

MC77-16

Microcut

Sharp Ideas for Carbide Cutting Tools



Special Application
Carbide Micro Cutting Tools



www.microcutUSA.com

TEL 781-582-8090 • FAX 781-582-8095

Diamond End Mills

Corner Rounding

Micro End Mills

High Performance End Mills

Specialty Tools



Microcut

Microcut is a manufacturer and distributor of miniature and micro-sized carbide cutting tools. We also offer High Performance carbide end mills and special application rotary cutting tools, including custom designed tooling.

Operating from modern facilities in Plymouth, Massachusetts, Microcut specializes in CNC manufactured cutting tools and worldwide distribution of miniature and small cutting tools for use by mold builders and production machining facilities.

Microcut's large inventory warehouse assures *Same Day Shipment* of all stocked items, while many special products or modified standards are available with short lead times.

All products are available through selected U.S. Industrial Distributors or direct from the Factory in certain geographical areas and countries.

We appreciate your business and look forward to serving you with all your cutting tool requirements.

Our Thanks, ***The Microcut Staff***



ORDERING & TERMS

MICROCUT products may be ordered through your local cutting tool distributor. To find your local distributor, use our **Online Distributor Locator** found at www.microcutUSA.com.

Terms: Freight F.O.B. Plymouth, MA. No returns accepted without our permission and must be accompanied by an RGA number. Returns subject to a 25% re-stocking charge. No requests for returns accepted after 15 days from date of invoice. Returns that exceed our normal inventory level for those individual items cannot be accepted for return or credit. All returns are subject to inspection by our Quality Control Dept. to insure the tools have not been used or altered, or damaged. Prices and specifications subject to change without notice.

NOTE: Special Cutting Tools and Special Long Reach Cutters are custom made and nonreturnable.

MICROCUT, INC., 8 Aldrin Road, Plymouth, MA 02360
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Microcut Corporate Offices Plymouth, MA



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NEW TOOLS AND SIZES




Microcut expands its lines of miniature end mills, drills, and specialty cutting tools.

Starting with 2-flute end mills, Microcut introduces new sizes of stock micro end mills in stub length and greatly expands its specialty offering of long reach end mills. Microcut has also expanded its long shank end mills along with extended reach lengths for deep pocket milling. New sizes of corner radius micros are added to help reduce tip breakage when milling hardened materials.



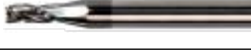

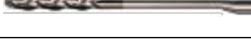

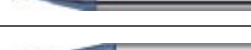








To further enhance its line, Microcut has introduced more standard sizes of variable helix end mills along with additional sizes of extended neck mills. The combination of variable helix end mills with corner radius makes it possible to reach into deep cavities and reduce the chatter, wear and breakage associated with deep pocket milling. Most of these new products are available with the latest generation of AlTiN Nano coating to increase the hardness and wear resistance at the cutting edge.

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NEW TOOLS AND SIZES

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Hundreds of New Reach Lengths



Hundreds of new reach lengths have been added to our In Stock Inventory for same day shipment. If you cannot find the reach length that best suits your tooling requirement, Microcut can grind and ship it to you in 24-48 Hours. (Minimum of three tools per size.)

Online Stock Check www.MicrocutUSA.com

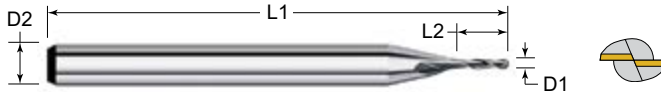
Use our Online Stock Check for up to 10 Tools or click the online Stock Check next to the item on the web page.

Tool #	Description	Price	Available
82015	.015" 2 FL EM	\$17.95	76
84020	.020" 4 FL EM	\$17.25	39
74062	.062" LG RCH	\$27.75	31
28025	1/8" KEYSEAT	\$36.95	11
48203	#3 Thread Mill	\$85.45	7
LF1162	.062" Lg Shk EM	\$28.90	87
ACH1250	1/8" Ext Holder	\$199.50	27
10077	#77 Micro Drill	\$14.90	38
77250	1/4" CVD EM	\$84.75	19



DECIMAL - 2-FLUTE

Square & Ball End - UNCOATED - .002" to .024"



Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.002"	.006"	1/8"	1-1/2"	82002	\$37.50	-	-
.003"	.009"	1/8"	1-1/2"	82003	\$32.50	-	-
.004"	.012"	1/8"	1-1/2"	82004	\$27.50	-	-
.005"	.015"	1/8"	1-1/2"	82005	\$25.50	82005B	\$37.50
.006"	.018"	1/8"	1-1/2"	82006	\$25.50	82006B	\$37.50
.007"	.021"	1/8"	1-1/2"	82007	\$25.50	82007B	\$37.50
.008"	.024"	1/8"	1-1/2"	82008	\$25.50	82008B	\$37.50
.009"	.027"	1/8"	1-1/2"	82009	\$25.50	82009B	\$37.50
.010"	.030"	1/8"	1-1/2"	82010	\$22.75	82010B	\$31.95
.011"	.033"	1/8"	1-1/2"	82011	\$22.75	82011B	\$31.95
.012"	.036"	1/8"	1-1/2"	82012	\$22.75	82012B	\$31.95
.013"	.039"	1/8"	1-1/2"	82013	\$20.75	82013B	\$29.95
.014"	.042"	1/8"	1-1/2"	82014	\$20.75	82014B	\$29.95
.015"	.045"	1/8"	1-1/2"	82015	\$17.95	82015B	\$24.50
.016"	.048"	1/8"	1-1/2"	82016	\$18.75	82016B	\$24.75
.017"	.051"	1/8"	1-1/2"	82017	\$18.75	82017B	\$24.75
.018"	.054"	1/8"	1-1/2"	82018	\$18.75	82018B	\$24.75
.019"	.057"	1/8"	1-1/2"	82019	\$18.75	82019B	\$24.75
.020"	.060"	1/8"	1-1/2"	82020	\$17.25	82020B	\$23.50
.021"	.063"	1/8"	1-1/2"	82021	\$17.90	82021B	\$23.90
.022"	.066"	1/8"	1-1/2"	82022	\$17.90	82022B	\$23.90
.023"	.069"	1/8"	1-1/2"	82023	\$17.90	82023B	\$23.90
.024"	.072"	1/8"	1-1/2"	82024	\$17.90	82024B	\$23.90

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DECIMAL - 2-FLUTE



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Square & Ball End - Uncoated Size Range: .025" to .046"



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.025"	.075"	1/8"	1-1/2"	82025	\$15.75	82025B	\$21.25
.026"	.078"	1/8"	1-1/2"	82026	\$16.50	82026B	\$21.75
.027"	.081"	1/8"	1-1/2"	82027	\$16.50	82027B	\$21.75
.028"	.084"	1/8"	1-1/2"	82028	\$16.50	82028B	\$21.75
.029"	.087"	1/8"	1-1/2"	82029	\$16.50	82029B	\$21.75
.030"	.090"	1/8"	1-1/2"	82030	\$15.75	82030B	\$19.25
.031"	.093"	1/8"	1-1/2"	82031	\$15.75	82031B	\$19.25
.031"	.125"	1/8"	1-1/2"	82031L	\$15.75	82031LB	\$19.25
.032"	.096"	1/8"	1-1/2"	82032	\$16.50	82032B	\$19.90
.033"	.099"	1/8"	1-1/2"	82033	\$16.50	82033B	\$19.90
.034"	.102"	1/8"	1-1/2"	82034	\$16.50	82034B	\$19.90
.035"	.105"	1/8"	1-1/2"	82035	\$13.50	82035B	\$17.50
.036"	.108"	1/8"	1-1/2"	82036	\$13.90	82036B	\$18.20
.037"	.111"	1/8"	1-1/2"	82037	\$13.90	82037B	\$18.20
.038"	.114"	1/8"	1-1/2"	82038	\$13.90	82038B	\$18.20
.039"	.117"	1/8"	1-1/2"	82039	\$13.90	82039B	\$18.20
.040"	.120"	1/8"	1-1/2"	82040	\$13.50	82040B	\$17.50
.041"	.123"	1/8"	1-1/2"	82041	\$13.90	82041B	\$18.20
.042"	.126"	1/8"	1-1/2"	82042	\$13.90	82042B	\$18.20
.043"	.129"	1/8"	1-1/2"	82043	\$13.90	82043B	\$18.20
.044"	.132"	1/8"	1-1/2"	82044	\$13.90	82044B	\$18.20
.045"	.135"	1/8"	1-1/2"	82045	\$13.50	82045B	\$17.50
.046"	.138"	1/8"	1-1/2"	82046	\$13.90	82046B	\$18.20

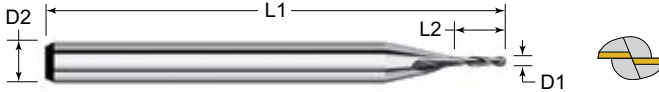
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DECIMAL - 2-FLUTE

Square & Ball End - UNCOATED - .047" to .068"

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Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.047"	.141"	1/8"	1-1/2"	82047	\$13.50	82047B	\$17.50
.048"	.144"	1/8"	1-1/2"	82048	\$13.90	82048B	\$18.20
.049"	.147"	1/8"	1-1/2"	82049	\$13.90	82049B	\$18.20
.050"	.150"	1/8"	1-1/2"	82050	\$13.50	82050B	\$17.50
.051"	.153"	1/8"	1-1/2"	82051	\$13.90	82051B	\$18.20
.052"	.156"	1/8"	1-1/2"	82052	\$13.90	82052B	\$18.20
.053"	.159"	1/8"	1-1/2"	82053	\$13.90	82053B	\$18.20
.054"	.162"	1/8"	1-1/2"	82054	\$13.90	82054B	\$18.20
.055"	.165"	1/8"	1-1/2"	82055	\$13.50	82055B	\$17.50
.056"	.168"	1/8"	1-1/2"	82056	\$13.90	82056B	\$18.20
.057"	.171"	1/8"	1-1/2"	82057	\$13.90	82057B	\$18.20
.058"	.174"	1/8"	1-1/2"	82058	\$13.90	82058B	\$18.20
.059"	.177"	1/8"	1-1/2"	82059	\$13.90	82059B	\$18.20
.060"	.180"	1/8"	1-1/2"	82060	\$13.50	82060B	\$17.50
.061"	.183"	1/8"	1-1/2"	82061	\$13.90	82061B	\$18.20
.062"	.186"	1/8"	1-1/2"	82062	\$13.50	82062B	\$17.50
.062"	.250"	1/8"	1-1/2"	82062L	\$13.50	82062LB	\$17.50
.063"	.189"	1/8"	1-1/2"	82063	\$13.50	82063B	\$18.50
.064"	.192"	1/8"	1-1/2"	82064	\$13.50	82064B	\$18.50
.065"	.195"	1/8"	1-1/2"	82065	\$13.50	82065B	\$17.50
.066"	.198"	1/8"	1-1/2"	82066	\$13.50	82066B	\$18.50
.067"	.201"	1/8"	1-1/2"	82067	\$13.50	82067B	\$18.50
.068"	.204"	1/8"	1-1/2"	82068	\$13.50	82068B	\$18.50

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DECIMAL - 2-FLUTE



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Square & Ball End - Uncoated Size Range: .069" to .125"

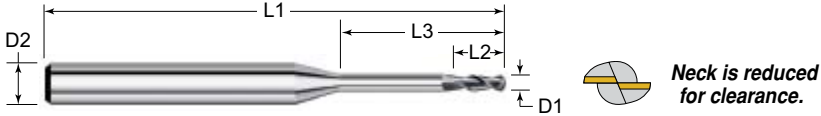


D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.069"	.207"	1/8"	1-1/2"	82069	\$13.50	82069B	\$18.50
.070"	.210"	1/8"	1-1/2"	82070	\$13.50	82070B	\$17.50
.071"	.213"	1/8"	1-1/2"	82071	\$13.50	82071B	\$18.50
.072"	.216"	1/8"	1-1/2"	82072	\$13.50	82072B	\$18.50
.073"	.219"	1/8"	1-1/2"	82073	\$13.50	82073B	\$18.50
.074"	.222"	1/8"	1-1/2"	82074	\$13.50	82074B	\$18.50
.075"	.225"	1/8"	1-1/2"	82075	\$13.50	82075B	\$17.50
.078"	.234"	1/8"	1-1/2"	82078	\$13.50	82078B	\$17.50
.080"	.240"	1/8"	1-1/2"	82080	\$13.50	82080B	\$17.50
.082"	.246"	1/8"	1-1/2"	82082	\$13.50	82082B	\$18.50
.085"	.255"	1/8"	1-1/2"	82085	\$13.50	82085B	\$17.50
.090"	.270"	1/8"	1-1/2"	82090	\$13.50	82090B	\$17.50
.093"	.279"	1/8"	1-1/2"	82093	\$13.50	82093B	\$17.50
.093"	.375"	1/8"	1-1/2"	82093L	\$13.50	82093LB	\$17.50
.095"	.285"	1/8"	1-1/2"	82095	\$13.50	82095B	\$17.50
.098"	.294"	1/8"	1-1/2"	82098	\$13.50	82098B	\$18.50
.100"	.300"	1/8"	1-1/2"	82100	\$13.50	82100B	\$17.50
.105"	.315"	1/8"	1-1/2"	82105	\$13.50	82105B	\$17.50
.110"	.330"	1/8"	1-1/2"	82110	\$13.50	82110B	\$17.50
.115"	.345"	1/8"	1-1/2"	82115	\$13.50	82115B	\$17.50
.118"	.354"	1/8"	1-1/2"	82118	\$13.50	82118B	\$18.50
.120"	.360"	1/8"	1-1/2"	82120	\$13.50	82120B	\$17.50
.125"	.500"	1/8"	1-1/2"	82125	\$11.90	82125B	\$15.75



LONG REACH - 2-FLUTE

Square & Ball End - UNCOATED - .010" to .042"



Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	.075"	1/8"	1-1/2"	72010	\$37.50	72010B	\$48.90
.010"	.030"	100"	1/8"	1-1/2"	72010-1	\$39.50	72010B-1	\$50.90
.012"	.036"	.075"	1/8"	1-1/2"	72012	\$35.20	72012B	\$45.70
.015"	.045"	.125"	1/8"	1-1/2"	72015	\$29.95	72015B	\$36.50
.015"	.045"	.186"	1/8"	1-1/2"	72015-1	\$31.95	72015B-1	\$38.50
.018"	.054"	.125"	1/8"	1-1/2"	72018	\$29.95	72018B	\$36.50
.020"	.060"	.165"	1/8"	1-1/2"	72020	\$29.25	72020B	\$35.50
.020"	.060"	.250"	1/8"	1-1/2"	72020-1	\$31.25	72020B-1	\$37.50
.022"	.066"	.165"	1/8"	1-1/2"	72022	\$29.90	72022B	\$35.90
.025"	.075"	.205"	1/8"	1-1/2"	72025	\$27.75	72025B	\$33.25
.025"	.075"	.310"	1/8"	1-1/2"	72025-1	\$29.75	72025B-1	\$35.25
.028"	.084"	.205"	1/8"	1-1/2"	72028	\$28.50	72028B	\$33.75
.030"	.090"	.250"	1/8"	1-1/2"	72030	\$27.75	72030B	\$32.25
.030"	.090"	.375"	1/8"	1-1/2"	72030-1	\$29.75	72030B-1	\$34.25
.031"	.093"	.250"	1/8"	1-1/2"	72031	\$27.75	72031B	\$32.25
.031"	.093"	.310"	1/8"	1-1/2"	72031-1	\$27.75	72031B-1	\$32.25
.031"	.093"	.375"	1/8"	1-1/2"	72031-2	\$29.75	72031B-2	\$34.25
.031"	.125"	.250"	1/8"	1-1/2"	72031-3	\$27.75	72031B-3	\$32.25
.031"	.125"	.325"	1/8"	1-1/2"	72031-4	\$27.75	72031B-4	\$32.25
.031"	.125"	.400"	1/8"	1-1/2"	72031-5	\$29.75	72031B-5	\$34.25
.033"	.099"	.250"	1/8"	1-1/2"	72033	\$27.75	72033B	\$32.25
.035"	.105"	.285"	1/8"	1-1/2"	72035	\$27.75	72035B	\$32.25
.040"	.120"	.350"	1/8"	1-1/2"	72040	\$25.50	72040B	\$30.50
.040"	.120"	.480"	1/8"	1-1/2"	72040-1	\$27.50	72040B-1	\$32.50
.042"	.126"	.350"	1/8"	1-1/2"	72042	\$25.90	72042B	\$31.25

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LONG REACH - 2-FLUTE



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Square & Ball End - Uncoated
Size Range: .045" to .125"

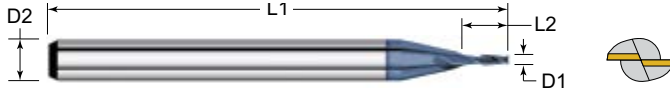


D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.045"	.135"	.300"	1/8"	1-1/2"	72045-1	\$25.50	72045B-1	\$30.50
.045"	.135"	.400"	1/8"	1-1/2"	72045	\$27.50	72045B	\$32.50
.047"	.141"	.300"	1/8"	1-1/2"	72047-1	\$25.50	72047B-1	\$30.50
.047"	.141"	.400"	1/8"	1-1/2"	72047	\$27.50	72047B	\$32.50
.047"	.141"	.500"	1/8"	1-1/2"	72047-2	\$29.50	72047B-2	\$34.50
.050"	.150"	.350"	1/8"	1-1/2"	72050-1	\$25.50	72050B-1	\$30.50
.050"	.150"	.450"	1/8"	1-1/2"	72050	\$25.50	72050B	\$30.50
.052"	.156"	.450"	1/8"	1-1/2"	72052	\$25.90	72052B	\$31.25
.055"	.165"	.500"	1/8"	1-1/2"	72055	\$25.50	72055B	\$30.50
.060"	.180"	.500"	1/8"	1-1/2"	72060	\$25.50	72060B	\$30.50
.060"	.180"	.600"	1/8"	1-1/2"	72060-1	\$28.50	72060B-1	\$33.50
.062"	.186"	.500"	1/8"	1-1/2"	72062	\$25.50	72062B	\$30.50
.062"	.186"	.600"	1/8"	1-1/2"	72062-1	\$28.50	72062B-1	\$33.50
.062"	.250"	.500"	1/8"	1-1/2"	72062-2	\$25.50	72062B-2	\$30.50
.062"	.250"	.625"	1/8"	1-1/2"	72062-3	\$29.50	72062B-3	\$34.50
.065"	.195"	.500"	1/8"	1-1/2"	72065	\$25.50	72065B	\$30.50
.070"	.210"	.550"	1/8"	1-1/2"	72070	\$26.50	72070B	\$31.50
.072"	.216"	.550"	1/8"	1-1/2"	72072	\$26.50	72072B	\$31.50
.075"	.225"	.550"	1/8"	1-1/2"	72075	\$26.50	72075B	\$31.50
.078"	.234"	.550"	1/8"	1-1/2"	72078	\$26.50	72078B	\$31.50
.080"	.240"	.550"	1/8"	1-1/2"	72080	\$26.50	72080B	\$31.50
.090"	.270"	.600"	1/8"	1-1/2"	72090	\$26.50	72090B	\$31.50
.093"	.279"	.600"	1/8"	1-1/2"	72093	\$26.50	72093B	\$31.50
.093"	.375"	.600"	1/8"	1-1/2"	72093-1	\$26.50	72093B-1	\$31.50
.100"	.300"	.600"	1/8"	1-1/2"	72100	\$26.50	72100B	\$31.50
.125"	.500"	.650"	1/8"	1-1/2"	72125	\$26.50	72125B	\$31.50



DECIMAL - 2-FLUTE

Square & Ball End - AITiN COATED - .010" to .037"



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	1/8"	1-1/2"	82010TL	\$26.75	82010BTL	\$35.95
.011"	.033"	1/8"	1-1/2"	82011TL	\$26.75	82011BTL	\$35.95
.012"	.036"	1/8"	1-1/2"	82012TL	\$26.75	82012BTL	\$35.95
.013"	.039"	1/8"	1-1/2"	82013TL	\$24.75	82013BTL	\$33.95
.014"	.042"	1/8"	1-1/2"	82014TL	\$24.75	82014BTL	\$33.95
.015"	.045"	1/8"	1-1/2"	82015TL	\$21.95	82015BTL	\$28.50
.016"	.048"	1/8"	1-1/2"	82016TL	\$22.75	82016BTL	\$28.75
.017"	.051"	1/8"	1-1/2"	82017TL	\$22.75	82017BTL	\$28.75
.018"	.054"	1/8"	1-1/2"	82018TL	\$22.75	82018BTL	\$28.75
.019"	.057"	1/8"	1-1/2"	82019TL	\$22.75	82019BTL	\$28.75
.020"	.060"	1/8"	1-1/2"	82020TL	\$21.25	82020BTL	\$27.50
.021"	.063"	1/8"	1-1/2"	82021TL	\$21.90	82021BTL	\$27.90
.022"	.066"	1/8"	1-1/2"	82022TL	\$21.90	82022BTL	\$27.90
.023"	.069"	1/8"	1-1/2"	82023TL	\$21.90	82023BTL	\$27.90
.024"	.072"	1/8"	1-1/2"	82024TL	\$21.90	82024BTL	\$27.90
.025"	.075"	1/8"	1-1/2"	82025TL	\$19.75	82025BTL	\$25.25
.026"	.078"	1/8"	1-1/2"	82026TL	\$20.50	82026BTL	\$25.75
.027"	.081"	1/8"	1-1/2"	82027TL	\$20.50	82027BTL	\$25.75
.028"	.084"	1/8"	1-1/2"	82028TL	\$20.50	82028BTL	\$25.75
.029"	.087"	1/8"	1-1/2"	82029TL	\$20.50	82029BTL	\$25.75
.030"	.090"	1/8"	1-1/2"	82030TL	\$19.75	82030BTL	\$23.25
.031"	.093"	1/8"	1-1/2"	82031TL	\$19.75	82031BTL	\$23.25
.032"	.096"	1/8"	1-1/2"	82032TL	\$20.50	82032BTL	\$23.90
.033"	.099"	1/8"	1-1/2"	82033TL	\$20.50	82033BTL	\$23.90
.034"	.102"	1/8"	1-1/2"	82034TL	\$20.50	82034BTL	\$23.90
.035"	.105"	1/8"	1-1/2"	82035TL	\$17.50	82035BTL	\$21.50
.036"	.108"	1/8"	1-1/2"	82036TL	\$17.90	82036BTL	\$22.50
.037"	.111"	1/8"	1-1/2"	82037TL	\$17.90	82037BTL	\$22.50

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DECIMAL - 2-FLUTE



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Square & Ball End - AITiN COATED
Size Range: .038" to .125"

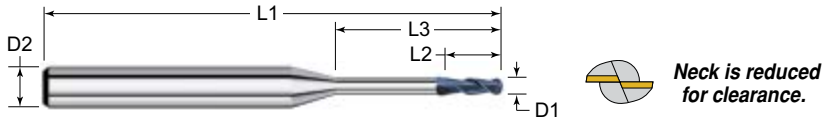


D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.038"	.114"	1/8"	1-1/2"	82038TL	\$17.90	82038BTL	\$22.50
.039"	.117"	1/8"	1-1/2"	82039TL	\$17.90	82039BTL	\$22.50
.040"	.120"	1/8"	1-1/2"	82040TL	\$17.50	82040BTL	\$21.50
.041"	.123"	1/8"	1-1/2"	82041TL	\$17.90	82041BTL	\$22.50
.042"	.126"	1/8"	1-1/2"	82042TL	\$17.90	82042BTL	\$22.50
.043"	.129"	1/8"	1-1/2"	82043TL	\$17.90	82043BTL	\$22.50
.044"	.132"	1/8"	1-1/2"	82044TL	\$17.90	82044BTL	\$22.50
.045"	.135"	1/8"	1-1/2"	82045TL	\$17.50	82045BTL	\$21.50
.046"	.138"	1/8"	1-1/2"	82046TL	\$17.90	82046BTL	\$22.50
.047"	.141"	1/8"	1-1/2"	82047TL	\$17.50	82047BTL	\$21.50
.050"	.150"	1/8"	1-1/2"	82050TL	\$17.50	82050BTL	\$21.50
.052"	.156"	1/8"	1-1/2"	82052TL	\$17.90	82052BTL	\$22.50
.055"	.165"	1/8"	1-1/2"	82055TL	\$17.50	82055BTL	\$21.50
.059"	.177"	1/8"	1-1/2"	82059TL	\$17.90	82059BTL	\$22.50
.060"	.180"	1/8"	1-1/2"	82060TL	\$17.50	82060BTL	\$21.75
.062"	.186"	1/8"	1-1/2"	82062TL	\$17.50	82062BTL	\$21.50
.065"	.195"	1/8"	1-1/2"	82065TL	\$17.50	82065BTL	\$21.50
.067"	.201"	1/8"	1-1/2"	82067TL	\$17.50	82067BTL	\$22.50
.070"	.210"	1/8"	1-1/2"	82070TL	\$17.50	82070BTL	\$21.50
.072"	.216"	1/8"	1-1/2"	82072TL	\$17.50	82072BTL	\$22.50
.075"	.225"	1/8"	1-1/2"	82075TL	\$17.50	82075BTL	\$21.50
.078"	.234"	1/8"	1-1/2"	82078TL	\$17.50	82078BTL	\$21.50
.080"	.240"	1/8"	1-1/2"	82080TL	\$17.50	82080BTL	\$21.50
.085"	.255"	1/8"	1-1/2"	82085TL	\$17.50	82085BTL	\$21.50
.090"	.270"	1/8"	1-1/2"	82090TL	\$17.50	82090BTL	\$21.50
.093"	.279"	1/8"	1-1/2"	82093TL	\$17.50	82093BTL	\$21.50
.098"	.294"	1/8"	1-1/2"	82098TL	\$17.50	82098BTL	\$22.50
.100"	.300"	1/8"	1-1/2"	82100TL	\$17.50	82100BTL	\$21.50
.125"	.500"	1/8"	1-1/2"	82125TL	\$15.90	82125BTL	\$19.75



LONG REACH - 2-FLUTE

Square & Ball End - AITiN COATED - .010" to .042"



Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	.075"	1/8"	1-1/2"	72010TL	\$41.50	72010BTL	\$52.90
.010"	.030"	.100"	1/8"	1-1/2"	72010TL-1	\$43.50	72010BTL-1	\$54.90
.012"	.036"	.075"	1/8"	1-1/2"	72012TL	\$39.20	72012BTL	\$49.70
.015"	.045"	.125"	1/8"	1-1/2"	72015TL	\$34.65	72015BTL	\$43.25
.015"	.045"	.186"	1/8"	1-1/2"	72015TL-1	\$36.65	72015BTL-1	\$45.25
.018"	.054"	.125"	1/8"	1-1/2"	72018TL	\$38.65	72018BTL	\$47.25
.020"	.060"	.165"	1/8"	1-1/2"	72020TL	\$33.55	72020BTL	\$41.10
.020"	.060"	.250"	1/8"	1-1/2"	72020TL-1	\$35.55	72020BTL-1	\$43.10
.022"	.066"	.165"	1/8"	1-1/2"	72022TL	\$33.55	72022BTL	\$41.10
.025"	.075"	.205"	1/8"	1-1/2"	72025TL	\$31.85	72025BTL	\$38.95
.025"	.075"	.310"	1/8"	1-1/2"	72025TL-1	\$33.85	72025BTL-1	\$40.95
.028"	.084"	.205"	1/8"	1-1/2"	72028TL	\$31.85	72028BTL	\$38.95
.030"	.090"	.250"	1/8"	1-1/2"	72030TL	\$31.85	72030BTL	\$40.95
.030"	.090"	.375"	1/8"	1-1/2"	72030TL-1	\$33.85	72030BTL-1	\$43.95
.031"	.093"	.250"	1/8"	1-1/2"	72031TL	\$31.85	72031BTL	\$38.95
.031"	.093"	.310"	1/8"	1-1/2"	72031TL-1	\$31.85	72031BTL-1	\$38.95
.031"	.093"	.375"	1/8"	1-1/2"	72031TL-2	\$33.85	72031BTL-2	\$40.95
.031"	.125"	.250"	1/8"	1-1/2"	72031TL-3	\$31.85	72031BTL-3	\$38.95
.031"	.125"	.325"	1/8"	1-1/2"	72031TL-4	\$31.85	72031BTL-4	\$38.95
.031"	.125"	.400"	1/8"	1-1/2"	72031TL-5	\$33.85	72031BTL-5	\$40.95
.033"	.099"	.250"	1/8"	1-1/2"	72033TL	\$31.85	72033BTL	\$38.95
.035"	.105"	.285"	1/8"	1-1/2"	72035TL	\$31.85	72035BTL	\$38.95
.038"	.114"	.285"	1/8"	1-1/2"	72038TL	\$31.85	72038BTL	\$38.95
.040"	.120"	.350"	1/8"	1-1/2"	72040TL	\$31.85	72040BTL	\$38.95
.040"	.120"	.480"	1/8"	1-1/2"	72040TL-1	\$33.85	72040BTL-1	\$40.95
.042"	.126"	.350"	1/8"	1-1/2"	72042TL	\$31.85	72042BTL	\$38.95

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LONG REACH - 2-FLUTE



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Square & Ball End - AITiN COATED
Size Range: .045" to .125"

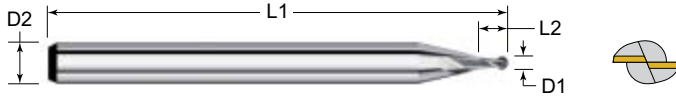


D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.045"	.135"	.300"	1/8"	1-1/2"	72045TL-1	\$30.75	72045BTL-1	\$37.25
.045"	.135"	.400"	1/8"	1-1/2"	72045TL	\$30.75	72045BTL	\$37.25
.047"	.141"	.300"	1/8"	1-1/2"	72047TL-1	\$30.75	72047BTL-1	\$37.25
.047"	.141"	.400"	1/8"	1-1/2"	72047TL	\$30.75	72047BTL	\$37.25
.047"	.141"	.500"	1/8"	1-1/2"	72047TL-2	\$33.50	72047BTL-2	\$39.90
.050"	.150"	.350"	1/8"	1-1/2"	72050TL-1	\$30.75	72050BTL-1	\$37.25
.050"	.150"	.450"	1/8"	1-1/2"	72050TL	\$30.75	72050BTL	\$37.25
.052"	.156"	.450"	1/8"	1-1/2"	72052TL	\$30.75	72052BTL	\$37.25
.055"	.165"	.500"	1/8"	1-1/2"	72055TL	\$30.75	72055BTL	\$37.25
.060"	.180"	.500"	1/8"	1-1/2"	72060TL	\$30.75	72060BTL	\$37.25
.060"	.180"	.600"	1/8"	1-1/2"	72060TL-1	\$32.50	72060BTL-1	\$39.50
.062"	.186"	.500"	1/8"	1-1/2"	72062TL	\$30.75	72062BTL	\$37.25
.062"	.186"	.600"	1/8"	1-1/2"	72062TL-1	\$32.50	72062BTL-1	\$39.50
.062"	.250"	.500"	1/8"	1-1/2"	72062TL-2	\$30.75	72062BTL-2	\$37.25
.062"	.250"	.625"	1/8"	1-1/2"	72062TL-3	\$32.50	72062BTL-3	\$39.50
.065"	.195"	.500"	1/8"	1-1/2"	72065TL	\$30.75	72065BTL	\$37.25
.070"	.210"	.550"	1/8"	1-1/2"	72070TL	\$30.75	72070BTL	\$37.25
.072"	.216"	.550"	1/8"	1-1/2"	72072TL	\$30.75	72072BTL	\$37.25
.075"	.225"	.550"	1/8"	1-1/2"	72075TL	\$30.75	72075BTL	\$37.25
.078"	.234"	.550"	1/8"	1-1/2"	72078TL	\$30.75	72078BTL	\$37.25
.080"	.240"	.550"	1/8"	1-1/2"	72080TL	\$30.75	72080BTL	\$37.25
.090"	.270"	.600"	1/8"	1-1/2"	72090TL	\$30.75	72090BTL	\$37.25
.093"	.279"	.600"	1/8"	1-1/2"	72093TL	\$30.75	72093BTL	\$37.25
.093"	.375"	.600"	1/8"	1-1/2"	72093TL-1	\$30.75	72093BTL-1	\$37.25
.100"	.300"	.600"	1/8"	1-1/2"	72100TL	\$30.75	72100BTL	\$37.25
.125"	.500"	.650"	1/8"	1-1/2"	72125TL	\$30.75	72125BTL	\$37.25



STUB LENGTH - 2-FLUTE

Square & Ball End - UNCOATED - .005" to .032"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Total Number	Price Each
.005"	.007"	1/8"	1-1/2"	81005	\$25.50	81005B	\$37.50
.006"	.009"	1/8"	1-1/2"	81006	\$25.50	81006B	\$37.50
.007"	.010"	1/8"	1-1/2"	81007	\$25.50	81007B	\$37.50
.008"	.012"	1/8"	1-1/2"	81008	\$25.50	81008B	\$37.50
.009"	.013"	1/8"	1-1/2"	81009	\$25.50	81009B	\$37.50
.010"	.015"	1/8"	1-1/2"	81010	\$22.75	81010B	\$31.95
.011"	.017"	1/8"	1-1/2"	81011	\$22.75	81011B	\$31.95
.012"	.018"	1/8"	1-1/2"	81012	\$22.75	81012B	\$31.95
.013"	.019"	1/8"	1-1/2"	81013	\$20.75	-	-
.014"	.021"	1/8"	1-1/2"	81014	\$20.75	-	-
.015"	.022"	1/8"	1-1/2"	81015	\$17.95	81015B	\$24.40
.016"	.024"	1/8"	1-1/2"	81016	\$18.75	-	-
.017"	.026"	1/8"	1-1/2"	81017	\$18.75	-	-
.018"	.027"	1/8"	1-1/2"	81018	\$18.75	81018B	\$24.75
.019"	.029"	1/8"	1-1/2"	81019	\$18.75	-	-
.020"	.030"	1/8"	1-1/2"	81020	\$17.25	81020B	\$23.50
.021"	.031"	1/8"	1-1/2"	81021	\$17.90	-	-
.022"	.033"	1/8"	1-1/2"	81022	\$17.90	81022B	\$23.90
.023"	.035"	1/8"	1-1/2"	81023	\$17.90	-	-
.024"	.036"	1/8"	1-1/2"	81024	\$17.90	-	-
.025"	.037"	1/8"	1-1/2"	81025	\$15.75	81025B	\$21.25
.026"	.039"	1/8"	1-1/2"	81026	\$16.50	-	-
.027"	.041"	1/8"	1-1/2"	81027	\$16.50	81027B	\$21.75
.028"	.042"	1/8"	1-1/2"	81028	\$16.50	-	-
.029"	.043"	1/8"	1-1/2"	81029	\$16.50	-	-
.030"	.045"	1/8"	1-1/2"	81030	\$15.75	81030B	\$19.25
.031"	.046"	1/8"	1-1/2"	81031	\$15.75	81031B	\$19.25
.032"	.048"	1/8"	1-1/2"	81032	\$16.50	-	-

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STUB LENGTH - 2-FLUTE



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Square & Ball End - UNCOATED Size Range: .033" to .125"

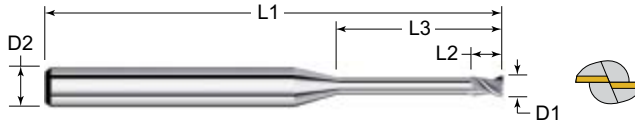


D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Total Number	Price Each
.033"	.049"	1/8"	1-1/2"	81033	\$16.50	-	-
.034"	.051"	1/8"	1-1/2"	81034	\$16.50	-	-
.035"	.052"	1/8"	1-1/2"	81035	\$13.50	81035B	\$17.50
.036"	.054"	1/8"	1-1/2"	81036	\$13.90	-	-
.037"	.055"	1/8"	1-1/2"	81037	\$13.90	-	-
.038"	.057"	1/8"	1-1/2"	81038	\$13.90	-	-
.039"	.058"	1/8"	1-1/2"	81039	\$13.90	-	-
.040"	.060"	1/8"	1-1/2"	81040	\$13.50	81040B	\$17.50
.041"	.123"	1/8"	1-1/2"	81041	\$13.90	-	-
.042"	.126"	1/8"	1-1/2"	81042	\$13.90	-	-
.043"	.065"	1/8"	1-1/2"	81043	\$13.90	-	-
.044"	.066"	1/8"	1-1/2"	81044	\$13.90	-	-
.045"	.067"	1/8"	1-1/2"	81045	\$13.50	81045B	\$17.25
.046"	.069"	1/8"	1-1/2"	81046	\$13.90	-	-
.047"	.070"	1/8"	1-1/2"	81047	\$13.50	81047B	\$17.50
.050"	.075"	1/8"	1-1/2"	81050	\$13.50	81050B	\$17.50
.055"	.082"	1/8"	1-1/2"	81055	\$13.50	81055B	\$18.20
.060"	.090"	1/8"	1-1/2"	81060	\$13.50	81060B	\$18.20
.062"	.093"	1/8"	1-1/2"	81062	\$13.50	81062B	\$17.50
.065"	.098"	1/8"	1-1/2"	81065	\$13.50	81065B	\$17.50
.070"	.105"	1/8"	1-1/2"	81070	\$13.50	81070B	\$17.50
.075"	.113"	1/8"	1-1/2"	81075	\$13.50	81075B	\$17.50
.078"	.117"	1/8"	1-1/2"	81078	\$13.50	81078B	\$17.50
.080"	.120"	1/8"	1-1/2"	81080	\$13.50	81080B	\$17.50
.085"	.127"	1/8"	1-1/2"	81085	\$13.50	81085B	\$17.50
.090"	.135"	1/8"	1-1/2"	81090	\$13.50	81090B	\$17.50
.093"	.140"	1/8"	1-1/2"	81093	\$13.50	81093B	\$17.50
.100"	.150"	1/8"	1-1/2"	81100	\$13.50	81100B	\$17.50
.125"	.250"	1/8"	1-1/2"	81125	\$11.90	81125B	\$15.75



STUB LENGTH - LONG RCH - 2-FLUTE

Square & Ball End - UNCOATED - .010" to .047"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	.075"	1/8"	1-1/2"	76210	\$37.50	76210B	\$48.90
.010"	.015"	.100"	1/8"	1-1/2"	76210-1	\$39.50	76210B-1	\$50.90
.012"	.018"	.075"	1/8"	1-1/2"	76202	\$35.20	76202B	\$45.70
.015"	.022"	.100"	1/8"	1-1/2"	76215	\$30.65	76215B	\$39.25
.015"	.022"	.145"	1/8"	1-1/2"	76215-1	\$30.65	76215B-1	\$39.25
.015"	.022"	.190"	1/8"	1-1/2"	76215-2	\$32.65	76215B-2	\$41.25
.018"	.027"	.125"	1/8"	1-1/2"	76218	\$30.65	76218B	\$39.25
.020"	.030"	.120"	1/8"	1-1/2"	76220	\$29.55	76220B	\$36.00
.020"	.030"	.165"	1/8"	1-1/2"	76220-1	\$29.55	76220B-1	\$36.00
.020"	.030"	.200"	1/8"	1-1/2"	76220-2	\$31.50	76220B-2	\$39.10
.020"	.030"	.250"	1/8"	1-1/2"	76220-3	\$31.50	76220B-3	\$39.10
.025"	.037"	.150"	1/8"	1-1/2"	76225	\$27.85	76225B	\$34.95
.025"	.037"	.205"	1/8"	1-1/2"	76225-1	\$27.85	76225B-1	\$34.95
.025"	.037"	.310"	1/8"	1-1/2"	76225-2	\$29.85	76225B-2	\$36.95
.030"	.045"	.180"	1/8"	1-1/2"	76230	\$27.85	76230B	\$34.30
.030"	.045"	.275"	1/8"	1-1/2"	76230-1	\$29.85	76230B-1	\$36.50
.031"	.046"	.187"	1/8"	1-1/2"	76231	\$27.85	76231B	\$34.30
.031"	.046"	.250"	1/8"	1-1/2"	76231-1	\$27.85	76231B-1	\$34.30
.031"	.046"	.312"	1/8"	1-1/2"	76231-2	\$29.85	76231B-2	\$36.30
.031"	.046"	.375"	1/8"	1-1/2"	76231-3	\$29.85	76231B-3	\$36.30
.035"	.052"	.210"	1/8"	1-1/2"	76235	\$27.85	76235B	\$34.30
.035"	.052"	.320"	1/8"	1-1/2"	76235-1	\$29.85	76235B-1	\$36.30
.040"	.060"	.220"	1/8"	1-1/2"	76240	\$27.85	76240B	\$34.30
.040"	.060"	.350"	1/8"	1-1/2"	76240-1	\$29.85	76240B-1	\$36.30
.045"	.067"	.270"	1/8"	1-1/2"	76245	\$26.75	76245B	\$32.15
.045"	.067"	.350"	1/8"	1-1/2"	76245-1	\$26.75	76245B-1	\$32.15
.045"	.067"	.405"	1/8"	1-1/2"	76245-2	\$28.75	76245B-2	\$34.15
.047"	.070"	.280"	1/8"	1-1/2"	76247	\$26.75	76247B	\$32.15
.047"	.070"	.350"	1/8"	1-1/2"	76247-1	\$26.75	76247B-1	\$32.15
.047"	.070"	.450"	1/8"	1-1/2"	76247-2	\$28.75	76247B-2	\$34.15

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STUB LENGTH - LONG RCH - 2-FLUTE



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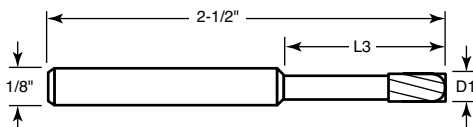
Square & Ball End - UNCOATED
Size Range: .050" to .125"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.050"	.075"	.300"	1/8"	1-1/2"	76250	\$26.75	76250B	\$32.15
.050"	.075"	.400"	1/8"	1-1/2"	76250-1	\$26.75	76250B-1	\$32.15
.050"	.075"	.500"	1/8"	1-1/2"	76250-2	\$29.50	76250B-2	\$35.15
.055"	.082"	.330"	1/8"	1-1/2"	76255	\$26.75	76255B	\$32.15
.055"	.082"	.500"	1/8"	1-1/2"	76255-1	\$29.50	76255B-1	\$35.15
.060"	.090"	.360"	1/8"	1-1/2"	76260	\$26.75	76260B	\$32.15
.060"	.090"	.500"	1/8"	1-1/2"	76260-1	\$29.50	76260B-1	\$35.15
.062"	.093"	.375"	1/8"	1-1/2"	76262	\$26.75	76262B	\$32.15
.062"	.093"	.500"	1/8"	1-1/2"	76262-1	\$26.75	76262B-1	\$32.15
.062"	.093"	.600"	1/8"	1-1/2"	76262-2	\$29.50	76262B-2	\$35.15
.065"	.098"	.390"	1/8"	1-1/2"	76265	\$26.75	76265B	\$32.15
.065"	.098"	.500"	1/8"	1-1/2"	76265-1	\$26.75	76265B-1	\$32.15
.070"	.105"	.420"	1/8"	1-1/2"	76270	\$26.75	76270B	\$32.15
.075"	.113"	.450"	1/8"	1-1/2"	76275	\$26.75	76275B	\$32.15
.078"	.117"	.470"	1/8"	1-1/2"	76278	\$26.75	76278B	\$32.15
.080"	.120"	.480"	1/8"	1-1/2"	76280	\$26.75	76280B	\$32.15
.085"	.127"	.510"	1/8"	1-1/2"	76285	\$26.75	76285B	\$32.15
.090"	.135"	.540"	1/8"	1-1/2"	76290	\$26.75	76290B	\$32.15
.093"	.140"	.560"	1/8"	1-1/2"	76293	\$26.75	76293B	\$32.15
.100"	.150"	.600"	1/8"	1-1/2"	76200	\$26.75	76200B	\$32.15
.125"	.250"	.600"	1/8"	1-1/2"	76212	\$26.75	76212B	\$32.15

ORDER SPECIAL Square & Ball LONG REACH MICRO ENDMILLS

To order special long reach micro endmills please specify:



1. Specify: ☐ Square End or ☐ Ball End.
2. Diameter (D1): _____
3. Flute Length (L2): _____
4. Overall Reach (L3): _____
5. Quantity (Minimum 6): _____
6. Specify: ☐ 2-Flute or ☐ 4-Flute.

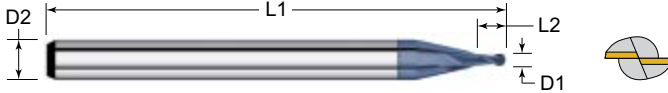
Special Reaches Shipped within 24-48 Hours!

Tools are custom manufactured to order and are nonreturnable.



STUB LENGTH - 2-FLUTE

Square & Ball End - AITiN COATED - .005" to .030"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.005"	.007"	1/8"	1-1/2"	81005TL	\$33.50	81005BTL	\$45.50
.006"	.009"	1/8"	1-1/2"	81006TL	\$33.50	81006BTL	\$45.50
.007"	.010"	1/8"	1-1/2"	81007TL	\$33.50	81007BTL	\$45.50
.008"	.012"	1/8"	1-1/2"	81008TL	\$33.50	81008BTL	\$45.50
.009"	.013"	1/8"	1-1/2"	81009TL	\$33.50	81009BTL	\$45.50
.010"	.015"	1/8"	1-1/2"	81010TL	\$26.75	81010BTL	\$35.95
.011"	.017"	1/8"	1-1/2"	81011TL	\$26.75	-	-
.012"	.018"	1/8"	1-1/2"	81012TL	\$26.75	81012BTL	\$35.95
.013"	.019"	1/8"	1-1/2"	81013TL	\$26.75	-	-
.014"	.021"	1/8"	1-1/2"	81014TL	\$26.75	-	-
.015"	.022"	1/8"	1-1/2"	81015TL	\$21.95	81015BTL	\$28.50
.016"	.024"	1/8"	1-1/2"	81016TL	\$22.75	-	-
.017"	.026"	1/8"	1-1/2"	81017TL	\$22.75	-	-
.018"	.027"	1/8"	1-1/2"	81018TL	\$22.75	81018BTL	\$28.75
.019"	.029"	1/8"	1-1/2"	81019TL	\$22.75	-	-
.020"	.030"	1/8"	1-1/2"	81020TL	\$21.25	81020BTL	\$27.50
.021"	.031"	1/8"	1-1/2"	81021TL	\$21.90	-	-
.022"	.033"	1/8"	1-1/2"	81022TL	\$21.90	81022BTL	\$27.90
.023"	.035"	1/8"	1-1/2"	81023TL	\$21.90	-	-
.024"	.036"	1/8"	1-1/2"	81024TL	\$21.90	-	-
.025"	.037"	1/8"	1-1/2"	81025TL	\$19.75	81025BTL	\$25.25
.026"	.039"	1/8"	1-1/2"	81026TL	\$20.50	-	-
.027"	.041"	1/8"	1-1/2"	81027TL	\$20.50	81027BTL	\$25.75
.028"	.042"	1/8"	1-1/2"	81028TL	\$20.50	-	-
.029"	.043"	1/8"	1-1/2"	81029TL	\$20.50	-	-
.030"	.045"	1/8"	1-1/2"	81030TL	\$19.75	81030BTL	\$23.25

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STUB LENGTH - 2-FLUTE



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Square & Ball End - AITiN COATED
Size Range: .031" to .125"

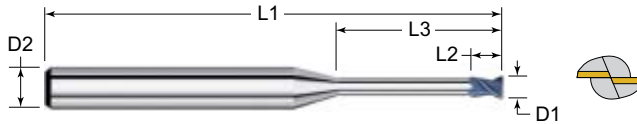


D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.031"	.046"	1/8"	1-1/2"	81031TL	\$19.75	81031BTL	\$23.25
.032"	.048"	1/8"	1-1/2"	81032TL	\$20.50	-	-
.033"	.049"	1/8"	1-1/2"	81033TL	\$20.50	-	-
.034"	.051"	1/8"	1-1/2"	81034TL	\$20.50	-	-
.035"	.052"	1/8"	1-1/2"	81035TL	\$17.50	81035BTL	\$21.50
.036"	.054"	1/8"	1-1/2"	81036TL	\$17.90	-	-
.037"	.055"	1/8"	1-1/2"	81037TL	\$17.90	-	-
.038"	.057"	1/8"	1-1/2"	81038TL	\$17.90	-	-
.039"	.058"	1/8"	1-1/2"	81039TL	\$17.90	-	-
.040"	.060"	1/8"	1-1/2"	81040TL	\$17.50	81040BTL	\$21.50
.041"	.123"	1/8"	1-1/2"	81041TL	\$17.90	-	-
.042"	.126"	1/8"	1-1/2"	81042TL	\$17.90	-	-
.043"	.065"	1/8"	1-1/2"	81043TL	\$17.90	-	-
.044"	.066"	1/8"	1-1/2"	81044TL	\$17.90	-	-
.045"	.067"	1/8"	1-1/2"	81045TL	\$17.50	81045BTL	\$21.50
.046"	.069"	1/8"	1-1/2"	81046TL	\$17.90	-	-
.047"	.070"	1/8"	1-1/2"	81047TL	\$17.50	81047BTL	\$21.50
.050"	.075"	1/8"	1-1/2"	81050TL	\$17.50	81050BTL	\$21.50
.055"	.082"	1/8"	1-1/2"	81055TL	\$17.50	81055BTL	\$21.50
.060"	.090"	1/8"	1-1/2"	81060TL	\$17.50	81060BTL	\$21.50
.062"	.093"	1/8"	1-1/2"	81062TL	\$17.50	81062BTL	\$21.50
.065"	.098"	1/8"	1-1/2"	81065TL	\$17.50	81065BTL	\$21.50
.070"	.105"	1/8"	1-1/2"	81070TL	\$17.50	81070BTL	\$21.50
.075"	.113"	1/8"	1-1/2"	81075TL	\$17.50	81075BTL	\$21.50
.078"	.117"	1/8"	1-1/2"	81078TL	\$17.50	81078BTL	\$21.50
.080"	.120"	1/8"	1-1/2"	81080TL	\$17.50	81080BTL	\$21.50
.085"	.127"	1/8"	1-1/2"	81085TL	\$17.50	81085BTL	\$21.50
.090"	.135"	1/8"	1-1/2"	81090TL	\$17.50	81090BTL	\$21.50
.093"	.140"	1/8"	1-1/2"	81093TL	\$17.50	81093BTL	\$21.50
.100"	.150"	1/8"	1-1/2"	81100TL	\$17.50	81100BTL	\$21.50
.125"	.250"	1/8"	1-1/2"	81125TL	\$15.90	81125BTL	\$19.75



STUB LENGTH - LONG RCH - 2-FLUTE

Square & Ball End - AITiN COATED - .010" to .040"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	.075"	1/8"	1-1/2"	76310	\$41.50	76310B	\$52.90
.010"	.015"	.100"	1/8"	1-1/2"	76310-1	\$43.50	76310B-1	\$54.90
.012"	.018"	.075"	1/8"	1-1/2"	76302	\$39.20	76302B	\$49.70
.015"	.022"	.100"	1/8"	1-1/2"	76315	\$34.65	76315B	\$43.25
.015"	.022"	.145"	1/8"	1-1/2"	76315-1	\$34.65	76315B-1	\$43.25
.015"	.022"	.190"	1/8"	1-1/2"	76315-2	\$36.65	76315B-2	\$45.25
.018"	.027"	.125"	1/8"	1-1/2"	76318	\$34.65	76318B	\$43.25
.020"	.030"	.120"	1/8"	1-1/2"	76320	\$33.55	76320B	\$40.00
.020"	.030"	.165"	1/8"	1-1/2"	76320-1	\$33.55	76320B-1	\$40.00
.020"	.030"	.200"	1/8"	1-1/2"	76320-2	\$35.50	76320B-2	\$43.10
.020"	.030"	.250"	1/8"	1-1/2"	76320-3	\$35.50	76320B-3	\$43.10
.025"	.037"	.150"	1/8"	1-1/2"	76325	\$31.85	76325B	\$38.95
.025"	.037"	.205"	1/8"	1-1/2"	76325-1	\$31.85	76325B-1	\$38.95
.025"	.037"	.310"	1/8"	1-1/2"	76325-2	\$34.85	76325B-2	\$40.95
.030"	.045"	.180"	1/8"	1-1/2"	76330	\$31.85	76330B	\$38.30
.030"	.045"	.275"	1/8"	1-1/2"	76330-1	\$33.85	76330B-1	\$40.50
.031"	.046"	.187"	1/8"	1-1/2"	76331	\$31.85	76331B	\$38.30
.031"	.046"	.250"	1/8"	1-1/2"	76331-1	\$31.85	76331B-1	\$38.30
.031"	.046"	.312"	1/8"	1-1/2"	76331-2	\$33.85	76331B-2	\$39.30
.031"	.046"	.375"	1/8"	1-1/2"	76331-3	\$33.85	76331B-3	\$40.30
.035"	.052"	.210"	1/8"	1-1/2"	76335	\$31.85	76335B	\$38.30
.035"	.052"	.320"	1/8"	1-1/2"	76335-1	\$33.85	76335B-1	\$40.30
.040"	.060"	.220"	1/8"	1-1/2"	76340	\$31.85	76340B	\$38.30
.040"	.060"	.350"	1/8"	1-1/2"	76340-1	\$33.85	76340B-1	\$40.30

Special long reach end mills quoted on request. Minimum 6 pieces per size.

Ships within 24-48 hours.

Tools are custom manufactured to order and are nonreturnable.

New!! Express Service

Ships same day as ordered. Call for details, price and availability. Minimum order 6 tools per size.

Continued Next Page



STUB LENGTH - LONG RCH - 2-FLUTE



Continued from previous page:

Square & Ball End - AITiN COATED
Size Range: .045" to .125"

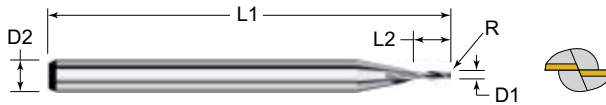


D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.045"	.067"	.270"	1/8"	1-1/2"	76345	\$30.75	76345B	\$36.15
.045"	.067"	.350"	1/8"	1-1/2"	76345-1	\$30.75	76345B-1	\$36.15
.045"	.067"	.405"	1/8"	1-1/2"	76345-2	\$32.75	76345B-2	\$38.15
.047"	.070"	.280"	1/8"	1-1/2"	76347	\$30.75	76347B	\$36.15
.047"	.070"	.350"	1/8"	1-1/2"	76347-1	\$30.75	76347B-1	\$36.15
.047"	.070"	.450"	1/8"	1-1/2"	76347-2	\$32.75	76347B-2	\$38.15
.050"	.075"	.300"	1/8"	1-1/2"	76350	\$30.75	76350B	\$36.15
.050"	.075"	.400"	1/8"	1-1/2"	76350-1	\$30.75	76350B-1	\$36.15
.050"	.075"	.500"	1/8"	1-1/2"	76350-2	\$33.59	76350B-2	\$39.15
.055"	.082"	.330"	1/8"	1-1/2"	76355	\$30.75	76355B	\$32.15
.055"	.082"	.500"	1/8"	1-1/2"	76355-1	\$33.50	76355B-1	\$39.15
.060"	.090"	.360"	1/8"	1-1/2"	76360	\$30.75	76360B	\$36.15
.060"	.090"	.500"	1/8"	1-1/2"	76360-1	\$33.50	76360B-1	\$39.15
.062"	.093"	.375"	1/8"	1-1/2"	76362	\$30.75	76362B	\$36.15
.062"	.093"	.500"	1/8"	1-1/2"	76362-1	\$30.75	76362B-1	\$36.15
.062"	.093"	.600"	1/8"	1-1/2"	76362-2	\$33.50	76362B-2	\$39.15
.065"	.098"	.390"	1/8"	1-1/2"	76365	\$30.75	76365B	\$36.15
.065"	.098"	.500"	1/8"	1-1/2"	76365-1	\$30.75	76365B-1	\$36.15
.070"	.105"	.420"	1/8"	1-1/2"	76370	\$30.75	76370B	\$36.15
.075"	.113"	.450"	1/8"	1-1/2"	76375	\$30.75	76375B	\$36.15
.078"	.117"	.470"	1/8"	1-1/2"	76378	\$30.75	76378B	\$36.15
.080"	.120"	.480"	1/8"	1-1/2"	76380	\$30.75	76380B	\$36.15
.085"	.127"	.510"	1/8"	1-1/2"	76385	\$30.75	76385B	\$36.15
.090"	.135"	.540"	1/8"	1-1/2"	76390	\$30.75	76390B	\$36.15
.093"	.140"	.560"	1/8"	1-1/2"	76393	\$30.75	76393B	\$36.15
.100"	.150"	.600"	1/8"	1-1/2"	76300	\$30.75	76300B	\$36.15
.125"	.250"	.600"	1/8"	1-1/2"	76312	\$30.75	76312B	\$36.15



CORNER RADIUS - 2-FLUTE

Decimal - UNCOATED .015" to .075" Diameter



Corner radius helps prevent chipping at corners at high feeds and speeds.

Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.003"	.045"	1/8"	1-1/2"	86615-003	\$36.50
.020"	.005"	.060"	1/8"	1-1/2"	86620-005	\$32.50
.025"	.005"	.075"	1/8"	1-1/2"	86625-005	\$32.50
.030"	.005"	.090"	1/8"	1-1/2"	86630-005	\$28.75
.030"	.010"	.090"	1/8"	1-1/2"	86630-010	\$28.75
.031" (1/32)	.005"	.093"	1/8"	1-1/2"	86631-005	\$28.75
.031" (1/32)	.010"	.093"	1/8"	1-1/2"	86631-010	\$28.75
.035"	.005"	.105"	1/8"	1-1/2"	86635-005	\$24.75
.035"	.010"	.105"	1/8"	1-1/2"	86635-010	\$24.75
.040"	.005"	.120"	1/8"	1-1/2"	86640-005	\$21.50
.040"	.010"	.120"	1/8"	1-1/2"	86640-010	\$21.50
.045"	.005"	.135"	1/8"	1-1/2"	86645-005	\$21.50
.045"	.010"	.135"	1/8"	1-1/2"	86645-010	\$21.50
.045"	.015"	.135"	1/8"	1-1/2"	86645-015	\$21.50
.047" (3/64)	.005"	.141"	1/8"	1-1/2"	86647-005	\$21.50
.047" (3/64)	.010"	.141"	1/8"	1-1/2"	86647-010	\$21.50
.047" (3/64)	.015"	.141"	1/8"	1-1/2"	86647-015	\$21.50
.050"	.005"	.150"	1/8"	1-1/2"	86650-005	\$21.50
.050"	.010"	.150"	1/8"	1-1/2"	86650-010	\$21.50
.050"	.015"	.150"	1/8"	1-1/2"	86650-015	\$21.50
.060"	.005"	.180"	1/8"	1-1/2"	86660-005	\$21.50
.060"	.010"	.180"	1/8"	1-1/2"	86660-010	\$21.50
.060"	.015"	.180"	1/8"	1-1/2"	86660-015	\$21.50
.062" (1/16)	.005"	.186"	1/8"	1-1/2"	86662-005	\$21.50
.062" (1/16)	.010"	.186"	1/8"	1-1/2"	86662-010	\$21.50
.062" (1/16)	.015"	.186"	1/8"	1-1/2"	86662-015	\$21.50
.062" (1/16)	.020"	.186"	1/8"	1-1/2"	86662-020	\$21.50
.075"	.005"	.225"	1/8"	1-1/2"	86675-005	\$21.50
.075"	.010"	.225"	1/8"	1-1/2"	86675-010	\$21.50
.075"	.015"	.225"	1/8"	1-1/2"	86675-015	\$21.50

Continued Next Page

CORNER RADIUS - 2-FLUTE



Continued from previous page:

Decimal - UNCOATED

Size Range: .078" to .125"



Corner radius helps prevent chipping at corners at high feeds and speeds.

D1 Cutter Diameter	Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.078" (5/64)	.005"	.234"	1/8"	1-1/2"	86678-005	\$21.50
.078" (5/64)	.010"	.234"	1/8"	1-1/2"	86678-010	\$21.50
.078" (5/64)	.015"	.234"	1/8"	1-1/2"	86678-015	\$21.50
.078" (5/64)	.020"	.234"	1/8"	1-1/2"	86678-020	\$21.50
.090"	.005"	.270"	1/8"	1-1/2"	86690-005	\$21.50
.090"	.010"	.270"	1/8"	1-1/2"	86690-010	\$21.50
.090"	.015"	.270"	1/8"	1-1/2"	86690-015	\$21.50
.093" (3/32)	.005"	.279"	1/8"	1-1/2"	86693-005	\$21.50
.093" (3/32)	.010"	.279"	1/8"	1-1/2"	86693-010	\$21.50
.093" (3/32)	.015"	.279"	1/8"	1-1/2"	86693-015	\$21.50
.093" (3/32)	.020"	.279"	1/8"	1-1/2"	86693-020	\$21.50
.125" (1/8)	.005"	.500"	1/8"	1-1/2"	86612-005	\$21.50
.125" (1/8)	.010"	.500"	1/8"	1-1/2"	86612-010	\$21.50
.125" (1/8)	.015"	.500"	1/8"	1-1/2"	86612-015	\$21.50
.125" (1/8)	.020"	.500"	1/8"	1-1/2"	86612-020	\$21.50
.125" (1/8)	.030"	.500"	1/8"	1-1/2"	86612-030	\$21.50

END MILL EXTENSION HOLDERS

I.D. CONCENTRIC WITHIN .0003"- I.D. HOLE SIZE +.00015/-0



I.D. Hole Size	Shank Diameter	Over All Length	Tool Number	Price Each
.1250"	3/8"	3-1/4"	ACH1250	\$199.50
.1250"	3/8"	6"	ACH1250L	\$265.50
.1875"	1/2"	3-1/2"	ACH1875	\$199.50
.1875"	1/2"	5"	ACH1875L	\$215.50
.2500"	5/8"	4-1/4"	ACH2500	\$199.50
.2500"	5/8"	6"	ACH2500L	\$219.50

TOLL FREE 866-426-3300
FAX 781-582-8095

Microcut



DECIMAL - 3-FLUTE

Square End - UNCOATED & AITiN COATED - .010" to .125"



Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		ALTiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	1/8"	1-1/2"	83010	\$24.50	83410	\$29.50
.015"	.045"	1/8"	1-1/2"	83015	\$19.90	83415	\$24.20
.020"	.060"	1/8"	1-1/2"	83020	\$18.80	83420	\$23.10
.025"	.075"	1/8"	1-1/2"	83025	\$17.75	83425	\$22.05
.030"	.090"	1/8"	1-1/2"	83030	\$17.75	83430	\$22.05
.031"	.093"	1/8"	1-1/2"	83031	\$17.75	83431	\$22.05
.035"	.105"	1/8"	1-1/2"	83035	\$15.60	83435	\$19.90
.040"	.120"	1/8"	1-1/2"	83040	\$15.60	83440	\$19.90
.045"	.135"	1/8"	1-1/2"	83045	\$15.60	83445	\$19.90
.047"	.141"	1/8"	1-1/2"	83047	\$15.60	83447	\$19.90
.050"	.150"	1/8"	1-1/2"	83050	\$15.60	83450	\$19.90
.060"	.180"	1/8"	1-1/2"	83060	\$15.60	83460	\$19.90
.062"	.186"	1/8"	1-1/2"	83062	\$14.80	83462	\$19.10
.065"	.195"	1/8"	1-1/2"	83065	\$14.80	83465	\$19.10
.070"	.210"	1/8"	1-1/2"	83070	\$14.80	83470	\$19.10
.075"	.225"	1/8"	1-1/2"	83075	\$14.80	83475	\$19.10
.078"	.234"	1/8"	1-1/2"	83078	\$14.80	83478	\$19.10
.090"	.270"	1/8"	1-1/2"	83090	\$14.80	83490	\$19.10
.093"	.279"	1/8"	1-1/2"	83093	\$14.80	83493	\$19.10
.100"	.300"	1/8"	1-1/2"	83000	\$14.80	83400	\$19.10
.125"	.375"	1/8"	1-1/2"	83012	\$14.80	83412	\$19.10

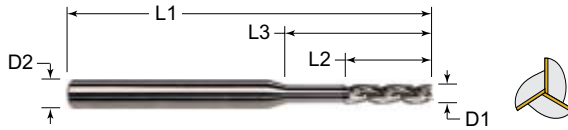
Miniature Keyseat Cutters. See pages 132 and 133.



DECIMAL - LONG REACH - 3-FLUTE



Square End - UNCOATED & AITiN COATED - .015" to .125"



Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	NOT COATED		ALTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	.125"	1/8"	1-1/2"	83315	\$30.65	83215	\$34.95
.015"	.045"	.186"	1/8"	1-1/2"	83315-1	\$32.65	83215-1	\$36.95
.020"	.060"	.165"	1/8"	1-1/2"	83320	\$29.55	83220	\$33.85
.020"	.060"	.250"	1/8"	1-1/2"	83320-1	\$31.55	83220-1	\$35.85
.025"	.075"	.205"	1/8"	1-1/2"	83325	\$28.50	83225	\$32.80
.025"	.075"	.310"	1/8"	1-1/2"	83325-1	\$30.50	83225-1	\$34.80
.030"	.090"	.250"	1/8"	1-1/2"	83330	\$28.50	83230	\$32.80
.030"	.090"	.375"	1/8"	1-1/2"	83330-1	\$30.50	83230-1	\$34.80
.031"	.093"	.250"	1/8"	1-1/2"	83331	\$28.50	83231	\$32.80
.031"	.093"	.375"	1/8"	1-1/2"	83331-1	\$30.50	83231-1	\$34.80
.035"	.105"	.285"	1/8"	1-1/2"	83335	\$27.40	83235	\$31.70
.040"	.120"	.350"	1/8"	1-1/2"	83340	\$27.40	83240	\$31.70
.040"	.120"	.480"	1/8"	1-1/2"	83340-1	\$29.40	83240-1	\$33.70
.045"	.135"	.300"	1/8"	1-1/2"	83345-1	\$27.40	83245-1	\$31.70
.045"	.135"	.400"	1/8"	1-1/2"	83345	\$27.40	83245	\$31.70
.045"	.135"	.500"	1/8"	1-1/2"	83345-2	\$29.40	83245-2	\$33.70
.047"	.141"	.400"	1/8"	1-1/2"	83347	\$27.40	83247	\$31.70
.047"	.141"	.500"	1/8"	1-1/2"	83347-1	\$29.40	83247-1	\$33.70
.050"	.150"	.450"	1/8"	1-1/2"	83350	\$27.40	83250	\$31.70
.060"	.180"	.500"	1/8"	1-1/2"	83360	\$27.40	83260	\$31.70
.060"	.180"	.600"	1/8"	1-1/2"	83360-1	\$29.40	83260-1	\$33.70
.062"	.186"	.500"	1/8"	1-1/2"	83362	\$27.40	83262	\$31.70
.062"	.186"	.600"	1/8"	1-1/2"	83362-1	\$29.40	83262-1	\$33.70
.065"	.195"	.500"	1/8"	1-1/2"	83365	\$27.40	83265	\$31.70
.070"	.210"	.500"	1/8"	1-1/2"	83370	\$27.40	83270	\$31.70
.075"	.225"	.550"	1/8"	1-1/2"	83375	\$27.40	83275	\$31.70
.078"	.234"	.550"	1/8"	1-1/2"	83378	\$27.40	83278	\$31.70
.090"	.270"	.600"	1/8"	1-1/2"	83390	\$27.40	83290	\$31.70
.093"	.279"	.600"	1/8"	1-1/2"	83393	\$27.40	83293	\$31.70
.100"	.300"	.600"	1/8"	1-1/2"	83300	\$27.40	83200	\$31.70
.125"	.375"	.600"	1/8"	1-1/2"	83312	\$27.40	83212	\$31.70



STUB LENGTH - 3-FLUTE

Square End - UNCOATED & AITiN COATED - .010" to .125"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITIN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	1/8"	1-1/2"	83110	\$24.50	83510	\$29.50
.015"	.022"	1/8"	1-1/2"	83115	\$19.90	83515	\$24.20
.020"	.030"	1/8"	1-1/2"	83120	\$18.80	83520	\$23.10
.025"	.037"	1/8"	1-1/2"	83125	\$17.75	83525	\$22.05
.030"	.045"	1/8"	1-1/2"	83130	\$17.75	83530	\$22.05
.031"	.046"	1/8"	1-1/2"	83131	\$17.75	83531	\$22.05
.035"	.052"	1/8"	1-1/2"	83135	\$15.60	83535	\$19.90
.040"	.060"	1/8"	1-1/2"	83140	\$15.60	83540	\$19.90
.045"	.067"	1/8"	1-1/2"	83145	\$15.60	83545	\$19.90
.047"	.070"	1/8"	1-1/2"	83147	\$15.60	83547	\$19.90
.050"	.075"	1/8"	1-1/2"	83150	\$15.60	83550	\$19.90
.060"	.090"	1/8"	1-1/2"	83160	\$15.60	83560	\$19.90
.062"	.093"	1/8"	1-1/2"	83162	\$14.80	83562	\$19.10
.065"	.098"	1/8"	1-1/2"	83165	\$14.80	83565	\$19.10
.070"	.105"	1/8"	1-1/2"	83170	\$14.80	83570	\$19.10
.075"	.113"	1/8"	1-1/2"	83175	\$14.80	83575	\$19.10
.078"	.156"	1/8"	1-1/2"	83178	\$14.80	83578	\$19.10
.090"	.135"	1/8"	1-1/2"	83190	\$14.80	83590	\$19.10
.093"	.187"	1/8"	1-1/2"	83193	\$14.80	83593	\$19.10
.100"	.150"	1/8"	1-1/2"	83100	\$14.80	83500	\$19.10
.125"	.250"	1/8"	1-1/2"	83112	\$14.80	83512	\$19.10

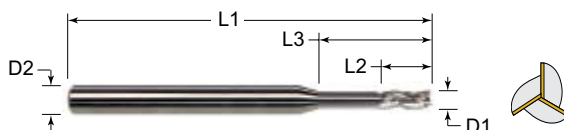
Need corner rounding end mills? See pages 120 to 127.



STUB LENGTH - LONG RCH - 3-FLUTE



Square End - UNCOATED & AITiN COATED - .015" to .125"



Length of Cut = 1.5 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.022"	.100"	1/8"	1-1/2"	83615	\$29.50	83715	\$33.95
.015"	.022"	.150"	1/8"	1-1/2"	83615-1	\$31.50	83715-1	\$35.95
.020"	.030"	.120"	1/8"	1-1/2"	83620	\$27.50	83720	\$31.50
.020"	.030"	.180"	1/8"	1-1/2"	83620-1	\$29.50	83720-1	\$33.50
.025"	.037"	.150"	1/8"	1-1/2"	83625	\$27.50	83725	\$31.50
.025"	.037"	.205"	1/8"	1-1/2"	83625-1	\$27.50	83725-1	\$31.50
.030"	.045"	.180"	1/8"	1-1/2"	83630	\$27.50	83730	\$31.50
.030"	.045"	.250"	1/8"	1-1/2"	83630-1	\$27.50	83730-1	\$31.50
.031"	.046"	.187"	1/8"	1-1/2"	83631	\$27.50	83731	\$31.50
.031"	.046"	.250"	1/8"	1-1/2"	83631-1	\$27.50	83731-1	\$31.50
.031"	.046"	.312"	1/8"	1-1/2"	83631-2	\$29.50	83731-2	\$33.50
.035"	.052"	.210"	1/8"	1-1/2"	83635	\$26.50	83735	\$30.50
.035"	.052"	.312"	1/8"	1-1/2"	83635-1	\$28.50	83735-1	\$32.50
.040"	.060"	.220"	1/8"	1-1/2"	83640	\$26.50	83740	\$30.50
.040"	.060"	.320"	1/8"	1-1/2"	83640-1	\$28.50	83740-1	\$32.50
.045"	.067"	.270"	1/8"	1-1/2"	83645	\$26.50	83745	\$30.50
.045"	.067"	.350"	1/8"	1-1/2"	83645-1	\$28.50	83745-1	\$32.50
.047"	.070"	.280"	1/8"	1-1/2"	83647	\$26.50	83747	\$30.50
.047"	.070"	.375"	1/8"	1-1/2"	83647-1	\$28.50	83747-1	\$32.50
.050"	.075"	.300"	1/8"	1-1/2"	83650	\$26.50	83750	\$30.50
.050"	.075"	.400"	1/8"	1-1/2"	83650-1	\$28.50	83750-1	\$32.50
.060"	.090"	.330"	1/8"	1-1/2"	83660	\$25.50	83760	\$29.50
.060"	.090"	.500"	1/8"	1-1/2"	83660-1	\$27.50	83760-1	\$31.50
.062"	.093"	.360"	1/8"	1-1/2"	83662	\$25.50	83762	\$29.50
.062"	.093"	.500"	1/8"	1-1/2"	83662-1	\$27.50	83762-1	\$31.50
.065"	.098"	.375"	1/8"	1-1/2"	83665	\$25.50	83765	\$29.50
.070"	.105"	.390"	1/8"	1-1/2"	83670	\$25.50	83770	\$29.50
.075"	.113"	.420"	1/8"	1-1/2"	83675	\$25.50	83775	\$29.50
.078"	.156"	.450"	1/8"	1-1/2"	83678	\$25.50	83778	\$29.50
.090"	.135"	.540"	1/8"	1-1/2"	83690	\$25.50	83790	\$29.50
.093"	.187"	.560"	1/8"	1-1/2"	83693	\$25.50	83793	\$29.50
.100"	.150"	.600"	1/8"	1-1/2"	83600	\$25.50	83700	\$29.50
.125"	.250"	.600"	1/8"	1-1/2"	83612	\$25.50	83712	\$29.50



LONG SHANK - LONG FLUTE - 3-FLUTE

Square & Ball End - UNCOATED - .015" to .125"



Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	1/8"	2-1/2"	LF1015	\$28.90	LF1015B	\$32.90
.020"	.100"	1/8"	2-1/2"	LF1020	\$24.75	LF1020B	\$28.50
.025"	.125"	1/8"	2-1/2"	LF1025	\$23.50	LF1025B	\$26.90
.030"	.150"	1/8"	2-1/2"	LF1030	\$22.75	LF1030B	\$26.25
.031" (1/32)	.150"	1/8"	2-1/2"	LF1031	\$22.50	LF1031B	\$26.25
.035"	.175"	1/8"	2-1/2"	LF1035	\$22.50	LF1035B	\$26.25
.040"	.200"	1/8"	2-1/2"	LF1040	\$22.50	LF1040B	\$26.25
.045"	.225"	1/8"	2-1/2"	LF1045	\$22.50	LF1045B	\$26.25
.047" (3/64)	.250"	1/8"	2-1/2"	LF1047	\$22.50	LF1047B	\$26.25
.050"	.250"	1/8"	2-1/2"	LF1050	\$22.50	LF1050B	\$26.25
.060"	.310"	1/8"	2-1/2"	LF1060S	\$20.50	LF1060SB	\$23.90
.060"	.500"	1/8"	2-1/2"	LF1060	\$22.50	LF1060B	\$25.90
.062" (1/16)	.312"	1/8"	2-1/2"	LF1062S	\$20.50	LF1062SB	\$23.90
.062" (1/16)	.500"	1/8"	2-1/2"	LF1062	\$22.50	LF1062B	\$25.90
.065"	.500"	1/8"	2-1/2"	LF1065	\$21.50	LF1065B	\$25.50
.070"	.500"	1/8"	2-1/2"	LF1070	\$21.50	LF1070B	\$25.50
.075"	.500"	1/8"	2-1/2"	LF1075	\$21.50	LF1075B	\$25.50
.078" (5/64)	.500"	1/8"	2-1/2"	LF1078	\$21.50	LF1078B	\$25.50
.078" (5/64)	.625"	1/8"	2-1/2"	LF1078L	\$22.75	LF1078LB	\$26.75
.093" (3/32)	.500"	1/8"	2-1/2"	LF1093	\$21.50	LF1093B	\$25.50
.093" (3/32)	.750"	1/8"	2-1/2"	LF1093L	\$22.75	LF1093LB	\$26.75
.118" (3mm)	.625"	1/8"	2-1/2"	LF1018	\$21.50	LF1018B	\$25.50
.125" (1/8)	.625"	1/8"	2-1/2"	LF1012S	\$20.50	LF1012SB	\$23.90
.125" (1/8)	.750"	1/8"	2-1/2"	LF1012	\$21.50	LF1012B	\$24.90
.125" (1/8)	1.00"	1/8"	2-1/2"	LF1012L	\$21.50	LF1012LB	\$24.90

LONG SHANK - LONG FLUTE - 3-FLUTE



Square & Ball End - AITiN COATED - .015" to .125"



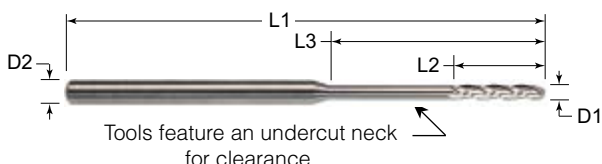
Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	1/8"	2-1/2"	LF2015	\$32.90	LF2015B	\$36.90
.020"	.100"	1/8"	2-1/2"	LF2020	\$28.75	LF2020B	\$34.50
.025"	.125"	1/8"	2-1/2"	LF2025	\$27.50	LF2025B	\$30.90
.030"	.150"	1/8"	2-1/2"	LF2030	\$26.75	LF2030B	\$30.25
.031" (1/32)	.150"	1/8"	2-1/2"	LF2031	\$26.50	LF2031B	\$30.25
.035"	.175"	1/8"	2-1/2"	LF2035	\$26.50	LF2035B	\$30.25
.040"	.200"	1/8"	2-1/2"	LF2040	\$26.50	LF2040B	\$30.25
.045"	.225"	1/8"	2-1/2"	LF2045	\$26.50	LF2045B	\$30.25
.047" (3/64)	.250"	1/8"	2-1/2"	LF2047	\$26.50	LF2047B	\$30.25
.050"	.250"	1/8"	2-1/2"	LF2050	\$26.50	LF2050B	\$30.25
.060"	.310"	1/8"	2-1/2"	LF2060S	\$24.50	LF2060SB	\$27.90
.060"	.500"	1/8"	2-1/2"	LF2060	\$26.50	LF2060B	\$25.90
.062" (1/16)	.312"	1/8"	2-1/2"	LF2062S	\$24.50	LF2062SB	\$27.90
.062" (1/16)	.500"	1/8"	2-1/2"	LF2062	\$26.50	LF2062B	\$29.90
.065"	.325"	1/8"	2-1/2"	LF2065	\$25.50	LF2065B	\$29.90
.070"	.500"	1/8"	2-1/2"	LF2070	\$25.50	LF2070B	\$29.90
.075"	.375"	1/8"	2-1/2"	LF2075	\$25.50	LF2075B	\$29.90
.078" (5/64)	.500"	1/8"	2-1/2"	LF2078	\$25.50	LF2078B	\$29.90
.078" (5/64)	.625"	1/8"	2-1/2"	LF2078L	\$26.75	LF2078LB	\$30.75
.093" (3/32)	.500"	1/8"	2-1/2"	LF2093	\$25.50	LF2093B	\$29.90
.093" (3/32)	.750"	1/8"	2-1/2"	LF2093L	\$26.75	LF2093LB	\$30.75
.118" (3mm)	.625"	1/8"	2-1/2"	LF2018	\$25.50	LF2018B	\$29.90
.125" (1/8)	.625"	1/8"	2-1/2"	LF2012S	\$24.50	LF2012SB	\$27.90
.125" (1/8)	.750"	1/8"	2-1/2"	LF2012	\$25.50	LF2012B	\$28.90
.125" (1/8)	1.00"	1/8"	2-1/2"	LF2012L	\$25.50	LF2012LB	\$28.90



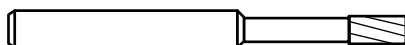
LG FLT - LG REACH - 3-FLUTE

Square & Ball End - UNCOATED - 2-1/2" OAL - .015" to .050"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	.125"	1/8"	2-1/2"	LF1115S	\$33.90	LF1115BS	\$39.90
.015" (1/64)	.075"	.150"	1/8"	2-1/2"	LF1115	\$33.90	LF1115B	\$39.90
.020"	.100"	.150"	1/8"	2-1/2"	LF1120S	\$29.90	LF1120BS	\$35.90
.020"	.100"	.200"	1/8"	2-1/2"	LF1120	\$31.90	LF1120B	\$37.90
.025"	.125"	.200"	1/8"	2-1/2"	LF1125S	\$28.90	LF1125BS	\$32.90
.025"	.125"	.250"	1/8"	2-1/2"	LF1125	\$29.90	LF1125B	\$33.90
.030"	.150"	.250"	1/8"	2-1/2"	LF1130	\$28.90	LF1130B	\$32.90
.030"	.150"	.300"	1/8"	2-1/2"	LF1130L	\$31.90	LF1130LB	\$35.90
.031" (1/32)	.150"	.250"	1/8"	2-1/2"	LF1131	\$28.90	LF1131B	\$32.90
.031" (1/32)	.150"	.300"	1/8"	2-1/2"	LF1131L	\$31.90	LF1131LB	\$35.90
.035"	.175"	.350"	1/8"	2-1/2"	LF1135	\$28.90	LF1135B	\$32.90
.040"	.200"	.350"	1/8"	2-1/2"	LF1140	\$28.90	LF1140B	\$32.90
.040"	.200"	.400"	1/8"	2-1/2"	LF1140L	\$28.90	LF1140LB	\$32.90
.045"	.225"	.350"	1/8"	2-1/2"	LF1145	\$28.90	LF1145B	\$32.90
.045"	.225"	.400"	1/8"	2-1/2"	LF1145L	\$28.90	LF1145LB	\$32.90
.047" (3/64)	.250"	.400"	1/8"	2-1/2"	LF1147	\$28.90	LF1147B	\$32.90
.047" (3/64)	.250"	.500"	1/8"	2-1/2"	LF1147L	\$32.90	LF1147LB	\$36.90
.050"	.250"	.500"	1/8"	2-1/2"	LF1150	\$28.90	LF1150B	\$32.90

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Don't see the reach you want?? Call customer service.
Shorter reaches available at No Extra Charge and ship in 24-48 Hours.
Longer Reaches need to be quoted by our Sales Department
and ship in 24-48 hours after receipt of order.

LG FLT - LG REACH - 3-FLUTE



Continued from previous page:

Square & Ball End - UNCOATED Size Range: .060" to .125" OAL 2-1/2"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.060"	.500"	.650"	1/8"	2-1/2"	LF1160	\$28.90	LF1160B	\$32.90
.060"	.500"	.750"	1/8"	2-1/2"	LF1160L	\$28.90	LF1160LB	\$32.90
.062" (1/16)	.500"	.650"	1/8"	2-1/2"	LF1162S	\$28.90	LF1162BS	\$32.90
.062" (1/16)	.500"	.750"	1/8"	2-1/2"	LF1162	\$28.90	LF1162B	\$32.90
.062" (1/16)	.500"	.850"	1/8"	2-1/2"	LF1162L	\$30.90	LF1162LB	\$34.90
.062" (1/16)	.500"	1.00"	1/8"	2-1/2"	LF1162XL	\$32.90	LF1162XLB	\$36.90
.070"	.500"	.750"	1/8"	2-1/2"	LF1170	\$28.90	LF1170B	\$32.90
.075"	.500"	.750"	1/8"	2-1/2"	LF1175	\$28.90	LF1175B	\$32.90
.078" (5/64)	.500"	.750"	1/8"	2-1/2"	LF1178	\$28.90	LF1178B	\$32.90
.078" (5/64)	.500"	.850"	1/8"	2-1/2"	LF1178L	\$30.90	LF1178LB	\$34.90
.078" (5/64)	.500"	1.00"	1/8"	2-1/2"	LF1178XL	\$32.90	LF1178XLB	\$36.90
.093" (3/32)	.500"	.750"	1/8"	2-1/2"	LF1193S	\$28.90	LF1193BS	\$32.90
.093" (3/32)	.500"	.850"	1/8"	2-1/2"	LF1193	\$30.90	LF1193B	\$34.90
.093" (3/32)	.500"	1.00"	1/8"	2-1/2"	LF1193XL	\$32.90	LF1193XLB	\$36.90
.125" (1/8)	.750"	1.25"	1/8"	2-1/2"	LF1112	\$28.90	LF1112B	\$32.90
.125" (1/8)	1.00"	1.50"	1/8"	2-1/2"	LF1112L	\$28.90	LF1112LB	\$32.90

Need Diamond End Mills for machining graphite, aluminum or plastics? See pages 158 to 177.

"GRX" series of amorphous diamond coated mills lower tooling costs and improve productivity over uncoated carbide.





LG FLUTE - LG REACH - 3-FLUTE

Square & Ball End - **AITiN COATED** - 2-1/2" OAL - .015" to .060"



Tools feature an undercut neck for clearance.

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	.125"	1/8"	2-1/2"	LF2115S	\$37.90	LF2115BS	\$43.90
.015" (1/64)	.075"	.150"	1/8"	2-1/2"	LF2115	\$37.90	LF2115B	\$43.90
.020"	.100"	.150"	1/8"	2-1/2"	LF2120S	\$33.90	LF2120BS	\$39.90
.020"	.100"	.200"	1/8"	2-1/2"	LF2120	\$35.90	LF2120B	\$41.90
.025"	.125"	.200"	1/8"	2-1/2"	LF2125S	\$32.90	LF2125BS	\$36.90
.025"	.125"	.250"	1/8"	2-1/2"	LF2125	\$33.90	LF2125B	\$37.90
.030"	.150"	.250"	1/8"	2-1/2"	LF2130	\$32.90	LF2130B	\$36.90
.030"	.150"	.300"	1/8"	2-1/2"	LF2130L	\$35.90	LF2130LB	\$39.90
.031" (1/32)	.150"	.250"	1/8"	2-1/2"	LF2131	\$32.90	LF2131B	\$36.90
.031" (1/32)	.150"	.300"	1/8"	2-1/2"	LF2131L	\$35.90	LF2131LB	\$39.90
.035"	.175"	.350"	1/8"	2-1/2"	LF2135	\$32.90	LF2135B	\$36.90
.040"	.200"	.350"	1/8"	2-1/2"	LF2140	\$32.90	LF2140B	\$36.90
.040"	.200"	.400"	1/8"	2-1/2"	LF2140L	\$32.90	LF2140LB	\$36.90
.045"	.225"	.350"	1/8"	2-1/2"	LF2145	\$32.90	LF2145B	\$36.90
.045"	.225"	.400"	1/8"	2-1/2"	LF2145L	\$32.90	LF2145LB	\$36.90
.047" (3/64)	.250"	.400"	1/8"	2-1/2"	LF2147	\$32.90	LF2147B	\$36.90
.047" (3/64)	.250"	.500"	1/8"	2-1/2"	LF2147L	\$36.90	LF2147LB	\$40.90
.050"	.250"	.500"	1/8"	2-1/2"	LF2150	\$32.90	LF2150B	\$36.90
.060"	.500"	.650"	1/8"	2-1/2"	LF2160	\$32.90	LF2160B	\$36.90
.060"	.500"	.750"	1/8"	2-1/2"	LF2160L	\$32.90	LF2160LB	\$36.90

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LG FLUTE - LG REACH - 3-FLUTE



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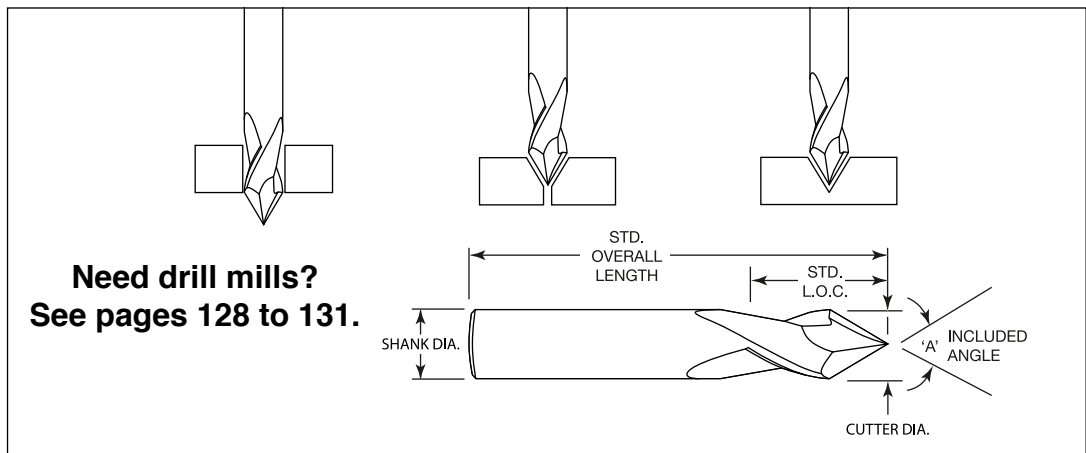
Square & Ball End - AITiN COATED

Size Range: .062" to .125"

OAL 2-1/2"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.062" (1/16)	.500"	.650"	1/8"	2-1/2"	LF2162S	\$32.90	LF2162BS	\$36.90
.062" (1/16)	.500"	.750"	1/8"	2-1/2"	LF2162	\$32.90	LF2162B	\$36.90
.062" (1/16)	.500"	.850"	1/8"	2-1/2"	LF2162L	\$34.90	LF2162LB	\$38.90
.062" (1/16)	.500"	1.00"	1/8"	2-1/2"	LF2162XL	\$36.90	LF2162XLB	\$40.90
.070"	.500"	.750"	1/8"	2-1/2"	LF2170	\$32.90	LF2170B	\$36.90
.075"	.500"	.750"	1/8"	2-1/2"	LF2175	\$32.90	LF2175B	\$36.90
.078" (5/64)	.500"	.750"	1/8"	2-1/2"	LF2178	\$32.90	LF2178B	\$36.90
.078" (5/64)	.500"	.850"	1/8"	2-1/2"	LF2178L	\$34.90	LF2178LB	\$38.90
.078" (5/64)	.500"	1.00"	1/8"	2-1/2"	LF2178XL	\$36.90	LF2178XLB	\$40.90
.093" (3/32)	.500"	.750"	1/8"	2-1/2"	LF2193S	\$32.90	LF2193BS	\$36.90
.093" (3/32)	.500"	.850"	1/8"	2-1/2"	LF2193	\$34.90	LF2193B	\$38.90
.093" (3/32)	.500"	1.00"	1/8"	2-1/2"	LF2193L	\$36.90	LF2193LB	\$40.90
.125" (1/8)	.750"	1.25"	1/8"	2-1/2"	LF2112S	\$32.90	LF2112BS	\$36.90
.125" (1/8)	1.00"	1.50"	1/8"	2-1/2"	LF2112	\$32.90	LF2112B	\$36.90





STUB FLUTE - LONG SHANK - 3-FLUTE

Square & Ball End - UNCOATED - 2-1/2" OAL

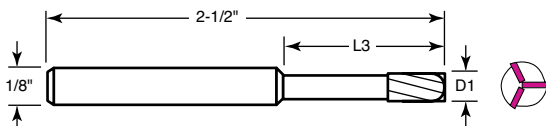


Length of Cut = 1.5 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	1/8"	2-1/2"	SF1010	\$28.50	SF1010B	\$32.50
.015"	.022"	1/8"	2-1/2"	SF1015	\$25.90	SF1015B	\$29.90
.020"	.030"	1/8"	2-1/2"	SF1020	\$23.90	SF1020B	\$27.90
.025"	.037"	1/8"	2-1/2"	SF1025	\$21.90	SF1025B	\$25.90
.030"	.045"	1/8"	2-1/2"	SF1030	\$21.90	SF1030B	\$25.90
.031"	.046"	1/8"	2-1/2"	SF1031	\$21.90	SF1031B	\$25.90
.035"	.052"	1/8"	2-1/2"	SF1035	\$21.90	SF1035B	\$25.90
.040"	.060"	1/8"	2-1/2"	SF1040	\$21.90	SF1040B	\$25.90
.045"	.067"	1/8"	2-1/2"	SF1045	\$21.90	SF1045B	\$25.90
.047"	.070"	1/8"	2-1/2"	SF1047	\$21.90	SF1047B	\$25.90
.050"	.075"	1/8"	2-1/2"	SF1050	\$21.90	SF1050B	\$25.90
.060"	.090"	1/8"	2-1/2"	SF1060	\$21.90	SF1060B	\$25.90
.062"	.094"	1/8"	2-1/2"	SF1062	\$21.90	SF1062B	\$25.90
.065"	.097"	1/8"	2-1/2"	SF1065	\$21.90	SF1065B	\$25.90
.070"	.105"	1/8"	2-1/2"	SF1070	\$21.90	SF1070B	\$25.90
.075"	.112"	1/8"	2-1/2"	SF1075	\$21.90	SF1075B	\$25.90
.078"	.117"	1/8"	2-1/2"	SF1078	\$21.90	SF1078B	\$25.90
.090"	.135"	1/8"	2-1/2"	SF1090	\$21.90	SF1090B	\$25.90
.093"	.139"	1/8"	2-1/2"	SF1093	\$21.90	SF1093B	\$25.90
.125"	.187"	1/8"	2-1/2"	SF1012	\$21.90	SF1012B	\$25.90

ORDER SPECIAL Stub 3-Flute Square & Ball End LONG REACH, LONG SHANK MILLS

To order special long reach end mills please specify:



1. Specify: ☐ Square End or ☐ Ball End.
2. Diameter (D1): _____ From chart above.
3. Overall Reach (L3): _____
4. Quantity (Minimum 6): _____ 3-Flute

Special Reaches Shipped within 24-48 Hours!

Tools are custom manufactured to order and are nonreturnable.

STUB FLUTE - LONG SHANK - 3-FLUTE



Square & Ball End - AITiN COATED - 2-1/2" OAL



Length of Cut = 1.5 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	1/8"	2-1/2"	SF2010	\$34.50	SF2010B	\$38.50
.015"	.022"	1/8"	2-1/2"	SF2015	\$29.90	SF2015B	\$33.90
.020"	.030"	1/8"	2-1/2"	SF2020	\$27.90	SF2020B	\$31.90
.025"	.037"	1/8"	2-1/2"	SF2025	\$25.90	SF2025B	\$29.90
.030"	.045"	1/8"	2-1/2"	SF2030	\$25.90	SF2030B	\$29.90
.031"	.046"	1/8"	2-1/2"	SF2031	\$25.90	SF2031B	\$29.90
.035"	.052"	1/8"	2-1/2"	SF2035	\$25.90	SF2035B	\$29.90
.040"	.060"	1/8"	2-1/2"	SF2040	\$25.90	SF2040B	\$29.90
.045"	.067"	1/8"	2-1/2"	SF2045	\$25.90	SF2045B	\$29.90
.047"	.070"	1/8"	2-1/2"	SF2047	\$25.90	SF2047B	\$29.90
.050"	.075"	1/8"	2-1/2"	SF2050	\$25.90	SF2050B	\$29.90
.060"	.090"	1/8"	2-1/2"	SF2060	\$25.90	SF2060B	\$29.90
.062"	.094"	1/8"	2-1/2"	SF2062	\$25.90	SF2062B	\$29.90
.065"	.097"	1/8"	2-1/2"	SF2065	\$25.90	SF2065B	\$29.90
.070"	.105"	1/8"	2-1/2"	SF2070	\$25.90	SF2070B	\$29.90
.075"	.112"	1/8"	2-1/2"	SF2075	\$25.90	SF2075B	\$29.90
.078"	.117"	1/8"	2-1/2"	SF2078	\$25.90	SF2078B	\$29.90
.090"	.135"	1/8"	2-1/2"	SF2090	\$25.90	SF2090B	\$29.90
.093"	.139"	1/8"	2-1/2"	SF2093	\$25.90	SF2093B	\$29.90
.125"	.187"	1/8"	2-1/2"	SF2012	\$25.90	SF2012B	\$29.90

END MILL EXTENSION HOLDERS I.D. CONCENTRIC WITHIN .0003" - I.D. HOLE SIZE +.00015/-0

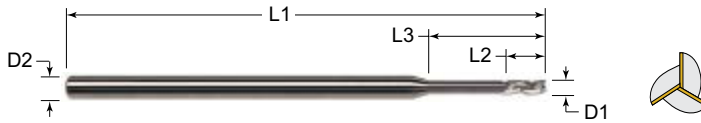


Tool Number	I.D. Hole Size	Shank Diameter	Over All Length	Price Each
ACH1250	.1250"	3/8"	3-1/4"	\$199.50
ACH1250L	.1250"	3/8"	6"	\$265.50
ACH1875	.1875"	1/2"	3-1/2"	\$199.50
ACH1875L	.1875"	1/2"	5"	\$215.50
ACH2500	.2500"	5/8"	4-1/4"	\$199.50
ACH2500L	.2500"	5/8"	6"	\$219.50



STUB - LG SHANK - LG REACH - 3-FLT

Square & Ball End - UNCOATED - 2-1/2" OAL - .015" to .030"



Length of Cut = 1.5 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	.050"	1/8"	2-1/2"	1110-050	\$36.50	1210-050	\$40.50
.010"	.015"	.080"	1/8"	2-1/2"	1110-080	\$36.50	1210-080	\$40.50
.015"	.022"	.075"	1/8"	2-1/2"	1115-075	\$31.50	1215-075	\$39.50
.015"	.022"	.100"	1/8"	2-1/2"	1115-100	\$31.50	1215-100	\$39.50
.015"	.022"	.125"	1/8"	2-1/2"	1115-125	\$31.50	1215-125	\$39.50
.015"	.022"	.150"	1/8"	2-1/2"	1115-150	\$32.50	1215-150	\$40.50
.015"	.022"	.175"	1/8"	2-1/2"	1115-175	\$32.50	1215-175	\$40.50
.020"	.030"	.100"	1/8"	2-1/2"	1120-100	\$29.90	1220-100	\$37.90
.020"	.030"	.150"	1/8"	2-1/2"	1120-150	\$29.90	1220-150	\$37.90
.020"	.030"	.200"	1/8"	2-1/2"	1120-200	\$31.90	1220-200	\$39.90
.020"	.030"	.250"	1/8"	2-1/2"	1120-250	\$31.90	1220-250	\$39.90
.025"	.037"	.125"	1/8"	2-1/2"	1125-125	\$28.90	1225-125	\$33.90
.025"	.037"	.200"	1/8"	2-1/2"	1125-200	\$28.90	1225-200	\$33.90
.025"	.037"	.250"	1/8"	2-1/2"	1125-250	\$30.50	1225-250	\$34.90
.025"	.037"	.300"	1/8"	2-1/2"	1125-300	\$30.50	1225-300	\$34.90
.030"	.045"	.150"	1/8"	2-1/2"	1130-150	\$28.90	1230-150	\$33.90
.030"	.045"	.200"	1/8"	2-1/2"	1130-200	\$28.90	1230-200	\$33.90
.030"	.045"	.250"	1/8"	2-1/2"	1130-250	\$28.90	1230-250	\$33.90
.030"	.045"	.300"	1/8"	2-1/2"	1130-300	\$30.50	1230-300	\$34.90
.030"	.045"	.350"	1/8"	2-1/2"	1130-350	\$30.50	1230-350	\$34.90

Continued Next Page

STUB - LG SHANK - LG REACH - 3-FLT



Continued from previous page:

Square & Ball End - UNCOATED

Size Range: .031" to .045"

OAL 2-1/2"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.031"	.046"	.150"	1/8"	2-1/2"	1131-150	\$28.90	1231-150	\$33.90
.031"	.046"	.200"	1/8"	2-1/2"	1131-200	\$28.90	1231-200	\$33.90
.031"	.046"	.250"	1/8"	2-1/2"	1131-250	\$28.90	1231-250	\$33.90
.031"	.046"	.300"	1/8"	2-1/2"	1131-300	\$30.50	1231-300	\$34.90
.031"	.046"	.350"	1/8"	2-1/2"	1131-350	\$30.50	1231-350	\$34.90
.035"	.052"	.150"	1/8"	2-1/2"	1135-150	\$28.90	1235-150	\$33.90
.035"	.052"	.200"	1/8"	2-1/2"	1135-200	\$28.90	1235-200	\$33.90
.035"	.052"	.250"	1/8"	2-1/2"	1135-250	\$28.90	1235-250	\$33.90
.035"	.052"	.300"	1/8"	2-1/2"	1135-300	\$30.50	1235-300	\$34.90
.035"	.052"	.350"	1/8"	2-1/2"	1135-350	\$30.50	1235-350	\$34.90
.040"	.060"	.150"	1/8"	2-1/2"	1140-150	\$28.90	1240-150	\$33.90
.040"	.060"	.200"	1/8"	2-1/2"	1140-200	\$28.90	1240-200	\$33.90
.040"	.060"	.250"	1/8"	2-1/2"	1140-250	\$28.90	1240-250	\$33.90
.040"	.060"	.300"	1/8"	2-1/2"	1140-300	\$28.90	1240-300	\$33.90
.040"	.060"	.400"	1/8"	2-1/2"	1140-400	\$30.50	1240-400	\$34.90
.045"	.067"	.150"	1/8"	2-1/2"	1145-150	\$28.50	1245-150	\$33.50
.045"	.067"	.200"	1/8"	2-1/2"	1145-200	\$28.50	1245-200	\$33.50
.045"	.067"	.250"	1/8"	2-1/2"	1145-250	\$28.50	1245-250	\$33.50
.045"	.067"	.300"	1/8"	2-1/2"	1145-300	\$28.50	1245-300	\$33.90
.045"	.067"	.350"	1/8"	2-1/2"	1145-350	\$28.50	1245-350	\$33.50
.045"	.067"	.400"	1/8"	2-1/2"	1145-400	\$29.50	1245-400	\$34.50
.045"	.067"	.450"	1/8"	2-1/2"	1145-450	\$29.50	1245-450	\$34.50

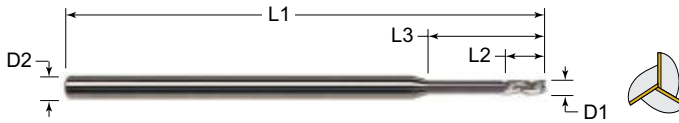
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STUB - LG SHANK - LG REACH - 3-FLT

Square & Ball End - UNCOATED - 2-1/2" OAL - .047" to .065"

Continued from previous page:



Length of Cut = 1.5 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.047"	.070"	.150"	1/8"	2-1/2"	1147-150	\$28.50	1247-150	\$32.90
.047"	.070"	.200"	1/8"	2-1/2"	1147-200	\$28.50	1247-200	\$32.90
.047"	.070"	.250"	1/8"	2-1/2"	1147-250	\$28.50	1247-250	\$32.90
.047"	.070"	.300"	1/8"	2-1/2"	1147-300	\$28.50	1247-300	\$32.90
.047"	.070"	.350"	1/8"	2-1/2"	1147-350	\$28.50	1247-350	\$32.90
.047"	.070"	.400"	1/8"	2-1/2"	1147-400	\$29.50	1247-400	\$34.50
.047"	.070"	.450"	1/8"	2-1/2"	1147-450	\$29.50	1247-450	\$34.50
.050"	.075"	.250"	1/8"	2-1/2"	1150-250	\$28.50	1250-250	\$32.90
.050"	.075"	.300"	1/8"	2-1/2"	1150-300	\$28.50	1250-300	\$32.90
.050"	.075"	.400"	1/8"	2-1/2"	1150-400	\$29.50	1250-400	\$33.50
.050"	.075"	.500"	1/8"	2-1/2"	1150-500	\$29.50	1250-500	\$33.50
.060"	.090"	.300"	1/8"	2-1/2"	1160-300	\$28.50	1260-300	\$32.90
.060"	.090"	.400"	1/8"	2-1/2"	1160-400	\$28.50	1260-400	\$32.90
.060"	.090"	.500"	1/8"	2-1/2"	1160-500	\$28.50	1260-500	\$32.90
.060"	.090"	.625"	1/8"	2-1/2"	1160-625	\$29.50	1260-625	\$33.90
.060"	.090"	.750"	1/8"	2-1/2"	1160-750	\$29.50	1260-750	\$33.90
.062"	.093"	.300"	1/8"	2-1/2"	1162-300	\$28.50	1262-300	\$32.90
.062"	.093"	.400"	1/8"	2-1/2"	1162-400	\$28.50	1262-400	\$32.90
.062"	.093"	.500"	1/8"	2-1/2"	1162-500	\$28.50	1262-500	\$32.90
.062"	.093"	.625"	1/8"	2-1/2"	1162-625	\$29.50	1262-625	\$33.90
.062"	.093"	.750"	1/8"	2-1/2"	1162-750	\$29.50	1262-750	\$33.90
.062"	.093"	.850"	1/8"	2-1/2"	1162-850	\$29.50	1262-850	\$37.50
.062"	.093"	.950"	1/8"	2-1/2"	1162-950	\$33.25	1262-950	\$37.50
.065"	.097"	.300"	1/8"	2-1/2"	1165-300	\$28.50	1265-300	\$32.90
.065"	.097"	.400"	1/8"	2-1/2"	1165-400	\$28.50	1265-400	\$32.90
.065"	.097"	.500"	1/8"	2-1/2"	1165-500	\$28.50	1265-500	\$32.90
.065"	.097"	.625"	1/8"	2-1/2"	1165-625	\$29.50	1265-625	\$33.90

Continued Next Page

STUB - LG SHANK - LG REACH - 3-FLT



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Square & Ball End - UNCOATED

Size Range: .070" to .125"

OAL 2-1/2"

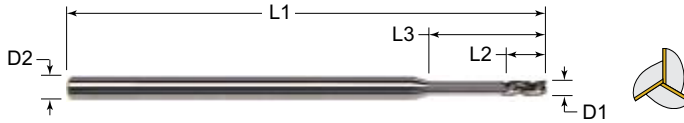


D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.070"	.105"	.300"	1/8"	2-1/2"	1170-300	\$28.50	1270-300	\$32.90
.070"	.105"	.400"	1/8"	2-1/2"	1170-400	\$28.50	1270-400	\$32.90
.070"	.105"	.500"	1/8"	2-1/2"	1170-500	\$28.50	1270-500	\$32.90
.070"	.105"	.625"	1/8"	2-1/2"	1170-625	\$29.50	1270-625	\$33.90
.070"	.105"	.750"	1/8"	2-1/2"	1170-750	\$29.50	1270-750	\$33.90
.075"	.112"	.400"	1/8"	2-1/2"	1175-400	\$28.50	1275-400	\$32.90
.075"	.112"	.500"	1/8"	2-1/2"	1175-500	\$28.50	1275-500	\$32.90
.075"	.112"	.625"	1/8"	2-1/2"	1175-625	\$29.50	1275-625	\$33.90
.075"	.112"	.750"	1/8"	2-1/2"	1175-750	\$29.50	1275-750	\$33.90
.078"	.117"	.400"	1/8"	2-1/2"	1178-400	\$28.50	1278-400	\$32.90
.078"	.117"	.500"	1/8"	2-1/2"	1178-500	\$28.50	1278-500	\$32.90
.078"	.117"	.625"	1/8"	2-1/2"	1178-625	\$29.50	1278-625	\$33.90
.078"	.117"	.750"	1/8"	2-1/2"	1178-750	\$29.50	1278-750	\$33.90
.090"	.135"	.400"	1/8"	2-1/2"	1190-400	\$28.50	1290-400	\$32.90
.090"	.135"	.500"	1/8"	2-1/2"	1190-500	\$28.50	1290-500	\$32.90
.090"	.135"	.625"	1/8"	2-1/2"	1190-625	\$28.50	1290-625	\$32.90
.090"	.135"	.750"	1/8"	2-1/2"	1190-750	\$29.50	1290-750	\$33.90
.090"	.135"	1.00"	1/8"	2-1/2"	1190-100	\$30.50	1290-100	\$33.90
.093"	.139"	.400"	1/8"	2-1/2"	1193-400	\$28.50	1293-400	\$32.90
.093"	.139"	.500"	1/8"	2-1/2"	1193-500	\$28.50	1293-500	\$32.90
.093"	.139"	.625"	1/8"	2-1/2"	1193-625	\$28.50	1293-625	\$32.90
.093"	.139"	.750"	1/8"	2-1/2"	1193-750	\$29.50	1293-750	\$33.50
.093"	.139"	1.000"	1/8"	2-1/2"	1193-100	\$30.50	1293-100	\$34.50
.125"	.187"	.500"	1/8"	2-1/2"	1125-500	\$28.50	1225-500	\$32.90
.125"	.187"	.625"	1/8"	2-1/2"	1125-625	\$28.50	1225-625	\$32.90
.125"	.187"	.750"	1/8"	2-1/2"	1125-750	\$29.50	1225-750	\$33.50
.125"	.187"	1.000"	1/8"	2-1/2"	1125-100	\$30.50	1225-100	\$34.50
.125"	.187"	1.250"	1/8"	2-1/2"	1125-1250	\$32.50	1225-1250	\$36.50



STUB - LG SHANK - LG REACH - 3-FLT

Square & Ball End - AITiN COATED - 2-1/2" OAL - .015" to .030"



Length of Cut = 1.5 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	.050"	1/8"	2-1/2"	2110-050	\$42.50	2210-050	\$46.50
.010"	.015"	.080"	1/8"	2-1/2"	2110-080	\$42.50	2210-080	\$46.50
.015"	.022"	.075"	1/8"	2-1/2"	2115-075	\$35.50	2215-075	\$43.50
.015"	.022"	.100"	1/8"	2-1/2"	2115-100	\$35.50	2215-100	\$43.50
.015"	.022"	.125"	1/8"	2-1/2"	2115-125	\$35.50	2215-125	\$43.50
.015"	.022"	.150"	1/8"	2-1/2"	2115-150	\$36.50	2215-150	\$44.50
.015"	.022"	.175"	1/8"	2-1/2"	2115-175	\$36.50	2215-175	\$44.50
.020"	.030"	.100"	1/8"	2-1/2"	2120-100	\$33.90	2220-100	\$41.90
.020"	.030"	.150"	1/8"	2-1/2"	2120-150	\$33.90	2220-150	\$41.90
.020"	.030"	.200"	1/8"	2-1/2"	2120-200	\$35.90	2220-200	\$43.90
.020"	.030"	.250"	1/8"	2-1/2"	2120-250	\$35.90	2220-250	\$43.90
.025"	.037"	.125"	1/8"	2-1/2"	2125-125	\$32.90	2225-125	\$37.90
.025"	.037"	.200"	1/8"	2-1/2"	2125-200	\$32.90	2225-200	\$37.90
.025"	.037"	.250"	1/8"	2-1/2"	2125-250	\$34.50	2225-250	\$38.90
.025"	.037"	.300"	1/8"	2-1/2"	2125-300	\$34.50	2225-300	\$38.90
.030"	.045"	.150"	1/8"	2-1/2"	2130-150	\$32.90	2230-150	\$37.90
.030"	.045"	.200"	1/8"	2-1/2"	2130-200	\$32.90	2230-200	\$37.90
.030"	.045"	.250"	1/8"	2-1/2"	2130-250	\$32.90	2230-250	\$37.90
.030"	.045"	.300"	1/8"	2-1/2"	2130-300	\$34.50	2230-300	\$38.90
.030"	.045"	.350"	1/8"	2-1/2"	2130-350	\$34.50	2230-350	\$38.90

Continued Next Page

STUB - LG SHANK - LG REACH - 3-FLT



Continued from previous page:

Square & Ball End - AITiN COATED

Size Range: .031" to .045"

OAL 2-1/2"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.031"	.046"	.150"	1/8"	2-1/2"	2131-150	\$32.90	2231-150	\$37.90
.031"	.046"	.200"	1/8"	2-1/2"	2131-200	\$32.90	2231-200	\$37.90
.031"	.046"	.250"	1/8"	2-1/2"	2131-250	\$32.90	2231-250	\$37.90
.031"	.046"	.300"	1/8"	2-1/2"	2131-300	\$34.50	2231-300	\$38.90
.031"	.046"	.350"	1/8"	2-1/2"	2131-350	\$34.50	2231-350	\$38.90
.035"	.052"	.150"	1/8"	2-1/2"	2135-150	\$32.90	2235-150	\$37.90
.035"	.052"	.200"	1/8"	2-1/2"	2135-200	\$32.90	2235-200	\$37.90
.035"	.052"	.250"	1/8"	2-1/2"	2135-250	\$32.90	2235-250	\$37.90
.035"	.052"	.300"	1/8"	2-1/2"	2135-300	\$34.50	2235-300	\$38.90
.035"	.052"	.350"	1/8"	2-1/2"	2135-350	\$34.50	2235-350	\$38.90
.040"	.060"	.150"	1/8"	2-1/2"	2140-150	\$32.90	2240-150	\$37.90
.040"	.060"	.200"	1/8"	2-1/2"	2140-200	\$32.90	2240-200	\$37.90
.040"	.060"	.250"	1/8"	2-1/2"	2140-250	\$32.90	2240-250	\$37.90
.040"	.060"	.300"	1/8"	2-1/2"	2140-300	\$32.90	2240-300	\$37.90
.040"	.060"	.400"	1/8"	2-1/2"	2140-400	\$34.50	2240-400	\$38.90
.045"	.067"	.150"	1/8"	2-1/2"	2145-150	\$32.50	2245-150	\$37.50
.045"	.067"	.200"	1/8"	2-1/2"	2145-200	\$32.50	2245-200	\$37.50
.045"	.067"	.250"	1/8"	2-1/2"	2145-250	\$32.50	2245-250	\$37.50
.045"	.067"	.300"	1/8"	2-1/2"	2145-300	\$32.50	2245-300	\$37.50
.045"	.067"	.350"	1/8"	2-1/2"	2145-350	\$32.50	2245-350	\$37.50
.045"	.067"	.400"	1/8"	2-1/2"	2145-400	\$33.50	2245-400	\$38.50
.045"	.067"	.450"	1/8"	2-1/2"	2145-450	\$33.50	2245-450	\$38.50

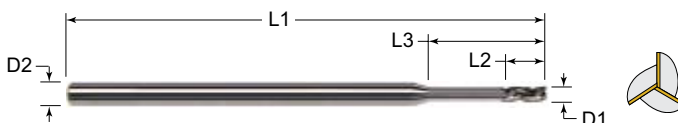
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STUB – LG SHANK – LG REACH – 3-FLT

Square & Ball End - AITiN COATED - 2-1/2" OAL - .047" to .065"

Continued from previous page:



Length of Cut = 1.5 x Diameter – Center Cutting – Micro Grain Carbide – Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.047"	.070"	.150"	1/8"	2-1/2"	2147-150	\$32.50	2247-150	\$36.90
.047"	.070"	.200"	1/8"	2-1/2"	2147-200	\$32.50	2247-200	\$36.90
.047"	.070"	.250"	1/8"	2-1/2"	2147-250	\$32.50	2247-250	\$36.90
.047"	.070"	.300"	1/8"	2-1/2"	2147-300	\$32.50	2247-300	\$36.90
.047"	.070"	.350"	1/8"	2-1/2"	2147-350	\$32.50	2247-350	\$36.90
.047"	.070"	.400"	1/8"	2-1/2"	2147-400	\$33.50	2247-400	\$38.50
.047"	.070"	.450"	1/8"	2-1/2"	2147-450	\$33.50	2247-450	\$38.50
.050"	.075"	.250"	1/8"	2-1/2"	2150-250	\$32.50	2250-250	\$36.90
.050"	.075"	.300"	1/8"	2-1/2"	2150-300	\$32.50	2250-300	\$36.90
.050"	.075"	.400"	1/8"	2-1/2"	2150-400	\$33.50	2250-400	\$37.50
.050"	.075"	.500"	1/8"	2-1/2"	2150-500	\$33.50	2250-500	\$37.50
.060"	.090"	.300"	1/8"	2-1/2"	2160-300	\$32.50	2260-300	\$36.90
.060"	.090"	.400"	1/8"	2-1/2"	2160-400	\$32.50	2260-400	\$36.90
.060"	.090"	.500"	1/8"	2-1/2"	2160-500	\$32.50	2260-500	\$36.90
.060"	.090"	.625"	1/8"	2-1/2"	2160-625	\$33.50	2260-625	\$37.90
.060"	.090"	.750"	1/8"	2-1/2"	2160-750	\$33.50	2260-750	\$37.90
.062"	.093"	.300"	1/8"	2-1/2"	2162-300	\$32.50	2262-300	\$36.90
.062"	.093"	.400"	1/8"	2-1/2"	2162-400	\$32.50	2262-400	\$36.90
.062"	.093"	.500"	1/8"	2-1/2"	2162-500	\$32.50	2262-500	\$36.90
.062"	.093"	.625"	1/8"	2-1/2"	2162-625	\$33.50	2262-625	\$37.90
.062"	.093"	.750"	1/8"	2-1/2"	2162-750	\$33.50	2262-750	\$37.90
.062"	.093"	.850"	1/8"	2-1/2"	2162-850	\$33.50	2262-850	\$41.50
.062"	.093"	.950"	1/8"	2-1/2"	2162-950	\$37.25	2262-950	\$41.50
.065"	.097"	.300"	1/8"	2-1/2"	2165-300	\$32.50	2265-300	\$36.90
.065"	.097"	.400"	1/8"	2-1/2"	2165-400	\$32.50	2265-400	\$36.90
.065"	.097"	.500"	1/8"	2-1/2"	2165-500	\$32.50	2265-500	\$36.90
.065"	.097"	.625"	1/8"	2-1/2"	2165-625	\$33.50	2265-625	\$37.90

Continued Next Page

STUB - LG SHANK - LG REACH - 3-FLT



Continued from previous page:

Square & Ball End - AITiN COATED

Size Range: .070" to .125"

OAL 2-1/2"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.070"	.105"	.300"	1/8"	2-1/2"	2170-300	\$32.50	2270-300	\$36.90
.070"	.105"	.400"	1/8"	2-1/2"	2170-400	\$32.50	2270-400	\$36.90
.070"	.105"	.500"	1/8"	2-1/2"	2170-500	\$32.50	2270-500	\$36.90
.070"	.105"	.625"	1/8"	2-1/2"	2170-625	\$33.50	2270-625	\$37.90
.070"	.105"	.750"	1/8"	2-1/2"	2170-750	\$33.50	2270-750	\$37.90
.075"	.112"	.400"	1/8"	2-1/2"	2175-400	\$32.50	2275-400	\$36.90
.075"	.112"	.500"	1/8"	2-1/2"	2175-500	\$32.50	2275-500	\$36.90
.075"	.112"	.625"	1/8"	2-1/2"	2175-625	\$33.50	2275-625	\$37.90
.075"	.112"	.750"	1/8"	2-1/2"	2175-750	\$33.50	2275-750	\$37.90
.078"	.117"	.400"	1/8"	2-1/2"	2178-400	\$32.50	2278-400	\$36.90
.078"	.117"	.500"	1/8"	2-1/2"	2178-500	\$32.50	2278-500	\$36.90
.078"	.117"	.625"	1/8"	2-1/2"	2178-625	\$33.50	2278-625	\$37.90
.078"	.117"	.750"	1/8"	2-1/2"	2178-750	\$33.50	2278-750	\$37.90
.090"	.135"	.400"	1/8"	2-1/2"	2190-400	\$32.50	2290-400	\$36.90
.090"	.135"	.500"	1/8"	2-1/2"	2190-500	\$32.50	2290-500	\$36.90
.090"	.135"	.625"	1/8"	2-1/2"	2190-625	\$32.50	2290-625	\$36.90
.090"	.135"	.750"	1/8"	2-1/2"	2190-750	\$33.50	2290-750	\$37.90
.090"	.135"	1.00"	1/8"	2-1/2"	2190-100	\$34.50	2290-100	\$37.90
.093"	.139"	.400"	1/8"	2-1/2"	2193-400	\$32.50	2293-400	\$36.90
.093"	.139"	.500"	1/8"	2-1/2"	2193-500	\$32.50	2293-500	\$36.90
.093"	.139"	.625"	1/8"	2-1/2"	2193-625	\$32.50	2293-625	\$36.90
.093"	.139"	.750"	1/8"	2-1/2"	2193-750	\$33.50	2293-750	\$37.50
.093"	.139"	1.000"	1/8"	2-1/2"	2193-100	\$34.50	2293-100	\$38.50
.125"	.187"	.500"	1/8"	2-1/2"	2125-500	\$32.50	2225-500	\$36.90
.125"	.187"	.625"	1/8"	2-1/2"	2125-625	\$32.50	2225-625	\$36.90
.125"	.187"	.750"	1/8"	2-1/2"	2125-750	\$33.50	2225-750	\$37.50
.125"	.187"	1.000"	1/8"	2-1/2"	2125-100	\$34.50	2225-100	\$38.50
.125"	.187"	1.250"	1/8"	2-1/2"	2125-1250	\$36.50	2225-1250	\$40.50



STUB - CORNER RAD - LG SHK - 3-FLT

Corner Radius - UNCOATED & AITiN COATED
2-1/2" OAL - LOC = 1.5 x DIA.

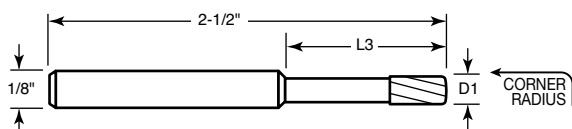


Flute Length = 1.5 x Diameter or as specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Dia. +/- .0005"	R Corner Radius +/- .001"	L2 Length of Cut +.010" -.000"	D2 Shank Dia.	L1 Over All Length	NOT COATED		AITiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.003"	.023"	1/8"	2-1/2"	SR1015-003	\$30.90	SR2015-003	\$34.90
.020"	.005"	.030"	1/8"	2-1/2"	SR1020-005	\$30.90	SR2020-005	\$34.90
.031"	.005"	.046"	1/8"	2-1/2"	SR1031-005	\$25.90	SR2031-005	\$29.90
.040"	.005"	.060"	1/8"	2-1/2"	SR1040-005	\$25.90	SR2040-005	\$29.90
.047"	.005"	.070"	1/8"	2-1/2"	SR1047-005	\$25.90	SR2047-005	\$29.90
.047"	.010"	.070"	1/8"	2-1/2"	SR1047-010	\$25.90	SR2047-010	\$29.90
.062"	.005"	.094"	1/8"	2-1/2"	SR1062-005	\$25.90	SR2062-005	\$29.90
.062"	.010"	.094"	1/8"	2-1/2"	SR1062-010	\$25.90	SR2062-010	\$29.90
.062"	.015"	.094"	1/8"	2-1/2"	SR1062-015	\$25.90	SR2062-015	\$29.90
.070"	.005"	.105"	1/8"	2-1/2"	SR1070-005	\$25.90	SR2070-005	\$29.90
.078"	.005"	.117"	1/8"	2-1/2"	SR1078-005	\$25.90	SR2078-005	\$29.90
.078"	.010"	.117"	1/8"	2-1/2"	SR1078-010	\$25.90	SR2078-010	\$29.90
.078"	.015"	.117"	1/8"	2-1/2"	SR1078-015	\$25.90	SR2078-015	\$29.90
.093"	.005"	.139"	1/8"	2-1/2"	SR1093-005	\$25.90	SR2093-005	\$29.90
.093"	.010"	.139"	1/8"	2-1/2"	SR1093-010	\$25.90	SR2093-010	\$29.90
.093"	.015"	.139"	1/8"	2-1/2"	SR1093-015	\$25.90	SR2093-015	\$29.90
.125"	.005"	.187"	1/8"	2-1/2"	SR1125-005	\$25.90	SR2125-005	\$29.90
.125"	.010"	.187"	1/8"	2-1/2"	SR1125-010	\$25.90	SR2125-010	\$29.90
.125"	.015"	.187"	1/8"	2-1/2"	SR1125-015	\$25.90	SR2125-015	\$29.90
.125"	.020"	.187"	1/8"	2-1/2"	SR1125-020	\$25.90	SR2125-020	\$29.90
.125"	.030"	.187"	1/8"	2-1/2"	SR1125-030	\$25.90	SR2125-030	\$29.90

ORDER SPECIAL 3-Flute Square & Ball End LONG REACH, LONG SHANK MILLS

To order special long reach end mills please specify:



1. Diameter (D1): _____ From chart above.
2. Corner Rad. (R): _____ From chart above.
3. Overall Reach (L3): _____
4. Quantity (Minimum 6): _____

3-Flute

Special Reaches Shipped within 24-48 Hours!

Tools are custom manufactured to order and are nonreturnable.

STUB - CORNER RAD - LG SHK & RCH - 3-FLT



Corner Radius - UNCOATED & AITiN COATED - .020" to .047"



Minimum
3 Tools
Each Size



Flute Length = 1.5 x Diameter or as specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter +/- .0005"	R Corner Radius +/- .001"	L2 Length of Cut +.010" -.000"	L3 Reach From Tip	D2 Shank Dia.	L1 Over All Length	NOT COATED		AITiN COATED	
						Tool Number	Price Each	Tool Number	Price Each
.015"	.003"	.023"	.080"	1/8"	2-1/2"	2315-080	\$38.90	2415-080	\$42.90
.015"	.003"	.023"	.125"	1/8"	2-1/2"	2315-125	\$38.90	2415-125	\$42.90
.020"	.005"	.030"	.100"	1/8"	2-1/2"	2320-100	\$38.90	2420-100	\$42.90
.020"	.005"	.030"	.150"	1/8"	2-1/2"	2320-150	\$38.90	2420-150	\$42.90
.031"	.005"	.046"	.150"	1/8"	2-1/2"	2331-150	\$33.90	2431-150	\$37.90
.031"	.005"	.046"	.200"	1/8"	2-1/2"	2331-200	\$33.90	2431-200	\$37.90
.031"	.005"	.046"	.250"	1/8"	2-1/2"	2331-250	\$33.90	2431-250	\$37.90
.040"	.005"	.060"	.150"	1/8"	2-1/2"	2340-150	\$33.90	2440-150	\$37.90
.040"	.005"	.060"	.200"	1/8"	2-1/2"	2340-200	\$33.90	2440-200	\$37.90
.040"	.005"	.060"	.250"	1/8"	2-1/2"	2340-250	\$33.90	2440-250	\$37.90
.040"	.005"	.060"	.300"	1/8"	2-1/2"	2340-300	\$33.90	2440-300	\$37.90
.047"	.005"	.070"	.200"	1/8"	2-1/2"	2347-200	\$32.90	2447-200	\$36.90
.047"	.005"	.070"	.250"	1/8"	2-1/2"	2347-250	\$32.90	2447-250	\$36.90
.047"	.005"	.070"	.300"	1/8"	2-1/2"	2347-300	\$32.90	2447-300	\$36.90
.047"	.005"	.070"	.350"	1/8"	2-1/2"	2347-350	\$32.90	2447-350	\$36.90
.047"	.005"	.070"	.400"	1/8"	2-1/2"	2347-400	\$33.90	2447-400	\$37.90
.047"	.005"	.070"	.450"	1/8"	2-1/2"	2347-450	\$33.90	2447-450	\$37.90
.047"	.010"	.070"	.200"	1/8"	2-1/2"	2547-200	\$32.90	2647-200	\$36.90
.047"	.010"	.070"	.250"	1/8"	2-1/2"	2547-250	\$32.90	2647-250	\$36.90
.047"	.010"	.070"	.300"	1/8"	2-1/2"	2547-300	\$32.90	2647-300	\$36.90
.047"	.010"	.070"	.350"	1/8"	2-1/2"	2547-350	\$32.90	2647-350	\$36.90
.047"	.010"	.070"	.400"	1/8"	2-1/2"	2547-400	\$33.90	2647-400	\$37.90
.047"	.010"	.070"	.450"	1/8"	2-1/2"	2547-450	\$33.90	2647-450	\$37.90

Tools are custom manufactured to order and are nonreturnable.

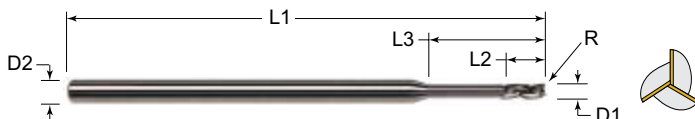
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STUB - CORNER RAD - LG SHK & RCH - 3-FLT

Corner Radius - UNCOATED & AITiN COATED -.062" to .078"

Continued from previous page:



Minimum
3 Tools
Each Size

Shipped
Within 24-48
Hours

Flute Length = 1.5 x Diameter or as specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter +/- .0005"	R Corner Radius +/- .001"	L2 Length of Cut +.010" -.000"	L3 Reach From Tip	D2 Shank Dia.	L1 Over All Length	NOT COATED		AITiN COATED	
						Tool Number	Price Each	Tool Number	Price Each
.062"	.005"	.094"	.300"	1/8"	2-1/2"	2362-300	\$32.90	2462-300	\$36.90
.062"	.005"	.094"	.400"	1/8"	2-1/2"	2362-400	\$32.90	2462-400	\$36.90
.062"	.005"	.094"	.500"	1/8"	2-1/2"	2362-500	\$32.90	2462-500	\$36.90
.062"	.005"	.094"	.625"	1/8"	2-1/2"	2362-625	\$33.90	2462-625	\$37.90
.062"	.005"	.094"	.750"	1/8"	2-1/2"	2362-750	\$33.90	2462-750	\$37.90
.062"	.010"	.094"	.300"	1/8"	2-1/2"	2562-300	\$32.90	2662-300	\$36.90
.062"	.010"	.094"	.400"	1/8"	2-1/2"	2562-400	\$32.90	2662-400	\$36.90
.062"	.010"	.094"	.500"	1/8"	2-1/2"	2562-500	\$32.90	2662-500	\$36.90
.062"	.010"	.094"	.625"	1/8"	2-1/2"	2562-625	\$33.90	2662-625	\$37.90
.062"	.010"	.094"	.750"	1/8"	2-1/2"	2562-750	\$33.90	2662-750	\$37.90
.062"	.015"	.094"	.300"	1/8"	2-1/2"	2762-300	\$32.90	2862-300	\$36.90
.062"	.015"	.094"	.400"	1/8"	2-1/2"	2762-400	\$32.90	2862-400	\$36.90
.062"	.015"	.094"	.500"	1/8"	2-1/2"	2762-500	\$32.90	2862-500	\$36.90
.062"	.015"	.094"	.625"	1/8"	2-1/2"	2762-625	\$33.90	2862-625	\$37.90
.062"	.015"	.094"	.750"	1/8"	2-1/2"	2762-750	\$33.90	2862-750	\$37.90
.070"	.005"	.105"	.350"	1/8"	2-1/2"	2370-350	\$33.90	2470-350	\$37.90
.070"	.005"	.105"	.500"	1/8"	2-1/2"	2370-500	\$33.90	2470-500	\$37.90
.078"	.005"	.117"	.300"	1/8"	2-1/2"	2378-300	\$32.90	2478-300	\$36.90
.078"	.005"	.117"	.400"	1/8"	2-1/2"	2378-400	\$32.90	2478-400	\$36.90
.078"	.005"	.117"	.500"	1/8"	2-1/2"	2378-500	\$32.90	2478-500	\$36.90
.078"	.005"	.117"	.625"	1/8"	2-1/2"	2378-625	\$32.90	2478-625	\$36.90
.078"	.005"	.117"	.750"	1/8"	2-1/2"	2378-750	\$33.90	2478-750	\$37.90
.078"	.010"	.117"	.300"	1/8"	2-1/2"	2578-300	\$32.90	2678-300	\$36.90
.078"	.010"	.117"	.400"	1/8"	2-1/2"	2578-400	\$32.90	2678-400	\$36.90
.078"	.010"	.117"	.500"	1/8"	2-1/2"	2578-500	\$32.90	2678-500	\$36.90
.078"	.010"	.117"	.625"	1/8"	2-1/2"	2578-625	\$33.90	2678-625	\$37.90
.078"	.010"	.117"	.750"	1/8"	2-1/2"	2578-750	\$33.90	2678-750	\$37.90

Tools are custom manufactured to order and are nonreturnable.

Continued Next Page

STUB - CORNER RAD - LG SHK & RCH - 3-FLT



Continued from previous page:

Corner Radius

UNCOATED & AITiN COATED

Size Range: .093" to .125"

OAL 2-1/2"

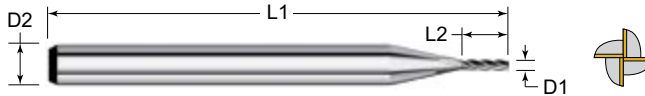


D1 Cutter Diameter +/- .0005"	R Corner Radius +/- .001"	L2 Length of Cut +.010" -.000"	L3 Reach From Tip	D2 Shank Dia.	L1 Over All Length	NOT COATED		AITiN COATED	
						Tool Number	Price Each	Tool Number	Price Each
.093"	.005"	.139"	.500"	1/8"	2-1/2"	2393-500	\$32.90	2493-500	\$36.90
.093"	.005"	.139"	.600"	1/8"	2-1/2"	2393-600	\$32.90	2493-600	\$36.90
.093"	.005"	.139"	.700"	1/8"	2-1/2"	2393-700	\$32.90	2493-700	\$36.90
.093"	.005"	.139"	.800"	1/8"	2-1/2"	2393-800	\$33.90	2493-800	\$37.90
.093"	.005"	.139"	.900"	1/8"	2-1/2"	2393-900	\$33.90	2493-900	\$37.90
.093"	.005"	.139"	1.00"	1/8"	2-1/2"	2393-100	\$34.90	2493-100	\$38.90
.093"	.010"	.139"	.500"	1/8"	2-1/2"	2593-500	\$32.90	2693-500	\$36.90
.093"	.010"	.139"	.600"	1/8"	2-1/2"	2593-600	\$32.90	2693-600	\$36.90
.093"	.010"	.139"	.700"	1/8"	2-1/2"	2593-700	\$32.90	2693-700	\$36.90
.093"	.010"	.139"	.800"	1/8"	2-1/2"	2593-800	\$33.90	2693-800	\$37.90
.093"	.010"	.139"	.900"	1/8"	2-1/2"	2593-900	\$33.90	2693-900	\$37.90
.093"	.010"	.139"	1.00"	1/8"	2-1/2"	2593-100	\$34.90	2693-100	\$38.90
.093"	.015"	.139"	.500"	1/8"	2-1/2"	2793-500	\$32.90	2893-500	\$36.90
.093"	.015"	.139"	.600"	1/8"	2-1/2"	2793-600	\$32.90	2893-600	\$36.90
.093"	.015"	.139"	.700"	1/8"	2-1/2"	2793-700	\$32.90	2893-700	\$36.90
.093"	.015"	.139"	.800"	1/8"	2-1/2"	2793-800	\$33.90	2893-800	\$37.90
.093"	.015"	.139"	.900"	1/8"	2-1/2"	2793-900	\$33.90	2893-900	\$37.90
.093"	.015"	.139"	1.00"	1/8"	2-1/2"	2793-100	\$34.90	2893-100	\$38.90
.125"	.005"	.187"	.650"	1/8"	2-1/2"	2312-650	\$32.90	2412-650	\$36.90
.125"	.005"	.187"	.750"	1/8"	2-1/2"	2312-750	\$32.90	2412-750	\$36.90
.125"	.005"	.187"	.850"	1/8"	2-1/2"	2312-850	\$33.90	2412-850	\$37.90
.125"	.005"	.187"	1.000"	1/8"	2-1/2"	2312-100	\$33.90	2412-100	\$37.90
.125"	.005"	.187"	1.250"	1/8"	2-1/2"	2312-125	\$35.90	2412-125	\$39.90
.125"	.010"	.187"	.650"	1/8"	2-1/2"	2512-650	\$32.90	2612-650	\$36.90
.125"	.010"	.187"	.750"	1/8"	2-1/2"	2512-750	\$32.90	2612-750	\$36.90
.125"	.010"	.187"	.850"	1/8"	2-1/2"	2512-850	\$33.90	2612-850	\$37.90
.125"	.010"	.187"	1.000"	1/8"	2-1/2"	2512-100	\$33.90	2612-100	\$37.90
.125"	.010"	.187"	1.250"	1/8"	2-1/2"	2512-125	\$35.90	2612-125	\$39.90
.125"	.015"	.187"	.650"	1/8"	2-1/2"	2712-650	\$32.90	2812-650	\$36.90
.125"	.015"	.187"	.750"	1/8"	2-1/2"	2712-750	\$32.90	2812-750	\$36.90
.125"	.015"	.187"	.850"	1/8"	2-1/2"	2712-850	\$33.90	2812-850	\$37.90
.125"	.015"	.187"	1.000"	1/8"	2-1/2"	2712-100	\$33.90	2812-100	\$37.90
.125"	.015"	.187"	1.250"	1/8"	2-1/2"	2712-125	\$35.90	2812-125	\$39.90



DECIMAL - 4-FLUTE

Square & Ball End - UNCOATED - .010" to .067"



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	1/8"	1-1/2"	84010	\$22.75	84010B	\$31.95
.012"	.036"	1/8"	1-1/2"	84012	\$22.75	84012B	\$31.95
.015"	.045"	1/8"	1-1/2"	84015	\$17.95	84015B	\$24.50
.018"	.054"	1/8"	1-1/2"	84018	\$18.75	84018B	\$24.75
.020"	.060"	1/8"	1-1/2"	84020	\$17.25	84020B	\$23.50
.022"	.066"	1/8"	1-1/2"	84022	\$17.90	84022B	\$23.90
.025"	.075"	1/8"	1-1/2"	84025	\$15.75	84025B	\$21.25
.027"	.081"	1/8"	1-1/2"	84027	\$16.50	84027B	\$21.75
.030"	.090"	1/8"	1-1/2"	84030	\$15.75	84030B	\$19.25
.031"	.093"	1/8"	1-1/2"	84031	\$15.75	84031B	\$19.25
.031"	.125"	1/8"	1-1/2"	84031L	\$15.75	84031LB	\$19.25
.033"	.099"	1/8"	1-1/2"	84033	\$16.50	84033B	\$19.90
.035"	.105"	1/8"	1-1/2"	84035	\$13.50	84035B	\$17.25
.037"	.111"	1/8"	1-1/2"	84037	\$13.90	84037B	\$18.20
.039"	.117"	1/8"	1-1/2"	84039	\$13.90	84039B	\$18.20
.040"	.120"	1/8"	1-1/2"	84040	\$13.50	84040B	\$17.25
.042"	.126"	1/8"	1-1/2"	84042	\$13.90	84042B	\$18.20
.045"	.135"	1/8"	1-1/2"	84045	\$13.50	84045B	\$17.25
.047"	.141"	1/8"	1-1/2"	84047	\$13.50	84047B	\$17.50
.050"	.150"	1/8"	1-1/2"	84050	\$13.50	84050B	\$17.50
.052"	.156"	1/8"	1-1/2"	84052	\$13.90	84052B	\$18.20
.055"	.165"	1/8"	1-1/2"	84055	\$13.50	84055B	\$18.20
.057"	.171"	1/8"	1-1/2"	84057	\$13.90	84057B	\$18.20
.059"	.177"	1/8"	1-1/2"	84059	\$13.90	84059B	\$18.20
.060"	.180"	1/8"	1-1/2"	84060	\$13.50	84060B	\$18.20
.062"	.187"	1/8"	1-1/2"	84062	\$13.50	84062B	\$17.50
.062"	.250"	1/8"	1-1/2"	84062L	\$13.50	84062LB	\$17.50
.065"	.195"	1/8"	1-1/2"	84065	\$13.50	84065B	\$17.50
.067"	.201"	1/8"	1-1/2"	84067	\$13.50	84067B	\$18.50

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DECIMAL - 4-FLUTE



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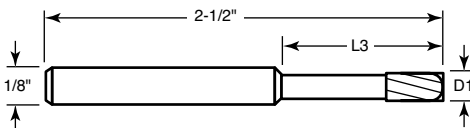
Square & Ball End - UNCOATED Size Range: .070" to .125"



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.070"	.210"	1/8"	1-1/2"	84070	\$13.50	84070B	\$17.50
.072"	.216"	1/8"	1-1/2"	84072	\$13.50	84072B	\$18.50
.075"	.225"	1/8"	1-1/2"	84075	\$13.50	84075B	\$17.50
.078"	.234"	1/8"	1-1/2"	84078	\$13.50	84078B	\$17.50
.080"	.240"	1/8"	1-1/2"	84080	\$13.50	84080B	\$17.50
.085"	.265"	1/8"	1-1/2"	84085	\$13.50	84085B	\$17.50
.090"	.270"	1/8"	1-1/2"	84090	\$13.50	84090B	\$17.50
.093"	.279"	1/8"	1-1/2"	84093	\$13.50	84093B	\$17.50
.093"	.375"	1/8"	1-1/2"	84093L	\$13.50	84093LB	\$17.50
.095"	.285"	1/8"	1-1/2"	84095	\$13.50	84095B	\$17.50
.098"	.294"	1/8"	1-1/2"	84098	\$13.50	84098B	\$18.50
.100"	.300"	1/8"	1-1/2"	84100	\$13.50	84100B	\$17.50
.105"	.315"	1/8"	1-1/2"	84105	\$13.50	84105B	\$17.50
.110"	.330"	1/8"	1-1/2"	84110	\$13.50	84110B	\$17.50
.115"	.345"	1/8"	1-1/2"	84115	\$13.50	84115B	\$17.50
.118"	.354"	1/8"	1-1/2"	84118	\$13.50	84118B	\$18.50
.120"	.360"	1/8"	1-1/2"	84120	\$13.50	84120B	\$17.50
.125"	.500"	1/8"	1-1/2"	84125	\$11.90	84125B	\$15.75

ORDER SPECIAL Square & Ball End LONG REACH MILLS

To order special long reach end mills please specify:



1. Specify: ☐ Square End or ☐ Ball End.
2. Diameter (D1): _____
3. Overall Reach (L3): _____
4. Quantity (Minimum 6): _____
5. Specify: ☐ 2-Flute or ☐ 4-Flute.

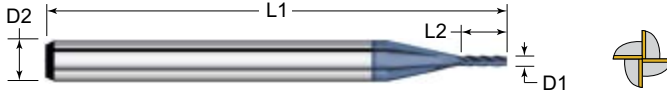
Special Reaches Shipped within 24-48 Hours!

Tools are custom manufactured to order and are nonreturnable.



DECIMAL - 4-FLUTE

Square & Ball End - AITiN COATED - .010" to .067"



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	1/8"	1-1/2"	88010	\$26.75	88010B	\$35.95
.012"	.036"	1/8"	1-1/2"	88012	\$26.75	88012B	\$35.95
.015"	.045"	1/8"	1-1/2"	88015	\$21.95	88015B	\$28.50
.018"	.054"	1/8"	1-1/2"	88018	\$22.75	88018B	\$28.75
.020"	.060"	1/8"	1-1/2"	88020	\$21.25	88020B	\$27.50
.022"	.066"	1/8"	1-1/2"	88022	\$21.90	88022B	\$27.90
.025"	.075"	1/8"	1-1/2"	88025	\$19.75	88025B	\$25.25
.027"	.081"	1/8"	1-1/2"	88027	\$20.50	88027B	\$25.75
.030"	.090"	1/8"	1-1/2"	88030	\$19.75	88030B	\$23.25
.031"	.093"	1/8"	1-1/2"	88031	\$19.75	88031B	\$23.25
.031"	.125"	1/8"	1-1/2"	88031L	\$19.75	88031LB	\$23.25
.033"	.099"	1/8"	1-1/2"	88033	\$20.50	88033B	\$23.90
.035"	.105"	1/8"	1-1/2"	88035	\$17.50	88035B	\$21.50
.037"	.111"	1/8"	1-1/2"	88037	\$17.90	88037B	\$22.50
.039"	.117"	1/8"	1-1/2"	88039	\$17.90	88039B	\$22.50
.040"	.120"	1/8"	1-1/2"	88040	\$17.50	88040B	\$21.50
.042"	.126"	1/8"	1-1/2"	88042	\$17.90	88042B	\$22.50
.045"	.135"	1/8"	1-1/2"	88045	\$17.50	88045B	\$21.50
.047"	.141"	1/8"	1-1/2"	88047	\$17.50	88047B	\$21.50
.050"	.150"	1/8"	1-1/2"	88050	\$17.50	88050B	\$21.50
.052"	.156"	1/8"	1-1/2"	88052	\$17.90	88052B	\$22.50
.055"	.165"	1/8"	1-1/2"	88055	\$17.50	88055B	\$21.50
.057"	.171"	1/8"	1-1/2"	88057	\$17.90	88057B	\$22.50
.059"	.177"	1/8"	1-1/2"	88059	\$17.90	88059B	\$22.50
.060"	.180"	1/8"	1-1/2"	88060	\$17.50	88060B	\$21.75
.062"	.187"	1/8"	1-1/2"	88062	\$17.50	88062B	\$21.50
.062"	.250"	1/8"	1-1/2"	88062L	\$17.50	88062LB	\$21.50
.065"	.195"	1/8"	1-1/2"	88065	\$17.50	88065B	\$21.50
.067"	.201"	1/8"	1-1/2"	88067	\$17.50	88067B	\$22.50

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DECIMAL - 4-FLUTE



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Square & Ball End - AITiN COATED Size Range: .070" to .125"



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.070"	.210"	1/8"	1-1/2"	88070	\$17.50	88070B	\$21.50
.072"	.216"	1/8"	1-1/2"	88072	\$17.50	88072B	\$22.50
.075"	.225"	1/8"	1-1/2"	88075	\$17.50	88075B	\$21.50
.078"	.234"	1/8"	1-1/2"	88078	\$17.50	88078B	\$21.50
.080"	.240"	1/8"	1-1/2"	88080	\$17.50	88080B	\$21.50
.085"	.255"	1/8"	1-1/2"	88085	\$17.50	88085B	\$21.50
.090"	.270"	1/8"	1-1/2"	88090	\$17.50	88090B	\$21.50
.093"	.279"	1/8"	1-1/2"	88093	\$17.50	88093B	\$21.50
.093"	.375"	1/8"	1-1/2"	88093L	\$17.50	88093LB	\$21.50
.095"	.285"	1/8"	1-1/2"	88095	\$17.50	88095B	\$21.50
.098"	.294"	1/8"	1-1/2"	88098	\$17.50	88098B	\$22.50
.100"	.300"	1/8"	1-1/2"	88100	\$17.50	88100B	\$21.50
.105"	.315"	1/8"	1-1/2"	88105	\$17.50	88105B	\$21.50
.110"	.330"	1/8"	1-1/2"	88110	\$17.50	88110B	\$21.50
.115"	.345"	1/8"	1-1/2"	88115	\$17.50	88115B	\$21.50
.118"	.354"	1/8"	1-1/2"	88118	\$17.50	88118B	\$22.50
.120"	.360"	1/8"	1-1/2"	88120	\$17.50	88120B	\$21.50
.125"	.500"	1/8"	1-1/2"	88125	\$15.90	88125B	\$19.75

Locate Your Distributor

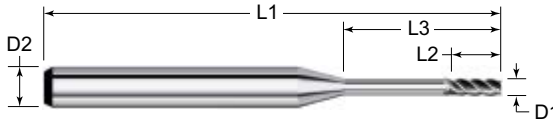


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LONG REACH - 4-FLUTE

Square & Ball End - UNCOATED - .010" to .035"



Neck is reduced for clearance.

Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Dia.	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	.075"	1/8"	1-1/2"	74010	\$37.50	74010B	\$48.90
.010"	.030"	.100"	1/8"	1-1/2"	74010-1	\$39.50	74010B-1	\$50.90
.010"	.030"	.125"	1/8"	1-1/2"	74010-2	\$39.50	74010B-2	\$52.90
.012"	.036"	.075"	1/8"	1-1/2"	74012	\$35.20	74012B	\$45.70
.012"	.036"	.100"	1/8"	1-1/2"	74012-1	\$38.25	74012B-1	\$48.75
.012"	.036"	.125"	1/8"	1-1/2"	74012-2	\$40.25	74012B-2	\$50.75
.015"	.045"	.125"	1/8"	1-1/2"	74015	\$29.95	74015B	\$36.50
.015"	.045"	.186"	1/8"	1-1/2"	74015-1	\$31.95	74015B-1	\$38.50
.018"	.054"	.125"	1/8"	1-1/2"	74018	\$29.95	74018B	\$36.50
.020"	.060"	.165"	1/8"	1-1/2"	74020	\$29.25	74020B	\$35.50
.020"	.060"	.200"	1/8"	1-1/2"	74020-1	\$29.25	74020B-1	\$35.50
.020"	.060"	.250"	1/8"	1-1/2"	74020-2	\$31.25	74020B-2	\$37.50
.022"	.066"	.165"	1/8"	1-1/2"	74022	\$29.90	74022B	\$35.90
.025"	.075"	.205"	1/8"	1-1/2"	74025	\$27.75	74025B	\$33.25
.025"	.075"	.310"	1/8"	1-1/2"	74025-1	\$29.75	74025B-1	\$35.25
.028"	.084"	.205"	1/8"	1-1/2"	74028	\$28.50	74028B	\$33.75
.030"	.090"	.250"	1/8"	1-1/2"	74030	\$27.75	74030B	\$32.25
.030"	.090"	.300"	1/8"	1-1/2"	74030-1	\$29.75	74030B-1	\$34.25
.030"	.090"	.375"	1/8"	1-1/2"	74030-2	\$29.75	74030B-2	\$34.25
.031"	.093"	.250"	1/8"	1-1/2"	74031	\$27.75	74031B	\$32.25
.031"	.093"	.310"	1/8"	1-1/2"	74031-1	\$27.75	74031B-1	\$32.25
.031"	.093"	.375"	1/8"	1-1/2"	74031-2	\$29.75	74031B-2	\$34.25
.031"	.125"	.250"	1/8"	1-1/2"	74031-3	\$27.75	74031B-3	\$32.25
.031"	.125"	.310"	1/8"	1-1/2"	74031-4	\$27.75	74031B-4	\$32.25
.031"	.125"	.375"	1/8"	1-1/2"	74031-5	\$29.75	74031B-5	\$34.25
.033"	.099"	.250"	1/8"	1-1/2"	74033	\$27.75	74033B	\$33.25
.035"	.105"	.285"	1/8"	1-1/2"	74035	\$27.75	74035B	\$32.25
.035"	.105"	.350"	1/8"	1-1/2"	74035-1	\$29.75	74035B-1	\$34.25

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LONG REACH - 4-FLUTE



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Square & Ball End - UNCOATED Size Range: .040" to .125"

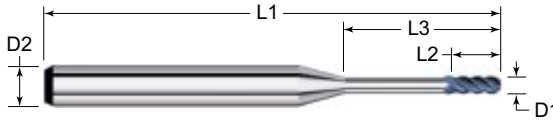


D1 Cutter Dia.	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.040"	.120"	.350"	1/8"	1-1/2"	74040	\$25.50	74040B	\$30.50
.040"	.120"	.480"	1/8"	1-1/2"	74040-1	\$27.50	74040B-1	\$32.50
.042"	.126"	.350"	1/8"	1-1/2"	74042	\$25.90	74042B	\$31.25
.045"	.135"	.400"	1/8"	1-1/2"	74045	\$27.50	74045B	\$32.50
.047"	.141"	.400"	1/8"	1-1/2"	74047	\$27.50	74047B	\$32.50
.047"	.141"	.500"	1/8"	1-1/2"	74047-1	\$29.50	74047B-1	\$34.50
.050"	.150"	.450"	1/8"	1-1/2"	74050	\$25.50	74050B	\$30.50
.052"	.156"	.450"	1/8"	1-1/2"	74052	\$25.90	74052B	\$31.25
.055"	.165"	.500"	1/8"	1-1/2"	74055	\$25.50	74055B	\$30.50
.060"	.180"	.500"	1/8"	1-1/2"	74060	\$25.50	74060B	\$30.50
.060"	.180"	.600"	1/8"	1-1/2"	74060-1	\$28.50	74060B-1	\$33.50
.062"	.187"	.500"	1/8"	1-1/2"	74062	\$25.50	74062B	\$30.50
.062"	.187"	.600"	1/8"	1-1/2"	74062-1	\$28.50	74062B-1	\$33.50
.062"	.250"	.500"	1/8"	1-1/2"	74062-2	\$25.50	74062B-2	\$30.50
.062"	.250"	.625"	1/8"	1-1/2"	74062-3	\$29.50	74062B-3	\$34.50
.065"	.195"	.500"	1/8"	1-1/2"	74065	\$25.50	74065B	\$30.50
.070"	.210"	.550"	1/8"	1-1/2"	74070	\$26.50	74070B	\$31.50
.072"	.216"	.550"	1/8"	1-1/2"	74072	\$26.50	74072B	\$31.50
.075"	.225"	.550"	1/8"	1-1/2"	74075	\$26.50	74075B	\$31.50
.075"	.225"	.650"	1/8"	1-1/2"	74075-1	\$26.50	74075B-1	\$31.50
.078"	.234"	.550"	1/8"	1-1/2"	74078	\$26.50	74078B	\$31.50
.078"	.234"	.650"	1/8"	1-1/2"	74078-1	\$29.50	74078B-1	\$34.50
.080"	.240"	.550"	1/8"	1-1/2"	74080	\$26.50	74080B	\$31.50
.090"	.270"	.600"	1/8"	1-1/2"	74090	\$26.50	74090B	\$31.50
.093"	.279"	.600"	1/8"	1-1/2"	74093	\$26.50	74093B	\$31.50
.093"	.375"	.600"	1/8"	1-1/2"	74093-1	\$26.50	74093B-1	\$31.50
.100"	.300"	.600"	1/8"	1-1/2"	74100	\$26.50	74100B	\$31.50
.125"	.500"	.650"	1/8"	1-1/2"	74125	\$26.50	74125B	\$31.50



LONG REACH - 4-FLUTE

Square & Ball End - AITiN COATED - .010" to .035"



Neck is reduced for clearance.

Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Dia.	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	.075"	1/8"	1-1/2"	74010TL	\$41.50	74010BTL	\$52.90
.010"	.030"	.100"	1/8"	1-1/2"	74010TL-1	\$43.50	74010BTL-1	\$54.90
.010"	.030"	.125"	1/8"	1-1/2"	74010TL-2	\$43.50	74010BTL-2	\$55.90
.012"	.036"	.075"	1/8"	1-1/2"	74012TL	\$40.20	74012BTL	\$50.70
.012"	.036"	.100"	1/8"	1-1/2"	74012TL-1	\$43.25	74012BTL-1	\$53.75
.012"	.036"	.125"	1/8"	1-1/2"	74012TL-2	\$45.25	74012BTL-2	\$55.75
.015"	.045"	.125"	1/8"	1-1/2"	74015TL	\$34.95	74015BTL	\$41.50
.015"	.045"	.186"	1/8"	1-1/2"	74015TL-1	\$36.95	74015BTL-1	\$43.50
.018"	.054"	.125"	1/8"	1-1/2"	74018TL	\$34.95	74018BTL	\$41.50
.020"	.060"	.165"	1/8"	1-1/2"	74020TL	\$33.25	74020BTL	\$39.50
.020"	.060"	.200"	1/8"	1-1/2"	74020TL-1	\$33.25	74020BTL-1	\$39.50
.020"	.060"	.250"	1/8"	1-1/2"	74020TL-2	\$35.25	74020BTL-2	\$41.50
.022"	.066"	.165"	1/8"	1-1/2"	74022TL	\$33.90	74022BTL	\$39.90
.025"	.075"	.205"	1/8"	1-1/2"	74025TL	\$31.75	74025BTL	\$37.25
.025"	.075"	.310"	1/8"	1-1/2"	74025TL-1	\$33.75	74025BTL-1	\$39.25
.028"	.084"	.205"	1/8"	1-1/2"	74028TL	\$32.50	74028BTL	\$37.75
.030"	.090"	.250"	1/8"	1-1/2"	74030TL	\$31.75	74030BTL	\$36.25
.030"	.090"	.300"	1/8"	1-1/2"	74030TL-1	\$33.75	74030BTL-1	\$38.25
.030"	.090"	.375"	1/8"	1-1/2"	74030TL-2	\$33.75	74030BTL-2	\$38.25
.031"	.093"	.250"	1/8"	1-1/2"	74031TL	\$31.75	74031BTL	\$36.25
.031"	.093"	.300"	1/8"	1-1/2"	74031TL-1	\$31.75	74031BTL-1	\$36.25
.031"	.093"	.350"	1/8"	1-1/2"	74031TL-2	\$33.75	74031BTL-2	\$38.25
.031"	.125"	.250"	1/8"	1-1/2"	74031TL-3	\$31.75	74031BTL-3	\$36.25
.031"	.125"	.310"	1/8"	1-1/2"	74031TL-4	\$31.75	74031BTL-4	\$36.25
.031"	.125"	.375"	1/8"	1-1/2"	74031TL-5	\$33.75	74031BTL-5	\$38.25
.033"	.099"	.250"	1/8"	1-1/2"	74033TL	\$31.75	74033BTL	\$36.25
.035"	.105"	.285"	1/8"	1-1/2"	74035TL	\$31.75	74035BTL	\$36.25
.035"	.105"	.350"	1/8"	1-1/2"	74035TL-1	\$33.75	74035BTL-1	\$38.25

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LONG REACH - 4-FLUTE



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Square & Ball End - AITiN COATED
Size Range: .040" to .125"

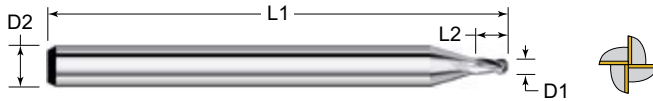


D1 Cutter Dia.	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.040"	.120"	.350"	1/8"	1-1/2"	74040TL	\$29.50	74040BTL	\$34.50
.040"	.120"	.480"	1/8"	1-1/2"	74040TL-1	\$31.50	74040BTL-1	\$36.50
.042"	.126"	.350"	1/8"	1-1/2"	74042TL	\$29.90	74042BTL	\$35.25
.045"	.135"	.400"	1/8"	1-1/2"	74045TL	\$31.50	74045BTL	\$36.50
.047"	.141"	.400"	1/8"	1-1/2"	74047TL	\$31.50	74047BTL	\$36.50
.047"	.141"	.500"	1/8"	1-1/2"	74047TL-1	\$33.50	74047BTL-1	\$38.50
.050"	.150"	.450"	1/8"	1-1/2"	74050TL	\$29.50	74050BTL	\$34.50
.052"	.156"	.450"	1/8"	1-1/2"	74052TL	\$29.90	74052BTL	\$35.25
.055"	.165"	.500"	1/8"	1-1/2"	74055TL	\$29.50	74055BTL	\$34.50
.060"	.180"	.500"	1/8"	1-1/2"	74060TL	\$29.50	74060BTL	\$34.50
.060"	.180"	.600"	1/8"	1-1/2"	74060TL-1	\$32.50	74060BTL-1	\$37.50
.062"	.187"	.500"	1/8"	1-1/2"	74062TL	\$29.50	74062BTL	\$34.50
.062"	.187"	.600"	1/8"	1-1/2"	74062TL-1	\$32.50	74062BTL-1	\$37.50
.062"	.250"	.500"	1/8"	1-1/2"	74062TL-2	\$29.50	74062BTL-2	\$34.50
.062"	.250"	.625"	1/8"	1-1/2"	74062TL-3	\$33.50	74062BTL-3	\$37.50
.065"	.195"	.500"	1/8"	1-1/2"	74065TL	\$29.50	74065BTL	\$34.50
.070"	.210"	.550"	1/8"	1-1/2"	74070TL	\$30.50	74070BTL	\$35.50
.072"	.216"	.550"	1/8"	1-1/2"	74072TL	\$30.50	74072BTL	\$35.50
.075"	.225"	.550"	1/8"	1-1/2"	74075TL	\$30.50	74075BTL	\$35.50
.075"	.225"	.650"	1/8"	1-1/2"	74075TL-1	\$30.50	74075BTL-1	\$35.50
.078"	.234"	.550"	1/8"	1-1/2"	74078TL	\$30.50	74078BTL	\$35.50
.078"	.234"	.650"	1/8"	1-1/2"	74078TL-1	\$30.50	74078BTL-1	\$35.50
.080"	.240"	.550"	1/8"	1-1/2"	74080TL	\$30.50	74080BTL	\$35.50
.090"	.270"	.600"	1/8"	1-1/2"	74090TL	\$30.50	74090BTL	\$35.50
.093"	.279"	.600"	1/8"	1-1/2"	74093TL	\$30.50	74093BTL	\$35.50
.093"	.375"	.600"	1/8"	1-1/2"	74093TL-1	\$30.50	74093BTL-1	\$35.50
.100"	.300"	.600"	1/8"	1-1/2"	74100TL	\$30.50	74100BTL	\$35.50
.125"	.500"	.650"	1/8"	1-1/2"	74125TL	\$30.50	74125BTL	\$35.50



STUB LENGTH - 4-FLUTE

Square & Ball End - UNCOATED - .010" to .125"



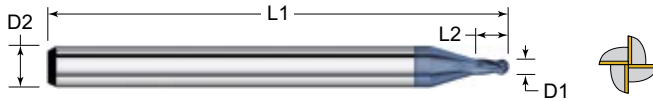
Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	1/8"	1-1/2"	85010	\$22.75	85010B	\$31.95
.012"	.018"	1/8"	1-1/2"	85012	\$22.75	85012B	\$31.95
.015"	.022"	1/8"	1-1/2"	85015	\$17.95	85015B	\$24.50
.018"	.027"	1/8"	1-1/2"	85018	\$18.75	85018B	\$24.75
.020"	.030"	1/8"	1-1/2"	85020	\$17.25	85020B	\$23.50
.022"	.033"	1/8"	1-1/2"	85022	\$17.90	85022B	\$23.90
.025"	.037"	1/8"	1-1/2"	85025	\$15.75	85025B	\$21.25
.027"	.041"	1/8"	1-1/2"	85027	\$16.50	85027B	\$21.75
.030"	.045"	1/8"	1-1/2"	85030	\$15.75	85030B	\$19.25
.031"	.046"	1/8"	1-1/2"	85031	\$15.75	85031B	\$19.25
.035"	.052"	1/8"	1-1/2"	85035	\$13.50	85035B	\$17.50
.040"	.060"	1/8"	1-1/2"	85040	\$13.50	85040B	\$17.50
.045"	.067"	1/8"	1-1/2"	85045	\$13.50	85045B	\$17.50
.047"	.070"	1/8"	1-1/2"	85047	\$13.50	85047B	\$17.50
.050"	.075"	1/8"	1-1/2"	85050	\$13.50	85050B	\$17.50
.055"	.082"	1/8"	1-1/2"	85055	\$13.50	85055B	\$17.50
.060"	.090"	1/8"	1-1/2"	85060	\$13.50	85060B	\$17.50
.062"	.093"	1/8"	1-1/2"	85062	\$13.50	85062B	\$17.50
.065"	.098"	1/8"	1-1/2"	85065	\$13.50	85065B	\$17.50
.070"	.105"	1/8"	1-1/2"	85070	\$13.50	85070B	\$17.50
.075"	.113"	1/8"	1-1/2"	85075	\$13.50	85075B	\$17.50
.078"	.117"	1/8"	1-1/2"	85078	\$13.50	85078B	\$17.50
.080"	.120"	1/8"	1-1/2"	85080	\$13.50	85080B	\$17.50
.085"	.128"	1/8"	1-1/2"	85085	\$13.50	85085B	\$17.50
.090"	.135"	1/8"	1-1/2"	85090	\$13.50	85090B	\$17.50
.093"	.187"	1/8"	1-1/2"	85093	\$13.50	85093B	\$17.50
.100"	.150"	1/8"	1-1/2"	85100	\$13.50	85100B	\$17.50
.125"	.250"	1/8"	1-1/2"	85125	\$11.90	85125B	\$15.75

STUB LENGTH - 4-FLUTE



Square & Ball End - AITiN COATED - .010" to .125"



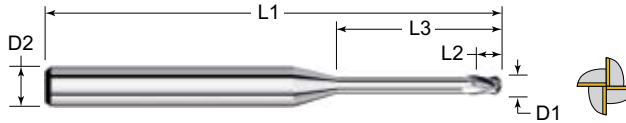
Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price End	Tool Number	Price End
.010"	.015"	1/8"	1-1/2"	85010TL	\$26.75	85010BTL	\$35.95
.012"	.018"	1/8"	1-1/2"	85012TL	\$26.75	85012BTL	\$35.95
.015"	.022"	1/8"	1-1/2"	85015TL	\$21.95	85015BTL	\$28.50
.018"	.027"	1/8"	1-1/2"	85018TL	\$22.75	85018BTL	\$28.75
.020"	.030"	1/8"	1-1/2"	85020TL	\$21.25	85020BTL	\$27.50
.022"	.033"	1/8"	1-1/2"	85022TL	\$21.90	85022BTL	\$27.90
.025"	.037"	1/8"	1-1/2"	85025TL	\$19.75	85025BTL	\$25.25
.027"	.041"	1/8"	1-1/2"	85027TL	\$20.50	85027BTL	\$25.75
.030"	.045"	1/8"	1-1/2"	85030TL	\$19.75	85030BTL	\$23.25
.031"	.046"	1/8"	1-1/2"	85031TL	\$19.75	85031BTL	\$23.25
.035"	.052"	1/8"	1-1/2"	85035TL	\$17.50	85035BTL	\$22.50
.040"	.060"	1/8"	1-1/2"	85040TL	\$17.50	85040BTL	\$21.50
.045"	.067"	1/8"	1-1/2"	85045TL	\$17.50	85045BTL	\$21.50
.047"	.070"	1/8"	1-1/2"	85047TL	\$17.50	85047BTL	\$21.50
.050"	.075"	1/8"	1-1/2"	85050TL	\$17.50	85050BTL	\$21.50
.055"	.082"	1/8"	1-1/2"	85055TL	\$17.50	85055BTL	\$21.50
.060"	.090"	1/8"	1-1/2"	85060TL	\$17.50	85060BTL	\$21.50
.062"	.093"	1/8"	1-1/2"	85062TL	\$17.50	85062BTL	\$21.50
.065"	.098"	1/8"	1-1/2"	85065TL	\$17.50	85065BTL	\$21.50
.070"	.105"	1/8"	1-1/2"	85070TL	\$17.50	85070BTL	\$21.50
.075"	.113"	1/8"	1-1/2"	85075TL	\$17.50	85075BTL	\$21.50
.078"	.117"	1/8"	1-1/2"	85078TL	\$17.50	85078BTL	\$21.50
.080"	.120"	1/8"	1-1/2"	85080TL	\$17.50	85080BTL	\$21.50
.085"	.128"	1/8"	1-1/2"	85085TL	\$17.50	85085BTL	\$21.50
.090"	.135"	1/8"	1-1/2"	85090TL	\$17.50	85090BTL	\$21.50
.093"	.140"	1/8"	1-1/2"	85093TL	\$17.50	85093BTL	\$21.50
.100"	.150"	1/8"	1-1/2"	85100TL	\$17.50	85100BTL	\$21.50
.125"	.250"	1/8"	1-1/2"	85125TL	\$15.90	85125BTL	\$19.75



STUB LENGTH - LONG RCH - 4-FLUTE

Square & Ball End - UNCOATED - .010" to .047"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	.075"	1/8"	1-1/2"	76410	\$37.50	76410B	\$48.90
.010"	.015"	.100"	1/8"	1-1/2"	76410-1	\$39.50	76410B-1	\$50.90
.012"	.018"	.075"	1/8"	1-1/2"	76402	\$35.20	76402B	\$45.70
.015"	.022"	.100"	1/8"	1-1/2"	76415	\$30.65	76415B	\$39.25
.015"	.022"	.145"	1/8"	1-1/2"	76415-1	\$30.65	76415B-1	\$39.25
.015"	.022"	.190"	1/8"	1-1/2"	76415-2	\$32.65	76415B-2	\$41.25
.018"	.027"	.125"	1/8"	1-1/2"	76418	\$30.65	76418B	\$39.25
.020"	.030"	.120"	1/8"	1-1/2"	76420	\$29.55	76420B	\$36.00
.020"	.030"	.165"	1/8"	1-1/2"	76420-1	\$29.55	76420B-1	\$36.00
.020"	.030"	.200"	1/8"	1-1/2"	76420-2	\$31.50	76420B-2	\$39.10
.020"	.030"	.250"	1/8"	1-1/2"	76420-3	\$31.50	76420B-3	\$39.10
.025"	.037"	.150"	1/8"	1-1/2"	76425	\$27.85	76425B	\$34.95
.025"	.037"	.205"	1/8"	1-1/2"	76425-1	\$27.85	76425B-1	\$34.95
.025"	.037"	.310"	1/8"	1-1/2"	76425-2	\$29.85	76425B-2	\$36.95
.030"	.045"	.180"	1/8"	1-1/2"	76430	\$27.85	76430B	\$34.30
.030"	.045"	.275"	1/8"	1-1/2"	76430-1	\$29.85	76430B-1	\$36.50
.031"	.046"	.187"	1/8"	1-1/2"	76431	\$27.85	76431B	\$34.30
.031"	.046"	.250"	1/8"	1-1/2"	76431-1	\$27.85	76431B-1	\$34.30
.031"	.046"	.312"	1/8"	1-1/2"	76431-2	\$29.85	76431B-2	\$36.30
.031"	.046"	.375"	1/8"	1-1/2"	76431-3	\$29.85	76431B-3	\$36.30
.035"	.052"	.210"	1/8"	1-1/2"	76435	\$27.85	76435B	\$34.30
.035"	.052"	.320"	1/8"	1-1/2"	76435-1	\$29.85	76435B-1	\$36.30
.040"	.060"	.220"	1/8"	1-1/2"	76440	\$27.85	76440B	\$34.30
.040"	.060"	.350"	1/8"	1-1/2"	76440-1	\$29.85	76440B-1	\$36.30
.045"	.067"	.270"	1/8"	1-1/2"	76445	\$26.75	76445B	\$32.15
.045"	.067"	.350"	1/8"	1-1/2"	76445-1	\$26.75	76445B-1	\$32.15
.045"	.067"	.405"	1/8"	1-1/2"	76445-2	\$28.75	76445B-2	\$34.15
.047"	.070"	.280"	1/8"	1-1/2"	76447	\$26.75	76447B	\$32.15
.047"	.070"	.350"	1/8"	1-1/2"	76447-1	\$26.75	76447B-1	\$32.15
.047"	.070"	.450"	1/8"	1-1/2"	76447-2	\$28.75	76447B-2	\$34.15

Continued Next Page

STUB LENGTH - LONG RCH - 4-FLUTE



Continued from previous page:

Square & Ball End - UNCOATED Size Range: .050" to .125"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.050"	.075"	.300"	1/8"	1-1/2"	76450	\$29.50	76450B	\$35.15
.050"	.075"	.400"	1/8"	1-1/2"	76450-1	\$26.75	76450B-1	\$32.15
.050"	.075"	.500"	1/8"	1-1/2"	76450-2	\$26.75	76450B-2	\$32.15
.055"	.082"	.330"	1/8"	1-1/2"	76455	\$26.75	76455B	\$32.15
.055"	.082"	.500"	1/8"	1-1/2"	76455-1	\$29.50	76455B-1	\$35.15
.060"	.090"	.360"	1/8"	1-1/2"	76460	\$26.75	76460B	\$32.15
.060"	.090"	.500"	1/8"	1-1/2"	76460-1	\$29.50	76460B-1	\$35.15
.062"	.093"	.375"	1/8"	1-1/2"	76462	\$26.75	76462B	\$32.15
.062"	.093"	.500"	1/8"	1-1/2"	76462-1	\$26.75	76462B-1	\$32.15
.062"	.093"	.600"	1/8"	1-1/2"	76462-2	\$29.50	76462B-2	\$35.15
.065"	.098"	.390"	1/8"	1-1/2"	76465	\$26.75	76465B	\$32.15
.065"	.098"	.500"	1/8"	1-1/2"	76465-1	\$26.75	76465B-1	\$32.15
.070"	.105"	.420"	1/8"	1-1/2"	76470	\$26.75	76470B	\$32.15
.075"	.113"	.450"	1/8"	1-1/2"	76475	\$26.75	76475B	\$32.15
.078"	.117"	.470"	1/8"	1-1/2"	76478	\$26.75	76478B	\$32.15
.080"	.120"	.480"	1/8"	1-1/2"	76480	\$26.75	76480B	\$32.15
.085"	.127"	.510"	1/8"	1-1/2"	76485	\$26.75	76485B	\$32.15
.090"	.135"	.540"	1/8"	1-1/2"	76490	\$26.75	76490B	\$32.15
.093"	.140"	.560"	1/8"	1-1/2"	76493	\$26.75	76493B	\$32.15
.100"	.150"	.600"	1/8"	1-1/2"	76400	\$26.75	76400B	\$32.15
.125"	.250"	.600"	1/8"	1-1/2"	76412	\$26.75	76412B	\$32.15

Special long reach end mills quoted on request. Minimum 3 pieces per size.

Ships within 24-48 hours.

Tools are custom manufactured to order and are nonreturnable.

New!! Express Service

Ships same day as ordered. Call for details, price and availability.

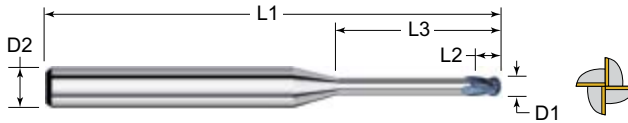
Minimum order 6 tools per size.





STUB LENGTH - LONG RCH - 4-FLUTE

Square & Ball End - AITiN COATED - .010" to .047"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.010"	.015"	.075"	1/8"	1-1/2"	76510	\$41.50	76510B	\$52.90
.010"	.015"	.100"	1/8"	1-1/2"	76510-1	\$43.50	76510B-1	\$54.90
.012"	.018"	.075"	1/8"	1-1/2"	76502	\$39.20	76502B	\$49.70
.015"	.022"	.100"	1/8"	1-1/2"	76515	\$34.65	76515B	\$43.25
.015"	.022"	.145"	1/8"	1-1/2"	76515-1	\$34.65	76515B-1	\$43.25
.015"	.022"	.190"	1/8"	1-1/2"	76515-2	\$36.65	76515B-2	\$45.25
.018"	.027"	.125"	1/8"	1-1/2"	76518	\$34.65	76518B	\$43.25
.020"	.030"	.120"	1/8"	1-1/2"	76520	\$33.55	76520B	\$40.00
.020"	.030"	.165"	1/8"	1-1/2"	76520-1	\$33.55	76520B-1	\$40.00
.020"	.030"	.200"	1/8"	1-1/2"	76520-2	\$35.50	76520B-2	\$43.10
.020"	.030"	.250"	1/8"	1-1/2"	76520-3	\$35.50	76520B-3	\$43.10
.025"	.037"	.150"	1/8"	1-1/2"	76525	\$31.85	76525B	\$38.95
.025"	.037"	.205"	1/8"	1-1/2"	76525-1	\$31.85	76525B-1	\$38.95
.025"	.037"	.310"	1/8"	1-1/2"	76525-2	\$34.85	76525B-2	\$40.95
.030"	.045"	.180"	1/8"	1-1/2"	76530	\$31.85	76530B	\$38.30
.030"	.045"	.275"	1/8"	1-1/2"	76530-1	\$33.85	76530B-1	\$40.50
.031"	.046"	.187"	1/8"	1-1/2"	76531	\$31.85	76531B	\$38.30
.031"	.046"	.250"	1/8"	1-1/2"	76531-1	\$31.85	76531B-1	\$38.30
.031"	.046"	.312"	1/8"	1-1/2"	76531-2	\$33.85	76531B-2	\$39.30
.031"	.046"	.375"	1/8"	1-1/2"	76531-3	\$33.85	76531B-3	\$40.30
.035"	.052"	.210"	1/8"	1-1/2"	76535	\$31.85	76535B	\$38.30
.035"	.052"	.320"	1/8"	1-1/2"	76535-1	\$33.85	76535B-1	\$40.30
.040"	.060"	.220"	1/8"	1-1/2"	76540	\$31.85	76540B	\$38.30
.040"	.060"	.350"	1/8"	1-1/2"	76540-1	\$33.85	76540B-1	\$40.30
.045"	.067"	.270"	1/8"	1-1/2"	76545	\$30.75	76545B	\$36.15
.045"	.067"	.350"	1/8"	1-1/2"	76545-1	\$30.75	76545B-1	\$36.15
.045"	.067"	.405"	1/8"	1-1/2"	76545-2	\$32.75	76545B-2	\$38.15
.047"	.070"	.280"	1/8"	1-1/2"	76547	\$30.75	76547B	\$36.15
.047"	.070"	.350"	1/8"	1-1/2"	76547-1	\$30.75	76547B-1	\$36.15
.047"	.070"	.450"	1/8"	1-1/2"	76547-2	\$32.75	76547B-2	\$38.15

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STUB LENGTH - LONG RCH - 4-FLUTE



Continued from previous page:

Square & Ball End - AITiN COATED
Size Range: .040" to .125"



D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.050"	.075"	.300"	1/8"	1-1/2"	76550	\$30.75	76550B	\$36.15
.050"	.075"	.400"	1/8"	1-1/2"	76550-1	\$30.75	76550B-1	\$36.15
.050"	.075"	.500"	1/8"	1-1/2"	76550-2	\$33.50	76550B-2	\$39.15
.055"	.082"	.330"	1/8"	1-1/2"	76555	\$30.75	76555B	\$32.15
.055"	.082"	.500"	1/8"	1-1/2"	76555-1	\$33.50	76555B-1	\$39.15
.060"	.090"	.360"	1/8"	1-1/2"	76560	\$30.75	76560B	\$36.15
.060"	.090"	.500"	1/8"	1-1/2"	76560-1	\$33.50	76560B-1	\$39.15
.062"	.093"	.375"	1/8"	1-1/2"	76562	\$30.75	76562B	\$36.15
.062"	.093"	.500"	1/8"	1-1/2"	76562-1	\$30.75	76562B-1	\$36.15
.062"	.093"	.600"	1/8"	1-1/2"	76562-2	\$33.50	76562B-2	\$39.15
.065"	.098"	.390"	1/8"	1-1/2"	76565	\$30.75	76565B	\$36.15
.065"	.098"	.500"	1/8"	1-1/2"	76565-1	\$30.75	76565B-1	\$36.15
.070"	.105"	.420"	1/8"	1-1/2"	76570	\$30.75	76570B	\$36.15
.075"	.113"	.450"	1/8"	1-1/2"	76575	\$30.75	76575B	\$36.15
.078"	.117"	.470"	1/8"	1-1/2"	76578	\$30.75	76578B	\$36.15
.080"	.120"	.480"	1/8"	1-1/2"	76580	\$30.75	76580B	\$36.15
.085"	.127"	.510"	1/8"	1-1/2"	76585	\$30.75	76585B	\$36.15
.090"	.135"	.540"	1/8"	1-1/2"	76590	\$30.75	76590B	\$36.15
.093"	.140"	.560"	1/8"	1-1/2"	76593	\$30.75	76593B	\$36.15
.100"	.150"	.600"	1/8"	1-1/2"	76500	\$30.75	76500B	\$36.15
.125"	.250"	.600"	1/8"	1-1/2"	76512	\$30.75	76512B	\$36.15

Special long reach end mills quoted on request. Minimum 3 pieces per size.

Ships within 24-48 hours.

Tools are custom manufactured to order and are nonreturnable.



CORNER RADIUS - 4-FLUTE

UNCOATED & ALTIM COATED - .015" to .075"



Corner radius helps prevent chipping at corners at high feeds and speeds.

Length of Cut = 3 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	UNCOATED		ALTIM COATED	
					TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
.015"	.003"	.045"	1/8"	1-1/2"	89915-003	\$36.50	89015-003	\$40.50
.020"	.005"	.060"	1/8"	1-1/2"	89920-005	\$32.50	89020-005	\$36.50
.025"	.005"	.075"	1/8"	1-1/2"	89925-005	\$32.50	89025-005	\$36.50
.030"	.005"	.090"	1/8"	1-1/2"	89930-005	\$28.75	89030-005	\$32.75
.030"	.010"	.090"	1/8"	1-1/2"	89930-010	\$28.75	89030-010	\$32.75
.031" (1/32)	.005"	.093"	1/8"	1-1/2"	89931-005	\$28.75	89031-005	\$32.75
.031" (1/32)	.010"	.093"	1/8"	1-1/2"	89931-010	\$28.75	89031-010	\$32.75
.035"	.005"	.105"	1/8"	1-1/2"	89935-005	\$24.75	89035-005	\$28.75
.035"	.010"	.105"	1/8"	1-1/2"	89935-010	\$24.75	89035-010	\$28.75
.040"	.005"	.120"	1/8"	1-1/2"	89940-005	\$21.50	89040-005	\$25.50
.040"	.010"	.120"	1/8"	1-1/2"	89940-010	\$21.50	89040-010	\$25.50
.045"	.005"	.135"	1/8"	1-1/2"	89945-005	\$21.50	89045-005	\$25.50
.045"	.010"	.135"	1/8"	1-1/2"	89945-010	\$21.50	89045-010	\$25.50
.045"	.015"	.135"	1/8"	1-1/2"	89945-015	\$21.50	89045-015	\$25.50
.047" (3/64)	.005"	.141"	1/8"	1-1/2"	89947-005	\$21.50	89047-005	\$25.50
.047" (3/64)	.010"	.141"	1/8"	1-1/2"	89947-010	\$21.50	89047-010	\$25.50
.047" (3/64)	.015"	.141"	1/8"	1-1/2"	89947-015	\$21.50	89047-015	\$25.50
.050"	.005"	.150"	1/8"	1-1/2"	89950-005	\$21.50	89050-005	\$25.50
.050"	.010"	.150"	1/8"	1-1/2"	89950-010	\$21.50	89050-010	\$25.50
.050"	.015"	.150"	1/8"	1-1/2"	89950-015	\$21.50	89050-015	\$25.50
.060"	.005"	.180"	1/8"	1-1/2"	89960-005	\$21.50	89060-005	\$25.50
.060"	.010"	.180"	1/8"	1-1/2"	89960-010	\$21.50	89060-010	\$25.50
.060"	.015"	.180"	1/8"	1-1/2"	89960-015	\$21.50	89060-015	\$25.50
.062" (1/16)	.005"	.186"	1/8"	1-1/2"	89962-005	\$21.50	89062-005	\$25.50
.062" (1/16)	.010"	.186"	1/8"	1-1/2"	89962-010	\$21.50	89062-010	\$25.50
.062" (1/16)	.015"	.186"	1/8"	1-1/2"	89962-015	\$21.50	89062-015	\$25.50
.075"	.005"	.225"	1/8"	1-1/2"	89975-005	\$21.50	89075-005	\$25.50
.075"	.010"	.225"	1/8"	1-1/2"	89975-010	\$21.50	89075-010	\$25.50
.075"	.015"	.225"	1/8"	1-1/2"	89975-015	\$21.50	89075-015	\$25.50

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CORNER RADIUS - 4-FLUTE



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Corner Radius UNCOATED & **AlTiN COATED** Size Range: .078" to .250"

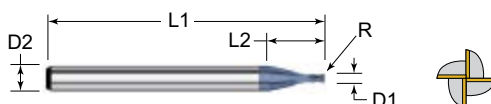


D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	UNCOATED		ALTiN COATED	
					TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
.078" (5/64)	.005"	.234"	1/8"	1-1/2"	89978-005	\$21.50	89078-005	\$25.50
.078" (5/64)	.010"	.234"	1/8"	1-1/2"	89978-010	\$21.50	89078-010	\$25.50
.078" (5/64)	.015"	.234"	1/8"	1-1/2"	89978-015	\$21.50	89078-015	\$25.50
.090"	.005"	.270"	1/8"	1-1/2"	89990-005	\$21.50	89090-005	\$25.50
.090"	.010"	.270"	1/8"	1-1/2"	89990-010	\$21.50	89090-010	\$25.50
.090"	.015"	.270"	1/8"	1-1/2"	89990-015	\$21.50	89090-015	\$25.50
.093" (3/32)	.005"	.279"	1/8"	1-1/2"	89993-005	\$21.50	89093-005	\$25.50
.093" (3/32)	.010"	.279"	1/8"	1-1/2"	89993-010	\$21.50	89093-010	\$25.50
.093" (3/32)	.015"	.279"	1/8"	1-1/2"	89993-015	\$21.50	89093-015	\$25.50
.100"	.005"	.300"	1/8"	1-1/2"	89910-005	\$21.50	89100-005	\$25.50
.100"	.010"	.300"	1/8"	1-1/2"	89910-010	\$21.50	89100-010	\$25.50
.100"	.015"	.300"	1/8"	1-1/2"	89910-015	\$21.50	89100-015	\$25.50
.125" (1/8)	.005"	.500"	1/8"	1-1/2"	89912-005	\$21.50	89125-005	\$25.50
.125" (1/8)	.010"	.500"	1/8"	1-1/2"	89912-010	\$21.50	89125-010	\$25.50
.125" (1/8)	.015"	.500"	1/8"	1-1/2"	89912-015	\$21.50	89125-015	\$25.50
.125" (1/8)	.020"	.500"	1/8"	1-1/2"	89912-020	\$21.50	89125-020	\$25.50
.125" (1/8)	.030"	.500"	1/8"	1-1/2"	89912-030	\$21.50	89125-030	\$25.50
.187" (3/16)	.010"	.625"	3/16"	2"	89987-010	\$21.50	89187-010	\$25.25
.187" (3/16)	.015"	.625"	3/16"	2"	89987-015	\$21.50	89187-015	\$25.25
.187" (3/16)	.030"	.625"	3/16"	2"	89987-030	\$21.50	89187-030	\$25.25
.250" (1/4)	.010"	.750"	1/4"	2-1/2"	89900-010	\$22.50	89250-010	\$28.50
.250" (1/4)	.015"	.750"	1/4"	2-1/2"	89900-015	\$22.50	89250-015	\$28.50
.250" (1/4)	.030"	.750"	1/4"	2-1/2"	89900-030	\$22.50	89250-030	\$28.50
.250" (1/4)	.045"	.750"	1/4"	2-1/2"	89900-045	\$22.50	89250-045	\$28.50
.250" (1/4)	.060"	.750"	1/4"	2-1/2"	89900-060	\$22.50	89250-060	\$28.50



STUB LENGTH - CORNER RAD - 4-FLT

Decimal - **AlTiN COATED** - .015" to .062"



Length of Cut = 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

Corner radius helps prevent chipping at corners at high feeds and speeds.

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.003"	.023"	1/8"	1-1/2"	89415-003	\$40.50
.020"	.005"	.030"	1/8"	1-1/2"	89420-005	\$36.50
.025"	.005"	.038"	1/8"	1-1/2"	89425-005	\$36.50
.030"	.005"	.045"	1/8"	1-1/2"	89430-005	\$32.75
.030"	.010"	.045"	1/8"	1-1/2"	89430-010	\$32.75
.031" (1/32)	.005"	.047"	1/8"	1-1/2"	89431-005	\$32.75
.031" (1/32)	.010"	.047"	1/8"	1-1/2"	89431-010	\$32.75
.035"	.005"	.053"	1/8"	1-1/2"	89435-005	\$28.75
.035"	.010"	.053"	1/8"	1-1/2"	89435-010	\$28.75
.040"	.005"	.060"	1/8"	1-1/2"	89440-005	\$25.50
.040"	.010"	.060"	1/8"	1-1/2"	89440-010	\$25.50
.045"	.005"	.068"	1/8"	1-1/2"	89445-005	\$25.50
.045"	.010"	.068"	1/8"	1-1/2"	89445-010	\$25.50
.045"	.015"	.068"	1/8"	1-1/2"	89445-015	\$25.50
.047" (3/64)	.005"	.071"	1/8"	1-1/2"	89447-005	\$25.50
.047" (3/64)	.010"	.071"	1/8"	1-1/2"	89447-010	\$25.50
.047" (3/64)	.015"	.071"	1/8"	1-1/2"	89447-015	\$25.50
.050"	.005"	.075"	1/8"	1-1/2"	89450-005	\$25.50
.050"	.010"	.075"	1/8"	1-1/2"	89450-010	\$25.50
.050"	.015"	.075"	1/8"	1-1/2"	89450-015	\$25.50
.060"	.005"	.090"	1/8"	1-1/2"	89460-005	\$25.50
.060"	.010"	.090"	1/8"	1-1/2"	89460-010	\$25.50
.060"	.015"	.090"	1/8"	1-1/2"	89460-015	\$25.50
.062" (1/16)	.005"	.093"	1/8"	1-1/2"	89462-005	\$25.50
.062" (1/16)	.010"	.093"	1/8"	1-1/2"	89462-010	\$25.50
.062" (1/16)	.015"	.093"	1/8"	1-1/2"	89462-015	\$25.50

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STUB LENGTH – CORNER RAD – 4-FLT



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Decimal - Corner Radius

AlTiN COATED

Size Range: .065" to .125"

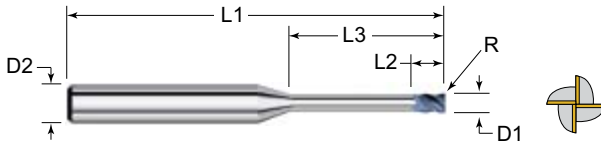


D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.065"	.005"	.098"	1/8"	1-1/2"	89465-005	\$25.50
.065"	.010"	.098"	1/8"	1-1/2"	89465-010	\$25.50
.065"	.015"	.098"	1/8"	1-1/2"	89465-015	\$25.50
.070"	.005"	.105"	1/8"	1-1/2"	89470-005	\$25.50
.070"	.010"	.105"	1/8"	1-1/2"	89470-010	\$25.50
.070"	.015"	.105"	1/8"	1-1/2"	89470-015	\$25.50
.075"	.005"	.113"	1/8"	1-1/2"	89475-005	\$25.50
.075"	.010"	.113"	1/8"	1-1/2"	89475-010	\$25.50
.075"	.015"	.113"	1/8"	1-1/2"	89475-015	\$25.50
.078" (5/64)	.005"	.117"	1/8"	1-1/2"	89478-005	\$25.50
.078" (5/64)	.010"	.117"	1/8"	1-1/2"	89478-010	\$25.50
.078" (5/64)	.015"	.117"	1/8"	1-1/2"	89478-015	\$25.50
.090"	.005"	.135"	1/8"	1-1/2"	89490-005	\$25.50
.090"	.010"	.135"	1/8"	1-1/2"	89490-010	\$25.50
.090"	.015"	.135"	1/8"	1-1/2"	89490-015	\$25.50
.093" (3/32)	.005"	.140"	1/8"	1-1/2"	89493-005	\$25.50
.093" (3/32)	.010"	.140"	1/8"	1-1/2"	89493-010	\$25.50
.093" (3/32)	.015"	.140"	1/8"	1-1/2"	89493-015	\$25.50
.100"	.005"	.150"	1/8"	1-1/2"	89410-005	\$25.50
.100"	.010"	.150"	1/8"	1-1/2"	89410-010	\$25.50
.100"	.015"	.150"	1/8"	1-1/2"	89410-015	\$25.50
.125" (1/8)	.005"	.250"	1/8"	1-1/2"	89412-005	\$25.50
.125" (1/8)	.010"	.250"	1/8"	1-1/2"	89412-010	\$25.50
.125" (1/8)	.015"	.250"	1/8"	1-1/2"	89412-015	\$25.50
.125" (1/8)	.020"	.250"	1/8"	1-1/2"	89412-020	\$25.50
.125" (1/8)	.030"	.250"	1/8"	1-1/2"	89412-030	\$25.50



STUB - LG REACH - CORNER RAD - 4-FLT

Decimal - **AlTiN COATED** - .015" to .062"



Minimum
3 Tools
Each Size



Length of Cut 1.5 x Diameter or as Specified - Center Cutting - Micro Grain Carbide
Corner radius helps prevent chipping at corners at high feeds and speeds.

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.003"	.023"	.125"	1/8"	1-1/2"	79415-003	\$53.70
.020"	.005"	.030"	.150"	1/8"	1-1/2"	79420-005	\$52.15
.025"	.005"	.038"	.200"	1/8"	1-1/2"	79425-005	\$52.15
.030"	.005"	.045"	.200"	1/8"	1-1/2"	79430-005	\$42.75
.030"	.010"	.045"	.200"	1/8"	1-1/2"	79430-010	\$42.75
.031" (1/32)	.005"	.047"	.250"	1/8"	1-1/2"	79431-005	\$42.75
.031" (1/32)	.010"	.047"	.250"	1/8"	1-1/2"	79431-010	\$42.75
.035"	.005"	.053"	.250"	1/8"	1-1/2"	79435-005	\$40.60
.035"	.010"	.053"	.250"	1/8"	1-1/2"	79435-010	\$40.60
.040"	.005"	.060"	.250"	1/8"	1-1/2"	79440-005	\$39.25
.040"	.010"	.060"	.250"	1/8"	1-1/2"	79440-010	\$39.25
.045"	.005"	.068"	.275"	1/8"	1-1/2"	79445-005	\$39.25
.045"	.010"	.068"	.275"	1/8"	1-1/2"	79445-010	\$39.25
.045"	.015"	.068"	.275"	1/8"	1-1/2"	79445-015	\$39.25
.047" (3/64)	.005"	.071"	.300"	1/8"	1-1/2"	79447-005	\$39.25
.047" (3/64)	.010"	.071"	.300"	1/8"	1-1/2"	79447-010	\$39.25
.047" (3/64)	.015"	.071"	.300"	1/8"	1-1/2"	79447-015	\$39.25
.050"	.005"	.075"	.350"	1/8"	1-1/2"	79450-005	\$39.25
.050"	.010"	.075"	.350"	1/8"	1-1/2"	79450-010	\$39.25
.050"	.015"	.075"	.350"	1/8"	1-1/2"	79450-015	\$39.25
.060"	.005"	.090"	.400"	1/8"	1-1/2"	79460-005	\$39.25
.060"	.010"	.090"	.400"	1/8"	1-1/2"	79460-010	\$39.25
.060"	.015"	.090"	.400"	1/8"	1-1/2"	79460-015	\$39.25
.062" (1/16)	.005"	.093"	.400"	1/8"	1-1/2"	79462-005	\$39.25
.062" (1/16)	.010"	.093"	.400"	1/8"	1-1/2"	79462-010	\$39.25
.062" (1/16)	.015"	.093"	.400"	1/8"	1-1/2"	79462-015	\$39.25

Continued Next Page

STUB – LG REACH – CORNER RAD – 4-FLT



Continued from previous page:

Decimal - Corner Radius

AlTiN COATED

Size Range: .065" to .125"



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.065"	.005"	.098"	.450"	1/8"	1-1/2"	79465-005	\$39.25
.065"	.010"	.098"	.450"	1/8"	1-1/2"	79465-010	\$39.25
.065"	.015"	.098"	.450"	1/8"	1-1/2"	79465-015	\$39.25
.070"	.005"	.105"	.500"	1/8"	1-1/2"	79470-005	\$39.25
.070"	.010"	.105"	.500"	1/8"	1-1/2"	79470-010	\$39.25
.070"	.015"	.105"	.500"	1/8"	1-1/2"	79470-015	\$39.25
.075"	.005"	.113"	.500"	1/8"	1-1/2"	79475-005	\$39.25
.075"	.010"	.113"	.500"	1/8"	1-1/2"	79475-010	\$39.25
.075"	.015"	.113"	.500"	1/8"	1-1/2"	79475-015	\$39.25
.078" (5/64)	.005"	.117"	.500"	1/8"	1-1/2"	79478-005	\$39.25
.078" (5/64)	.010"	.117"	.500"	1/8"	1-1/2"	79478-010	\$39.25
.078" (5/64)	.015"	.117"	.500"	1/8"	1-1/2"	79478-015	\$39.25
.090"	.005"	.135"	.550"	1/8"	1-1/2"	79490-005	\$39.25
.090"	.010"	.135"	.550"	1/8"	1-1/2"	79490-010	\$39.25
.090"	.015"	.135"	.550"	1/8"	1-1/2"	79490-015	\$39.25
.093" (3/32)	.005"	.140"	.550"	1/8"	1-1/2"	79493-005	\$39.25
.093" (3/32)	.010"	.140"	.550"	1/8"	1-1/2"	79493-010	\$39.25
.093" (3/32)	.015"	.140"	.550"	1/8"	1-1/2"	79493-015	\$39.25
.100"	.005"	.150"	.550"	1/8"	1-1/2"	79410-005	\$39.25
.100"	.010"	.150"	.550"	1/8"	1-1/2"	79410-010	\$39.25
.100"	.015"	.150"	.550"	1/8"	1-1/2"	79410-015	\$39.25
.125" (1/8)	.005"	.250"	.600"	1/8"	1-1/2"	79412-005	\$39.25
.125" (1/8)	.010"	.250"	.600"	1/8"	1-1/2"	79412-010	\$39.25
.125" (1/8)	.015"	.250"	.600"	1/8"	1-1/2"	79412-015	\$39.25
.125" (1/8)	.020"	.250"	.600"	1/8"	1-1/2"	79412-020	\$39.25
.125" (1/8)	.030"	.250"	.600"	1/8"	1-1/2"	79412-030	\$39.25

Tools are custom manufactured to order and are nonreturnable.



TICN COATED - 4-FLUTE

Square & Ball End - **TICN COATED** - .015" to .125"



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	1/8"	1-1/2"	86015	\$22.50	86015B	\$28.95
.020"	.060"	1/8"	1-1/2"	86020	\$21.45	86020B	\$27.90
.025"	.075"	1/8"	1-1/2"	86025	\$20.35	86025B	\$25.75
.030"	.090"	1/8"	1-1/2"	86030	\$19.90	86030B	\$24.20
.031"	.093"	1/8"	1-1/2"	86031	\$19.90	86031B	\$24.20
.031"	.125"	1/8"	1-1/2"	86031L	\$19.90	86031LB	\$24.20
.035"	.105"	1/8"	1-1/2"	86035	\$18.20	86035B	\$22.50
.040"	.120"	1/8"	1-1/2"	86040	\$18.20	86040B	\$22.50
.045"	.135"	1/8"	1-1/2"	86045	\$18.20	86045B	\$22.50
.047"	.141"	1/8"	1-1/2"	86047	\$18.20	86047B	\$22.50
.050"	.150"	1/8"	1-1/2"	86050	\$18.20	86050B	\$22.50
.055"	.165"	1/8"	1-1/2"	86055	\$18.20	86055B	\$22.50
.060"	.180"	1/8"	1-1/2"	86060	\$17.75	86060B	\$22.05
.062"	.186"	1/8"	1-1/2"	86062	\$17.75	86062B	\$22.05
.062"	.250"	1/8"	1-1/2"	86062L	\$17.75	86062LB	\$22.05
.065"	.195"	1/8"	1-1/2"	86065	\$17.75	86065B	\$22.05
.070"	.210"	1/8"	1-1/2"	86070	\$17.75	86070B	\$22.05
.075"	.225"	1/8"	1-1/2"	86075	\$17.75	86075B	\$22.05
.078"	.234"	1/8"	1-1/2"	86078	\$17.75	86078B	\$22.05
.080"	.240"	1/8"	1-1/2"	86080	\$17.75	86080B	\$22.05
.090"	.270"	1/8"	1-1/2"	86090	\$17.75	86090B	\$22.05
.093"	.279"	1/8"	1-1/2"	86093	\$17.75	86093B	\$22.05
.093"	.375"	1/8"	1-1/2"	86093L	\$17.75	86093LB	\$22.05
.100"	.300"	1/8"	1-1/2"	86100	\$17.75	86100B	\$22.05
.125"	.500"	1/8"	1-1/2"	86125	\$17.75	86125B	\$22.05

Special long reach TICN coated end mills quoted on request. Minimum 6 pieces per size.

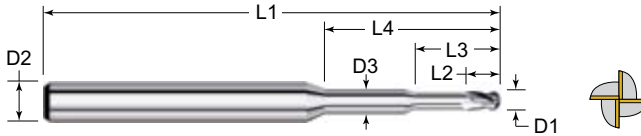
Ships within 24-48 hours.

Tools are custom manufactured to order and are nonreturnable.

MULTI-STEP - LONG REACH - 4-FLUTE



Square & Ball End - UNCOATED - .010" to .031"



Minimum
3 Tools
Each Size

Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

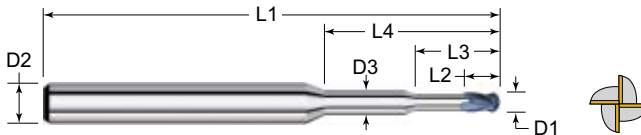
D1 Cutter Dia.	L2 Length of Cut	L3 Reach From Tip	L4 Reach From Tip	D3 Neck Dia.	D2 Shank Dia.	L1 Over All Length	SQUARE END		BALL END	
							Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	.075"	.150"	.030"	1/8"	1-1/2"	74410	\$48.10	74410B	\$59.65
.015"	.045"	.125"	.225"	.040"	1/8"	1-1/2"	74415	\$40.30	74415B	\$46.75
.020"	.060"	.165"	.265"	.040"	1/8"	1-1/2"	74420	\$39.25	74420B	\$45.70
.025"	.075"	.205"	.305"	.050"	1/8"	1-1/2"	74425	\$38.15	74425B	\$43.55
.030"	.090"	.250"	.350"	.060"	1/8"	1-1/2"	74430	\$37.10	74430B	\$41.40
.031"	.125"	.250"	.350"	.062"	1/8"	1-1/2"	74431	\$37.10	74431B	\$41.40

Tools are custom manufactured to order and are non-returnable. Tools ship in 24-48 Hours.

Designed for deep pocket milling where there is sufficient clearance for a larger secondary neck. Multi neck design increases the reach capabilities for standard reach tools. Special sizes available-see below for no charge alterations.

NOTE: "Reach 'L4' and diameter 'D3' may be altered to customer specifications at no additional charge if it falls within the parameters setup by engineering at Microcut. Send your request by using the form below and Microcut will advise if your tool meets our criteria for no-charge alterations.

Square & Ball End - AITiN COATED - .010" to .031"

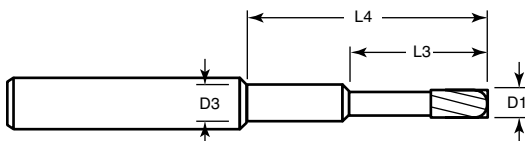


Minimum
3 Tools
Each Size

Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Dia.	L2 Length of Cut	L3 Reach From Tip	L4 Reach From Tip	D3 Neck Dia.	D2 Shank Dia.	L1 Over All Length	SQUARE END		BALL END	
							Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	.075"	.150"	.030"	1/8"	1-1/2"	74310	\$54.55	74310B	\$65.05
.015"	.045"	.125"	.225"	.040"	1/8"	1-1/2"	74315	\$44.60	74315B	\$51.05
.020"	.060"	.165"	.265"	.040"	1/8"	1-1/2"	74320	\$43.55	74320B	\$50.00
.025"	.075"	.205"	.305"	.050"	1/8"	1-1/2"	74325	\$42.45	74325B	\$47.85
.030"	.090"	.250"	.350"	.060"	1/8"	1-1/2"	74330	\$41.40	74330B	\$45.70
.031"	.125"	.250"	.350"	.062"	1/8"	1-1/2"	74331	\$41.40	74331B	\$45.70

ORDER SPECIAL Multi-Step LONG REACH END MILLS



1. Specify: ☐ Square End or ☐ Ball End.
2. Diameter (D1): _____ From above charts.
3. Reach (L3): _____
4. Reach (L4): _____
5. Neck Diameter (D3): _____
6. Quantity (Minimum 3): _____

Tools are custom manufactured to order and are non-returnable. Tools ship in 24-48 Hours.



METRIC - 2-FLUTE

Square End - UNCOATED & AITiN COATED - 0.2mm to 3.0mm

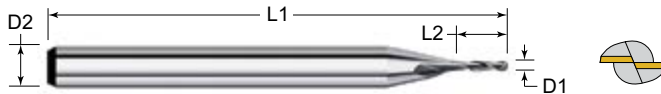


Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
0.2	0.4	3	38	51202	\$35.90	51302	\$42.90
0.3	0.9	3	38	51203	\$31.50	51303	\$37.50
0.4	1.2	3	38	51204	\$22.50	51304	\$28.50
0.5	1.5	3	38	51205	\$21.50	51305	\$27.50
0.6	1.8	3	38	51206	\$21.50	51306	\$26.50
0.7	2.1	3	38	51207	\$19.50	51307	\$24.50
0.8	2.4	3	38	51208	\$19.50	51308	\$24.50
0.9	2.7	3	38	51209	\$19.50	51309	\$24.50
1.0	3.0	3	38	51210	\$14.50	51310	\$18.50
1.5	6.0	3	38	51215	\$14.50	51315	\$18.50
2.0	9.0	3	38	51220	\$14.50	51320	\$18.50
2.5	12.0	3	38	51225	\$14.50	51325	\$18.50
3.0	12.0	3	38	51230	\$12.50	51330	\$16.50

Most Miniature metric cutting diameters are also available on 1/8" diameter shanks. Call for exact specifications.

Ball End - UNCOATED & AITiN COATED 1.0mm to 3.0mm



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1.0	3.0	3	38	51210B	\$18.50	51310B	\$22.50
1.5	6.0	3	38	51215B	\$18.50	51315B	\$22.50
2.0	9.0	3	38	51220B	\$18.50	51320B	\$22.50
2.5	12.0	3	38	51225B	\$18.50	51325B	\$22.50
3.0	12.0	3	38	51230B	\$16.50	51330B	\$20.50

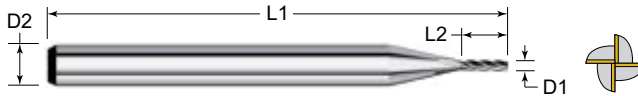


**See
Metric End Mill
Extension Holders
on page 75.**

METRIC - 4-FLUTE



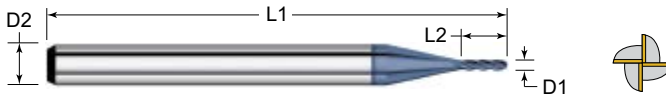
Square End - UNCOATED & AITIN COATED 0.5mm to 6.0mm



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		ALTIN COATED	
				Tool Number	Price Each	Tool Number	Price Each
0.5	1.5	3	38	51405	\$21.50	51505	\$27.50
1.0	3.0	3	38	51410	\$14.50	51510	\$18.50
1.5	6.0	3	38	51415	\$14.50	51515	\$18.50
2.0	9.0	3	38	51420	\$14.50	51520	\$18.50
2.5	12.0	3	38	51425	\$14.50	51525	\$18.50
3.0	12.0	3	38	51430	\$12.50	51530	\$16.50
3.5	12.0	4	51	51435	\$17.50	51535	\$22.50
4.0	14.0	4	51	51440	\$17.50	51540	\$22.50
4.5	14.0	5	51	51445	\$19.50	51545	\$24.50
5.0	20.0	5	51	51450	\$19.50	51550	\$24.50
6.0	20.0	6	63	51460	\$22.50	51560	\$27.50

Ball End - UNCOATED & AITIN COATED 0.5mm to 6.0mm



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

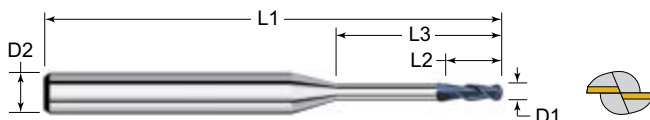
D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		ALTIN COATED	
				Tool Number	Price Each	Tool Number	Price Each
0.5	1.5	3	38	51405B	\$28.50	51505B	\$32.50
1.0	3.0	3	38	51410B	\$18.50	51510B	\$22.50
1.5	6.0	3	38	51415B	\$18.50	51515B	\$22.50
2.0	9.0	3	38	51420B	\$18.50	51520B	\$22.50
2.5	12.0	3	38	51425B	\$18.50	51525B	\$22.50
3.0	12.0	3	38	51430B	\$16.50	51530B	\$20.50
3.5	12.0	4	51	51435B	\$21.50	51535B	\$26.50
4.0	14.0	4	51	51440B	\$21.50	51540B	\$26.50
4.5	14.0	5	51	51445B	\$23.50	51545B	\$28.50
5.0	20.0	5	51	51450B	\$23.50	51550B	\$28.50
6.0	20.0	6	63	51460B	\$26.50	51560B	\$32.50

Most Miniature metric cutting diameters are also available on 1/8" diameter shanks. Call for exact specifications.



METRIC - LONG REACH - 2-FLUTE

Square End - UNCOATED & AITiN COATED



Minimum
3 Tools
Each Size

Shipped
Within 24-48
Hours

Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	L3 Reach From Tip (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		ALTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1	3.0	9	3	38	51810	\$24.50	51810TL	\$28.50
1.5	6.0	12	3	38	51815	\$24.50	51815TL	\$28.50
2	9.0	15	3	38	51820	\$24.50	51820TL	\$28.50
2.5	12.0	16	3	38	51825	\$24.50	51825TL	\$28.50
3	12.0	16	3	38	51830	\$22.50	51830TL	\$26.50

Ball End - UNCOATED & AITiN COATED

D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	L3 Reach From Tip (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		ALTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1	3.0	9	3	38	51810B	\$28.50	51810BTL	\$32.50
1.5	6.0	12	3	38	51815B	\$28.50	51815BTL	\$32.50
2	9.0	15	3	38	51820B	\$28.50	51820BTL	\$32.50
2.5	12.0	16	3	38	51825B	\$28.50	51825BTL	\$32.50
3	12.0	16	3	38	51830B	\$26.50	51830BTL	\$30.50



METRIC - LONG REACH - 4-FLUTE

Square End - UNCOATED & AITiN COATED

D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	L3 Reach From Tip (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		ALTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1	3.0	9	3	38	51910	\$25.50	51910TL	\$29.50
1.5	6.0	12	3	38	51915	\$25.50	51915TL	\$29.50
2	9.0	15	3	38	51920	\$26.50	51920TL	\$30.50
2.5	12.0	16	3	38	51925	\$26.50	51925TL	\$30.50
3	12.0	16	3	38	51930	\$26.50	51930TL	\$30.50

Ball End - UNCOATED & AITiN COATED

D1 Cutter Diameter (mm)	L2 Length of Cut (mm)	L3 Reach From Tip (mm)	D2 Shank Diameter (mm)	L1 Over All Length (mm)	NOT COATED		ALTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1	3.0	9	3	38	51910B	\$29.50	51910BTL	\$33.50
1.5	6.0	12	3	38	51915B	\$29.50	51915BTL	\$33.50
2	9.0	15	3	38	51920B	\$30.50	51920BTL	\$34.50
2.5	12.0	16	3	38	51925B	\$30.50	51925BTL	\$34.50
3	12.0	16	3	38	51930B	\$30.50	51930BTL	\$34.50

Other metric long reach sizes, quoted on request. Call for exact specifications.

Shipped within 24-48 hours. Minimum order 3 tools each size.
Tools are custom manufactured to order and are nonreturnable.

END MILL EXTENSION HOLDERS

End Mill Extension Holders

I.D. CONCENTRIC WITHIN .0003"- I.D. HOLE SIZE +.00015/-0



I.D. Hole Size	Shank Diameter	Over All Length	Tool Number	Price Each
.1250"	3/8"	3-1/4"	ACH1250	\$199.50
.1250"	3/8"	6"	ACH1250L	\$265.50
.1875"	1/2"	3-1/2"	ACH1875	\$199.50
.1875"	1/2"	5"	ACH1875L	\$215.50
.2500"	5/8"	4-1/4"	ACH2500	\$199.50
.2500"	5/8"	6"	ACH2500L	\$219.50

End Mill Extension Holders Millimeter Sizes

I.D. CONCENTRIC WITHIN .0003"- I.D. HOLE SIZE +.00015/-0



I.D. Hole Size	Shank Diameter	Over All Length	Tool Number	Price Each
.1181" (3mm)	3/8"	3-1/4"	ACH1181	\$219.50
.1575" (4mm)	1/2"	3-1/2"	ACH1575	\$219.50
.2362" (6mm)	5/8"	4-1/4"	ACH2362	\$229.00

ABRASION RESISTANT TOOL COATINGS



TiCN

Cutting carbon steel, alloy steel and cast iron; cold forming & stamping tools.



ZrN

Hard coating for machining a variety of non-ferrous materials.



AlTiN

High performance coating for dry and semi-dry machining of all aerospace materials at high speeds.



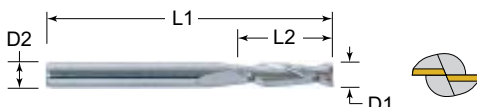
Diamond

(Amorphous) Thin film coating for graphite, nonferrous materials and epoxy.



STANDARD FRACTIONAL - 2-FLUTE

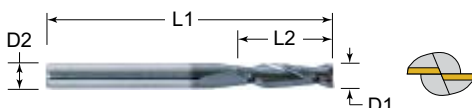
Square & Ball End - UNCOATED - 1/64" to 1/2"



Standard Length of Cut - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool End	Price Each
1/64"	3/64"	1/8"	1-1/2"	52015	\$17.15	52015B	\$23.60
1/32"	3/32"	1/8"	1-1/2"	52031	\$10.70	52031B	\$12.85
3/64"	1/8"	1/8"	1-1/2"	52047	\$10.70	52047B	\$12.85
1/16"	1/4"	1/8"	1-1/2"	52062	\$10.70	52062B	\$12.85
5/64"	1/4"	1/8"	1-1/2"	52078	\$10.70	52078B	\$12.85
3/32"	3/8"	1/8"	1-1/2"	52093	\$10.70	52093B	\$12.85
7/64"	3/8"	1/8"	1-1/2"	52109	\$10.70	52109B	\$12.85
1/8"	1/2"	1/8"	1-1/2"	52125	\$10.70	52125B	\$12.85
9/64"	9/16"	3/16"	2"	52140	\$11.75	52140B	\$15.00
5/32"	9/16"	3/16"	2"	52156	\$11.75	52156B	\$15.00
3/16"	5/8"	3/16"	2"	52187	\$11.75	52187B	\$15.00
1/4"	3/4"	1/4"	2-1/2"	52250	\$12.85	52250B	\$17.15
5/16"	13/16"	5/16"	2-1/2"	52312	\$17.15	52312B	\$21.45
3/8"	1"	3/8"	2-1/2"	52375	\$20.35	52375B	\$24.65
1/2"	1"	1/2"	3"	52500	\$33.85	52500B	\$44.60

Square & Ball End - AITiN COATED - 1/64" to 1/2"



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
1/64"	3/64"	1/8"	1-1/2"	52015TL	\$21.45	52015BTL	\$27.90
1/32"	3/32"	1/8"	1-1/2"	52031TL	\$13.90	52031BTL	\$16.05
3/64"	1/8"	1/8"	1-1/2"	52047TL	\$13.90	52047BTL	\$16.05
1/16"	1/4"	1/8"	1-1/2"	52062TL	\$13.90	52062BTL	\$16.05
5/64"	1/4"	1/8"	1-1/2"	52078TL	\$13.90	52078BTL	\$16.05
3/32"	3/8"	1/8"	1-1/2"	52093TL	\$13.90	52093BTL	\$16.05
7/64"	3/8"	1/8"	1-1/2"	52109TL	\$13.90	52109BTL	\$16.05
1/8"	1/2"	1/8"	1-1/2"	52125TL	\$13.90	52125BTL	\$16.05
9/64"	9/16"	3/16"	2"	52140TL	\$16.05	52140BTL	\$20.35
5/32"	9/16"	3/16"	2"	52156TL	\$16.05	52156BTL	\$20.35
3/16"	5/8"	3/16"	2"	52187TL	\$16.05	52187BTL	\$20.35
1/4"	3/4"	1/4"	2-1/2"	52250TL	\$18.20	52250BTL	\$23.60
5/16"	13/16"	5/16"	2-1/2"	52312TL	\$21.45	52312BTL	\$28.95
3/8"	1"	3/8"	2-1/2"	52375TL	\$24.65	52375BTL	\$34.35
1/2"	1"	1/2"	3"	52500TL	\$42.95	52500BTL	\$61.20

STANDARD FRACTIONAL - 4-FLUTE



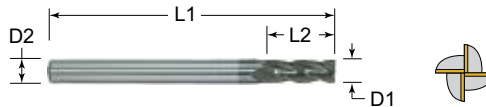
Square & Ball End - UNCOATED - 1/64" to 1/2"



Standard Length of Cut - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
1/64"	3/64"	1/8"	1-1/2"	54015	\$17.15	54015B	\$23.60
1/32"	3/32"	1/8"	1-1/2"	54031	\$10.70	54031B	\$12.85
3/64"	1/8"	1/8"	1-1/2"	54047	\$10.70	54047B	\$12.85
1/16"	1/4"	1/8"	1-1/2"	54062	\$10.70	54062B	\$12.85
5/64"	1/4"	1/8"	1-1/2"	54078	\$10.70	54078B	\$12.85
3/32"	3/8"	1/8"	1-1/2"	54093	\$10.70	54093B	\$12.85
7/64"	3/8"	1/8"	1-1/2"	54109	\$10.70	54109B	\$12.85
1/8"	1/2"	1/8"	1-1/2"	54125	\$10.70	54125B	\$12.85
9/64"	9/16"	3/16"	2"	54140	\$11.75	54140B	\$15.00
5/32"	9/16"	3/16"	2"	54156	\$11.75	54156B	\$15.00
3/16"	5/8"	3/16"	2"	54187	\$11.75	54187B	\$15.00
1/4"	3/4"	1/4"	2-1/2"	54250	\$12.85	54250B	\$17.15
5/16"	13/16"	5/16"	2-1/2"	54312	\$17.15	54312B	\$21.45
3/8"	1"	3/8"	2-1/2"	54375	\$20.35	54375B	\$24.65
1/2"	1"	1/2"	3"	54500	\$33.85	54500B	\$44.60

Square & Ball End - AITiN COATED - 1/64" to 1/2"



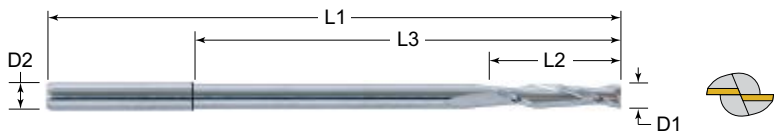
Standard Length of Cut - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
1/64"	3/64"	1/8"	1-1/2"	54015TL	\$21.45	54015BTL	\$27.90
1/32"	3/32"	1/8"	1-1/2"	54031TL	\$13.90	54031BTL	\$16.05
3/64"	1/8"	1/8"	1-1/2"	54047TL	\$13.90	54047BTL	\$16.05
1/16"	1/4"	1/8"	1-1/2"	54062TL	\$13.90	54062BTL	\$16.05
5/64"	1/4"	1/8"	1-1/2"	54078TL	\$13.90	54078BTL	\$16.05
3/32"	3/8"	1/8"	1-1/2"	54093TL	\$13.90	54093BTL	\$16.05
7/64"	3/8"	1/8"	1-1/2"	54109TL	\$13.90	54109BTL	\$16.05
1/8"	1/2"	1/8"	1-1/2"	54125TL	\$13.90	54125BTL	\$16.05
9/64"	9/16"	3/16"	2"	54140TL	\$16.05	54140BTL	\$20.35
5/32"	9/16"	3/16"	2"	54156TL	\$16.05	54156BTL	\$20.35
3/16"	5/8"	3/16"	2"	54187TL	\$16.05	54187BTL	\$20.35
1/4"	3/4"	1/4"	2-1/2"	54250TL	\$18.20	54250BTL	\$23.60
5/16"	13/16"	5/16"	2-1/2"	54312TL	\$21.45	54312BTL	\$28.95
3/8"	1"	3/8"	2-1/2"	54375TL	\$24.65	54375BTL	\$34.35
1/2"	1"	1/2"	3"	54500TL	\$42.95	54500BTL	\$61.20



EXTRA LG RCH - FRACTIONAL - 2-FLUTE

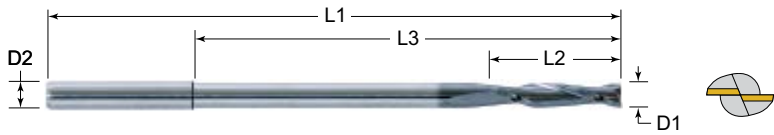
Square & Ball End - UNCOATED - 1/8" to 1/4"



Neck diameters are reduced for clearance

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	3/4"	1-1/4"	1/8"	3"	55025S	\$29.55	55025SB	\$33.85
1/8"	3/4"	1-1/2"	1/8"	3"	55025	\$30.65	55025B	\$34.95
1/8"	1"	1-5/8"	1/8"	3"	55025L	\$31.70	55025LB	\$36.00
3/16"	3/4"	1-3/8"	3/16"	2-1/2"	55087S	\$28.50	55087SB	\$32.80
3/16"	1"	2-5/8"	3/16"	4"	55087	\$31.70	55087B	\$36.00
1/4"	1"	2-1/4"	1/4"	4"	55050S	\$37.10	55050SB	\$42.45
1/4"	1-1/2"	4-1/4"	1/4"	6"	55050	\$46.75	55050B	\$52.15

Square & Ball End - ALTIM COATED - 1/8" to 1/2"



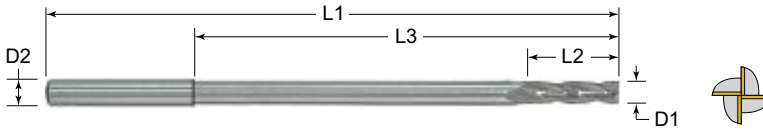
Neck diameters are reduced for clearance

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	3/4"	1-1/4"	1/8"	3"	55125S	\$35.20	55125SB	\$39.50
1/8"	3/4"	1-1/2"	1/8"	3"	55125	\$36.00	55125B	\$40.30
1/8"	1"	1-5/8"	1/8"	3"	55125L	\$37.10	55125LB	\$41.40
3/16"	3/4"	1-3/8"	3/16"	2-1/2"	55187S	\$34.95	55187SB	\$39.25
3/16"	1"	2-5/8"	3/16"	4"	55187	\$38.15	55187B	\$42.45
1/4"	1"	2-1/4"	1/4"	4"	55250S	\$43.55	55250SB	\$48.90
1/4"	1-1/2"	4-1/4"	1/4"	6"	55250	\$53.20	55250B	\$58.60
5/16"	1-1/2"	4-1/4"	5/16"	6"	55312	\$70.40	55312B	\$77.95
3/8"	1-1/2"	4-3/8"	3/8"	6"	55375	\$81.15	55375B	\$86.55
1/2"	1-1/2"	4"	1/2"	6"	55500	\$107.25	55500B	\$118.00

EXTRA LONG RCH - FRACTIONAL - 4-FLT



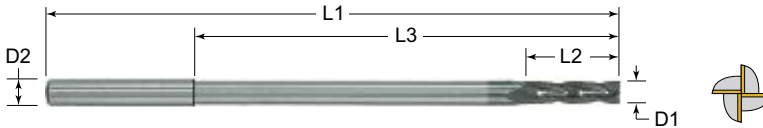
Square & Ball End - UNCOATED - 1/8" to 1/4"



Neck diameters are reduced for clearance

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	3/4"	1-1/4"	1/8"	3"	56025S	\$29.55	56025SB	\$33.85
1/8"	3/4"	1-1/2"	1/8"	3"	56025	\$30.65	56025B	\$34.95
1/8"	1"	1-5/8"	1/8"	3"	56025L	\$31.70	56025LB	\$36.00
3/16"	3/4"	1-3/8"	3/16"	2-1/2"	56087S	\$28.50	56087SB	\$32.80
3/16"	1"	2-5/8"	3/16"	4"	56087	\$31.70	56087B	\$36.00
1/4"	1"	2-1/4"	1/4"	4"	56050S	\$37.10	56050SB	\$42.45
1/4"	1-1/2"	4-1/4"	1/4"	6"	56050	\$46.75	56050B	\$52.15

Square & Ball End - ALTiN COATED - 1/8" to 1/2"



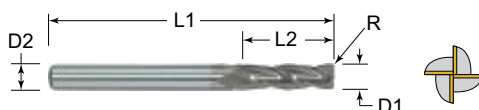
Neck diameters are reduced for clearance

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	3/4"	1-1/4"	1/8"	3"	56125S	\$35.20	56125SB	\$39.50
1/8"	3/4"	1-1/2"	1/8"	3"	56125	\$36.00	56125B	\$40.30
1/8"	1"	1-5/8"	1/8"	3"	56125L	\$37.10	56125LB	\$41.40
3/16"	3/4"	1-3/8"	3/16"	2-1/2"	56187S	\$34.95	56187SB	\$39.25
3/16"	1"	2-5/8"	3/16"	4"	56187	\$38.15	56187B	\$42.45
1/4"	1"	2-1/4"	1/4"	4"	56250S	\$43.55	56250SB	\$48.90
1/4"	1-1/2"	4-1/4"	1/4"	6"	56250	\$53.20	56250B	\$58.60
5/16"	1-1/2"	4-1/4"	5/16"	6"	56312	\$70.40	56312B	\$77.95
3/8"	1-1/2"	4-3/8"	3/8"	6"	56375	\$81.15	56375B	\$86.55
1/2"	1-1/2"	4"	1/2"	6"	56500	\$107.25	56500B	\$118.00



FRACTIONAL - CORNER RAD - 4-FLUTE

Corner Radius - **AlTiN COATED** - 1/8" to 1/2"



Fractional Sizes 1/8" to 1/2" with Corner Radius - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.005"	1/2"	1/8"	1-1/2"	89125-005	\$25.50
1/8"	.010"	1/2"	1/8"	1-1/2"	89125-010	\$25.50
1/8"	.015"	1/2"	1/8"	1-1/2"	89125-015	\$25.50
1/8"	.020"	1/2"	1/8"	1-1/2"	89125-020	\$25.50
1/8"	.030"	1/2"	1/8"	1-1/2"	89125-030	\$25.50
3/16"	.015"	5/8"	3/16"	2"	89187-015	\$25.25
3/16"	.020"	5/8"	3/16"	2"	89187-020	\$25.25
3/16"	.030"	5/8"	3/16"	2"	89187-030	\$25.25
1/4"	.015"	3/4"	1/4"	2-1/2"	89250-015	\$28.50
1/4"	.020"	3/4"	1/4"	2-1/2"	89250-020	\$28.50
1/4"	.030"	3/4"	1/4"	2-1/2"	89250-030	\$28.50
1/4"	.045"	3/4"	1/4"	2-1/2"	89250-045	\$28.50
1/4"	.060"	3/4"	1/4"	2-1/2"	89250-060	\$28.50
5/16"	.015"	13/16"	5/16"	2-1/2"	89312-015	\$35.40
5/16"	.030"	13/16"	5/16"	2-1/2"	89312-030	\$35.40
5/16"	.060"	13/16"	5/16"	2-1/2"	89312-060	\$35.40
3/8"	.015"	1"	3/8"	2-1/2"	89375-015	\$42.45
3/8"	.030"	1"	3/8"	2-1/2"	89375-030	\$42.45
3/8"	.045"	1"	3/8"	2-1/2"	89375-045	\$42.45
3/8"	.060"	1"	3/8"	2-1/2"	89375-060	\$42.45
1/2"	.015"	1"	1/2"	3"	89500-015	\$63.35
1/2"	.030"	1"	1/2"	3"	89500-030	\$63.35
1/2"	.045"	1"	1/2"	3"	89500-045	\$63.35
1/2"	.060"	1"	1/2"	3"	89500-060	\$63.35
1/2"	.125"	1"	1/2"	3"	89500-125	\$63.35

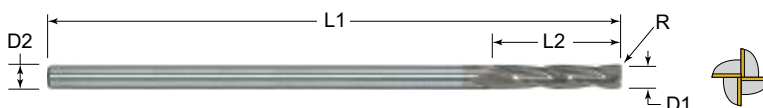
Special Cutting Tool Quotations

Microcut's capability to produce Standard cutting tools is replicated by its ability to produce Special Cutting Tools. Quality, competitive pricing, and on-time delivery has been a Microcut trademark for almost 20 years. Microcut's workforce experience in producing special Micro Tools dates back over 40 years and makes us one of the most experienced Micro Tool companies in the U.S.A. Submit your special tool B/P to us by fax at 781-582-8095 or email to sales@microcutUSA.com and we will quote it through the distributor of your choice that services your facility.

LG & X-LG – FRACT. – CORNER RAD – 4-FLT



Corner Radius - **AlTiN COATED** - 1/8" to 1/4"



Fractional Sizes 1/8" to 1/4" with Corner Radius – Center Cutting – Micro Grain Carbide

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.015	3/4"	1/8"	2-1/4"	89700-015	\$24.60
1/8"	.020	3/4"	1/8"	2-1/4"	89700-020	\$24.60
1/8"	.030	3/4"	1/8"	2-1/4"	89700-030	\$24.60
1/8"	.015	1"	1/8"	3"	89701-015	\$25.25
1/8"	.020	1"	1/8"	3"	89701-020	\$25.25
1/8"	.030	1"	1/8"	3"	89701-030	\$25.25
3/16"	.015	3/4"	3/16"	2-1/2"	89702-015	\$25.70
3/16"	.020	3/4"	3/16"	2-1/2"	89702-020	\$25.70
3/16"	.030	3/4"	3/16"	2-1/2"	89702-030	\$25.70
3/16"	.015	1-1/8"	3/16"	3"	89703-015	\$27.85
3/16"	.020	1-1/8"	3/16"	3"	89703-020	\$27.85
3/16"	.030	1-1/8"	3/16"	3"	89703-030	\$27.85
1/4"	.015	1-1/8"	1/4"	3"	89704-015	\$37.50
1/4"	.020	1-1/8"	1/4"	3"	89704-020	\$37.50
1/4"	.030	1-1/8"	1/4"	3"	89704-030	\$37.50
1/4"	.015	1"	1/4"	4"	89705-015	\$39.25
1/4"	.020	1"	1/4"	4"	89705-020	\$39.25
1/4"	.030	1"	1/4"	4"	89705-030	\$39.25
1/4"	.045	1"	1/4"	4"	89705-045	\$39.25
1/4"	.060	1"	1/4"	4"	89705-060	\$39.25
1/4"	.015	1-1/2"	1/4"	6"	89706-015	\$51.05
1/4"	.020	1-1/2"	1/4"	6"	89706-020	\$51.05
1/4"	.030	1-1/2"	1/4"	6"	89706-030	\$51.05
1/4"	.045	1-1/2"	1/4"	6"	89706-045	\$51.05
1/4"	.060	1-1/2"	1/4"	6"	89706-060	\$51.05



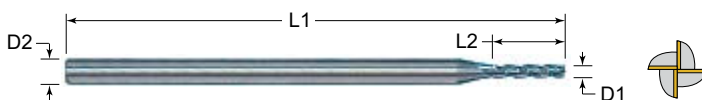
Locate Your Local Distributor

Microcut products are sold by cutting tool distributors in the U.S. and Canada. These distributors are selected because of their expertise in cutting tools and are available to assist you in your standard and special cutting tools. Visit our website at www.microcutUSA.com and select "Locate a Distributor". Enter your Zip code, or select your state in the U.S. or province in Canada and chose a distributor.



LONG FLUTE - 4-FLUTE

Square & Ball End - UNCOATED - 1/64" to 1/2"



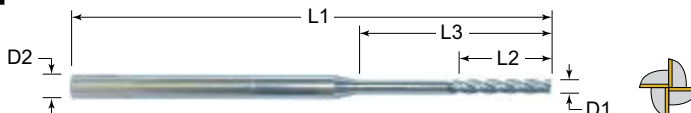
Length of Cut as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	1/8"	2-1/2"	LF4015	\$28.90	LF4015B	\$32.90
.020"	.100"	1/8"	2-1/2"	LF4020	\$24.90	LF4020B	\$28.90
.025"	.125"	1/8"	2-1/2"	LF4025	\$23.90	LF4025B	\$27.90
.030"	.150"	1/8"	2-1/2"	LF4030	\$22.90	LF4030B	\$26.90
.031" (1/32)	.150"	1/8"	2-1/2"	LF4031	\$22.90	LF4031B	\$26.90
.031" (1/32)	.250"	1/8"	2-1/2"	LF4031L	\$39.50	LF4031LB	\$44.50
.035"	.175"	1/8"	2-1/2"	LF4035	\$22.90	LF4035B	\$26.90
.040"	.200"	1/8"	2-1/2"	LF4040	\$22.90	LF4040B	\$26.90
.045"	.250"	1/8"	2-1/2"	LF4045	\$22.90	LF4045B	\$26.90
.047" (3/64)	.250"	1/8"	2-1/2"	LF4047	\$22.90	LF4047B	\$26.90
.047" (3/64)	.375"	1/8"	2-1/2"	LF4047L	\$35.50	LF4047LB	\$39.50
.050"	.300"	1/8"	2-1/2"	LF4050	\$22.90	LF4050B	\$26.90
.055"	.375"	1/8"	2-1/2"	LF4055	\$22.90	LF4055B	\$26.90
.060"	.500"	1/8"	2-1/2"	LF4060	\$22.90	LF4060B	\$26.90
.062"	.312"	1/8"	2-1/2"	LF4062S	\$21.90	LF4062SB	\$25.90
.062" (1/16)	.500"	1/8"	2-1/2"	LF4062	\$22.90	LF4062B	\$26.90
.062" (1/16)	.750"	1/8"	2-1/2"	LF4062L	\$37.50	LF4062LB	\$43.50
.065"	.500"	1/8"	2-1/2"	LF4065	\$22.90	LF4065B	\$26.90
.070"	.500"	1/8"	2-1/2"	LF4070	\$22.90	LF4070B	\$26.90
.075"	.500"	1/8"	2-1/2"	LF4075	\$22.90	LF4075B	\$26.90
.078" (5/64)	.500"	1/8"	2-1/2"	LF4078	\$22.90	LF4078B	\$26.90
.078" (5/64)	.750"	1/8"	2-1/2"	LF4078L	\$36.50	LF4078LB	\$42.50
.090"	.500"	1/8"	2-1/2"	LF4090	\$22.90	LF4090B	\$26.90
.093" (3/32)	.500"	1/8"	2-1/2"	LF4093	\$22.90	LF4093B	\$26.90
.093" (3/32)	.750"	1/8"	2-1/2"	LF4093L	\$24.50	LF4093LB	\$28.50
.100"	.625"	1/8"	2-1/2"	LF4100	\$22.90	LF4100B	\$26.90
1/8"	.750"	1/8"	3"	LF4125	\$21.90	LF4125B	\$25.90
1/8"	1.000"	1/8"	3"	LF4125L	\$22.90	LF4125LB	\$26.90
3/16"	1.125"	3/16"	3"	LF4187	\$21.50	LF4187B	\$25.50
1/4"	1.125"	1/4"	3"	LF4250	\$23.50	LF4250B	\$27.50
1/4"	1.500"	1/4"	4"	LF4250L	\$25.50	LF4250LB	\$29.50
5/16"	1.625"	5/16"	4"	LF4312	\$32.50	LF4312B	\$38.50
3/8"	1.125"	3/8"	3"	LF4375	\$33.50	LF4375B	\$39.50
3/8"	1.750"	3/8"	4"	LF4375L	\$37.50	LF4375LB	\$43.50
1/2"	2.000"	1/2"	4"	LF4500	\$54.50	LF4500B	\$62.50

LONG FLUTE - LONG REACH - 4-FLUTE



Square & Ball End - UNCOATED - .015" to .125"



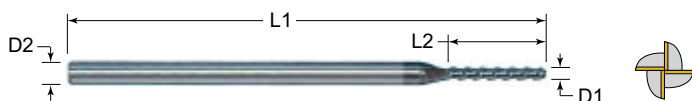
Length of Cut as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	.150"	1/8"	2-1/2"	LF3015	\$34.90	LF3015B	\$38.90
.020"	.100"	.200"	1/8"	2-1/2"	LF3020	\$30.90	LF3020B	\$34.90
.020"	.100"	.250"	1/8"	2-1/2"	LF3020L	\$30.90	LF3020LB	\$34.90
.025"	.125"	.250"	1/8"	2-1/2"	LF3025	\$29.90	LF3025B	\$33.90
.030"	.150"	.250"	1/8"	2-1/2"	LF3030	\$28.90	LF3030B	\$32.90
.030"	.150"	.300"	1/8"	2-1/2"	LF3030L	\$28.90	LF3030LB	\$32.90
.031" (1/32)	.150"	.250"	1/8"	2-1/2"	LF3031	\$28.90	LF3031B	\$32.90
.031" (1/32)	.150"	.300"	1/8"	2-1/2"	LF3031L	\$28.90	LF3031LB	\$32.90
.035"	.175"	.300"	1/8"	2-1/2"	LF3035	\$28.90	LF3035B	\$32.90
.035"	.175"	.350"	1/8"	2-1/2"	LF3035L	\$28.90	LF3035LB	\$32.90
.040"	.200"	.350"	1/8"	2-1/2"	LF3040	\$28.90	LF3040B	\$32.90
.040"	.200"	.400"	1/8"	2-1/2"	LF3040L	\$28.90	LF3040LB	\$32.90
.045"	.250"	.400"	1/8"	2-1/2"	LF3045	\$28.90	LF3045B	\$32.90
.045"	.250"	.450"	1/8"	2-1/2"	LF3045L	\$28.90	LF3045LB	\$32.90
.047" (3/64)	.250"	.400"	1/8"	2-1/2"	LF3047	\$28.90	LF3047B	\$32.90
.047" (3/64)	.250"	.500"	1/8"	2-1/2"	LF3047L	\$32.90	LF3047LB	\$35.90
.050"	.300"	.500"	1/8"	2-1/2"	LF3050	\$28.90	LF3050B	\$32.90
.055"	.375"	.600"	1/8"	2-1/2"	LF3055	\$28.90	LF3055B	\$32.90
.060"	.500"	.750"	1/8"	2-1/2"	LF3060	\$28.90	LF3060B	\$32.90
.060"	.500"	1.00"	1/8"	2-1/2"	LF3060L	\$32.90	LF3060LB	\$35.90
.062" (1/16)	.500"	.750"	1/8"	2-1/2"	LF3062	\$28.90	LF3062B	\$32.90
.062" (1/16)	.500"	1.00"	1/8"	2-1/2"	LF3062L	\$32.90	LF3062LB	\$35.90
.065"	.500"	.750"	1/8"	2-1/2"	LF3065	\$28.90	LF3065B	\$32.90
.070"	.500"	.750"	1/8"	2-1/2"	LF3070	\$28.90	LF3070B	\$32.90
.075"	.500"	.750"	1/8"	2-1/2"	LF3075	\$28.90	LF3075B	\$32.90
.078" (5/64)	.500"	.750"	1/8"	2-1/2"	LF3078	\$28.90	LF3078B	\$32.90
.078" (5/64)	.500"	1.00"	1/8"	2-1/2"	LF3078L	\$32.90	LF3078LB	\$35.90
.090"	.500"	.750"	1/8"	2-1/2"	LF3090S	\$28.90	LF3090BS	\$32.90
.090"	.500"	1.00"	1/8"	2-1/2"	LF3090	\$32.90	LF3090B	\$35.90
.093" (3/32)	.500"	.750"	1/8"	2-1/2"	LF3093S	\$28.90	LF3093BS	\$32.90
.093" (3/32)	.500"	1.00"	1/8"	2-1/2"	LF3093	\$32.90	LF3093B	\$35.90
.125" (1/8)	.750"	1.25"	1/8"	3"	LF3125	\$27.90	LF3125B	\$31.90
.125" (1/8)	1.00"	1.50"	1/8"	3"	LF3125L	\$29.90	LF3125LB	\$33.90



LONG FLUTE - 4-FLUTE

Square & Ball End - AITiN COATED - 1/64" to 1/4"



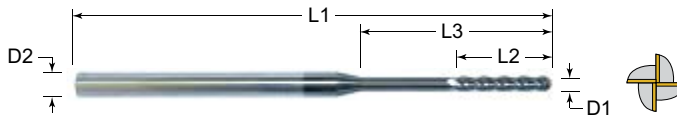
Length of Cut as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	1/8"	2-1/2"	LF5015	\$33.90	LF5015B	\$37.90
.020"	.100"	1/8"	2-1/2"	LF5020	\$29.90	LF5020B	\$33.90
.025"	.125"	1/8"	2-1/2"	LF5025	\$28.90	LF5025B	\$32.90
.030"	.150"	1/8"	2-1/2"	LF5030	\$27.90	LF5030B	\$31.90
.031" (1/32)	.150"	1/8"	2-1/2"	LF5031	\$27.90	LF5031B	\$31.90
.031" (1/32)	.250"	1/8"	2-1/2"	LF5031L	\$44.50	LF5031LB	\$49.50
.035"	.175"	1/8"	2-1/2"	LF5035	\$27.90	LF5035B	\$31.90
.040"	.200"	1/8"	2-1/2"	LF5040	\$27.90	LF5040B	\$31.90
.045"	.250"	1/8"	2-1/2"	LF5045	\$27.90	LF5045B	\$31.90
.047" (3/64)	.250"	1/8"	2-1/2"	LF5047	\$27.90	LF5047B	\$31.90
.047" (3/64)	.375"	1/8"	2-1/2"	LF5047L	\$39.90	LF5047LB	\$43.90
.050"	.300"	1/8"	2-1/2"	LF5050	\$27.90	LF5050B	\$31.90
.055"	.375"	1/8"	2-1/2"	LF5055	\$27.90	LF5055B	\$31.90
.060"	.500"	1/8"	2-1/2"	LF5060	\$27.90	LF5060B	\$31.90
.062" (1/16)	.312"	1/8"	2-1/2"	LF5062S	\$26.90	LF5062SB	\$30.90
.062" (1/16)	.500"	1/8"	2-1/2"	LF5062	\$27.90	LF5062B	\$31.90
.062" (1/16)	.750"	1/8"	2-1/2"	LF5062L	\$41.90	LF5062LB	\$47.90
.065"	.500"	1/8"	2-1/2"	LF5065	\$27.90	LF5065B	\$31.90
.070"	.500"	1/8"	2-1/2"	LF5070	\$27.90	LF5070B	\$31.90
.075"	.500"	1/8"	2-1/2"	LF5075	\$27.90	LF5075B	\$31.90
.078" (5/64)	.500"	1/8"	2-1/2"	LF5078	\$27.90	LF5078B	\$31.90
.078" (5/64)	.750"	1/8"	2-1/2"	LF5078L	\$40.90	LF5078LB	\$46.90
.090"	.500"	1/8"	2-1/2"	LF5090	\$27.90	LF5090B	\$31.90
.093" (3/32)	.500"	1/8"	2-1/2"	LF5093	\$27.90	LF5093B	\$31.90
.093" (3/32)	.750"	1/8"	2-1/2"	LF5093L	\$28.90	LF5093LB	\$32.90
.100"	.625"	1/8"	2-1/2"	LF5100	\$27.90	LF5100B	\$31.90
.125"	.750"	1/8"	3"	LF5125	\$24.90	LF5125B	\$28.90
.125"	1.00"	1/8"	3"	LF5125L	\$26.90	LF5125LB	\$30.90
3/16"	1.125"	3/16"	3"	LF5187	\$25.50	LF5187B	\$28.50
1/4"	1.125"	1/4"	3"	LF5250	\$27.50	LF5250B	\$31.50
1/4"	1.500"	1/4"	4"	LF5250L	\$28.50	LF5250LB	\$32.50

LONG FLUTE - LONG REACH - 4-FLUTE



Square & Ball End - AITiN Coated - .015" to .125"



Length of Cut as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Square End	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	.150"	1/8"	2-1/2"	LF6015	\$39.90	LF6015B	\$43.90
.020"	.100"	.200"	1/8"	2-1/2"	LF6020	\$35.90	LF6020B	\$39.90
.020"	.100"	.250"	1/8"	2-1/2"	LF6020L	\$35.90	LF6020LB	\$39.90
.025"	.125"	.250"	1/8"	2-1/2"	LF6025	\$34.90	LF6025B	\$38.90
.030"	.150"	.250"	1/8"	2-1/2"	LF6030	\$33.90	LF6030B	\$37.90
.030"	.150"	.300"	1/8"	2-1/2"	LF6030L	\$33.90	LF6030LB	\$37.90
.031" (1/32)	.150"	.250"	1/8"	2-1/2"	LF6031	\$33.90	LF6031B	\$37.90
.031" (1/32)	.150"	.300"	1/8"	2-1/2"	LF6031L	\$34.90	LF6031LB	\$37.90
.035"	.175"	.300"	1/8"	2-1/2"	LF6035	\$33.90	LF6035B	\$37.90
.035"	.175"	.350"	1/8"	2-1/2"	LF6035L	\$33.90	LF6035LB	\$37.90
.040"	.200"	.350"	1/8"	2-1/2"	LF6040	\$33.90	LF6040B	\$37.90
.040"	.200"	.400"	1/8"	2-1/2"	LF6040L	\$33.90	LF6040LB	\$37.90
.045"	.250"	.400"	1/8"	2-1/2"	LF6045	\$33.90	LF6045B	\$37.90
.045"	.250"	.450"	1/8"	2-1/2"	LF6045L	\$33.90	LF6045LB	\$37.90
.047" (3/64)	.250"	.400"	1/8"	2-1/2"	LF6047	\$33.90	LF6047B	\$37.90
.047" (3/64)	.250"	.500"	1/8"	2-1/2"	LF6047L	\$37.90	LF6047LB	\$40.90
.050"	.300"	.500"	1/8"	2-1/2"	LF6050	\$33.90	LF6050B	\$37.90
.055"	.375"	.600"	1/8"	2-1/2"	LF6055	\$33.90	LF6055B	\$37.90
.060"	.500"	.750"	1/8"	2-1/2"	LF6060	\$33.90	LF6060B	\$37.90
.060"	.500"	1.00"	1/8"	2-1/2"	LF6060L	\$37.90	LF6060LB	\$40.90
.062" (1/16)	.500"	.750"	1/8"	2-1/2"	LF6062	\$33.90	LF6062B	\$37.90
.062" (1/16)	.500"	1.00"	1/8"	2-1/2"	LF6062L	\$37.90	LF6062LB	\$40.90
.065"	.500"	.750"	1/8"	2-1/2"	LF6065	\$33.90	LF6065B	\$37.90
.070"	.500"	.750"	1/8"	2-1/2"	LF6070	\$33.90	LF6070B	\$37.90
.075"	.500"	.750"	1/8"	2-1/2"	LF6075	\$33.90	LF6075B	\$37.90
.078" (5/64)	.500"	.750"	1/8"	2-1/2"	LF6078	\$33.90	LF6078B	\$37.90
.078" (5/64)	.500"	1.00"	1/8"	2-1/2"	LF6078L	\$37.90	LF6078LB	\$40.90
.090"	.500"	.750"	1/8"	2-1/2"	LF6090S	\$33.90	LF6090BS	\$37.90
.090"	.500"	1.00"	1/8"	2-1/2"	LF6090	\$37.90	LF6090B	\$40.90
.093" (3/32)	.500"	.750"	1/8"	2-1/2"	LF6093S	\$33.90	LF6093BS	\$37.90
.093" (3/32)	.500"	1.00"	1/8"	2-1/2"	LF6093	\$37.90	LF6093B	\$40.90
.125" (1/8)	.750"	1.25"	1/8"	3"	LF6125	\$32.90	LF6125B	\$36.90
.125" (1/8)	1.00"	1.50"	1/8"	3"	LF6125L	\$34.90	LF6125LB	\$38.90



STUB – LONG SHANK – 4-FLUTE

Square & Ball End - UNCOATED - .015" to .125"



Length of Cut = 2 x Diameter – Center Cutting – Micro Grain Carbide – Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015"	.030"	1/8"	2-1/2"	SF4015	\$25.90	SF4015B	\$29.90
.020"	.040"	1/8"	2-1/2"	SF4020	\$23.90	SF4020B	\$27.90
.025"	.050"	1/8"	2-1/2"	SF4025	\$22.90	SF4025B	\$26.90
.030"	.060"	1/8"	2-1/2"	SF4030	\$21.90	SF4030B	\$25.90
.031"	.062"	1/8"	2-1/2"	SF4031	\$21.90	SF4031B	\$25.90
.035"	.070"	1/8"	2-1/2"	SF4035	\$21.90	SF4035B	\$25.90
.040"	.080"	1/8"	2-1/2"	SF4040	\$21.90	SF4040B	\$25.90
.045"	.090"	1/8"	2-1/2"	SF4045	\$21.90	SF4045B	\$25.90
.047"	.094"	1/8"	2-1/2"	SF4047	\$21.90	SF4047B	\$25.90
.050"	.100"	1/8"	2-1/2"	SF4050	\$21.90	SF4050B	\$25.90
.060"	.120"	1/8"	2-1/2"	SF4060	\$21.90	SF4060B	\$25.90
.062"	.125"	1/8"	2-1/2"	SF4062	\$21.90	SF4062B	\$25.90
.065"	.130"	1/8"	2-1/2"	SF4065	\$21.90	SF4065B	\$25.90
.070"	.140"	1/8"	2-1/2"	SF4070	\$21.90	SF4070B	\$25.90
.075"	.150"	1/8"	2-1/2"	SF4075	\$21.90	SF4075B	\$25.90
.078"	.156"	1/8"	2-1/2"	SF4078	\$21.90	SF4078B	\$25.90
.090"	.180"	1/8"	2-1/2"	SF4090	\$21.90	SF4090B	\$25.90
.093"	.186"	1/8"	2-1/2"	SF4093	\$21.90	SF4093B	\$25.90
.125"	.250"	1/8"	2-1/2"	SF4125	\$21.90	SF4125B	\$25.90

Need Carbide Micro Drills for non-ferrous materials?

See pages 140 to 141.

Designed for drilling in a wide variety of materials, including brass, aluminum, aluminum alloys, copper, and plastics.

- Size Range: .00197" (.05mm) – .0787" (2.0mm)
- Cutter Diameter Tolerance: +0/-.0003"
- 135 Degree Point – 1/8" Shank – 1-1/2" OAL



STUB - LONG SHANK - 4-FLUTE



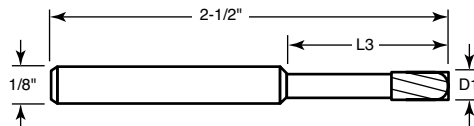
Square & Ball End - AITiN COATED - .015" to .125"



Length of Cut = 2 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015"	.030"	1/8"	2-1/2"	SF5015	\$29.90	SF5015B	\$33.90
.020"	.040"	1/8"	2-1/2"	SF5020	\$27.90	SF5020B	\$31.90
.025"	.050"	1/8"	2-1/2"	SF5025	\$25.90	SF5025B	\$29.90
.030"	.060"	1/8"	2-1/2"	SF5030	\$25.90	SF5030B	\$29.90
.031"	.062"	1/8"	2-1/2"	SF5031	\$25.90	SF5031B	\$29.90
.035"	.070"	1/8"	2-1/2"	SF5035	\$25.90	SF5035B	\$29.90
.040"	.080"	1/8"	2-1/2"	SF5040	\$25.90	SF5040B	\$29.90
.045"	.090"	1/8"	2-1/2"	SF5045	\$25.90	SF5045B	\$29.90
.047"	.094"	1/8"	2-1/2"	SF5047	\$25.90	SF5047B	\$29.90
.050"	.100"	1/8"	2-1/2"	SF5050	\$25.90	SF5050B	\$29.90
.060"	.120"	1/8"	2-1/2"	SF5060	\$25.90	SF5060B	\$29.90
.062"	.125"	1/8"	2-1/2"	SF5062	\$25.90	SF5062B	\$29.90
.065"	.130"	1/8"	2-1/2"	SF5065	\$25.90	SF5065B	\$29.90
.070"	.140"	1/8"	2-1/2"	SF5070	\$25.90	SF5070B	\$29.90
.075"	.150"	1/8"	2-1/2"	SF5075	\$25.90	SF5075B	\$29.90
.078"	.156"	1/8"	2-1/2"	SF5078	\$25.90	SF5078B	\$29.90
.090"	.180"	1/8"	2-1/2"	SF5090	\$25.90	SF5090B	\$29.90
.093"	.186"	1/8"	2-1/2"	SF5093	\$25.90	SF5093B	\$29.90
.125"	.250"	1/8"	2-1/2"	SF5125	\$25.90	SF5125B	\$29.90

ORDER SPECIAL Square & Ball End 4-Flute Stub LONG REACH MILLS



To order special long reach 4-flute stub end mills please specify:

1. Specify: ☐ Square End or ☐ Ball End.
2. Diameter (D1): _____ From above chart.
3. Overall Reach (L3): _____
4. Quantity (Minimum 6): _____

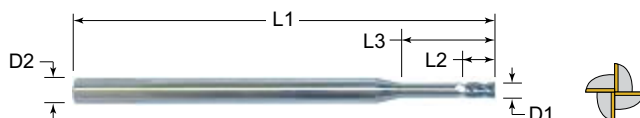
**Special Reaches
Shipped
within
24-48 Hours!**

Tools are custom manufactured to order and are nonreturnable.



STUB - LG SHANK - LG REACH - 4-FLT

Square & Ball End - UNCOATED - .015" TO .047"



Length of Cut = 2 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.030"	.100"	1/8"	2-1/2"	SF3015-1	\$31.50	SF3015B-1	\$39.50
.015"	.030"	.125"	1/8"	2-1/2"	SF3015-2	\$31.50	SF3015B-2	\$39.50
.015"	.030"	.150"	1/8"	2-1/2"	SF3015-3	\$31.50	SF3015B-3	\$39.50
.015"	.030"	.175"	1/8"	2-1/2"	SF3015-4	\$32.50	SF3015B-4	\$40.50
.015"	.030"	.200"	1/8"	2-1/2"	SF3015-5	\$35.50	SF3015B-5	\$43.50
.020"	.040"	.100"	1/8"	2-1/2"	SF3020-1	\$29.90	SF3020B-1	\$36.90
.020"	.040"	.150"	1/8"	2-1/2"	SF3020-2	\$29.90	SF3020B-2	\$36.90
.020"	.040"	.200"	1/8"	2-1/2"	SF3020-3	\$31.50	SF3020B-3	\$38.90
.020"	.040"	.250"	1/8"	2-1/2"	SF3020-4	\$31.50	SF3020B-4	\$38.90
.025"	.050"	.125"	1/8"	2-1/2"	SF3025-1	\$28.90	SF3025B-1	\$32.90
.025"	.050"	.200"	1/8"	2-1/2"	SF3025-2	\$28.90	SF3025B-2	\$32.90
.025"	.050"	.250"	1/8"	2-1/2"	SF3025-3	\$28.90	SF3025B-3	\$32.90
.030"	.060"	.150"	1/8"	2-1/2"	SF3030-1	\$28.90	SF3030B-1	\$32.90
.030"	.060"	.200"	1/8"	2-1/2"	SF3030-2	\$28.90	SF3030B-2	\$32.90
.030"	.060"	.250"	1/8"	2-1/2"	SF3030-3	\$28.90	SF3030B-3	\$32.90
.030"	.060"	.300"	1/8"	2-1/2"	SF3030-4	\$29.90	SF3030B-4	\$33.90
.031"	.062"	.150"	1/8"	2-1/2"	SF3031-1	\$28.90	SF3031B-1	\$32.90
.031"	.062"	.200"	1/8"	2-1/2"	SF3031-2	\$28.90	SF3031B-2	\$32.90
.031"	.062"	.250"	1/8"	2-1/2"	SF3031-3	\$28.90	SF3031B-3	\$32.90
.031"	.062"	.300"	1/8"	2-1/2"	SF3031-4	\$29.90	SF3031B-4	\$33.90
.035"	.070"	.175"	1/8"	2-1/2"	SF3035-1	\$28.90	SF3035B-1	\$32.90
.035"	.070"	.225"	1/8"	2-1/2"	SF3035-2	\$28.90	SF3035B-2	\$32.90
.035"	.070"	.280"	1/8"	2-1/2"	SF3035-3	\$28.90	SF3035B-3	\$32.90
.035"	.070"	.350"	1/8"	2-1/2"	SF3035-4	\$29.90	SF3035B-4	\$33.90
.040"	.080"	.200"	1/8"	2-1/2"	SF3040-1	\$28.90	SF3040B-1	\$32.90
.040"	.080"	.260"	1/8"	2-1/2"	SF3040-2	\$28.90	SF3040B-2	\$32.90
.040"	.080"	.325"	1/8"	2-1/2"	SF3040-3	\$28.90	SF3040B-3	\$32.90
.040"	.080"	.400"	1/8"	2-1/2"	SF3040-4	\$29.50	SF3040B-4	\$33.50
.045"	.090"	.225"	1/8"	2-1/2"	SF3045-1	\$28.50	SF3045B-1	\$32.50
.045"	.090"	.300"	1/8"	2-1/2"	SF3045-2	\$28.50	SF3045B-2	\$32.50
.045"	.090"	.375"	1/8"	2-1/2"	SF3045-3	\$28.50	SF3045B-3	\$32.50
.045"	.090"	.450"	1/8"	2-1/2"	SF3045-4	\$29.50	SF3045B-4	\$33.50
.047"	.094"	.250"	1/8"	2-1/2"	SF3047-1	\$28.50	SF3047B-1	\$32.50
.047"	.094"	.310"	1/8"	2-1/2"	SF3047-2	\$28.50	SF3047B-2	\$32.50
.047"	.094"	.375"	1/8"	2-1/2"	SF3047-3	\$28.50	SF3047B-3	\$32.50
.047"	.094"	.450"	1/8"	2-1/2"	SF3047-4	\$28.50	SF3047B-4	\$32.50
.047"	.094"	.500"	1/8"	2-1/2"	SF3047-5	\$29.50	SF3047B-5	\$33.50

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STUB – LG SHANK – LG REACH – 4-FLT



Continued from previous page:

Square & Ball End - Uncoated Size Range: .050" to .125"



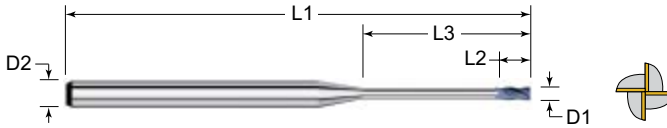
Tools feature an undercut neck
for clearance.

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.050"	.100"	.250"	1/8"	2-1/2"	SF3050-1	\$28.50	SF3050B-1	\$32.50
.050"	.100"	.400"	1/8"	2-1/2"	SF3050-2	\$28.50	SF3050B-2	\$32.50
.050"	.100"	.500"	1/8"	2-1/2"	SF3050-3	\$29.50	SF3050B-3	\$33.50
.060"	.120"	.300"	1/8"	2-1/2"	SF3060-1	\$28.50	SF3060B-1	\$32.50
.060"	.120"	.400"	1/8"	2-1/2"	SF3060-2	\$28.50	SF3060B-2	\$32.50
.060"	.120"	.500"	1/8"	2-1/2"	SF3060-3	\$28.50	SF3060B-3	\$32.50
.062"	.125"	.325"	1/8"	2-1/2"	SF3062-1	\$28.50	SF3062B-1	\$32.50
.062"	.125"	.400"	1/8"	2-1/2"	SF3062-2	\$28.50	SF3062B-2	\$32.50
.062"	.125"	.475"	1/8"	2-1/2"	SF3062-3	\$28.50	SF3062B-3	\$32.50
.062"	.125"	.550"	1/8"	2-1/2"	SF3062-4	\$28.50	SF3062B-4	\$32.50
.062"	.125"	.625"	1/8"	2-1/2"	SF3062-5	\$29.50	SF3062B-5	\$33.50
.065"	.130"	.350"	1/8"	2-1/2"	SF3065-1	\$28.50	SF3065B-1	\$32.50
.065"	.130"	.500"	1/8"	2-1/2"	SF3065-2	\$28.50	SF3065B-2	\$32.50
.065"	.130"	.650"	1/8"	2-1/2"	SF3065-3	\$29.50	SF3065B-3	\$33.50
.070"	.140"	.350"	1/8"	2-1/2"	SF3070-1	\$28.50	SF3070B-1	\$32.50
.070"	.140"	.450"	1/8"	2-1/2"	SF3070-2	\$28.50	SF3070B-2	\$32.50
.070"	.140"	.550"	1/8"	2-1/2"	SF3070-3	\$28.50	SF3070B-3	\$32.50
.070"	.140"	.650"	1/8"	2-1/2"	SF3070-4	\$29.50	SF3070B-4	\$33.50
.075"	.150"	.375"	1/8"	2-1/2"	SF3075-1	\$28.50	SF3075B-1	\$32.50
.075"	.150"	.475"	1/8"	2-1/2"	SF3075-2	\$28.50	SF3075B-2	\$32.50
.075"	.150"	.625"	1/8"	2-1/2"	SF3075-3	\$28.50	SF3075B-3	\$32.50
.075"	.150"	.750"	1/8"	2-1/2"	SF3075-4	\$29.50	SF3075B-4	\$33.50
.078"	.156"	.400"	1/8"	2-1/2"	SF3078-1	\$28.50	SF3078B-1	\$32.50
.078"	.156"	.500"	1/8"	2-1/2"	SF3078-2	\$28.50	SF3078B-2	\$32.50
.078"	.156"	.625"	1/8"	2-1/2"	SF3078-3	\$28.50	SF3078B-3	\$32.50
.078"	.156"	.750"	1/8"	2-1/2"	SF3078-4	\$29.50	SF3078B-4	\$33.50
.090"	.180"	.450"	1/8"	2-1/2"	SF3090-1	\$28.50	SF3090B-1	\$32.50
.090"	.180"	.550"	1/8"	2-1/2"	SF3090-2	\$28.50	SF3090B-2	\$32.50
.090"	.180"	.650"	1/8"	2-1/2"	SF3090-3	\$28.50	SF3090B-3	\$32.50
.090"	.180"	.750"	1/8"	2-1/2"	SF3090-4	\$29.50	SF3090B-4	\$33.50
.093"	.186"	.500"	1/8"	2-1/2"	SF3093-1	\$28.50	SF3093B-1	\$32.50
.093"	.186"	.600"	1/8"	2-1/2"	SF3093-2	\$28.50	SF3093B-2	\$32.50
.093"	.186"	.750"	1/8"	2-1/2"	SF3093-3	\$28.50	SF3093B-3	\$32.50
.093"	.186"	.900"	1/8"	2-1/2"	SF3093-4	\$29.50	SF3093B-4	\$33.50
.125"	.250"	.750"	1/8"	2-1/2"	SF3125-1	\$28.50	SF3125B-1	\$32.50
.125"	.250"	1.000"	1/8"	2-1/2"	SF3125-2	\$28.50	SF3125B-2	\$32.50



STUB - LG SHANK - LG REACH - 4-FLT

Square & Ball End - AITiN COATED - .015" TO .047"



Length of Cut as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.030"	.100"	1/8"	2-1/2"	SF6015-1	\$35.50	SF6015B-1	\$43.50
.015"	.030"	.125"	1/8"	2-1/2"	SF6015-2	\$35.50	SF6015B-2	\$43.50
.015"	.030"	.150"	1/8"	2-1/2"	SF6015-3	\$35.50	SF6015B-3	\$43.50
.015"	.030"	.175"	1/8"	2-1/2"	SF6015-4	\$36.50	SF6015B-4	\$44.50
.015"	.030"	.200"	1/8"	2-1/2"	SF6015-5	\$39.50	SF6015B-5	\$47.50
.020"	.040"	.100"	1/8"	2-1/2"	SF6020-1	\$33.90	SF6020B-1	\$40.90
.020"	.040"	.150"	1/8"	2-1/2"	SF6020-2	\$33.90	SF6020B-2	\$40.90
.020"	.040"	.200"	1/8"	2-1/2"	SF6020-3	\$35.50	SF6020B-3	\$42.90
.020"	.040"	.250"	1/8"	2-1/2"	SF6020-4	\$35.50	SF6020B-4	\$42.90
.025"	.050"	.125"	1/8"	2-1/2"	SF6025-1	\$32.90	SF6025B-1	\$36.90
.025"	.050"	.200"	1/8"	2-1/2"	SF6025-2	\$32.90	SF6025B-2	\$36.90
.025"	.050"	.250"	1/8"	2-1/2"	SF6025-3	\$32.90	SF6025B-3	\$36.90
.030"	.060"	.150"	1/8"	2-1/2"	SF6030-1	\$32.90	SF6030B-1	\$36.90
.030"	.060"	.200"	1/8"	2-1/2"	SF6030-2	\$32.90	SF6030B-2	\$36.90
.030"	.060"	.250"	1/8"	2-1/2"	SF6030-3	\$32.90	SF6030B-3	\$36.90
.030"	.060"	.300"	1/8"	2-1/2"	SF6030-4	\$33.90	SF6030B-4	\$37.90
.031"	.062"	.150"	1/8"	2-1/2"	SF6031-1	\$32.90	SF6031B-1	\$36.90
.031"	.062"	.200"	1/8"	2-1/2"	SF6031-2	\$32.90	SF6031B-2	\$36.90
.031"	.062"	.250"	1/8"	2-1/2"	SF6031-3	\$32.90	SF6031B-3	\$36.90
.031"	.062"	.300"	1/8"	2-1/2"	SF6031-4	\$33.90	SF6031B-4	\$37.90
.035"	.070"	.175"	1/8"	2-1/2"	SF6035-1	\$32.90	SF6035B-1	\$36.90
.035"	.070"	.225"	1/8"	2-1/2"	SF6035-2	\$32.90	SF6035B-2	\$36.90
.035"	.070"	.280"	1/8"	2-1/2"	SF6035-3	\$32.90	SF6035B-3	\$36.90
.035"	.070"	.350"	1/8"	2-1/2"	SF6035-4	\$33.90	SF6035B-4	\$37.90
.040"	.080"	.200"	1/8"	2-1/2"	SF6040-1	\$32.90	SF6040B-1	\$36.90
.040"	.080"	.260"	1/8"	2-1/2"	SF6040-2	\$32.90	SF6040B-2	\$36.90
.040"	.080"	.325"	1/8"	2-1/2"	SF6040-3	\$32.90	SF6040B-3	\$36.90
.040"	.080"	.400"	1/8"	2-1/2"	SF6040-4	\$33.50	SF6040B-4	\$37.50
.045"	.090"	.225"	1/8"	2-1/2"	SF6045-1	\$32.50	SF6045B-1	\$36.50
.045"	.090"	.300"	1/8"	2-1/2"	SF6045-2	\$32.50	SF6045B-2	\$36.50
.045"	.090"	.375"	1/8"	2-1/2"	SF6045-3	\$32.50	SF6045B-3	\$36.50
.045"	.090"	.450"	1/8"	2-1/2"	SF6045-4	\$33.50	SF6045B-4	\$37.50
.047"	.094"	.250"	1/8"	2-1/2"	SF6047-1	\$32.50	SF6047B-1	\$36.50
.047"	.094"	.310"	1/8"	2-1/2"	SF6047-2	\$32.50	SF6047B-2	\$36.50
.047"	.094"	.375"	1/8"	2-1/2"	SF6047-3	\$32.50	SF6047B-3	\$36.50
.047"	.094"	.450"	1/8"	2-1/2"	SF6047-4	\$32.50	SF6047B-4	\$36.50
.047"	.094"	.500"	1/8"	2-1/2"	SF6047-5	\$33.50	SF6047B-5	\$37.50

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STUB - LG SHANK - LG REACH - 4-FLT



Continued from previous page:

Square & Ball End - AITiN COATED
Size Range: .050" to .125"



Tools feature an undercut neck
for clearance.

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.050"	.100"	.250"	1/8"	2-1/2"	SF6050-1	\$32.50	SF6050B-1	\$36.50
.050"	.100"	.400"	1/8"	2-1/2"	SF6050-2	\$32.50	SF6050B-2	\$36.50
.050"	.100"	.500"	1/8"	2-1/2"	SF6050-3	\$33.50	SF6050B-3	\$36.50
.060"	.120"	.300"	1/8"	2-1/2"	SF6060-1	\$32.50	SF6060B-1	\$36.50
.060"	.120"	.400"	1/8"	2-1/2"	SF6060-2	\$32.50	SF6060B-2	\$36.50
.060"	.120"	.500"	1/8"	2-1/2"	SF6060-3	\$32.50	SF6060B-3	\$36.50
.062"	.125"	.325"	1/8"	2-1/2"	SF6062-1	\$32.50	SF6062B-1	\$36.50
.062"	.125"	.400"	1/8"	2-1/2"	SF6062-2	\$32.50	SF6062B-2	\$36.50
.062"	.125"	.475"	1/8"	2-1/2"	SF6062-3	\$32.50	SF6062B-3	\$36.50
.062"	.125"	.550"	1/8"	2-1/2"	SF6062-4	\$32.50	SF6062B-4	\$36.50
.062"	.125"	.625"	1/8"	2-1/2"	SF6062-5	\$33.50	SF6062B-5	\$37.50
.065"	.130"	.350"	1/8"	2-1/2"	SF6065-1	\$32.50	SF6065B-1	\$36.50
.065"	.130"	.500"	1/8"	2-1/2"	SF6065-2	\$32.50	SF6065B-2	\$36.50
.065"	.130"	.650"	1/8"	2-1/2"	SF6065-3	\$33.50	SF6065B-3	\$37.50
.070"	.140"	.350"	1/8"	2-1/2"	SF6070-1	\$32.50	SF6070B-1	\$36.50
.070"	.140"	.450"	1/8"	2-1/2"	SF6070-2	\$32.50	SF6070B-2	\$36.50
.070"	.140"	.550"	1/8"	2-1/2"	SF6070-3	\$32.50	SF6070B-3	\$36.50
.070"	.140"	.650"	1/8"	2-1/2"	SF6070-4	\$33.50	SF6070B-4	\$37.50
.075"	.150"	.375"	1/8"	2-1/2"	SF6075-1	\$32.50	SF6075B-1	\$36.50
.075"	.150"	.475"	1/8"	2-1/2"	SF6075-2	\$32.50	SF6075B-2	\$36.50
.075"	.150"	.625"	1/8"	2-1/2"	SF6075-3	\$32.50	SF6075B-3	\$36.50
.075"	.150"	.750"	1/8"	2-1/2"	SF6075-4	\$33.50	SF6075B-4	\$37.50
.078"	.156"	.400"	1/8"	2-1/2"	SF6078-1	\$32.50	SF6078B-1	\$36.50
.078"	.156"	.500"	1/8"	2-1/2"	SF6078-2	\$32.50	SF6078B-2	\$36.50
.078"	.156"	.625"	1/8"	2-1/2"	SF6078-3	\$32.50	SF6078B-3	\$36.50
.078"	.156"	.750"	1/8"	2-1/2"	SF6078-4	\$33.50	SF6078B-4	\$37.50
.090"	.180"	.450"	1/8"	2-1/2"	SF6090-1	\$32.50	SF6090B-1	\$36.50
.090"	.180"	.550"	1/8"	2-1/2"	SF6090-2	\$32.50	SF6090B-2	\$36.50
.090"	.180"	.650"	1/8"	2-1/2"	SF6090-3	\$32.50	SF6090B-3	\$36.50
.090"	.180"	.750"	1/8"	2-1/2"	SF6090-4	\$33.50	SF6090B-4	\$37.50
.093"	.186"	.500"	1/8"	2-1/2"	SF6093-1	\$32.50	SF6093B-1	\$36.50
.093"	.186"	.600"	1/8"	2-1/2"	SF6093-2	\$32.50	SF6093B-2	\$36.50
.093"	.186"	.750"	1/8"	2-1/2"	SF6093-3	\$32.50	SF6093B-3	\$36.50
.093"	.186"	.900"	1/8"	2-1/2"	SF6093-4	\$33.50	SF6093B-4	\$37.50
.125"	.250"	.750"	1/8"	2-1/2"	SF6125-1	\$32.50	SF6125B-1	\$36.50
.125"	.250"	1.000"	1/8"	2-1/2"	SF6125-2	\$32.50	SF6125B-2	\$36.50



VARIABLE HELIX - 3-FLUTE

Standard Length - Square & Ball - **AlTiN COATED** - .015" to .125"



Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
.015"	.045"	1/8"	1-1/2"	59615	\$34.50	59615B	\$38.50
.020"	.060"	1/8"	1-1/2"	59620	\$31.50	59620B	\$35.50
.025"	.075"	1/8"	1-1/2"	59625	\$31.50	59625B	\$35.50
.031"	.093"	1/8"	1-1/2"	59631	\$25.50	59631B	\$29.50
.035"	.105"	1/8"	1-1/2"	59635	\$25.50	59635B	\$29.50
.040"	.120"	1/8"	1-1/2"	59640	\$25.50	59640B	\$29.50
.047"	.141"	1/8"	1-1/2"	59647	\$24.50	59647B	\$28.50
.062"	.186"	1/8"	1-1/2"	59662	\$24.50	59662B	\$28.50
.078"	.234"	1/8"	1-1/2"	59678	\$24.50	59678B	\$28.50
.093"	.279"	1/8"	1-1/2"	59693	\$24.50	59693B	\$28.50
.125"(1/8")	.375"	1/8"	1-1/2"	59612	\$24.50	59612B	\$28.50

CUTTER DIAMETER TOLERANCE: DECIMAL SIZES +/- .0005" - FRACTIONAL SIZES: +000"/-.002"

Locate Your Distributor

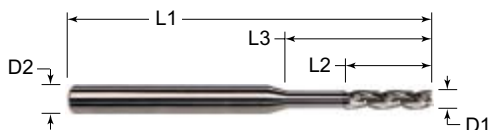


Microcut products are sold by cutting tool distributors in the U.S. and Canada. These distributors are selected because of their expertise in cutting tools and are available to assist you in your standard and special cutting tools. It's easy to locate a local distributor. Just visit our website at www.microcutUSA.com and select "Locate a Distributor". Enter your Zip code, or select your state in the U.S. or province in Canada and chose a distributor that can process your order quickly and forward it on to the Microcut Sales Dept. We will process your order and ship the tools directly to you on the same day from our warehouse, or manufacture the specialty product as listed in the catalog within the lead time published or quoted.

VARIABLE HELIX - LONG REACH - 3-FLUTE



Long Reach - Square & Ball - AITiN COATED - .015" to .125"



Minimum
3 Tools
Each Size

**Shipped
Within 24-48
Hours**

Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
.015"	.045"	.080"	1/8"	1-1/2"	3315-080	\$42.90	3415-080	\$46.90
.015"	.045"	.125"	1/8"	1-1/2"	3315-125	\$44.90	3415-125	\$48.90
.020"	.060"	.100"	1/8"	1-1/2"	3320-100	\$41.50	3420-100	\$45.50
.020"	.060"	.150"	1/8"	1-1/2"	3320-150	\$41.50	3420-150	\$45.50
.025"	.075"	.125"	1/8"	1-1/2"	3325-125	\$41.50	3425-125	\$45.50
.025"	.075"	.175"	1/8"	1-1/2"	3325-175	\$41.50	3425-175	\$45.50
.031"	.093"	.150"	1/8"	1-1/2"	3331-150	\$36.90	3431-150	\$40.90
.031"	.093"	.200"	1/8"	1-1/2"	3331-200	\$36.90	3431-200	\$40.90
.031"	.093"	.250"	1/8"	1-1/2"	3331-250	\$37.90	3431-250	\$41.90
.035"	.105"	.200"	1/8"	1-1/2"	3335-200	\$36.90	3435-200	\$40.90
.035"	.105"	.250"	1/8"	1-1/2"	3335-250	\$37.90	3435-250	\$41.90
.040"	.120"	.200"	1/8"	1-1/2"	3340-200	\$36.90	3440-200	\$40.90
.040"	.120"	.275"	1/8"	1-1/2"	3340-275	\$37.90	3440-345	\$41.90
.047"	.141"	.250"	1/8"	1-1/2"	3347-250	\$36.90	3447-250	\$40.90
.047"	.141"	.350"	1/8"	1-1/2"	3347-350	\$36.90	3447-350	\$40.90
.062"	.186"	.400"	1/8"	1-1/2"	3362-400	\$34.50	3462-400	\$38.50
.062"	.186"	.500"	1/8"	1-1/2"	3362-500	\$34.50	3462-500	\$40.50
.062"	.186"	.600"	1/8"	1-1/2"	3362-600	\$36.50	3462-600	\$40.50
.078"	.234"	.400"	1/8"	1-1/2"	3378-400	\$34.50	3478-400	\$38.50
.078"	.234"	.500"	1/8"	1-1/2"	3378-500	\$34.50	3478-500	\$38.50
.078"	.234"	.600"	1/8"	1-1/2"	3378-600	\$36.50	3478-600	\$40.50
.093"	.279"	.500"	1/8"	1-1/2"	3393-500	\$36.50	3493-500	\$40.50
.093"	.279"	.600"	1/8"	1-1/2"	3363-600	\$36.50	3463-600	\$40.50
.125"(1/8")	.375"	.650"	1/8"	1-1/2"	3325-650	\$34.50	3425-650	\$38.50

Tools are custom manufactured to order and are nonreturnable.



VARIABLE HELIX - CORNER RAD - 3-FLUTE

Stub & Standard LOC - **AlTiN COATED** - .015" to .125"



Corner radius helps prevent chipping at corners at high feeds and speeds.

Multiple Lengths of Cut - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.023"	.003"	1/8"	1-1/2"	59705	\$34.50
.015"	.045"	.003"	1/8"	1-1/2"	59715	\$36.50
.020"	.030"	.005"	1/8"	1-1/2"	59702	\$31.50
.020"	.060"	.005"	1/8"	1-1/2"	59720	\$31.50
.025"	.038"	.005"	1/8"	1-1/2"	59725	\$31.50
.025"	.075"	.005"	1/8"	1-1/2"	59735	\$31.50
.031"	.046"	.005"	1/8"	1-1/2"	59701	\$25.50
.031"	.093"	.005"	1/8"	1-1/2"	59731	\$25.50
.040"	.060"	.005"	1/8"	1-1/2"	59704	\$25.50
.040"	.120"	.005"	1/8"	1-1/2"	59740	\$25.50
.047"	.070"	.005"	1/8"	1-1/2"	59707	\$25.50
.047"	.141"	.005"	1/8"	1-1/2"	59747	\$25.50
.062"	.093"	.005"	1/8"	1-1/2"	59762	\$24.50
.062"	.186"	.005"	1/8"	1-1/2"	59772	\$24.50
.062"	.093"	.010"	1/8"	1-1/2"	59782	\$24.50
.062"	.186"	.010"	1/8"	1-1/2"	59792	\$24.50
.078"	.117"	.005"	1/8"	1-1/2"	59708	\$24.50
.078"	.234"	.005"	1/8"	1-1/2"	59718	\$24.50
.078"	.117"	.010"	1/8"	1-1/2"	59728	\$24.50
.078"	.234"	.010"	1/8"	1-1/2"	59778	\$24.50
.093"	.139"	.005"	1/8"	1-1/2"	59703	\$24.50
.093"	.279"	.005"	1/8"	1-1/2"	59723	\$24.50
.093"	.139"	.010"	1/8"	1-1/2"	59733	\$24.50
.093"	.279"	.010"	1/8"	1-1/2"	59793	\$24.50
.125"	.187"	.015"	1/8"	1-1/2"	59712	\$24.50
.125"	.375"	.015"	1/8"	1-1/2"	59722	\$24.50

STUB - CORNER RAD - LONG RCH - 3-FLT



Stub - Corner Radius - AITiN COATED - .015" to .125"



Minimum
3 Tools
Each Size

**Shipped
Within 24-48
Hours**

Flute Length = 1.5 x Diameter or as specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	L3 Reach From Tip	D2 Shank Dia.	L1 Over All Length	Tool Number	Price Each
.015"	.023"	.003"	.080"	1/8"	1-1/2"	59705-080	\$42.90
.015"	.023"	.003"	.125"	1/8"	1-1/2"	59705-125	\$44.90
.020"	.030"	.005"	.100"	1/8"	1-1/2"	59702-100	\$41.50
.020"	.030"	.005"	.150"	1/8"	1-1/2"	59702-150	\$41.50
.025"	.038"	.005"	.125"	1/8"	1-1/2"	59725-125	\$41.50
.025"	.038"	.005"	.175"	1/8"	1-1/2"	59725-175	\$41.50
.031"	.046"	.005"	.150"	1/8"	1-1/2"	59701-150	\$36.90
.031"	.046"	.005"	.200"	1/8"	1-1/2"	59701-200	\$36.90
.031"	.046"	.005"	.250"	1/8"	1-1/2"	59701-250	\$37.90
.040"	.060"	.005"	.200"	1/8"	1-1/2"	59704-200	\$36.90
.040"	.060"	.005"	.275"	1/8"	1-1/2"	59704-275	\$36.90
.047"	.070"	.005"	.250"	1/8"	1-1/2"	59707-250	\$36.90
.047"	.070"	.005"	.350"	1/8"	1-1/2"	59707-350	\$36.90
.062"	.093"	.005"	.400"	1/8"	1-1/2"	59762-400	\$34.50
.062"	.093"	.005"	.500"	1/8"	1-1/2"	59762-500	\$34.50
.062"	.093"	.005"	.600"	1/8"	1-1/2"	59762-600	\$36.50
.062"	.093"	.010"	.400"	1/8"	1-1/2"	59782-400	\$34.50
.062"	.093"	.010"	.500"	1/8"	1-1/2"	59782-500	\$34.50
.062"	.093"	.010"	.600"	1/8"	1-1/2"	59782-600	\$36.50
.078"	.117"	.005"	.400"	1/8"	1-1/2"	59708-400	\$34.50
.078"	.117"	.005"	.500"	1/8"	1-1/2"	59708-500	\$34.50
.078"	.117"	.005"	.600"	1/8"	1-1/2"	59708-600	\$36.50
.078"	.117"	.010"	.400"	1/8"	1-1/2"	59728-400	\$34.50
.078"	.117"	.010"	.500"	1/8"	1-1/2"	59728-500	\$34.50
.078"	.117"	.010"	.600"	1/8"	1-1/2"	59728-600	\$36.50
.093"	.139"	.005"	.500"	1/8"	1-1/2"	59703-500	\$34.50
.093"	.139"	.005"	.650"	1/8"	1-1/2"	59703-650	\$36.50
.093"	.139"	.010"	.500"	1/8"	1-1/2"	59733-500	\$34.50
.093"	.139"	.010"	.650"	1/8"	1-1/2"	59733-650	\$36.50
.125"(1/8")	.187"	.015"	.650"	1/8"	1-1/2"	59712-650	\$36.50

Tools are custom manufactured to order and are nonreturnable.

Note: Standard 3X L.O.C. are also available with the above reach lengths at the same pricing above.
Contact sales@microcutUSA.com or call 1-866-426-3300 for additional information.

**TOLL FREE 866-426-3300
FAX 781-582-8095**

Microcut



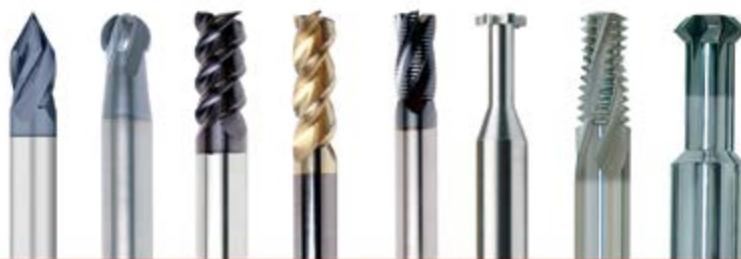
VARIABLE HELIX - LG SHK - LG FLT - 3-FLT

Square & Ball End - AITiN COATED - .015" to .125"



Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
.015" (1/64)	.075"	1/8"	2-1/2"	LV2015	\$32.90	LV2015B	\$36.90
.020"	.100"	1/8"	2-1/2"	LV2020	\$28.75	LV2020B	\$34.50
.025"	.125"	1/8"	2-1/2"	LV2025	\$27.50	LV2025B	\$30.90
.031" (1/32)	.156"	1/8"	2-1/2"	LV2031	\$26.50	LV2031B	\$30.25
.040"	.200"	1/8"	2-1/2"	LV2040	\$26.50	LV2040B	\$30.25
.045"	.225"	1/8"	2-1/2"	LV2045	\$26.50	LV2045B	\$30.25
.047" (3/64)	.250"	1/8"	2-1/2"	LV2047	\$26.50	LV2047B	\$30.25
.060"	.310"	1/8"	2-1/2"	LV2060S	\$24.50	LV2060SB	\$27.90
.060"	.500"	1/8"	2-1/2"	LV2060	\$26.50	LV2060B	\$25.90
.062" (1/16)	.312"	1/8"	2-1/2"	LV2062S	\$24.50	LV2062SB	\$27.90
.062" (1/16)	.500"	1/8"	2-1/2"	LV2062	\$26.50	LV2062B	\$29.90
.078" (5/64)	.500"	1/8"	2-1/2"	LV2078	\$25.50	LV2078B	\$29.90
.093" (3/32)	.500"	1/8"	2-1/2"	LV2093	\$25.50	LV2093B	\$29.90
.118" (3mm)	.625"	1/8"	2-1/2"	LV2018	\$25.50	LV2018B	\$29.90
.125" (1/8)	.625"	1/8"	2-1/2"	LV2012S	\$24.50	LV2012SB	\$27.90
.125" (1/8)	.750"	1/8"	2-1/2"	LV2012	\$25.50	LV2012B	\$28.90



Microcut continues to lead the way in new product development for today's CNC tooling requirements.

VAR HELIX - LG RCH - LG FLT - LG SHK - 3-FLT



Square & Ball End - AITiN COATED - 2-1/2" OAL - .015" to .125"



Tools feature an undercut neck for clearance.



Minimum
3 Tools
Each Size

**Shipped
Within 24-48
Hours**

Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	.125"	1/8"	2-1/2"	3515-125	\$37.90	3615-125	\$43.90
.015" (1/64)	.075"	.175"	1/8"	2-1/2"	3515-175	\$37.90	3615-175	\$43.90
.020"	.100"	.150"	1/8"	2-1/2"	3520-150	\$33.90	3620-150	\$39.90
.020"	.100"	.200"	1/8"	2-1/2"	3520-200	\$35.90	3620-200	\$41.90
.025"	.125"	.200"	1/8"	2-1/2"	3525-200	\$32.90	3625-200	\$36.90
.025"	.125"	.250"	1/8"	2-1/2"	3525-250	\$33.90	3625-250	\$37.90
.031" (1/32)	.150"	.250"	1/8"	2-1/2"	3531-250	\$32.90	3631-250	\$36.90
.031" (1/32)	.150"	.300"	1/8"	2-1/2"	3531-300	\$35.90	3631-300	\$39.90
.040"	.200"	.350"	1/8"	2-1/2"	3540-350	\$32.90	3640-350	\$36.90
.040"	.200"	.400"	1/8"	2-1/2"	3540-400	\$32.90	3640-400	\$36.90
.045"	.225"	.350"	1/8"	2-1/2"	3545-350	\$32.90	3645-350	\$36.90
.045"	.225"	.400"	1/8"	2-1/2"	3545-400	\$32.90	3645-400	\$36.90
.047" (3/64)	.250"	.400"	1/8"	2-1/2"	3547-400	\$32.90	3647-400	\$36.90
.047" (3/64)	.250"	.500"	1/8"	2-1/2"	3547-500	\$36.90	3647-500	\$40.90
.060"	.500"	.650"	1/8"	2-1/2"	3560-650	\$32.90	3660-650	\$36.90
.060"	.500"	.750"	1/8"	2-1/2"	3560-750	\$32.90	3660-750	\$36.90
.062" (1/16)	.500"	.650"	1/8"	2-1/2"	3562-650	\$32.90	3662-650	\$36.90
.062" (1/16)	.500"	.750"	1/8"	2-1/2"	3562-750	\$32.90	3662-750	\$36.90
.062" (1/16)	.500"	.850"	1/8"	2-1/2"	3562-850	\$34.90	3662-850	\$38.90
.062" (1/16)	.500"	1.00"	1/8"	2-1/2"	3562-100	\$36.90	3662-100	\$40.90
.078" (5/64)	.500"	.750"	1/8"	2-1/2"	3578-750	\$32.90	3678-750	\$36.90
.078" (5/64)	.500"	.850"	1/8"	2-1/2"	3578-850	\$34.90	3678-850	\$38.90
.078" (5/64)	.500"	1.00"	1/8"	2-1/2"	3578-100	\$36.90	3678-100	\$40.90
.093" (3/32)	.500"	.750"	1/8"	2-1/2"	3593-750	\$32.90	3693-750	\$36.90
.093" (3/32)	.500"	.850"	1/8"	2-1/2"	3593-850	\$34.90	3693-850	\$38.90
.093" (3/32)	.500"	1.00"	1/8"	2-1/2"	3593-100	\$36.90	3693-100	\$40.90
.125" (1/8)	.750"	1.25"	1/8"	2-1/2"	3512-750	\$32.90	3612-750	\$36.90
.125" (1/8)	1.00"	1.50"	1/8"	2-1/2"	3512-100	\$32.90	3612-100	\$36.90

Tools are custom manufactured to order and are nonreturnable.



VHLX - STUB - CRN RAD - LG RCH & SHK - 3-FLT

Stub - Corner Radius - AITiN COATED - .015" to .078"



Minimum
3 Tools
Each Size

**Shipped
Within 24-48
Hours**

Flute Length = 1.5 x Diameter or as specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter +/- .0005"	R Corner Radius +/- .001"	L2 Length of Cut +.010"- .000"	L3 Reach From Tip	D2 Shank Dia.	L1 Over All Length	Tool Number	Price Each
.015"	.003"	.023"	.080"	1/8"	2-1/2"	3015-080	\$44.90
.015"	.003"	.023"	.125"	1/8"	2-1/2"	3015-125	\$44.90
.020"	.005"	.030"	.100"	1/8"	2-1/2"	3020-100	\$39.90
.020"	.005"	.030"	.150"	1/8"	2-1/2"	3020-150	\$39.90
.025"	.005"	.038"	.100"	1/8"	2-1/2"	3025-100	\$39.90
.025"	.005"	.038"	.150"	1/8"	2-1/2"	3025-150	\$39.90
.031"	.005"	.046"	.150"	1/8"	2-1/2"	3031-150	\$37.90
.031"	.005"	.046"	.200"	1/8"	2-1/2"	3031-200	\$37.90
.031"	.005"	.046"	.250"	1/8"	2-1/2"	3031-250	\$37.90
.047"	.005"	.070"	.200"	1/8"	2-1/2"	3047-200	\$36.90
.047"	.005"	.070"	.250"	1/8"	2-1/2"	3047-250	\$36.90
.047"	.005"	.070"	.300"	1/8"	2-1/2"	3047-300	\$36.90
.047"	.005"	.070"	.350"	1/8"	2-1/2"	3047-350	\$36.90
.047"	.005"	.070"	.400"	1/8"	2-1/2"	3047-400	\$37.90
.047"	.005"	.070"	.450"	1/8"	2-1/2"	3047-450	\$37.90
.047"	.010"	.070"	.200"	1/8"	2-1/2"	3147-200	\$36.90
.047"	.010"	.070"	.250"	1/8"	2-1/2"	3147-250	\$36.90
.047"	.010"	.070"	.300"	1/8"	2-1/2"	3147-300	\$36.90
.047"	.010"	.070"	.350"	1/8"	2-1/2"	3147-350	\$36.90
.047"	.010"	.070"	.400"	1/8"	2-1/2"	3147-400	\$37.90
.047"	.010"	.070"	.450"	1/8"	2-1/2"	3147-450	\$37.90
.062"	.005"	.094"	.300"	1/8"	2-1/2"	3062-300	\$36.90
.062"	.005"	.094"	.400"	1/8"	2-1/2"	3062-400	\$36.90
.062"	.005"	.094"	.500"	1/8"	2-1/2"	3062-500	\$36.90
.062"	.005"	.094"	.600"	1/8"	2-1/2"	3062-600	\$37.90
.062"	.005"	.094"	.750"	1/8"	2-1/2"	3062-750	\$37.90
.062"	.010"	.094"	.300"	1/8"	2-1/2"	3162-300	\$36.90
.062"	.010"	.094"	.400"	1/8"	2-1/2"	3162-400	\$36.90
.062"	.010"	.094"	.500"	1/8"	2-1/2"	3162-500	\$36.90
.062"	.010"	.094"	.600"	1/8"	2-1/2"	3162-600	\$37.90
.062"	.010"	.094"	.750"	1/8"	2-1/2"	3162-750	\$37.90
.078"	.005"	.117"	.300"	1/8"	2-1/2"	3078-300	\$36.90
.078"	.005"	.117"	.400"	1/8"	2-1/2"	3078-400	\$36.90
.078"	.005"	.117"	.500"	1/8"	2-1/2"	3078-500	\$36.90
.078"	.005"	.117"	.600"	1/8"	2-1/2"	3078-600	\$36.90
.078"	.005"	.117"	.750"	1/8"	2-1/2"	3078-750	\$37.90

Continued Next Page

VHLX - STUB - CRN RAD - LG RCH & SHK - 3-FLT



Continued from previous page:

Stub - Corner Radius

AITiN COATED

Size Range: .078" to .125"



D1 Cutter Diameter +/- .0005"	R Corner Radius +/- .001"	L2 Length of Cut +.010"-.000"	L3 Reach From Tip	D2 Shank Dia.	L1 Over All Length	Tool Number	Price Each
.078"	.010"	.117"	.300"	1/8"	2-1/2"	3178-300	\$36.90
.078"	.010"	.117"	.400"	1/8"	2-1/2"	3178-400	\$36.90
.078"	.010"	.117"	.500"	1/8"	2-1/2"	3178-500	\$36.90
.078"	.010"	.117"	.600"	1/8"	2-1/2"	3178-600	\$37.90
.078"	.010"	.117"	.750"	1/8"	2-1/2"	3178-750	\$37.90
.093"	.005"	.139"	.500"	1/8"	2-1/2"	3093-500	\$36.90
.093"	.005"	.139"	.600"	1/8"	2-1/2"	3093-600	\$36.90
.093"	.005"	.139"	.700"	1/8"	2-1/2"	3093-700	\$36.90
.093"	.005"	.139"	.800"	1/8"	2-1/2"	3093-800	\$37.90
.093"	.005"	.139"	.900"	1/8"	2-1/2"	3093-900	\$37.90
.093"	.005"	.139"	1.00"	1/8"	2-1/2"	3093-100	\$38.90
.093"	.010"	.139"	.500"	1/8"	2-1/2"	3193-500	\$36.90
.093"	.010"	.139"	.600"	1/8"	2-1/2"	3193-600	\$36.90
.093"	.010"	.139"	.700"	1/8"	2-1/2"	3193-700	\$36.90
.093"	.010"	.139"	.800"	1/8"	2-1/2"	3193-800	\$37.90
.093"	.010"	.139"	.900"	1/8"	2-1/2"	3193-900	\$37.90
.093"	.010"	.139"	1.00"	1/8"	2-1/2"	3193-100	\$38.90
.093"	.015"	.139"	.500"	1/8"	2-1/2"	3293-500	\$36.90
.093"	.015"	.139"	.600"	1/8"	2-1/2"	3293-600	\$36.90
.093"	.015"	.139"	.700"	1/8"	2-1/2"	3293-700	\$36.90
.093"	.015"	.139"	.800"	1/8"	2-1/2"	3293-800	\$37.90
.093"	.015"	.139"	.900"	1/8"	2-1/2"	3293-900	\$37.90
.093"	.015"	.139"	1.00"	1/8"	2-1/2"	3293-100	\$38.90
.125"	.005"	.187"	.650"	1/8"	2-1/2"	3012-650	\$36.90
.125"	.005"	.187"	.750"	1/8"	2-1/2"	3012-750	\$36.90
.125"	.005"	.187"	.850"	1/8"	2-1/2"	3012-850	\$37.90
.125"	.005"	.187"	1.000"	1/8"	2-1/2"	3012-100	\$37.90
.125"	.005"	.187"	1.250"	1/8"	2-1/2"	3012-125	\$39.90
.125"	.010"	.187"	.650"	1/8"	2-1/2"	3112-650	\$36.90
.125"	.010"	.187"	.750"	1/8"	2-1/2"	3112-750	\$36.90
.125"	.010"	.187"	.850"	1/8"	2-1/2"	3112-850	\$37.90
.125"	.010"	.187"	1.000"	1/8"	2-1/2"	3112-100	\$37.90
.125"	.010"	.187"	1.250"	1/8"	2-1/2"	3112-125	\$39.90
.125"	.015"	.187"	.650"	1/8"	2-1/2"	3212-650	\$36.90
.125"	.015"	.187"	.750"	1/8"	2-1/2"	3212-750	\$36.90
.125"	.015"	.187"	.850"	1/8"	2-1/2"	3212-850	\$37.90
.125"	.015"	.187"	1.000"	1/8"	2-1/2"	3212-100	\$37.90
.125"	.015"	.187"	1.250"	1/8"	2-1/2"	3212-125	\$39.90

Tools are custom manufactured to order and are nonreturnable.



VARIABLE HELIX - 4-FLUTE

Stub Length - Sharp Corner - AITIN COATED - .015" to .250"



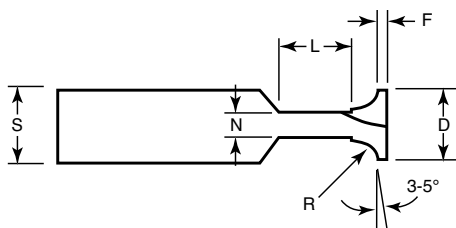
Center Cutting - Micro Grain Carbide - Made in USA

CUTTER DIAMETER TOLERANCE: DECIMAL SIZES +/- .0005" - FRACTIONAL SIZES: +000"/-002"

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.023"	1/8"	1-1/2"	59015S	\$34.50
.020"	.030"	1/8"	1-1/2"	59020S	\$31.50
.025"	.038"	1/8"	1-1/2"	59025S	\$31.50
.031"	.046"	1/8"	1-1/2"	59031S	\$25.50
.035"	.052"	1/8"	1-1/2"	59035S	\$25.50
.040"	.060"	1/8"	1-1/2"	59040S	\$25.50
.047"	.070"	1/8"	1-1/2"	59047S	\$25.50
.062"	.093"	1/8"	1-1/2"	59062S	\$24.50
.078"	.117"	1/8"	1-1/2"	59078S	\$24.50
.093"	.139"	1/8"	1-1/2"	59093S	\$24.50
.125"(1/8")	.250"	1/8"	1-1/2"	59125S	\$24.50
.187"(3/16")	.375"	3/16"	2"	59187S	\$26.75
.250"(1/4")	.375"	1/4"	2"	59250S	\$33.50

NEED SPECIAL LONG REACH BACK CORNER MILLS?

See page 127 for available stock sizes which can be modified to your specification.



1. Tool Number to add reach: _____

2. Neck Length (L): _____

The only option is to change the neck length "L". All other dimensions are as page 127.

3. Quantity (Minimum 3): _____

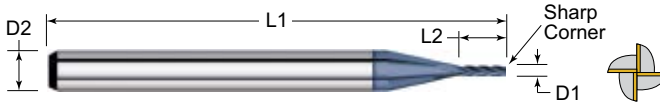
Special Neck Lengths Ship in 24 to 48 Hours!

Tools are custom manufactured to order and are nonreturnable.

VARIABLE HELIX - 4-FLUTE



Standard Length - Sharp Corner - AITiN COATED - .015" to .250"



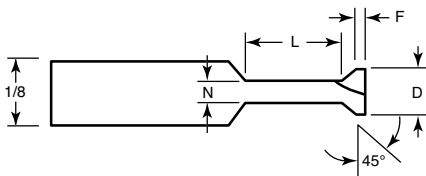
Center Cutting - Micro Grain Carbide - Made in USA

CUTTER DIAMETER TOLERANCE: DECIMAL SIZES $\pm .0005$ - FRACTIONAL SIZES: $+.000/-002$

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.045"	1/8"	1-1/2"	59015	\$34.50
.020"	.060"	1/8"	1-1/2"	59020	\$31.50
.025"	.075"	1/8"	1-1/2"	59025	\$31.50
.031"	.093"	1/8"	1-1/2"	59031	\$25.50
.035"	.105"	1/8"	1-1/2"	59035	\$25.50
.040"	.120"	1/8"	1-1/2"	59040	\$25.50
.047"	.141"	1/8"	1-1/2"	59047	\$25.50
.062"	.187"	1/8"	1-1/2"	59062	\$24.50
.078"	.234"	1/8"	1-1/2"	59078	\$24.50
.093"	.279"	1/8"	1-1/2"	59093	\$24.50
.125"(1/8")	.500"	1/8"	2"	59125	\$24.50
.187"(3/16")	.562"	3/16"	2"	59187	\$26.75
.250"(1/4")	.750"	1/4"	2-1/2"	59250	\$33.50

NEED SPECIAL LONG REACH BACK CHAMFER MILLS?

See page 127 for available stock sizes which can be modified to your specification.



1. Tool Number to add reach: _____

2. Neck Length (L): _____

The only option is to change the neck length "L".
All other dimensions are as page 127.

3. Quantity (Minimum 3): _____

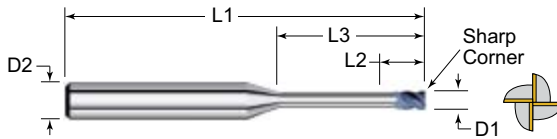
Special Neck Lengths Ship in 24 to 48 Hours!

Tools are custom manufactured to order and are nonreturnable.



VARIABLE HELIX - LONG REACH - 4-FLT

Stub Flute - Sharp Corner - AITiN COATED - .015" to .125"



Minimum
3 Tools
Each Size



4-Flute - Center Cutting - Micro Grain Carbide - Made in USA

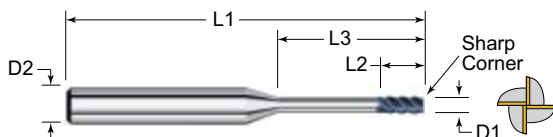
D1 Cutter Diameter	L2 Length of Cut	L3 Length of Reach	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.023"	.080"	1/8"	1-1/2"	59415S-080	\$42.90
.015"	.023"	.125"	1/8"	1-1/2"	59415S-125	\$44.90
.020"	.030"	.100"	1/8"	1-1/2"	59420S-100	\$41.50
.020"	.030"	.150"	1/8"	1-1/2"	59420S-150	\$41.50
.025"	.038"	.125"	1/8"	1-1/2"	59425S-125	\$41.50
.025"	.038"	.175"	1/8"	1-1/2"	59425S-175	\$41.50
.031"	.046"	.150"	1/8"	1-1/2"	59431S-150	\$36.90
.031"	.046"	.200"	1/8"	1-1/2"	59431S-200	\$36.90
.031"	.046"	.250"	1/8"	1-1/2"	59431S-250	\$37.90
.035"	.052"	.200"	1/8"	1-1/2"	59435S-200	\$36.90
.035"	.052"	.250"	1/8"	1-1/2"	59435S-250	\$37.90
.040"	.060"	.200"	1/8"	1-1/2"	59440S-200	\$36.90
.047"	.070"	.250"	1/8"	1-1/2"	59447S-250	\$36.90
.047"	.070"	.350"	1/8"	1-1/2"	59447S-350	\$36.90
.062"	.093"	.400"	1/8"	1-1/2"	59462S-400	\$34.50
.062"	.093"	.500"	1/8"	1-1/2"	59462S-500	\$34.50
.062"	.093"	.600"	1/8"	1-1/2"	59462S-600	\$36.50
.078"	.117"	.400"	1/8"	1-1/2"	59478S-400	\$34.50
.078"	.117"	.500"	1/8"	1-1/2"	59478S-500	\$34.50
.078"	.117"	.600"	1/8"	1-1/2"	59478S-600	\$36.50
.093"	.139"	.500"	1/8"	1-1/2"	59493S-500	\$36.50
.093"	.139"	.600"	1/8"	1-1/2"	59493S-600	\$36.50
.125"(1/8")	.250"	.500"	1/8"	1-1/2"	59425S-500	\$34.50
.125"(1/8")	.250"	.650"	1/8"	1-1/2"	59425S-650	\$36.50

Tools are custom manufactured to order and are nonreturnable.

VARIABLE HELIX - LONG REACH - 4-FLT



Standard Flute - Sharp Corner - **AlTiN COATED** - .015" to .125"



Minimum
3 Tools
Each Size

**Shipped
Within 24-48
Hours**

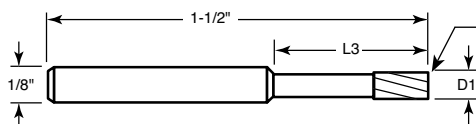
Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	L3 Length of Reach	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.045"	.080"	1/8"	1-1/2"	59415-080	\$42.90
.015"	.045"	.125"	1/8"	1-1/2"	59415-125	\$44.90
.020"	.060"	.100"	1/8"	1-1/2"	59420-100	\$41.50
.020"	.060"	.150"	1/8"	1-1/2"	59420-150	\$41.50
.025"	.075"	.125"	1/8"	1-1/2"	59425-125	\$41.50
.025"	.075"	.175"	1/8"	1-1/2"	59425-175	\$41.50
.031"	.093"	.150"	1/8"	1-1/2"	59431-150	\$36.90
.031"	.093"	.200"	1/8"	1-1/2"	59431-200	\$36.90
.031"	.093"	.250"	1/8"	1-1/2"	59431-250	\$37.90
.035"	.105"	.200"	1/8"	1-1/2"	59435-200	\$36.90
.035"	.105"	.250"	1/8"	1-1/2"	59435-250	\$37.90
.040"	.120"	.200"	1/8"	1-1/2"	59440-200	\$36.90
.047"	.141"	.250"	1/8"	1-1/2"	59447-250	\$36.90
.047"	.141"	.350"	1/8"	1-1/2"	59447-350	\$36.90
.062"	.186"	.400"	1/8"	1-1/2"	59462-400	\$34.50
.062"	.186"	.500"	1/8"	1-1/2"	59462-500	\$34.50
.062"	.186"	.600"	1/8"	1-1/2"	59462-600	\$36.50
.078"	.234"	.400"	1/8"	1-1/2"	59478-400	\$34.50
.078"	.234"	.500"	1/8"	1-1/2"	59478-500	\$34.50
.078"	.234"	.600"	1/8"	1-1/2"	59478-600	\$36.50
.093"	.279"	.500"	1/8"	1-1/2"	59493-500	\$36.50
.093"	.279"	.600"	1/8"	1-1/2"	59493-600	\$36.50
.125"(1/8")	.500"	.650"	1/8"	2"	59425-650	\$34.50
.125"(1/8")	.500"	.750"	1/8"	2"	59425-750	\$36.50

Tools are custom manufactured to order and are nonreturnable.

ORDER SPECIAL 4-Flute Square End Variable Helix LONG REACH END MILLS

To order special long reach end mills please specify:



1. Diameter (D1): _____ From above chart.
2. Overall Reach (L3): _____
3. Specify:
 - ☐ Sharp Corner
 - ☐ Corner Radius (See page 86)
4. Quantity (Minimum 6): _____

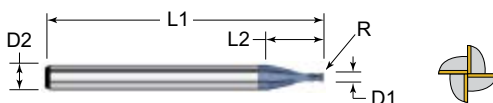
Special Reaches Shipped within 24-48 Hours!

Tools are custom manufactured to order and are nonreturnable.



VARIABLE HELIX – CORNER RAD – 4-FLT

Stub Length - AITiN COATED - .015" to .500"



Length of Cut as Specified – Center Cutting – Micro Grain Carbide – Made in USA

D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.023"	.003"	1/8"	1-1/2"	59215S	\$34.50
.020"	.030"	.005"	1/8"	1-1/2"	59220S	\$31.50
.025"	.038"	.005"	1/8"	1-1/2"	59205S	\$31.50
.031"	.046"	.005"	1/8"	1-1/2"	59231S	\$25.50
.035"	.052"	.005"	1/8"	1-1/2"	59235S	\$25.50
.040"	.060"	.005"	1/8"	1-1/2"	59240S	\$25.50
.047"	.070"	.005"	1/8"	1-1/2"	59247S	\$25.50
.062"	.093"	.005"	1/8"	1-1/2"	59262S	\$24.50
.078"	.117"	.005"	1/8"	1-1/2"	59278S	\$24.50
.093"	.139"	.010"	1/8"	1-1/2"	59293S	\$24.50
.125"	.250"	.010"	1/8"	1-1/2"	59225S	\$24.50
.187"	.375"	.015"	3/16"	1-1/2"	59287S	\$27.75
.250"	.375"	.015"	1/4"	2"	59255S	\$31.50
.312"	.437"	.015"	5/16"	2"	59212S	\$42.50
.375"	.500"	.015"	3/8"	2"	59275S	\$46.50
.500"	.625"	.030"	1/2"	2-1/2"	59200S	\$69.50

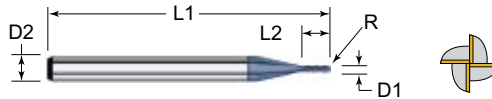


Microcut offers specialty cutting tool solutions to meet your requirements for both standard and custom products.

VARIABLE HELIX - CORNER RAD - 4-FLT



Corner Radius - Standard Flute - AITiN COATED - .015" to .500"



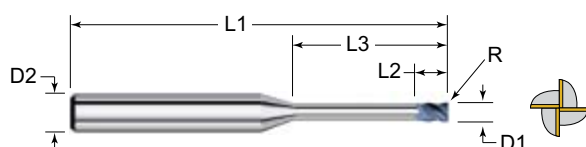
Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.045"	.003"	1/8"	1-1/2"	59215	\$34.50
.020"	.060"	.005"	1/8"	1-1/2"	59220	\$31.50
.025"	.075"	.005"	1/8"	1-1/2"	59205	\$31.50
.031"	.093"	.005"	1/8"	1-1/2"	59231	\$25.50
.035"	.105"	.005"	1/8"	1-1/2"	59235	\$25.50
.040"	.120"	.005"	1/8"	1-1/2"	59240	\$25.50
.047"	.140"	.005"	1/8"	1-1/2"	59247	\$25.50
.062"	.187"	.005"	1/8"	1-1/2"	59262	\$24.50
.078"	.234"	.005"	1/8"	1-1/2"	59278	\$24.50
.093"	.279"	.010"	1/8"	1-1/2"	59293	\$24.50
.125"	.500"	.010"	1/8"	1-1/2"	59225	\$24.50
.125"	.500"	.015"	1/8"	1-1/2"	59225-1	\$24.50
.125"	.500"	.020"	1/8"	1-1/2"	59225-2	\$24.50
.187"	.625"	.010"	3/16"	2"	59287-1	\$26.35
.187"	.625"	.015"	3/16"	2"	59287	\$26.35
.187"	.625"	.020"	3/16"	2"	59287-2	\$26.35
.250"	.750"	.015"	1/4"	2-1/2"	59255	\$30.65
.250"	.750"	.030"	1/4"	2-1/2"	59255-1	\$30.65
.312"	.812"	.015"	5/16"	2-1/2"	59212	\$34.95
.312"	.812"	.030"	5/16"	2-1/2"	59212-2	\$34.95
.375"	1.00"	.015"	3/8"	2-1/2"	59275	\$44.60
.375"	1.00"	.030"	3/8"	2-1/2"	59275-1	\$44.60
.500"	1.00"	.015"	1/2"	3"	59200-1	\$68.25
.500"	1.00"	.030"	1/2"	3"	59200	\$68.25
.500"	1.00"	.060"	1/2"	3"	59200-2	\$68.25



VAR HELIX - CORNER RAD - LG RCH - 4-FLT

Long Reach - Stub Length - AITiN COATED



Minimum
3 Tools
Each Size



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

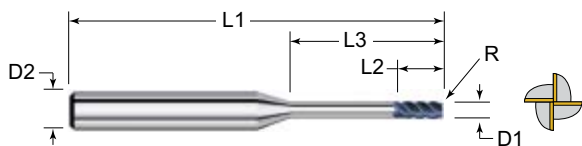
D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	L3 Length of Reach	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.023"	.003"	.080"	1/8"	1-1/2"	59515S-080	\$42.90
.015"	.023"	.003"	.125"	1/8"	1-1/2"	59515S-125	\$44.90
.020"	.030"	.005"	.100"	1/8"	1-1/2"	59520S-100	\$41.50
.020"	.030"	.005"	.150"	1/8"	1-1/2"	59520S-150	\$41.50
.025"	.038"	.005"	.125"	1/8"	1-1/2"	59525S-125	\$41.50
.025"	.038"	.005"	.175"	1/8"	1-1/2"	59525S-175	\$41.50
.031"	.046"	.005"	.150"	1/8"	1-1/2"	59531S-150	\$36.90
.031"	.046"	.005"	.200"	1/8"	1-1/2"	59531S-200	\$36.90
.031"	.046"	.005"	.250"	1/8"	1-1/2"	59531S-250	\$37.90
.035"	.052"	.005"	.200"	1/8"	1-1/2"	59535S-200	\$36.90
.035"	.052"	.005"	.250"	1/8"	1-1/2"	59535S-250	\$37.90
.040"	.060"	.005"	.200"	1/8"	1-1/2"	59540S-200	\$36.90
.040"	.060"	.005"	.250"	1/8"	1-1/2"	59540S-250	\$36.90
.047"	.070"	.005"	.250"	1/8"	1-1/2"	59547S-250	\$36.90
.047"	.070"	.005"	.350"	1/8"	1-1/2"	59547S-350	\$36.90
.062"	.093"	.005"	.400"	1/8"	1-1/2"	59562S-400	\$34.50
.062"	.093"	.005"	.500"	1/8"	1-1/2"	59562S-500	\$34.50
.062"	.093"	.005"	.600"	1/8"	1-1/2"	59562S-600	\$36.50
.078"	.117"	.005"	.400"	1/8"	1-1/2"	59578S-400	\$34.50
.078"	.117"	.005"	.500"	1/8"	1-1/2"	59578S-500	\$34.50
.078"	.117"	.005"	.600"	1/8"	1-1/2"	59578S-600	\$36.50
.093"	.139"	.010"	.500"	1/8"	1-1/2"	59593S-500	\$36.50
.093"	.139"	.010"	.600"	1/8"	1-1/2"	59593S-600	\$36.50
.125"(1/8")	.250"	.010"	.500"	1/8"	1-1/2"	59525S-500	\$34.50
.125"(1/8")	.250"	.010"	.650"	1/8"	1-1/2"	59525S-650	\$36.50

Tools are custom manufactured to order and are nonreturnable.

VAR HELIX - CORNER RAD - LG RCH - 4-FLT



Long Reach - Standard Length - AITiN COATED



Minimum
3 Tools
Each Size

**Shipped
Within 24-48
Hours**

Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	L3 Length of Reach	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.045"	.003"	.125"	1/8"	1-1/2"	59515-125	\$42.90
.015"	.045"	.003"	.187"	1/8"	1-1/2"	59515-187	\$44.90
.020"	.060"	.005"	.165"	1/8"	1-1/2"	59520-165	\$41.50
.020"	.060"	.005"	.200"	1/8"	1-1/2"	59520-200	\$41.50
.025"	.075"	.005"	.200"	1/8"	1-1/2"	59525-200	\$41.50
.025"	.075"	.005"	.250"	1/8"	1-1/2"	59525-250	\$41.50
.031"	.093"	.005"	.200"	1/8"	1-1/2"	59531-200	\$36.90
.031"	.093"	.005"	.250"	1/8"	1-1/2"	59531-250	\$36.90
.031"	.093"	.005"	.300"	1/8"	1-1/2"	59531-300	\$37.90
.035"	.105"	.005"	.200"	1/8"	1-1/2"	59535-200	\$36.90
.035"	.105"	.005"	.250"	1/8"	1-1/2"	59535-250	\$37.90
.040"	.120"	.005"	.250"	1/8"	1-1/2"	59540-250	\$36.90
.040"	.120"	.005"	.300"	1/8"	1-1/2"	59540-300	\$36.90
.040"	.120"	.005"	.350"	1/8"	1-1/2"	59540-350	\$36.90
.047"	.141"	.005"	.250"	1/8"	1-1/2"	59547-250	\$36.90
.047"	.141"	.005"	.350"	1/8"	1-1/2"	59547-350	\$36.90
.047"	.141"	.005"	.450"	1/8"	1-1/2"	59547-450	\$36.90
.062"	.186"	.005"	.400"	1/8"	1-1/2"	59562-400	\$34.50
.062"	.186"	.005"	.500"	1/8"	1-1/2"	59562-500	\$34.50
.062"	.186"	.005"	.600"	1/8"	1-1/2"	59562-600	\$36.50
.078"	.234"	.005"	.400"	1/8"	1-1/2"	59578-400	\$34.50
.078"	.234"	.005"	.500"	1/8"	1-1/2"	59578-500	\$34.50
.078"	.234"	.005"	.600"	1/8"	1-1/2"	59578-600	\$36.50
.093"	.279"	.010"	.500"	1/8"	1-1/2"	59593-500	\$36.50
.093"	.279"	.010"	.650"	1/8"	1-1/2"	59593-650	\$36.50
.125"(1/8")	.500"	.010"	.650"	1/8"	1-1/2"	59525-650	\$36.50

Tools are custom manufactured to order and are nonreturnable.

MINIATURE BALL PROFILE CUTTERS – 2-FLUTE

Ball End - AITiN COATED

Designed for Deep Cavity Profiling in tough materials.

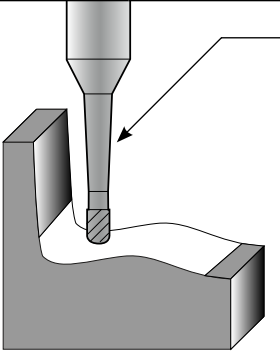
TAPERED NECK REDUCES DEFLECTION.



Length of Cut = 1.5 x Diameter or as Specified – Center Cutting – Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	L3 Over All Reach	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.047"	.500"	1/4"	3"	17031-500	\$46.70
.031"	.047"	.750"	1/4"	3"	17031-750	\$50.25
.031"	.047"	1.00"	1/4"	3"	17031-100	\$53.80
.047"	.071"	.500"	1/4"	3"	17047-500	\$46.70
.047"	.071"	.750"	1/4"	3"	17047-750	\$50.25
.047"	.071"	1.00"	1/4"	3"	17047-100	\$53.80
.062"	.094"	.500"	1/4"	3"	17062-500	\$46.70
.062"	.094"	.750"	1/4"	3"	17062-750	\$50.25
.062"	.094"	1.00"	1/4"	3"	17062-100	\$53.80
.078"	.118"	.750"	1/4"	3"	17078-750	\$46.70
.078"	.118"	1.00"	1/4"	3"	17078-100	\$50.25
.078"	.118"	1.25"	1/4"	3"	17078-125	\$53.80
.093"	.140"	.750"	1/4"	3"	17093-750	\$46.70
.093"	.140"	1.00"	1/4"	3"	17093-100	\$50.25
.093"	.140"	1.25"	1/4"	3"	17093-125	\$53.80
.125"	.187"	.750"	1/4"	3"	17125-750	\$46.70
.125"	.187"	1.00"	1/4"	3"	17125-100	\$50.25
.125"	.187"	1.25"	1/4"	3"	17125-125	\$53.80

Note: Miniature profile cutters are designed to mill deep cavities in molds. The tapered neck is available in various lengths to provide the most rigid tool for each application. Since interference with the cavity wall is a possibility (see diagram), we suggest the application be verified with CAD by your programmer.

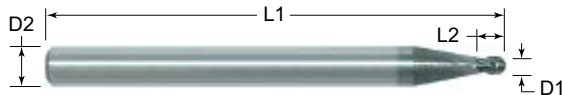


Neck is reduced behind the cutter diameter for a length of one diameter.

BALL MILLS FOR DIES & MOLDS - 2-FLUTE

Ball End - nACo COATED

For hard milling in mold & die steels 40-60 RC. New "nACo" coating for extreme durability at high temperature. Short flute length with reduced neck for maximum rigidity. Use with air mist coolant.



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.031"	1/8"	3"	58704	\$26.35
.047"	.047"	1/8"	3"	58706	\$26.35
.062"	.062"	1/8"	3"	58708	\$26.35
.078"	.078"	1/8"	3"	58710	\$26.35
.093"	.093"	1/8"	3"	58712	\$26.35
.125"	.125"	1/8"	3"	58714	\$26.35
.187"	.187"	3/16"	3"	58716	\$30.65
.250"	.250"	1/4"	3"	58718	\$41.40

Long Reach - Ball End - nACo COATED

Minimum order 3 tools each size.

Shipped
Within 24-48
Hours

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.031"	.093"	1/8"	3"	58724	\$39.25
.031"	.031"	.156"	1/8"	3"	58726	\$39.25
.031"	.031"	.250"	1/8"	3"	58728	\$42.45
.047"	.047"	.141"	1/8"	3"	58730	\$39.25
.047"	.047"	.250"	1/8"	3"	58732	\$39.25
.047"	.047"	.375"	1/8"	3"	58734	\$42.45
.062"	.062"	.187"	1/8"	3"	58736	\$39.25
.062"	.062"	.312"	1/8"	3"	58738	\$39.25
.062"	.062"	.500"	1/8"	3"	58740	\$42.45
.078"	.078"	.234"	1/8"	3"	58742	\$39.25
.078"	.078"	.406"	1/8"	3"	58744	\$39.25
.078"	.078"	.625"	1/8"	3"	58746	\$42.45
.093"	.093"	.281"	1/8"	3"	58748	\$39.25
.093"	.093"	.500"	1/8"	3"	58750	\$39.25
.093"	.093"	.750"	1/8"	3"	58752	\$42.45
.125"	.125"	.375"	1/8"	3"	58754	\$39.25
.125"	.125"	.625"	1/8"	3"	58756	\$39.25
.125"	.125"	1.000"	1/8"	3"	58758	\$42.45
.187"	.187"	.375"	3/16"	3"	58760	\$43.55
.187"	.187"	.570"	3/16"	3"	58762	\$45.70
.187"	.187"	1.000"	3/16"	3"	58764	\$48.90
.250"	.250"	.500"	1/4"	3"	58766	\$53.20
.250"	.250"	.750"	1/4"	3"	58768	\$55.35
.250"	.250"	1.250"	1/4"	3"	58770	\$58.60

Long reach tools are manufactured to order and are nonreturnable.

220 DEGREE SPHERICAL BALL END MILLS

Standard Length - Ball End - **AlTiN COATED**



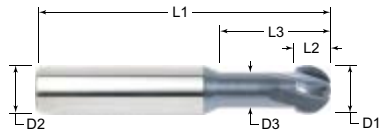
Available in standard length and long shank series

Designed for undercutting & machining mold cavities • 220 Degree Spherical Ball

Length of Cut as Specified – Center Cutting – Micro Grain Carbide – Made in USA

D1 Cutter Diameter	L2 Length of Cut	D3 Neck Diameter	No. of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/16"	.040"	.048"	2	1/8"	1-1/2"	13062	\$30.90
1/16"	.040"	.048"	4	1/8"	1-1/2"	13062-4	\$30.90
3/32"	.060"	.077"	2	1/8"	1-1/2"	13093	\$30.90
3/32"	.060"	.077"	4	1/8"	1-1/2"	13093-4	\$30.90
1/8"	3/32"	.095"	4	1/8"	1-1/2"	13125	\$28.50
1/8"	3/32"	.095"	4	1/8"	3"	13125L	\$30.50
3/16"	9/64"	.140"	4	3/16"	2"	13187	\$32.50
3/16"	9/64"	.140"	4	3/16"	3"	13187L	\$34.50
1/4"	3/16"	.187"	4	1/4"	2-1/2"	13250	\$39.50
1/4"	3/16"	.187"	4	1/4"	4"	13250L	\$44.50
3/8"	9/32"	.280"	4	3/8"	2-1/2"	13375	\$59.50
3/8"	9/32"	.280"	4	3/8"	4"	13375L	\$64.50
1/2"	3/8"	.375"	4	1/2"	3"	13500	\$84.50
1/2"	3/8"	.375"	4	1/2"	6"	13500L	\$132.50

Long & Extra Long Reach - 2 and 4 Flute



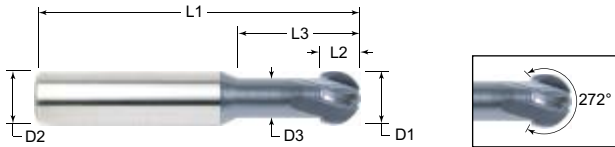
D1 Cutter Diameter	L2 Length of Cut	D3 Neck Diameter	L3 Reach From Tip	No. of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/16"	.040"	.048"	.187"	2	1/8"	1-1/2"	13062LRS	\$34.90
1/16"	.040"	.048"	.250"	2	1/8"	1-1/2"	13062LR	\$34.90
1/16"	.040"	.048"	.187"	4	1/8"	1-1/2"	13062LRS-4	\$34.90
1/16"	.040"	.048"	.250"	4	1/8"	1-1/2"	13062LR-4	\$36.90
3/32"	.060"	.077"	.250"	2	1/8"	1-1/2"	13093LRS	\$34.90
3/32"	.060"	.077"	.400"	2	1/8"	1-1/2"	13093LR	\$36.90
3/32"	.060"	.077"	.250"	4	1/8"	1-1/2"	13093LRS-4	\$34.90
3/32"	.060"	.077"	.400"	4	1/8"	1-1/2"	13093LR-4	\$36.90
1/8"	.088"	.095"	.500"	4	1/8"	1-1/2"	13125LR	\$34.90
1/8"	.088"	.095"	1.000"	4	1/8"	3"	13125XR	\$38.90
1/8"	.088"	.095"	1.500"	4	1/8"	3"	13125LXR	\$44.90
3/16"	.130"	.141"	.500"	4	3/16"	2"	13187LR	\$35.50
3/16"	.130"	.141"	.625"	4	3/16"	2"	13187LRS	\$37.50
3/16"	.130"	.141"	1.125"	4	3/16"	3"	13187XR	\$42.50
1/4"	.187"	.187"	.750"	4	1/4"	2-1/2"	13250LRS	\$50.90
1/4"	.187"	.187"	1.000"	4	1/4"	2-1/2"	13250LR	\$52.90
1/4"	.187"	.187"	1.500"	4	1/4"	4"	13250XR	\$56.90
1/4"	.187"	.187"	2.000"	4	1/4"	4"	13250LXR	\$62.90
3/8"	.260"	.281"	1.000"	4	3/8"	2-1/2"	13375LR	\$72.90
3/8"	.260"	.281"	1.500"	4	3/8"	4"	13375LRS	\$82.90
3/8"	.260"	.281"	1.750"	4	3/8"	4"	13375XR	\$86.90
1/2"	.375"	.345"	1.000"	4	1/2"	3"	13500LRS	\$102.50
1/2"	.375"	.345"	1.300"	4	1/2"	3"	13500LR	\$110.50
1/2"	.375"	.345"	2.300"	4	1/2"	6"	13500XR	\$152.50

Special long reach with reduced neck diameters quoted on request.

272 DEGREE SPHERICAL BALL END MILLS

Standard Length - Ball End - AITiN COATED

Designed for undercutting & machining mold cavities - 272 Degree Spherical Ball

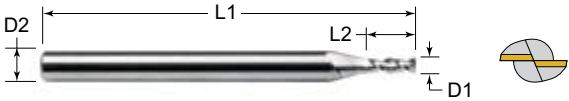


Length of Cut as Specified - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D3 Neck Diameter	L3 Reach From Tip	No. of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/16"	.054"	.040"	.115"	2	1/8"	1-1/2"	13662-115	\$34.50
1/16"	.054"	.040"	.175"	2	1/8"	1-1/2"	13662-175	\$34.50
1/16"	.054"	.040"	.250"	2	1/8"	1-1/2"	13662-250	\$34.50
3/32"	.081"	.062"	.150"	2	1/8"	1-1/2"	13693-150	\$34.50
3/32"	.081"	.062"	.200"	2	1/8"	1-1/2"	13693-200	\$34.50
3/32"	.081"	.062"	.275"	2	1/8"	1-1/2"	13693-275	\$34.50
3/32"	.081"	.062"	.350"	2	1/8"	1-1/2"	13693-350	\$34.50
1/8"	.108"	.084"	.175"	4	1/8"	2"	13625-175	\$30.50
1/8"	.108"	.084"	.250"	4	1/8"	2"	13625-250	\$30.50
1/8"	.108"	.084"	.400"	4	1/8"	2"	13625-400	\$30.50
1/8"	.108"	.084"	.625"	4	1/8"	2"	13625-625	\$32.50
1/8"	.108"	.084"	.750"	4	1/8"	2"	13625-750	\$35.50
3/16"	.163"	.125"	.250"	4	3/16"	2"	13687-250	\$35.50
3/16"	.163"	.125"	.400"	4	3/16"	2"	13687-400	\$35.50
3/16"	.163"	.125"	.550"	4	3/16"	2"	13687-550	\$36.50
3/16"	.163"	.125"	.675"	4	3/16"	2"	13687-675	\$39.50
3/16"	.163"	.125"	.800"	4	3/16"	2"	13687-800	\$44.50
1/4"	.217"	.170"	.300"	4	1/4"	2-1/2"	13650-300	\$46.90
1/4"	.217"	.170"	.450"	4	1/4"	2-1/2"	13650-450	\$46.90
1/4"	.217"	.170"	.625"	4	1/4"	2-1/2"	13650-625	\$48.90
1/4"	.217"	.170"	.750"	4	1/4"	2-1/2"	13650-750	\$48.90
1/4"	.217"	.170"	1.000"	4	1/4"	2-1/2"	13650-100	\$52.90
1/4"	.217"	.170"	1.375"	4	1/4"	4"	13650-137	\$56.90
1/4"	.217"	.170"	1.750"	4	1/4"	4"	13650-175	\$61.90
5/16"	.272"	.215"	.500"	4	5/16"	2-1/2"	13612-500	\$62.50
5/16"	.272"	.215"	.750"	4	5/16"	2-1/2"	13612-750	\$66.50
5/16"	.272"	.215"	1.00"	4	5/16"	2-1/2"	13612-100	\$68.50
3/8"	.322"	.280"	.450"	4	3/8"	2-1/2"	13675-450	\$68.50
3/8"	.322"	.280"	.750"	4	3/8"	2-1/2"	13675-750	\$70.50
3/8"	.322"	.280"	1.000"	4	3/8"	2-1/2"	13675-100	\$72.50
3/8"	.322"	.280"	1.500"	4	3/8"	4"	13675-150	\$84.50
3/8"	.322"	.280"	2.000"	4	3/8"	4"	13675-200	\$86.50
1/2"	.425"	.325"	.625"	4	1/2"	3"	13600-500	\$95.50
1/2"	.425"	.325"	1.000"	4	1/2"	3"	13600-100	\$98.50
1/2"	.425"	.325"	1.500"	4	1/2"	3"	13600-150	\$102.50

MICRO END MILLS FOR ALUMINUM - 2-FLUTE

45° Helix - Square End - **Ball End** - UNCOATED .031" to .125" Diameter



For faster chip removal and improved finish.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.031"	.093"	1/8"	1-1/2"	80031	\$18.55	80031B	\$21.75
.035"	.105"	1/8"	1-1/2"	80035	\$18.55	80035B	\$21.75
.040"	.120"	1/8"	1-1/2"	80040	\$18.55	80040B	\$21.75
.045"	.135"	1/8"	1-1/2"	80045	\$18.55	80045B	\$21.75
.047"	.141"	1/8"	1-1/2"	80047	\$18.55	80047B	\$21.75
.050"	.150"	1/8"	1-1/2"	80050	\$18.55	80050B	\$21.75
.060"	.180"	1/8"	1-1/2"	80060	\$18.55	80060B	\$21.75
.062"	.187"	1/8"	1-1/2"	80062	\$16.15	80062B	\$20.45
.070"	.210"	1/8"	1-1/2"	80070	\$16.15	80070B	\$20.45
.075"	.225"	1/8"	1-1/2"	80075	\$16.15	80075B	\$20.45
.078"	.234"	1/8"	1-1/2"	80078	\$16.15	80078B	\$20.45
.090"	.270"	1/8"	1-1/2"	80090	\$16.15	80090B	\$20.45
.093"	.279"	1/8"	1-1/2"	80093	\$16.15	80093B	\$20.45
.125"	.500"	1/8"	1-1/2"	80125	\$15.60	80125B	\$19.90



ZRN COATED

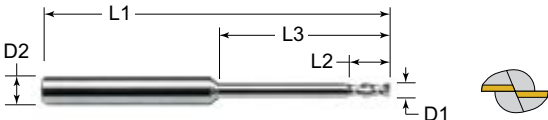
Zirconium Nitride

Zirconium coating has a low affinity for non ferrous materials. Helps prevent buildup and chip packing on cutting edges & flutes. Use in aluminum, aluminum and magnesium alloys, brass, copper and bronze.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.031"	.093"	1/8"	1-1/2"	80031Z	\$23.40	80031BZ	\$26.60
.035"	.105"	1/8"	1-1/2"	80035Z	\$23.40	80035BZ	\$26.60
.040"	.120"	1/8"	1-1/2"	80040Z	\$23.40	80040BZ	\$26.60
.045"	.135"	1/8"	1-1/2"	80045Z	\$23.40	80045BZ	\$26.60
.047"	.141"	1/8"	1-1/2"	80047Z	\$23.40	80047BZ	\$26.60
.050"	.150"	1/8"	1-1/2"	80050Z	\$23.40	80050BZ	\$26.60
.060"	.180"	1/8"	1-1/2"	80060Z	\$23.40	80060BZ	\$26.60
.062"	.187"	1/8"	1-1/2"	80062Z	\$20.95	80062BZ	\$25.25
.070"	.210"	1/8"	1-1/2"	80070Z	\$20.95	80070BZ	\$25.25
.075"	.225"	1/8"	1-1/2"	80075Z	\$20.95	80075BZ	\$25.25
.078"	.234"	1/8"	1-1/2"	80078Z	\$20.95	80078BZ	\$25.25
.090"	.270"	1/8"	1-1/2"	80090Z	\$20.95	80090BZ	\$25.25
.093"	.279"	1/8"	1-1/2"	80093Z	\$20.95	80093BZ	\$25.25
.125"	.500"	1/8"	1-1/2"	80125Z	\$20.45	80125BZ	\$24.75

LONG REACH MILLS FOR ALUMINUM - 2-FLUTE

45° Helix - Square End - **Ball End** - UNCOATED
.031" to .125" Diameter



Shipped
Within 24-48
Hours

For faster chip removal and improved finish. **MINIMUM 3 PIECES PER SIZE**

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.031"	.093"	.250"	1/8"	1-1/2"	70031	\$31.45	70031B	\$34.65
.035"	.105"	.285"	1/8"	1-1/2"	70035	\$31.45	70035B	\$34.65
.040"	.120"	.350"	1/8"	1-1/2"	70040	\$31.45	70040B	\$34.65
.045"	.135"	.400"	1/8"	1-1/2"	70045	\$31.45	70045B	\$34.65
.047"	.141"	.400"	1/8"	1-1/2"	70047	\$31.45	70047B	\$34.65
.050"	.150"	.450"	1/8"	1-1/2"	70050	\$31.45	70050B	\$34.65
.060"	.180"	.500"	1/8"	1-1/2"	70060	\$31.45	70060B	\$34.65
.062"	.187"	.500"	1/8"	1-1/2"	70062	\$29.05	70062B	\$33.35
.070"	.210"	.500"	1/8"	1-1/2"	70070	\$29.05	70070B	\$33.35
.075"	.225"	.500"	1/8"	1-1/2"	70075	\$29.05	70075B	\$33.35
.078"	.234"	.500"	1/8"	1-1/2"	70078	\$29.05	70078B	\$33.35
.090"	.270"	.600"	1/8"	1-1/2"	70090	\$29.05	70090B	\$33.35
.093"	.279"	.600"	1/8"	1-1/2"	70093	\$29.05	70093B	\$33.35
.125"	.500"	.650"	1/8"	1-1/2"	70125	\$29.05	70125B	\$33.35



ZRN COATED

Zirconium Nitride

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.031"	.093"	.250"	1/8"	1-1/2"	70031Z	\$36.30	70031BZ	\$39.50
.035"	.105"	.285"	1/8"	1-1/2"	70035Z	\$36.30	70035BZ	\$39.50
.040"	.120"	.350"	1/8"	1-1/2"	70040Z	\$36.30	70040BZ	\$39.50
.045"	.135"	.400"	1/8"	1-1/2"	70045Z	\$36.30	70045BZ	\$39.50
.047"	.141"	.400"	1/8"	1-1/2"	70047Z	\$36.30	70047BZ	\$39.50
.050"	.150"	.450"	1/8"	1-1/2"	70050Z	\$36.30	70050BZ	\$39.50
.060"	.180"	.500"	1/8"	1-1/2"	70060Z	\$36.30	70060BZ	\$39.50
.062"	.187"	.500"	1/8"	1-1/2"	70062Z	\$33.85	70062BZ	\$38.15
.070"	.210"	.500"	1/8"	1-1/2"	70070Z	\$33.85	70070BZ	\$38.15
.075"	.225"	.500"	1/8"	1-1/2"	70075Z	\$33.85	70075BZ	\$38.15
.078"	.234"	.500"	1/8"	1-1/2"	70078Z	\$33.85	70078BZ	\$38.15
.090"	.270"	.600"	1/8"	1-1/2"	70090Z	\$33.85	70090BZ	\$38.15
.093"	.279"	.600"	1/8"	1-1/2"	70093Z	\$33.85	70093BZ	\$38.15
.125"	.500"	.650"	1/8"	1-1/2"	70125Z	\$33.85	70125BZ	\$38.15

Tools are custom manufactured to order and are nonreturnable.
Special reaches quoted on request.

TOLL FREE 866-426-3300
FAX 781-582-8095

Microcut

45 DEGREE HELIX MILLS - 2-FLUTE 1/8" TO 1/2"

Standard Length - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	1/2"	1/8"	1-1/2"	62125	\$14.95
3/16"	5/8"	3/16"	2"	62187	\$20.50
1/4"	3/4"	1/4"	2-1/2"	62250	\$26.50
5/16"	13/16"	5/16"	2-1/2"	62312	\$31.50
3/8"	1"	3/8"	2-1/2"	62375	\$35.50
1/2"	1-1/4"	1/2"	3"	62500	\$59.50

Standard Length - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	1/2"	1/8"	1-1/2"	62125Z	\$18.95
3/16"	5/8"	3/16"	2"	62187Z	\$25.50
1/4"	3/4"	1/4"	2-1/2"	62250Z	\$32.50
5/16"	13/16"	5/16"	2-1/2"	62312Z	\$38.50
3/8"	1"	3/8"	2-1/2"	62375Z	\$42.50
1/2"	1-1/4"	1/2"	3"	62500Z	\$66.50

Standard Length - Corner Radius - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	1/2"	1/8"	1-1/2"	62125R	\$17.90
3/16"	.020"	5/8"	3/16"	2"	62187R	\$24.90
1/4"	.020"	3/4"	1/4"	2-1/2"	62250R	\$33.90
5/16"	.020"	13/16"	5/16"	2-1/2"	62312R	\$39.90
3/8"	.020"	1"	3/8"	2-1/2"	62375R	\$42.90
1/2"	.040"	1-1/4"	1/2"	3"	62500R	\$69.90

Standard Length - Corner Radius - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	1/2"	1/8"	1-1/2"	62125RZ	\$22.90
3/16"	.020"	5/8"	3/16"	2"	62187RZ	\$30.90
1/4"	.020"	3/4"	1/4"	2-1/2"	62250RZ	\$40.90
5/16"	.020"	13/16"	5/16"	2-1/2"	62312RZ	\$47.90
3/8"	.020"	1"	3/8"	2-1/2"	62375RZ	\$50.90
1/2"	.040"	1-1/4"	1/2"	3"	62500RZ	\$80.90

Zirconium has no affinity for the materials mentioned above.
Tools plunge cut and can be run at 20-40% higher speed and feed rates.

45 DEGREE HELIX MILLS - 2-FLUTE 1/8" TO 1/2"

Long Length - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	3/4"	1/8"	2-1/4"	62125L	\$23.50
3/16"	3/4"	3/16"	2-1/2"	62187L	\$26.90
1/4"	1-1/4"	1/4"	3"	62250L	\$38.50
5/16"	1-3/8"	5/16"	3"	62312L	\$47.50
3/8"	1-1/2"	3/8"	4"	62375L	\$59.50
1/2"	2"	1/2"	4"	62500L	\$83.50

Long Length - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	3/4"	1/8"	2-1/4"	62125ZL	\$28.50
3/16"	3/4"	3/16"	2-1/2"	62187ZL	\$32.50
1/4"	1-1/4"	1/4"	3"	62250ZL	\$44.50
5/16"	1-3/8"	5/16"	3"	62312ZL	\$59.50
3/8"	1-1/2"	3/8"	4"	62375ZL	\$72.50
1/2"	2"	1/2"	4"	62500ZL	\$99.50

Long Length - Corner Radius - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	3/4"	1/8"	2-1/4"	62125LR	\$30.90
3/16"	.020"	3/4"	3/16"	2-1/2"	62187LR	\$35.90
1/4"	.020"	1-1/4"	1/4"	3"	62250LR	\$46.90
5/16"	.020"	1-3/8"	5/16"	3"	62312LR	\$59.90
3/8"	.020"	1-1/2"	3/8"	4"	62375LR	\$74.90
1/2"	.040"	2"	1/2"	4"	62500LR	\$98.90

Long Length - Corner Radius - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	3/4"	1/8"	2-1/4"	62125LRZ	\$38.90
3/16"	.020"	3/4"	3/16"	2-1/2"	62187LRZ	\$43.90
1/4"	.020"	1-1/4"	1/4"	3"	62250LRZ	\$55.90
5/16"	.020"	1-3/8"	5/16"	3"	62312LRZ	\$75.90
3/8"	.020"	1-1/2"	3/8"	4"	62375LRZ	\$90.40
1/2"	.040"	2"	1/2"	4"	62500LRZ	\$118.90

Zirconium has no affinity for the materials mentioned above.

Tools plunge cut and can be run at 20-40% higher speed and feed rates.

TOLL FREE 866-426-3300
FAX 781-582-8095

Microcut

45 DEGREE HELIX MILLS – 3-FLUTE 1/8" TO 1/2

Standard Length - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	1/2"	1/8"	1-1/2"	63125	\$14.95
3/16"	5/8"	3/16"	2"	63187	\$20.50
1/4"	3/4"	1/4"	2-1/2"	63250	\$26.50
5/16"	13/16"	5/16"	2-1/2"	63312	\$31.50
3/8"	1"	3/8"	2-1/2"	63375	\$35.50
1/2"	1-1/4"	1/2"	3"	63500	\$59.50

Standard Length - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	1/2"	1/8"	1-1/2"	63125Z	\$18.95
3/16"	5/8"	3/16"	2"	63187Z	\$25.50
1/4"	3/4"	1/4"	2-1/2"	63250Z	\$32.50
5/16"	13/16"	5/16"	2-1/2"	63312Z	\$38.50
3/8"	1"	3/8"	2-1/2"	63375Z	\$42.50
1/2"	1-1/4"	1/2"	3"	63500Z	\$66.50

Standard Length - Corner Radius - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	1/2"	1/8"	1-1/2"	63125R	\$17.90
3/16"	.020"	5/8"	3/16"	2"	63187R	\$24.90
1/4"	.020"	3/4"	1/4"	2-1/2"	63250R	\$33.90
5/16"	.020"	13/16"	5/16"	2-1/2"	63312R	\$39.90
3/8"	.020"	1"	3/8"	2-1/2"	63375R	\$42.90
1/2"	.040"	1-1/4"	1/2"	3"	63500R	\$69.90

Standard Length - Corner Radius - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	1/2"	1/8"	1-1/2"	63125RZ	\$22.90
3/16"	.020"	5/8"	3/16"	2"	63187RZ	\$30.90
1/4"	.020"	3/4"	1/4"	2-1/2"	63250RZ	\$40.90
5/16"	.020"	13/16"	5/16"	2-1/2"	63312RZ	\$47.90
3/8"	.020"	1"	3/8"	2-1/2"	63375RZ	\$50.90
1/2"	.040"	1-1/4"	1/2"	3"	63500RZ	\$80.90

Zirconium has no affinity for the materials mentioned above.

Tools plunge cut and can be run at 20-40% higher speed and feed rates.

45 DEGREE HELIX MILLS - 3-FLUTE 1/8" TO 1/2"

Long Length - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	3/4"	1/8"	2-1/4"	63125L	\$23.50
3/16"	3/4"	3/16"	2-1/2"	63187L	\$26.90
1/4"	1-1/4"	1/4"	3"	63250L	\$38.50
5/16"	1-3/8"	5/16"	3"	63312L	\$47.50
3/8"	1-1/2"	3/8"	4"	63375L	\$59.50
1/2"	2"	1/2"	4"	63500L	\$83.50

Long Length - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	3/4"	1/8"	2-1/4"	63125ZL	\$28.50
3/16"	3/4"	3/16"	2-1/2"	63187ZL	\$32.50
1/4"	1-1/4"	1/4"	3"	63250ZL	\$44.50
5/16"	1-3/8"	5/16"	3"	63312ZL	\$59.50
3/8"	1-1/2"	3/8"	4"	63375ZL	\$72.50
1/2"	2"	1/2"	4"	63500ZL	\$99.50

Long Length - Corner Radius - UNCOATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	3/4"	1/8"	2-1/4"	63125LR	\$30.90
3/16"	.020"	3/4"	3/16"	2-1/2"	63187LR	\$35.90
1/4"	.020"	1-1/4"	1/4"	3"	63250LR	\$46.90
5/16"	.020"	1-3/8"	5/16"	3"	63312LR	\$59.90
3/8"	.020"	1-1/2"	3/8"	4"	63375LR	\$74.90
1/2"	.040"	2"	1/2"	4"	63500LR	\$98.90

Long Length - Corner Radius - ZRN COATED - 45 Degree Helix

FOR ALUMINUM, BRASS, BRONZE AND COPPER



D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.020"	3/4"	1/8"	2-1/4"	63125LRZ	\$38.90
3/16"	.020"	3/4"	3/16"	2-1/2"	63187LRZ	\$43.90
1/4"	.020"	1-1/4"	1/4"	3"	63250LRZ	\$55.90
5/16"	.020"	1-3/8"	5/16"	3"	63312LRZ	\$75.90
3/8"	.020"	1-1/2"	3/8"	4"	63375LRZ	\$90.40
1/2"	.040"	2"	1/2"	4"	63500LRZ	\$118.90

Zirconium has no affinity for the materials mentioned above.

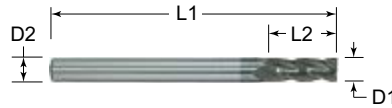
Tools plunge cut and can be run at 20-40% higher speed and feed rates.

TOLL FREE 866-426-3300
FAX 781-582-8095

Microcut

45° HELIX END MILLS – 5-FLUTE

Stub & Standard Length - Square End - AITiN COATED - 1/32" to 1/2"



Heavy Core with Corner Chamfer or Radius on all sizes. Carbide End Mills for Hardened Steel to 50 RC.

D1 Cutter Diameter	L2 Stub Length of Cut	L2 Standard Length of Cut	R Corner Chamfer/ Radius	D2 Shank Dia.	L1 Over All Length Stub / Std.	STUB LENGTH		STANDARD LTH	
						TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
.031"	.062"	.093"	.005" CHFR	1/8"	1-1/2"	57031S	\$25.75	57031	\$27.90
.047"	.094"	.141"	.005" CHFR	1/8"	1-1/2"	57047S	\$25.75	57047	\$27.90
.062"	.125"	.186"	.007" CHFR	1/8"	1-1/2"	57062S	\$23.60	57062	\$25.75
.078"	.156"	.234"	.007" CHFR	1/8"	1-1/2"	57078S	\$23.60	57078	\$25.75
.093"	.186"	.267"	.007" CHFR	1/8"	1-1/2"	57093S	\$23.60	57093	\$25.75
.125"	.250"	.500"	.010" RAD	1/8"	1-1/2"	57125S	\$18.20	57125	\$20.35
.187"	.375"	.750"	.010" RAD	3/16"	2" / 2-1/2"	57187S	\$19.30	57187	\$24.65
.250"	.500"	.750"	.020" RAD	1/4"	2" / 2-1/2"	57250S	\$21.45	57250	\$26.80
.312"	.500"	.875"	.020" RAD	5/16"	2" / 2-1/2"	57312S	\$26.80	57312	\$31.10
.375"	.625"	.875"	.020" RAD	3/8"	2" / 2-1/2"	57375S	\$37.55	57375	\$41.85
.500"	.625"	1.250"	.040" RAD	1/2"	2-1/2" / 3"	57500S	\$49.40	57500	\$75.20

MINIATURE DIE SINKING BALL END MILLS

3, 5, & 7 Degree Tapered Neck - AITiN COATED

2 STRAIGHT FLUTES



D1 Cutter Diameter	Degrees Per Side	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	3	.875"	.125"	2"	59931-3	\$21.25
.062"	3	.562"	.125"	2"	59962-3	\$21.25
.093"	3	.875"	.187"	2"	59993-3	\$28.50
.125"	3	1.00"	.250"	2-1/2"	59125-3	\$38.15
.031"	5	.500"	.125"	2"	59931-5	\$21.25
.062"	5	.312"	.125"	2"	59962-5	\$21.25
.093"	5	.500"	.187"	2"	59993-5	\$28.50
.125"	5	.680"	.250"	2-1/2"	59125-5	\$38.15
.031"	7	.375"	.125"	1-1/2"	59931-7	\$21.25
.062"	7	.250"	.125"	1-1/2"	59962-7	\$21.25
.093"	7	.375"	.187"	2"	59993-7	\$28.50
.125"	7	.500"	.250"	2-1/2"	59125-7	\$38.15

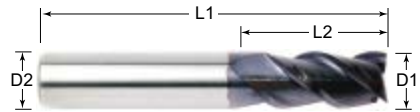
45° & 60° HELIX END MILLS – 3-FLUTE

Standard Length - **ALTIN COATED**

45 & 60 Degree Helix

Profile and finishing in all exotic material and stainless steel.

Increase SFM up to 40% when using these 3-Flute Series of High Performance 45 and 60-Degree Helix End Mills.



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	45 DEGREE		60 DEGREE	
				TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
1/8"	.500"	1/8"	1-1/2"	60125	\$17.75	61125	\$17.75
3/16"	.625"	3/16"	2"	60187	\$19.90	61187	\$19.90
1/4"	.750"	1/4"	2-1/2"	60250	\$22.05	61250	\$22.05
5/16"	.812"	5/16"	2-1/2"	60312	\$25.25	61312	\$25.25
3/8"	1.00"	3/8"	2-1/2"	60375	\$33.85	61375	\$33.85
1/2"	1.25"	1/2"	3"	60500	\$57.50	61500	\$57.50

45° HELIX END MILLS – 6-FLUTE

Carbide End Mills for Hardened Steel over 50 RC. **ALTIN Coated**. Heavy Core combined with Corner Radius for improved life. For Light Finishing Cuts Only in hardened materials.



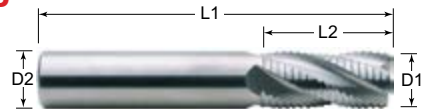
D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	.500"	.010"	1/8"	1-1/2"	58125	\$21.45
3/16"	.625"	.010"	3/16"	2"	58187	\$27.90
1/4"	.750"	.015"	1/4"	2-1/2"	58250	\$39.70
5/16"	.812"	.020"	5/16"	2-1/2"	58312	\$49.40
3/8"	1.00"	.020"	3/8"	2-1/2"	58375	\$56.90
1/2"	1.00"	.025"	1/2"	3"	58500	\$91.30

FINE PITCH ROUGHERS - 1/4" to 1/2"

Standard Length - **UNCOATED & ALTIN COATED**

Designed to remove the maximum amount of material with a minimum amount of chatter or vibration.

Works well in hardened steels, alloyed steel, titanium, stainless and nickel based alloys.



D1 Cutter Diameter	L2 Length of Cut	Number of Flutes	D2 Shank Diameter	L1 Over All Length	UNCOATED		ALTIN COATED	
					TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
1/4"	3/4"	4	1/4"	2-1/2"	16250	\$26.80	15250	\$33.85
5/16"	13/16"	4	5/16"	2-1/2"	16312	\$37.55	15312	\$47.85
3/8"	7/8"	4	3/8"	2-1/2"	16375	\$44.00	15375	\$55.35
1/2"	1-1/4"	4	1/2"	3"	16500	\$53.70	15500	\$68.25

Long Length - **UNCOATED & ALTIN COATED**

D1 Cutter Diameter	L2 Length of Cut	Number of Flutes	D2 Shank Diameter	L1 Over All Length	UNCOATED		ALTIN COATED	
					TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
1/4"	1-1/2"	4	1/4"	4"	16250L	\$38.65	15250L	\$48.90
5/16"	1-1/2"	4	5/16"	4"	16312L	\$49.40	15312L	\$63.95
3/8"	1-3/4"	4	3/8"	4"	16375L	\$62.30	15375L	\$77.95
1/2"	2"	4	1/2"	4"	16500L	\$70.90	15500L	\$99.45

CORNER ROUNDING MILLS - 2-FLUTE

UNCOATED - .005" - .047" Radius



Double Ended - End Cutting - Micro Grain Carbide - Made in USA

Forms precision radius on outside edges of parts. CNC Ground - 2 Flute - Double End - Rigid Solid Carbide Shank.
Tolerance on Radius is $\pm .0005$ ". No Flare on Radius. Special radii quoted on request.

R Radius	D1 Pilot Diameter	D2 Shank Diameter	L1 Overall Length	UNCOATED	
				Tool Number	Price Each
.005"	.020"	1/8"	1-1/2"	99005-02	\$34.50
.005"	3/64"	1/8"	1-1/2"	99005	\$26.50
.007"	3/64"	1/8"	1-1/2"	99007	\$26.50
.010"	.020"	1/8"	1-1/2"	99010-02	\$34.50
.010"	3/64"	1/8"	1-1/2"	99010	\$26.50
.012"	3/64"	1/8"	1-1/2"	99012	\$26.50
.015"	.020"	1/8"	1-1/2"	99015-02	\$34.50
.015"	3/64"	1/8"	1-1/2"	99015	\$26.50
.020"	.020"	1/8"	1-1/2"	99020-02	\$34.50
.020"	3/64"	1/8"	1-1/2"	99020	\$26.50
.025"	.020"	1/8"	1-1/2"	99025-02	\$34.50
.025"	3/64"	1/8"	1-1/2"	99025	\$26.50
.030"	3/64"	1/8"	1-1/2"	99030	\$26.50
.031"	.020"	1/8"	1-1/2"	99031-02	\$34.50
.031"	3/64"	1/8"	1-1/2"	99031	\$26.50
.032"	3/64"	1/8"	1-1/2"	99032	\$28.50
.035"	3/64"	1/8"	1-1/2"	99035	\$28.50
.039"	3/64"	1/8"	1-1/2"	99039	\$28.50
.040"	3/64"	1/8"	1-1/2"	99040	\$28.50
.043"	3/64"	3/16"	2"	99043	\$34.50
.045"	3/64"	3/16"	2"	99045	\$34.50
.047"	3/64"	3/16"	2"	99047	\$34.50

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CORNER ROUNDING MILLS – 2-FLUTE

Continued from previous page:

Corner Rounding

UNCOATED

Size Range: .050" to .375"

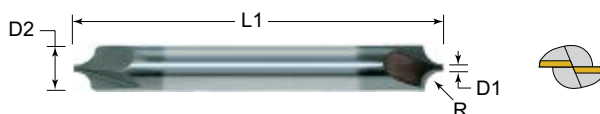


R Radius	D1 Pilot Diameter	D2 Shank Diameter	L1 Overall Length	UNCOATED	
				Tool Number	Price Each
.050"	3/64"	3/16"	2"	99050	\$34.50
.055"	3/64"	3/16"	2"	99055	\$34.50
.060"	3/64"	3/16"	2"	99060	\$34.90
.062"	3/64"	3/16"	2"	99062	\$34.90
.065"	3/64"	3/16"	2"	99065	\$34.90
.070"	3/64"	3/16"	2"	99070	\$38.90
.075"	3/64"	1/4"	2"	99075	\$38.90
.078"	3/64"	1/4"	2"	99078	\$39.75
.080"	3/64"	1/4"	2"	99080	\$39.75
.090"	3/64"	1/4"	2"	99090	\$39.75
.094"	3/64"	1/4"	2"	99094	\$41.50
.098"	3/64"	1/4"	2"	99098	\$41.50
.100"	3/64"	1/4"	2"	99100	\$41.50
.109"	.060"	5/16"	2-1/2"	99109	\$54.50
.118"	.060"	5/16"	2-1/2"	99118	\$54.50
.125"	.060"	5/16"	2-1/2"	99125	\$56.50
.140"	.060"	3/8"	2-1/2"	99140	\$66.50
.156"	.060"	3/8"	2-1/2"	99156	\$70.50
.187"	.060"	7/16"	2-1/2"	99187	\$119.50
.250"	.110"	5/8"	3-1/2"	99250	\$212.50
.375"	.250"	1"	4"	99375	\$366.50

CORNER ROUNDING MILLS - 2-FLUTE

TiCN COATED & AITiN COATED - .005" - .045" Radius

Continued from previous page:



Double Ended - End Cutting - Micro Grain Carbide - Made in USA

Forms precision radius on outside edges of parts. CNC Ground - 2 Flute - Double End - Rigid Solid Carbide Shank.
Tolerance on Radius is +/- .0005". No Flare on Radius. Special radii quoted on request.

R Radius	D1 Pilot Diameter	D2 Shank Diameter	L1 Overall Length	TiCN COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.005"	.020"	1/8"	1-1/2"	-	-	99005-02TL	\$42.50
.005"	3/64"	1/8"	1-1/2"	99005TC	\$34.50	99005TL	\$34.50
.007"	3/64"	1/8"	1-1/2"	99007TC	\$34.50	99007TL	\$34.50
.010"	.020"	1/8"	1-1/2"	-	-	99010-02TL	\$42.50
.010"	3/64"	1/8"	1-1/2"	99010TC	\$34.50	99010TL	\$34.50
.012"	3/64"	1/8"	1-1/2"	99012TC	\$34.50	99012TL	\$34.50
.015"	.020"	1/8"	1-1/2"	-	-	99015-02TL	\$42.50
.015"	3/64"	1/8"	1-1/2"	99015TC	\$34.50	99015TL	\$34.50
.020"	.020"	1/8"	1-1/2"	-	-	99020-02TL	\$42.50
.020"	3/64"	1/8"	1-1/2"	99020TC	\$34.50	99020TL	\$34.50
.025"	.020"	1/8"	1-1/2"	-	-	99025-02TL	\$42.50
.025"	3/64"	1/8"	1-1/2"	99025TC	\$34.50	99025TL	\$34.50
.030"	3/64"	1/8"	1-1/2"	99030TC	\$34.50	99030TL	\$34.50
.031"	.020"	1/8"	1-1/2"	-	-	99031-02TL	\$42.50
.031"	3/64"	1/8"	1-1/2"	99031TC	\$34.50	99031TL	\$34.50
.032"	3/64"	1/8"	1-1/2"	99032TC	\$34.50	99032TL	\$34.50
.035"	3/64"	1/8"	1-1/2"	99035TC	\$34.50	99035TL	\$34.50
.039"	3/64"	1/8"	1-1/2"	99039TC	\$34.50	99039TL	\$34.50
.040"	3/64"	1/8"	1-1/2"	99040TC	\$34.50	99040TL	\$34.50
.043"	3/64"	3/16"	2"	99043TC	\$42.90	99043TL	\$42.90
.045"	3/64"	3/16"	2"	99045TC	\$42.90	99045TL	\$42.90

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CORNER ROUNDING MILLS – 2-FLUTE

Continued from previous page:

Corner Rounding

TiCN COATED & AlTiN COATED

Size Range: .047" to .250"



R Radius	D1 Pilot Diameter	D2 Shank Diameter	L1 Overall Length	TiCN COATED		AlTiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.047"	3/64"	3/16"	2"	99047TC	\$42.90	99047TL	\$42.90
.050"	3/64"	3/16"	2"	99050TC	\$42.90	99050TL	\$42.90
.055"	3/64"	3/16"	2"	99055TC	\$42.90	99055TL	\$42.90
.060"	3/64"	3/16"	2"	99060TC	\$42.90	99060TL	\$42.90
.062"	3/64"	3/16"	2"	99062TC	\$42.90	99062TL	\$42.90
.065"	3/64"	3/16"	2"	99065TC	\$42.90	99065TL	\$42.90
.070"	3/64"	3/16"	2"	99070TC	\$42.90	99070TL	\$42.90
.075"	3/64"	1/4"	2"	99075TC	\$48.90	99075TL	\$48.90
.078"	3/64"	1/4"	2"	99078TC	\$48.90	99078TL	\$48.90
.080"	3/64"	1/4"	2"	99080TC	\$48.90	99080TL	\$48.90
.090"	3/64"	1/4"	2"	99090TC	\$48.90	99090TL	\$48.90
.094"	3/64"	1/4"	2"	99094TC	\$51.90	99094TL	\$51.90
.098"	3/64"	1/4"	2"	99098TC	\$51.90	99098TL	\$51.90
.100"	3/64"	1/4"	2"	99100TC	\$51.90	99100TL	\$51.90
.109"	.060"	5/16"	2-1/2"	99109TC	\$66.50	99109TL	\$66.50
.118"	.060"	5/16"	2-1/2"	99118TC	\$66.50	99118TL	\$66.50
.125"	.060"	5/16"	2-1/2"	99125TC	\$66.50	99125TL	\$66.50
.140"	.060"	3/8"	2-1/2"	99140TC	\$78.50	99140TL	\$78.50
.156"	.060"	3/8"	2-1/2"	99156TC	\$84.50	99156TL	\$84.50
.187"	.060"	7/16"	2-1/2"	99187TC	\$136.50	99187TL	\$136.50
.250"	.110"	5/8"	3-1/2"	N/A	N/A	99250TL	\$234.50

CORNER ROUNDING MILLS – NO FLARE

4-Flute - UNCOATED & AITiN COATED



Double Ended End Cutting – Micro Grain Carbide

DEPTH OF CUT = RADIUS PLUS .005" - RADIUS TOLERANCE ±.0005"

Multiple flutes improve performance in hard to machine alloyed steels and mold steels.

R Radius	D1 Pilot Diameter	D2 Shank Diameter	L1 Overall Length	UNCOATED		AITIN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/64" (.0156)	7/64"	3/16"	2"	98015	\$39.50	98015TL	\$47.50
.5mm (.020)	7/64"	3/16"	2"	98020	\$39.50	98020TL	\$47.50
1/32" (.0312)	7/64"	3/16"	2"	98031	\$43.50	98031TL	\$51.50
1mm (.040)	7/64"	3/16"	2"	98040	\$43.50	98040TL	\$51.50
3/64" (.0469)	7/64"	1/4"	2"	98046	\$49.50	98046TL	\$58.50
1/16" (.0625)	7/64"	1/4"	2"	98062	\$49.50	98062TL	\$58.50
5/64" (.0781)	3/32"	1/4"	2"	98078	\$49.50	98078TL	\$58.50
3/32" (.0937)	1/8"	5/16"	2-1/2"	98093	\$66.50	98093TL	\$81.50
1/8" (.1250)	3/16"	3/8"	2-1/2"	98125	\$94.50	98125TL	\$107.50

3° FLARED - CORNER ROUNDING MILLS

4-Flute - UNCOATED & AITiN COATED



Double Ended – End Cutting – Micro Grain Carbide

DEPTH OF CUT = RADIUS PLUS .005" - RADIUS TOLERANCE ±.0005"

Multiple flutes improve performance in hard to machine alloyed steels and mold steels.

3° flare on pilot and shoulder help avoid steps in workpiece.

R Radius	D1 Pilot Diameter	D2 Shank Diameter	L1 Overall Length	UNCOATED		AITIN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/64" (.0156)	7/64"	3/16"	2"	98015FL	\$46.50	98015FLT	\$55.50
.5mm (.020)	7/64"	3/16"	2"	98020FL	\$46.50	98020FLT	\$55.50
1/32" (.0312)	7/64"	3/16"	2"	98031FL	\$49.50	98031FLT	\$57.50
1mm (.040)	7/64"	3/16"	2"	98040FL	\$49.50	98040FLT	\$57.50
3/64" (.0469)	7/64"	1/4"	2"	98046FL	\$58.50	98046FLT	\$68.50
1/16" (.0625)	7/64"	1/4"	2"	98062FL	\$58.50	98062FLT	\$68.50
5/64" (.0781)	3/32"	1/4"	2"	98078FL	\$58.50	98078FLT	\$68.50
3/32" (.0937)	1/8"	5/16"	2-1/2"	98093FL	\$72.50	98093FLT	\$87.50
1/8" (.1250)	3/16"	3/8"	2-1/2"	98125FL	\$98.50	98125FLT	\$114.50

3° FLARED – CORNER ROUNDING MILLS

2-Flute - UNCOATED & AITiN COATED

DEPTH OF CUT = RADIUS PLUS .005"

RADIUS TOLERANCE $\pm .0005$ "



**NEW: available with
multiple pilot diameters**

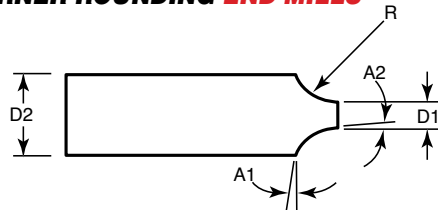
Double Ended – End Cutting – Micro Grain Carbide

R Radius	D1 Pilot Diameter	D2 Shank Diameter	L1 Overall Length	UNCOATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.005"	.020"	1/8"	1-1/2"	99205FL	\$39.50	99205FLT	\$45.50
.005"	.047"	1/8"	1-1/2"	99005FL	\$29.90	99005FLT	\$35.90
.010"	.020"	1/8"	1-1/2"	99210FL	\$39.50	99210FLT	\$45.50
.010"	.047"	1/8"	1-1/2"	99010FL	\$29.90	99010FLT	\$35.90
.015"	.020"	1/8"	1-1/2"	99215FL	\$39.50	99215FLT	\$45.50
.015"	.047"	1/8"	1-1/2"	99015FL	\$29.90	99015FLT	\$35.90
.020"	.020"	1/8"	1-1/2"	99220FL	\$39.50	99220FLT	\$45.50
.020"	.047"	1/8"	1-1/2"	99020FL	\$29.90	99020FLT	\$35.90
.025"	.020"	1/8"	1-1/2"	99225FL	\$39.50	99225FLT	\$45.50
.025"	.047"	1/8"	1-1/2"	99025FL	\$29.90	99025FLT	\$35.90
.030"	.020"	1/8"	1-1/2"	99230FL	\$39.50	99230FLT	\$45.50
.030"	.047"	1/8"	1-1/2"	99030FL	\$29.90	99030FLT	\$35.90
.031"	.020"	1/8"	1-1/2"	99231FL	\$39.50	99231FLT	\$45.50
.031"	.047"	1/8"	1-1/2"	99031FL	\$29.90	99031FLT	\$35.90
.035"	.047"	1/8"	1-1/2"	99035FL	\$29.90	99035FLT	\$35.90
.040"	.047"	3/16"	1-1/2"	99040FL	\$35.90	99040FLT	\$43.50
.043"	.047"	3/16"	2"	99043FL	\$37.90	99043FLT	\$45.50
.047"	.047"	3/16"	2"	99047FL	\$37.90	99047FLT	\$45.50
.060"	.047"	3/16"	2"	99060FL	\$37.90	99060FLT	\$45.50
.062"	.047"	3/16"	2"	99062FL	\$37.90	99062FLT	\$45.50
.078"	.047"	1/4"	2"	99078FL	\$44.90	99078FLT	\$54.50
.093"	.047"	1/4"	2"	99093FL	\$44.90	99093FLT	\$54.50
.125"	.062"	5/16"	2-1/2"	99125FL	\$69.90	99125FLT	\$79.50

ORDER SPECIAL 2-FLUTE CORNER ROUNDING END MILLS

Please specify:

- ☐ Single End or ☐ Double End.
- Radius (R): _____
- Pilot (D1): _____
- Flare Angle (A1): _____
- Flare Angle (A2): _____
- Shank Diameter (D2): _____
- Quantity (Minimum 6): _____
- Overall Length: Mfg. Standard



**Special 2-Flute
Corner Rounding End Mills**

Tools are custom manufactured to order and are nonreturnable.

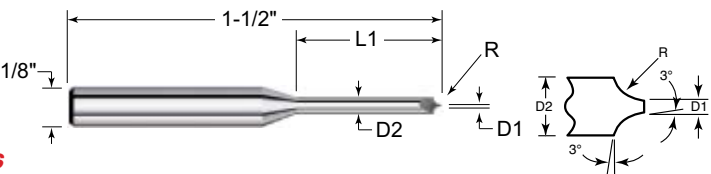
Miniature Long Reach Corner Rounding End Mills

UNCOATED & AITiN COATED

Single Ended - End Cutting - Micro Grain Carbide - Made in USA

**.005" - .030" Radius with 3 Degree
Flares on top and bottom Radius
1/8" Shank - 1-1/2" OAL - 2 Flutes**

*Available with
multiple pilot diameters*



R Radius	D1 Pilot Diameter	D2 Neck Diameter	L1 Reach From Tip	UNCOATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.005"	.010"	.030"	.150"	99405-150	\$30.50	99705-150	\$34.50
.005"	.010"	.030"	.250"	99405-250	\$30.50	99705-250	\$34.50
.005"	.010"	.030"	.375"	99405-375	\$31.50	99705-375	\$35.50
.005"	.020"	.031"	.150"	99505-150	\$30.50	99805-150	\$34.50
.005"	.020"	.031"	.250"	99505-250	\$30.50	99805-250	\$34.50
.005"	.020"	.031"	.375"	99505-375	\$31.50	99805-375	\$35.50
.005"	.020"	.060"	.250"	99605-250	\$30.50	99905-250	\$34.50
.005"	.020"	.060"	.375"	99605-375	\$30.50	99905-375	\$34.50
.005"	.020"	.060"	.500"	99605-500	\$30.50	99905-500	\$34.50
.005"	.020"	.060"	.625"	99605-625	\$31.50	99905-625	\$35.50
.010"	.010"	.031"	.150"	99510-150	\$30.50	99810-150	\$34.50
.010"	.010"	.031"	.250"	99510-250	\$30.50	99810-250	\$34.50
.010"	.010"	.031"	.375"	99510-375	\$31.50	99810-375	\$35.50
.010"	.020"	.060"	.250"	99610-250	\$30.50	99910-250	\$34.50
.010"	.020"	.060"	.375"	99610-375	\$30.50	99910-375	\$34.50
.010"	.020"	.060"	.500"	99610-500	\$30.50	99910-500	\$34.50
.010"	.020"	.060"	.625"	99610-625	\$31.50	99910-625	\$35.50
.015"	.020"	.060"	.250"	99515-250	\$30.50	99815-250	\$34.50
.015"	.020"	.060"	.375"	99515-375	\$30.50	99815-375	\$34.50
.015"	.020"	.060"	.500"	99515-500	\$30.50	99815-500	\$34.50
.015"	.020"	.060"	.625"	99515-625	\$31.50	99815-625	\$35.50
.020"	.020"	.062"	.250"	99520-250	\$30.50	99820-250	\$34.50
.020"	.020"	.062"	.375"	99520-375	\$30.50	99820-375	\$34.50
.020"	.020"	.062"	.500"	99520-500	\$30.50	99820-500	\$34.50
.020"	.020"	.062"	.625"	99520-625	\$31.50	99820-625	\$35.50
.025"	.020"	.078"	.375"	99525-375	\$30.50	99825-375	\$34.50
.025"	.020"	.078"	.500"	99525-500	\$30.50	99825-500	\$34.50
.025"	.020"	.078"	.625"	99525-625	\$31.50	99825-625	\$35.50
.030"	.020"	.090"	.625"	99530-625	\$31.50	99830-625	\$35.50

Special Reach Lengths and Neck Diameters available on above sizes. Submit your request to sales@microcutUSA.com. Minimum quantity is 6 tools per size. Special Tools ship in 24-48 Hours.

BACK RADIUS AND CHAMFERING TOOLS

Micro-Sized Carbide Back Radius Form Tools



Used to form radius on the backside of slots, drilled holes and part projections. Cuts on the Radius and 3-5 Degree flare angles only. Circular Interpolate the back side many hole diameters. AlTiN Coated for wear resistance. See page 100 for special long reach options.

RADIUS +/- ".0005"	HEAD DIA. "D"	NECK DIA. "N"	*NECK LENGTH "L"	C/L RADIUS FROM TIP	NON CUTTING FLAT "F"	NO. OF FLUTES	SHANK DIA. "S"	OAL	AITiN COATED	
									TOOL NUMBER	PRICE EACH
.010"	.078"	.050"	.275"	.030"	.020"	3	1/8"	1-1/2"	99310	\$57.50
.010"	.175"	.140"	.531"	.070"	.060"	3	3/16"	2"	99310L	\$64.50
.015"	.090"	.056"	.300"	.035"	.020"	3	1/8"	1-1/2"	99315	\$57.50
.015"	.175"	.135"	.531"	.080"	.060"	3	3/16"	2"	99315L	\$64.50
.020"	.114"	.070"	.375"	.040"	.020"	3	1/8"	1-1/2"	99320	\$57.50
.020"	.175"	.125"	.531"	.080"	.060"	3	3/16"	2"	99320L	\$64.50
.031"	.175"	.100"	.531"	.090"	.060"	3	3/16"	2"	99331	\$64.50
.062"	.300"	.160"	.775"	.125"	.060"	3	5/16"	2-1/2"	99362	\$84.50

*Neck length is measured from behind the cutter head.

Miniature Carbide Back Chamfering Tools



Used to chamfer or de-burr the backside of slots, thru holes and part projections. Cuts on the 45 Degree angle only. Flute face designed to evacuate chips for smooth finish. Circular Interpolate the back side of most common hole diameters, and or de-burr a variety of part configurations.

See page 101 for special long reach options.

1/8" Shank – 1-1/2" Overall Length

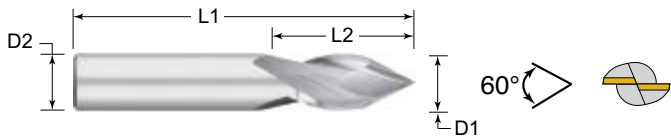
CUTTER DIA. "D"	LENGTH OF CUT (AXIAL)	MAX BACK CHAMFER	NECK DIA. "N"	NON CUTTING FLAT "F"	*NECK LENGTH "L"	NO. OF FLTS	UNCOATED		AITiN COATED	
							TOOL NUMBER	PRICE EACH	TOOL NUMBER	PRICE EACH
.026"	.004"	.004x45 Deg	.016"	.008"	.140"	3	11026	\$43.50	11026TL	\$49.50
.036"	.006"	.005x45 Deg	.024"	.010"	.175"	3	11036	\$43.50	11036TL	\$49.50
.046"	.007"	.006x45 Deg	.032"	.015"	.200"	3	11046	\$41.50	11046TL	\$47.50
.056"	.008"	.007x45 Deg	.040"	.015"	.300"	3	11056	\$41.50	11056TL	\$47.50
.086"	.010"	.009x45 Deg	.075"	.020"	.375"	3	11086	\$38.50	11086TL	\$44.50
.116"	.013"	.012x45 Deg	.090"	.030"	.575"	3	11116	\$36.50	11116TL	\$42.50

*Neck length is measured from behind the cutter head.

60° DRILL POINT MILLS - 2 & 4-FLUTE

2-Flute - 60° Included Point - UNCOATED & AITiN COATED

CENTER CUTTING FOR DRILLING AND MILLING APPLICATIONS

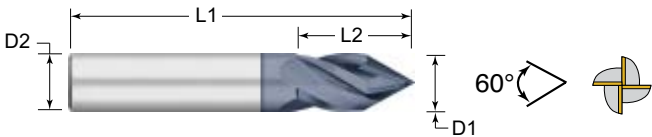


Recommended for non-ferrous materials.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/32"	1/8"	1/8"	1-1/2"	96030	\$21.90	96030TL	\$25.90
3/64"	9/64"	1/8"	1-1/2"	96045	\$21.90	96045TL	\$25.90
1/16"	3/16"	1/8"	1-1/2"	96060	\$21.90	96060TL	\$25.90
3/32"	3/8"	1/8"	1-1/2"	96094	\$21.90	96094TL	\$25.90
1/8"	1/2"	1/8"	1-1/2"	96125	\$21.90	96125TL	\$25.90
3/16"	5/8"	3/16"	2"	96187	\$24.90	96187TL	\$29.90
1/4"	3/4"	1/4"	2-1/2"	96250	\$27.90	96250TL	\$33.90
5/16"	13/16"	5/16"	2-1/2"	96312	\$34.90	96312TL	\$42.90
3/8"	1"	3/8"	2-1/2"	96375	\$39.90	96375TL	\$48.90
1/2"	1"	1/2"	3"	96500	\$69.90	96500TL	\$77.90

4-Flute - 60° Included Point - UNCOATED & AITiN COATED

CENTER CUTTING FOR DRILLING AND MILLING APPLICATIONS



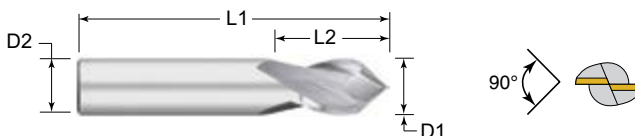
For cutting mild steel, stainless steel, and alloyed steels.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/32"	1/8"	1/8"	1-1/2"	97030	\$21.90	97030TL	\$25.90
3/64"	9/64"	1/8"	1-1/2"	97045	\$21.90	97045TL	\$25.90
1/16"	3/16"	1/8"	1-1/2"	97060	\$21.90	97060TL	\$25.90
3/32"	3/8"	1/8"	1-1/2"	97094	\$21.90	97094TL	\$25.90
1/8"	1/2"	1/8"	1-1/2"	97125	\$21.90	97125TL	\$25.90
3/16"	5/8"	3/16"	2"	97187	\$24.90	97187TL	\$29.90
1/4"	3/4"	1/4"	2-1/2"	97250	\$27.90	97250TL	\$33.90
5/16"	13/16"	5/16"	2-1/2"	97312	\$34.90	97312TL	\$42.90
3/8"	1"	3/8"	2-1/2"	97375	\$39.90	97375TL	\$48.90
1/2"	1"	1/2"	3"	97500	\$69.90	97500TL	\$77.90

90° DRILL POINT MILLS - 2 & 4-FLUTE

2-Flute - 90° Included Point - UNCOATED & AITiN COATED

CENTER CUTTING FOR DRILLING AND MILLING APPLICATIONS

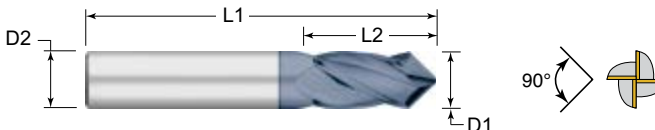


For cutting mild steel, stainless steel, and alloyed steels.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/32"	1/8"	1/8"	1-1/2"	92030	\$21.90	92030TL	\$25.90
3/64"	9/64"	1/8"	1-1/2"	92045	\$21.90	92045TL	\$25.90
1/16"	3/16"	1/8"	1-1/2"	92060	\$21.90	92060TL	\$25.90
3/32"	3/8"	1/8"	1-1/2"	92094	\$21.90	92094TL	\$25.90
1/8"	1/2"	1/8"	1-1/2"	92125	\$21.90	92125TL	\$25.90
3/16"	5/8"	3/16"	2"	92187	\$24.90	92187TL	\$29.90
1/4"	3/4"	1/4"	2-1/2"	92250	\$27.90	92250TL	\$33.90
5/16"	13/16"	5/16"	2-1/2"	92312	\$34.90	92312TL	\$42.90
3/8"	1"	3/8"	2-1/2"	92375	\$39.90	92375TL	\$48.90
1/2"	1"	1/2"	3"	92500	\$69.90	92500TL	\$77.90
5/8"	1-1/4"	5/8"	3-1/2"	92625	\$125.50	92625TL	\$145.50
3/4"	1-1/2"	3/4"	4"	92750	\$174.50	92750TL	\$199.50

4-Flute - 90° Included Point - UNCOATED & AITiN COATED

CENTER CUTTING FOR DRILLING AND MILLING APPLICATIONS



For cutting mild steel, stainless steel, and alloyed steels.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/32"	1/8"	1/8"	1-1/2"	94030	\$21.90	94030TL	\$25.90
3/64"	9/64"	1/8"	1-1/2"	94045	\$21.90	94045TL	\$25.90
1/16"	3/16"	1/8"	1-1/2"	94060	\$21.90	94060TL	\$25.90
3/32"	3/8"	1/8"	1-1/2"	94094	\$21.90	94094TL	\$25.90
1/8"	1/2"	1/8"	1-1/2"	94125	\$21.90	94125TL	\$25.90
3/16"	5/8"	3/16"	2"	94187	\$24.90	94187TL	\$29.90
1/4"	3/4"	1/4"	2-1/2"	94250	\$27.90	94250TL	\$33.90
5/16"	13/16"	5/16"	2-1/2"	94312	\$34.90	94312TL	\$42.90
3/8"	1"	3/8"	2-1/2"	94375	\$39.90	94375TL	\$48.90
1/2"	1"	1/2"	3"	94500	\$69.90	94500TL	\$77.90
5/8"	1-1/4"	5/8"	3-1/2"	94625	\$125.50	94625TL	\$145.50
3/4"	1-1/2"	3/4"	4"	94750	\$174.50	94750TL	\$199.50

82° & 120° DRILL POINT MILLS - 4-FLUTE

4-Flute - 82° Included Point - UNCOATED & AITiN COATED

CENTER CUTTING FOR DRILLING AND MILLING APPLICATIONS

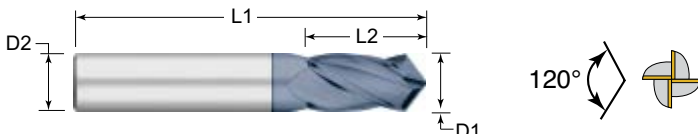


For cutting mild steel, stainless steel, and alloyed steels.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/16"	3/16"	1/8"	1-1/2"	98260	\$21.90	98260TL	\$25.90
3/32"	3/8"	1/8"	1-1/2"	98294	\$21.90	98294TL	\$25.90
1/8"	1/2"	1/8"	1-1/2"	98225	\$21.90	98225TL	\$25.90
3/16"	5/8"	3/16"	2"	98287	\$24.90	98287TL	\$29.90
1/4"	3/4"	1/4"	2-1/2"	98250	\$27.90	98250TL	\$33.90
5/16"	13/16"	5/16"	2-1/2"	98212	\$34.90	98212TL	\$42.90
3/8"	1"	3/8"	2-1/2"	98275	\$39.90	98275TL	\$48.90
1/2"	1"	1/2"	3"	98200	\$69.90	98200TL	\$77.90

4-Flute - 120° Included Point - UNCOATED & AITiN COATED

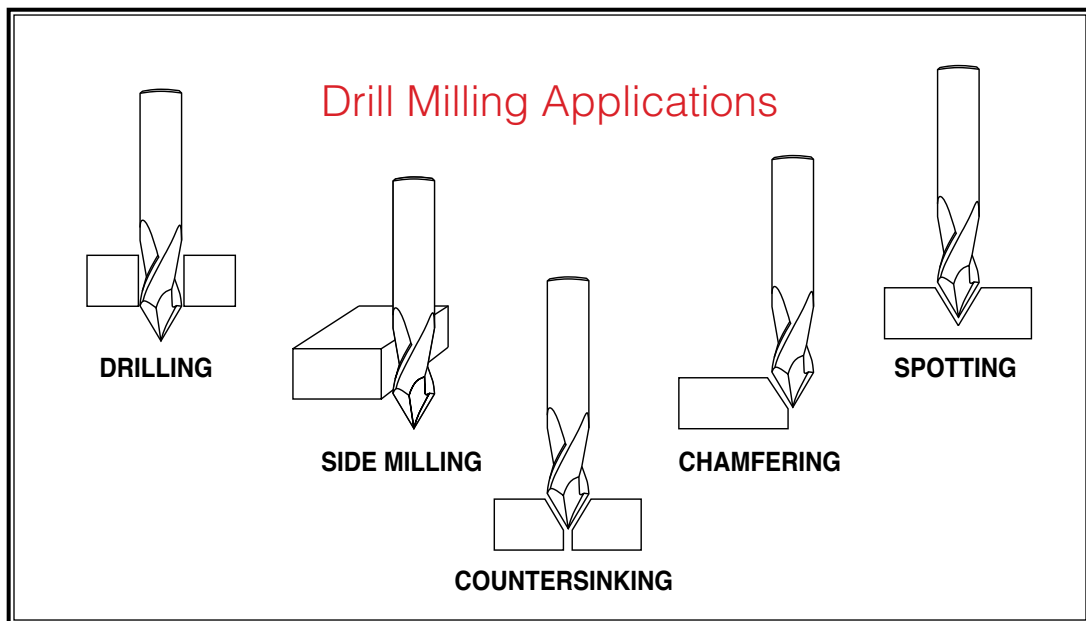
CENTER CUTTING FOR DRILLING AND MILLING APPLICATIONS



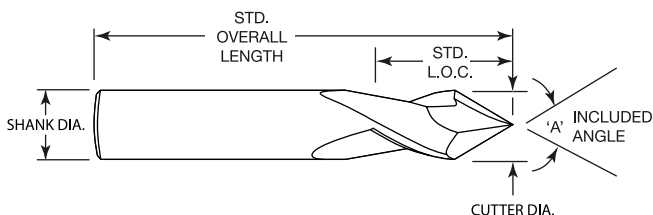
For cutting mild steel, stainless steel, and alloyed steels.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/32"	3/32"	1/8"	1-1/2"	95030	\$24.90	95030TL	\$28.90
3/64"	9/64"	1/8"	1-1/2"	95045	\$24.90	95045TL	\$28.90
1/16"	3/16"	1/8"	1-1/2"	95060	\$24.90	95060TL	\$28.90
3/32"	3/8"	1/8"	1-1/2"	95094	\$24.90	95094TL	\$28.90
1/8"	1/2"	1/8"	1-1/2"	95125	\$24.90	95125TL	\$28.90
3/16"	5/8"	3/16"	2"	95187	\$26.90	95187TL	\$31.90
1/4"	3/4"	1/4"	2-1/2"	95250	\$34.90	95250TL	\$40.90
5/16"	13/16"	5/16"	2-1/2"	95312	\$37.90	95312TL	\$44.90
3/8"	1"	3/8"	2-1/2"	95375	\$46.90	95375TL	\$58.90
1/2"	1"	1/2"	3"	95500	\$72.90	95500TL	\$84.90

ORDER SPECIAL DRILL POINT MILLS



ORDER SPECIAL DRILL MILLS



Please specify the following dimensions:

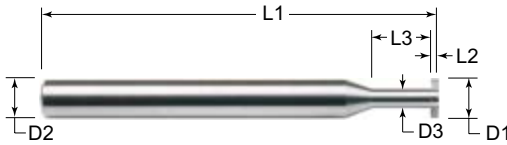
1. Cutter Diameter: _____ (Note: Must be same as Shank Diameter 1/8 inch and above.*)
2. Included Angle (A): _____
3. Number of Flutes: ☐ 2 or ☐ 4
4. ☐ Uncoated or ☐ *AlTiN Coated *Allow 2 Weeks Extra for AlTiN Coating
5. Quantity (Minimum 6): _____

Note: The maximum cutter diameter we manufacture is .500".

* Shank Diameter, Overall Length, and Length of Cut are our manufacturing standards listed on our Series 52000 and 54000 (See pages 76 and 77).

MINIATURE KEYSEAT CUTTERS - 4-FLUTE

Micrograin Carbide - UNCOATED & AITiN COATED



1/16" to 3/32" DIAMETER

D1 Cutter Diameter	L2 Cutter Width	D3 Neck Diameter	L3 Neck Length	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
						Tool Number	Price Each	Tool Number	Price Each
1/16"	.015"	.031"	3/32"	1/8"	1-1/2"	28400	\$39.50	28400TL	\$43.80
1/16"	.031"	.031"	3/32"	1/8"	1-1/2"	28405	\$39.50	28405TL	\$43.80
1/16"	.047"	.031"	3/32"	1/8"	1-1/2"	28410	\$39.50	28410TL	\$43.80
1/16"	.062"	.031"	3/32"	1/8"	1-1/2"	28415	\$39.50	28415TL	\$43.80
5/64"	.015"	.040"	1/8"	1/8"	1-1/2"	28500	\$39.10	28500TL	\$43.40
5/64"	.031"	.040"	1/8"	1/8"	1-1/2"	28505	\$39.10	28505TL	\$43.40
5/64"	.047"	.040"	1/8"	1/8"	1-1/2"	28510	\$39.10	28510TL	\$43.40
5/64"	.062"	.040"	1/8"	1/8"	1-1/2"	28515	\$39.10	28515TL	\$43.40
3/32"	.015"	.047"	5/32"	1/8"	1-1/2"	28600	\$38.65	28600TL	\$42.95
3/32"	.031"	.047"	5/32"	1/8"	1-1/2"	28605	\$38.65	28605TL	\$42.95
3/32"	.047"	.047"	5/32"	1/8"	1-1/2"	28610	\$38.65	28610TL	\$42.95
3/32"	.062"	.047"	5/32"	1/8"	1-1/2"	28615	\$38.65	28615TL	\$42.95

MINIATURE KEYSEAT CUTTERS - 6-FLUTE

Order Special Width Keyseat Cutters

1/8", 3/16" AND 1/4" DIAMETERS. MIN. 3 TOOLS PER SIZE



D1 Cutter Dia.	L2 Cutter Width	D3 Neck Dia.	L3 Neck Length	D2 Shank Dia.	L1 Over All Length	NOT COATED		AITiN COATED	
						Tool Number	Price Each	Tool Number	Price Each
1/8"	.015-.125"	.062"	3/16"	1/8"	1-1/2"	28000SP	\$79.45	28000SPT	\$92.35
3/16"	.015-.187"	.093"	9/32"	3/16"	2"	28100SP	\$83.75	28100SPT	\$96.65
1/4"	.015-.250"	.125"	3/8"	1/4"	2-1/2"	28300SP	\$88.05	28300SPT	\$104.15

Tool Number: Add Decimal Size to Tool No. in chart.

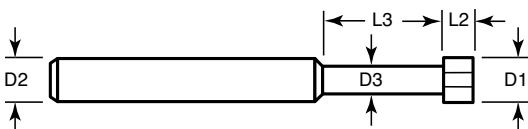
Example: 28100SPT-114 is for a 3/16" Dia. X .114" Cutter Width.

Longer neck tools quoted on request.

Delivery: 7-10 days for uncoated tools. Add 1 additional week for AITiN Coating.

ORDER SPECIAL 6-FLUTE KEYSEAT CUTTERS

To order special Keyseat Cutters please specify:



1. Shank Dia. (D2): _____
2. Cutter Dia. (D1): _____
3. Flute Length (L2): _____
4. Neck Length (L3): _____
5. Neck Dia. (D3): _____
6. Quantity (Min. 6): _____
7. Overall Length: Mfg. Standard

MINIATURE KEYSEAT CUTTERS - 6-FLUTE

Micrograin Carbide - UNCOATED & AITIN COATED



1/8", 3/16", 1/4" Diameter

Available with multiple neck lengths

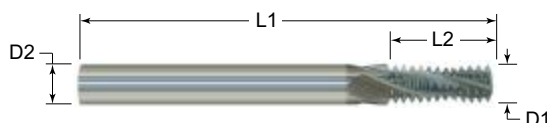
Neck length measured from behind cutter head.



D1 Cutter Diameter	L2 Cutter Width	D3 Neck Diameter	L3 Neck Length	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITIN COATED	
						Tool Number	Price Each	Tool Number	Price Each
1/8"	.015"	.062"	3/16"	1/8"	1-1/2"	28000	\$36.95	28000TL	\$41.25
1/8"	.015"	.062"	3/8"	1/8"	1-1/2"	28000L	\$43.40	28000LT	\$47.70
1/8"	.031"	.062"	3/16"	1/8"	1-1/2"	28005	\$36.95	28005TL	\$41.25
1/8"	.031"	.062"	3/8"	1/8"	1-1/2"	28005L	\$43.40	28005LT	\$47.70
1/8"	.047"	.062"	3/16"	1/8"	1-1/2"	28010	\$36.95	28010TL	\$41.25
1/8"	.047"	.062"	3/8"	1/8"	1-1/2"	28010L	\$43.40	28010LT	\$47.70
1/8"	.062"	.062"	3/16"	1/8"	1-1/2"	28015	\$36.95	28015TL	\$41.25
1/8"	.062"	.062"	3/8"	1/8"	1-1/2"	28015L	\$43.40	28015LT	\$47.70
1/8"	.093"	.062"	3/16"	1/8"	1-1/2"	28020	\$36.95	28020TL	\$41.25
1/8"	.093"	.062"	3/8"	1/8"	1-1/2"	28020L	\$43.40	28020LT	\$47.70
1/8"	.125"	.062"	3/16"	1/8"	1-1/2"	28025	\$36.95	28025TL	\$41.25
1/8"	.125"	.062"	3/8"	1/8"	1-1/2"	28025L	\$43.40	28025LT	\$47.70
3/16"	.015"	.093"	9/32"	3/16"	2"	28100	\$39.35	28100TL	\$43.85
3/16"	.015"	.093"	1/2"	3/16"	2"	28100L	\$48.75	28100LT	\$54.15
3/16"	.031"	.093"	9/32"	3/16"	2"	28105	\$39.35	28105TL	\$43.85
3/16"	.031"	.093"	1/2"	3/16"	2"	28105L	\$48.75	28105LT	\$54.15
3/16"	.047"	.093"	9/32"	3/16"	2"	28110	\$39.35	28110TL	\$43.85
3/16"	.047"	.093"	1/2"	3/16"	2"	28110L	\$48.75	28110LT	\$54.15
3/16"	.062"	.093"	9/32"	3/16"	2"	28115	\$39.35	28115TL	\$43.85
3/16"	.062"	.093"	1/2"	3/16"	2"	28115L	\$48.75	28115LT	\$54.15
3/16"	.093"	.093"	5/16"	3/16"	2"	28120	\$39.35	28120TL	\$43.85
3/16"	.093"	.093"	9/16"	3/16"	2"	28120L	\$48.75	28120LT	\$54.15
3/16"	.125"	.093"	5/16"	3/16"	2"	28125	\$39.35	28125TL	\$43.85
3/16"	.125"	.093"	9/16"	3/16"	2"	28125L	\$48.75	28125LT	\$54.15
3/16"	.187"	.093"	5/16"	3/16"	2"	28130	\$39.35	28130TL	\$43.85
3/16"	.187"	.093"	9/16"	3/16"	2"	28130L	\$48.75	28130LT	\$54.15
1/4"	.015"	.125"	3/8"	1/4"	2-1/2"	28300	\$42.30	28300TL	\$48.75
1/4"	.015"	.125"	3/4"	1/4"	2-1/2"	28300L	\$52.25	28300LT	\$58.70
1/4"	.031"	.125"	3/8"	1/4"	2-1/2"	28305	\$42.30	28305TL	\$48.75
1/4"	.031"	.125"	3/4"	1/4"	2-1/2"	28305L	\$52.25	28305LT	\$58.70
1/4"	.047"	.125"	3/8"	1/4"	2-1/2"	28310	\$42.30	28310TL	\$48.75
1/4"	.047"	.125"	3/4"	1/4"	2-1/2"	28310L	\$52.25	28310LT	\$58.70
1/4"	.062"	.125"	3/8"	1/4"	2-1/2"	28315	\$42.30	28315TL	\$48.75
1/4"	.062"	.125"	3/4"	1/4"	2-1/2"	28315L	\$52.25	28315LT	\$58.70
1/4"	.125"	.125"	3/8"	1/4"	2-1/2"	28320	\$42.30	28320TL	\$48.75
1/4"	.125"	.125"	3/4"	1/4"	2-1/2"	28320L	\$52.25	28320LT	\$58.70
1/4"	.187"	.125"	3/8"	1/4"	2-1/2"	28325	\$42.30	28325TL	\$48.75
1/4"	.187"	.125"	3/4"	1/4"	2-1/2"	28325L	\$52.25	28325LT	\$58.70
1/4"	.250"	.125"	3/8"	1/4"	2-1/2"	28330	\$42.30	28330TL	\$48.75
1/4"	.250"	.125"	3/4"	1/4"	2-1/2"	28330L	\$52.25	28330LT	\$58.70

HELICAL THREAD MILLS – 3, 4 & 5-FLUTE

Un Thread Form - AITiN COATED



Length of Cut as Specified – Micro Grain Carbide – Made in USA

Designed for internal and external threads. Tools cut right hand or left hand.

AITiN Coated for maximum wear resistance. CNC ground.

Thread Size	D1 Cutter Diameter	D2 Shank Diameter	L2 Length of Cut	No. of Flutes	L1 Over All Length	TOOL NUMBER	PRICE EACH
#2-56	.065"	1/8"	.125"	3	2"	44002	\$79.90
#4-40	.085"	1/8"	.175"	3	2"	44004	\$81.50
#6-32	.100"	1/8"	.218"	3	2"	44006	\$83.75
#8-32	.115"	1/8"	.250"	3	2"	44008	\$89.50
#10-24	.120"	1/8"	.312"	3	2"	44009	\$93.50
#10-32	.120"	1/8"	.312"	3	2"	44010	\$93.50
1/4-20	.180"	3/16"	.500"	3	2-1/2"	44101	\$110.50
1/4-28	.180"	3/16"	.500"	3	2-1/2"	44102	\$110.50
5/16-18	.235"	1/4"	.625"	3	2-1/2"	44201	\$120.25
5/16-24	.235"	1/4"	.625"	3	2-1/2"	44202	\$137.50
3/8-16	.285"	5/16"	.750"	4	3"	44301	\$164.50
3/8-24	.285"	5/16"	.750"	4	3"	44302	\$164.50
7/16-14	.340"	3/8"	.875"	4	3"	44401	\$164.50
7/16-20	.340"	3/8"	.875"	4	3"	44402	\$176.50
1/2-13	.350"	3/8"	.875"	4	3-1/2"	44501	\$182.50
1/2-20	.350"	3/8"	.875"	4	3-1/2"	44502	\$182.50
9/16-12	.370"	3/8"	.875"	4	3-1/2"	44601	\$182.50
9/16-18	.370"	3/8"	.875"	4	3-1/2"	44602	\$182.50
5/8-11	.495"	1/2"	1.25"	4	3-1/2"	44701	\$225.50
3/4-10	.495"	1/2"	1.25"	4	3-1/2"	44801	\$227.50
3/4-12	.495"	1/2"	1.25"	4	3-1/2"	44802	\$227.50
3/4-16	.495"	1/2"	1.25"	4	3-1/2"	44803	\$231.50
7/8-9	.620"	5/8"	1.25"	5	3-1/2"	44901	\$325.50
7/8-14	.620"	5/8"	1.25"	4	3-1/2"	44902	\$231.50
1-8	.620"	5/8"	1.375"	5	4"	44950	\$329.50

THREADMILLS - CALCULATION FORMULAS

Use these formulas to calculate:

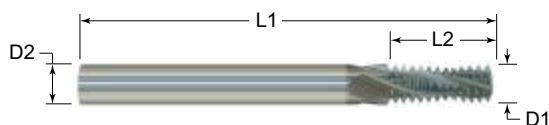
Feed Rate Adjustment: $\frac{(\text{Thread Major Diameter to Be Cut}) - (\text{Threadmill Dia.})}{(\text{Thread Major Dia. to Be Cut})} \times \text{Linear Feed Rate}$

RPM: $\frac{3.8}{(\text{Threadmill Diameter})} \times \text{SFM}$

Linear IPM: (Inches Per Tooth) X (Number of Flutes) X RPM

HELICAL THREAD MILLS - 3, 4 & 5-FLUTE

N.P.T. - AITiN COATED



Length of Cut as Specified - Micro Grain Carbide - Made in USA

Designed for internal and external threads. Tools cut right hand or left hand.
AITiN Coated for maximum wear resistance. CNC ground-Micrograin Carbide.

Thread Size	Pitch	D1 Cutter Diameter	D2 Shank Diameter	L2 Length of Cut	No. of Flutes	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/16	27	.245"	1/4"	.437"	3	2-1/2"	45501	\$120.50
1/8	27	.310"	5/16"	.437"	4	2-1/2"	45511	\$120.50
1/4	18	.370"	3/8"	.625"	4	3"	45502	\$162.95
3/8	18	.370"	3/8"	.625"	4	3"	45512	\$162.95
1/2	14	.495"	1/2"	.875"	4	3-1/2"	45503	\$209.50
3/4	14	.495"	1/2"	.875"	4	3-1/2"	45513	\$209.50
1	11.5	.620"	3/4"	1.125"	5	4"	45504	\$275.50

NPTF Dryseal Pipe Thread - AITiN COATED



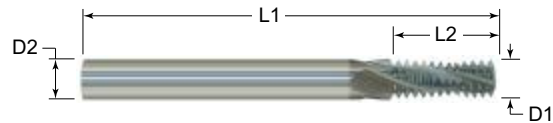
Thread Size	Pitch	D1 Cutter Diameter	D2 Shank Diameter	L2 Length of Cut	No. of Flutes	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/16	27	.245"	1/4"	.437"	3	2-1/2"	45601	\$120.50
1/8	27	.310"	5/16"	.437"	4	2-1/2"	45611	\$120.50
1/4	18	.370"	3/8"	.625"	4	3"	45602	\$162.95
3/8	18	.370"	3/8"	.625"	4	3"	45612	\$162.95
1/2	14	.495"	1/2"	.875"	4	3-1/2"	45603	\$209.50
3/4	14	.495"	1/2"	.875"	4	3-1/2"	45613	\$209.50
1	11.5	.620"	3/4"	1.125"	5	4"	45604	\$275.50

THREADMILLS FEEDS & SPEEDS

WORKPIECE MATERIAL	SPEED SFM	TOOL CUTTING DIAMETER / FEEDRATE (inches/tooth)				
		3/16	1/4	5/16	3/8	1/2
Aluminum	800-1400	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055
Brass	600-800	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0045
Bronze	500-600	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0045
Low Alloy Steel <25RC	350-500	.001-.0015	.0015-.0025	.002-.003	.0025-.0035	.003-.004
High Alloy Steel >25RC	250-400	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003
Stainless	150-250	.0006-.001	.001-.0015	.0015-.002	.0015-.0030	.002-.0035
Titanium	80-150	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.0015-.0025

HELICAL THREAD MILLS – 3, 4 & 5-FLUTE

Metric Thread Form - **AlTiN COATED**



Length of Cut as Specified – Micro Grain Carbide – Made in USA

Designed for internal and external threads. Tools cut right hand or left hand.

AlTiN Coated for maximum wear resistance.

Thread Size	Pitch	D1 Cutter Diameter	D2 Shank Diameter	L2 Length of Cut	No. of Flutes	L1 Over All Length	TOOL NUMBER	PRICE EACH
M4-0.70	0.70"	.115"	1/8"	.250"	3	2"	43909	\$99.70
M4.5-0.75	0.75"	.120"	1/8"	.250"	3	2"	43910	\$99.70
M5-0.80	0.80"	.120"	3/16"	.312"	3	2"	43911	\$99.70
M6-1.00	1.00"	.170"	3/16"	.500"	3	2-1/2"	43917	\$120.15
M8-0.75	0.75"	.235"	1/4"	.625"	3	2-1/2"	43921	\$128.75
M8-1.00	1.00"	.235"	1/4"	.625"	3	2-1/2"	43922	\$128.75
M8-1.25	1.25"	.235"	1/4"	.625"	3	2-1/2"	43923	\$128.75
M10-1.25	1.25"	.300"	5/16"	.750"	4	3"	43928	\$169.60
M10-1.50	1.50"	.300"	5/16"	.750"	4	3"	43929	\$169.60
M12-1.00	1.00"	.360"	3/8"	.875"	4	3-1/2"	43933	\$185.45
M12-1.25	1.25"	.360"	3/8"	.875"	4	3-1/2"	43934	\$185.45
M12-1.75	1.75"	.360"	3/8"	.875"	4	3-1/2"	43935	\$185.45
M14-1.50	1.50"	.360"	3/8"	.875"	4	3-1/2"	43941	\$185.45
M16-2.00	2.00"	.470"	1/2"	1.250"	5	3-1/2"	43947	\$228.45
M18-2.50	2.50"	.470"	1/2"	1.250"	5	3-1/2"	43954	\$228.45
M20-3.00	3.00"	.479"	5/8"	1.250"	5	3-1/2"	43960	\$234.90

THREADMILLS - CALCULATION FORMULAS

Use these formulas to calculate:

Feed Rate Adjustment:
$$\frac{(\text{Thread Major Diameter to Be Cut}) - (\text{Threadmill Dia.})}{(\text{Thread Major Dia. to Be Cut})} \times \text{Linear Feed Rate}$$

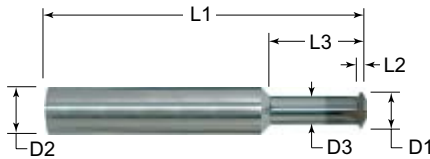
RPM:
$$\frac{3.8}{(\text{Threadmill Diameter})} \times \text{SFM}$$

Linear IPM: (Inches Per Tooth) X (Number of Flutes) X RPM

SINGLE FORM THREAD MILLING CUTTERS

UNCOATED & AITiN COATED

Mills Any Pitch Including Metric Sizes



Suggested Starting Data:

Ferrous

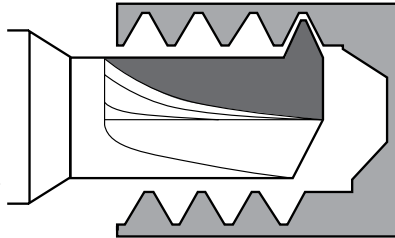
150/300 SFM; .0003/.001 IPT

Non-Ferrous

500/1K SFM; .0005/.0015 IPT

Interpolate Helix from bottom up.

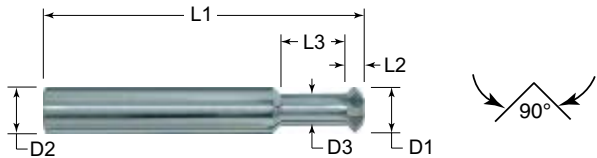
*Neck length is measured from tip of tool.



L2 Thread Size	D1 Cutter Dia.	D3 Neck Dia.	L3 Neck Length*	L1 Overall Length	D2 Shank Dia.	No. Flutes	NOT COATED		AITiN COATED	
							Tool Number	Price Each	Tool Number	Price Each
#3	.072"	.040"	.160"	2"	3/16"	1	48003	\$76.85	48003TL	\$83.30
#3	.072"	.040"	.225"	2"	3/16"	1	48203	\$85.45	48203TL	\$91.90
#4	.080"	.050"	.190"	2"	3/16"	1	48004	\$76.85	48004TL	\$83.30
#4	.080"	.050"	.290"	2"	3/16"	1	48204	\$87.60	48204TL	\$94.05
#6	.098"	.055"	.260"	2"	3/16"	2	48006	\$76.85	48006TL	\$83.30
#6	.098"	.055"	.375"	2"	3/16"	2	48206	\$87.60	48206TL	\$94.05
#8	.128"	.083"	.320"	2"	3/16"	3	48008	\$81.85	48008TL	\$88.30
#8	.128"	.083"	.500"	2"	3/16"	3	48208	\$92.60	48208TL	\$99.05
#10	.139"	.081"	.380"	2"	3/16"	3	48010	\$81.85	48010TL	\$88.30
#10	.139"	.081"	.500"	2"	3/16"	3	48210	\$92.60	48210TL	\$99.05
1/4	.188"	.124"	.400"	2"	1/4"	4	48250	\$88.60	48250TL	\$97.20
1/4	.188"	.124"	.625"	2"	1/4"	4	48252	\$101.50	48252TL	\$110.10
5/16	.247"	.175"	.500"	2-1/2"	3/8"	4	48312	\$99.45	48312TL	\$106.95
5/16	.247"	.175"	.750"	2-1/2"	3/8"	4	48314	\$115.55	48314TL	\$123.10
3/8	.300"	.218"	.600"	2-1/2"	3/8"	4	48375	\$99.45	48375TL	\$106.95
3/8	.300"	.218"	.875"	2-1/2"	3/8"	4	48377	\$115.55	48377TL	\$123.10
1/2	.420"	.300"	.800"	2-1/2"	1/2"	6	48500	\$113.40	48500TL	\$124.15
1/2	.420"	.300"	1.125"	2-1/2"	1/2"	6	48502	\$130.10	48502TL	\$140.85

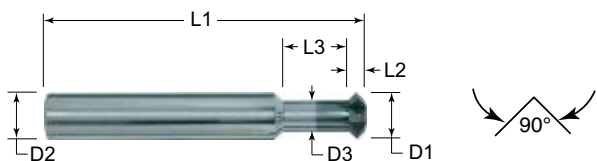
90° DOUBLE ANGLE CUTTERS

UNCOATED - Micrograin Carbide



D1 Cutter Dia.	L2 Cutter Width	D3 Neck Dia.	L3 Neck Length	No. Flutes	D2 Shank Dia.	L1 Overall Length	Tool Number	Price Each
1/16"	.031"	.031"	.093"	2	1/8"	1-1/2"	49062	\$35.50
5/64"	.039"	.039"	.118"	2	1/8"	1-1/2"	49078	\$35.50
3/32"	.047"	.047"	.141"	2	1/8"	1-1/2"	49093	\$35.50
1/8"	.062"	.062"	.250"	3	1/8"	1-1/2"	49125	\$35.50
3/16"	.093"	.093"	.312"	4	3/16"	2"	49187	\$36.50
1/4"	.125"	.125"	.375"	4	1/4"	2-1/2"	49250	\$44.50
5/16"	.156"	.156"	.500"	4	5/16"	2-1/2"	49312	\$58.50
3/8"	.187"	.187"	.625"	6	3/8"	2-1/2"	49375	\$64.50
1/2"	.250"	.250"	.750"	6	1/2"	3"	49500	\$86.50

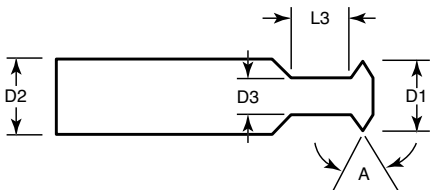
AITiN COATED - Micrograin Carbide



D1 Cutter Dia.	L2 Cutter Width	D3 Neck Dia.	L3 Neck Length	No. Flutes	D2 Shank Dia.	L1 Overall Length	Tool Number	Price Each
1/16"	.031"	.031"	.093"	2	1/8"	1-1/2"	49062TL	\$39.75
5/64"	.039"	.039"	.118"	2	1/8"	1-1/2"	49078TL	\$39.75
3/32"	.047"	.047"	.141"	2	1/8"	1-1/2"	49093TL	\$39.75
1/8"	.062"	.062"	.250"	3	1/8"	1-1/2"	49125TL	\$39.75
3/16"	.093"	.093"	.312"	4	3/16"	2"	49187TL	\$41.50
1/4"	.125"	.125"	.375"	4	1/4"	2-1/2"	49250TL	\$49.90
5/16"	.156"	.156"	.500"	4	5/16"	2-1/2"	49312TL	\$65.50
3/8"	.187"	.187"	.625"	6	3/8"	2-1/2"	49375TL	\$72.50
1/2"	.250"	.250"	.750"	6	1/2"	3"	49500TL	\$96.50

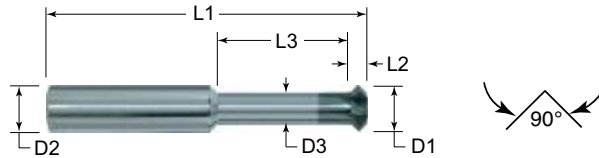
ORDER SPECIAL DOUBLE ANGLE CUTTERS

- To order special double angle cutters please specify:
1. Cutter Dia. (D1): _____
 2. Incl. Angle (A): _____
 3. Neck Length (L3): _____
(Behind Cutter)
 4. Neck Dia. (D3): _____
 5. Shank Dia. (D2): _____
 6. Overall Length: Mfg. Std.
 7. Quantity (Minimum 6): _____



DOUBLE ANGLE CUTTERS

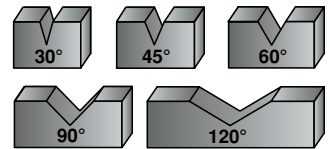
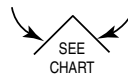
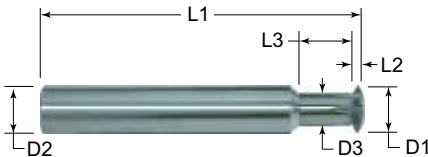
90° LONG REACH CUTTERS UNCOATED & AITiN COATED MICROGRAIN CARBIDE



NOTE: Neck length is measured behind the cutter head.

D1 Cutter Dia.	L2 Cutter Width	D3 Neck Dia.	L3 Neck Length	No. Flutes	D2 Shank Dia.	L1 Overall Length	NOT COATED		AITiN COATED	
							Tool Number	Price Each	Tool Number	Price Each
1/16"	.031"	.031"	.156"	2	1/8"	1-1/2"	49062LR	\$39.50	49062LRT	\$43.75
5/64"	.039"	.039"	.187"	2	1/8"	1-1/2"	49078LR	\$39.50	49078LRT	\$43.75
3/32"	.047"	.047"	.250"	2	1/8"	1-1/2"	49093LR	\$39.50	49093LRT	\$43.75
1/8"	1/16"	1/16"	.500"	3	1/8"	1-1/2"	49125LR	\$42.50	49125LRT	\$46.75
1/8"	1/16"	1/16"	.650"	3	1/8"	1-1/2"	49130LR	\$44.50	49130LRT	\$48.75
3/16"	3/32"	3/32"	.500"	4	3/16"	2"	49180LR	\$43.50	49180LRT	\$48.50
3/16"	3/32"	3/32"	.625"	4	3/16"	2"	49187LR	\$45.50	49187LRT	\$50.50
1/4"	1/8"	1/8"	.500"	4	1/4"	2-1/2"	49240LR	\$48.50	49240LRT	\$54.00
1/4"	1/8"	1/8"	.750"	4	1/4"	2-1/2"	49245LR	\$50.50	49245LRT	\$56.00
1/4"	1/8"	1/8"	1.00"	4	1/4"	2-1/2"	49250LR	\$53.50	49250LRT	\$59.00
5/16"	5/32"	5/32"	1.00"	4	5/16"	2-1/2"	49312LR	\$64.50	49312LRT	\$71.50
3/8"	3/16"	3/16"	1.125"	6	3/8"	2-1/2"	49375LR	\$72.50	49375LRT	\$80.50
1/2"	1/4"	1/4"	1.250"	6	1/2"	3"	49500LR	\$98.50	49500LRT	\$108.50

MULTI ANGLE CUTTERS UNCOATED & AITiN COATED MICROGRAIN CARBIDE D2 = 1/4" SHANK



Incl'd Angle	L2 Cutter Width	D3 Neck Dia.	L3 Neck Length	No. Flutes	D1 Cutter Dia.	L1 Overall Length	NOT COATED		AITiN COATED	
							Tool Number	Price Each	Tool Number	Price Each
30°	.033"	.125"	.375"	4	1/4"	2-1/2"	49250-30	\$51.75	49250T-30	\$57.75
45°	.052"	.125"	.375"	4	1/4"	2-1/2"	49250-45	\$51.75	49250T-45	\$57.75
60°	.072"	.125"	.375"	4	1/4"	2-1/2"	49250-60	\$51.75	49250T-60	\$57.75
90°	.125"	.125"	.375"	4	1/4"	2-1/2"	49250-90	\$44.50	49250T-90	\$49.90
120°	.215"	.125"	.375"	4	1/4"	2-1/2"	49250-120	\$51.75	49250T-120	\$57.75

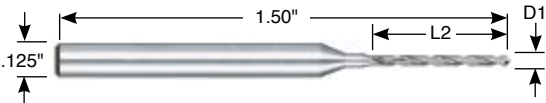
NOTE: Neck length is measured behind the cutter head.
Longer reach neck lengths, quoted on request. Minimum Order 3 pieces.

MINIATURE CARBIDE DRILLS

Miniature Carbide Drills - Circuit Board Style

Designed for drilling non ferrous materials including brass, aluminum, copper and plastics.

Size Range: .00197" (.05mm) – .03600" (#64)
1/8" Shank x 1-1/2" OAL



Drill Size (Fractional/Wire)	Drill Diameter (Inch) D1	Flute Length (Inch) L2	UNCOATED	
			Tool Number	Price Each
0.05mm	0.00197"	0.047"	20019	\$28.50
0.075mm	0.00295"	0.047"	20029	\$28.50
0.10mm	0.00400"	0.120"	20040	\$20.50
0.13mm	0.00500"	0.140"	20050	\$20.50
0.15mm	0.00590"	0.140"	20059	\$19.50
0.18mm	0.00700"	0.140"	20070	\$18.50
0.20mm	0.00790"	0.140"	20079	\$14.50
#89	0.00910"	0.200"	20091	\$13.90
0.25mm	0.00980"	0.200"	20098	\$13.90
0.30mm	0.01180"	0.200"	20118	\$12.50
#82	0.01250"	0.200"	20125	\$12.50
0.35mm	0.01380"	0.220"	20138	\$12.00
#79	0.01450"	0.255"	20145	\$12.00
0.40mm	0.01580"	0.255"	20158	\$11.50
0.45mm	0.01770"	0.255"	20177	\$11.50
0.50mm	0.01970"	0.280"	20197	\$10.90
#75	0.02100"	0.280"	20210	\$10.90
0.55mm	0.02170"	0.280"	20217	\$10.90
#74	0.02250"	0.280"	20225	\$10.90
0.60mm	0.02360"	0.280"	20236	\$10.90
#72	0.02500"	0.280"	20250	\$10.90
0.65mm	0.02560"	0.280"	20256	\$10.90
0.70mm	0.02760"	0.280"	20276	\$10.90
0.75mm	0.02950"	0.280"	20295	\$10.25
#68	0.03100"	0.320"	20310	\$10.25
0.80mm	0.03150"	0.320"	20315	\$10.25
#67	0.03200"	0.320"	20320	\$10.25
#66	0.03300"	0.320"	20330	\$10.25
0.85mm	0.03350"	0.320"	20335	\$10.25
0.90mm	0.03540"	0.320"	20354	\$10.25
#64	0.03600"	0.320"	20360	\$10.25

Continued Next Page

MINIATURE CARBIDE DRILLS

Continued from previous page:

Circuit Board Style - UNCOATED

Size Range: .003740" (.95mm) – .07870" (2.00mm)

1/8" Shank x 1-1/2" OAL



Drill Size Description	Drill Diameter (Inch) D1	Flute Length (Inch) L2	UNCOATED	
			Tool Number	Price Each
0.95mm	0.03740"	0.320"	20374	\$10.25
#62	0.03800"	0.320"	20380	\$10.25
1.00mm	0.03940"	0.400"	20394	\$10.25
#60	0.04000"	0.400"	20400	\$10.25
1.05mm	0.04130"	0.400"	20413	\$10.25
#58	0.04200"	0.400"	20420	\$10.25
1.10mm	0.04330"	0.400"	20433	\$10.25
1.12mm	0.04410"	0.400"	20441	\$10.25
1.15mm	0.04530"	0.400"	20453	\$10.25
#56	0.04650"	0.400"	20465	\$10.25
1.20mm	0.04720"	0.400"	20472	\$10.25
1.25mm	0.04920"	0.400"	20492	\$10.25
1.30mm	0.05120"	0.400"	20512	\$10.25
#55	0.05200"	0.400"	20520	\$9.50
1.35mm	0.05310"	0.400"	20531	\$9.50
1.40mm	0.05510"	0.400"	20551	\$9.50
1.45mm	0.05710"	0.400"	20571	\$9.50
1.50mm	0.05910"	0.400"	20591	\$9.50
1.55mm	0.06100"	0.400"	20610	\$9.50
1.60mm	0.06300"	0.400"	20630	\$9.50
#52	0.06350"	0.400"	20635	\$9.50
1.65mm	0.06500"	0.400"	20650	\$8.90
1.70mm	0.06690"	0.400"	20669	\$8.90
1.75mm	0.06890"	0.400"	20689	\$8.90
#50	0.07000"	0.400"	20700	\$8.90
1.80mm	0.07090"	0.400"	20709	\$8.90
1.85mm	0.07280"	0.400"	20728	\$8.90
1.90mm	0.07480"	0.400"	20748	\$8.90
#48	0.07600"	0.400"	20760	\$8.90
1.95mm	0.07680"	0.400"	20768	\$8.90
2.00mm	0.07870"	0.400"	20787	\$8.90

CARBIDE MICRO DRILLS

High Performance Micro Drills

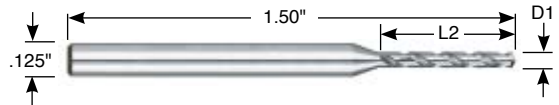
Designed for drilling in a wide variety of materials including: steels, stainless steel, titanium, alloy steels, plastic and aluminum.

Size Range: .0079" (#92) - .1250" (1/8")

Cutter Diameter Tolerance: +0/- .0003"

135 Degree Point

AlTiN coated tools allow 2 weeks for coating - Min order for AlTiN is 10 Tools of any assorted sizes.



Drill Size Description	Drill Diameter D1	Flute Length L2	UNCOATED		AlTiN NANO COATED	
			Tool Number	Price Each	Tool Number	Price Each
#92	.0079"	.125"	10092	\$30.90	-	-
#91	.0083"	.125"	10091	\$30.90	-	-
#90	.0087"	.125"	10090	\$30.90	-	-
#89	.0091"	.125"	10089	\$25.90	-	-
#88	.0095"	.125"	10088	\$25.90	-	-
#87	.0100"	.150"	10087	\$25.90	-	-
#86	.0105"	.150"	10086	\$19.90	-	-
#85	.0110"	.150"	10085	\$19.90	-	-
#84	.0115"	.150"	10084	\$19.90	-	-
#83	.0120"	.190"	10083	\$19.90	-	-
#82	.0125"	.190"	10082	\$15.90	10082TL	\$20.50
#81	.0130"	.190"	10081	\$15.90	10081TL	\$20.50
#80	.0135"	.190"	10080	\$14.90	10080TL	\$19.50
#79	.0145"	.190"	10079	\$14.90	10079TL	\$19.50
#78	.0160"	.190"	10078	\$14.90	10078TL	\$19.50
#77	.0180"	.250"	10077	\$14.90	10077TL	\$19.50
#76	.0200"	.250"	10076	\$12.90	10076TL	\$17.50
#75	.0210"	.250"	10075	\$12.90	10075TL	\$17.50
#74	.0225"	.250"	10074	\$12.90	10074TL	\$17.50
#73	.0240"	.250"	10073	\$12.90	10073TL	\$17.50
#72	.0250"	.250"	10072	\$12.90	10072TL	\$17.50
#71	.0260"	.250"	10071	\$12.90	10071TL	\$17.50
#70	.0280"	.320"	10070	\$12.90	10070TL	\$17.50
#69	.0292"	.320"	10069	\$12.90	10069TL	\$17.50
#68	.0310"	.400"	10068	\$12.90	10068TL	\$17.50
1/32"	.0312"	.400"	10312	\$12.90	10312TL	\$17.50
#67	.0320"	.400"	10067	\$12.90	10067TL	\$17.50
#66	.0330"	.400"	10066	\$12.90	10066TL	\$17.50
#65	.0350"	.400"	10065	\$12.90	10065TL	\$17.50
#64	.0360"	.400"	10064	\$12.90	10064TL	\$17.50
#63	.0370"	.400"	10063	\$12.90	10063TL	\$17.50
#62	.0380"	.400"	10062	\$12.90	10062TL	\$17.50
#61	.0390"	.400"	10061	\$12.90	10061TL	\$17.50
#60	.0400"	.400"	10060	\$12.90	10060TL	\$17.50
#59	.0410"	.400"	10059	\$12.90	10059TL	\$17.50
#58	.0420"	.400"	10058	\$12.90	10058TL	\$17.50
#57	.0430"	.400"	10057	\$12.90	10057TL	\$17.50
#56	.0465"	.400"	10056	\$12.90	10056TL	\$17.50
3/64"	.0469"	.400"	10471	\$12.90	10471TL	\$17.50
#55	.0520"	.400"	10055	\$12.90	10055TL	\$17.50
#54	.0550"	.400"	10054	\$12.90	10054TL	\$17.50
#53	.0595"	.400"	10053	\$12.90	10053TL	\$17.50
1/16"	.0625"	.480"	10625	\$12.90	10625TL	\$17.50
5/64"	.0781"	.480"	10781	\$12.90	10781TL	\$17.50
3/32"	.0938"	.480"	10938	\$12.90	10938TL	\$17.50
7/64"	.1094"	.480"	10109	\$12.90	10109TL	\$17.50
1/8"	.1250"	.480"	10125	\$12.90	10125TL	\$17.50

METRIC CARBIDE MICRO DRILLS

High Performance Micro Drills

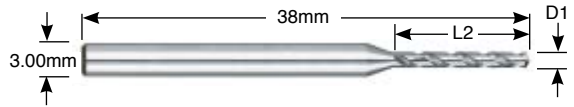
Designed for drilling in a wide variety of materials including: steels, stainless steel, titanium, alloy steels, plastic and aluminum.

Size Range: .0059" (0.15mm) – .1181" (3.00mm)

Cutter Diameter Tolerance: +0/- .008mm

135 Degree Point

AlTiN coated tools allow 2 weeks for coating - Min order for AlTiN is 10 Tools of any assorted sizes.



Drill Size D1 (mm)	Drill Diameter (inch)	Flute Length L2 (mm)	UNCOATED		AlTiN NANO COATED	
			Tool Number	Price Each	Tool Number	Price Each
0.15	.0059"	2.50	10059M	\$42.90	10059MTL	\$47.90
0.20	.0078"	2.50	10078M	\$30.90	10078MTL	\$35.90
0.25	.0098"	3.20	10098M	\$25.90	10098MTL	\$30.50
0.30	.0118"	4.80	10118M	\$15.90	10118MTL	\$20.50
0.35	.0138"	4.80	10138M	\$14.90	10138MTL	\$19.50
0.40	.0157"	4.80	10157M	\$14.90	10157MTL	\$19.50
0.45	.0177"	6.35	10177M	\$14.90	10177MTL	\$19.50
0.50	.0197"	6.35	10197M	\$12.90	10197MTL	\$17.50
0.55	.0217"	6.35	10217M	\$12.90	10217MTL	\$17.50
0.60	.0236"	6.35	10236M	\$12.90	10236MTL	\$17.50
0.65	.0256"	6.35	10256M	\$12.90	10256MTL	\$17.50
0.70	.0276"	8.10	10276M	\$12.90	10276MTL	\$17.50
0.75	.0295"	8.10	10295M	\$12.90	10295MTL	\$17.50
0.80	.0315"	10.15	10315M	\$12.90	10315MTL	\$17.50
0.85	.0335"	10.15	10335M	\$12.90	10335MTL	\$17.50
0.90	.0354"	10.15	10354M	\$12.90	10354MTL	\$17.50
0.95	.0374"	10.15	10374M	\$12.90	10374MTL	\$17.50
1.00	.0394"	10.15	10394M	\$12.90	10394MTL	\$17.50
1.50	.0590"	10.15	10591M	\$12.90	10591MTL	\$17.50
2.00	.0787"	12.18	10781M	\$12.90	10781MTL	\$17.50
2.50	.0984"	12.18	10984M	\$12.90	10984MTL	\$17.50
3.00	.1181"	12.18	11181M	\$12.90	11181MTL	\$17.50

Workpiece Material Group	Examples	Series		Tool Diameter				
		Uncoated	Coated	1/64	1/32	1/16	3/32	1/8
		SFM		IPR				
Steels	Low Carbon Steels 1018	110	150	.0004	.0008	.0015	.0023	.0030
	Alloy Steels (up to 35 Rc) 4140	90	130	.0004	.0008	.0015	.0023	.0030
	Alloy Steels (36-45 Rc) 4140	85	120	.0004	.0008	.0015	.0023	.0030
Austenitic	304 - 316	90	125	.0004	.0008	.0015	.0023	.0030
Stainless Steels	Free Machining 303	110	140	.0004	.0008	.0015	.0023	.0030
	Ferritic Martensitic 440C	80	110	.0004	.0008	.0015	.0023	.0030
Precipitation Hardened Stainless Steels	17-4 PH	45	60	.0002	.0004	.0007	.0011	.0014
Cast Irons	Gray Cast Iron A48 Class 20/G4000	110	150	.0004	.0008	.0015	.0023	.0030
	Ductile Cast Iron A536/60-40-18	110	150	.0004	.0008	.0015	.0023	.0030
Special Alloys	Titanium 6AL-4V	50	70	.0004	.0008	.0015	.0023	.0030
	High Temp Alloys - Inconel - Hastelloy Waspelly - Nickel Based Alloys - Monel	45	60	.0002	.0004	.0007	.0011	.0014
Hardened Steels	55 Rc Steel	35	50	.0002	.0004	.0007	.0011	.0014
Non-Ferrous	Plastic	175		.0005	.0010	.0020	.0030	.0040
	Aluminum (<10% Si)	175		.0005	.0010	.0020	.0030	.0040

TOLL FREE 866-426-3300
FAX 781-582-8095

Microcut

90° & 140° SPOT DRILLS

UNCOATED & AITiN COATED

Miniature 90° "Dead Center" Spot Drills

2-FLUTE - MICROGRAIN CARBIDE



D1 Drill Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	1/8"	1-1/2"	22010	\$25.55	24010	\$30.90
.015"	.045"	1/8"	1-1/2"	22015	\$24.20	24015	\$28.50
.020"	.060"	1/8"	1-1/2"	22020	\$22.05	24020	\$26.35
.025"	.075"	1/8"	1-1/2"	22025	\$21.45	24025	\$25.75
.030"	.090"	1/8"	1-1/2"	22030	\$20.95	24030	\$25.25
.045"	.105"	1/8"	1-1/2"	22045	\$18.20	24045	\$22.50
.060"	.180"	1/8"	1-1/2"	22060	\$18.20	24060	\$22.50
.090"	.375"	1/8"	1-1/2"	22090	\$18.20	24090	\$22.50
.125"	.500"	1/8"	1-1/2"	22125	\$18.20	24125	\$22.50

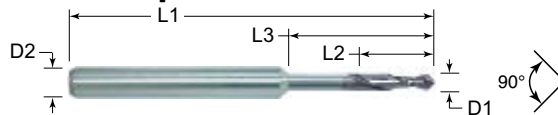
Thinned web at tip insures accuracy. Special spot drills quoted on request.

Extended Reach 90° "Dead Center" Spot Drills

2-FLUTE - MICROGRAIN CARBIDE

MINIMUM 3 PIECES PER SIZE

Neck diameter is same
as cutter diameter.



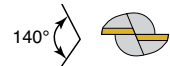
Shipped
Within 24-48
Hours

D1 Drill Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	.125"	1/8"	1-1/2"	22015LR	\$33.85	24015LR	\$38.15
.020"	.060"	.165"	1/8"	1-1/2"	22020LR	\$31.70	24020LR	\$36.00
.025"	.075"	.205"	1/8"	1-1/2"	22025LR	\$30.65	24025LR	\$34.95
.030"	.090"	.250"	1/8"	1-1/2"	22030LR	\$29.55	24030LR	\$33.85
.045"	.105"	.400"	1/8"	1-1/2"	22045LR	\$26.35	24045LR	\$30.65
.060"	.180"	.500"	1/8"	1-1/2"	22060LR	\$26.35	24060LR	\$30.65
.090"	.375"	.500"	1/8"	1-1/2"	22090LR	\$26.35	24090LR	\$30.65
.125"	.500"	.625"	1/8"	1-1/2"	22125LR	\$26.35	24125LR	\$30.65

Tools are custom manufactured to order and are nonreturnable.

Miniature 140° Spot Drills

2-FLUTE - MICROGRAIN CARBIDE



D1 Drill Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	1/8"	1-1/2"	26015	\$24.20	26215	\$28.50
.020"	.060"	1/8"	1-1/2"	26020	\$22.05	26220	\$26.35
.025"	.075"	1/8"	1-1/2"	26025	\$21.45	26225	\$25.75
.030"	.090"	1/8"	1-1/2"	26030	\$20.95	26230	\$25.25
.045"	.135"	1/8"	1-1/2"	26045	\$18.20	26245	\$22.50
.060"	.180"	1/8"	1-1/2"	26060	\$18.20	26260	\$22.50
.090"	.270"	1/8"	1-1/2"	26090	\$18.20	26290	\$22.50
.125"	.375"	1/8"	1-1/2"	26125	\$18.20	26325	\$22.50

Extended reach spot drills available on request. Minimum 3 pieces per size.

120° SPOT DRILLS & NC SPOT DRILLS

UNCOATED & AITiN COATED

Miniature 120° "Dead Center" Spot Drills

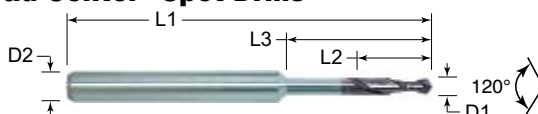
2-FLUTE - MICROGRAIN CARBIDE



D1 Drill Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	1/8"	1-1/2"	23015	\$24.20	25015	\$28.50
.020"	.060"	1/8"	1-1/2"	23020	\$22.05	25020	\$26.35
.025"	.075"	1/8"	1-1/2"	23025	\$21.45	25025	\$25.75
.030"	.090"	1/8"	1-1/2"	23030	\$20.95	25030	\$25.25
.045"	.135"	1/8"	1-1/2"	23045	\$18.20	25045	\$22.50
.060"	.180"	1/8"	1-1/2"	23060	\$18.20	25060	\$22.50
.090"	.270"	1/8"	1-1/2"	23090	\$18.20	25090	\$22.50
.125"	.375"	1/8"	1-1/2"	23125	\$18.20	25125	\$22.50

Extended Reach 120° "Dead Center" Spot Drills

2-FLUTE - MICROGRAIN CARBIDE
MINIMUM 3 PIECES PER SIZE



**Shipped
Within 24-48
Hours**

D1 Drill Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	.125"	1/8"	1-1/2"	23015LR	\$33.85	25015LR	\$38.15
.020"	.060"	.165"	1/8"	1-1/2"	23020LR	\$31.70	25020LR	\$36.00
.025"	.075"	.205"	1/8"	1-1/2"	23025LR	\$30.65	25025LR	\$34.95
.030"	.090"	.250"	1/8"	1-1/2"	23030LR	\$29.55	25030LR	\$33.85
.045"	.135"	.400"	1/8"	1-1/2"	23045LR	\$26.35	25045LR	\$30.65
.060"	.180"	.500"	1/8"	1-1/2"	23060LR	\$26.35	25060LR	\$30.65
.090"	.270"	.500"	1/8"	1-1/2"	23090LR	\$26.35	25090LR	\$30.65
.125"	.375"	.625"	1/8"	1-1/2"	23125LR	\$26.35	25125LR	\$30.65

Tools are custom manufactured to order and are nonreturnable.

Miniature NC Spotting Drills

2-FLUTE - MICROGRAIN CARBIDE - UNCOATED

1/8" - 1/4" DIA. - 90, 120 & 140 DEGREE INCLUDED POINT ANGLES



D1 Cutter Diameter	Included Angle	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
1/8"	90 DEG	1/8"	2"	NC125-90	\$17.15	NCT125-90	\$21.45
3/16"	90 DEG	3/16"	2"	NC187-90	\$20.35	NCT187-90	\$25.75
1/4"	90 DEG	1/4"	3"	NC250-90	\$24.65	NCT250-90	\$31.10
1/8"	120 DEG	1/8"	2"	NC125-120	\$17.15	NCT125-120	\$21.45
3/16"	120 DEG	3/16"	2"	NC187-120	\$20.35	NCT187-120	\$25.75
1/4"	120 DEG	1/4"	3"	NC250-120	\$24.65	NCT250-120	\$31.10
1/8"	140 DEG	1/8"	2"	NC125-140	\$17.15	NCT125-140	\$21.45
3/16"	140 DEG	3/16"	2"	NC187-140	\$20.35	NCT187-140	\$25.75
1/4"	140 DEG	1/4"	3"	NC250-140	\$24.65	NCT250-140	\$31.10

TOLL FREE 866-426-3300
FAX 781-582-8095

Microcut

82° & 90° COUNTERSINKS – 6-FLUTE

UNCOATED & AITiN COATED

82° Countersinks

Double End – 6-Flutes – RHC – Micrograin Carbide



D1 Cutter Diameter	Included Angle	Maximum Tip Diameter	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	82 DEG	.025"	1/8"	1-1/2"	31125	\$24.20	31125TL	\$30.65
3/16"	82 DEG	.035"	3/16"	2"	31187	\$30.65	31187TL	\$39.25
1/4"	82 DEG	.045"	1/4"	2"	31250	\$37.10	31250TL	\$45.70
5/16"	82 DEG	.055"	5/16"	2-1/2"	31312	\$59.65	31312TL	\$70.40
3/8"	82 DEG	.060"	3/8"	2-1/2"	31375	\$71.50	31375TL	\$85.45
1/2"	82 DEG	.090"	1/2"	3"	31500	\$96.20	31500TL	\$118.00

AITiN coating for hard to machine mold steel and alloyed steel.

90° Countersinks

Double End – 6-Flutes – RHC – Micrograin Carbide



D1 Cutter Diameter	Included Angle	Maximum Tip Diameter	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	90 DEG	.025"	1/8"	1-1/2"	32125	\$24.20	32125TL	\$30.65
3/16"	90 DEG	.035"	3/16"	2"	32187	\$30.65	32187TL	\$39.25
1/4"	90 DEG	.045"	1/4"	2"	32250	\$37.10	32250TL	\$45.70
5/16"	90 DEG	.055"	5/16"	2-1/2"	32312	\$59.65	32312TL	\$70.40
3/8"	90 DEG	.060"	3/8"	2-1/2"	32375	\$71.50	32375TL	\$85.45
1/2"	90 DEG	.090"	1/2"	3"	32500	\$96.20	32500TL	\$118.00

AITiN coating for hard to machine mold steel and alloyed steel.

Special Cutting Tool Quotations

Microcut's capability to produce Standard cutting tools is replicated by its ability to produce Special Cutting Tools. Quality, competitive pricing, and on-time delivery has been a Microcut trademark for almost 20 years. Microcut's workforce experience in producing special Micro Tools dates back over 40 years and makes us one of the most experienced Micro Tool companies in the U.S.A. Submit your special tool B/P to us by fax at 781-582-8095 or email to sales@microcutUSA.com and we will quote it through the distributor of your choice that services your facility.

COUNTERSINKS – 4-FLUTE 90° & 2-FLUTE 60°

90° "Drill Point" Countersinks UNCOATED

Drill & Countersink In One Operation – Solid Carbide – Double End – 4 Flutes
End Cutting - 90 Degree Angle Included



Save time. Tool combines two operations into one.

D1 Cutter Diameter	Included Angle	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
1/8"	90 DEG	1/8"	1-1/2"	33125	\$29.55
3/16"	90 DEG	3/16"	2"	33187	\$38.15
1/4"	90 DEG	1/4"	2"	33250	\$47.85
5/16"	90 DEG	5/16"	2-1/2"	33312	\$72.55
3/8"	90 DEG	3/8"	2-1/2"	33375	\$88.70
1/2"	90 DEG	1/2"	3"	33500	\$116.65

60° Miniature Carbide Countersinks UNCOATED & AITiN COATED

Combined Drill & Countersinks – 60 Degree Included Angle – Solid Carbide – Double End – 2 Flutes



Size	Drill Diameter	D2 Shank Diameter	L1 Over All Length	NOT COATED		AITiN COATED	
				Tool Number	Price Each	Tool Number	Price Each
00	.025"	1/8"	1-1/2"	33025CS	\$19.50	33025CST	\$23.50
0	.031"	1/8"	1-1/2"	33031CS	\$18.50	33031CST	\$24.50
1	.047"	1/8"	1-1/2"	33047CS	\$16.95	33047CST	\$20.95
2	.078"	3/16"	2"	33078CS	\$24.95	33078CST	\$31.50
3	.109"	1/4"	2"	33109CS	\$27.95	33109CST	\$35.50
4	.125"	5/16"	2-1/8"	33125CS	\$36.95	33125CST	\$45.50

Locate Your Distributor



Microcut products are sold by cutting tool distributors in the U.S. and Canada. These distributors are selected because of their expertise in cutting tools and are available to assist you in your standard and special cutting tools. It's easy to locate a local distributor. Just visit our website at www.microcutUSA.com and select "Locate a Distributor". Enter your Zip code, or select your state in the U.S. or province in Canada and chose a distributor that can process your order quickly and forward it on to the Microcut Sales Dept. We will process your order and ship the tools directly to you on the same day from our warehouse, or manufacture the specialty product as listed in the catalog within the lead time published or quoted.

COUNTERSINKS – 60°, 82° & 90° SINGLE END

60°, 82° & 90° Single End Carbide Countersinks

NOTE: For use in production machining on cast iron, steel, and alloyed steels.
3/8" & 1/2" diameter have solid carbide heads on hardened steel shanks.

UNCOATED

SINGLE FLUTE



Countersink Diameter	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER			PRICE EACH
			60 DEGREE	82 DEGREE	90 DEGREE	
1/8"	1/8"	1-1/2"	30161	30181	30191	\$14.50
3/16"	3/16"	2"	30161-1	30181-1	30191-1	\$15.50
1/4"	1/4"	2"	30162	30182	30192	\$17.75
3/8"	1/4"	2-1/2"	30163	30183	30193	\$31.50
1/2"	1/4"	2-1/2"	30164	30184	30194	\$39.75

3 FLUTE - SINGLE END



Countersink Diameter	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER			PRICE EACH
			60 DEGREE	82 DEGREE	90 DEGREE	
1/8"	1/8"	1-1/2"	30261	30361	30391	\$14.50
3/16"	3/16"	2"	30261-1	30361-1	30391-1	\$15.50
1/4"	1/4"	2"	30262	30362	30392	\$17.75
3/8"	1/4"	2-1/2"	30263	30363	30393	\$31.50
1/2"	1/4"	2-1/2"	30264	30364	30394	\$39.75

6 FLUTE - SINGLE END



Countersink Diameter	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER			PRICE EACH
			60 DEGREE	82 DEGREE	90 DEGREE	
1/8"	1/8"	1-1/2"	30461	30661	30991	\$14.50
3/16"	3/16"	2"	30461-1	30661-1	30991-1	\$15.50
1/4"	1/4"	2"	30462	30662	30992	\$17.75
3/8"	1/4"	2-1/2"	30463	30663	30993	\$31.50
1/2"	1/4"	2-1/2"	30464	30664	30994	\$39.75

45°, 60° & 66° DOVETAIL CUTTERS

45° & 60° Dovetail Cutters

Solid Micrograin Carbide – RHC

UNCOATED



D1 Cutter Diameter (Nominal or to the theoretical sharp corner)	Corner Radius	Depth of Cut		No. of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER		PRICE EACH
		45°	60°				45°	60°	
3/16"	None	.046"	.094"	2	3/16"	2"	42187	43187	\$76.20
3/16"	.010"	.046"	.094"	2	3/16"	2"	42187R	43187R	\$88.50
1/4"	None	.062"	.125"	3	1/4"	2"	42250	43250	\$81.60
1/4"	.010"	.062"	.125"	3	1/4"	2"	42250R	43250R	\$93.75
5/16"	None	.090"	.150"	3	5/16"	2-1/2"	42312	43312	\$86.95
5/16"	.010"	.090"	.150"	3	5/16"	2-1/2"	42312R	43312R	\$99.50
3/8"	None	.125"	.187"	3	3/8"	2-1/2"	42375	43375	\$97.70
3/8"	.010"	.125"	.187"	3	3/8"	2-1/2"	42375R	43375R	\$109.75

66° Dovetail Cutters For O-Ring Grooves

UNCOATED



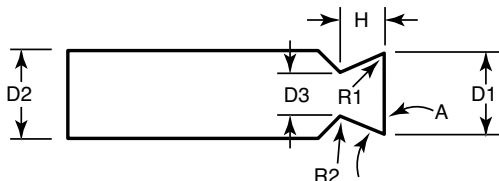
D1 O-Ring Dia.	D3 Neck Dia.*	Slot Depth	Top Radius	Bottom Radius	Actual Cutter Dia. Over Radius	No. of Flutes	D2 Shank Dia.	L1 Over All Length	TOOL NUMBER	PRICE EACH
.070"	.057" .052"	.051"	.005"	.015"	.0862"	1	3/16"	2"	41062 41062US	\$81.60
.103"	.085" .077"	.082"	.010"	.015"	.1418"	2	3/16"	2"	41093 41093US	\$81.60
.139"	.115" .105"	.112"	.010"	.031"	.1812"	2	1/4"	2"	41125 41125US	\$84.80
.210"	.173" .161"	.172"	.015"	.031"	.2927"	3	5/16"	2-1/2"	41187 41187US	\$98.00
.275"	.233" .218"	.232"	.015"	.062"	.3726"	3	3/8"	2-1/2"	41250 41250US	\$118.70
.375"	.317" .302"	.317"	.020"	.094"	.4978"	4	1/2"	2-1/2"	41375 41375US	\$162.20

Tool numbers with US suffix have reduced neck diameters as shown in table.

* Neck diameter is measured to the theoretical sharp corner.

ORDER SPECIAL DOVETAIL CUTTERS

Special Multiple Flute Dovetail Cutters



Please specify:

1. Neck (D3): _____
2. Radius or Sharp Corner (R1): _____
3. Radius or Sharp Corner (R2): _____
4. Height (H): _____
5. Angle Per Side (A): _____
6. Cutter Diameter (D1): _____
7. Shank Diameter (D2): _____
8. Number of Flutes: _____
9. Quantity (Minimum 6): _____

ENGRAVING CUTTERS

Carbide Engraving Cutters - 30, 45, 60 & 90 Degree

Ground to a Point - Relieved for Right Hand Cut - Micro Grain Carbide

UNCOATED & AITiN COATED



Ground to a Point

Incl. Angle	D1 Cutter Dia.	L2 Length Of Cut	D2 Shank Dia.	L3 Split Length	L1 Over All Length	NOT COATED		AITiN COATED	
						Tool Number	Price Each	Tool Number	Price Each
30°	1/8"	.230"	1/8"	3/8"	1-1/2"	36125-30	\$14.50	36125TL-30	\$19.00
30°	3/16"	.350"	3/16"	7/16"	2"	36187-30	\$17.95	36187TL-30	\$22.95
30°	1/4"	.465"	1/4"	9/16"	2"	36250-30	\$21.95	36250TL-30	\$28.95
45°	1/8"	.150"	1/8"	3/8"	1-1/2"	36125-45	\$14.50	36125TL-45	\$19.00
45°	3/16"	.225"	3/16"	3/8"	2"	36187-45	\$17.95	36187TL-45	\$22.95
45°	1/4"	.300"	1/4"	3/8"	2"	36250-45	\$21.95	36250TL-45	\$28.95
60°	1/8"	.106"	1/8"	3/8"	1-1/2"	36125-60	\$14.50	36125TL-60	\$19.00
60°	3/16"	.160"	3/16"	3/8"	2"	36187-60	\$17.95	36187TL-60	\$22.95
60°	1/4"	.215"	1/4"	3/8"	2-1/2"	36250-60	\$21.95	36250TL-60	\$28.95
90°	1/8"	.062"	1/8"	3/8"	1-1/2"	39125-90	\$14.50	39125TL-90	\$19.00
90°	3/16"	.094"	3/16"	3/8"	2"	39187-90	\$17.95	39187TL-90	\$22.95
90°	1/4"	.125"	1/4"	3/8"	2-1/2"	39250-90	\$21.95	39250TL-90	\$28.95

Flat Tip Engraving Cutters - 30, 45, 60 & 90 Degree

Single End - .010" Tip Diameter - Right Hand Cut

Tipped off end provides extra strength and improves cutting. Leaves .010" flat at bottom of groove.

UNCOATED & AITiN COATED



Flat Tip End Cutting

Incl. Angle	D1 Cutter Dia.	L2 Length Of Cut	D2 Shank Dia.	L3 Split Length	L1 Over All Length	NOT COATED		AITiN COATED	
						Tool Number	Price Each	Tool Number	Price Each
30°	1/8"	.215"	1/8"	3/8"	1-1/2"	34125-30	\$16.50	34125TL-30	\$21.00
30°	3/16"	.330"	3/16"	7/16"	2"	34187-30	\$19.95	34187TL-30	\$24.95
30°	1/4"	.445"	1/4"	1/2"	2"	34250-30	\$23.95	34250TL-30	\$30.95
45°	1/8"	.140"	1/8"	3/8"	1-1/2"	34125-45	\$16.50	34125TL-45	\$21.00
45°	3/16"	.215"	3/16"	7/16"	2"	34187-45	\$19.95	34187TL-45	\$24.95
45°	1/4"	.290"	1/4"	1/2"	2"	34250-45	\$23.95	34250TL-45	\$30.95
60°	1/8"	.100"	1/8"	3/8"	1-1/2"	34125-60	\$16.50	34125TL-60	\$21.00
60°	3/16"	.150"	3/16"	7/16"	2"	34187-60	\$19.95	34187TL-60	\$24.95
60°	1/4"	.205"	1/4"	1/2"	2"	34250-60	\$23.95	34250TL-60	\$30.95
90°	1/8"	.056"	1/8"	3/8"	1-1/2"	35125-90	\$16.50	35125TL-90	\$21.00
90°	3/16"	.088"	3/16"	7/16"	2"	35187-90	\$19.95	35187TL-90	\$24.95
90°	1/4"	.120"	1/4"	1/2"	2"	35250-90	\$23.95	35250TL-90	\$30.95

HEAVY DUTY ENGRAVING CUTTERS

2 Flute - 30 Degree Included



Designed to mill hard to machine materials in ferrous and non-ferrous materials. Heavy duty tip design.

End Cutting produces flat at bottom of groove. See chart for width of flat produced.

Micrograin Carbide • Available uncoated or AlTiN coated for increased wear resistance.

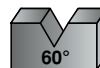
D1 Cutter Diameter	Flat Dim at Bottom	D2 Shank Diameter	Length of Cut	L1 Over All Length	NOT COATED		AlTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	.005"	1/8"	.220"	1-1/2"	38025	\$16.50	38025TL	\$21.50
3/16"	.010"	3/16"	.328"	2"	38087	\$21.50	38087TL	\$27.50
1/4"	.010"	1/4"	.445"	2-1/2"	38050	\$28.50	38050TL	\$35.90

2 Flute - 45 Degree Included



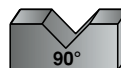
D1 Cutter Diameter	Flat Dim at Bottom	D2 Shank Diameter	Length of Cut	L1 Over All Length	NOT COATED		AlTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	.005"	1/8"	.145"	1-1/2"	38325	\$16.50	38325TL	\$21.50
3/16"	.010"	3/16"	.215"	2"	38387	\$21.50	38387TL	\$27.50
1/4"	.010"	1/4"	.290"	2-1/2"	38350	\$28.50	38350TL	\$35.90

2 Flute - 60 Degree Included

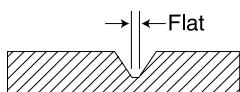


D1 Cutter Diameter	Flat Dim at Bottom	D2 Shank Diameter	Length of Cut	L1 Over All Length	NOT COATED		AlTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	.005"	1/8"	.100"	1-1/2"	38125	\$16.50	38125TL	\$21.50
3/16"	.010"	3/16"	.150"	2"	38187	\$21.50	38187TL	\$27.50
1/4"	.015"	1/4"	.202"	2-1/2"	38250	\$28.50	38250TL	\$35.90

2 Flute - 90 Degree Included



D1 Cutter Diameter	Flat Dim at Bottom	D2 Shank Diameter	Length of Cut	L1 Over All Length	NOT COATED		AlTiN COATED	
					Tool Number	Price Each	Tool Number	Price Each
1/8"	.010"	1/8"	.056"	1-1/2"	37125	\$16.50	37125TL	\$21.50
3/16"	.020"	3/16"	.085"	2"	37187	\$21.50	37187TL	\$27.50
1/4"	.030"	1/4"	.110"	2-1/2"	37250	\$28.50	37250TL	\$35.90



End Cutting - Produces flat in bottom of groove.
See chart for width of flat produced.

SINGLE END CHAMFER CUTTERS

Carbide Single End Chamfer Cutters UNCOATED



Designed to machine accurate chamfers and countersink angles. Rigid design insures smooth finishes.
1/8" size will plunge cut to center. Other sizes are non-end cutting. Special angles quoted on request.

D2 Shank Dia.	D1 Cutter Dia.	Angle Per Side	Incl'd Angle	T Tip Dia.	No. Flutes	L1 Overall Length	Tool Number	Price Each
1/8"	1/8"	15	30	.010"	2	1-1/2"	62015	\$14.90
1/8"	1/8"	30	60	.010"	2	1-1/2"	62030	\$14.90
1/8"	1/8"	45	90	.010"	2	1-1/2"	62045	\$14.90
1/8"	1/8"	60	120	.010"	2	1-1/2"	62060	\$14.90
1/4"	1/4"	15	30	.045"	3	2-1/2"	63015	\$26.90
1/4"	1/4"	30	60	.045"	3	2-1/2"	63030	\$26.90
1/4"	1/4"	45	90	.045"	3	2-1/2"	63045	\$26.90
1/4"	1/4"	60	120	.045"	3	2-1/2"	63060	\$26.90
3/8"	3/8"	15	30	.060"	4	2-1/2"	64015	\$38.50
3/8"	3/8"	30	60	.060"	4	2-1/2"	64030	\$38.50
3/8"	3/8"	45	90	.060"	4	2-1/2"	64045	\$38.50
3/8"	3/8"	60	120	.060"	4	2-1/2"	64060	\$38.50
1/2"	1/2"	15	30	.075"	4	3"	65015	\$59.90
1/2"	1/2"	30	60	.075"	4	3"	65030	\$55.90
1/2"	1/2"	45	90	.075"	4	3"	65045	\$55.90
1/2"	1/2"	60	120	.075"	4	3"	65060	\$55.90

Carbide Single End Chamfer Cutters

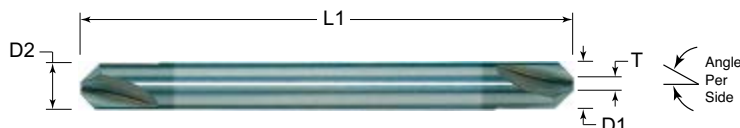
AlTiN COATED



D2 Shank Dia.	D1 Cutter Dia.	Angle Per Side	Incl'd Angle	T Tip Dia.	No. Flutes	L1 Overall Length	Tool Number	Price Each
1/8"	1/8"	15	30	.010"	2	1-1/2"	62015TL	\$18.90
1/8"	1/8"	30	60	.010"	2	1-1/2"	62030TL	\$18.90
1/8"	1/8"	45	90	.010"	2	1-1/2"	62045TL	\$18.90
1/8"	1/8"	60	120	.010"	2	1-1/2"	62060TL	\$18.90
1/4"	1/4"	15	30	.045"	3	2-1/2"	63015TL	\$32.90
1/4"	1/4"	30	60	.045"	3	2-1/2"	63030TL	\$32.90
1/4"	1/4"	45	90	.045"	3	2-1/2"	63045TL	\$32.90
1/4"	1/4"	60	120	.045"	3	2-1/2"	63060TL	\$32.90
3/8"	3/8"	15	30	.060"	4	2-1/2"	64015TL	\$46.50
3/8"	3/8"	30	60	.060"	4	2-1/2"	64030TL	\$46.50
3/8"	3/8"	45	90	.060"	4	2-1/2"	64045TL	\$46.50
3/8"	3/8"	60	120	.060"	4	2-1/2"	64060TL	\$46.50
1/2"	1/2"	15	30	.075"	4	3"	65015TL	\$74.50
1/2"	1/2"	30	60	.075"	4	3"	65030TL	\$69.50
1/2"	1/2"	45	90	.075"	4	3"	65045TL	\$69.50
1/2"	1/2"	60	120	.075"	4	3"	65060TL	\$69.50

DOUBLE END CHAMFER CUTTERS

Carbide Double End Chamfer Cutters UNCOATED & AITiN COATED



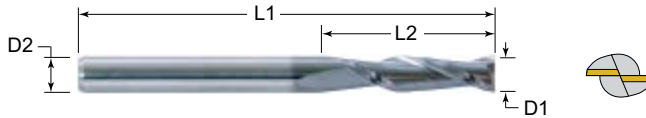
Designed to machine accurate chamfers and countersink angles. Rigid design insures smooth finishes.
1/8" size will plunge cut to center. Other sizes are non-end cutting. Special angles quoted on request.

D1 Cutter Dia.	Angle Per Side	Incl'd Angle	T Tip Dia.	No. Flutes	D2 Shank Dia.	L1 Overall Length	NOT COATED		AITiN COATED	
							Tool Number	Price Each	Tool Number	Price Each
1/8"	30	60	.010"	2	1/8"	1-1/2"	66030	\$27.90	66030TL	\$33.90
1/8"	45	90	.010"	2	1/8"	1-1/2"	66045	\$27.90	66045TL	\$33.90
1/8"	60	120	.010"	2	1/8"	1-1/2"	66060	\$27.90	66060TL	\$33.90
1/8"	30	60	.020"	4	1/8"	1-1/2"	66130	\$27.90	66130TL	\$33.90
1/8"	45	90	.020"	4	1/8"	1-1/2"	66145	\$27.90	66145TL	\$33.90
1/8"	60	120	.020"	4	1/8"	1-1/2"	66160	\$27.90	66160TL	\$33.90
3/16"	30	60	.030"	4	3/16"	2-1/2"	66230	\$34.50	66230TL	\$42.50
3/16"	45	90	.030"	4	3/16"	2-1/2"	66245	\$34.50	66245TL	\$42.50
3/16"	60	120	.030"	4	3/16"	2-1/2"	66260	\$34.50	66260TL	\$42.50
1/4"	30	60	.045"	3	1/4"	2-1/2"	67030	\$45.50	67030TL	\$56.50
1/4"	45	90	.045"	3	1/4"	2-1/2"	67045	\$45.50	67045TL	\$56.50
1/4"	60	120	.045"	3	1/4"	2-1/2"	67060	\$45.50	67060TL	\$56.50
1/4"	30	60	.045"	4	1/4"	2-1/2"	67130	\$45.50	67130TL	\$56.50
1/4"	45	90	.045"	4	1/4"	2-1/2"	67145	\$45.50	67145TL	\$56.50
1/4"	60	120	.045"	4	1/4"	2-1/2"	67160	\$45.50	67160TL	\$56.50
5/16"	30	60	.045"	4	5/16"	2-1/2"	67230	\$54.90	67230TL	\$69.90
5/16"	45	90	.045"	4	5/16"	2-1/2"	67245	\$54.90	67245TL	\$69.90
5/16"	60	120	.045"	4	5/16"	2-1/2"	67260	\$54.90	67260TL	\$69.90
3/8"	30	60	.060"	4	3/8"	2-1/2"	68030	\$69.50	68030TL	\$85.50
3/8"	45	90	.060"	4	3/8"	2-1/2"	68045	\$69.50	68045TL	\$85.50
3/8"	60	120	.060"	4	3/8"	2-1/2"	68060	\$69.50	68060TL	\$85.50
1/2"	30	60	.075"	4	1/2"	3"	69030	\$99.50	69030TL	\$127.50
1/2"	45	90	.075"	4	1/2"	3"	69045	\$99.50	69045TL	\$127.50
1/2"	60	120	.075"	4	1/2"	3"	69060	\$99.50	69060TL	\$127.50

MINIATURE PLASTIC CUTTING END MILLS

Square End - 2-Flute - Micrograin Carbide

UNCOATED & **AMORPHOUS DIAMOND COATED**



Designed specifically for milling mechanical plastics.

For use in Polyurethane, Polycarbonate, ABS, Delrin, Nylon, PEEK, and Acrylics.

2-Flute upcut open design for fast and effective chip removal.

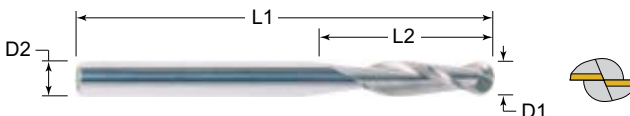
Center cutting end designed for plunging into solid material.

Available with Multiple shank diameters on some sizes.



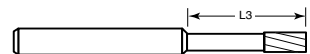
D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Overall Length	UNCOATED		DIAMOND COATED	
				Tool Number	Price Each	Tool Number	Price Each
.031"	.093"	1/8"	1-1/2"	14112	\$27.90	14212	\$41.90
.031"	.156"	1/8"	1-1/2"	14114	\$34.90	14214	\$48.90
.062"	.250"	1/8"	1-1/2"	14120	\$23.90	14220	\$37.90
.062"	.375"	1/8"	2-1/2"	14124	\$26.50	14224	\$40.50
.062"	.500"	1/4"	2"	14128	\$32.50	14228	\$49.50
.093"	.500"	1/8"	2-1/2"	14133	\$23.90	14233	\$37.90
.093"	.750"	1/4"	2-1/2"	14135	\$34.50	14235	\$52.50
.125"	.500"	1/8"	1-1/2"	14140	\$23.90	14240	\$37.90
.125"	.750"	1/8"	2-1/2"	14145	\$28.50	14245	\$44.50
.125"	1.00"	1/4"	2-1/2"	14150	\$34.50	14250	\$52.50
.187"	.562"	3/16"	2"	14155	\$29.90	14255	\$51.90
.250"	.750"	1/4"	2-1/2"	14160	\$34.90	14260	\$56.90
.250"	1.25"	1/4"	3"	14165	\$41.90	14265	\$66.90

Ball End - 2-Flute - UNCOATED



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Overall Length	UNCOATED	
				Tool Number	Price Each
.031"	.093"	1/8"	1-1/2"	14312	\$32.50
.062"	.250"	1/8"	1-1/2"	14320	\$27.50
.062"	.375"	1/8"	2-1/2"	14324	\$31.50
.062"	.500"	1/4"	2"	14328	\$38.50
.093"	.500"	1/8"	2-1/2"	14333	\$29.50
.093"	.750"	1/4"	2-1/2"	14335	\$41.50
.125"	.500"	1/8"	1-1/2"	14340	\$27.50
.125"	.750"	1/8"	2-1/2"	14345	\$34.50
.125"	1.00"	1/4"	2-1/2"	14350	\$41.50
.187"	.562"	3/16"	2"	14355	\$35.90
.250"	.750"	1/4"	2-1/2"	14360	\$41.90
.250"	1.25"	1/4"	3"	14365	\$48.90

Special long reach end mills quoted on request.
Minimum 3 pieces per size.

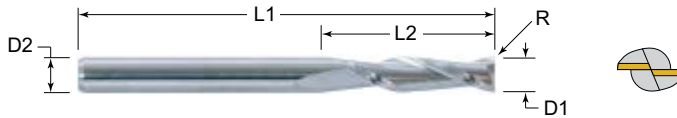


**Ships within
24-48 hours.**

**See Order Form
on next page.**

MINIATURE PLASTIC CUTTING END MILLS

Corner Radius - 2-Flute - Micrograin Carbide UNCOATED

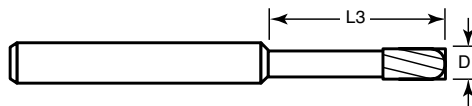


Designed for milling applications in pockets where the bottom must be smooth.
Available with multiple corner radii. See chart below

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Overall Length	UNCOATED	
					Tool Number	Price Each
.062"	.005"	.250"	1/8"	1-1/2"	14620	\$27.50
.062"	.010"	.250"	1/8"	1-1/2"	14621	\$27.50
.093"	.010"	.500"	1/8"	1-1/2"	14633	\$27.50
.093"	.015"	.500"	1/8"	1-1/2"	14634	\$27.50
.125"	.010"	.500"	1/8"	1-1/2"	14640	\$27.50
.125"	.020"	.500"	1/8"	1-1/2"	14642	\$27.50
.125"	.030"	.500"	1/8"	1-1/2"	14644	\$27.50
.187"	.015"	.562"	3/16"	2"	14655	\$35.90
.187"	.030"	.562"	3/16"	2"	14657	\$35.90
.250"	.015"	.750"	1/4"	2-1/2"	14660	\$42.90
.250"	.030"	.750"	1/4"	2-1/2"	14662	\$42.90

ORDER SPECIAL Square & Ball End or Corner Radius LONG REACH PLASTIC CUTTING END MILLS

To order special long reach end mills please specify:



1. Specify: ☐ Square End or ☐ Ball End or ☐ Corner Radius.
2. Shank Diameter (D2): _____
3. Cutter Diameter (D1): _____
4. Corner Radius (R) (From page 115 top): _____
5. Overall Reach (L3): _____
6. Quantity (Minimum 6): _____
7. 2-Flute only.

Special Reaches Shipped within 24-48 Hours!

Tools are custom manufactured to order and are nonreturnable.

PLASTIC & ALUMINUM ROUTERS

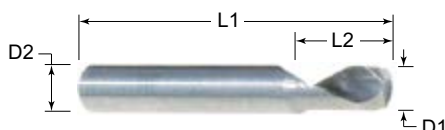
Plastic Cutting Carbide Routers SINGLE FLUTE - UPCUT STYLE CUTS HARD & SOFT PLASTIC MICROGRAIN CARBIDE UNCOATED



Use in Acrylics, Polycarbonate, Polystyrene, ABS, Nylon, PVC & similar.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.062"	.250"	1/4"	2"	14050	\$33.70
.125"	.250"	1/4"	2"	14055	\$33.70
.125"	.500"	1/4"	2"	14060	\$33.70
.187"	.375"	1/4"	2"	14070	\$33.70
.187"	.625"	1/4"	2"	14075	\$33.70
.250"	.375"	1/4"	2"	14080	\$32.50
.250"	.750"	1/4"	2-1/2"	14085	\$33.70
.250"	1.250"	1/4"	3"	14090	\$40.80

Aluminum Routers SINGLE FLUTE - UPCUT SPIRAL CUTS ALUMINUM PLATE & SHEET UNCOATED



Ultra High Performance Design. Used for high speed machining of aluminum plate and single or multi-sheet aluminum. Designed for CNC mills, machining centers and CNC routers.

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.062"	.250"	1/8"	1-1/2"	14510	\$33.70
.093"	.250"	1/8"	2"	14520	\$34.85
.125"	.250"	1/8"	1-1/2"	14525	\$34.85
.125"	.500"	1/4"	2"	14530	\$43.65
.187"	.625"	1/4"	2"	14535	\$44.90
.250"	.375"	1/4"	2"	14540	\$43.65
.250"	.750"	1/4"	2-1/2"	14550	\$47.25
.250"	1.250"	1/4"	3"	14560	\$69.45

SHEAR HOG® & INSERTS FOR ALUMINUM

Shear Hog® For Aluminum

THRU SPINDLE COOLANT HOLE.
INCLUDES INSERTS AND WRENCH.



Cutter Diameter	Number of Flutes	Ramp Angle	Shank Diameter	Over All Length	TOOL NUMBER	PRICE EACH
.750"	1	CTR CUT	3/4"	4.0"	MCH-0750	\$269.00
1.00"	1	CTR CUT	3/4"	3.5"	MCH-1000	\$269.00
1.25"	2	8 DEG	3/4"	3.5"	MCH-1250	\$299.00
1.50"	2	8 DEG	3/4"	4.0"	MCH-1500	\$329.00
2.00"	3	4 DEG	3/4"	4.5"	MCH-2000	\$369.00
2.00"	3	4 DEG	1"	5.0"	MCH-2100	\$379.00

Hi-Shear Polished Carbide Inserts For Aluminum

Corner Radius	TOOL NUMBER	PRICE EACH
.010"	MCH-431	\$26.50
.030"	MCH-432	\$26.50
.060"	MCH-434	\$26.50



ABRASION RESISTANT TOOL COATINGS



TiCN

Cutting carbon steel, alloy steel and cast iron; cold forming & stamping tools.



ZrN

Hard coating for machining a variety of non-ferrous materials.



AlTiN

High performance coating for dry and semi-dry machining of all aerospace materials at high speeds.



Diamond

(Amorphous) Thin film coating for graphite, nonferrous materials and epoxy.

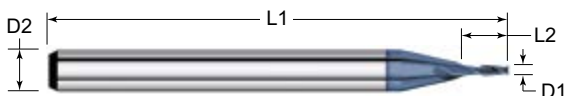


DIAMOND - DECIMAL - 2-FLUTE

SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Decimal Miniature End Mills

HIGH PERFORMANCE DESIGN



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	1/8"	1-1/2"	GRX1010	\$40.30	GRX2010	\$46.75
.015"	.045"	1/8"	1-1/2"	GRX1015	\$37.10	GRX2015	\$42.45
.020"	.060"	1/8"	1-1/2"	GRX1020	\$30.65	GRX2020	\$34.95
.025"	.075"	1/8"	1-1/2"	GRX1025	\$29.55	GRX2025	\$33.85
.030"	.090"	1/8"	1-1/2"	GRX1030	\$29.55	GRX2030	\$33.85
.031"	.125"	1/8"	1-1/2"	GRX1031	\$29.55	GRX2031	\$33.85
.035"	.105"	1/8"	1-1/2"	GRX1035	\$29.55	GRX2035	\$33.85
.040"	.120"	1/8"	1-1/2"	GRX1040	\$29.55	GRX2040	\$33.85
.045"	.135"	1/8"	1-1/2"	GRX1045	\$29.55	GRX2045	\$33.85
.047"	.141"	1/8"	1-1/2"	GRX1047	\$29.55	GRX2047	\$33.85
.050"	.150"	1/8"	1-1/2"	GRX1050	\$29.55	GRX2050	\$33.85
.055"	.165"	1/8"	1-1/2"	GRX1055	\$29.55	GRX2055	\$33.85
.060"	.180"	1/8"	1-1/2"	GRX1060	\$29.55	GRX2060	\$33.85
.062"	.250"	1/8"	1-1/2"	GRX1062	\$29.55	GRX2062	\$33.85
.065"	.195"	1/8"	1-1/2"	GRX1065	\$29.55	GRX2065	\$33.85
.070"	.210"	1/8"	1-1/2"	GRX1070	\$29.55	GRX2070	\$33.85
.075"	.225"	1/8"	1-1/2"	GRX1075	\$29.55	GRX2075	\$33.85
.078"	.234"	1/8"	1-1/2"	GRX1078	\$29.55	GRX2078	\$33.85
.090"	.270"	1/8"	1-1/2"	GRX1090	\$29.55	GRX2090	\$33.85
.093"	.375"	1/8"	1-1/2"	GRX1093	\$29.55	GRX2093	\$33.85
.100"	.300"	1/8"	1-1/2"	GRX1100	\$29.55	GRX2100	\$33.85
.125"	.500"	1/8"	1-1/2"	GRX1125	\$29.55	GRX2125	\$33.85

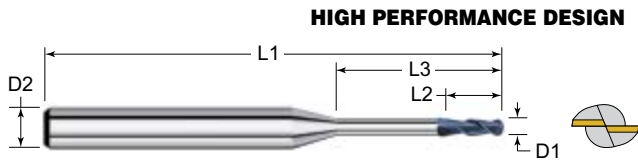
Amorphous diamond coated end mills are engineered for machining graphite, aluminum, nonferrous metals, plastics and composite materials.

DIAMOND - LONG REACH - 2-FLUTE



SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Long Reach Decimal Miniature End Mills



Minimum
3 Tools
Each Size

**SHIPPED
WITHIN
24 - 48
HOURS**

Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	.125"	1/8"	1-1/2"	GRX8015	\$47.85	GRX9015	\$53.20
.020"	.060"	.165"	1/8"	1-1/2"	GRX8020	\$41.40	GRX9020	\$45.70
.025"	.075"	.205"	1/8"	1-1/2"	GRX8025	\$40.30	GRX9025	\$44.60
.030"	.090"	.250"	1/8"	1-1/2"	GRX8030	\$40.30	GRX9030	\$44.60
.031"	.125"	.250"	1/8"	1-1/2"	GRX8031	\$40.30	GRX9031	\$44.60
.035"	.105"	.285"	1/8"	1-1/2"	GRX8035	\$40.30	GRX9035	\$44.60
.040"	.120"	.350"	1/8"	1-1/2"	GRX8040	\$39.50	GRX9040	\$43.80
.045"	.135"	.400"	1/8"	1-1/2"	GRX8045	\$39.50	GRX9045	\$43.80
.047"	.141"	.400"	1/8"	1-1/2"	GRX8047	\$39.50	GRX9047	\$43.80
.050"	.150"	.450"	1/8"	1-1/2"	GRX8050	\$39.50	GRX9050	\$43.80
.055"	.165"	.450"	1/8"	1-1/2"	GRX8055	\$39.50	GRX9055	\$43.80
.060"	.180"	.500"	1/8"	1-1/2"	GRX8060	\$38.60	GRX9060	\$42.90
.062"	.250"	.500"	1/8"	1-1/2"	GRX8062	\$38.60	GRX9062	\$42.90
.065"	.195"	.500"	1/8"	1-1/2"	GRX8065	\$38.60	GRX9065	\$42.90
.070"	.210"	.500"	1/8"	1-1/2"	GRX8070	\$38.60	GRX9070	\$42.90
.075"	.225"	.500"	1/8"	1-1/2"	GRX8075	\$38.60	GRX9075	\$42.90
.078"	.234"	.500"	1/8"	1-1/2"	GRX8078	\$38.60	GRX9078	\$42.90
.090"	.270"	.600"	1/8"	1-1/2"	GRX8090	\$38.60	GRX9090	\$42.90
.093"	.375"	.600"	1/8"	1-1/2"	GRX8093	\$38.60	GRX9093	\$42.90
.100"	.300"	.600"	1/8"	1-1/2"	GRX8100	\$38.60	GRX9100	\$42.90
.125"	.500"	.650"	1/8"	1-1/2"	GRX8125	\$38.60	GRX9125	\$42.90

Tools are custom manufactured to order and are nonreturnable.

Amorphous diamond coated end mills are engineered for machining graphite, aluminum, nonferrous metals, plastics and composite materials.



DIAMOND - DECIMAL - 4-FLUTE

SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Decimal Miniature End Mills



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.010"	.030"	1/8"	1-1/2"	GRX010	\$40.30	GRX010B	\$46.75
.015"	.045"	1/8"	1-1/2"	GRX015	\$37.10	GRX015B	\$42.45
.020"	.060"	1/8"	1-1/2"	GRX020	\$30.65	GRX020B	\$34.95
.025"	.075"	1/8"	1-1/2"	GRX025	\$29.55	GRX025B	\$33.85
.030"	.090"	1/8"	1-1/2"	GRX030	\$29.55	GRX030B	\$33.85
.031"	.125"	1/8"	1-1/2"	GRX031	\$29.55	GRX031B	\$33.85
.035"	.105"	1/8"	1-1/2"	GRX035	\$29.55	GRX035B	\$33.85
.040"	.120"	1/8"	1-1/2"	GRX040	\$29.55	GRX040B	\$33.85
.045"	.135"	1/8"	1-1/2"	GRX045	\$29.55	GRX045B	\$33.85
.047"	.141"	1/8"	1-1/2"	GRX047	\$29.55	GRX047B	\$33.85
.050"	.150"	1/8"	1-1/2"	GRX050	\$29.55	GRX050B	\$33.85
.055"	.165"	1/8"	1-1/2"	GRX055	\$29.55	GRX055B	\$33.85
.060"	.180"	1/8"	1-1/2"	GRX060	\$29.55	GRX060B	\$33.85
.062"	.250"	1/8"	1-1/2"	GRX062	\$29.55	GRX062B	\$33.85
.065"	.195"	1/8"	1-1/2"	GRX065	\$29.55	GRX065B	\$33.85
.070"	.210"	1/8"	1-1/2"	GRX070	\$29.55	GRX070B	\$33.85
.075"	.225"	1/8"	1-1/2"	GRX075	\$29.55	GRX075B	\$33.85
.078"	.234"	1/8"	1-1/2"	GRX078	\$29.55	GRX078B	\$33.85
.090"	.270"	1/8"	1-1/2"	GRX090	\$29.55	GRX090B	\$33.85
.093"	.375"	1/8"	1-1/2"	GRX093	\$29.55	GRX093B	\$33.85
.100"	.300"	1/8"	1-1/2"	GRX100	\$29.55	GRX100B	\$33.85
.109"	.375"	1/8"	1-1/2"	GRX109	\$29.55	GRX109B	\$33.85
.125"	.500"	1/8"	1-1/2"	GRX125	\$29.55	GRX125B	\$33.85
.187"	.625"	3/16"	2"	GRX187	\$34.95	GRX187B	\$38.15
.250"	.750"	1/4"	2-1/2"	GRX250	\$41.40	GRX250B	\$44.60
.312"	.812"	5/16"	2-1/2"	GRX312	\$53.20	GRX312B	\$57.50
.375"	1.00"	3/8"	2-1/2"	GRX375	\$63.95	GRX375B	\$69.35
.500"	1.00"	1/2"	3"	GRX500	\$96.20	GRX500B	\$103.75

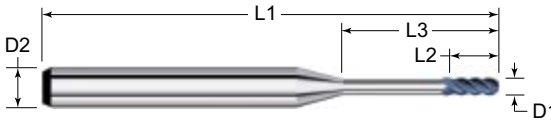
Amorphous diamond coated end mills are engineered for machining graphite, aluminum, nonferrous metals, plastics and composite materials.

DIAMOND – FRACTIONAL LG RCH – 4-FLT



SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Long Reach Decimal Miniature End Mills



Minimum
3 Tools
Each Size



Length of Cut = 3 x Diameter or as Specified – Center Cutting – Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.045"	.125"	1/8"	1-1/2"	GRX3015	\$47.85	GRX3015B	\$53.20
.020"	.060"	.165"	1/8"	1-1/2"	GRX3020	\$41.40	GRX3020B	\$45.70
.025"	.075"	.205"	1/8"	1-1/2"	GRX3025	\$40.30	GRX3025B	\$45.70
.030"	.090"	.250"	1/8"	1-1/2"	GRX3030	\$40.30	GRX3030B	\$45.70
.031"	.125"	.250"	1/8"	1-1/2"	GRX3031	\$40.30	GRX3031B	\$44.60
.035"	.105"	.285"	1/8"	1-1/2"	GRX3035	\$39.50	GRX3035B	\$43.80
.040"	.120"	.350"	1/8"	1-1/2"	GRX3040	\$39.50	GRX3040B	\$43.80
.045"	.135"	.400"	1/8"	1-1/2"	GRX3045	\$39.50	GRX3045B	\$43.80
.047"	.141"	.400"	1/8"	1-1/2"	GRX3047	\$39.50	GRX3047B	\$43.80
.050"	.150"	.450"	1/8"	1-1/2"	GRX3050	\$39.50	GRX3050B	\$43.80
.055"	.165"	.450"	1/8"	1-1/2"	GRX3055	\$39.50	GRX3055B	\$43.80
.060"	.180"	.500"	1/8"	1-1/2"	GRX3060	\$38.60	GRX3060B	\$42.90
.062"	.250"	.500"	1/8"	1-1/2"	GRX3062	\$38.60	GRX3062B	\$42.90
.065"	.195"	.500"	1/8"	1-1/2"	GRX3065	\$38.60	GRX3065B	\$42.90
.070"	.210"	.500"	1/8"	1-1/2"	GRX3070	\$38.60	GRX3070B	\$42.90
.075"	.225"	.500"	1/8"	1-1/2"	GRX3075	\$38.60	GRX3075B	\$42.90
.078"	.234"	.500"	1/8"	1-1/2"	GRX3078	\$38.60	GRX3078B	\$42.90
.090"	.270"	.600"	1/8"	1-1/2"	GRX3090	\$38.60	GRX3090B	\$42.90
.093"	.375"	.600"	1/8"	1-1/2"	GRX3093	\$38.60	GRX3093B	\$42.90
.100"	.300"	.600"	1/8"	1-1/2"	GRX3100	\$38.60	GRX3100B	\$42.90
.109"	.375"	.650"	1/8"	1-1/2"	GRX3109	\$38.60	GRX3109B	\$42.90
.125"	.500"	.650"	1/8"	1-1/2"	GRX3125	\$38.60	GRX3125B	\$42.90

Tools are custom manufactured to order and are nonreturnable.

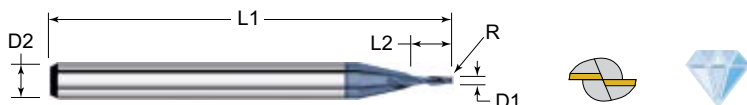
Amorphous diamond coated end mills are engineered for machining graphite, aluminum, nonferrous metals, plastics and composite materials.



DIAMOND – CORNER RADIUS – 2-FLUTE

Corner Radius - **AMORPHOUS DIAMOND COATED**

Decimal End Mills Sized .015" to .125"



Length of Cut = 3 x Diameter or as Specified – Center Cutting – Micro Grain Carbide

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.003"	.045"	1/8"	1-1/2"	GX215-003	\$52.15
.020"	.005"	.060"	1/8"	1-1/2"	GX220-005	\$47.85
.025"	.005"	.075"	1/8"	1-1/2"	GX225-005	\$47.85
.030"	.005"	.090"	1/8"	1-1/2"	GX230-005	\$41.65
.031" (1/32)	.005"	.093"	1/8"	1-1/2"	GX231-005	\$41.65
.035"	.005"	.105"	1/8"	1-1/2"	GX235-005	\$41.65
.040"	.005"	.120"	1/8"	1-1/2"	GX240-005	\$39.25
.045"	.005"	.135"	1/8"	1-1/2"	GX245-005	\$39.25
.047" (3/64)	.005"	.141"	1/8"	1-1/2"	GX247-005	\$39.25
.050"	.005"	.150"	1/8"	1-1/2"	GX250-005	\$39.25
.060"	.005"	.180"	1/8"	1-1/2"	GX260-005	\$39.25
.060"	.010"	.180"	1/8"	1-1/2"	GX260-010	\$39.25
.062" (1/16)	.005"	.186"	1/8"	1-1/2"	GX262-005	\$39.25
.062" (1/16)	.010"	.186"	1/8"	1-1/2"	GX262-010	\$39.25
.075"	.005"	.225"	1/8"	1-1/2"	GX275-005	\$39.25
.075"	.010"	.225"	1/8"	1-1/2"	GX275-010	\$39.25
.078" (5/64)	.005"	.234"	1/8"	1-1/2"	GX278-005	\$39.25
.078" (5/64)	.010"	.234"	1/8"	1-1/2"	GX278-010	\$39.25
.093" (3/32)	.005"	.279"	1/8"	1-1/2"	GX293-005	\$39.25
.093" (3/32)	.010"	.279"	1/8"	1-1/2"	GX293-010	\$39.25
.125" (1/8)	.010"	1/2"	1/8"	1-1/2"	GX225-010	\$34.95
.125" (1/8)	.015"	1/2"	1/8"	1-1/2"	GX225-015	\$34.95
.125" (1/8)	.020"	1/2"	1/8"	1-1/2"	GX225-020	\$34.95

Corner radius helps prevent chipping at corners at high feeds and speeds.

Special Cutting Tool Quotations

Microcut's capability to produce Standard cutting tools is replicated by its ability to produce Special Cutting Tools. Quality, competitive pricing, and on-time delivery has been a Microcut trademark for almost 20 years. Microcut's workforce experience in producing special Micro Tools dates back over 40 years and makes us one of the most experienced Micro Tool companies in the U.S.A. Submit your special tool B/P to us by fax at 781-582-8095 or email to sales@microcutUSA.com and we will quote it through the distributor of your choice that services your facility.

DIAMOND – CORNER RADIUS – 4-FLUTE



Corner Radius - **AMORPHOUS DIAMOND COATED**

Decimal End Mills Sized .015" to .125"



Length of Cut = 3 x Diameter or as Specified – Center Cutting – Micro Grain Carbide

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.015"	.003"	.045"	1/8"	1-1/2"	GX415-003	\$52.15
.020"	.005"	.060"	1/8"	1-1/2"	GX420-005	\$47.85
.025"	.005"	.075"	1/8"	1-1/2"	GX425-005	\$47.85
.030"	.005"	.090"	1/8"	1-1/2"	GX430-005	\$41.65
.031" (1/32)	.005"	.093"	1/8"	1-1/2"	GX431-005	\$41.65
.035"	.005"	.105"	1/8"	1-1/2"	GX435-005	\$41.65
.040"	.005"	.120"	1/8"	1-1/2"	GX440-005	\$39.25
.045"	.005"	.135"	1/8"	1-1/2"	GX445-005	\$39.25
.047" (3/64)	.005"	.141"	1/8"	1-1/2"	GX447-005	\$39.25
.050"	.005"	.150"	1/8"	1-1/2"	GX450-005	\$39.25
.060"	.005"	.180"	1/8"	1-1/2"	GX460-005	\$39.25
.060"	.010"	.180"	1/8"	1-1/2"	GX460-010	\$39.25
.062" (1/16)	.005"	.186"	1/8"	1-1/2"	GX462-005	\$39.25
.062" (1/16)	.010"	.186"	1/8"	1-1/2"	GX462-010	\$39.25
.075"	.005"	.225"	1/8"	1-1/2"	GX475-005	\$39.25
.075"	.010"	.225"	1/8"	1-1/2"	GX475-010	\$39.25
.078" (5/64)	.005"	.234"	1/8"	1-1/2"	GX478-005	\$39.25
.078" (5/64)	.010"	.234"	1/8"	1-1/2"	GX478-010	\$39.25
.093" (3/32)	.005"	.279"	1/8"	1-1/2"	GX493-005	\$39.25
.093" (3/32)	.010"	.279"	1/8"	1-1/2"	GX493-010	\$39.25
.125" (1/8)	.010"	1/2"	1/8"	1-1/2"	GX425-010	\$34.95
.125" (1/8)	.015"	1/2"	1/8"	1-1/2"	GX425-015	\$34.95
.125" (1/8)	.020"	1/2"	1/8"	1-1/2"	GX425-020	\$34.95

Corner radius helps prevent chipping at corners at high feeds and speeds.

Locate Your Distributor



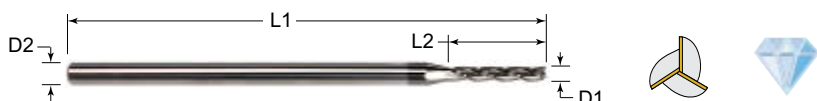
Microcut products are sold by cutting tool distributors in the U.S. and Canada. These distributors are selected because of their expertise in cutting tools and are available to assist you in your standard and special cutting tools. To locate a local distributor visit our website at www.microcutUSA.com and select "Locate a Distributor". Enter your Zip code, or select your state or province and chose a distributor that can process your order quickly and forward it on to the Microcut Sales Dept. We will process and ship the tools directly to you on the same day from our warehouse, or manufacture the specialty product as listed in the catalog within the lead time published or quoted.



DIAMOND - LG FLT & SHK - DECIMAL - 3-FLT

SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Decimal Long Flute, Long Shank End Mills



Length of Cut = 3 x Diameter or as Specified - Center Cutting - Micro Grain Carbide

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	1/8"	2-1/2"	GL1015	\$48.25	GL1015B	\$52.55
.020"	.100"	1/8"	2-1/2"	GL1020	\$43.95	GL1020B	\$48.25
.025"	.125"	1/8"	2-1/2"	GL1025	\$41.80	GL1025B	\$46.10
.030"	.150"	1/8"	2-1/2"	GL1030	\$41.80	GL1030B	\$46.10
.031" (1/32)	.150"	1/8"	2-1/2"	GL1031	\$40.75	GL1031B	\$45.05
.035"	.175"	1/8"	2-1/2"	GL1035	\$41.80	GL1035B	\$46.10
.040"	.200"	1/8"	2-1/2"	GL1040	\$40.75	GL1040B	\$45.05
.045"	.225"	1/8"	2-1/2"	GL1045	\$41.80	GL1045B	\$46.10
.047" (3/64)	.250"	1/8"	2-1/2"	GL1047	\$40.75	GL1047B	\$45.05
.050"	.250"	1/8"	2-1/2"	GL1050	\$41.80	GL1050B	\$46.10
.060"	.500"	1/8"	2-1/2"	GL1060	\$41.80	GL1060B	\$46.10
.062" (1/16)	.312"	1/8"	2-1/2"	GL1062S	\$40.75	GL1062SB	\$45.05
.062" (1/16)	.500"	1/8"	2-1/2"	GL1062	\$40.75	GL1062B	\$45.05
.065"	.500"	1/8"	2-1/2"	GL1065	\$41.80	GL1065B	\$46.10
.070"	.500"	1/8"	2-1/2"	GL1070	\$40.75	GL1070B	\$45.05
.075"	.500"	1/8"	2-1/2"	GL1075	\$41.80	GL1075B	\$46.10
.078" (5/64)	.500"	1/8"	2-1/2"	GL1078	\$40.75	GL1078B	\$45.05
.093" (3/32)	.500"	1/8"	2-1/2"	GL1093	\$40.75	GL1093B	\$45.05
.093" (3/32)	.750"	1/8"	2-1/2"	GL1093L	\$42.90	GL1093LB	\$47.20
.125" (1/8)	.625"	1/8"	2-1/2"	GL1125S	\$40.75	GL1125SB	\$45.05
.125" (1/8)	.750"	1/8"	2-1/2"	GL1125	\$40.75	GL1125B	\$45.05
.125" (1/8)	1.00"	1/8"	2-1/2"	GL1125L	\$40.75	GL1125LB	\$45.05

Need Carbide Micro Drills? See pages 142 to 143.

Designed for drilling in a wide variety of materials including: steels, stainless steel, titanium, alloy steels, plastic and aluminum.

- Size Range: .0079" (#92) - .1250" (1/8")
- Cutter Diameter Tolerance: +0/-.0003"
- 135 Degree Point



DIAMOND - LG FLT & RCH - DECIMAL - 3-FLT



SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Decimal Long Flute, Long Reach End Mills



Minimum
3 Tools
Each Size

**SHIPPED
WITHIN
24 - 48
HOURS**

2-1/2" OAL - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015" (1/64)	.075"	.125"	1/8"	2-1/2"	GL15-125	\$56.45	GLB15-125	\$60.75
.015" (1/64)	.075"	.150"	1/8"	2-1/2"	GL15-150	\$56.45	GLB15-150	\$60.75
.020"	.100"	.150"	1/8"	2-1/2"	GL20-150	\$52.55	GLB20-150	\$56.85
.020"	.100"	.200"	1/8"	2-1/2"	GL20-200	\$52.55	GLB20-200	\$56.85
.025"	.125"	.200"	1/8"	2-1/2"	GL25-200	\$50.40	GLB25-200	\$54.70
.025"	.125"	.250"	1/8"	2-1/2"	GL25-250	\$50.40	GLB25-250	\$54.70
.031" (1/32)	.150"	.250"	1/8"	2-1/2"	GL31-250	\$48.25	GLB31-250	\$52.55
.031" (1/32)	.150"	.300"	1/8"	2-1/2"	GL31-300	\$48.25	GLB31-300	\$52.55
.040"	.200"	.350"	1/8"	2-1/2"	GL40-350	\$48.25	GLB40-350	\$52.55
.047" (3/64)	.250"	.400"	1/8"	2-1/2"	GL47-400	\$46.10	GLB47-400	\$50.40
.047" (3/64)	.250"	.500"	1/8"	2-1/2"	GL47-500	\$48.25	GLB47-500	\$52.55
.062" (1/16)	.500"	.650"	1/8"	2-1/2"	GL62-650	\$46.10	GLB62-650	\$50.40
.062" (1/16)	.500"	.750"	1/8"	2-1/2"	GL62-750	\$47.20	GLB62-750	\$51.50
.062" (1/16)	.500"	.850"	1/8"	2-1/2"	GL62-850	\$48.25	GLB62-850	\$52.55
.062" (1/16)	.500"	1.000"	1/8"	2-1/2"	GL62-100	\$49.35	GLB62-100	\$53.65
.070"	.500"	.750"	1/8"	2-1/2"	GL70-750	\$47.20	GLB70-750	\$51.50
.078" (5/64)	.500"	.750"	1/8"	2-1/2"	GL78-750	\$47.20	GLB78-750	\$51.50
.078" (5/64)	.500"	.850"	1/8"	2-1/2"	GL78-850	\$48.25	GLB78-850	\$52.55
.078" (5/64)	.500"	1.000"	1/8"	2-1/2"	GL78-100	\$49.35	GLB78-100	\$53.65
.093" (3/32)	.500"	.750"	1/8"	2-1/2"	GL93-750	\$47.20	GLB93-750	\$51.50
.093" (3/32)	.500"	.850"	1/8"	2-1/2"	GL93-850	\$48.25	GLB93-850	\$52.55
.093" (3/32)	.500"	1.000"	1/8"	2-1/2"	GL93-100	\$49.35	GLB93-100	\$53.65
.125" (1/8)	.750"	1.25"	1/8"	2-1/2"	GL125-125	\$47.20	GLB125-125	\$51.50

Don't see the reach you want?? Call customer service.

Shorter reaches available at No Extra Charge and ship in 24-48 Hours.

Longer Reaches need to be quoted by our Sales Department and ship in 24-48 hours after receipt of order.

Minimum quantity is 3 tools per size.

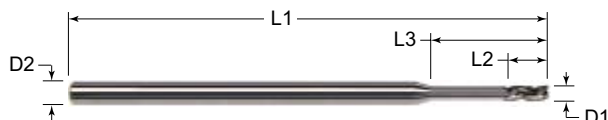
Tools are custom manufactured to order and are nonreturnable.



DIAMOND - STUB FLT - LG SHK & RCH - 3-FLT

SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Stub Flute, Long Shank, Long Reach End Mills



Minimum
3 Tools
Each Size

**SHIPPED
WITHIN
24-48
HOURS**

2-1/2" OAL - Center Cutting - Micro Grain Carbide - Made in USA

Tools are custom manufactured to order and are nonreturnable.

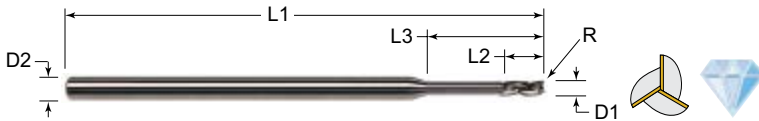
D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.022"	.075"	1/8"	2-1/2"	GS15-075	\$47.85	GB15-075	\$54.30
.015"	.022"	.100"	1/8"	2-1/2"	GS15-100	\$47.85	GB15-100	\$54.30
.015"	.022"	.125"	1/8"	2-1/2"	GS15-125	\$50.00	GB15-125	\$56.45
.015"	.022"	.150"	1/8"	2-1/2"	GS15-150	\$50.00	GB15-150	\$56.45
.020"	.030"	.100"	1/8"	2-1/2"	GS20-100	\$46.10	GB20-100	\$52.55
.020"	.030"	.150"	1/8"	2-1/2"	GS20-150	\$46.10	GB20-150	\$52.55
.020"	.030"	.200"	1/8"	2-1/2"	GS20-200	\$48.25	GB20-200	\$54.70
.025"	.037"	.125"	1/8"	2-1/2"	GS25-125	\$46.10	GB25-125	\$52.55
.025"	.037"	.200"	1/8"	2-1/2"	GS25-200	\$46.10	GB25-200	\$52.55
.025"	.037"	.250"	1/8"	2-1/2"	GS25-250	\$48.25	GB25-250	\$54.70
.031"	.046"	.150"	1/8"	2-1/2"	GS31-150	\$46.10	GB31-150	\$50.40
.031"	.046"	.200"	1/8"	2-1/2"	GS31-200	\$46.10	GB31-200	\$50.40
.031"	.046"	.250"	1/8"	2-1/2"	GS31-250	\$48.25	GB31-250	\$52.55
.031"	.046"	.300"	1/8"	2-1/2"	GS31-300	\$48.25	GB31-300	\$52.55
.040"	.060"	.200"	1/8"	2-1/2"	GS40-200	\$46.10	GB40-200	\$50.40
.040"	.060"	.300"	1/8"	2-1/2"	GS40-300	\$48.25	GB40-300	\$52.55
.040"	.060"	.400"	1/8"	2-1/2"	GS40-400	\$48.25	GB40-400	\$52.55
.047"	.070"	.250"	1/8"	2-1/2"	GS47-250	\$46.10	GB47-250	\$50.40
.047"	.070"	.350"	1/8"	2-1/2"	GS47-350	\$48.25	GB47-350	\$52.55
.047"	.070"	.450"	1/8"	2-1/2"	GS47-450	\$48.25	GB47-450	\$52.55
.062"	.093"	.300"	1/8"	2-1/2"	GS62-300	\$43.95	GB62-300	\$48.25
.062"	.093"	.400"	1/8"	2-1/2"	GS62-400	\$43.95	GB62-400	\$48.25
.062"	.093"	.500"	1/8"	2-1/2"	GS62-500	\$46.10	GB62-500	\$50.40
.062"	.093"	.600"	1/8"	2-1/2"	GS62-600	\$46.10	GB62-600	\$50.40
.062"	.093"	.750"	1/8"	2-1/2"	GS62-750	\$48.25	GB62-750	\$52.55
.070"	.105"	.300"	1/8"	2-1/2"	GS70-300	\$43.95	GB70-300	\$48.25
.070"	.105"	.400"	1/8"	2-1/2"	GS70-400	\$43.95	GB70-400	\$48.25
.070"	.105"	.500"	1/8"	2-1/2"	GS70-500	\$46.10	GB70-500	\$50.40
.078"	.117"	.400"	1/8"	2-1/2"	GS78-400	\$43.95	GB78-400	\$48.25
.078"	.117"	.500"	1/8"	2-1/2"	GS78-500	\$43.95	GB78-500	\$48.25
.078"	.117"	.600"	1/8"	2-1/2"	GS78-600	\$46.10	GB78-600	\$50.40
.078"	.117"	.750"	1/8"	2-1/2"	GS78-750	\$46.10	GB78-750	\$50.40
.093"	.139"	.400"	1/8"	2-1/2"	GS93-400	\$43.95	GB93-400	\$48.25
.093"	.139"	.500"	1/8"	2-1/2"	GS93-500	\$43.95	GB93-500	\$48.25
.093"	.139"	.600"	1/8"	2-1/2"	GS93-600	\$43.95	GB93-600	\$48.25
.093"	.139"	.750"	1/8"	2-1/2"	GS93-750	\$46.10	GB93-750	\$50.40
.093"	.139"	1.000"	1/8"	2-1/2"	GS93-100	\$46.10	GB93-100	\$50.40
.125"	.187"	.750"	1/8"	2-1/2"	GS125-750	\$43.95	GB125-750	\$48.25
.125"	.187"	1.000"	1/8"	2-1/2"	GS125-100	\$46.10	GB125-100	\$50.40

STUB - CORNER RAD - LG SHK - LG RCH - 3-FLT



Corner Radius - **AMORPHOUS DIAMOND COATED**

Stub Corner Radius, Long Shank, Long Reach End Mills



Minimum
3 Tools
Each Size

**SHIPPED
WITHIN
24-48
HOURS**

2-1/2" OAL - Center Cutting - Micro Grain Carbide - Made in USA

Tools are custom manufactured to order and are nonreturnable.

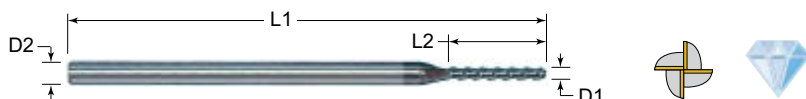
D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.005"	.046"	.150"	1/8"	2-1/2"	GR1031	\$48.25
.031"	.005"	.046"	.250"	1/8"	2-1/2"	GR1031L	\$48.25
.031"	.005"	.046"	.300"	1/8"	2-1/2"	GR1031XL	\$50.40
.040"	.005"	.060"	.200"	1/8"	2-1/2"	GR1040	\$48.25
.047"	.005"	.070"	.250"	1/8"	2-1/2"	GR1047	\$48.25
.047"	.005"	.070"	.350"	1/8"	2-1/2"	GR1047L	\$50.40
.062"	.005"	.094"	.300"	1/8"	2-1/2"	GR1062S	\$48.25
.062"	.005"	.094"	.500"	1/8"	2-1/2"	GR1062	\$50.40
.062"	.010"	.094"	.300"	1/8"	2-1/2"	GR1062L-010	\$48.25
.062"	.010"	.094"	.500"	1/8"	2-1/2"	GR1062XL-010	\$50.40
.070"	.005"	.105"	.350"	1/8"	2-1/2"	GR1070	\$46.10
.078"	.005"	.117"	.400"	1/8"	2-1/2"	GR1078	\$46.10
.078"	.005"	.117"	.500"	1/8"	2-1/2"	GR1078L	\$46.10
.078"	.005"	.117"	.600"	1/8"	2-1/2"	GR1078XL	\$50.40
.078"	.010"	.117"	.400"	1/8"	2-1/2"	GR1078-010	\$46.10
.078"	.010"	.117"	.500"	1/8"	2-1/2"	GR1078L-010	\$46.10
.078"	.010"	.117"	.600"	1/8"	2-1/2"	GR1078XL-010	\$50.40
.093"	.005"	.139"	.500"	1/8"	2-1/2"	GR1093	\$46.10
.093"	.005"	.139"	.750"	1/8"	2-1/2"	GR1093L	\$48.25
.093"	.005"	.139"	1.00"	1/8"	2-1/2"	GR1093XL	\$50.40
.093"	.010"	.139"	.500"	1/8"	2-1/2"	GR1093-010	\$46.10
.093"	.010"	.139"	.750"	1/8"	2-1/2"	GR1093L-010	\$48.25
.093"	.010"	.139"	1.000"	1/8"	2-1/2"	GR1093XL-010	\$50.40
.125"	.005"	.187"	.750"	1/8"	2-1/2"	GR1125	\$46.10
.125"	.005"	.187"	1.000"	1/8"	2-1/2"	GR1125L	\$48.25
.125"	.010"	.187"	.750"	1/8"	2-1/2"	GR1125-010	\$46.10
.125"	.010"	.187"	1.000"	1/8"	2-1/2"	GR1125L-010	\$48.25



DIAMOND – LONG FLUTE – 4-FLUTE

SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Decimal End Mills Sized .015" to .062"



Center Cutting – Micro Grain Carbide – Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015"	.075"	1/8"	2-1/2"	GRX4015	\$42.75	GRX5015	\$48.10
.020"	.100"	1/8"	2-1/2"	GRX4020	\$39.25	GRX5020	\$42.45
.025"	.125"	1/8"	2-1/2"	GRX4025	\$37.10	GRX5025	\$40.30
.030"	.150"	1/8"	2-1/2"	GRX4030	\$36.50	GRX5030	\$39.70
.031"	.150"	1/8"	2-1/2"	GRX4031	\$36.50	GRX5031	\$39.70
.031"	.250"	1/8"	2-1/2"	GRX4031L	\$53.70	GRX5031L	\$62.30
.035"	.175"	1/8"	2-1/2"	GRX4035	\$36.50	GRX5035	\$39.70
.040"	.200"	1/8"	2-1/2"	GRX4040	\$36.50	GRX5040	\$39.70
.045"	.250"	1/8"	2-1/2"	GRX4045	\$36.50	GRX5045	\$39.70
.047"	.250"	1/8"	2-1/2"	GRX4047	\$36.50	GRX5047	\$39.70
.047"	.375"	1/8"	2-1/2"	GRX4047L	\$47.25	GRX5047L	\$52.60
.050"	.300"	1/8"	2-1/2"	GRX4050	\$36.50	GRX5050	\$39.70
.055"	.375"	1/8"	2-1/2"	GRX4055	\$36.50	GRX5055	\$39.70
.060"	.500"	1/8"	2-1/2"	GRX4060	\$36.50	GRX5060	\$39.70
.062"	.312"	1/8"	2-1/2"	GRX4062S	\$33.25	GRX5062S	\$34.95
.062"	.500"	1/8"	2-1/2"	GRX4062	\$36.50	GRX5062	\$39.70
.062"	.750"	1/8"	2-1/2"	GRX4062L	\$49.40	GRX5062L	\$53.70

Special reaches for deep pocket milling quoted on request.

GRX Diamond end mills for machining Graphite, Aluminum, abrasive plastics and composites.

"GRX" series of amorphous diamond coated mills lower tooling costs and improve productivity over uncoated carbide.

Continued Next Page

DIAMOND – LONG FLUTE – 4-FLUTE



Continued from previous page:

Decimal End Mills

Size Range: .065" – .500"



D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.065"	.500"	1/8"	2-1/2"	GRX4065	\$36.50	GRX5065	\$39.70
.070"	.500"	1/8"	2-1/2"	GRX4070	\$36.50	GRX5070	\$39.70
.075"	.500"	1/8"	2-1/2"	GRX4075	\$36.50	GRX5075	\$39.70
.078"	.500"	1/8"	2-1/2"	GRX4078	\$36.50	GRX5078	\$39.70
.078"	.750"	1/8"	2-1/2"	GRX4078L	\$49.40	GRX5078L	\$53.70
.090"	.500"	1/8"	2-1/2"	GRX4090	\$36.50	GRX5090	\$39.70
.093"	.500"	1/8"	2-1/2"	GRX4093	\$36.50	GRX5093	\$39.70
.093"	.750"	1/8"	2-1/2"	GRX4093L	\$38.65	GRX5093L	\$42.95
.125"	.750"	1/8"	3"	GRX4125	\$36.50	GRX5125	\$39.70
.125"	1.00"	1/8"	3"	GRX4125L	\$38.15	GRX5125L	\$42.95
.187"	1.125"	3/16"	3"	GRX4187	\$42.45	GRX5187	\$45.70
.250"	1.500"	1/4"	4"	GRX4250	\$48.90	GRX5250	\$53.20
.375"	1.750"	3/8"	4"	GRX4375	\$71.50	GRX5375	\$76.85
.500"	2.000"	1/2"	4"	GRX4500	\$117.70	GRX5500	\$128.45

Special reaches for deep pocket milling quoted on request.

Special Cutting Tool Quotations

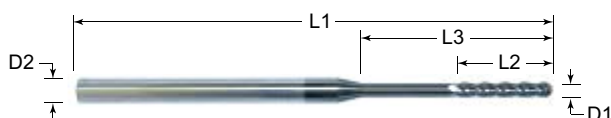
Microcut's capability to produce Standard cutting tools is replicated by its ability to produce Special Cutting Tools. Quality, competitive pricing, and on-time delivery has been a Microcut trademark for almost 20 years. Microcut's workforce experience in producing special Micro Tools dates back over 40 years and makes us one of the most experienced Micro Tool companies in the U.S.A. Submit your special tool B/P to us by fax at 781-582-8095 or email to sales@microcutUSA.com and we will quote it through the distributor of your choice that services your facility.



LONG FLUTE - LONG REACH - 4-FLUTE

SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Long Flute & Long Reach End Mills



**SHIPPED
WITHIN
24-48
HOURS**

Minimum
3 Tools
Each Size

Center Cutting - Micro Grain Carbide - Made in USA

High Performance thin film Diamond coated carbide end mills for Extra Deep Machining of graphite, aluminum, and composite materials.

All end mills have reduced neck diameters to prevent work piece contact.

Special reaches for deep pocket milling quoted on request.

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
1/64" (.0156)	.075"	.150"	1/8"	2-1/2"	GRX4515	\$48.10	GRX5515	\$53.50
.020"	.100"	.200"	1/8"	2-1/2"	GRX4520	\$44.60	GRX5520	\$47.85
.025"	.125"	.250"	1/8"	2-1/2"	GRX4525	\$41.40	GRX5525	\$45.10
.030"	.150"	.300"	1/8"	2-1/2"	GRX4530	\$41.40	GRX5530	\$45.10
1/32" (.0312)	.150"	.300"	1/8"	2-1/2"	GRX4531	\$41.40	GRX5531	\$45.10
.035"	.175"	.350"	1/8"	2-1/2"	GRX4535	\$41.40	GRX5535	\$45.10
.040"	.200"	.400"	1/8"	2-1/2"	GRX4540	\$41.40	GRX5540	\$45.10
.045"	.250"	.450"	1/8"	2-1/2"	GRX4545	\$41.10	GRX5545	\$44.60
3/64" (.0469)	.250"	.500"	1/8"	2-1/2"	GRX4547	\$41.10	GRX5547	\$44.60
.050"	.300"	.500"	1/8"	2-1/2"	GRX4550	\$41.10	GRX5550	\$44.60
.055"	.375"	.500"	1/8"	2-1/2"	GRX4555	\$41.10	GRX5555	\$44.60
.060"	.500"	.750"	1/8"	2-1/2"	GRX4560S	\$41.10	GRX5560S	\$44.60
.060"	.500"	1.00"	1/8"	2-1/2"	GRX4560	\$45.40	GRX5560	\$48.90
1/16" (.0625)	.500"	.750"	1/8"	2-1/2"	GRX4562S	\$41.10	GRX5562S	\$44.60
1/16" (.0625)	.500"	1.00"	1/8"	2-1/2"	GRX4562	\$45.40	GRX5562	\$48.90

Continued Next Page

LONG FLUTE - LONG REACH - 4-FLUTE



Continued from previous page:

Long Flute & Long Reach End Mills Size Range: .065" - .2500"



Amorphous diamond coated end mills are engineered for machining graphite, aluminum, nonferrous metals, plastics and composite materials.

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.065"	.500"	.750"	1/8"	2-1/2"	GRX4565	\$41.10	GRX5565	\$44.60
.070"	.500"	.750"	1/8"	2-1/2"	GRX4570	\$41.10	GRX5570	\$44.60
.075"	.500"	.750"	1/8"	2-1/2"	GRX4575S	\$41.10	GRX5575S	\$44.60
.075	.500"	1.00"	1/8"	2-1/2"	GRX4575	\$45.40	GRX5575	\$48.90
5/64" (.0781)	.500"	.750"	1/8"	2-1/2"	GRX4578S	\$41.10	GRX5578S	\$44.60
5/64" (.0781)	.500"	1.00"	1/8"	2-1/2"	GRX4578	\$45.40	GRX5578	\$48.90
.090"	.500"	.750"	1/8"	2-1/2"	GRX4590S	\$41.10	GRX5590S	\$44.60
.090"	.500"	1.00"	1/8"	2-1/2"	GRX4590	\$45.40	GRX5590	\$48.90
3/32" (.0937)	.500"	.750"	1/8"	2-1/2"	GRX4593S	\$41.10	GRX5593S	\$44.60
3/32" (.0937)	.500"	1.00"	1/8"	2-1/2"	GRX4593L	\$45.40	GRX5593L	\$48.90
3/32" (.0937)	.500"	1.25"	1/8"	2-1/2"	GRX4593	\$45.40	GRX5593	\$48.90
1/8" (.1250)	.750"	1.50"	1/8"	3"	GRX45125	\$41.10	GRX55125	\$44.60
3/16" (.1875)	1.125"	1.625"	3/16"	3"	GRX45187	\$48.90	GRX55187	\$52.60
1/4" (.2500)	1.500"	2.00"	1/4"	4"	GRX45250	\$55.85	GRX55250	\$58.00

Tools are custom manufactured to order and are nonreturnable.



DIAMOND - STUB - 4-FLUTE

SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Stub Long Shank Miniature End Mills



Length of Cut = 2 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
				Tool Number	Price Each	Tool Number	Price Each
.015"	.030"	1/8"	2-1/2"	GRX6515	\$41.65	GRX7515	\$47.05
.020"	.040"	1/8"	2-1/2"	GRX6520	\$38.15	GRX7520	\$41.40
.025"	.050"	1/8"	2-1/2"	GRX6525	\$36.00	GRX7525	\$39.25
.030"	.060"	1/8"	2-1/2"	GRX6530	\$35.40	GRX7530	\$38.65
.031"	.062"	1/8"	2-1/2"	GRX6531	\$35.40	GRX7531	\$38.65
.035"	.070"	1/8"	2-1/2"	GRX6535	\$35.40	GRX7535	\$38.65
.040"	.080"	1/8"	2-1/2"	GRX6540	\$35.40	GRX7540	\$38.65
.045"	.090"	1/8"	2-1/2"	GRX6545	\$35.40	GRX7545	\$38.65
.047"	.094"	1/8"	2-1/2"	GRX6547	\$35.40	GRX7547	\$38.65
.050"	.100"	1/8"	2-1/2"	GRX6550	\$35.40	GRX7550	\$38.65
.060"	.120"	1/8"	2-1/2"	GRX6560	\$35.40	GRX7560	\$38.65
.062"	.125"	1/8"	2-1/2"	GRX6562	\$35.40	GRX7562	\$38.65
.065"	.130"	1/8"	2-1/2"	GRX6565	\$35.40	GRX7565	\$38.65
.070"	.140"	1/8"	2-1/2"	GRX6570	\$35.40	GRX7570	\$38.65
.075"	.150"	1/8"	2-1/2"	GRX6575	\$35.40	GRX7575	\$38.65
.078"	.156"	1/8"	2-1/2"	GRX6578	\$35.40	GRX7578	\$38.65
.090"	.180"	1/8"	2-1/2"	GRX6590	\$35.40	GRX7590	\$38.65
.093"	.186"	1/8"	2-1/2"	GRX6593	\$35.40	GRX7593	\$38.65
.125"	.250"	1/8"	2-1/2"	GRX65125	\$35.40	GRX75125	\$38.65

Long Reach - Stub Length end mills are available on the next page.

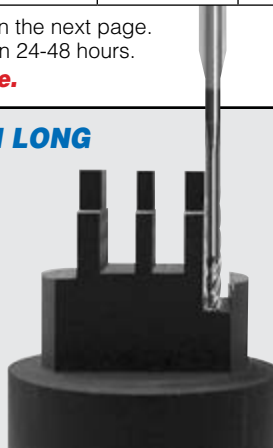
Special reaches quoted on request and ship within 24-48 hours.

Minimum order 3 pieces per size.

RUN FAST.....RUN DEEP.....RUN LONG

GRX Mills for Machining Graphite Electrodes

Microcut's "GRX" series of amorphous diamond coated end mills improve productivity over uncoated carbide. High performance Diamond Coated carbide end mills are for **extra deep machining** of graphite, aluminum, and composite materials. Stocked in a size range of .015" to .125" diameter and also available with extended reach capabilities.

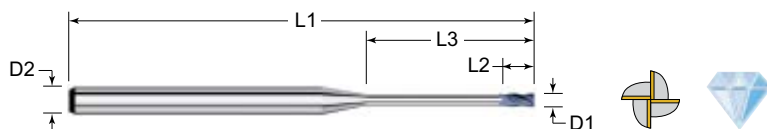


DIAMOND - LG REACH - STUB - 4-FLUTE



SQUARE & BALL END - AMORPHOUS DIAMOND COATED

Stub Long Reach Miniature End Mills



**SHIPPED
WITHIN
24 - 48
HOURS**

Minimum
3 Tools
Each Size

Length of Cut = 2 x Diameter - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	D2 Shank Diameter	L1 Over All Length	SQUARE END		BALL END	
					Tool Number	Price Each	Tool Number	Price Each
.015"	.030"	.100"	1/8"	2-1/2"	GRX6015S	\$43.25	GRX7015S	\$51.85
.015"	.030"	.150"	1/8"	2-1/2"	GRX6015	\$43.25	GRX7015	\$51.85
.020"	.040"	.175"	1/8"	2-1/2"	GRX6020	\$41.85	GRX7020	\$50.45
.025"	.050"	.200"	1/8"	2-1/2"	GRX6025	\$41.85	GRX7025	\$50.45
.030"	.060"	.250"	1/8"	2-1/2"	GRX6030	\$40.30	GRX7030	\$45.70
.031"	.062"	.150"	1/8"	2-1/2"	GRX6031S	\$40.30	GRX7031S	\$45.70
.031"	.062"	.250"	1/8"	2-1/2"	GRX6031	\$40.30	GRX7031	\$45.70
.035"	.070"	.280"	1/8"	2-1/2"	GRX6035	\$40.30	GRX7035	\$44.00
.040"	.080"	.325"	1/8"	2-1/2"	GRX6040	\$40.30	GRX7040	\$44.00
.045"	.090"	.360"	1/8"	2-1/2"	GRX6045	\$40.30	GRX7045	\$44.00
.047"	.094"	.250"	1/8"	2-1/2"	GRX6047	\$39.70	GRX7047	\$44.00
.047"	.094"	.375"	1/8"	2-1/2"	GRX6047L	\$39.70	GRX7047L	\$44.00
.050"	.100"	.400"	1/8"	2-1/2"	GRX6050	\$39.70	GRX7050	\$44.00
.060"	.120"	.500"	1/8"	2-1/2"	GRX6060	\$39.70	GRX7060	\$44.00
.062"	.125"	.500"	1/8"	2-1/2"	GRX6062	\$39.70	GRX7062	\$44.00
.062"	.125"	.750"	1/8"	2-1/2"	GRX6062L	\$44.00	GRX7062L	\$48.30
.062"	.125"	1.00"	1/8"	2-1/2"	GRX6062XL	\$48.30	GRX7062XL	\$52.60
.065"	.130"	.500"	1/8"	2-1/2"	GRX6065	\$39.70	GRX7065	\$44.00
.070"	.140"	.500"	1/8"	2-1/2"	GRX6070	\$39.70	GRX7070	\$44.00
.075"	.150"	.500"	1/8"	2-1/2"	GRX6075	\$39.70	GRX7075	\$44.00
.078"	.156"	.500"	1/8"	2-1/2"	GRX6078	\$39.70	GRX7078	\$44.00
.078"	.156"	.750"	1/8"	2-1/2"	GRX6078L	\$44.00	GRX7078L	\$48.30
.078"	.156"	1.00"	1/8"	2-1/2"	GRX6078XL	\$48.30	GRX7078XL	\$52.60
.090"	.180"	.500"	1/8"	2-1/2"	GRX6090	\$39.70	GRX7090	\$44.00
.093"	.186"	.500"	1/8"	2-1/2"	GRX6093	\$39.70	GRX7093	\$44.00
.093"	.186"	.750"	1/8"	2-1/2"	GRX6093L	\$44.00	GRX7093L	\$48.30
.093"	.186"	1.00"	1/8"	2-1/2"	GRX6093XL	\$48.30	GRX7093XL	\$52.60
.125"	.250"	1.25"	1/8"	2-1/2"	GRX6125	\$44.00	GRX7125	\$48.30

Tools are custom manufactured to order and are nonreturnable.



CVD ULTRA FINE DIAMOND END MILLS

New CVD ULTRA FINE Diamond End Mills

SQUARE END - 4-FLUTE



Standard – Center Cutting – Micro Grain Carbide – Made in USA

Chemical Vapor Deposition (CVD) results in the ability to deposit pure diamond on a special grades of tungsten carbide substrate. This process allows for tighter manufacturing tolerances and superior tool life compared to other less expensive CVD diamond coating applications. CVD Ultra-Fine by Microcut results in longer tool life, greatly improved workpiece surface finishes, and improved productivity, resulting in lower tooling costs.

Microcut's CVD Ultra-Fine Diamond Tools, the most wear resistant CVD diamond cutting tools.

D1 Cutter Diameter	L2 Length of Cut	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.093"	4	1/8"	1-1/2"	77031	\$56.75
.031"	.093"	4	1/8"	3"	77031L	\$89.90
.062"	.187"	4	1/8"	1-1/2"	77062	\$63.75
.062"	.187"	4	1/8"	3"	77062L	\$89.90
.093"	.375"	4	1/8"	1-1/2"	77093	\$63.75
.093"	.281"	4	1/8"	3"	77093L	\$89.90
.125"	.500"	4	1/8"	1-1/2"	77125	\$69.90
.125"	1.00"	4	1/8"	3"	77125L	\$92.75
.187"	.625"	4	3/16"	2-1/2"	77187	\$76.90
.250"	.750"	4	1/4"	2-1/2"	77250	\$84.75
.250"	1.25"	4	1/4"	3"	77250L	\$125.75

BALL END - 4-FLUTE



D1 Cutter Diameter	L2 Length of Cut	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.093"	4	1/8"	1-1/2"	77031B	\$63.75
.031"	.093"	4	1/8"	3"	77031LB	\$95.90
.062"	.187"	4	1/8"	1-1/2"	77062B	\$69.75
.062"	.187"	4	1/8"	3"	77062LB	\$95.90
.093"	.375"	4	1/8"	1-1/2"	77093B	\$69.75
.093"	.281"	4	1/8"	3"	77093LB	\$95.90
.125"	.500"	4	1/8"	1-1/2"	77125B	\$75.90
.125"	1.00"	4	1/8"	3"	77125LB	\$98.75
.187"	.625"	4	3/16"	2-1/2"	77187B	\$95.90
.250"	.750"	4	1/4"	2-1/2"	77250B	\$90.75
.250"	1.25"	4	1/4"	3"	77250LB	\$132.75

CVD ULTRA FINE DIAMOND END MILLS



New CVD ULTRA FINE Diamond End Mills LONG REACH - SQUARE END - 4-FLUTE



Minimum
3 Tools
Each Size

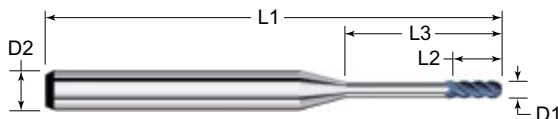
**SHIPPED
WITHIN
24 - 48
HOURS**

Standard - Center Cutting - Micro Grain Carbide - Made in USA

Tools are custom manufactured to order and are nonreturnable.

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.093"	.250"	4	1/8"	1-1/2"	78001	\$71.75
.031"	.093"	.400"	4	1/8"	3"	78004	\$94.75
.031"	.093"	.625"	4	1/8"	3"	78007	\$94.75
.062"	.187"	.500"	4	1/8"	1-1/2"	78009	\$78.75
.062"	.187"	.500"	4	1/8"	3"	78012	\$94.75
.062"	.187"	.750"	4	1/8"	3"	78015	\$94.75
.062"	.187"	1.00"	4	1/8"	3"	78018	\$104.75
.093"	.375"	.600"	4	1/8"	1-1/2"	78021	\$78.75
.093"	.281"	1.00"	4	1/8"	3"	78024	\$94.75
.125"	.500"	.650"	4	1/8"	1-1/2"	78027	\$79.90
.125"	.375"	.750"	4	1/8"	3"	78030	\$94.75
.125"	.375"	1.00"	4	1/8"	3"	78033	\$94.75
.125"	.375"	1.50"	4	1/8"	3"	78036	\$99.75
.125"	.375"	2.00"	4	1/8"	3"	78039	\$110.75
.187"	.625"	1.00"	4	3/16"	2-1/2"	78041	\$91.90
.250"	1.25"	1.75"	4	1/4"	3"	78044	\$139.75

LONG REACH - BALL END - 4-FLUTE



Minimum
3 Tools
Each Size

**SHIPPED
WITHIN
24 - 48
HOURS**

Tools are custom manufactured to order and are nonreturnable.

D1 Cutter Diameter	L2 Length of Cut	L3 Reach From Tip	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.093"	.250"	4	1/8"	1-1/2"	78001B	\$78.75
.031"	.093"	.400"	4	1/8"	3"	78004B	\$99.75
.031"	.093"	.625"	4	1/8"	3"	78007B	\$99.75
.062"	.187"	.500"	4	1/8"	1-1/2"	78009B	\$84.75
.062"	.187"	.500"	4	1/8"	3"	78012B	\$99.75
.062"	.187"	.750"	4	1/8"	3"	78015B	\$99.75
.062"	.187"	1.00"	4	1/8"	3"	78018B	\$109.75
.093"	.375"	.600"	4	1/8"	1-1/2"	78021B	\$84.75
.093"	.281"	1.00"	4	1/8"	3"	78024B	\$99.75
.125"	.500"	.650"	4	1/8"	1-1/2"	78027B	\$85.90
.125"	.375"	.750"	4	1/8"	3"	78030B	\$99.75
.125"	.375"	1.00"	4	1/8"	3"	78033B	\$99.75
.125"	.375"	1.50"	4	1/8"	3"	78036B	\$104.75
.125"	.375"	2.00"	4	1/8"	3"	78039B	\$116.75
.187"	.625"	1.00"	4	3/16"	2-1/2"	78041B	\$110.90
.250"	1.25"	1.75"	4	1/4"	3"	78044B	\$149.75

TOLL FREE 866-426-3300
FAX 781-582-8095

Microcut

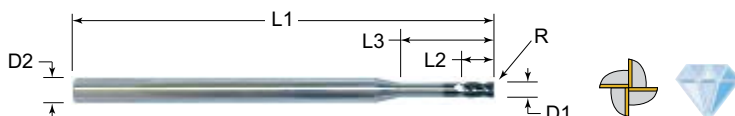
175



CVD ULTRA FINE DIAMOND END MILLS

New CVD ULTRA FINE Diamond End Mills

CORNER RADIUS - LONG REACH - EXTENDED SHANK



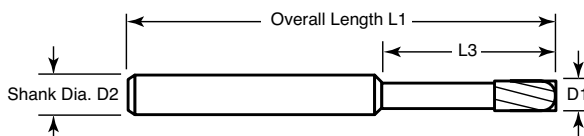
Standard - Center Cutting - Micro Grain Carbide - Made in USA

Chemical Vapor Deposition (CVD) results in the ability to deposit pure diamond on special grades of tungsten carbide substrate. This process allows for tighter manufacturing tolerances and superior tool life compared to other less expensive CVD diamond coating applications. CVD Ultra-Fine by Microcut results in longer tool life, greatly improved workpiece surface finishes, and improved productivity, resulting in lower tooling costs.

Microcut's CVD Ultra-Fine Diamond Tools, the most wear resistant CVD diamond cutting tools.

D1 Cutter Diameter	R Corner Radius	L2 Length of Cut	L3 Reach From Tip	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
.031"	.005"	.093"	.250"	4	1/8"	3"	78201	\$99.75
.031"	.005"	.093"	.400"	4	1/8"	3"	78205	\$99.75
.047"	.010"	.141"	.300"	4	1/8"	3"	78209	\$99.75
.047"	.010"	.141"	.600"	4	1/8"	3"	78213	\$99.75
.062"	.010"	.187"	.500"	4	1/8"	3"	78217	\$99.75
.062"	.010"	.187"	.750"	4	1/8"	3"	78221	\$99.75
.062"	.010"	.187"	1.00"	4	1/8"	3"	78225	\$104.75
.093"	.010"	.281"	.750"	4	1/8"	3"	78229	\$99.75
.093"	.010"	.281"	1.00"	4	1/8"	3"	78233	\$99.75
.125"	.010"	.375"	.750"	4	1/8"	3"	78237	\$99.75
.125"	.010"	.375"	1.00"	4	1/8"	3"	78241	\$104.75
.125"	.010"	.375"	1.50"	4	1/8"	3"	78245	\$109.75

ORDER SPECIAL LONG REACH CVD DIAMOND COATED END MILLS



To order special long reach CVD end mills please specify:

- Specify: ☐ Square End ☐ Ball End ☐ Corner Radius.
- Corner Radius from CVD chart Page 176: _____
- Diameter (D1) from CVD specifications: _____
- Overall Reach (L3): _____
- Overall Length (L1): _____
- Quantity (Minimum 3 Per Size): _____

**Special Reaches
Shipped
within
24-48 Hours!**

Tools are custom manufactured to order and are nonreturnable.

STRAIGHT FLUTE PCD DIAMOND



PCD Brazed on Carbide Shank

SQUARE END



2 Straight Flutes - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
3/32"	3/16"	1	1/8"	1-1/2"	PC1093	\$163.60
1/8"	1/4"	1	1/8"	1-1/2"	PC2125	\$163.60
3/16"	1/4"	2	3/16"	2"	PC2187	\$181.90
1/4"	1/4"	2	1/4"	2-1/2"	PC2250	\$195.85
3/8"	1/4"	2	3/8"	2-1/2"	PC2375	\$235.65
1/2"	1/4"	2	1/2"	3"	PC2500	\$299.50

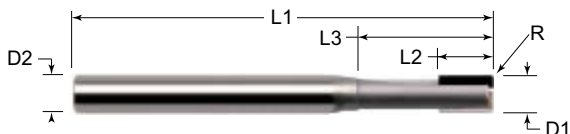
BALL END



2 Straight Flutes - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
3/32"	3/16"	1	1/8"	1-1/2"	PC1093B	\$195.85
1/8"	1/4"	1	1/8"	1-1/2"	PC2125B	\$195.85
3/16"	1/4"	2	3/16"	2"	PC2187B	\$209.85
1/4"	5/16"	2	1/4"	2-1/2"	PC2250B	\$219.50

CORNER RADIUS



2 Straight Flutes - Center Cutting - Micro Grain Carbide - Made in USA

D1 Cutter Diameter	L2 Length of Cut	R Corner Radius	Number of Flutes	D2 Shank Diameter	L1 Over All Length	TOOL NUMBER	PRICE EACH
3/32"	3/16"	.010"	1	1/8"	1-1/2"	PC1093R	\$195.85
1/8"	1/4"	.015"	1	1/8"	1-1/2"	PC2125R	\$195.85
3/16"	1/4"	.015"	2	3/16"	2"	PC2187R	\$209.85
1/4"	1/4"	.030"	2	1/4"	2-1/2"	PC2250R	\$219.50
3/8"	1/4"	.030"	2	3/8"	2-1/2"	PC2375R	\$271.50
1/2"	1/4"	.030"	2	1/2"	3"	PC2500R	\$316.50

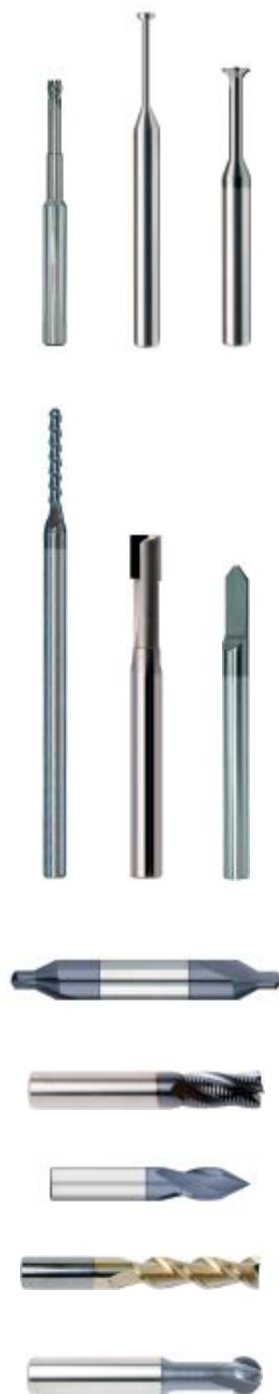
PCD is a thin wafer of diamond plate that is brazed on to a solid carbide preformed blank. The diamond plate is formed into different shapes by wire EDM and cutting edges are ground and polished to achieve an extremely sharp and accurate cutting edge. PCD diamond is used to cut Abrasive Plastics, Carbon Fiber, Graphite, Copper, Aluminum, Magnesium, and other nonferrous materials. All shapes are ground to cut to center for plunging into solid material.

TOOL SERIES LOOK-UP BY PRODUCT NUMBER

	SERIES	PAGE		SERIES	PAGE		SERIES	PAGE
	1100-000	38-41		32000.....	146		54000B & TL.....	77
	1200-000	38-41		32000TL.....	146		55000 & B.....	78
	2100-000	42-45		33000.....	147		56000 & B.....	79
	2200-000	42-45		33000CS & CST....	147		57000 & S.....	118
	2300-2800-000 ..	47-49		34000 & TL	150		58000.....	119
	3000-000	98-99		35000 & TL	150		58700.....	109
	3100-000	98-99		36000 & TL	150		59000.....	100-101
	3200-000	99		37000 & TL	151		59100	100-101
	3300-000	93		38000 & TL	151		59200.....	104-105
	3400-000	93		39000 & TL	150		59250.....	100-101
	3500-000	97		41000.....	149		59400.....	102-103
	3600-000	97		41000US.....	149		59500.....	106-107
	10000.....	142		42000.....	149		59600 & B.....	92
	10000TL.....	142		43000.....	149		59700.....	109
	10000M & MTL ..	143		43900.....	136		59700-000	95
	11000.....	127		44000.....	134		59900.....	118
	11000TL.....	127		45500.....	135		60000.....	119
	13000.....	110		45600.....	135		61000.....	119
	13600	111		48000.....	137		62000 & Z.....	114
	14000.....	156		48000TL.....	137		62000R & RZ	114
	14100	154		49000.....	138		62000L & ZL.....	115
	14200.....	154		49000TL.....	138		62000LR & LRZ	115
	14300.....	154		49000LR	139		62015 & TL	152
	14500.....	156		49000LRT	139		63000 & Z.....	116
	14600.....	155		49250-00	139		63000R & RZ	116
	15000.....	119		49250T-00.....	139		63000L & ZL.....	117
	16000.....	119		51200.....	72		63000LR & LRZ	117
	17000-000	108		51200B	72		63015 & TL	152
	20000.....	140-141		51300.....	72		64015 & TL	152
	22000 & LR.....	144		51300B	72		65015.....	152
	23000 & LR.....	145		51400.....	73		65015TL.....	152
	24000.....	144		51400B	73		66000.....	153
	24000LR	144		51500.....	73		66000TL.....	153
	25000.....	145		51500B	73		67000.....	153
	25000LR	145		51800.....	74		67000TL.....	153
	26000.....	144		51800B	74		68000.....	153
	26200.....	144		51800TL.....	74		68000TL.....	153
	28000.....	132-133		51800BTL	74		69000.....	153
	28000TL.....	132-133		51900.....	74		69000TL.....	153
	28000SP & SPT ...	132		51900B	74		70000.....	113
	30100.....	148		51900TL.....	74		70000B	113
	30200.....	148		51900TLB	74		70000Z	113
	30300.....	148		52000.....	76		70000BZ.....	113
	30400.....	148		52000B	76		72000.....	10-11
	30600.....	148		52000TL.....	76		72000B	10-11
	30900.....	148		52000BTL	76		72000TL.....	14-15
	31000.....	146		54000	77		72000BTL	14-15
	31000TL.....	146		54000TL	77		74000.....	54-55

TOOL SERIES LOOK-UP BY PRODUCT NUMBER

SERIES	PAGE	SERIES	PAGE	SERIES	PAGE
74000B	54-55	86600-000	24-25	GRX9000	159
74000TL	56-57	88000	52-53	GRX000	160
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74300	71	89000-000	64-65	GRX3000	161
74300B	71	89100-000	65, 80	GRX3000B	161
74400	71	89200-000	65, 80	GRX4000	168-169
74400B	71	89300-000	80	GRX5000	168-169
76200	18-19	89400-000	66-67	GRX4500	170-171
76200B	18-19	89500-000	80	GRX5500	170-171
76300	22-23	89700-000	81	GRX6000	173
76300B	22-23	89900-000	64-66	GRX6500	172
76400	60-61	92000	129	GRX7000	173
76400B	60-61	92000TL	129	GRX7500	172
76500	62-63	94000	129	GS00-000	166
76500B	62-63	94000TL	129	GX200-000	162
77000	174	95000	130	GX400-000	163
77000B	174	95000TL	130	LF1000	30
78000	175	96000	128	LF1000B	30
78000B	175	96000TL	128	LF1100	32-33
78200	176	97000	128	LF1100B	32-33
79400-000	68-69	97000TL	128	LF2000 & B	31
80000	112	98000	124	LF2100	34-35
80000B	112	98000TL	124	LF2100B	34-35
80000Z	112	98000FL	124	LF3000 & B	83
80000BZ	112	98000FLT	124	LF4000 & B	82
81000	16-17	98200 & TL	130	LF5000 & B	84
81000B	16-17	99000	120-121	LF6000 & B	85
81000TL	20-21	99000FL	122-123	LV2000 & B	96
81000BTL	20-21	99000FLT	125	MCH-400	157
82000	6-9	99000TC	122-123	MCH-0000	157
82000B	6-9	99000TL	122-123	NC000-00	145
82000TL & BTL	12-13	99300	127	PC1000	177
83000	26	99400-000	126	PC1000B	177
83100	28	99500-000	126	PC1000R	177
83200	27	99600-000	126	SF1000	36
83300	27	99700-000	126	SF1000B	36
83400	26	99800-000	126	SF2000	37
83500	28	99900-000	126	SF2000B	37
83600	29	ACH1000	75	SF3000	88-89
83700	29	GL00-000	165	SF3000B	88-89
84000	50-51	GLB00-000	165	SF4000	86
84000B	50-51	GB00-000	166	SF4000B	86
85000	58	GL1000	164	SF5000	87
85000B	58	GL1000B	164	SF5000B	87
85000TL	59	GR1000	167	SF6000	90-91
85000BTL	59	GRX1000	158	SF6000B	90-91
86000	70	GRX2000	158	SR1000	46
86000B	70	GRX8000	159	SR2000	46



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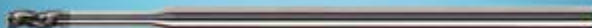
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272-Degree Spherical End Mills



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