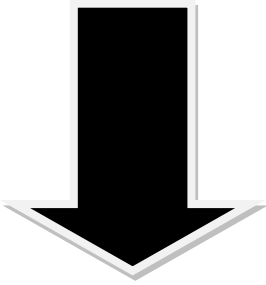


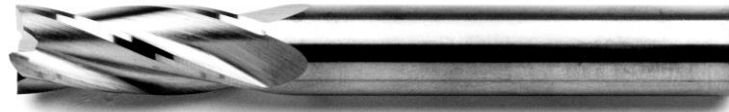


ENDMILL STANDARD CATALOG

PROUDLY MADE IN MICHIGAN



Standard Square Endmills

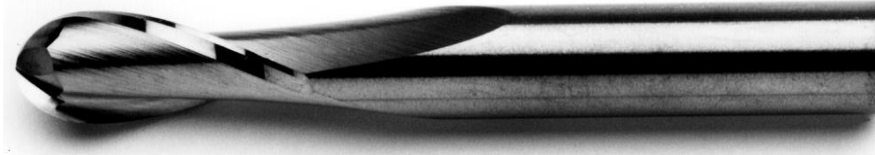


Cutting Diameter	Shank Diameter	Flute Length	Overall Length	2 Flute EDP#	3 Flute EDP#	4 Flute EDP#
1/32	1/8	3/32	1-1/2	S2-2	S3-2	S4-2
3/64	1/8	3/16	1-1/2	S2-3	S3-3	S4-3
1/16	1/8	1/4	1-1/2	S2-4	S3-4	S4-4
5/64	1/8	1/4	1-1/2	S2-5	S3-5	S4-5
3/32	1/8	3/8	1-1/2	S2-6	S3-6	S4-6
7/64	1/8	3/8	1-1/2	S2-7	S3-7	S4-7
1/8	1/8	1/2	1-1/2	S2-8	S3-8	S4-8
9/64	3/16	9/16	2	S2-9	S3-9	S4-9
5/32	3/16	9/16	2	S2-10	S3-10	S4-10
11/64	3/16	9/16	2	S2-11	S3-11	S4-11
3/16	3/16	9/16	2	S2-12	S3-12	S4-12
13/64	1/4	5/8	2-1/2	S2-13	S3-13	S4-13
7/32	1/4	5/8	2-1/2	S2-14	S3-14	S4-14
15/64	1/4	3/4	2-1/2	S2-15	S3-15	S4-15
1/4	1/4	3/4	2-1/2	S2-16	S3-16	S4-16
17/64	5/16	3/4	2-1/2	S2-17	S3-17	S4-17
9/32	5/16	3/4	2-1/2	S2-18	S3-18	S4-18
19/64	5/16	3/4	2-1/2	S2-19	S3-19	S4-19
5/16	5/16	3/4	2-1/2	S2-20	S3-20	S4-20
21/64	3/8	7/8	2-1/2	S2-21	S3-21	S4-21
11/32	3/8	7/8	2-1/2	S2-22	S3-22	S4-22
23/64	3/8	7/8	2-1/2	S2-23	S3-23	S4-23
3/8	3/8	7/8	2-1/2	S2-24	S3-24	S4-24
25/64	7/16	7/8	2-1/2	S2-25	S3-25	S4-25
13/32	7/16	7/8	2-1/2	S2-26	S3-26	S4-26
27/64	7/16	7/8	2-1/2	S2-27	S3-27	S4-27
7/16	7/16	1	2-1/2	S2-28	S3-28	S4-28
29/64	1/2	1	3	S2-29	S3-29	S4-29
15/32	1/2	1	3	S2-30	S3-30	S4-30
31/64	1/2	1	3	S2-31	S3-31	S4-31
1/2	1/2	1	3	S2-32	S3-32	S4-32
9/16	9/16	1-1/4	3-1/2	S2-36	S3-36	S4-36
5/8	5/8	1-1/4	3-1/2	S2-40	S3-40	S4-40
3/4	3/4	1-1/2	4	S2-48	S3-48	S4-48

TOLERANCES: Cutting Diameter up to .500" +.0 -.002 Over .500" +.0 -.003 Shank Diameter +.0 -.0005

All tools can be quoted with wear-resistance coatings

Standard Ball Endmills



Cutting Diameter	Shank Diameter	Flute Length	Overall Length	2 Flute EDP#	3 Flute EDP#	4 Flute EDP#
1/32	1/8	3/32	1-1/2	B2-2	B3-2	B4-2
3/64	1/8	3/16	1-1/2	B2-3	B3-3	B4-3
1/16	1/8	1/4	1-1/2	B2-4	B3-4	B4-4
5/64	1/8	1/4	1-1/2	B2-5	B3-5	B4-5
3/32	1/8	3/8	1-1/2	B2-6	B3-6	B4-6
7/64	1/8	3/8	1-1/2	B2-7	B3-7	B4-7
1/8	1/8	1/2	1-1/2	B2-8	B3-8	B4-8
9/64	3/16	9/16	2	B2-9	B3-9	B4-9
5/32	3/16	9/16	2	B2-10	B3-10	B4-10
11/64	3/16	9/16	2	B2-11	B3-11	B4-11
3/16	3/16	9/16	2	B2-12	B3-12	B4-12
13/64	1/4	5/8	2-1/2	B2-13	B3-13	B4-13
7/32	1/4	5/8	2-1/2	B2-14	B3-14	B4-14
15/64	1/4	3/4	2-1/2	B2-15	B3-15	B4-15
1/4	1/4	3/4	2-1/2	B2-16	B3-16	B4-16
17/64	5/16	3/4	2-1/2	B2-17	B3-17	B4-17
9/32	5/16	3/4	2-1/2	B2-18	B3-18	B4-18
19/64	5/16	3/4	2-1/2	B2-19	B3-19	B4-19
5/16	5/16	3/4	2-1/2	B2-20	B3-20	B4-20
21/64	3/8	7/8	2-1/2	B2-21	B3-21	B4-21
11/32	3/8	7/8	2-1/2	B2-22	B3-22	B4-22
23/64	3/8	7/8	2-1/2	B2-23	B3-23	B4-23
3/8	3/8	7/8	2-1/2	B2-24	B3-24	B4-24
25/64	7/16	7/8	2-1/2	B2-25	B3-25	B4-25
13/32	7/16	7/8	2-1/2	B2-26	B3-26	B4-26
27/64	7/16	7/8	2-1/2	B2-27	B3-27	B4-27
7/16	7/16	1	2-1/2	B2-28	B3-28	B4-28
29/64	1/2	1	3	B2-29	B3-29	B4-29
15/32	1/2	1	3	B2-30	B3-30	B4-30
31/64	1/2	1	3	B2-31	B3-31	B4-31
1/2	1/2	1	3	B2-32	B3-32	B4-32
9/16	9/16	1-1/4	3-1/2	B2-36	B3-36	B4-36
5/8	5/8	1-1/4	3-1/2	B2-40	B3-40	B4-40
3/4	3/4	1-1/2	4	B2-48	B3-48	B4-48

TOLERANCES: Cutting Diameter up to .500" +.0 -.002 Over .500" +0 -.003 Shank Diameter +.0 -.0005

All tools can be quoted with wear-resistance coatings

Extra Long End Mills



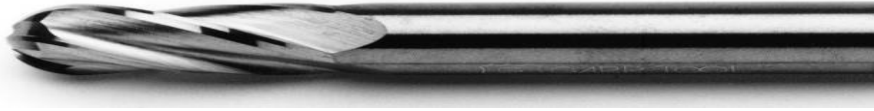
Manufactured from premium *micro grain* carbide

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	2 Flute EDP#	4 Flute EDP#
1/8	1/8	3/4	2	S2-8-EL-.75-2	S4-8-EL-.75-2
1/8	1/8	1	3	S2-8-EL-1-3	S4-8-EL-1-3
3/16	3/16	1	4	S2-12-EL-1-4	S4-12-EL-1-4
1/4	1/4	1	4	S2-16-EL-1-4	S4-16-EL-1-4
1/4	1/4	1.5	4	S2-16-EL-1.5-4	S4-16-EL-1.5-4
1/4	1/4	1.5	6	S2-16-EL-1.5-6	S4-16-EL-1.5-6
5/16	5/16	1	4	S2-20-EL-1-4	S4-20-EL-1-4
5/16	5/16	1.5	4	S2-20-EL-1.5-4	S4-20-EL-1.5-4
5/16	5/16	1.5	6	S2-20-EL-1.5-6	S4-20-EL-1.5-6
3/8	3/8	1	4	S2-24-EL-1-4	S4-24-EL-1-4
3/8	3/8	2	4	S2-24-EL-2-4	S4-24-EL-2-4
3/8	3/8	2	6	S2-24-EL-2-6	S4-24-EL-2-6
3/8	3/8	3	6	S2-24-EL-3-6	S4-24-EL-3-6
7/16	7/16	1	4	S2-28-EL-1-4	S4-28-EL-1-4
7/16	7/16	2	4	S2-28-EL-2-4	S4-28-EL-2-4
7/16	7/16	1	6	S2-28-EL-1-6	S4-28-EL-1-6
7/16	7/16	2	6	S2-28-EL-2-6	S4-28-EL-2-6
7/16	7/16	3	6	S2-28-EL-3-6	S4-28-EL-3-6
1/2	1/2	1	4	S2-32-EL-1-4	S4-32-EL-1-4
1/2	1/2	2	4	S2-32-EL-2-4	S4-32-EL-2-4
1/2	1/2	1	6	S2-32-EL-1-6	S4-32-EL-1-6
1/2	1/2	2	6	S2-32-EL-2-6	S4-32-EL-2-6
1/2	1/2	3	6	S2-32-EL-3-6	S4-32-EL-3-6
5/8	5/8	2	6	S2-40-EL-2-6	S4-40-EL-2-6
5/8	5/8	3	6	S2-40-EL-3-6	S4-40-EL-3-6
3/4	3/4	2	6	S2-48-EL-2-6	S4-48-EL-2-6
3/4	3/4	3	6	S2-48-EL-3-6	S4-48-EL-3-6

TOLERANCES: Cutting Diameter up to .500" +.0 -.002 Over .500" +0 -.003 Shank Diameter +.0 -.0005

All tools can be quoted with wear-resistance coatings

Extra Long Ball End Mills



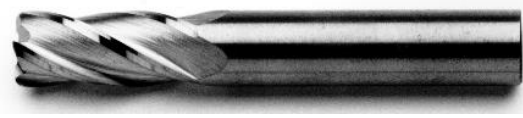
Manufactured from premium *micro grain* carbide

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	2 Flute EDP#	4 Flute EDP#
1/8	1/8	3/4	2	B2-8-EL-.75-2	B4-8-EL-.75-2
1/8	1/8	1	3	B2-8-EL-1-3	B4-8-EL-1-3
3/16	3/16	1	4	B2-12-EL-1-4	B4-12-EL-1-4
1/4	1/4	1	4	B2-16-EL-1-4	B4-16-EL-1-4
1/4	1/4	1.5	4	B2-16-EL-1.5-4	B4-16-EL-1.5-4
1/4	1/4	1.5	6	B2-16-EL-1.5-6	B4-16-EL-1.5-6
5/16	5/16	1	4	B2-20-EL-1-4	B4-20-EL-1-4
5/16	5/16	1.5	4	B2-20-EL-1.5-4	B4-20-EL-1.5-4
5/16	5/16	1.5	6	B2-20-EL-1.5-6	B4-20-EL-1.5-6
3/8	3/8	1	4	B2-24-EL-1-4	B4-24-EL-1-4
3/8	3/8	2	4	B2-24-EL-2-4	B4-24-EL-2-4
3/8	3/8	2	6	B2-24-EL-2-6	B4-24-EL-2-6
3/8	3/8	3	6	B2-24-EL-3-6	B4-24-EL-3-6
7/16	7/16	1	4	B2-28-EL-1-4	B4-28-EL-1-4
7/16	7/16	2	4	B2-28-EL-2-4	B4-28-EL-2-4
7/16	7/16	1	6	B2-28-EL-1-6	B4-28-EL-1-6
7/16	7/16	2	6	B2-28-EL-2-6	B4-28-EL-2-6
7/16	7/16	3	6	B2-28-EL-3-6	B4-28-EL-3-6
1/2	1/2	1	4	B2-32-EL-1-4	B4-32-EL-1-4
1/2	1/2	2	4	B2-32-EL-2-4	B4-32-EL-2-4
1/2	1/2	1	6	B2-32-EL-1-6	B4-32-EL-1-6
1/2	1/2	2	6	B2-32-EL-2-6	B4-32-EL-2-6
1/2	1/2	3	6	B2-32-EL-3-6	B4-32-EL-3-6
5/8	5/8	2	6	B2-40-EL-2-6	B4-40-EL-2-6
5/8	5/8	3	6	B2-40-EL-3-6	B4-40-EL-3-6
3/4	3/4	2	6	B2-48-EL-2-6	B4-48-EL-2-6
3/4	3/4	3	6	B2-48-EL-3-6	B4-48-EL-3-6

TOLERANCES: Cutting Diameter up to .500" +0 -.002 Over .500" +0 -.003 Shank Diameter +.0 -.0005

All tools can be quoted with wear-resistance coatings

Corner Radius Endmills



Corner Radii are available in “in-between sizes”...Just ask for that *special* radius.

Cutting Dia./Radius	Shank Diameter	Flute Length	Overall Length	2 Flute EDP#	4 Flute EDP#
1/8 X .015	1/8	1/2	1-1/2	R2-8-.015	R4-8-.015
1/8 X .020	1/8	1/2	1-1/2	R2-8-.020	R4-8-.020
3/16 X .015	3/16	9/16	2	R2-12-.015	R4-12-.015
3/16 X .030	3/16	9/16	2	R2-12-.030	R4-12-.030
1/4 X .015	1/4	3/4	2-1/2	R2-16-.015	R4-16-.015
1/4 X .030	1/4	3/4	2-1/2	R2-16-.030	R4-16-.030
5/16 X .015	5/16	3/4	2-1/2	R2-20-.015	R4-20-.015
5/16 X .030	5/16	3/4	2-1/2	R2-20-.030	R4-20-.030
5/16 X .045	5/16	3/4	2-1/2	R2-20-.045	R4-20-.045
3/8 X .015	3/8	7/8	2-1/2	R2-24-.015	R4-24-.015
3/8 X .030	3/8	7/8	2-1/2	R2-24-.030	R4-24-.030
3/8 X .045	3/8	7/8	2-1/2	R2-24-.045	R4-24-.045
1/2 X .015	1/2	1	3	R2-32-.015	R4-32-.015
1/2 X .030	1/2	1	3	R2-32-.030	R4-32-.030
1/2 X .045	1/2	1	3	R2-32-.045	R4-32-.045
1/2 X .060	1/2	1	3	R2-32-.060	R4-32-.060
5/8 X .015	5/8	1-1/4	3-1/2	R2-40-.015	R4-40-.015
5/8 X .030	5/8	1-1/4	3-1/2	R2-40-.030	R4-40-.030
5/8 X .045	5/8	1-1/4	3-1/2	R2-40-.045	R4-40-.045
5/8 X .060	5/8	1-1/4	3-1/2	R2-40-.060	R4-40-.060
5/8 X .090	5/8	1-1/4	3-1/2	R2-40-.090	R4-40-.090
3/4 X .015	3/4	1-1/2	4	R2-48-.015	R4-48-.015
3/4 X .030	3/4	1-1/2	4	R2-48-.030	R4-48-.030
3/4 X .045	3/4	1-1/2	4	R2-48-.045	R4-48-.045
3/4 X .060	3/4	1-1/2	4	R2-48-.060	R4-48-.060
3/4 X .090	3/4	1-1/2	4	R2-48-.090	R4-48-.090
3/4 X .125	3/4	1-1/2	4	R2-48-.125	R4-48-.125

TOLERANCES: Cutting Diameter up to .500” +0 -.002 Over .500” +0 -.003 Shank Diameter +.0 -.0005

All tools can be quoted with wear-resistance coatings

Tapered Endmills – Square End



Taper	Tip Diameter	Shank Diameter	Flute Length	Overall Length	3 Flute EDP#
1	0.125	1/4	1-1/2	3	TS-1-16
1.5	0.125	1/4	1-1/2	3	TS-1.5-16
2	0.125	1/4	1-1/2	3	TS-2-16
3	0.125	1/4	1	3	TS-3-16
5	0.125	1/4	5/8	3	TS-5-16
7	0.125	1/4	1/2	3	TS-7-16
1	0.187	3/8	1-3/4	4	TS-1-24
1.5	0.187	3/8	1-3/4	4	TS-1.5-24
2	0.187	3/8	1-3/4	4	TS-2-24
3	0.187	3/8	1-3/4	4	TS-3-24
5	0.187	3/8	1	4	TS-5-24
7	0.187	3/8	3/4	4	TS-7-24
3	0.250	1/2	2	4	TS-3-32
5	0.250	1/2	1-3/8	4	TS-5-32
7	0.250	1/2	1	4	TS-7-32

Tapered End Mills – Ball End

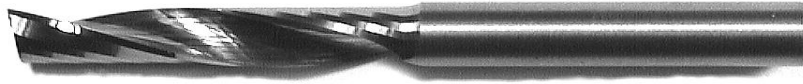


Taper	Tip Radius	Shank Diameter	Flute Length	Overall Length	3 Flute EDP#
1	0.062	1/4	1-1/2	3	TB-1-16
1.5	0.062	1/4	1-1/2	3	TB-1.5-16
2	0.062	1/4	1-1/2	3	TB-2-16
3	0.062	1/4	1	3	TB-3-16
5	0.062	1/4	5/8	3	TB-5-16
7	0.062	1/4	1/2	3	TB-7-16
1	0.093	3/8	1-3/4	4	TB-1-24
1.5	0.093	3/8	1-3/4	4	TB-1.5-24
2	0.093	3/8	1-3/4	4	TB-2-24
3	0.093	3/8	1-3/4	4	TB-3-24
5	0.093	3/8	1	4	TB-5-24
7	0.093	3/8	3/4	4	TB-7-24
3	0.125	1/2	2	4	TB-3-32
5	0.125	1/2	1-3/8	4	TB-5-32
7	0.125	1/2	1	4	TB-7-32

TOLERANCES: Cutting Diameter up to .500" +0 -.002 Over .500" +0 -.003 Shank Diameter +.0 -.0005
All tools can be quoted with wear-resistance coatings

All tools can be quoted with wear-resistance coatings

One Flute End Mills



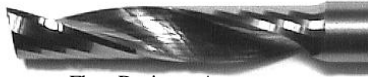
WOW! This uniquely designed one flute tool is engineered for machining many diverse materials such as aluminum, acrylic, plastic, wood, sign foam and MDF. The special end tooth configuration allows very aggressive drill-type penetration when a new hole or cut is started. Helical flute geometry gives much smoother “cuts” and surface finishes, while allowing for a much higher chip evacuation when milling a groove. These tools are manufactured using high-grade micro grained tungsten carbide with a transverse rupture strength in excess of 500,000 psi! This material and special end design gives superb strength and life to the corner and cutting edges.

Cutting Diameter	Shank Diameter	Cutting Length	Overall Length	EDP Number
0.0625	0.125	0.312	2.0	S1-4
0.0937	0.125	0.437	2.0	S1-6
0.1250	0.125	0.560	2.0	S1-8
0.0625	0.250	0.312	2.0	S1-4/16
0.0937	0.250	0.437	2.0	S1-6/16
0.1250	0.250	0.560	2.0	S1-8/16
0.1875	0.250	0.560	2.0	S1-12/16
0.1875	0.250	0.810	2.0	S1-12/16-M
0.1875	0.250	1.060	2.5	S1-12/16-L
0.2500	0.250	0.625	2.0	S1-16
0.2500	0.250	0.810	2.0	S1-16-M
0.2500	0.250	1.060	2.0	S1-16-L
0.2500	0.250	1.560	3.0	S1-16-EL
0.3750	0.375	1.060	3.0	S1-24
0.3750	0.375	2.060	4.0	S1-24-EL

TOLERANCES: Cutting Diameter up to .500” +.0 -.002 Over .500” +.0 -.003 Shank Diameter +.0 -.0005

All tools can be quoted with wear-resistant coatings.

One Flute Engraver Mills



Flute Design – Appearance

1/8" Shank x 4-1/2" Long		
Cutting Diameter	Flute Length	EDP#
0.0625	3/16	GS1-4/8
0.0781	3/16	GS1-5/8
0.0937	1/4	GS1-6/8
0.1250	3/8	GS1-8/8
11/64" Shank x 6-1/2" Long		
0.0625	3/16	GS1-4/11
0.0781	3/16	GS1-5/11
0.0937	1/4	GS1-6/11
0.1250	3/8	GS1-8/11
0.1718	1/2	GS1-11/11
1/4" Shank x 6-1/2" Long		
0.0625	3/16	GS1-4/16
0.0781	3/16	GS1-5/16
0.0937	1/4	GS1-6/16
0.1250	3/8	GS1-8/16
0.1718	1/2	GS1-11/16
0.1875	1/2	GS1-12/16
0.2500	5/8	GS1-16/16
Cutter Head Knobs are NOT Included		

TOLERANCES: Cutting Diameter up to .500" +0 -.002 Over .500" +0 -.003 Shank Diameter +.0 - .0005

All tools can be quoted with wear-resistant coatings.

Square End Engraver Mills



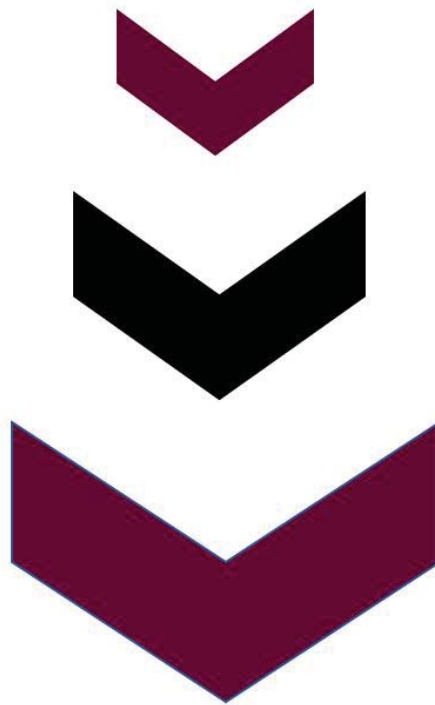
1/8" Shank x 4-1/2" Long			
Cutting Diameter	Flute Length	Two Flute EDP#	Four Flute EDP#
0.0625	3/16	GS2-4/8	GS4-4/8
0.0781	3/16	GS2-5/8	GS4-5/8
0.0937	1/4	GS2-6/8	GS4-6/8
0.1250	3/8	GS2-8/8	GS4-8/8
11/64" Shank x 6-1/2" Long			
0.0625	3/16	GS2-4/11	GS4-4/11
0.0781	3/16	GS2-5/11	GS4-5/11
0.0937	1/4	GS2-6/11	GS4-6/11
0.1250	3/8	GS2-8/11	GS4-8/11
0.1718	1/2	GS2-11/11	GS4-11/11
1/4" Shank x 6-1/2" Long			
0.0625	3/16	GS2-4/16	GS4-4/16
0.0781	3/16	GS2-5/16	GS4-5/16
0.0937	1/4	GS2-6/16	GS4-6/16
0.1250	3/8	GS2-8/16	GS4-8/16
0.1718	1/2	GS2-11/16	GS4-11/16
0.1875	1/2	GS2-12/16	GS4-12/16
0.2500	5/8	GS2-16/16	GS4-16/16
Cutter Head Knobs are NOT Included			

TOLERANCES: Cutting Diameter up to .500" +.0 -.002 Over .500" +0 -.003 Shank Diameter +.0 -.0005

All tools can be quoted with wear-resistant coatings.

Solid Carbide Burrs

PLSCT's Tungsten Carbide Burrs have been designed to provide an aggressive "bite" for faster deburring and material removal for operations on many types of steels where time is important! ... A variety of shapes are available for those times when it may be difficult to reach the areas that need machining. These tools can be used in milling machines as well as hand held grinders as the concentricity of the shank to the cutting edge is true.



Item #	Shape	Cutting Diameter	Length of Cut	Shank Diameter	Overall Length	Included Angle	MAX RPM
--------	-------	------------------	---------------	----------------	----------------	----------------	---------

SA CYLINDER



SA-41-S	Cylinder	1/16	1/4	1/8	1 1/2		100,000
SA-41-M	Cylinder	1/16	1/4	1/8	2		100,000
SA-41-L	Cylinder	1/16	1/4	1/8	3		100,000
SA-42-S	Cylinder	3/32	7/16	1/8	1 1/2		100,000
SA-42-M	Cylinder	3/32	7/16	1/8	2		100,000
SA-42-L	Cylinder	3/32	7/16	1/8	3		100,000
SA-43-S	Cylinder	1/8	9/16	1/8	1 1/2		100,000
SA-43-M	Cylinder	1/8	9/16	1/8	2		100,000
SA-43-L	Cylinder	1/8	9/16	1/8	3		100,000
SA-51	Cylinder	1/4	1/2	1/8	2		55,000
SA-52	Cylinder	5/32	1/2	1/8	1 1/2		75,000
SA-53	Cylinder	3/16	1/2	1/8	1 1/2		75,000

SB CYLINDER W/ ENDCUT












SB-41-S	Cylinder w Endcut	1/16	1/4	1/8	1 1/2		100,000
SB-41-M	Cylinder w Endcut	1/16	1/4	1/8	2		100,000
SB-41-L	Cylinder w Endcut	1/16	1/4	1/8	3		100,000
SB-42-S	Cylinder w Endcut	3/32	7/16	1/8	1 1/2		100,000
SB-42-M	Cylinder w Endcut	3/32	7/16	1/8	2		100,000
SB-42-L	Cylinder w Endcut	3/32	7/16	1/8	3		100,000
SB-43-S	Cylinder w Endcut	1/8	9/16	1/8	1 1/2		100,000
SB-43-M	Cylinder w Endcut	1/8	9/16	1/8	2		100,000
SB-43-L	Cylinder w Endcut	1/8	9/16	1/8	3		100,000
SB-51	Cylinder w Endcut	1/4	3/16	1/8	1 3/4		55,000

SC BALL NOSED CYLINDER

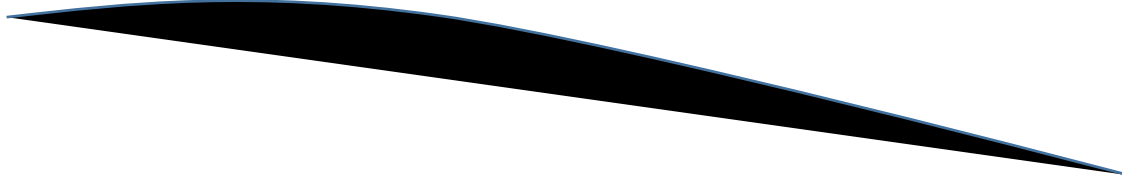


SC-41	Ball Nosed Cylinder	3/32	7/16	1/8	1 1/2		100,000
SC-42-S	Ball Nosed Cylinder	1/8	9/16	1/8	1 1/2		100,000
SC-42-M	Ball Nosed Cylinder	1/8	9/16	1/8	2		100,000
SC-42-L	Ball Nosed Cylinder	1/8	9/16	1/8	3		100,000
SC-51	Ball Nosed Cylinder	1/4	1/2	1/8	2		55,000
SC-52	Ball Nosed Cylinder	5/32	1/2	1/8	1 1/2		75,000
SC-53	Ball Nosed Cylinder	3/16	1/2	1/8	1 1/2		75,000

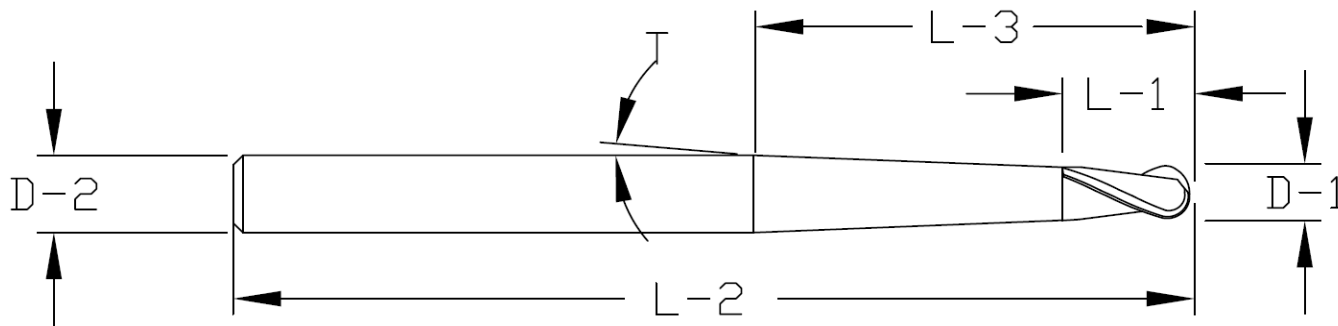
Item #	Shape	Cutting Diameter	Length of Cut	Shank Diameter	Overall Length	Included Angle	MAX RPM
SD BALL							
SD-41	Ball	3/32	3/32	1/8	1 1/2		100,000
SD-42-S	Ball	1/8	1/8	1/8	1 1/2		100,000
SD-42-M	Ball	1/8	1/8	1/8	2		100,000
SD-42-L	Ball	1/8	1/8	1/8	3		100,000
SD-51	Ball	1/4	7/32	1/8	1 3/4		55,000
SD-52	Ball	5/32	5/32	1/8	1 1/2		75,000
SD-53	Ball	3/16	5/32	1/8	1 1/2		75,000
SE OVAL							
SE-41-S	Oval	1/8	7/32	1/8	1 1/2		100,000
SE-41-M	Oval	1/8	7/32	1/8	2		100,000
SE-41-L	Oval	1/8	7/32	1/8	3		100,000
SE-51	Oval	1/4	3/8	1/8	1 1/4		55,000
SE-53	Oval	3/16	9/32	1/8	1 1/2		75,000
SF BALL NOSED TREE							
SF-41	Ball Nosed Tree	1/8	1/4	1/8	1 1/2		100,000
SF-42-S	Ball Nosed Tree	1/8	1/2	1/8	1 1/2		100,000
SF-42-M	Ball Nosed Tree	1/8	1/2	1/8	2		100,000
SF-42-L	Ball Nosed Tree	1/8	1/2	1/8	3		100,000
SF-51	Ball Nosed Tree	1/4	1/2	1/8	2		55,000
SF-53	Ball Nosed Tree	3/16	1/2	1/8	1 1/2		75,000
SG POINTED TREE							
SG-41	Pointed Tree	1/8	1/4	1/8	1 1/2		100,000
SG-42	Pointed Tree	1/8	5/16	1/8	1 1/2		100,000
SG-43	Pointed Tree	1/8	3/8	1/8	1 1/2		100,000
SG-44-S	Pointed Tree	1/8	1/2	1/8	1 1/2		100,000
SG-44-M	Pointed Tree	1/8	1/2	1/8	2		100,000
SG-44-L	Pointed Tree	1/8	1/2	1/8	3		100,000
SG-51	Pointed Tree	1/4	1/2	1/8	2		55,000
SG-53	Pointed Tree	3/16	1/2	1/8	1 1/2		75,000

Item #	Shape	Cutting Diameter	Length of Cut	Shank Diameter	Overall Length	Included Angle	MAX RPM
SH FLAME							
SH-41-S	Flame	1/8	1/4	1/8	1 1/2		100,000
SH-41-M	Flame	1/8	1/4	1/8	2		100,000
SH-41-L	Flame	1/8	1/4	1/8	3		100,000
SH-53	Flame	3/16	3/8	1/8	1 1/2		75,000
SL BALL NOSED CONE							
SL-41	Ball Nosed Cone	1/8	3/8	1/8	1 1/2	8°	100,000
SL-42-S	Ball Nosed Cone	1/8	1/2	1/8	1 1/2	8°	100,000
SL-42-M	Ball Nosed Cone	1/8	1/2	1/8	2	8°	100,000
SL-42-L	Ball Nosed Cone	1/8	1/2	1/8	3	8°	100,000
SL-53	Ball Nosed Cone	3/16	1/2	1/8	1 1/2	14°	75,000
SM CONE							
SM-41	Cone	1/8	11/32	1/8	1 1/2	12°	100,000
SM-42-S	Cone	1/8	7/16	1/8	1 1/2	14°	100,000
SM-42-M	Cone	1/8	7/16	1/8	2	14°	100,000
SM-42-L	Cone	1/8	7/16	1/8	3	14°	100,000
SM-43	Cone	1/8	5/8	1/8	1 1/2	7°	100,000
SM-51	Cone	1/4	1/2	1/8	2 3/32	22°	55,000
SM-53	Cone	3/16	1/2	1/8	1 1/2	16°	75,000
SN INVERTED CONE							
SN-41	Inverted Cone	3/32	1/8	1/8	1 1/2	10°	100,000
SN-42	Inverted Cone	1/8	3/16	1/8	1 1/2	10°	100,000
SN-51	Inverted Cone	1/4	1/4	1/8	1 3/4	10°	55,000
SN-53	Inverted Cone	3/16	1/4	1/8	1 1/2	10°	75,000
SJ - SK COUNTERSUNK							
SJ-42	60° Countersink	1/8	3/32	1/8	1 1/2	60°	100,000
SK-42	90° Countersink	1/8	1/16	1/8	1 1/2	90°	100,000

Clearance Cutters



Our unique Clearance Cutters are specifically designed for direct machining 3-D mold cavities in industrial dies. Capable of working in materials up to 60 RC, these outstanding 2 flute milling cutters are made from the highest quality Solid Micro-Grain Carbide. All of our Clearance Cutters are manufactured in state of the art CNC grinding machines. These highly precise machines allow for the most exact and correct cutting diameters and geometries possible. If you're looking for accuracy and consistency, look no further. Use these Solid Carbide Clearance Cutters and work with ... "Attitude"!



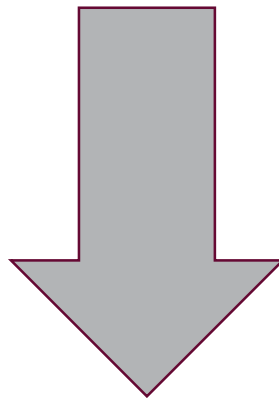
Clearance Cutters - Solid Carbide - 3.0" Overall Length

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2	Reach Length L-3	Angle "A"	Item #
0.030"	0.030"	0.250"	3.00"	1.28"	5.0°	PB2-.030/16-3
0.031"	0.031"	0.250"	3.00"	1.28"	5.0°	PB2-.031/16-3
0.039"	0.039"	0.250"	3.00"	1.23"	5.0°	PB2-.039/16-3
0.040"	0.040"	0.250"	3.00"	1.23"	5.0°	PB2-.040/16-3
0.060"	0.060"	0.250"	3.00"	1.14"	5.0°	PB2-.060/16-3
0.062"	0.062"	0.250"	3.00"	1.14"	5.0°	PB2-.062/16-3
0.080"	0.080"	0.250"	3.00"	1.05"	5.0°	PB2-.080/16-3
0.090"	0.090"	0.250"	3.00"	1.00"	5.0°	PB2-.090/16-3
0.093"	0.093"	0.250"	3.00"	0.99"	5.0°	PB2-.093/16-3
0.100"	0.100"	0.250"	3.00"	0.95"	5.0°	PB2-.100/16-3
0.125"	0.125"	0.250"	3.00"	0.83"	5.0°	PB2-.125/16-3
0.187"	0.187"	0.250"	3.00"	0.54"	5.0°	PB2-.187/16-3
0.250"	0.250"	0.250"	3.00"	NA	NA	PB2-.250/16-3

Clearance Cutters - Solid Carbide - 4.0" Overall Length

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2	Reach Length L-3	Angle "A"	Item #
0.030"	0.030"	0.250"	4.00"	1.28"	5.0°	PB2-.030/16-4
0.031"	0.031"	0.250"	4.00"	1.28"	5.0°	PB2-.031/16-4
0.039"	0.039"	0.250"	4.00"	1.23"	5.0°	PB2-.039/16-4
0.040"	0.040"	0.250"	4.00"	1.23"	5.0°	PB2-.040/16-4
0.060"	0.060"	0.250"	4.00"	1.14"	5.0°	PB2-.060/16-4
0.062"	0.062"	0.250"	4.00"	1.14"	5.0°	PB2-.062/16-4
0.080"	0.080"	0.250"	4.00"	1.05"	5.0°	PB2-.080/16-4
0.090"	0.090"	0.250"	4.00"	1.00"	5.0°	PB2-.090/16-4
0.093"	0.093"	0.250"	4.00"	0.99"	5.0°	PB2-.093/16-4
0.100"	0.100"	0.250"	4.00"	0.95"	5.0°	PB2-.100/16-4
0.125"	0.125"	0.250"	4.00"	0.83"	5.0°	PB2-.125/16-4
0.187"	0.187"	0.250"	4.00"	0.54"	5.0°	PB2-.187/16-4
0.250"	0.250"	0.250"	4.00"	NA	NA	PB2-.250/16-4

CROWN CUTTERSOLID CARBIDE ENGRAVING CUTTER CATALOG 2019



Solid Carbide Engraving Tools

Cutters and diamond gravers for all popular engraving machines.

Manufactured with state-of-the-art CNC grinding machines.

High precision gaging and inspection before any cutter leaves our factory.

Premium micro-grain carbide engineered for strength and wear-resistance.

Our solid carbide shanks won't rust, bend or twist.

Cutter knob set screws will not damage carbide shanks.

Crown cutters can be resharpened many times

Half Round "Collet Cutter" Engraving BLANKS

These BLANKS are for Pointing and Tipping by the User
Solid Micro-Grain Carbide



Size	Single End EDP#	Double End EDP#	Flat Length
1/8 X 1"	C1-1A	N/A	3/8"
1/8 X 1-1/2"	C1-2A	N/A	3/8"
1/8 X 2"	C1-3A	N/A	3/8"
5/32 X 2"	C1-4A	N/A	3/8"
3/16 X 1-1/2"	C1-5A	N/A	1/2"
3/16 X 2"	C1-6A	N/A	1/2"
1/4 X 2"	C1-7A	N/A	1/2"
1/4 X 3"	C1-8A	C1-8B	1/2"
5/16 X 2-1/2"	C1-9A	C1-9B	1/2"
3/8 X 2-1/2"	C1-10A	C1-10B	1/2"
1/2 X 3"	C1-11A	C1-11B	5/8"
3mm X 30 mm	C1-12A	C1-12B	10mm
4mm X 62mm	C1-13A	C1-13B	12mm
6mm X 62mm	C1-14A	C1-14B	12mm
Flat Tolerance is +.001"/-0	All tools can be quoted with wear-resistant coatings.		xx

Quarter Round “Collet Cutter” Engraving BLANKS

These BLANKS are for Pointing and Tipping by the User
Solid Micro-Grain Carbide



Size	Single End EDP#	Double End EDP#	Flat Length Large / Small
1/8 X 1”	C2-1A	N/A	3/8” / 1/4”
1/8 X 1-1/2”	C2-2A	N/A	3/8” / 1/4”
1/8 X 2”	C2-3A	N/A	3/8” / 1/4”
5/32 X 2”	C2-4A	N/A	3/8” / 1/4”
3/16 X 1-1/2”	C2-5A	N/A	1/2” / 3/8”
3/16 X 2”	C2-6A	N/A	1/2” / 3/8”
1/4 X 2”	C2-7A	N/A	1/2” / 3/8”
1/4 X 3”	C2-8A	C2-8B	1/2” / 3/8”
5/16 X 2-1/2”	C2-9A	C2-9B	1/2” / 3/8”
3/8 X 2-1/2”	C2-10A	C2-10B	1/2” / 3/8”
1/2 X 3”	C2-11A	C2-11B	5/8” / 1/2”
3mm X 30 mm	C2-12A	C2-12B	10mm / 6mm
4mm X 62mm	C2-13A	C2-13B	12mm / 8mm
6mm X 62mm	C2-14A	C2-14B	12mm / 8mm

Flat Tolerance is +.001”/-0 All tools can be quoted with wear-resistant coatings. XX

Quarter round engraving cutters are a superior alternative to half round cutters in most applications. This style cutter works well on a variety of materials, such as brass, aluminum, stainless, pewter, flexible plastics, acrylic and polycarbonate. Burr free cuts, less vibration, and single pass engraving make this a popular cutter.

NOTE: Collet Cutters are an excellent choice for most heavy-duty applications due to the short ‘stubby’ way the tool is loaded and held in a bottom loading spindle.

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8) **

Solid Carbide Collet Cutters – Sharpened to a Point

Specify Tip Size and Material to be Engraved

Solid Micro-Grain Carbide



Size	Half Round Single End EDP#	Half Round Double End EDP#	Quarter Round Single End EDP#	Quarter Round Double End EDP#
1/8 X 1”	C3-1A	N/A	C3-1C	N/A
1/8 X 1-1/2”	C3-2A	N/A	C3-2C	N/A
1/8 X 2”	C3-3A	N/A	C3-3C	N/A
5/32 X 2”	C3-4A	N/A	C3-4C	N/A
3/16 X 1-1/2”	C3-5A	N/A	C3-5C	N/A
3/16 X 2”	C3-6A	N/A	C3-6C	N/A
1/4 X 2”	C3-7A	N/A	C3-7C	N/A
1/4 X 2-1/2”	C3-8A	C3-8B	C3-8C	C3-8D
5/16 X 2-1/2”	C3-9A	C3-9B	C3-9C	C3-9D
3/8 X 2-1/2”	C3-10A	C3-10B	C3-10C	C3-10D
1/2 X 3”	C3-11A	C3-11B	C3-11C	C3-11D
3mm X 30 mm	C3-12A	C3-12B	C3-12C	C3-12D
4mm X 62mm	C3-13A	C3-13B	C3-13C	C3-13D
6mm X 62mm	C3-14A	C3-14B	C3-14C	C3-14D
Flat Tolerance is +.001”/-0	All tools can be quoted with wear-resistant coatings.			xx

LOOK! Cutters can be finished to your specific tip size for no additional charge.

Just specify the required tip size and material to be engraved when placing your order.

Note the outstanding mirror-like surface finish on the flats of our tools? That finish is there for a reason! A very fine ‘polished’ surface on the flat of half round and quarter round cutters provides a slippery, obstruction free path for chip flow. This aids in chip removal, and creates a cleaner looking, burr free font.

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8) **

Solid Carbide Long Engraving Cutters



Size	Half Round Blank EDP#	Half Round Pointed EDP#	Qtr. Round Blank EDP#	Qtr. Round Pointed EDP#	HSS HR Pointed EDP#	Flat Length Large/Small	
1/8 X 4-1/2"	C4-1A	C4-1B	C4-1C	C4-1D	C4-1E	.450" / .300"	
11/64 X 4-1/2"	C4-2A	C4-2B	C4-2C	C4-2D	C4-2E	.700" / .550"	
11/64 X 6-1/2"	C4-3A	C4-3B	C4-3C	C4-3D	C4-3E	.700" / .550"	
11/64 X 7"	C4-4A	C4-4B	C4-4C	C4-4D	N/A	.700" / .550"	
1/4 X 4-1/2"	C4-5A	C4-5B	C4-5C	C4-5D	C4-5E	.750" / .600"	
1/4 X 6-1/2"	C4-6A	C4-6B	C4-6C	C4-6D	C4-6E	.750" / .600"	
1/4 X 7"	C4-7A	C4-7B	C4-7C	C4-7D	N/A	.750" / .600"	
4mm X 110mm	C4-8A	C4-8B	C4-8C	C4-8D	C4-8E	8mm/14mm	
6mm X 160mm	C4-9A	C4-9B	C4-9C	C4-9D	C4-9E	19mm/15mm	
Flat Tolerance is +.001"/-0		All tools can be quoted with wear-resistant coatings.				xx	

NOTE: Specify material to be engraved when ordering pointed tools.
Reason: Point and relief angles are engineered differently for specific material groups.

These unique designs improve both the tool life and quality of cut.

When ordering, the following abbreviations can be used:

HR – Half Round, HRB – Half Round Blank, QR – Quarter Round, QRB – Quarter Round Blank

ACR: Acrylic, Plexiglass®

BAL: Brass, Aluminum

FLX: Flexible Engraving Stock

SSS: Stainless Steel, Hard Metal

STN: Stencil

PHN: Phenolic, Formica®

RUB: Rubber Stamp

SEAL: Corporate Seals

NOTE: Cutters can be finished to your specific tip size for no additional charge!
 Just specify the required tip size when placing your order:

.005, .010, .015, .020, .025, .030, .040, .050, .060, .075, .090, .125, .171, .187, .250

Examples: 11/64 x 4-1/2 QR FLX .020 or 1/4 x 6-1/2 HRB

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8)

Solid Carbide Specialty Tools

Size	Burnisher EDP#	Braille Cutter EDP#	Cutter Beveller EDP#	Parallel Cutter EDP#
1/8 X 1"	C5-1A	N/A	C5-1C	C5-1D
1/8 X 4-1/2"	C5-2A	C5-2B	C5-2C	C5-2D
1/8 X 6"	N/A	N/A	N/A	N/A
11/64 X 4-1/2"	C5-4A	NA	C5-4C	C5-4D
11/64 X 6-1/2"	C5-5A	C5-5B	C5-5C	C5-5D
11/64 X 7"	C5-6A	C5-6B	C5-6C	C5-6D
1/4 X 4-1/2"	C5-7A	N/A	C5-7C	C5-7D
1/4 X 6-1/2"	C5-8A	C5-8B	C5-8C	C5-8D
1/4 X 7"	C5-9A	C5-9B	C5-9C	C5-9D
3mm X 30 mm	C5-10A	N/A	N/A	N/A
4mm X 110mm	C5-11A	N/A	C5-11C	C5-11D
6mm X 160mm	C5-12A	N/A	C5-12C	C5-12D
Flat Tolerance is +.001"/-0		All tools can be quoted with wear-resistant coatings.		XX

Burnishers: When ordering, please specify required tip/flat diameter.
.005, .010, .015, .020, .025, .030, .040, .050, .060, .075, .090, etc.

Cutter/Bevellers: When ordering, please specify the material thickness.
Bevellers come standard with geometries designed to cut out and bevel 1/8" **OR** 1/16" material.

Parallel Cutters: When ordering, please specify the required cutting diameter:
.060" Dia. | .075" Dia. | .090" Dia. | .100" Dia. | .125" Dia. | .171" Dia. | .250" Dia.
.125" LOC | .140" LOC | .160" LOC | .180" LOC | .250" LOC | .700" LOC | .750" LOC

GOLD STANDARD TOOL COATING (TiN)

Crown's "Gold Standard" line features the latest technology in Titanium Nitride coating, with numerous applications where difficult and abrasive materials such as stainless steel are routinely machined. Crown solid carbide 'Gold Standard' cutting means more and better engraving, fewer cutter changes, reduced heat build-up, higher speeds and 3-5 times normal edge life. Coated cutters can be resharpened and still outlast uncoated cutters by 2-3 times. Any Crown cutter can be coated with Titanium Nitride. Contact your distributor for pricing. Specify TiN when placing your order.

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8) **

Solid Carbide Specialty Tools

Beveller		Half Round		3 Flute		
Machine Name	Tool Size	30 Degree EDP#	45 Degree EDP#	30 Degree EDP#	45 Degree EDP#	
Kantograph	1/8" X 1"	C6-1A	C6-1B	C6-1C	C6-1D	
New Hermes #B-4	1/8" X 4-1/2"	C6-2A	C6-2B	C6-2C	C6-2D	
New Hermes #B-5	1/8" X 6"	C6-3A	C6-3B	C6-3C	C6-3D	
New Hermes #B-6	1/4" X 6-1/2"	C6-4A	C6-4B	C6-4C	C6-4D	
Scripta Beveller	4mm X 110mm	C6-5A	C6-5B	C6-5C	C6-5D	
Special Beveller	11/64" X 4-1/2"	C6-6A	C6-6B	C6-6C	C6-6D	
Special Beveller	11/64" X 6-1/2"	C6-7A	C6-7B	C6-7C	C6-7D	
Flat Tolerance is +.001"/-0		All tools can be quoted with wear-resistant coatings.				xx

Beveller Notes: When ordering Bevellers, specify cutting angle.
(30 Degree, 45 Degree or Border Cutter)

Taper Shank Cutters



For Use with:	Half Round EDP#	Quarter Round EDP#	Parallel Cutter EDP#	Blank EDP#
Gorton	C6-8A	C6-8B	C6-8C	C6-8D
Preis	C6-9A	C6-9B	C6-9C	C6-9D

Solid Micro-Grain Carbide.
Excellent for Cast-Iron, Alloy Steels, Plastics and Abrasive Materials. 30% stronger than C-2 grade carbide. Specify material to be cut and tip size when ordering. xx

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8) **

Diamonds

Crown Diamond Gravers – Non-Rotating Style

Machine Name	Tool Size	EDP#
New Hermes RV-11 Ring Engraver	1/8" X 1/2"	C7-1A
New Hermes GTX Universal, GTX Super, GM, GK, Dahlgren and Domiteaux	1/8" X 1-1/8"	C7-2A
New Hermes I-LII, I-M, I-KII Dahlgren (1/8" Spindle)	1/8" X 5"	C7-3A
New Hermes ITX, ITF-II, ITF-KII H-Square and Dahlgren (11/64" Spindle)	11/64" X 7"	C7-4A
New Hermes IRX-IV, IRX-KIV, Dahlgren (1/4" Spindle)	1/4" X 7"	C7-5A
Scripta "S" Models	4mm X 110mm	C7-6A
Scripta "G" Models	6mm X 160mm	C7-7A xx

Crown 90 Degree – 4 Facet Diamond Gravers Rotating Style

Tool Size	EDP#
1/8" X 5"	C7-8A
11/64" X 7"	C7-9A
1/4" X 7"	C7-10A xx

For fine engraving in glass or burnishing metals. Extra length allows for use with a burnishing adapter.

Sizes Available:
Point, .005, .010, .015, .020, .025, .030"

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8) **

Accessories and Service

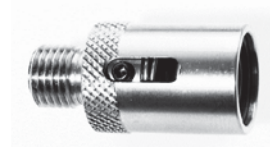
Cutter Head Wrench	C8-1A
Metric Cutter Head Wrench	C8-2A
Brass Cutter Head Knob	C8-3A
Metric Brass Cutter Head Knob	C8-4A
Cutter Head Knob Set Screw	C8-5A
Vinyl Cutter Tip Protector	C8-6A
Loupe Magnifier	C8-7A
Diamond Drag Adaptor	C8-8A

xx



“Crown Cutters”

EZ Rider® Burnish Adapter



Size	EDP#
1/8" Spindles	C8-1B
11/64" Spindles	C8-2B
1/4" Spindles	C8-3B

Cutter Head Wrench



Resharp Information:

A properly resharpened and reground cutter will perform as good as new, and should last as long as a new tool, when given the same usage. Some of our distributors have the necessary inspection and grinding equipment on site and are able to resharpen cutters or burnishers to the original CROWN™ specifications and tolerances. Otherwise, cutters may be sent directly to us for resharpening.

Tools Accepted for Standard Resharping Services:

Tool Type

Engraving Cutters
Cutter/Beveller
Parallel Cutter
3 Flute Beveller
Dove Tail Cutter
Braille Dot Cutter
Endmills

One Flute End Mills



WOW! This uniquely designed one flute tool is engineered for machining many diverse materials, such as aluminum, acrylic, plastic, wood, sign foam and MDF. The special end tooth configuration allows very aggressive drill-type penetration when a new hole or cut is started. Helical flute geometry gives much smoother “cuts” and surface finishes, while allowing for a much higher chip evacuation when milling a groove. These tools are manufactured using high-grade micro grained tungsten carbide with a transverse rupture strength in excess of 500,000 psi! This material and special end design gives superb strength and life to the corner and cutting edges.

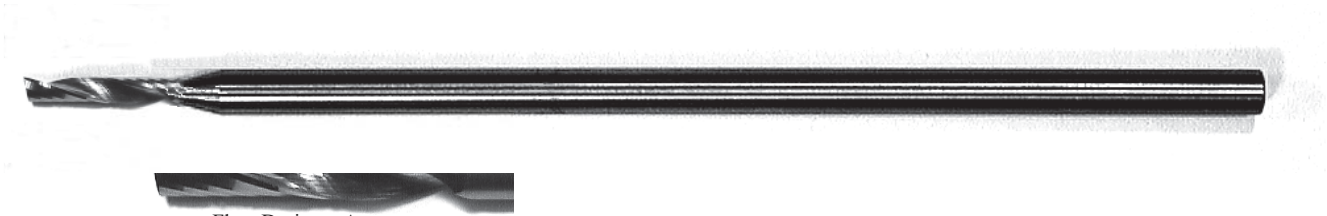
Cutting Diameter	Shank Diameter	Flute Length	Overall Length	EDP Number
0.0625	0.125	0.312	2.0	S1-4
0.0937	0.125	0.437	2.0	S1-6
0.1250	0.125	0.560	2.0	S1-8
0.0625	0.250	0.312	2.0	S1-4/16
0.0937	0.250	0.437	2.0	S1-6/16
0.1250	0.250	0.560	2.0	S1-8/16
0.1250	0.250	1.060	2.5	S1-8/16-L
0.1875	0.250	0.560	2.0	S1-12/16
0.1875	0.250	0.810	2.0	S1-12/16-M
0.1875	0.250	1.060	2.5	S1-12/16-L
0.2500	0.250	0.625	2.0	S1-16
0.2500	0.250	0.810	2.0	S1-16-M
0.2500	0.250	1.060	2.0	S1-16-L
0.2500	0.250	1.560	3.0	S1-16-EL
0.375	0.375	1.060	3.0	S1-24
0.375	0.375	2.060	4.0	S1-24-EL

TOLERANCES: Cutting Diameter $-.002''$ / $-.004''$ (.05/.10mm) Shank Diameter $+.0/- .0005''$ (.013mm)

All tools can be quoted with wear-resistant coatings. (XXV)

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8) **

One Flute Engraver Mills



Flute Design – Appearance

1/8" Shank x 4-1/2" Long		
Cutting Diameter	Flute Length	EDP#
0.0625	3/16"	GS1-4/8
0.0781	3/16"	GS1-5/8
0.0937	1/4"	GS1-6/8
0.1250	3/8"	GS1-8/8
11/64" Shank x 6-1/2" Long		
0.0625	3/16"	GS1-4/11
0.0781	3/16"	GS1-5/11
0.0937	1/4"	GS1-6/11
0.1250	3/8"	GS1-8/11
0.1718	1/2"	GS1-11/11
1/4" Shank x 6-1/2" Long		
0.0625	3/16"	GS1-4/16
0.0781	3/16"	GS1-5/16
0.0937	1/4"	GS1-6/16
0.1250	3/8"	GS1-8/16
0.1718	1/2"	GS1-11/16
0.1875	1/2"	GS1-12/16
0.2500	5/8"	GS1-16/16
TOLERANCES: Cutting Diameter +.0/-.004" (.10mm) Shank Diameter + .0/- .0005" (.013mm) xxv		

** Cutter Head Knobs Not Included-May Be Ordered Separately (see pg.8) **

All tools can be quoted with wear-resistant coatings.

Two and Four Flute Engraver Mills



1/8" Shank x 4-1/2" Long			
Cutting Diameter	Flute Length	Two Flute EDP#	Four Flute EDP#
0.0625	3/16"	GS2-4/8	GS4-4/8
0.0781	3/16"	GS2-5/8	GS4-5/8
0.0937	1/4 "	GS2-6/8	GS4-6/8
0.1250	3/8"	GS2-8/8	GS4-8/8
11/64" Shank x 6-1/2" Long			
0.0625	3/16"	GS2-4/11	GS4-4/11
0.0781	3/16"	GS2-5/11	GS4-5/11
0.0937	1/4 "	GS2-6/11	GS4-6/11
0.1250	3/8"	GS2-8/11	GS4-8/11
0.1718	1/2 "	GS2-11/11	GS4-11/11
1/4" Shank x 6-1/2" Long			
0.0625	3/16"	GS2-4/16	GS4-4/16
0.0781	3/16"	GS2-5/16	GS4-5/16
0.0937	1/4"	GS2-6/16	GS4-6/16
0.1250	3/8"	GS2-8/16	GS4-8/16
0.1718	1/2"	GS2-11/16	GS4-11/16
0.1875	1/2"	GS2-12/16	GS4-12/16
0.2500	5/8"	GS2-16/16	GS4-16/16

TOLERANCES: Cutting Diameter +.0/-.004" (.10mm) Shank Diameter + .0/- .0005" (.013mm) XXV

All tools can be quoted with wear-resistant coatings.

** Cutter Knobs Not Included-May Be Ordered Separately (see pg. 8) **

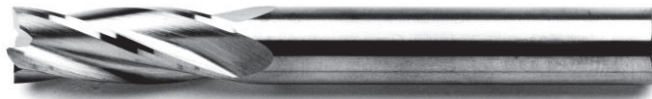
Metric

Attitude Endmills Standard Catalog

2019



“Carbide With Attitude”

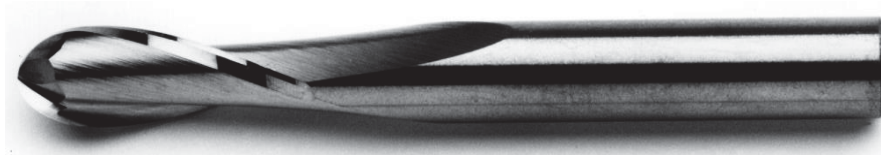


Metric End Mills - Standard Length

Size	Inch	Flute Length	Shank Dia.	OAL	2 Flute EDP#	4 Flute EDP#
1mm	(.039)	4mm	3mm	36mm	S2-1m	S4-1m
1.5mm	(.059)	6mm	3mm	36mm	S2-1.5m	S4-1.5m
2mm	(.078)	8mm	3mm	36mm	S2-2m	S4-2m
2.5mm	(.098)	10mm	3mm	36mm	S2-2.5m	S4-2.5m
3mm	(.118)	12mm	3mm	36mm	S2-3m	S4-3m
3.5mm	(.137)	12mm	4mm	50mm	S2-3.5m	S4-3.5m
4mm	(.157)	14mm	4mm	50mm	S2-4m	S4-4m
4.5mm	(.177)	14mm	5mm	50mm	S2-4.5m	S4-4.5m
5mm	(.197)	16mm	5mm	50mm	S2-5m	S4-5m
6mm	(.236)	19mm	6mm	64mm	S2-6m	S4-6m
7mm	(.276)	22mm	8mm	64mm	S2-7m	S4-7m
8mm	(.315)	22mm	8mm	64mm	S2-8m	S4-8m
9mm	(.354)	22mm	10mm	76mm	S2-9m	S4-9m
10mm	(.393)	25mm	10mm	76mm	S2-10m	S4-10m
11mm	(.433)	25mm	12mm	76mm	S2-11m	S4-11m
12mm	(.472)	25mm	12mm	76mm	S2-12m	S4-12m
14mm	(.552)	32mm	14mm	88mm	S2-14m	S4-14m
16mm	(.629)	38mm	16mm	88mm	S2-16m	S4-16m
18mm	(.708)	38mm	18mm	100mm	S2-18m	S4-18m
20mm	(.787)	38mm	20mm	100mm	S2-20m	S4-20m

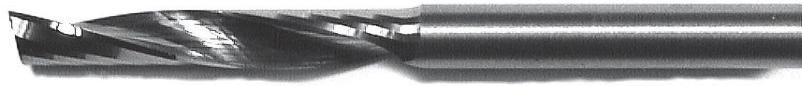
TOLERANCES:

Shank Diameter h6 (ISO 286-2)
 Cutting Diameter up to 12 mm +.000 / - .050mm
 Cutting Diameter over 12mm +.000 / -.075mm



Metric Ball Nose End Mills - Standard Length

Size	Inch	Flute Length	Shank Dia.	OAL	2 Flute EDP#	4 Flute EDP#
1mm	(.039)	4mm	3mm	36mm	B2-1m	B4-1m
1.5mm	(.059)	6mm	3mm	36mm	B2-1.5m	B4-1.5m
2mm	(.078)	8mm	3mm	36mm	B2-2m	B4-2m
2.5mm	(.098)	10mm	3mm	36mm	B2-2.5m	B4-2.5m
3mm	(.118)	12mm	3mm	36mm	B2-3m	B4-3m
3.5mm	(.137)	12mm	4mm	50mm	B2-3.5m	B4-3.5m
4mm	(.157)	14mm	4mm	50mm	B2-4m	B4-4m
4.5mm	(.177)	14mm	5mm	50mm	B2-4.5m	B4-4.5m
5mm	(.197)	16mm	5mm	50mm	B2-5m	B4-5m
6mm	(.236)	19mm	6mm	64mm	B2-6m	B4-6m
7mm	(.276)	22mm	8mm	64mm	B2-7m	B4-7m
8mm	(.315)	22mm	8mm	64mm	B2-8m	B4-8m
9mm	(.354)	22mm	10mm	76mm	B2-9m	B4-9m
10mm	(.393)	25mm	10mm	76mm	B2-10m	B4-10m
11mm	(.433)	25mm	12mm	76mm	B2-11m	B4-11m
12mm	(.472)	25mm	12mm	76mm	B2-12m	B4-12m
14mm	(.552)	32mm	14mm	88mm	B2-14m	B4-14m
16mm	(.629)	38mm	16mm	88mm	B2-16m	B4-16m
18mm	(.708)	38mm	18mm	100mm	B2-18m	B4-18m
20mm	(.787)	38mm	20mm	100mm	B2-20m	B4-20m



Metric One Flute End Mills

These tools are designed to mill aluminum, acrylic, plastic, and wood.

Cutting Diameter	Cutting Length	Shank Diameter	Overall Length	EDP Number
1mm	4mm	3mm	38mm	S1-1.0/3-4-38
1.5mm	6mm	3mm	38mm	S1-1.5/3-6-38
2mm	6mm	3mm	38mm	S1-2.0/3-6-38
2mm	6mm	4mm	50mm	S1-2.0/4-6-50
2mm	6mm	6mm	50mm	S1-2.0/6-6-50
3mm	6mm	3mm	38mm	S1-3.0/3-6-38
3mm	11mm	3mm	38mm	S1-3.0/3-11-38
3mm	6mm	4mm	50mm	S1-3.0/4-6-50
3mm	11mm	4mm	50mm	S1-3.0/4-11-50
3mm	6mm	6mm	50mm	S1-3.0/6-6-50
3mm	11mm	6mm	50mm	S1-3.0/6-11-50
3mm	18mm	6mm	50mm	S1-3.0/6-18-50
4mm	6mm	4mm	50mm	S1-4.0/4-6-50
4mm	12mm	4mm	50mm	S1-4.0/4-12-50
4mm	14mm	4mm	50mm	S1-4.0/4-14-50
4mm	22mm	4mm	50mm	S1-4.0/4-22-50
4mm	6mm	6mm	50mm	S1-4.0/6-6-50
4mm	12mm	6mm	50mm	S1-4.0/6-12-50
4mm	14mm	6mm	50mm	S1-4.0/6-14-50
4mm	22mm	6mm	50mm	S1-4.0/6-22-50

TOLERANCES: Cutting Diameter +0 - .004" (.10mm)

Shank Diameter h6 (ISO 286-2)

Metric One Flute End Mills Continued...

Cutting Diameter	Cutting Length	Shank Diameter	Overall Length	EDP Number
5mm	12mm	6mm	50mm	S1-5.0/6-12-50
5mm	16mm	6mm	50mm	S1-5.0/6-16-50
5mm	22mm	6mm	50mm	S1-5.0/6-22-50
6mm	12mm	6mm	50mm	S1-6.0/6-12-50
6mm	22mm	6mm	50mm	S1-6.0/6-22-50
8mm	22mm	8mm	64mm	S1-8.0/8-22-64
8mm	32mm	8mm	64mm	S1-8.0/8-32-64
10mm	22mm	10mm	64mm	S1-10.0/10-22-64
10mm	32mm	10mm	76mm	S1-10.0/10-32-76
2mm	6mm	6mm	165mm	GS1-2m/6
3mm	10mm	6mm	165mm	GS1-3m/6
4mm	14mm	6mm	165mm	GS1-4m/6
5mm	16mm	6mm	165mm	GS1-5m/6
6mm	22mm	6mm	165mm	GS1-6m/6

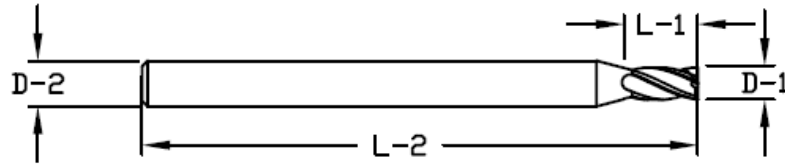
TOLERANCES: Cutting Diameter +0 - .004" (.10mm)

Shank Diameter h6 (ISO 286-2)

Miniature Solid Carbide Endmills

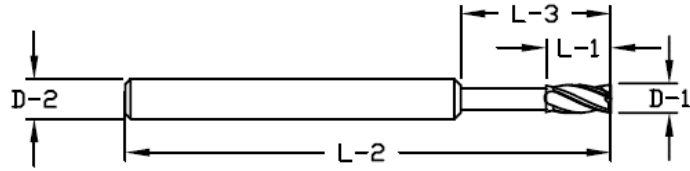


Miniature, Solid Carbide Endmills designed by machinists to be used by machinists! These tools are a group of very useful tools that should be in every professional machinist's tool box. Standard Square and Ball end with a sub-group that have already been conveniently "necked down" for longer reach. Manufactured from the finest quality sub-micron carbide and ground on CNC machines. Concentricity of the cutting edges to the shank is within .0002" providing equal chip load per tooth and a superb tool life and surface finish.



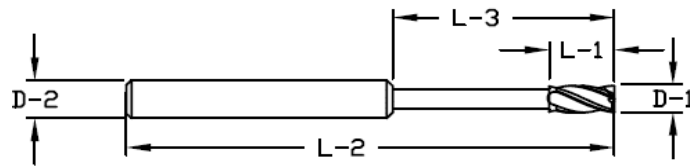
Square Endmills - Standard Length

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2		Item #
0.0312"	0.118"/3mm	0.125"	2.00"	2 Flute	U-2101
0.039"/1mm	0.118"/3mm	0.125"	2.00"	2 Flute	U-2102
0.0625"	0.196"/5mm	0.125"	2.00"	2 Flute	U-2103
0.0781"	0.275"/7mm	0.125"	2.00"	2 Flute	U-2104
0.0937"	0.275"/7mm	0.125"	2.00"	2 Flute	U-2105
0.125"	0.275"/7mm	0.125"	2.00"	4 Flute	U-2106
0.187"	0.312"	0.187"	2.00"	4 Flute	U-2107
0.187"	1.000"	0.187"	4.00"	4 Flute	U-2108
0.250"	0.437"	0.250"	2.50"	4 Flute	U-2109
0.250"	1.000"	0.250"	4.00"	4 Flute	U-2110
0.250"	1.000"	0.250"	6.00"	4 Flute	U-2111
0.375"	0.500"	0.375"	2.50"	4 Flute	U-2112
0.375"	1.000"	0.375"	4.00"	4 Flute	U-2113
0.375"	1.000"	0.375"	6.00"	4 Flute	U-2114
0.500 "	0.625"	0.500 "	2.50"	4 Flute	U-2115
0.500 "	1.000"	0.500 "	4.00"	4 Flute	U-2116
0.500 "	1.000"	0.500 "	6.00"	4 Flute	U-2117
0.125"	0.750"	0.125"	2.50"	4 Flute	U-2135



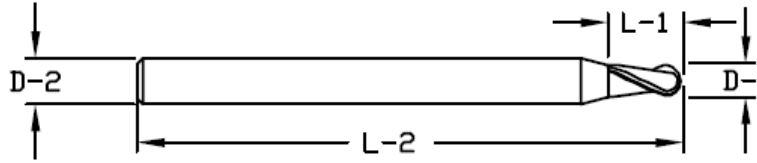
Square Endmills - Long Reach

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2		Reach L-3	Item #
0.0312"	0.118"/3mm	0.125"	2.00"	2 Flute	0.393"/10mm	U-2140
0.039"/1mm	0.118"/3mm	0.125"	2.00"	2 Flute	0.393"/10mm	U-2141
0.0625"	0.196"/5mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2142
0.0781"	0.275"/7mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2143
0.0937"	0.275"/7mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2144



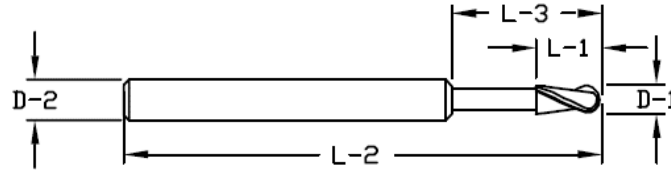
Square Endmills - Extra Long Reach

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2		Reach L-3	Item #
0.0312"	0.118"/3mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2145
0.039"/1mm	0.118"/3mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2146
0.0625"	0.196"/5mm	0.125"	2.00"	2 Flute	0.984"/25mm	U-2147
0.0781"	0.275"/7mm	0.125"	2.00"	2 Flute	0.984"/25mm	U-2148
0.0937"	0.275"/7mm	0.125"	2.00"	2 Flute	0.984"/25mm	U-2149



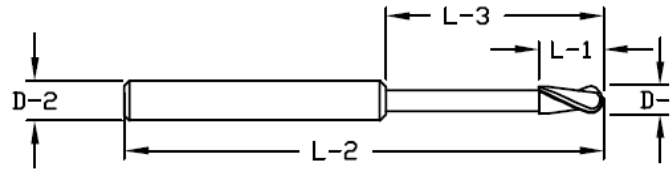
Ball Endmills - Standard Length

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2		Item #
0.0312"	0.118"/3mm	0.125"	2.00"	2 Flute	U-2118
0.039"/1mm	0.118"/3mm	0.125"	2.00"	2 Flute	U-2119
0.0625"	0.196"/5mm	0.125"	2.00"	2 Flute	U-2120
0.0781"	0.275"/7mm	0.125"	2.00"	2 Flute	U-2121
0.0937"	0.275"/7mm	0.125"	2.00"	2 Flute	U-2122
0.125"	0.275"/7mm	0.125"	2.00"	4 Flute	U-2123
0.187"	0.312"	0.187"	2.00"	4 Flute	U-2124
0.187"	1.000"	0.187"	4.00"	4 Flute	U-2125
0.250"	0.437"	0.250"	2.50"	4 Flute	U-2126
0.250"	1.000"	0.250"	4.00"	4 Flute	U-2127
0.250"	1.000"	0.250"	6.00"	4 Flute	U-2128
0.375"	0.500"	0.375"	2.50"	4 Flute	U-2129
0.375"	1.000"	0.375"	4.00"	4 Flute	U-2130
0.375"	1.000"	0.375"	6.00"	4 Flute	U-2131
0.500 "	0.625"	0.500 "	2.50"	4 Flute	U-2132
0.500 "	1.000"	0.500 "	4.00"	4 Flute	U-2133
0.500 "	1.000"	0.500 "	6.00"	4 Flute	U-2134
0.125"	0.750"	0.125"	2.50"	4 Flute	U-2136



Ball Endmills - Long Reach

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2		Reach L-3	Item #
0.0312"	0.118"/3mm	0.125"	2.00"	2 Flute	0.393"/10mm	U-2150
0.039"/1mm	0.118"/3mm	0.125"	2.00"	2 Flute	0.393"/10mm	U-2151
0.0625"	0.196"/5mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2152
0.0781"	0.275"/7mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2153
0.0937"	0.275"/7mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2154

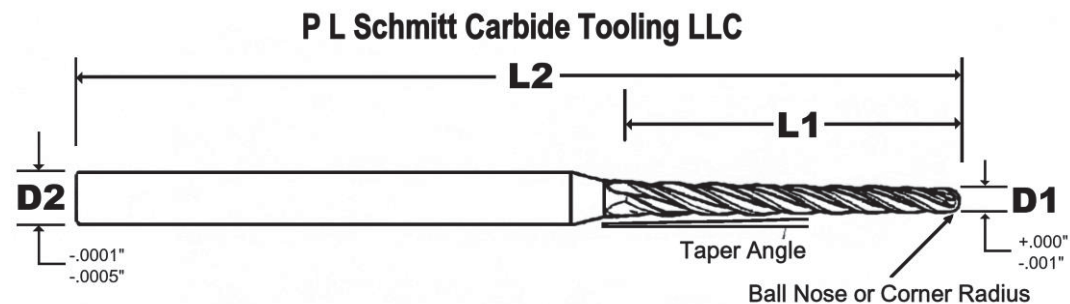


Ball Endmills - Extra Long Reach

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2		Reach L-3	Item #
0.0312"	0.118"/3mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2155
0.039"/1mm	0.118"/3mm	0.125"	2.00"	2 Flute	0.590"/15mm	U-2156
0.0625"	0.196"/5mm	0.125"	2.00"	2 Flute	0.984"/25mm	U-2157
0.0781"	0.275"/7mm	0.125"	2.00"	2 Flute	0.984"/25mm	U-2158
0.0937"	0.275"/7mm	0.125"	2.00"	2 Flute	0.984"/25mm	U-2159

Rib Cutters

Tapered Rib Cutters are designed for deep cavity direct milling for plastic injection molds. These tools are designed to replace EDM burning and hand benching operations with hi-speed milling. These tools have 4 shallow flutes and a flute rake angle that will allow for extremely deep cavities and ribs! Manufactured with the finest quality sub-micron carbide and ground on CNC machines. Concentricity of the cutting edges to the shank is within .0002" providing equal chip load per tooth and a superb tool life and surface finish.



All Tools on 3/16 x 3” Shank (D2 & L2)

Tapered Rib Cutters with .010 Corner Radius - 4 Flute

Short (7 X D1)	Cutting Diameter	Length of Cut		0.0°	0.5°	1.0°	1.5°	2.0°
	D1 +0/-0.001	(L1)		Taper/Side	Taper/Side	Taper/Side	Taper/Side	Taper/Side
	0.030	0.210		CSR-.030-0.0	CSR-.030-0.5	CSR-.030-1.0	CSR-.030-1.5	CSR-.030-2.0
	0.040	0.280		CSR-.040-0.0	CSR-.040-0.5	CSR-.040-1.0	CSR-.040-1.5	CSR-.040-2.0
	0.050	0.350		CSR-.050-0.0	CSR-.050-0.5	CSR-.050-1.0	CSR-.050-1.5	CSR-.050-2.0
	0.060	0.420		CSR-.060-0.0	CSR-.060-0.5	CSR-.060-1.0	CSR-.060-1.5	CSR-.060-2.0
	0.070	0.490		CSR-.070-0.0	CSR-.070-0.5	CSR-.070-1.0	CSR-.070-1.5	CSR-.070-2.0
	0.080	0.560		CSR-.080-0.0	CSR-.080-0.5	CSR-.080-1.0	CSR-.080-1.5	CSR-.080-2.0
	0.090	0.630		CSR-.090-0.0	CSR-.090-0.5	CSR-.090-1.0	CSR-.090-1.5	CSR-.090-2.0

Medium (10 X D1)	D1 +0/-0.001	(L1)		0.0°	0.5°	1.0°	1.5°	2.0°
				Taper/Side	Taper/Side	Taper/Side	Taper/Side	Taper/Side
	0.030	0.300		CMR-.030-0.0	CMR-.030-0.5	CMR-.030-1.0	CMR-.030-1.5	CMR-.030-2.0
	0.040	0.400		CMR-.040-0.0	CMR-.040-0.5	CMR-.040-1.0	CMR-.040-1.5	CMR-.040-2.0
	0.050	0.500		CMR-.050-0.0	CMR-.050-0.5	CMR-.050-1.0	CMR-.050-1.5	CMR-.050-2.0
	0.060	0.600		CMR-.060-0.0	CMR-.060-0.5	CMR-.060-1.0	CMR-.060-1.5	CMR-.060-2.0
	0.070	0.700		CMR-.070-0.0	CMR-.070-0.5	CMR-.070-1.0	CMR-.070-1.5	CMR-.070-2.0
	0.080	0.800		CMR-.080-0.0	CMR-.080-0.5	CMR-.080-1.0	CMR-.080-1.5	CMR-.080-2.0
	0.090	0.900		CMR-.090-0.0	CMR-.090-0.5	CMR-.090-1.0	CMR-.090-1.5	CMR-.090-2.0

Long (14 X D1)	D1 +0/-0.001	(L1)		0.0°	0.5°	1.0°	1.5°	2.0°
				Taper/Side	Taper/Side	Taper/Side	Taper/Side	Taper/Side
	0.030	0.420		CLR-.030-0.0	CLR-.030-0.5	CLR-.030-1.0	CLR-.030-1.5	CLR-.030-2.0
	0.040	0.560		CLR-.040-0.0	CLR-.040-0.5	CLR-.040-1.0	CLR-.040-1.5	CLR-.040-2.0
	0.050	0.700		CLR-.050-0.0	CLR-.050-0.5	CLR-.050-1.0	CLR-.050-1.5	CLR-.050-2.0
	0.060	0.840		CLR-.060-0.0	CLR-.060-0.5	CLR-.060-1.0	CLR-.060-1.5	CLR-.060-2.0
	0.070	0.980		CLR-.070-0.0	CLR-.070-0.5	CLR-.070-1.0	CLR-.070-1.5	CLR-.070-2.0
	0.080	1.120		CLR-.080-0.0	CLR-.080-0.5	CLR-.080-1.0	CLR-.080-1.5	CLR-.080-2.0
	0.090	1.260		CLR-.090-0.0	CLR-.090-0.5	CLR-.090-1.0	CLR-.090-1.5	CLR-.090-2.0

Tapered Rib Cutters with Ball End - 4 Flute

Short (7 X D1)	Cutting Diameter	Length of Cut		0.0°	0.5°	1.0°	1.5°	2.0°
	D1 +0/-0.001	(L1)		Taper/Side	Taper/Side	Taper/Side	Taper/Side	Taper/Side
	0.030	0.210		BSR-.030-0.0	BSR-.030-0.5	BSR-.030-1.0	BSR-.030-1.5	BSR-.030-2.0
	0.040	0.280		BSR-.040-0.0	BSR-.040-0.5	BSR-.040-1.0	BSR-.040-1.5	BSR-.040-2.0
	0.050	0.350		BSR-.050-0.0	BSR-.050-0.5	BSR-.050-1.0	BSR-.050-1.5	BSR-.050-2.0
	0.060	0.420		BSR-.060-0.0	BSR-.060-0.5	BSR-.060-1.0	BSR-.060-1.5	BSR-.060-2.0
	0.070	0.490		BSR-.070-0.0	BSR-.070-0.5	BSR-.070-1.0	BSR-.070-1.5	BSR-.070-2.0
	0.080	0.560		BSR-.080-0.0	BSR-.080-0.5	BSR-.080-1.0	BSR-.080-1.5	BSR-.080-2.0
	0.090	0.630		BSR-.090-0.0	BSR-.090-0.5	BSR-.090-1.0	BSR-.090-1.5	BSR-.090-2.0

Medium (10 X D1)	D1 +0/-0.001	(L1)		0.0°	0.5°	1.0°	1.5°	2.0°
				Taper/Side	Taper/Side	Taper/Side	Taper/Side	Taper/Side
	0.030	0.300		BMR-.030-0.0	BMR-.030-0.5	BMR-.030-1.0	BMR-.030-1.5	BMR-.030-2.0
	0.040	0.400		BMR-.040-0.0	BMR-.040-0.5	BMR-.040-1.0	BMR-.040-1.5	BMR-.040-2.0
	0.050	0.500		BMR-.050-0.0	BMR-.050-0.5	BMR-.050-1.0	BMR-.050-1.5	BMR-.050-2.0
	0.060	0.600		BMR-.060-0.0	BMR-.060-0.5	BMR-.060-1.0	BMR-.060-1.5	BMR-.060-2.0
	0.070	0.700		BMR-.070-0.0	BMR-.070-0.5	BMR-.070-1.0	BMR-.070-1.5	BMR-.070-2.0
	0.080	0.800		BMR-.080-0.0	BMR-.080-0.5	BMR-.080-1.0	BMR-.080-1.5	BMR-.080-2.0
	0.090	0.900		BMR-.090-0.0	BMR-.090-0.5	BMR-.090-1.0	BMR-.090-1.5	BMR-.090-2.0

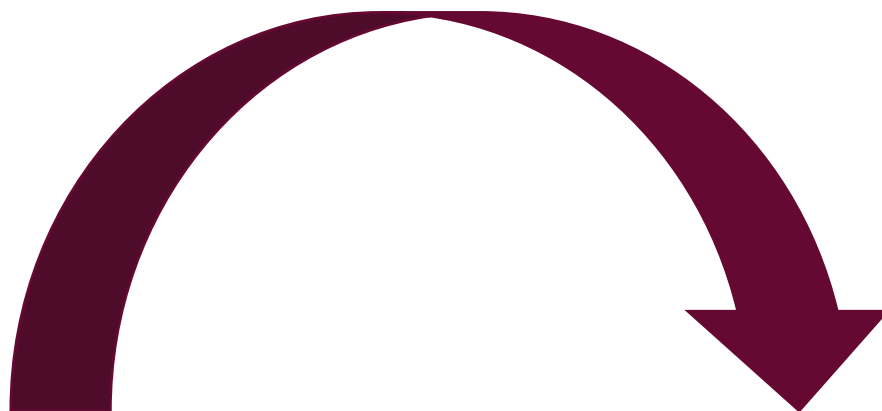
Long (14 X D1)	D1 +0/-0.001	(L1)		0.0°	0.5°	1.0°	1.5°	2.0°
				Taper/Side	Taper/Side	Taper/Side	Taper/Side	Taper/Side
	0.030	0.420		BLR-.030-0.0	BLR-.030-0.5	BLR-.030-1.0	BLR-.030-1.5	BLR-.030-2.0
	0.040	0.560		BLR-.040-0.0	BLR-.040-0.5	BLR-.040-1.0	BLR-.040-1.5	BLR-.040-2.0
	0.050	0.700		BLR-.050-0.0	BLR-.050-0.5	BLR-.050-1.0	BLR-.050-1.5	BLR-.050-2.0
	0.060	0.840		BLR-.060-0.0	BLR-.060-0.5	BLR-.060-1.0	BLR-.060-1.5	BLR-.060-2.0
	0.070	0.980		BLR-.070-0.0	BLR-.070-0.5	BLR-.070-1.0	BLR-.070-1.5	BLR-.070-2.0
	0.080	1.120		BLR-.080-0.0	BLR-.080-0.5	BLR-.080-1.0	BLR-.080-1.5	BLR-.080-2.0
	0.090	1.260		BLR-.090-0.0	BLR-.090-0.5	BLR-.090-1.0	BLR-.090-1.5	BLR-.090-2.0

Single Flute Endmills

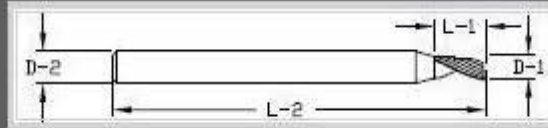
Also Known As One Flute and O Flute Endmills

Full Line of Single Flute Endmills offered in inch as shown below. We also offer these endmills in metric sizes. See the metric tab on our Products Page.

Call or Email for a Quote!



This uniquely designed one flute tool is engineered for machining many materials such as aluminum, acrylic, plastic, wood, sign foam and MDF. The special end tooth configuration allows very aggressive drill-type penetration when a new hole or cut is to be started. The helical flute geometry gives a much smoother "cut" and surface finish while allowing a much higher chip evacuation when milling a groove or trimming an edge. These tools are built with a high grade of micro grain tungsten carbide with a transverse rupture strength in excess of 500,000 psi! This material and special end design gives superb strength and life to the corner and cutting edges. Use these tools and work with . . . "Attitude"!



Single Flute Endmills

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2	Item #
0.0625"	0.312"	0.125"	2.00"	S1-4
0.093"	0.437"	0.125"	2.00"	S1-6
0.125"	0.562"	0.125"	2.00"	S1-8
0.062"	0.312"	0.250"	2.00"	S1-4/16
0.093"	0.437"	0.250"	2.00"	S1-6/16
0.125"	0.562"	0.250"	2.00"	S1-8/16
0.125"	1.060"	0.250"	2.50"	S1-8/16-L
0.187"	0.560"	0.250"	2.00"	S1-12/16
0.187"	0.810"	0.250"	2.00"	S1-12/16-M
0.187"	1.060"	0.250"	2.50"	S1-12/16-L
0.250"	0.625"	0.250"	2.00"	S1-16
0.250"	0.810"	0.250"	2.00"	S1-16-M
0.250"	1.060"	0.250"	2.00"	S1-16-L
0.250"	1.560"	0.250"	3.00"	S1-16-EL
0.375"	1.060"	0.375"	3.00"	S1-24
0.375"	2.060"	0.375"	4.00"	S1-24-EL

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2	Item #
0.0625"	0.187"	0.125"	4.50"	GS1-4/8
0.078"	0.187"	0.125"	4.50"	GS1-5/8
0.093"	0.250"	0.125"	4.50"	GS1-6/8
0.125"	0.375"	0.125"	4.50"	GS1-8/8

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2	Item #
0.0625"	0.187"	0.171"	6.50"	GS1-4/11
0.078"	0.187"	0.171"	6.50"	GS1-5/11
0.093"	0.250"	0.171"	6.50"	GS1-6/11
0.125"	0.375"	0.171"	6.50"	GS1-8/11
0.171"	0.500"	0.171"	6.50"	GS1-11/11

Cutting Diameter D-1	Cutting Length L-1	Shank Diameter D-2	Overall Length L-2	Item #
0.0625"	0.187"	0.250"	6.50"	GS1-4/16
0.078"	0.187"	0.250"	6.50"	GS1-5/16
0.093"	0.250"	0.250"	6.50"	GS1-6/16
0.125"	0.375"	0.250"	6.50"	GS1-8/16
0.171"	0.500"	0.250"	6.50"	GS1-11/16
0.187"	0.500"	0.250"	6.50"	GS1-12/16
0.250"	0.625"	0.250"	6.50"	GS1-16/16

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