

A.B. Tools, Inc.



Manufacturing High Performance Rotary Cutting Tools since 1977

1051 Aviation Blvd.
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**Back cover: Shear Hogs, Shank style

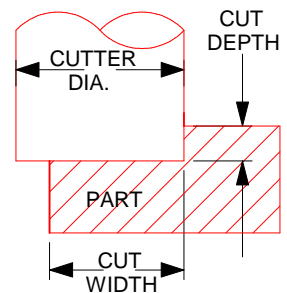
Faster CIM metal removal rates in aluminum depend more on IPM feed rates, horsepower and the cutter geometry than RPM.

You'll get higher CIM with smaller cutters, (assuming you're rough milling with cutters about one inch in diameter and larger).
On tests 5, 6 and 8, with full diameter cuts, the one inch gets 46 CIM, the 1-1/4 gets 42 CIM and the two inch gets 37 CIM.

You'll get higher CIM with a cut width that is about 3/4 of the cutter diameter than with a full diameter cut width, (a long accepted machinist's rule).

Compare Tests 1 versus 3 and 6 versus 7.

You can get the same CIM with fewer flutes, plus reduced insert costs; see Test 8.



See back cover for SH750 and all of the shank style Shear-Hogs.

Test No.	Cutter	Cutter Dia.	RPM	Cut Width	Cut Depth	IPM Feed	No. Flutes	IPT Chip	CIM
1.	SH750	.750	7500	.750	.375	150	1	.020	42
2.	*below	.750	7500	.750	.375	130	2	.008	36
3.	SH750	.750	7500	.600	.250	315	1	.042	46
4.	*below	.750	7500	.600	.250	275	2	.018	41
5.	SH100	1.0	6500	1.0	.125	370	1	.057	46
6.	SH125	1.25	6500	1.25	.125	275	2	.027	42
7.	SH125	1.25	6500	1.0	.250	375	2	.037	47
8.	SH200	2.0	6500	2.0	.250	75	2 & 3	.006/.004	37

* A major brand solid carbide, 2 flute end mill, with High Rake for aluminum.

All tests were run on a recent model Haas VF1 based on the highest Inches Per Minute possible with the load meter showing 100%. Haas estimates 7.5 actual spindle HP at 6500 RPM.

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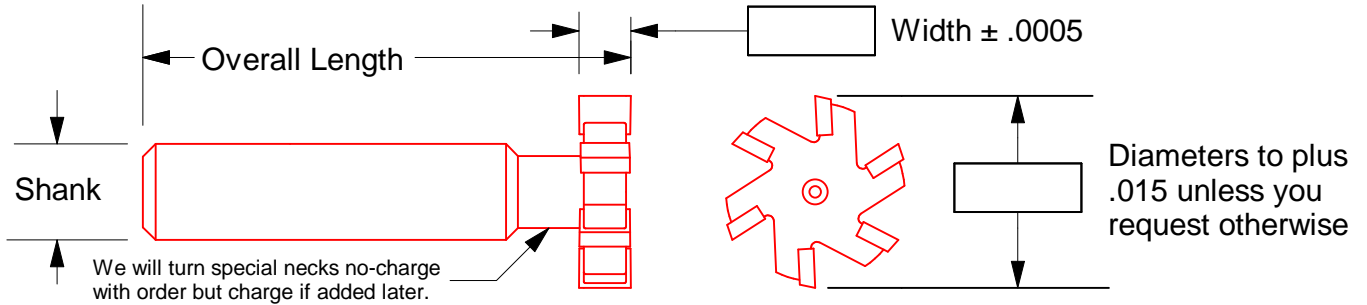
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Carbide Tipped Keyseat Cutters with your decimal width in 3-6 working days.

Your part material?



Diameter Plus .015 Minus Zero	Width Range	Basic Cutter Prices				Shank & Overall Length
		For Aluminum Flutes	Price	For Ferrous Flutes	Price	
5/8	.065/.190	2	\$90.	5	\$115.	1/2 Shank 2.5 OAL
3/4	.065/.220	2	\$95.	5	\$115.	
7/8	.075/.255	2	\$105.	6	\$120.	
1	.085/.315	2	\$110.	6	\$125.	
1-1/8	.110/.315	2	\$110.	6	\$140.	
1-1/4	.110/.350	3	\$115.	8	\$155.	
1-3/8	.110/.380	3	\$125.	8	\$160.	

1-1/2	.110/.374	3	\$140.	8	\$180.	3/4 Shank 3.5 OAL
1-1/2	.375/.505	3	\$175.	8	\$215.	
1-3/4	.120/.374	4	\$165.	10	\$210.	
1-3/4	.375/.505	4	\$190.	10	\$235.	
2	.120/.374	4	\$190.	12	\$245.	
2	.375/.505	4	\$220.	12	\$275.	
2-1/2	.120/.374	6	\$225.	12	\$300.	
2-1/2	.375/.505	6	\$250.	12	\$335.	

* For Minor Modifications add to your basic price.

<p>1 CHAMFER.... \$35. 2 CHAMFERS.. \$50.</p>	<p>FULL RADIUS \$60.</p>
<p>1 RADIUS..... \$40. 2 RADII..... \$60.</p>	<p>Slot plus topping chamfer, basic price plus 50%</p>

Suggested Starting Data:
 Ferrous 150-250 SFM; .001/.003 IPT
 Non-Ferrous 1K-3K SFM; .002/.006 IPT

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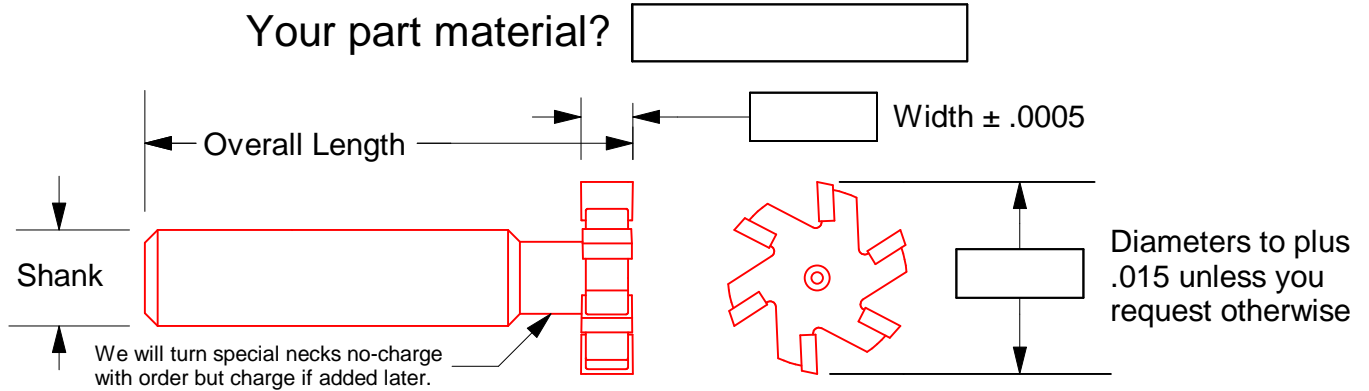


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Extra Long Carbide Tipped Keyseat Cutters with your decimal width in 3-6 working days.



Diameter Plus .015 Minus Zero	Width Range	Basic Cutter Prices				Shank & Overall Length
		For Aluminum Flutes	Price	For Ferrous Flutes	Price	
5/8	.065/.190	2	\$130.	5	\$145.	1/2 Shank 4.5 OAL
3/4	.065/.220	2	\$130.	5	\$145.	
7/8	.075/.255	2	\$140.	6	\$150.	
1	.085/.315	2	\$145.	6	\$160.	
1-1/8	.110/.315	2	\$145.	6	\$170.	
1-1/4	.110/.350	3	\$150.	8	\$180.	
1-3/8	.110/.380	3	\$160.	8	\$190.	

1-1/2	.110/.374	3	\$175.	8	\$215.	3/4 Shank 6.0 OAL
1-1/2	.375/.505	3	\$210.	8	\$250.	
1-3/4	.120/.374	4	\$195.	10	\$245.	
1-3/4	.375/.505	4	\$225.	10	\$270.	
2	.120/.374	4	\$225.	12	\$270.	
2	.375/.505	4	\$250.	12	\$310.	
2-1/2	.120/.374	6	\$260.	12	\$335.	
2-1/2	.375/.505	6	\$285.	12	\$375.	

* For Minor Modifications add to your basic price.

<p>1 CHAMFER.... \$35. 2 CHAMFERS.. \$50.</p>	<p>FULL RADIUS \$60.</p>
<p>1 RADIUS..... \$40. 2 RADII..... \$60.</p>	<p>Slot plus topping chamfer, basic price plus 50%</p>

Suggested Starting Data:
 Ferrous 150-250 SFM; .001/.003 IPT
 Non-Ferrous 1K-3K SFM; .002/.006 IPT

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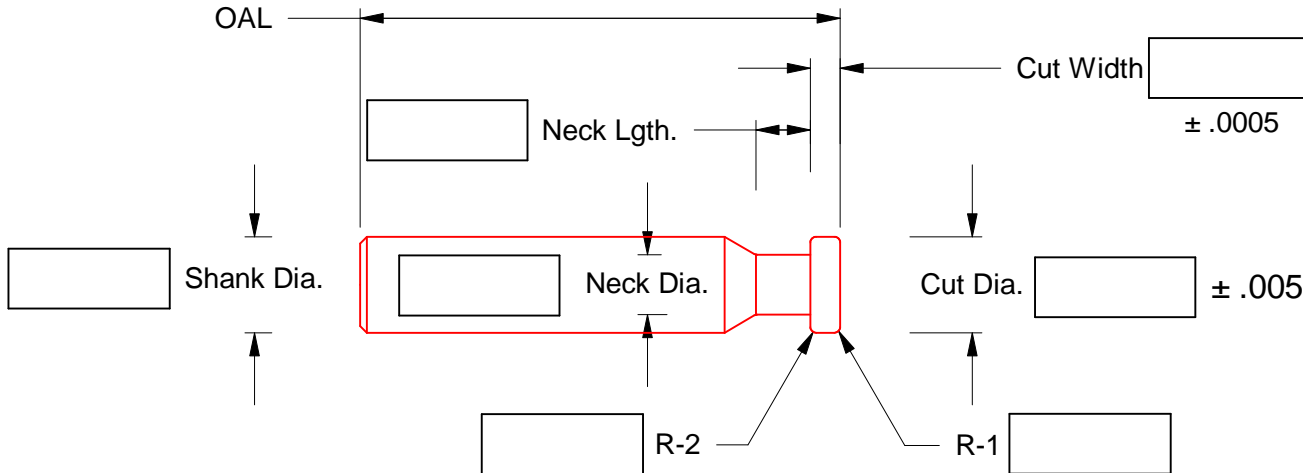
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Solid Carbide Slotting (Keyseat) Cutters

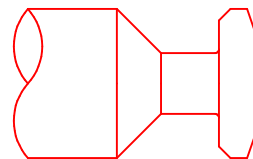
.520 diameter and smaller, 3-6 work days.

Machining what part material, please? _____

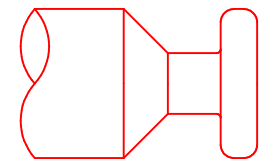


Suggest Starting Data:
 Ferrous 150 to 300 SFM; .001/.003 IPT
 Non-Ferrous 1K-3K SFM, .002/.006 IPT
 For thin or weak necked cutters, .0005 IPT

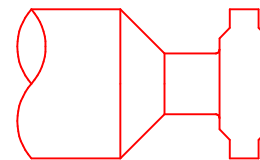
Number of flutes is your choice based on feasibility. We suggest coarse for non-ferrous, medium for titanium/stainless & maximum for cast iron and tough materials.



One Chamfer \$35.
 Two Chamfers \$50.



One Radius \$40.
 Two Radii or Full Radius \$60.



Slot plus top Chamfers,
 Basic plus 50%

Add above prices to the basic price for minor modifications.

Cut Diameter	Shank & OAL	Basic Price
.030/.060	3/16 X 2	\$105.
.062/.186	3/16 X 2	\$90.
.188/.248	1/4 X 2	\$95.
.250/.390	3/8 X 2.5	\$105.
.400/.520	1/2 X 2.5	\$115.



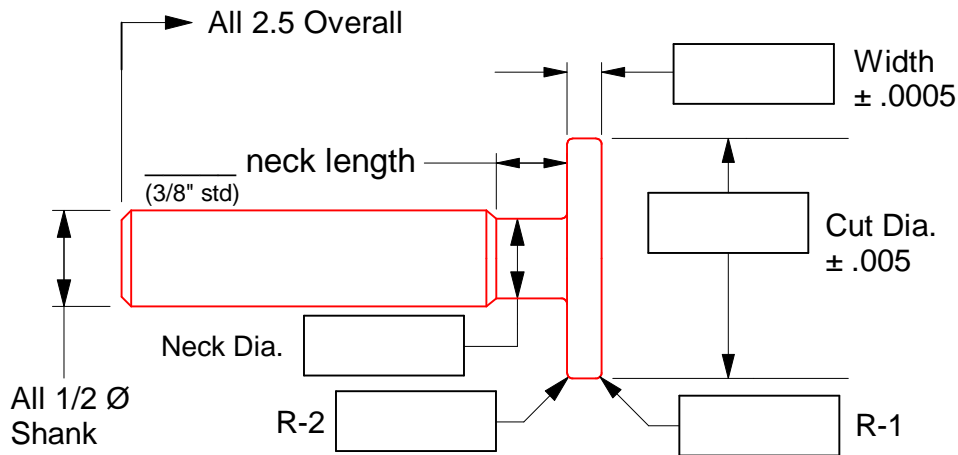
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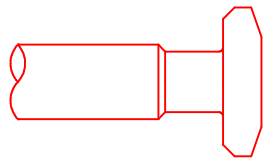
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Solid Carbide Slotting (Keyseat) Cutters from .530 to 2.0 diameters, 3-6 work days.

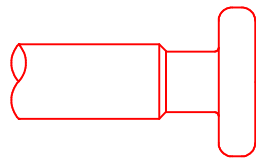
Machining what part material, please? _____



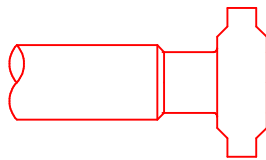
Necks can be modified at no extra charge if feasible.



One Chamfer **\$35.**
Two Chamfers **\$50.**



One Radius **\$40.**
Two Radii or
Full Radius **\$60.**



Slot plus topping
Chamfers,
Basic plus 50%

Number of flutes is your
choice based on feasibility.
We suggest coarse for
non-ferrous, medium
for titanium/stainless &
maximum for cast iron
and tough materials.

Suggest Starting Data:
Ferrous 150 to 300 SFM; .001/.003 IPT
Non-Ferrous 1K-3K SFM, .002/.006 IPT
For thin or weak necked cutters, .0005 IPT

Cut Dia.	Max. no. of Flutes	As-Cast Neck Dia.	Basic Prices for .010 thru .135 Widths	Basic Prices for .136 thru .260. Widths	Basic Prices for .261 thru .374 Widths	Basic Prices for .375 thru .440 Widths
.625	8	3/8	\$145.	\$150.	\$155.	
.750	10	7/16	\$150.	\$156.	\$168.	
1.0	12	7/16	\$155.	\$163.	\$172.	
1.25	14	7/16	\$165.	\$172.	\$180.	\$225.
1.50	16	7/16	\$180.	\$195.	\$220.	\$245.
1.75	18	15/32	\$205.	\$220.	\$245.	\$285.
2.00	20	15/32	\$220.	\$235.	\$270.	\$305.

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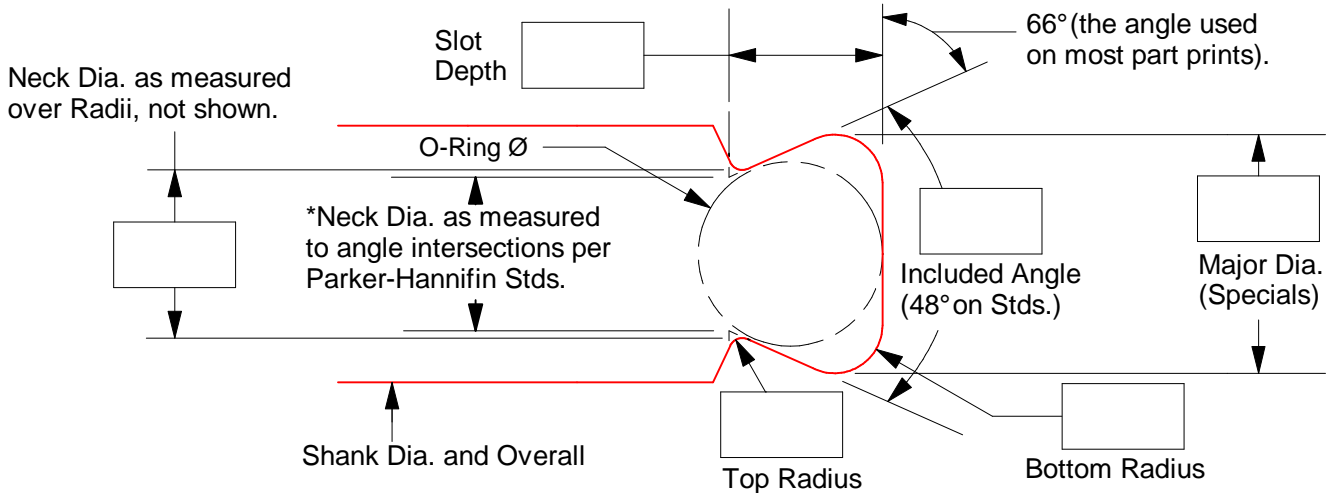
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Solid Carbide Dovetail Cutters for O-Ring Grooves

These stock cutters conform to the standards suggested by the Seal Division of Parker Hannifin Corp. On-size and undersize diameters are also in stock, (see -5, -8, etc.)

NUMBER	O'RING DIA.	*NECK DIA.	SLOT DEPTH	TOP RAD.	BOTT. RAD.	NO. OF FLUTES	SHANK & OVERALL	PRICES	
								No Coat	TICN
DT1/16 DT1/16-5	.070	.057 .052	.051	.005	.015	1	3/16 X 2	\$68.	\$72.
DT3/32 DT3/32-8	.103	.085 .077	.082	.010	.015	2	3/16 X 2	\$68.	\$72.
DT1/8 DT1/8-10	.139	.115 .105	.112	.010	.031	2	1/4 X 2	\$75.	\$79.
DT3/16 DT3/16-12	.210	.173 .161	.172	.015	.031	3	5/16 X 2.5	\$85.	\$90.
DT1/4 DT1/4-15	.275	.233 .218	.232	.015	.062	3	3/8 X 2.5	\$95.	\$101.
DT3/8 DT3/8-15	.375	.317 .302	.317	.020	.094	4	1/2 X 2.5	\$122.	\$130.



Specials in 4-6 working days.

Special Carbide Cutters for O-Ring Grooves	To 1/4 Major Diameter .251 thru .375 Major Dia. .376 thru .500 Major Dia.	1 at \$160. and 2 at \$135. each 1 at \$195. and 2 at \$150. each 1 at \$235. and 2 at \$165. each
--	---	--

Parker Hannifin suggests..."Insufficient top radius will damage the seal; excessive top radius may lead to extrusion." Our stock cutters will produce on-size grooves if the previously end milled slot is close to finish width and depth, (or you can "climb" both walls with our undersize cutters).

These cutters run well in 304, uncoated, at 100-150 SFM and .001/.0015 IPT.

For "LATHE APPLICATIONS" see dovetails on page 8.



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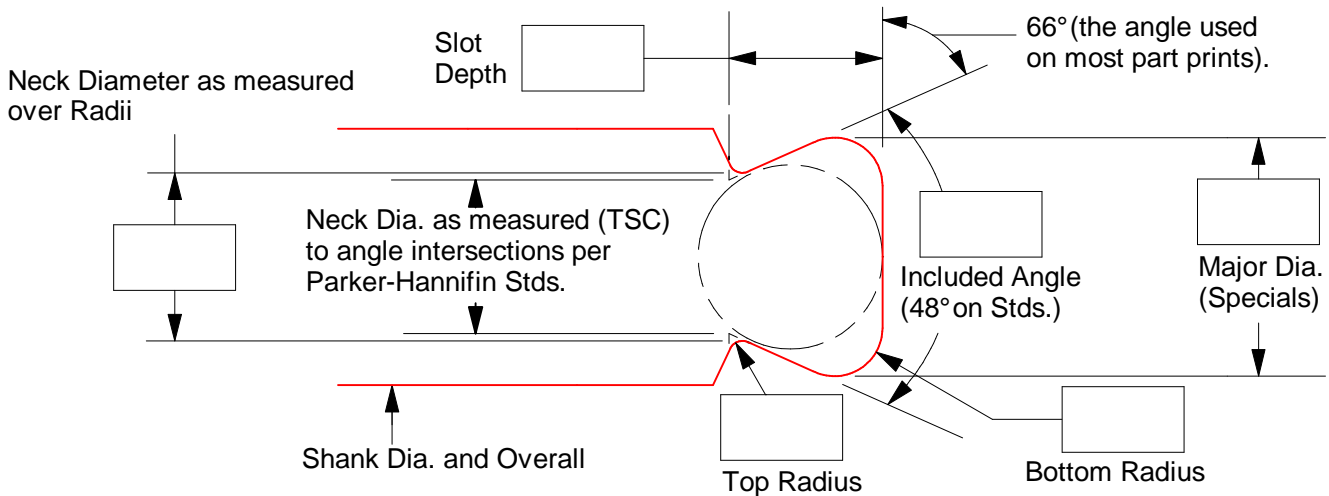
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E-Mail: mail@abtoolsinc.com

Solid Carbide Dovetail for O-Ring Grooves (Metric)

These stock cutters conform to the standards suggested by the Seal Division of Parker Hannifin Corp.
Metric (mm) dimensions are available upon request.

NUMBER	NECK OVER R	NECK TSC	SLOT DEPTH	TOP RAD	BOTT RAD	NO. OF FLUTES	SHANK & OVERALL	PRICES	
								No Coat	TICN
DT3MM	.102	.096	.094	.010	.016	2	3/16 X 2	\$68.	\$72.
DT3.5MM	.121	.110	.110	.010	.031	2			
DT4MM	.133	.122	.126	.010	.031	2	1/4 X 2	\$72.	\$76.
DT4.5MM	.149	.138	.144	.010	.031	2			
DT5MM	.162	.152	.163	.010	.031	3	5/16 X 2.5	\$85.	\$90.
DT5.5MM	.183	.165	.181	.016	.031	3			
DT6MM	.196	.179	.199	.016	.031	3	3/8 X 2.5	\$95.	\$101.
DT6.5MM	.210	.193	.2165	.016	.031	3			
DT7MM	.224	.207	.234	.016	.059	3	3/8 X 2.5	\$95.	\$101.
DT7.5MM	.238	.2205	.252	.016	.059	3	1/2 X 2.5	\$122.	\$130.
DT8MM	.258	.236	.270	.020	.059	3	1/2 X 2.5	\$122.	\$130.
DT8.5MM	.272	.250	.289	.020	.059	3			
DT9MM	.285	.264	.307	.020	.059	3	1/2 X 2.5	\$122.	\$130.
DT9.5MM	.299	.278	.323	.020	.059	3			
DT10MM	.313	.291	.3425	.020	.059	3	5/8 X 3.5	\$155.	\$165.



Specials in 4-6 working days.

Special Carbide Cutters for O-Ring Grooves	To 1/4" Major Diameter .251 thru .375 Major Dia. .376 thru .500 Major Dia.	1 at \$160. and 2 at \$135. each 1 at \$195. and 2 at \$150. each 1 at \$235. and 2 at \$165. each
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Parker Hannifin suggests... "Insufficient top radius will damage the seal; excessive top radius may lead to extrusion." Our stock cutters will produce on-size grooves if the previously end milled slot is close to finish width and depth.

These cutters run well in 304, uncoated, at 100-150 SFM and .001/.0015 IPT.



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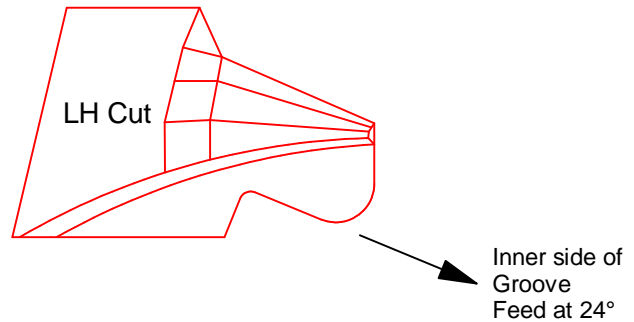
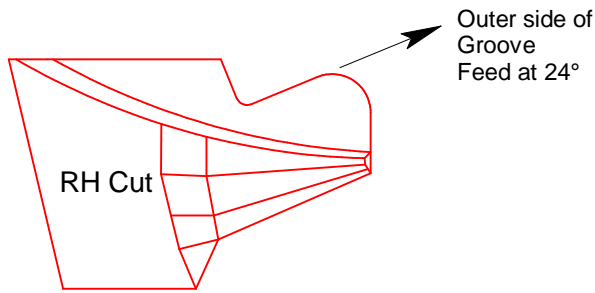
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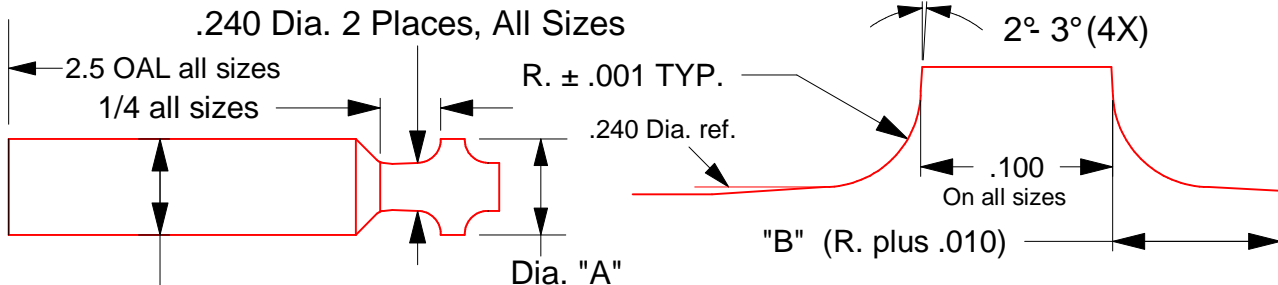
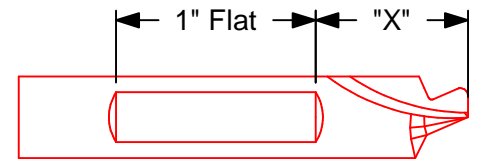
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Solid Carbide O-Ring Dovetails for Lathes

Single flute carbide O-Ring form tools for lathe applications. Same groove dimensions as our O-Ring dovetail cutters, page 6, that match Parker Hannifin standards.



Number	"X"	Shank	Price	TICN
DTL1/16-R or DTL1/16-L	1/2"	3/16"	\$78.	\$82.
DTL3/32-R or DTL3/32-L	1/2"	3/16"	\$78.	\$82.
DTL1/8-R or DTL1/8-L	5/8"	1/4"	\$85.	\$89.
DTL3/16-R or DTL3/16-L	3/4"	5/16"	\$90.	\$95.
DTL1/4-R or DTL1/4-L	7/8"	3/8"	\$100.	\$106.
DTL3/8-R or DTL3/8-L	1"	1/2"	\$145.	\$153.



TOP & BOTTOM Corner Rounders

Single End, 3 Flutes, Micrograin Carbide

Tool No.	R. Size	Dia. "A"	Lgth. "B"	Shank Dia.	Price	
					No-Coat	TICN
CRD-015	.015	.290	.025	3/8	\$135.	\$141.
CRD-020	.020	.300	.030	3/8	\$135.	\$141.
CRD-031	.031	.322	.041	3/8	\$135.	\$141.
CRD-031	.040	.340	.050	3/8	\$135.	\$141.
CRD-046	.046	.352	.056	3/8	\$135.	\$141.
CRD-062	.062	.384	.072	1/2	\$150.	\$158.
CRD-078	.078	.416	.088	1/2	\$150.	\$158.
CRD-093	.093	.446	.103	1/2	\$150.	\$158.
CRD-109	.109	.478	.119	1/2	\$150.	\$158.
CRD-125	.125	.510	.135	1/2	\$150.	\$158.

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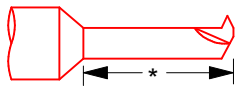


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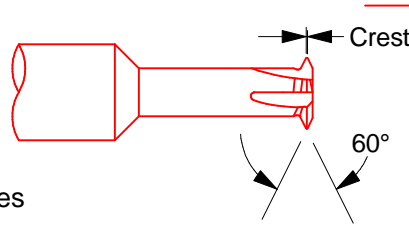
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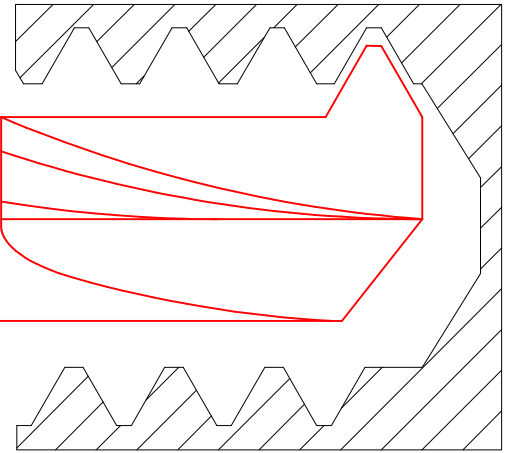
Solid Carbide Thread Mills



*Necks ground longer on request with minimal charges based on quantity.



Suggested Starting Data:
 Ferrous 150/300 SFM; .0002/.001 IPT
 Non-Ferrous 500/1000 SFM: .0005/.0015 IPT
 Interpolate helix from bottom up.

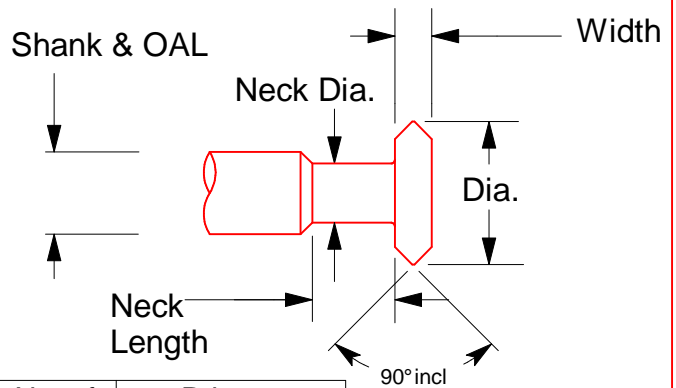


With these NINE cutters you can mill Coarse or Fine threads from No. 3 thru 5/8 and from 2MM thru 16MM.

Number	For Sizes (NC & NF)	Cut Dia.	Crest	Neck Dia.	Neck* Lgth.	Shank & OAL	No. of Flutes	Price No Coat	TICN
TM3	#3 2MM	.072	.001	.040	.160	3/16 X 2	1	\$60.	\$64.
TM4	#4 3MM #5 3.5MM	.080	.001	.050	.190	3/16 X 2	1	\$60.	\$64.
TM6	#6 4MM	.099	.0015	.055	.260	3/16 X 2	2	\$60.	\$64.
TM8	#8 4.5MM	.128	.002	.083	.320	3/16 X 2	3	\$65.	\$69.
TM10	#10 5MM	.139	.0025	.081	.380	3/16 X 2	3	\$65.	\$69.
TM1/4	1/4 6MM	.188	.003	.124	.400	1/4 X 2	4	\$71.	\$75.
TM5/16	5/16 8MM	.247	.003	.175	.500	3/8 X 2.5	4	\$76.	\$82.
TM3/8	3/8 10MM	.300	.0030	.218	.600	3/8 X 2.5	4	\$76.	\$82.
TM1/2	1/2 16MM	.420	.0035	.300	.800	1/2 X 2.5	6	\$87.	\$95.

TOP & BOTTOM Chamfer Cutters

Suggested Starting Data:
 Ferrous 150/300 SFM; .0005/.002 IPT
 Non-Ferrous 500/1000 SFM: .0005/.005 IPT



Tool No.	Dia.	Width	Neck Dia.	Neck Lgth.	Shank & OAL	No. of Flutes	Price No-Coat	TICN
CCD-187	.187	.060	.115	.38	3/16-2	4	\$65.	\$69.
CCD-250	.250	.090	.150	.44	1/4-2	4	\$75.	\$79.
CCD-375	.375	.110	.250	.50	3/8-2.5	6	\$90.	\$96.
CCD-500	.500	.125	.350	.68	1/2-2.5	6	\$100.	\$108.
CCD-625	.625	.140	.440	.75	1/2-2.5	8	\$115.	\$125.
CCD-750	.750	.170	.440	1.0	1/2-2.5	10	\$125.	\$137.
CCD-100	1.00	.200	.440	1.2	1/2-2.5	12	\$145.	\$160.

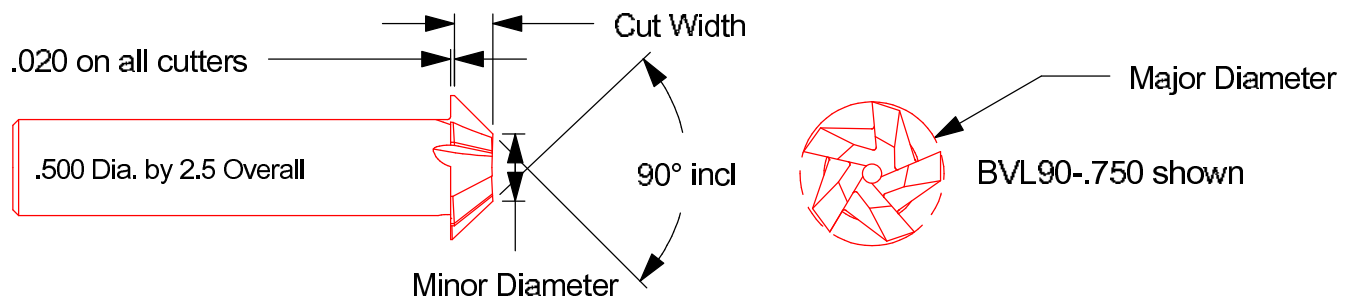


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 Lincoln, CA 95648-9312

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 www.abtoolsinc.com
 E-Mail: mail@abtoolsinc.com

Bevel Cutters, Solid Carbide, In stock.

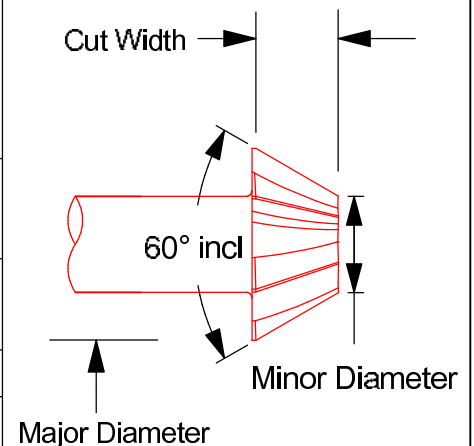


90° Included Angles

Number	Major Diameter	Minor Diameter	Cut Width	Number of Flutes	Price
BVL 90-.500	.500	.250	.125	4	\$95.
BVL 90-.750	.750	.375	.188	5	\$110.
BVL 90-1.00	1.000	.375	.312	6	\$125.
BVL 90-1.25	1.250	.500	.375	8	\$140.
BVL 90-1.50*	1.500	.500	.375	10	\$175.

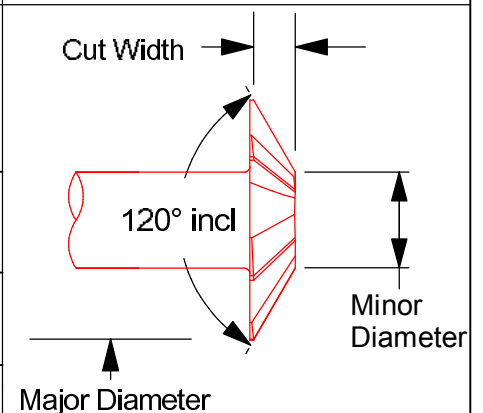
60° Included Angles

Number	Major Diameter	Minor Diameter	Cut Width	Number of Flutes	Price
BVL 60-.500	.500	.246	.220	4	\$95.
BVL 60-.750	.750	.390	.312	5	\$110.
BVL 60-1.00	1.000	.503	.430	6	\$125.
BVL 60-1.25*	1.250	.673	.500	8	\$165.
BVL 60-1.50*	1.500	.778	.625	10	\$175.



120° Included Angles

Number	Major Diameter	Minor Diameter	Cut Width	Number of Flutes	Price
BVL 120-.500	.500	.266	.090	4	\$95.
BVL 120-.750	.750	.317	.125	5	\$110.
BVL 120-1.00	1.000	.350	.188	6	\$125.
BVL 120-1.25	1.250	.488	.220	8	\$140.
BVL 120-1.50	1.500	.634	.250	10	\$165.



*These cutters have a 3/4 shank diameter

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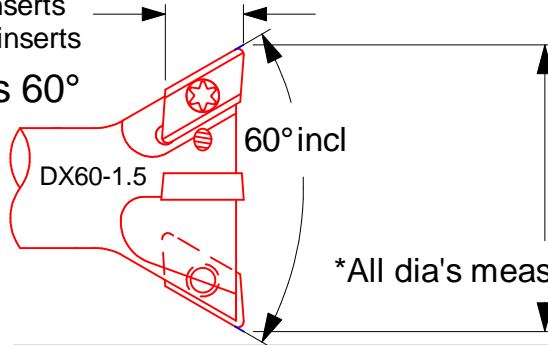
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The Dexi-Dovetails

from 10° to 60° included

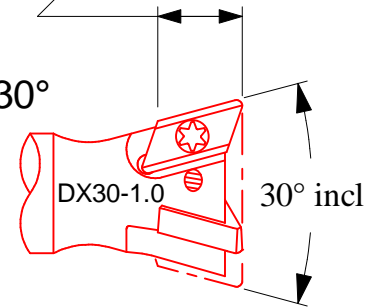
.390 with Di60 inserts
.600 with Di60L inserts

Cut Depths 60°



.447 with Di60 inserts
.680 with Di60L inserts

Cut Depths 30°



*All dia's measured to sharp.

with Short
Inserts
Di60-

with Long
Inserts
Di60L-

Cutter Number	*Dia.	Cut Depth	Incl Angle	Shank & Overall	Flutes	Price
DX10-1.25	1-1/4	.440	10°	3/4 X 3.5	4	\$195.
DX20-1.25	1-1/4	.430	20°	3/4 X 3.25	3	\$185.
DX30-1.25	1-1/4	.420	30°	3/4 X 3.5	3	\$185.
DX40-1.25	1-1/4	.410	40°	3/4 X 3.5	3	\$185.
DX45-1.25	1-1/4	.405	45°	3/4 X 3.25	3	\$185.
DX50-1.25	1-1/4	.400	50°	3/4 X 3.25	3	\$185.
DX60-1.25	1-1/4	.390	60°	1/2 X 3.0	3	\$185.
DX60-1.38	1-3/8	.390	60°	5/8 X 3.5	4	\$195.
DX60-1.50	1-1/2	.390	60°	3/4 X 3.5	4	\$215.
DX60-8	1-1/4	.390	60°	1-1/4 X 8.0	3	\$260.
DX30-1.0	1.0	.390	30°	5/8 X 3.5	3	\$185.
DXL20-1.25	1-1/4	.650	20°	3/4 x 3.5	3	\$230.
DXL30-1.37	1-3/8	.640	30°	3/4 x 3.5	3	\$240.
DXL40-1.50	1-1/2	.650	40°	3/4 x 3.5	3	\$250.
DXL50-1.50	1-1/2	.620	50°	3/4 x 3.5	3	\$250.
DXL50-2.0	2	.620	50°	1 x 4.0	4	\$335.
DXL60-1.50	1-1/2	.600	60°	3/4 X 3.5	3	\$250.
DXL60-1.62	1-5/8	.600	60°	3/4 x 3.5	3	\$265.
DXL60-2.0	2	.600	60°	1 X 3-7/8	4	\$345.
DXL30-2.0	2	.640	30°	1 X 3-7/8	5	\$355.
DXL60-3.0	3	.600	60°	1-1/4 X 4.5	6	\$465.

	Insert Number	Radius	Price	TICN or TIN Coat
Short Inserts	Di60-1	.015	\$9.75	\$12.25
	Di60-2	.030		
Long Inserts	Di60L-2	.030	\$11.75	\$14.50
	Di60L-3	.046		

DX-3MM Screws **\$1.75**

Torx T8 Wing Style Wrench **\$3.95**

We use all these cutters in production, milling (38Rc) 4340 at 1100 to 1800 RPM and .001 to .002 IPT.



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The Dexi-Dovetails

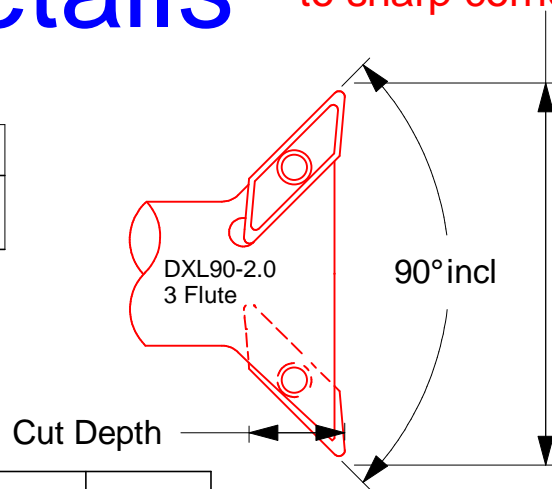
All diameters measured to sharp corners.

from 70° to 90° included

Insert No.	Radius	Price	TICN or TIN Coat
Di90L-2	.030	\$11.50	\$14.
Di90L-3	.046		

DX-3MM Screws **\$1.75**

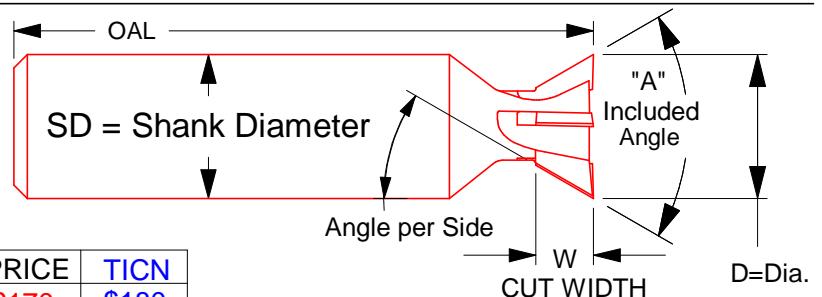
Torx T8 Wing Style Wrench **\$3.95**



Cutter Number	Dia.*	Cut Depth	Incl Angle	Shank & Overall	Flutes	Price
DXL90-2.0	2.0	.490	90°	3/4 X 3.7	3	\$335.
DXL90-2.5	2.5	.490	90°	1 X 3.75	4	\$415.
DXL80-2.0	2.0	.530	80°	1 x 3.75	3	\$335.
DXL75-2.0	2.0	.550	75°	1 x 3.75	3	\$335.
DXL70-1.75	1.75	.560	70°	3/4 x 3.7	3	\$325.
DXL70-2.0	2.0	.560	70°	1 x 3.75	3	\$335.

We use all these cutters in production, milling (38Rc) 4340 at 1100 to 1800 RPM and .001 to .002 IPT.

Carbide Tipped Dovetail Cutters



60° included; 30° per side

Number	A	D	W	SD	OAL	N	PRICE	TICN
D60-.75	60°	3/4	5/16	3/4	2-3/4	3	\$170.	\$180.
D60-1.0	60°	1.0	7/16	3/4	2-3/4	4	\$180.	\$190.
D60-1.25	60°	1.2	1/2	3/4	3	5	\$190.	\$205.
D60-1.38	60°	1.38	1/2	3/4	3	6	\$200.	\$220.
D60-1.5	60°	1.50	5/8	3/4	3-1/2	6	\$240.	\$260.
D60-2.0	60°	2.00	7/8	1.0	3-3/4	6	\$275.	\$300.
D60-2.5	60°	2.50	7/8	1.0	3-3/4	6	\$350.	\$380.

N= number of flutes

90° included; 45° per side

Number	A	D	W	SD	OAL	N	PRICE	TICN
D90-.75	90°	3/4	3/16	1/2	2-1/4	3	\$175.	\$185.
D90-1.0	90°	1.00	1/4	1/2	2-1/2	5	\$185.	\$195.
D90-1.25	90°	1.25	5/16	5/8	2-3/4	5	\$240.	\$255.
D90-1.5	90°	1.50	7/16	3/4	3-1/4	6	\$295.	\$315.
D90-1.75	90°	1.75	1/2	3/4	3-3/4	6	\$330.	\$355.
D90-2.0	90°	2.00	9/16	1.0	4	6	\$360.	\$385.
D90-2.5	90°	2.50	3/4	1.0	4-1/2	6	\$415.	\$445.

Micrograin tipped, with .004-.008 Flats on the Corners. Add **\$40.** each for Corner Radius (.060 Max).



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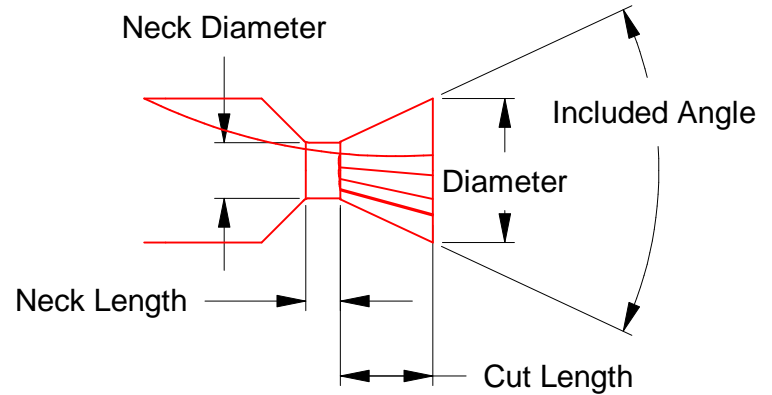
Toll free phone 866 440-8665

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E-Mail: mail@abtoolsinc.com

Solid Carbide Dovetail Cutters...In Stock

1/4 Dia. X 2 OAL with 1/8 Neck Lgth.			
Number	"A"	Cut Lgth.	Neck Dia.
DS 1/4-10	10°	.320	.160
DS 1/4-20	20°	.300	.130
DS 1/4-30	30°	.250	.115
DS 1/4-40	40°	.190	.110
DS 1/4-50	50°	.150	.110
DS 1/4-60	60°	.120	.110
DS 1/4-70	70°	.100	.110
DS 1/4-80	80°	.085	.110
DS 1/4-90	90°	.075	.110
DS 1/4-100	100°	.060	.110
DS 1/4-120	120°	.045	.110

All 1/4 Dia. are \$62. each



3/8 Dia. X 2.5 OAL with 3/16 Neck Lgth.			
Number	"A"	Cut Lgth.	Neck Dia.
DS 3/8-10	10°	.370	.260
DS 3/8-20	20°	.370	.230
DS 3/8-30	30°	.370	.170
DS 3/8-40	40°	.260	.170
DS 3/8-50	50°	.210	.170
DS 3/8-60	60°	.180	.170
DS 3/8-70	70°	.145	.170
DS 3/8-80	80°	.130	.160
DS 3/8-90	90°	.110	.160
DS 3/8-100	100°	.090	.160
DS 3/8-120	120°	.060	.160

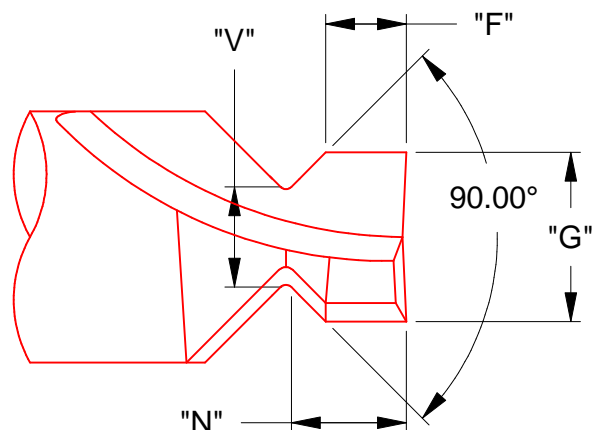
All 3/8 Dia. are \$76. each

1/2 Dia. X 2.5 OAL with 3/16 Neck Lgth.			
Number	"A"	Cut Lgth.	Neck Dia.
DS 1/2-10	10°	.500	.360
DS 1/2-20	20°	.400	.300
DS 1/2-30	30°	.320	.200
DS 1/2-40	40°	.320	.180
DS 1/2-50	50°	.320	.180
DS 1/2-60	60°	.250	.180
DS 1/2-70	70°	.210	.180
DS 1/2-80	80°	.180	.180
DS 1/2-90	90°	.140	.180
DS 1/2-100	100°	.120	.180
DS 1/2-120	120°	.090	.180

All 1/2 Dia. are \$86. each

Solid Carbide DSP Cutters for protective cable grooves...In Stock

Number	"G"	"N"	"F"	"V"	Price Each
DSP-02	.047	.023	.0125	.028	\$70.
DSP-03	.064	.036	.021	.028	\$70.
DSP-04B	.095	.045	.022	.049	\$75.
DSP-070	.095	.053	.0325	.054	\$75.
DSP-05B	.110	.059	.035	.062	\$75.
DSP-06	.126	.071	.0455	.075	\$80.
DSP-103	.142	.077	.048	.084	\$80.
DSP-07B	.157	.079	.0485	.094	\$80.
DSP-08	.172	.096	.060	.100	\$80.
DSP-139	.188	.113	.0715	.105	\$90.
DSP-09	.188	.105	.0705	.119	\$90.
DSP-11	.235	.129	.0835	.144	\$90.



Special Dovetails in 3-6 work days.



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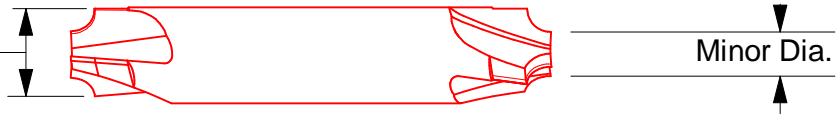
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Solid Carbide Corner Rounders

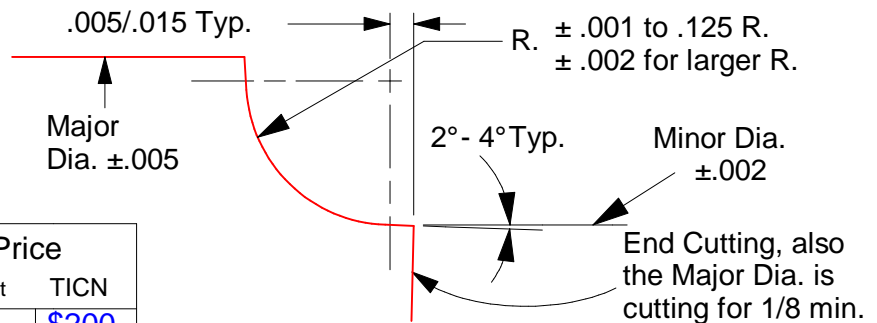
The Major Cut Dia. equals
the Minor Dia. + (R. X 2) + .020



CNC Profile Ground, Double End

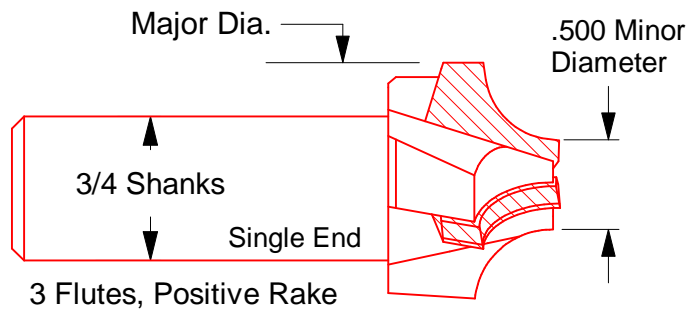
Tool No.	(add R. to prefix, example CR12-031) Radius Sizes Available	Minor Dia.	No. Flutes	Shank & OAL	Prices	
					No-Coat	TICN
CR1- _____	.010 .013 .015 .018 .020 .022 .025 .028 .031 .035 .038 .040 .046 .048 .050 .055	.240	4	3/8 X 2.5	\$90.	\$99.
CR2- _____	.062 .070 .078 .080 .085 .093 .098 .100 .109 .118 .120 .125			1/2 X 2.5	\$100.	\$115.
	.140 .156 .170 .187 .197			5/8 X 3.5	\$170.	\$182.
	.203 .218 .234 .250			3/4 X 4.0	\$200.	\$225.
CR03- _____	.010 .015 .020 .025 .031 .040 .046 .050 .055 .062 .070 .078	.030	2	3/16 X 2	\$60.	\$67.
CR06- _____	.010 .013 .015 .018 .020 .022 .025 .028 .031 .035 .040 .046 .048 .050 .055 .060	.060	2	3/16 X 2	\$60.	\$67.
CR12- _____	.010 .013 .015 .018 .020 .022 .025 .028 .031 .035 .038 .040 .046 .048 .050 .055 .060	.120	2	1/4 X 2	\$70.	\$78.
CR18- _____	.015 .020 .031 .035 .046 .055 .062 .070 .078 .080	.180	3	3/8 X 2.5	\$90.	\$99.
	.085 .093 .098 .109 .118 .120 .125 .130 .140 .150 .156			1/2 X 2.5	\$100.	\$115.
	.170 .180 .187 .197 .203 .218 .234 .250			5/8 X 3.5	\$170.	\$182.
				3/4 X 4.0	\$200.	\$225.

Carbide Tipped Corner Rounders



All AB Tools corner rounders are made with these features to avoid gouging.

Number	Radius	Major Dia.	OAL	Price	
				No-Coat	TICN
CR3-187	.187	.895	3.25	\$185.	\$200.
CR3-203	.203	.926		\$195.	\$210.
CR3-218	.218	.956		\$210.	\$226.
CR3-250	.250	1.020		\$215.	\$232.
CR3-281	.281	1.082		\$230.	\$247.
CR3-312	.312	1.144		\$240.	\$258.
CR3-343	.343	1.206		\$260.	\$280.
CR3-375	.375	1.270		\$285.	\$305.
CR3-406	.406	1.332		\$300.	\$322.
CR3-437	.437	1.394		\$310.	\$335.
CR3-468	.468	1.456		\$325.	\$350.
CR3-500	.500	1.520		\$345.	\$375.
CR3-562	.562	1.644	3.50	\$370.	\$400.
CR3-625	.625	1.770		\$415.	\$445.

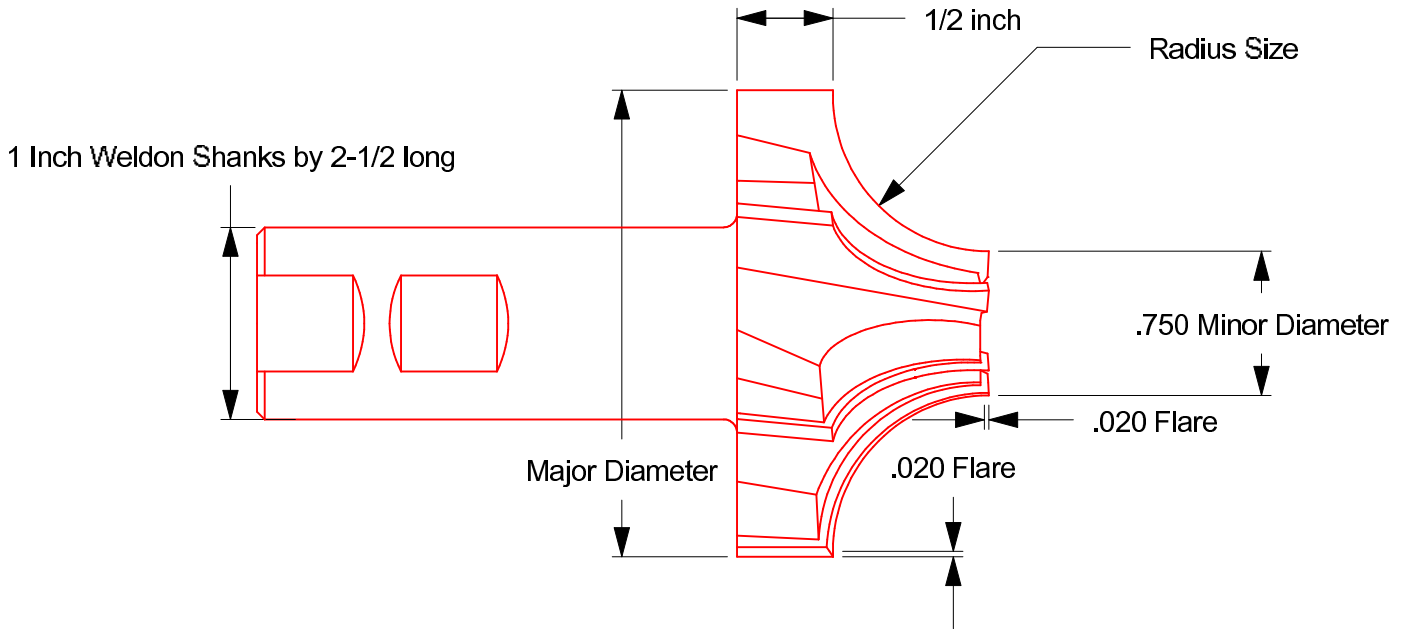


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Large Radii M42 Cobalt Corner Rounders



Tool Number	Radius	Major Dia	Price
CCR-625	.625	2.04	\$475.
CCR-687	.687	2.16	\$485.
CCR-719	.719	2.23	\$500.
CCR-750	.750	2.29	\$525.
CCR-787	.787	2.36	\$525.
CCR-812	.812	2.41	\$550.
CCR-875	.875	2.54	\$550.
CCR-937	.937	2.66	\$575.
CCR-984	.984	2.76	\$575.
CCR-1000	1.000	2.79	\$595.
CCR-1063	1.063	2.91	\$595.
CCR-1125	1.125	3.04	\$615.
CCR-1181	1.181	3.15	\$615.
CCR-1250	1.250	3.29	\$650.
CCR-1312	1.312	3.41	\$695.
CCR-1375	1.375	3.54	\$750.
CCR-1437	1.437	3.66	\$815.
CCR-1500	1.500	3.79	\$875.

We've milled full radius cuts with these Corner Rounders in M2 HSS at 90 SFM and .0015 Inch Per Tooth Chip Load with GREAT results !!!

***Coatings available upon request.



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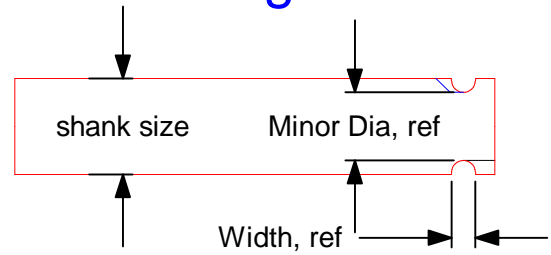
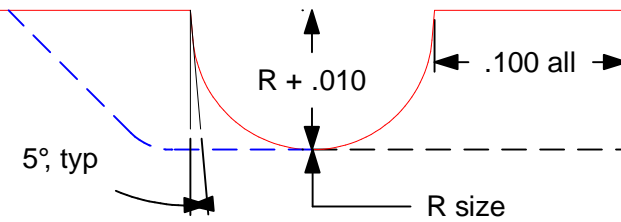
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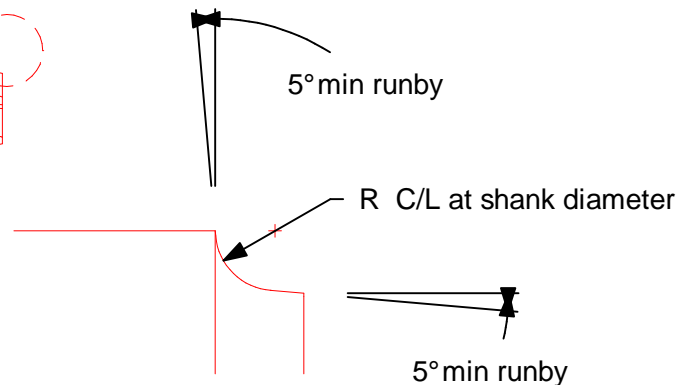
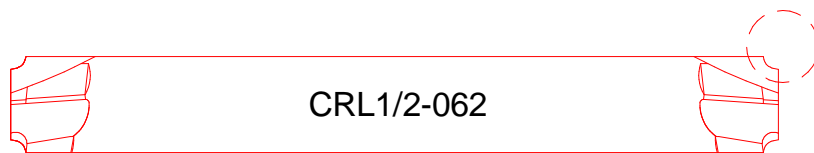
Full Concave Cutters-solid carbide alternating tooth design



Profile ground (not formed) for rounder, more free cutting concave cutters.

Tool Number	Radius	Width ref	Shank	Number of Flutes	Minor Dia ref	Price no-coat	Ticn
FCR-031	.031	.062	1/2"	6	.418	\$155.	\$163.
FCR-040	.040	.080	1/2"	4	.400	\$155.	\$163.
FCR-046	.046	.092	1/2"	4	.388	\$155.	\$163.
FCR-0625	.0625	.125	1/2"	4	.355	\$165.	\$163.
FCR-079	.079	.158	1/2"	4	.322	\$170.	\$178.
FCR-094	.094	.188	5/8"	6	.417	\$195.	\$204.
FCR-100	.100	.200	5/8"	4	.405	\$195.	\$204.
FCR-120	.120	.240	5/8"	4	.365	\$200.	\$209.
FCR-125	.125	.250	5/8"	4	.355	\$200.	\$209.
FCR-157	.157	.314	3/4"	6	.416	\$215.	\$225.
FCR-1875	.1875	.375	3/4"	4	.355	\$230.	\$240.
FCR-197	.197	.394	3/4"	4	.336	\$230.	\$240.

Extended Reach, Double End, Solid Carbide, Corner Rounders



Radius center at shank diameter allows machining close to other features.

Number	Radius sizes, add to prefix, as example CRL1/2-062	Shank & OAL	Flutes	Price
CRL1/4-___	.010 .015 .020 .031 .046 .062 .031 .046 .062	1/4 X 3 1/4 X 3	4 2	\$90.
CRL3/8-___	.010 .015 .020 .031 .046 .062 .093 .125	3/8 X 4 3/8 X 4	4 2	\$110.
CRL1/2-___	.010 .015 .020 .031 .046 .062 .093 .125 .156 .187	1/2 X 4 1/2 X 4	4 4	\$125.



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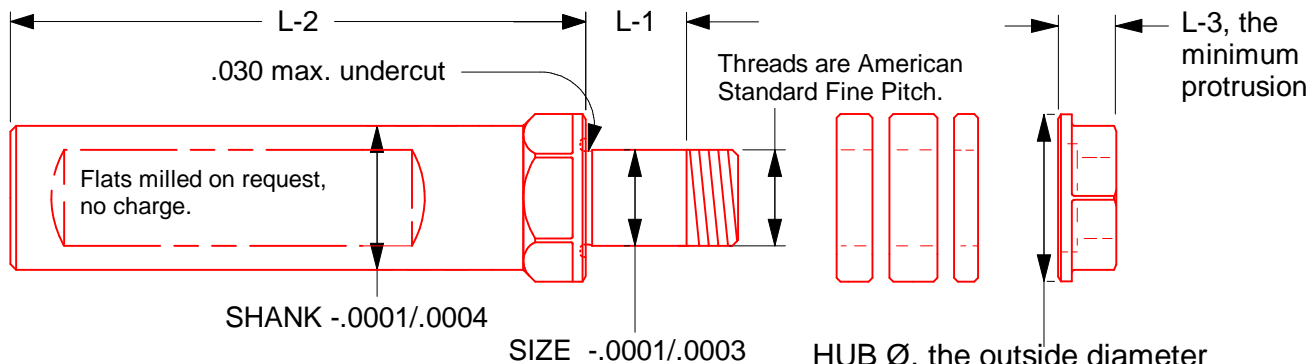
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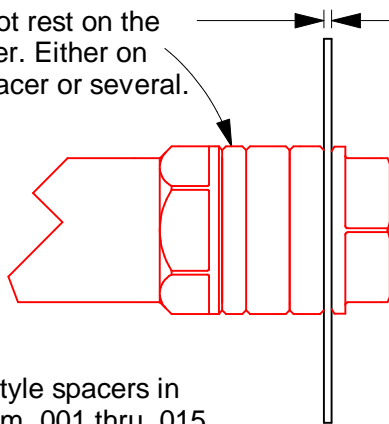
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SAW ARBORS for Carbide or HSS Saws with key drives for 5/8 and larger arbors.



Saws thinner than .050 must not rest on the shoulder. Either on one spacer or several.



Precise, for the thinnest saws.
High Torque for keyless saws.
Rugged, with key drives
from 5/8 and larger.

Shim Style spacers in sets from .001 thru .015 are available from your Industrial Distributor.

Hardened Alloy Steel, precision ground, Black Oxide coated.

The spacer assortments will accommodate most saws and spacers that will fit in the L-1 Length.

*Spacers ordered with Keyed Arbors will also have keyways.

Number	Size	Shank	L-1	L-2	L-3	Hub Dias.	Spacers with each arbor	Price
SA250	.250	.500	.350	2.13	.250	.570	.0625 .125 .1875	\$195. No Keys \$210. in these \$225. 3 sizes
SA375	.375	.625	.375	2.40	.280	.710		
SA500	.500	.750	.500	3.00	.325	.855		
SA625	.625	.875	.500	3.15	.390	1.00	.0625 .1875 .250	\$285.
SA750	.750	1.00	.500	3.40	.440	1.215		\$300.
SA875	.875	1.00	.500	3.40	.440	1.434		\$305.
SA100	1.00	1.00	.500	3.50	.440	1.480		\$355.
SA125	1.25	1.25	.500	3.50	.440	2.000		\$425.

*Sorry, unable to manufacture precise spacers thinner than .0625 in steel; suggest Robb-Jack's Solid Carbide spacers for thinner sizes.



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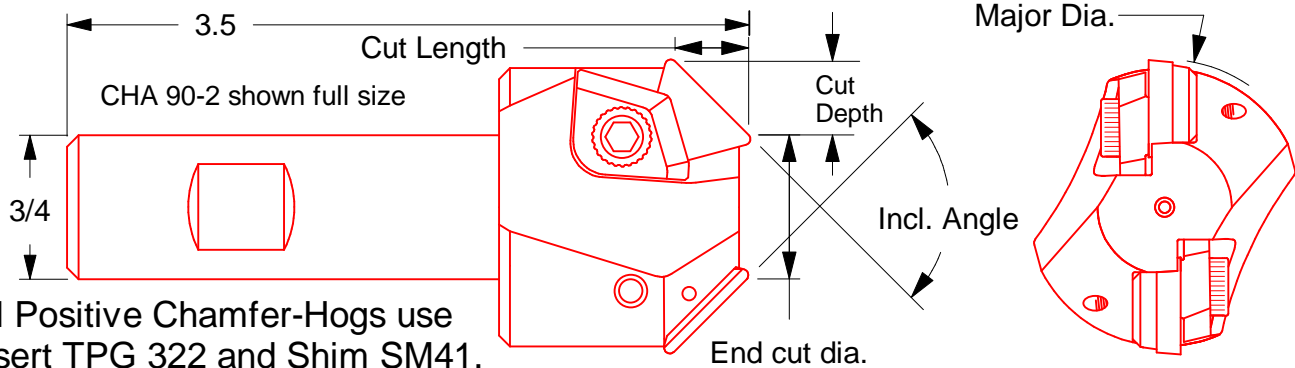
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POSITIVE RAKE CHAMFER-HOGS



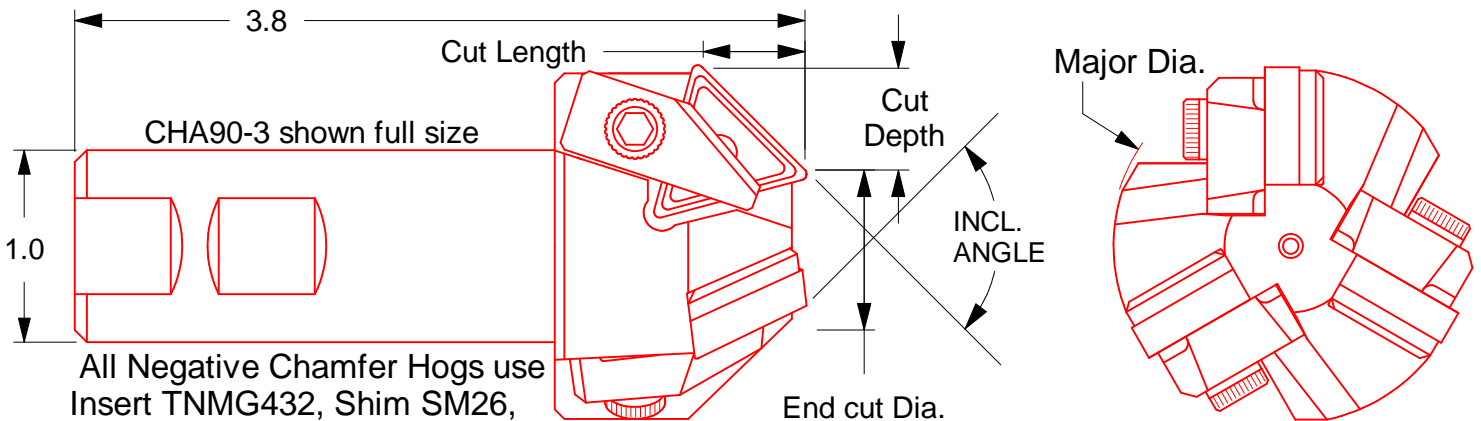
All Positive Chamfer-Hogs use
Insert TPG 322 and Shim SM41.
For Ferrous or Non-Ferrous

Number	Included Angle	No. of Flutes	End Dia.	Major Dia.	Cut Lgth.	Cut Depth	Clamp No.	Price incl. Inserts
CHA90-2	90°	2	3/4	1.5	.37	.37	CL2	\$275.
CHA120-2	120°	2	5/8	1.6	.19	.42	CL2	\$275.
CHA60-3P	60°	3	1.0	1.6	.42	.19	CL5	\$365.
CHA150-2	150°	2	.47	1.56	.14	.52	CL2	\$275.

Inserts	Price	Clamps	Price	Shims	Price	Screws at no charge with each purchase of Clamps & Shims. Ind. Standard 10-32 & 1/4-20 Socket Head, and 5-40 Flat Head.
TPU322 C5	\$9.50	CL2	\$12.00	SM41 Modified	\$12.00	
TNMG432 C5	\$14.50	CL5	\$17.00	SM26 Ind. Std.	\$8.50	

NEGATIVE RAKE CHAMFER-HOGS

Ferrous only; 3 Flutes



All Negative Chamfer Hogs use
Insert TNMG432, Shim SM26,
and Clamp CL5.

Number	Included Angle	End Dia.	Major Dia.	Cut Lgth.	Cut Depth	Price incl. Inserts
CHA30-3	30°	1.75	2.16	.73	.25	\$415.
CHA60-3N	60°	1.40	1.60	.65	.45	\$415.
CHA70-3	70°	1.25	2.14	.62	.44	\$415.
CHA82-3	82°	1.0	2.02	.57	.50	\$415.
CHA90-3	90°	.75	1.90	.52	.52	\$415.
CHA100-3	100°	.82	1.99	.49	.58	\$415.
CHA110-3	110°	.75	2.02	.43	.62	\$415.
CHA120-3	120°	.75	2.10	.29	.62	\$415.
CHA130-3	130°	.77	2.16	.32	.67	\$415.
CHA140-3	140°	.75	2.20	.73	.73	\$415.

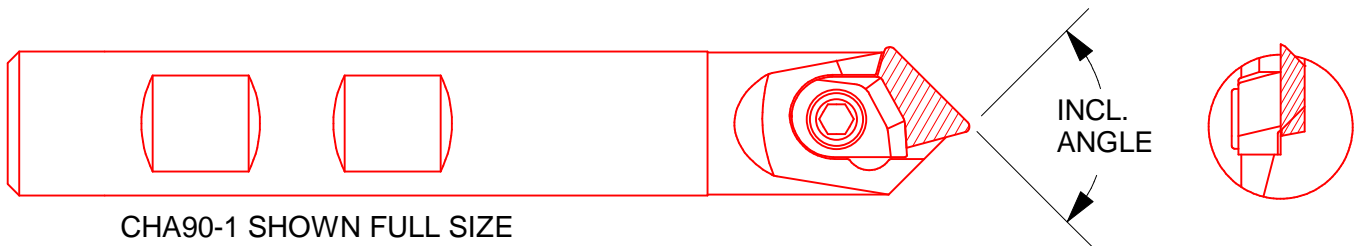


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THE SINGLE FLUTE CHAMFER HOGS



This cutter was developed in 1982 for spot drilling and chamfer milling small slots in non-ferrous part materials. If used prior to drilling in non-ferrous materials it performs well. If used as a countersink after the hole is drilled it is chatter prone.

It is not for use as a rotating cutter in ferrous materials since the (25°) relief angle is too weak. However, in the more rigid lathe environment it can be used successfully to spot drill holes in ferrous materials. We spot drill our Accu-Holds (4340) in CNC Lathes at 900 RPM and .0005 IPR, with tool life of 200 holes per insert corner.

It should never be used in a drill press.

All five cutters have 3/4 shanks and are 5" overall.

All Single Flute Chamfer-Hogs, including inserts, are **\$175.** each

Number	Included Angle	Maximum Chamfer Diameter	Insert	Clamp	Insert Prices	
CHA90-1	90°	.800	TFG32-90	CL-4	TFG32-90	\$11.25
CHA82-1	82°	.730	TFG32-90	CL-4		
CHA100-1	100°	.940	TFG32-90	CL-4	TFG32-90T	\$13.50
CHA120-1	120°	1.00	TD6P-120	5-40	(Tin Coated)	
CHA60-1*	60°	1.00	TFG32-90	CL-4	TD6P-120	\$13.25

* NOTE : CHA60-1 is **not** center cut; it has .200 end cut diameter.

The CL-4 Clamps are **\$12.** each, includes screw.

The 10-32 Socket Head Cap Screw is industrial standard.

TFG-322 and TD-6P are Industry Standard Inserts modified with a secondary facet near the point to prevent "heeling".



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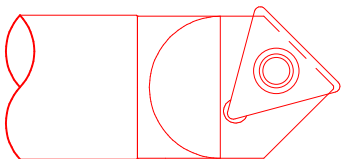
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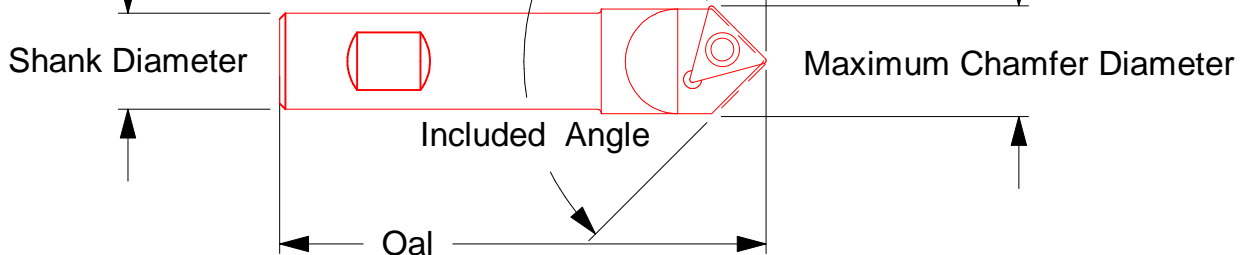
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Spot-Dex Tools (for all part materials)

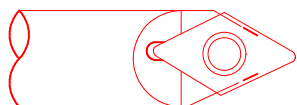
SD-90T3 shown here



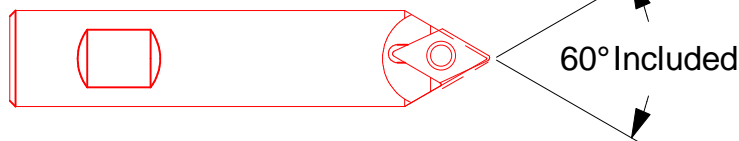
SD-90T2 shown here



SD-60D3 shown here



SD-60D2 shown here



These all use Industry standard inserts with secondary clearance facets ground to avoid dragging on the small cut diameters.

We've spot drilled to .190 depth with the SD60-2 in mild steel at 4000 RPM and 1 IPM, and milled grooves in X-Y at 10 IPM.

Number	Included Angle	Max. Chamfer Diameter	Max. Chamfer Depth	*Insert No. (modified)	Screw Size	Shank and Overall	Price including Wrench & Screw
SD-60D2	60°	.310	.240	DPMT-21.51	2.5MM	1/2 X 3.5	\$155.
SD-60D3	60°	.480	.380	DPMT-32.52	3.5MM		\$175.
SD-70D2	70°	.350	.230	DPMT-21.51	2.5MM		\$155.
SD-70D3	70°	.530	.340	DPMT-32.52	3.5MM		\$175.

SD-82T2	82°	.530	.290	TPMT2-2	4-40	1/2 X 3.5	\$155.
SD-82T3	82°	.770	.410	TPMT322	4MM	3/4 X 5.0	\$175.
SD-90T2	90°	.570	.270	TPMT2-2	4-40	1/2 X 3.5	\$155.
SD-90T3	90°	.820	.390	TPMT322	4MM	3/4 X 5.0	\$175.
SD-100T2	100°	.610	.240	TPMT2-2	4-40	1/2 X 3.5	\$155.
SD-100T3	100°	.890	.350	TPMT322	4MM	3/4 X 5.0	\$175.
SD-120T2	120°	.680	.190	TPMT2-2	4-40	1/2 X 3.5	\$155.
SD-120T3	120°	.990	.270	TPMT322	4MM	3/4 X 5.0	\$175.

Insert Number	R. Size	Price
DPMT-21.51	.015	\$15.50
TPMT2-2	.031	\$12.00
DPMT-32.52	.031	\$16.75
TPMT322	.031	\$14.75

Screw	Price
2.5 MM	\$3.25
4-40	\$3.75
3.5 MM	\$3.75
4 MM	\$3.95

Torxit Wrench	Price
Torxit-7	\$4.50
Torxit-7	\$4.50
Torxit-15	\$6.75
Torxit-15	\$6.75



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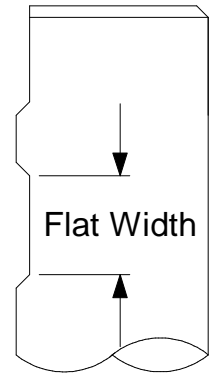
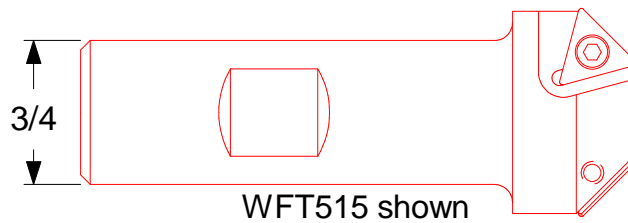
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Are you tired of hand ground screw flats on your end mill and cutter shanks?

See page 22 for the USCTI Weldon Flat specifications.

Mill precise flats with our new Weldon Flat Tools.

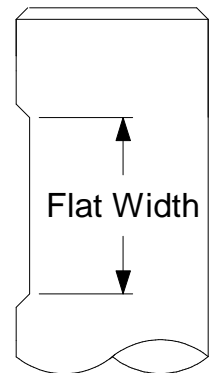
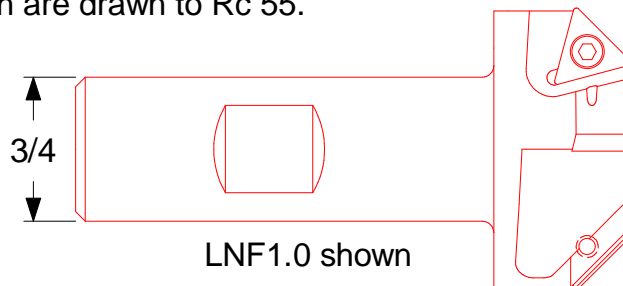


Weldon Flat Tools

Tool Number	Flat Width	For these Shank sizes	Number of Flutes	Price
WFT280	.280	.375	1	\$170.
WFT330	.330	.500	2	\$185.
WFT400	.400	.625	2	\$195.
WFT455	.455	.750 & .875	3	\$225.
WFT515	.515	1.0, 1.25 & 1.5	3	\$240.
WFT700	.700	2.0	4	\$285.

We mill Weldon Flats with the WFT515 in 4340 alloy steel hardened to Rc 46 @ 1500 RPM and .002 IPT. These cutters will also mill the shanks on standard HSS end mills which are drawn to Rc 55.

Would you prefer linear flats for easy "Z" Axis adjustment?



Linear Flat Tools for any shank size

Tool Number	Flat Width	Number of Flutes	Price
LNF750	.750	4	\$295.
LNF1.0	1.000	4	\$315.
LNF1125	1.125	5	\$345.
LNF1250	1.250	6	\$385.

Insert	Price
TPMT2-2	\$11.

Screw	Price
SR14-505	\$2.50

Wrench	Price
Torxit-7	\$4.50

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Speed/Feed Formulas, and Shank Flat Data

SFM = RPM X .262 X Tool Diameter
 RPM = SFM X 3.82 ÷ Tool Diameter
 IPM = RPM X IPT X Number of Flutes

IPT = IPM ÷ (RPM X Number of Flutes)
 CIM = Width X Depth X IPM
 HP = KW X 1.341

Comparative Estimates of CIM per HP for various part materials, (using carbide);

Cold Rolled Steel (1018)	1 CIM per HP
Aluminum, Magnesium, Plastics, Graphite	4 to 6 CIM per HP
Cast Iron, 3037 to .8 CIM per HP
Tool Steel, Alloy Steel 304-316, 17-4PH, 6AL-4V4 to .6 CIM per HP
Inconel and other High Temperature Alloys2 to .4 CIM per HP

Suggested SFM and IPT are shown in *Italics* on each page with each Cutter Style.

Shank	Flat	"Y"	"X"	Depth	S/L	W/N
3/8	.280		.781	.050	1.56	1.0
1/2	.330		.890	.065	1.78	1.06
5/8	.400		.953	.070	1.90	1.19
3/4	.455		1.015	.075	2.03	1.25
7/8	.455	.50	1.015	.075	2.03	1.25
1.0	.515	.50	1.140	.075	2.28	1.44
1-1/4	.515	.50	1.140	.095	2.28	1.44

Weldon & Whistle-Notch Flat Specifications

Note: We suggest using the depths shown as minimums to avoid screw damage.

ACCU-BORES

Solid Carbide boring tools. (Micrograin Heads silver soldered on Solid Carbide Shanks). They can be set to any bore depth with maximum rigidity.

Not intended for boring head use.

Number	Min. Bore	Shank	OAL	Price	
				No-Coat	TICN
ACB-130	.130	3/32	2.06	\$45.	\$49.
ACB-180	.180	1/8	2.12	\$50.	\$55.
ACB-245	.245	3/16	2.62	\$55.	\$60.
ACB-355	.355	1/4	3.18	\$60.	\$66.

Number	Min. Bore	Shank	OAL	Price	
				No-Coat	TICN
ACB-480	.480	3/8	3.68	\$70.	\$78.
ACB-630	.630	1/2	4.18	\$95.	\$104.
ACB-630-6	.630	1/2	6.18	\$115.	\$125.

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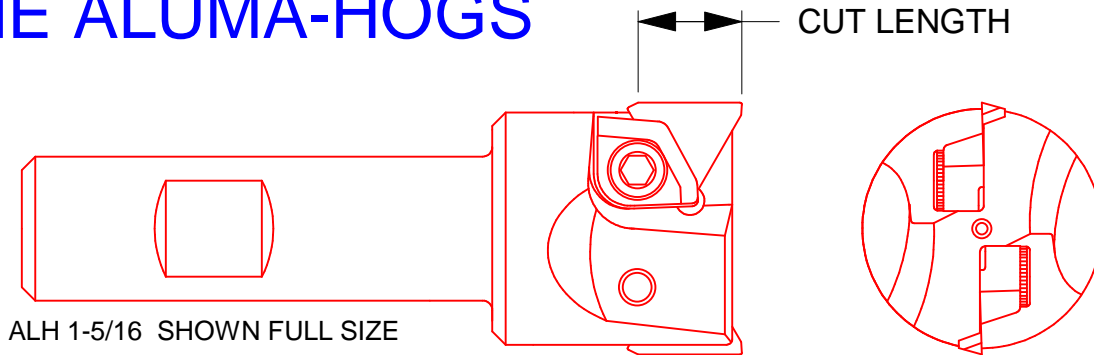


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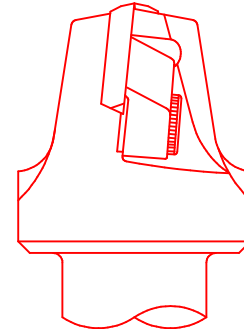
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THE ALUMA-HOGS



We started making ALUMA-HOGS in 1982. In 1997 we introduced the SHEAR-HOG; see back cover. With its high shear inserts, and no top clamps, the SHEAR-HOG outperforms the ALUMA-HOGS by 50% in Metal Removal rates. We will stock Aluma-Hogs, inserts, and parts as long as needed.



Number	Dia.	Shank Dia.	OAL Lgth.	Cut Lgth.	Insert & Qty.	Clamp Ref.	Shim Ref.	Price Incl. Inserts
ALH1A	1.0	3/4	3.75	1/4	TEG2.522 (2)	CL1		\$175.
ALH1B	1.0	1.0	3.75	1/4	TEG2.522 (2)	CL1		\$175.
ALH1-5/16	1.312	3/4	3.75	1/2	TFG32MF (2)	CL2		\$220.
ALH1-7/8A	1.875	3/4	3.87	3/4	TEG42MF (2)	CL3		\$235.
ALH1-7/8B	1.875	1.0	4.12	3/4	TEG42MF (2)	CL3		\$235.
ALH2	2.0	1.0	4.12	3/4	TEG42MF (2)	CL3		\$265.
ALH3S	3.0	1.0	4.12	3/4	TEG42MF (3)	CL3	SM37	\$345.
ALH4S	4.0	1.0	4.25	3/4	TEG42MF (4)	CL3	SM37	\$450.

Inserts/Hardware	Relief Angle	Price Each
TEG2.522 (.031 R.)	20°	\$10.50
TEG2.52MF (Mill Flat)	20°	\$12.00
TFG322 (.031 R.)	25°	\$10.50
TFG32MF (Mill Flat)	25°	\$12.00
TEG422 (.031 R.)	20°	\$12.50
TEG42MF (Mill Flat)	20°	\$14.50
CL1 OR CL2 Clamp		\$12.00
CL3 Clamp		\$18.50
SM37 Shim, Modified		\$13.50

Suggested Starting Data:
 Non-Ferrous ONLY
 500/10,000 SFM; .002/.010 IPT

See back cover and inside front cover for information on the SHEAR-HOG, which will rough mill Aluminum at 6 CIM per HP.

Screws included with any Clamp/Shim orders.



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Discussing some Metal Cutting Myths

Cutting tool Myth 1; "Increase relief angles for non ferrous and reduce relief angles for ferrous." In a 1959 test, milling 4130 at 33Rc with 3/4 diameter HSS end mills, using the same RPM/IPM, Carl Oxford of National Twist Drill got 65 parts with 9° (conventional) relief and 135 parts with 17° relief . He used .004 wear land widths to judge when the tools failed.

Cutting tool Myth 2; "Eccentrically ground end mills are stronger than profile ground." CAD drawings of the cutting edge show that a primary/secondary relief grind is stronger than form relief IF...both have the same relief amount over the critical surface near the cutting edge.

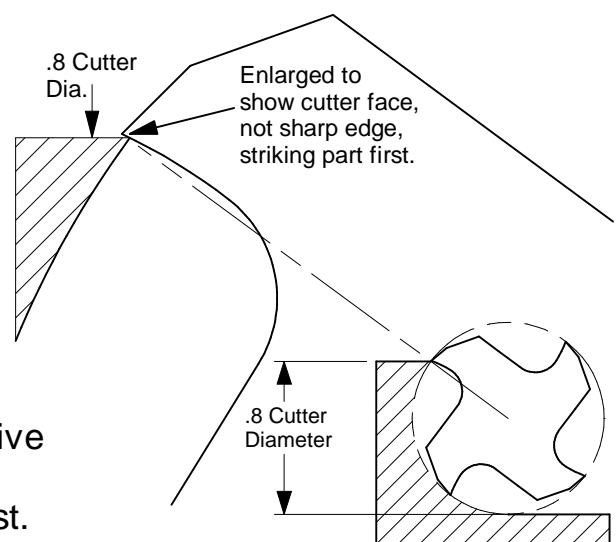
Cutting tool Myth 3; "When milling aluminum with HSS cutters 2500 SFM is the limit." Three decades ago at FMC Ordnance in San Jose, CA 4.5 inch HSS form cutters were used in aluminum, in production, at 7200 RPM which is 8500 SFM, using spray mist only. There were no signs of burning or overheating.

Cutting tool Myth 4; "The over-emphasized importance of minor diameter compliance in threaded holes." Example...it takes 4000 pounds of pull pressure to cause internal thread failure in 1/4-20 tapped holes in aluminum! This was proven in MetLabs tests in 1975 in San Jose, CA even though it sounds impossible. They used specially designed male pull members, (which they described as Grade 8 Fasteners), heat treated with ground threads, to assure that the male threads would not fail first. The internal threads, in cast aluminum, were made with cut taps and form taps. The cut taps failed with a tensile strength of 4132 pounds and the form taps failed with a tensile strength of 4360 pounds. They also tested 10-24 threads in the same way, except in wrought aluminum. The cut taps failed with a tensile strength of 2760 pounds and the form taps failed with a tensile strength of 2685 pounds. Most of us are required to drill and tap holes according to standards, the point is that internal threads made to our standards are strong beyond belief.

Climb versus Conventional Milling. We have all learned that climb milling is more efficient because conventional milling causes more side pressure on the end mill.

True, but the cut width as a ratio to cutter diameter is also a factor.

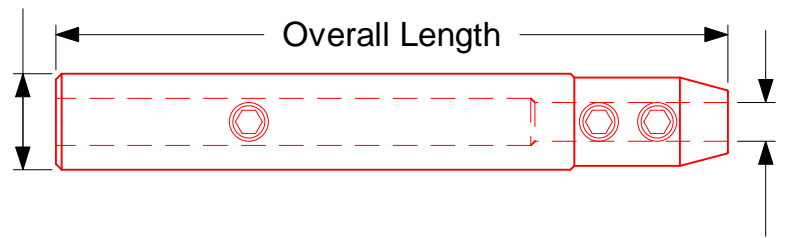
If the width of cut is 1/2 of the cutter diameter or less, "climb" works beautifully. If the width of cut is 3/4 of the diameter or more, then the positive rake in the end mill becomes negative, meaning the face, not the cutting edge, strikes the part first.



This concept first discussed by Dapra Corporation in the 1971 issue of Modern Machine Shop.

The Accu-Hold

Shank Size



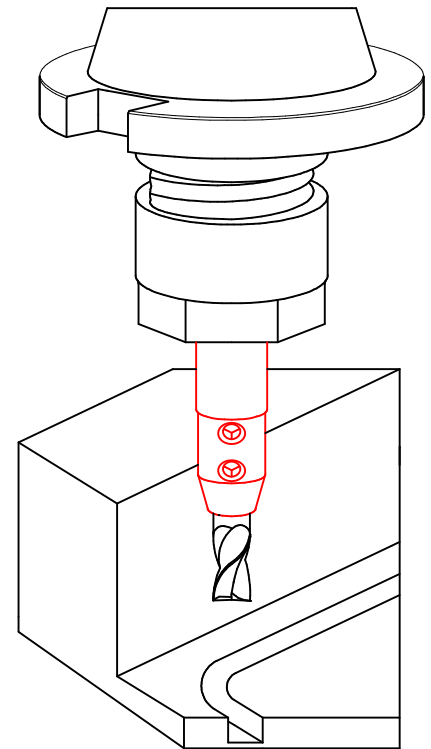
The MOST precise extension holder you have ever used.

Hole Size

Concentric within .0003; Hole size is plus .00015 and minus Zero.

Improves rigidity, concentricity, and coolant effectiveness.

Accu-Hold Number	Hole Size	Decimal Equiv.	Shank Size	Overall Length	Screw Size	Price
ACH3/32	3/32	.0937	3/8	2-1/4	5-40	\$150.
ACH1/8	1/8	.125	3/8	3-1/4	8-32	\$155.
ACH1/8-6	1/8	.125	3/8	6	8-32	\$215.
ACH5/32	5/32	.1562	1/2	3-1/2	8-32	\$140.
ACH3/16	3/16	.1875	1/2	3-1/2	8-32	\$140.
ACH3/16-5	3/16	.1875	1/2	5	8-32	\$165.
ACH1/4	1/4	.250	5/8	4-1/4	10-32	\$145.
ACH1/4-6	1/4	.250	5/8	6	10-32	\$170.
ACH5/16	5/16	.3125	3/4	4-1/2	1/4-28	\$165.
ACH3/8	3/8	.375	3/4	4-1/2	5/16-24	\$165.
ACH3/8-6	3/8	.375	3/4	6	5/16-24	\$200.
ACH7/16	7/16	.4375	3/4	4-1/2	5/16-24	\$185.
ACH1/2*	1/2	.500	3/4	4-3/4	3/8-24	\$220.
ACH1/2-1	1/2	.500	1	4-3/4	3/8-24	\$215.
ACH1/2-6	1/2	.500	1	6	3/8-24	\$245.
ACH9/16	9/16	.5625	1	5-1/4	3/8-24	\$245.
ACH5/8	5/8	.625	1	5-1/2	3/8-24	\$245.
ACH3/4**	3/4	.750	1	5-1/4	7/16-20	\$285.
ACH3/4-1.25	3/4	.750	1-1/4	6	7/16-20	\$290.
ACH1.0**	1	1.000	1	5-1/2	7/16-20	\$415.



ACH3MM	3MM	.1181	3/8	3-1/4	6-32	\$165.
ACH4MM	4MM	.1575	1/2	3-1/2	8-32	\$145.
ACH5MM	5MM	.1968	1/2	3-1/2	10-32	\$145.
ACH6MM	6MM	.2362	5/8	4-1/4	10-32	\$150.
ACH8MM	8MM	.3149	3/4	4-1/2	1/4-28	\$160.
ACH10MM	10MM	.3937	3/4	4-1/2	5/16-24	\$190.
ACH12MM*	12MM	.4724	3/4	4-3/4	3/8-24	\$220.
ACH12MM-1	12MM	.4724	1	4-3/4	3/8-24	\$215.
ACH14MM	14MM	.5512	1	5-1/2	3/8-24	\$245.
ACH16MM	16MM	.6299	1	5-1/2	3/8-24	\$260.
ACH18MM**	18MM	.7086	1	5-1/4	7/16-20	\$275.
ACH20MM	20MM	.7874	1-1/4	6	7/16-20	\$295.
ACH25MM**	25MM	.9842	1	6-1/2	7/16-20	\$415.

*The ACH1/2 and 12MM have a 1 Dia. X 1.5 long head.

**The ACH3/4, ACH1, and 18MM have a 1-1/4 Dia. X 2-1/4 long head and the holes are only 2" deep.



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FAX 916408-0740

If any product is not satisfactory
we will modify, replace or refund.

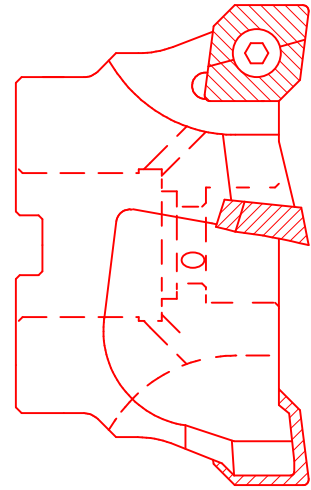
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Toll free phone 866 440 8665

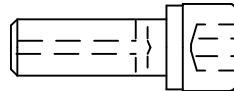
www.abtoolsinc.com
E-Mail: mail@abtoolsinc.com

SHELL SHEAR-HOGS®

Number	Dia.	Hole Dia.	OAL Lgth.	No. of Flutes	Price incl. Inserts
SHELL 200	2.0	.500	1.25	2 or 3	\$375.
SHELL 250	2.5	.750	1.50	4	\$415.
SHELL 300	3.0	1.00	1.75	4	\$475.
SHELL 400	4.0	1.25	1.87	4	\$535.
SHELL 500	5.0	1.50	2.25	5	\$675.
SHELL 600	6.0	1.50	2.25	6	\$895.



Screws	
Size	Price
1/4-28	\$6.50
3/8-24	\$6.50
1/2-20	\$7.50
5/8-18	\$9.75
3/4-16	\$11.00



You may use Std. Socket Head screws without thru-tool coolant. Or, use our modified screws with coolant holes (which we provide with each cutter).

ADEH Shear Hog Inserts :

ADEH-431	.010 R	\$18.75 ea
ADEH-432	.030 R	\$18.75 ea
ADEH-434	.060 R	\$18.75 ea
ADEH-436	.090 R	\$20.50 ea
ADEH-438	.120 R	\$20.50 ea
ADEH-45	.015 x 45°	\$20.50 ea

.002 Honed Edge

add : \$3.00 ea per insert

Tialn Coat

\$3.75 ea per insert

Honed Edge and Tialn Coat

\$6.25 ea per insert

3.5MM-SH insert screws \$1.75 ea

All cutter prices include inserts and wrench.

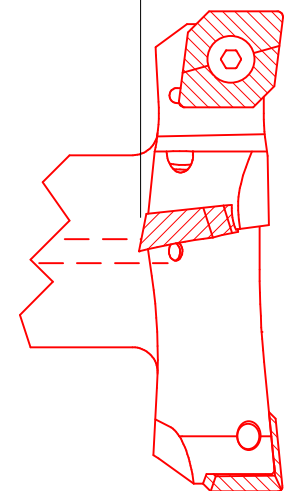
T-SLOT SHEAR-HOGS®

LH/RH Inserts same price.

Number	Dia.	Shank*	Overall	Flutes	Price
TS 150	1.50	.75	4.5	2	\$395.
TS 175	1.75	.75	5.5	2	\$415.
TS 200	2.0	1.0	6.0	2	\$450.
TS 250	2.5	1.0	5.5	4	\$480.
TS 325	3.25	1.25	6.0	4	\$595.
TS 400	4.00	1.25	7.0	4	\$685.

*We can modify shanks to smaller sizes as required. Price & lead time based on specific request.

.750 Width



PHONE 916 408-2442
A. B. TOOLS, INC.
1051 Aviation Blvd.
Lincoln, CA 95648-9312

FAX 916 408-2740

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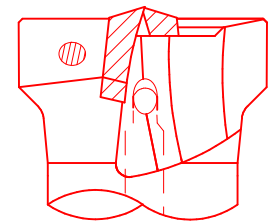
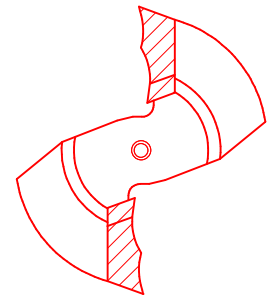
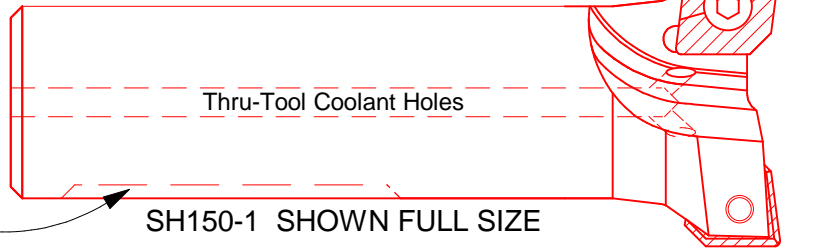
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E-Mail: mail@abtoolsinc.com

THE SHEAR-HOG[®]

The Shear-Hogs have no set-screw flats for possible shrink fit use or balancing. We will mill flats per request, no charge.



Cutter Number	Shank Dia.	Cutter Dia.	Overall Length	No. of Flutes	Ramp Angle	Price*
SH750	3/4	.750	4.0	1	Drills in Z!	\$195.
SH750-6	3/4	.750	6.0	1	Drills in Z!	\$240.
SH787	3/4	.787 20MM	4.0	1	Drills in Z!	\$195.
SH787-6	3/4	.787 20MM	6.0	1	Drills in Z!	\$240.
SH875	3/4	.875	4.0	1	Drills in Z!	\$195.
SH875-6	3/4	.875	6.0	1	Drills in Z!	\$240.
SH984	3/4	.984 25MM	4.0	1	Drills in Z!	\$195.
SH984-6	3/4	.984 25MM	6.0	1	Drills in Z!	\$240.
SH100	3/4	1.0	3.5	1	Drills in Z!	\$195.
SH100-6	3/4	1.0	6.0	1	Drills in Z!	\$240.
SH125	3/4	1-1/4	4.0	2	8°	\$220.
SH125-1	1.0	1-1/4	4.0	2	8°	\$230.
SH125-6	1.0	1-1/4	6.0	2	8°	\$295.
SH150	3/4	1-1/2	4.0	2	5°	\$250.
SH150-1	1.0	1-1/2	4.5	2	5°	\$250.
SH150-7	1-1/4	1-1/2	7.0	2	5°	\$325.
SH200-3/4	3/4	2.0	4.5	3	4°	\$300.
SH200-1	1.0	2.0	5.0	3	4°	\$300.
SH200-7	1-1/4	2.0	7.0	3	4°	\$365.
SH300-1	1.0	3.0	5.0	4	None	\$395.
SH300-1.25	1-1/4	3.0	5.0	4	None	\$395.
SH400-1.25	1-1/4	4.0	5.0	4	None	\$525.

All cutter prices include Inserts and Wrench, assembled, & ready to cut.

See page one for recent test results on a Haas VF1

- ADEH-431 .010 R \$18.75 ea
- ADEH-432 .030 R \$18.75 ea
- ADEH-434 .060 R \$18.75 ea
- ADEH-436 .090 R \$20.50 ea
- ADEH-438 .120 R \$20.50 ea
- ADEH-45 .015 x 45° \$20.50 ea

- .002 Honed Edge add : \$3.00 ea per insert
- Tialn Coat \$3.75 ea per insert
- Honed Edge and Tialn Coat \$6.25 ea per insert
- 3.5MM-SH insert screws \$1.75 ea

Are you rough milling aluminum at 6 CIM per HP?



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