOTIVE  
TAPERSDIE & MOLD  
CUTTERSPROFILE  
RIB CUTTERSRUNNER  
CUTTERSDIE  
SINKSGENERAL  
PURPOSE

# DIE SINKS

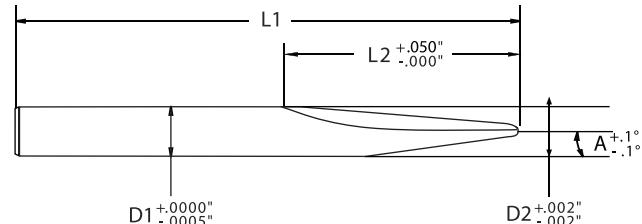
 GLOBAL™

## SERIES DSX - CARBIDE, 2 STRAIGHT FLUTES

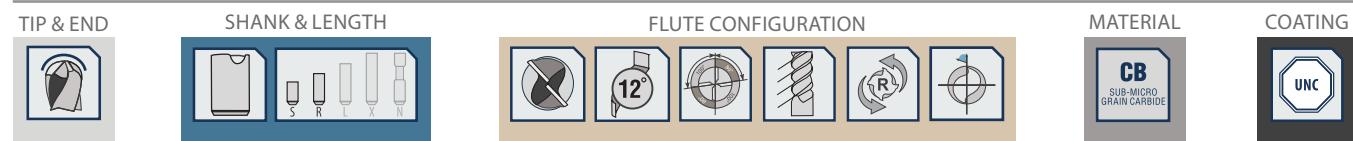
### VERSATILITY

Our Global Die Sinks have the versatility to plunge, taper existing holes, machine runners and act as a burr removal tool whenever necessary. A three flute configuration is available for enhanced productivity in easy to machine materials.

- Ball end designed for versatility and high performance plunging of die sinks and optional slotting of runners
- Two high strength flute design improves chip formation and evacuation for increased feed rates
- Cylindrical flute grind / relief for enhanced edge strength and improved chip evacuation



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



### SERIES DS203 - 3 DEGREE, BALL END, VARYING LENGTHS

ANGLE PER SIDE (A)	CORNER RADIUS (R)	BALL END DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	UNCOATED						
							PART #	EDP #					
3° / 6°	1/64	0.016	1/32	0.031	1/8	0.125	7/8	0.875	2	2.000	2	DS2-C001	DC01B
	1/32	0.031	1/16	0.063	1/8	0.125	9/16	0.563	2	2.000		DS2-C001	DC02B
	1/16	0.063	1/8	0.125	3/16	0.188	1	1.000	2	2.000		DS2-C002	DC03B
					1/4	0.250	11/16	1.500	2 1/2	2.500		DS2-C003	DC04B
											DS2-C201	DC05B	

### SERIES DS205 - 5 DEGREE, BALL END, VARYING LENGTHS

ANGLE PER SIDE (A)	CORNER RADIUS (R)	BALL END DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	UNCOATED						
							PART #	EDP #					
5° / 10°	1/64	0.016	1/32	0.031	1/8	0.125	1/2	0.500	2	2.000	2	DS2-E001	DE01B
	1/32	0.031	1/16	0.063	1/8	0.125	3/8	0.375	2	2.000		DS2-E001	DE02B
	1/16	0.063	1/8	0.125	3/16	0.188	1 1/16	0.688	2	2.000		DS2-E002	DE03B
					1/4	0.250	11/16	1.063	2 1/2	2.500		DS2-E003	DE04B
											DS2-E201	DE05B	

### SERIES DS207 - 7 DEGREE, BALL END, VARYING LENGTHS

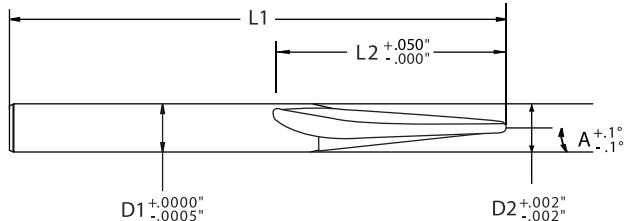
ANGLE PER SIDE (A)	CORNER RADIUS (R)	BALL END DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	UNCOATED						
							PART #	EDP #					
7° / 14°	1/64	0.016	1/32	0.031	1/8	0.125	3/8	0.375	2	2.000	2	DS2-G001	DG01B
	1/32	0.031	1/16	0.063	1/8	0.125	1/4	0.250	2	2.000		DS2-G001	DG02B
	1/16	0.063	1/8	0.125	3/16	0.188	1/2	0.500	2	2.000		DS2-G002	DG03B
	3/64	0.047	3/32	0.094	3/16	0.188	3/8	0.375	2	2.000		DS2-G003	DG04B
	1/16	0.063	1/8	0.125	1/4	0.250	1/2	0.500	2 1/2	2.500		DS2-G101	DG05B
	3/32	0.094	3/16	0.188	3/8	0.375	3/4	0.750	2 1/2	2.500		DS2-G201	DG06B
	1/8	0.125	1/4	0.250	1/2	0.500	1	1.000	3	3.000		DS2-G301	DG07B
											DS2-G401	DG08B	

## SERIES DSX - CARBIDE, 3 STRAIGHT FLUTES

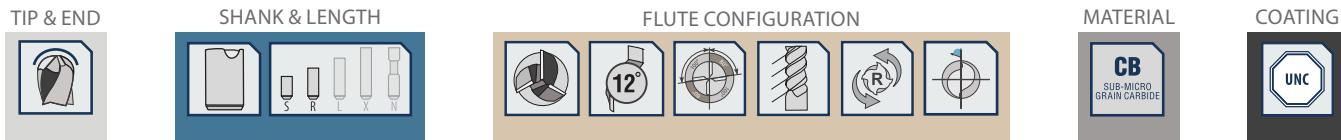
### WITHSTANDING ANY TEST

Uncoated for versatility and have over 16 coatings that can be added to increase tool life. Rigidity is enhanced by the straight flute design, variable core and cylindrical flute, which together create a tool that will stand the tests of any machine process and material.

- Uncoated for versatility. More than 16 available coatings can be added to increase tool life for your specific application and material
- Premium micro-grain carbide substrate resists chipping, tool deflection, and has a high transverse rupture strength for greater feeds and speeds
- Variable Core Design maximizes chip evacuation and provides increased rigidity when the cutter is fully engaged



To order a corner radius, use code "CR" & actual radius in the part number. For example, a standard AX-203 would be ordered as AX-203-CR-015, with "015" being the radius.



### SERIES DS303 - 3 DEGREE, BALL END, VARYING LENGTHS

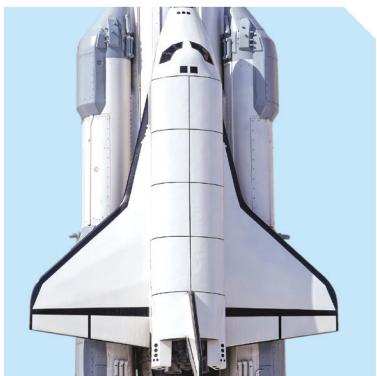
ANGLE PER SIDE (A)	CORNER RADIUS (R)	BALL END DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	UNCOATED				
							PART #	EDP #			
3° / 6°	1/64	0.016	1/32	0.031	1/8	0.125	7/8	0.875	2	2.000	3
					1/8	0.125	9/16	0.563	2	2.000	
	1/32	0.031	1/16	0.063	3/16	0.188	1	1.000	2	2.000	
					1/4	0.250	1 1/2	1.500	2 1/2	2.500	
	1/16	0.063	1/8	0.125	1/4	0.250	1	1.000	2 1/2	2.500	DS3-C201 SC05B

### SERIES DS305 - 5 DEGREE, BALL END, VARYING LENGTHS

ANGLE PER SIDE (A)	CORNER RADIUS (R)	BALL END DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	UNCOATED				
							PART #	EDP #			
5° / 10°	1/64	0.016	1/32	0.031	1/8	0.125	1/2	0.500	2	2.000	3
					1/8	0.125	3/8	0.375	2	2.000	
	1/32	0.031	1/16	0.063	3/16	0.188	1 1/16	0.688	2	2.000	
					1/4	0.250	1 1/16	1.063	2 1/2	2.500	
	1/16	0.063	1/8	0.125	1/4	0.250	1 1/16	0.688	2 1/2	2.500	DS3-E201 SE05B

### SERIES DS307 - 7 DEGREE, BALL END, VARYING LENGTHS

ANGLE PER SIDE (A)	CORNER RADIUS (R)	BALL END DIAMETER (D2)	SHANK DIAMETER (D1)	FLUTE LENGTH (L2)	OVERALL LENGTH (L1)	# OF FLUTES	UNCOATED				
							PART #	EDP #			
7° / 14°	1/64	0.016	1/32	0.031	1/8	0.125	3/8	0.375	2	2.000	3
					1/8	0.125	1/4	0.250	2	2.000	
	1/32	0.031	1/16	0.063	3/16	0.188	1/2	0.500	2	2.000	
					1/4	0.250	3/4	0.750	2 1/2	2.500	
	3/64	0.047	3/32	0.094	3/16	0.188	3/8	0.375	2	2.000	
	1/16	0.063	1/8	0.125	1/4	0.250	1/2	0.500	2 1/2	2.500	
	3/32	0.094	3/16	0.188	3/8	0.375	3/4	0.750	2 1/2	2.500	
	1/8	0.125	1/4	0.250	1/2	0.500	1	1.000	3	3.000	
	DS3-G001 SG01B	DS3-G001 SG02B	DS3-G002 SG03B	DS3-G003 SG04B	DS3-G101 SG05B	DS3-G201 SG06B	DS3-G301 SG07B	DS3-G401 SG08B			



# OUR INDUSTRIES

The original tapered end mill manufacturer, Conical Tool's industry expertise runs deep and we have maintained exceptional relationships with some of the world's largest companies. Our commitment to the industry as hands-on technical experts cross many sectors and geographies. Our 70 year history coupled with analytical, innovative thinking allows us to provide our customers with the most practical and efficient solutions to their tooling needs.

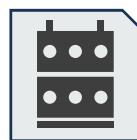
Our industry foresight is based on identifying the key issues our customers face, and developing rigorous programs to provide the most appropriate and beneficial solutions. These are only a small percentage of the industries we serve, contact us today for more information and to find out what we can do for you.



Hard Milling



Aerospace



Tool & Die



Medical



Automotive



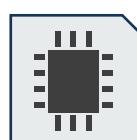
Dept. of Defense



Casting & Foundries



General Machining



Electronics



Agriculture



Furniture / Wood



Energy

## NEARLY 7,000 DISTRIBUTORS WORLDWIDE & HUNDREDS OF THOUSANDS OF END USERS CAN'T BE WRONG

The manufacturing and materials industry is changing at an unprecedented pace and simply saying we supply tools to the metalworking industry would leave out a large portion of our customer base. Our tools have been used in every application imaginable, from sculptural ice carving to precision manufacturing of custom nuclear reactor parts.

