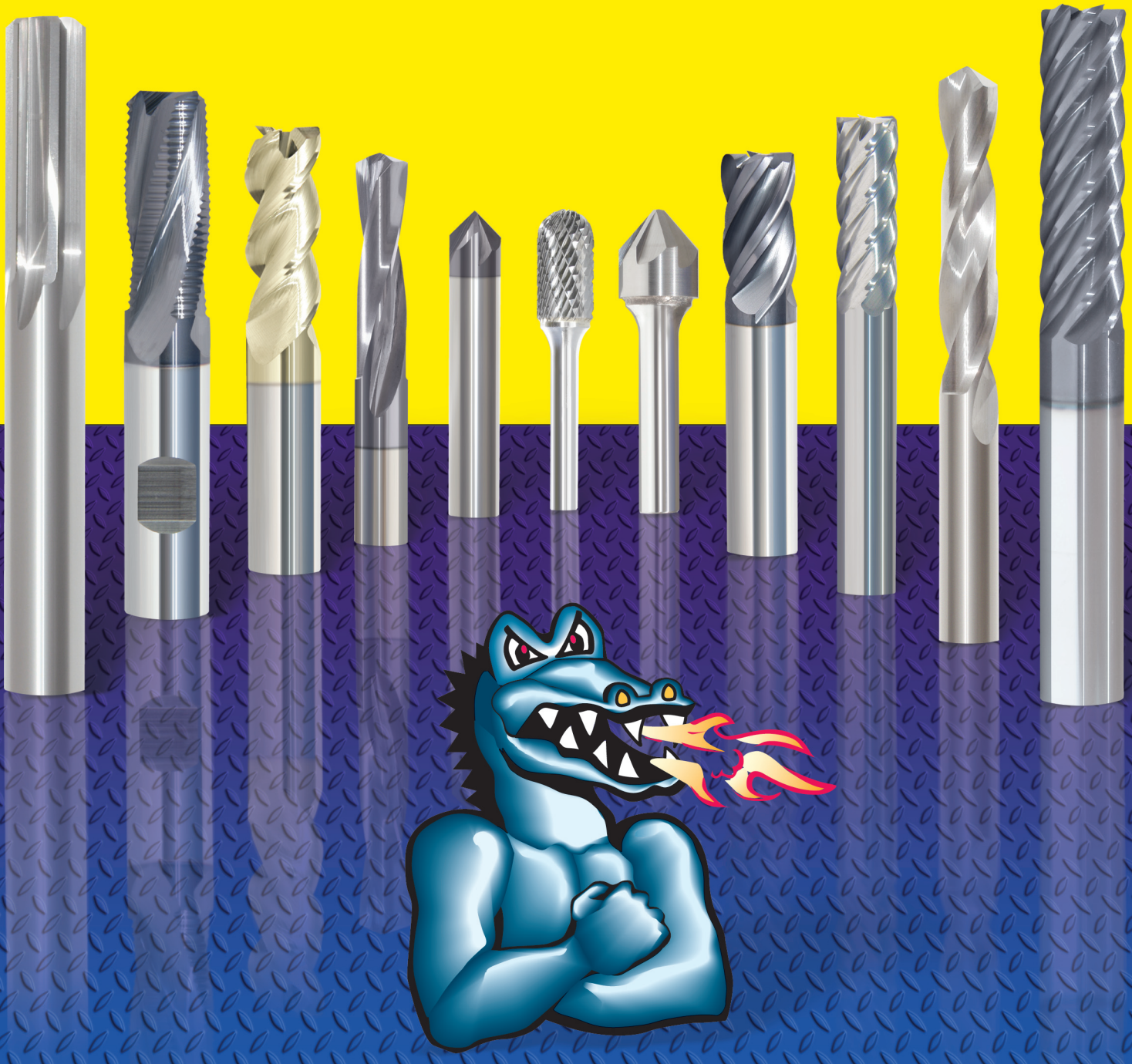
MONSTER TOOL COMPANY

Solid Carbide Cutting Tools



DECIMAL EQUIVALENT CHART

SIZE	Dec Inches	Metric
0.25 mm	0.0098"	0.25 mm
0.30 mm	0.0118"	0.30 mm
#80	0.0135"	0.34 mm
0.35 mm	0.0138"	0.35 mm
#79	0.0145"	0.37 mm
1/64	0.0156"	0.40 mm
0.40 mm	0.0157"	0.40 mm
#78	0.0160"	0.41 mm
0.45 mm	0.0177"	0.45 mm
#77	0.0180"	0.46 mm
0.50 mm	0.0197"	0.50 mm
#76	0.0200"	0.51 mm
#75	0.0210"	0.53 mm
0.55 mm	0.0217"	0.55 mm
#74	0.0225"	0.57 mm
0.60 mm	0.0236"	0.60 mm
#73	0.0240"	0.61 mm
#72	0.0250"	0.64 mm
#71	0.0260"	0.66 mm
0.67 mm	0.0264"	0.67 mm
0.70 mm	0.0276"	0.70 mm
#70	0.0280"	0.71 mm
#69	0.0292"	0.74 mm
0.75 mm	0.0295"	0.75 mm
#68	0.0310"	0.79 mm
1/32	0.0312"	0.80 mm
0.80 mm	0.0315"	0.80 mm
#67	0.0320"	0.81 mm
#66	0.0330"	0.84 mm
0.85 mm	0.0335"	0.85 mm
#65	0.0350"	0.89 mm
0.90 mm	0.0354"	0.90 mm
#64	0.0360"	0.91 mm
#63	0.0370"	0.94 mm
0.95 mm	0.0374"	0.95 mm
#62	0.0380"	0.97 mm
#61	0.0390"	0.99 mm
1.00 mm	0.0394"	1.00 mm
#60	0.0400"	1.02 mm
#59	0.0410"	1.04 mm
#58	0.0420"	1.07 mm

SIZE	Dec Inches	Metric
#57	0.0430"	1.09 mm
1.10 mm	0.0433"	1.10 mm
#56	0.0465"	1.18 mm
3/64	0.0469"	1.19 mm
1.20 mm	0.0472"	1.20 mm
1.30 mm	0.0512"	1.30 mm
#55	0.0520"	1.32 mm
#54	0.0550"	1.40 mm
1.40 mm	0.0551"	1.40 mm
1.50 mm	0.0591"	1.50 mm
#53	0.0595"	1.51 mm
1/16	0.0625"	1.59 mm
1.60 mm	0.0630"	1.60 mm
#52	0.0635"	1.61 mm
1.70 mm	0.0669"	1.70 mm
#51	0.0670"	1.70 mm
#50	0.0700"	1.78 mm
1.80 mm	0.0709"	1.80 mm
#49	0.0730"	1.85 mm
1.90 mm	0.0748"	1.90 mm
#48	0.0760"	1.93 mm
5/64	0.0781"	1.98 mm
#47	0.0785"	1.99 mm
2.00 mm	0.0787"	2.00 mm
#46	0.0810"	2.06 mm
#45	0.0820"	2.08 mm
2.10 mm	0.0827"	2.10 mm
#44	0.0860"	2.18 mm
2.20 mm	0.0866"	2.20 mm
#43	0.0890"	2.26 mm
2.30 mm	0.0906"	2.30 mm
#42	0.0935"	2.37 mm
3/32	0.0938"	2.38 mm
2.40 mm	0.0945"	2.40 mm
#41	0.0960"	2.44 mm
#40	0.0980"	2.49 mm
2.50 mm	0.0984"	2.50 mm
#39	0.0995"	2.53 mm
#38	0.1015"	2.58 mm
2.60 mm	0.1024"	2.60 mm
#37	0.1040"	2.64 mm

SIZE	Dec Inches	Metric
2.70 mm	0.1063"	2.70 mm
#36	0.1065"	2.71 mm
7/64	0.1094"	2.78 mm
#35	0.1100"	2.79 mm
2.80 mm	0.1102"	2.80 mm
#34	0.1110"	2.82 mm
#33	0.1130"	2.87 mm
2.90 mm	0.1142"	2.90 mm
#32	0.1160"	2.95 mm
3.00 mm	0.1181"	3.00 mm
#31	0.1200"	3.05 mm
1/8	0.1250"	3.18 mm
#30	0.1285"	3.26 mm
#29	0.1360"	3.45 mm
3.50 mm	0.1378"	3.50 mm
#28	0.1405"	3.57 mm
9/64	0.1406"	3.57 mm
#27	0.1440"	3.66 mm
#26	0.1470"	3.73 mm
#25	0.1495"	3.80 mm
#24	0.1520"	3.86 mm
#23	0.1540"	3.91 mm
5/32	0.1562"	3.97 mm
#22	0.1570"	3.99 mm
4.00 mm	0.1575"	4.00 mm
#21	0.1590"	4.04 mm
#20	0.1610"	4.09 mm
#19	0.1660"	4.22 mm
#18	0.1695"	4.31 mm
11/64	0.1719"	4.37 mm
#17	0.1730"	4.39 mm
#16	0.1770"	4.50 mm
4.50 mm	0.1772"	4.50 mm
#15	0.1800"	4.57 mm
#14	0.1820"	4.62 mm
#13	0.1850"	4.70 mm
3/16	0.1875"	4.76 mm
#12	0.1890"	4.80 mm
#11	0.1910"	4.85 mm
#10	0.1935"	4.91 mm
#9	0.1960"	4.98 mm

SIZE	Dec Inches	Metric
5.00 mm	0.1969"	5.00 mm
#8	0.1990"	5.05 mm
#7	0.2010"	5.11 mm
13/64	0.2031"	5.16 mm
#6	0.2040"	5.18 mm
#5	0.2055"	5.22 mm
#4	0.2090"	5.31 mm
#3	0.2130"	5.41 mm
5.50 mm	0.2165"	5.50 mm
7/32	0.2188"	5.56 mm
#2	0.2210"	5.61 mm
#1	0.2280"	5.79 mm
A	0.2340"	5.94 mm
15/64	0.2344"	5.95 mm
6.00 mm	0.2362"	6.00 mm
B	0.2380"	6.05 mm
C	0.2420"	6.15 mm
D	0.2460"	6.25 mm
6.30 mm	0.2480"	6.30 mm
1/4	0.2500"	6.35 mm
E	0.2500"	6.35 mm
6.50 mm	0.2559"	6.50 mm
F	0.2570"	6.53 mm
G	0.2610"	6.63 mm
17/64	0.2656"	6.75 mm
H	0.2660"	6.76 mm
I	0.2720"	6.91 mm
7.00 mm	0.2756"	7.00 mm
J	0.2770"	7.04 mm
K	0.2810"	7.14 mm
9/32	0.2812"	7.15 mm
L	0.2900"	7.37 mm
M	0.2950"	7.49 mm
7.50 mm	0.2953"	7.50 mm
19/64	0.2969"	7.54 mm
N	0.3020"	7.67 mm
5/16	0.3125"	7.94 mm
8.00 mm	0.3150"	8.00 mm
O	0.3160"	8.03 mm
P	0.3230"	8.20 mm
21/64	0.3281"	8.33 mm
Q	0.3320"	8.43 mm
8.50 mm	0.3346"	8.50 mm

SIZE	Dec Inches	Metric
R	0.3390"	8.61 mm
11/32	0.3438"	8.73 mm
S	0.3480"	8.84 mm
9.00 mm	0.3543"	9.00 mm
T	0.3580"	9.09 mm
23/64	0.3594"	9.13 mm
U	0.3680"	9.35 mm
9.50 mm	0.3740"	9.50 mm
3/8	0.3750"	9.53 mm
V	0.3770"	9.58 mm
W	0.3860"	9.80 mm
25/64	0.3906"	9.92 mm
10.00 mm	0.3937"	10.00 mm
X	0.3970"	10.08 mm
Y	0.4040"	10.26 mm
13/32	0.4062"	10.32 mm
Z	0.4130"	10.49 mm
10.50 mm	0.4134"	10.50 mm
27/64	0.4219"	10.72 mm
11.00 mm	0.4331"	11.00 mm
7/16	0.4375"	11.11 mm
11.50 mm	0.4528"	11.50 mm
29/64	0.4531"	11.51 mm
15/32	0.4688"	11.91 mm
12.00 mm	0.4724"	12.00 mm
31/64	0.4844"	12.30 mm
12.50 mm	0.4921"	12.50 mm
1/2	0.5000"	12.70 mm
13.00 mm	0.5118"	13.00 mm
33/64	0.5156"	13.10 mm
17/32	0.5312"	13.50 mm
13.50 mm	0.5315"	13.50 mm
35/64	0.5469"	13.89 mm
14.00 mm	0.5512"	14.00 mm
9/16	0.5625"	14.29 mm
14.50 mm	0.5709"	14.50 mm
37/64	0.5781"	14.68 mm
15.00 mm	0.5906"	15.00 mm
19/32	0.5938"	15.08 mm
39/64	0.6094"	15.48 mm
15.50 mm	0.6102"	15.50 mm
5/8	0.6250"	15.88 mm
16.00 mm	0.6299"	16.00 mm

SIZE	Dec Inches	Metric
41/64	0.6406"	16.27 mm
16.50 mm	0.6496"	16.50 mm
21/32	0.6562"	16.67 mm
17.00 mm	0.6693"	17.00 mm
43/64	0.6719"	17.07 mm
11/16	0.6875"	17.46 mm
17.50 mm	0.6890"	17.50 mm
45/64	0.7031"	17.86 mm
18.00 mm	0.7087"	18.00 mm
23/32	0.7188"	18.26 mm
18.50 mm	0.7283"	18.50 mm
47/64	0.7344"	18.65 mm
19.00 mm	0.7480"	19.00 mm
3/4	0.7500"	19.05 mm
49/64	0.7656"	19.45 mm
19.50 mm	0.7677"	19.50 mm
25/32	0.7812"	19.85 mm
20.00 mm	0.7874"	20.00 mm
51/64	0.7969"	20.24 mm
20.50 mm	0.8071"	20.50 mm
13/16	0.8125"	20.64 mm
21.00 mm	0.8268"	21.00 mm
53/64	0.8281"	21.03 mm
27/32	0.8438"	21.43 mm
21.50 mm	0.8465"	21.50 mm
55/64	0.8594"	21.83 mm
22.00 mm	0.8661"	22.00 mm
7/8	0.8750"	22.23 mm
22.50 mm	0.8858"	22.50 mm
57/64	0.8906"	22.62 mm
23.00 mm	0.9055"	23.00 mm
29/32	0.9062"	23.02 mm
59/64	0.9219"	23.42 mm
23.50 mm	0.9252"	23.50 mm
15/16	0.9375"	23.81 mm
24.00 mm	0.9449"	24.00 mm
61/64	0.9531"	24.21 mm
24.50 mm	0.9646"	24.50 mm
31/32	0.9688"	24.61 mm
25.00 mm	0.9843"	25.00 mm
63/64	0.9844"	25.00 mm
1	1.0000"	25.40 mm

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METAL MONSTER® *Solid carbide blanks, strips and rods*	47-64	
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THE MONSTER WAY

Today's market has placed ever increasing demands on the machine tool industry and manufacturers for increased production efficiency, better quality control and reduced costs.

NEXT GENERATIONS TOOLS

Monster Tool Company has met these challenges by developing a new line of cutting tool products that maximizes the advantages of today's sophisticated CNC Machining Center Technology, as well as all other machining processes. They are custom manufactured to the highest industry standards. Monster Tool products are available from stock at your local distributor or catalog company.

Monster Tool products offer the following advantages:

Extensive product offerings in all industry standard sizes.
Close tolerances and consistent tool accuracy.
Lab inspected raw materials.
Highest quality tools.

POLICIES AND PROCEDURES

ORDERING INFORMATION

All items in the Monster Tool Company catalog carry unique item numbers. Using these numbers will keep ordering errors to a minimum and assure that you will receive exactly what you order. Orders will be accepted by phone, fax, and email.
All orders under $50 will be subject to a $7.50 processing fee.

PRODUCT WARRANTY

Monster Tool Company assures that all products sold shall be free from manufacturing and material defects. Monster Tool Company will repair, replace, or issue credit on any product that does not conform with this warranty. Any product that has been altered, used, marked or damaged voids this warranty.

This warranty is in lieu of all other warranties, expressed or implied including any warranty of merchantability or fitness for a particular purpose and is also in lieu of all other obligations or liabilities, including any obligation or liability arising from contract, or otherwise for damages whether direct, indirect or consequential. There are no other warranties except the warranty against defects in material and workmanship set forth above, and we neither assume nor authorize any other person or firm to assume for it any other obligation or liability in connection with our products.

TERMS OF ORDER

All orders are shipped with Net 30 day terms (delinquent at 45 days). No shipment to delinquent accounts. Any account paid after 30 days may become COD on future orders. All orders are subject to credit approval. In the event any legal action or proceeding is brought by any party under this Agreement, the prevailing party shall be entitled to recover the reasonable fees of its attorneys and any costs incurred in such action or proceeding, including costs of appeal, if any, in such amount that the court or administrative body having jurisdiction over such action or proceeding may award.

DROP SHIPPING

All drop ship orders must be faxed or emailed to Monster Tool Company. Monster Tool Company will not assume responsibility for any incorrect shipping information. Monster Tool Company will assess a $20 fee to any drop ship order that is either returned or re-routed by the shipping company. Failure to provide proper and complete information that results in any additional shipping penalties or fees from UPS will be billed to the distributor.

DISTRIBUTOR DISCOUNT

See current price supplemental for list pricing and call for discount schedule, terms & conditions.

CANCELLATIONS

On orders for special or altered standard tooling, a cancellation fee will be charged proportionate to the cost incurred on the order at the time of cancellation. On standard catalog tools, cancellations are accepted at no charge unless the order has been shipped or the ordered amount is unusually large in proportion to Monster Tool Company's historical sales.

RETURNED GOODS POLICY

Tools may not be returned without a return goods authorization (RGA) number. Material returned for credit will be subject to a 20% restocking charge. Credits will not be issued for any items that have been modified, altered, marked, machined or used. Special items are not subject to returns or exchanges.

SAFETY PRECAUTIONS

Carbide cutting tools should be used to perform functions that are compatible with the original tool design. Any carbide cutting tool may chip or shatter when broken. Safety glasses and other appropriate safety equipment should be worn by all people in the vicinity of tool use.

TECHNICAL ASSISTANCE

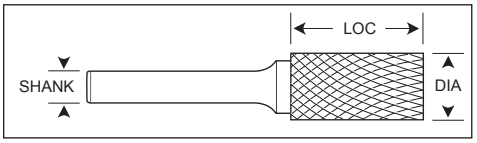
Any technical assistance or application suggestions made by Monster Tool Company personnel are only to assist the customer and in all cases use of such information is solely the customer's responsibility.

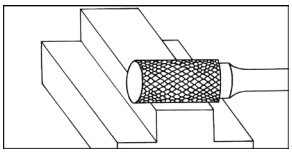
CLAIMS

Claims for shortages, damage, or loss must be made within three days of receipt of tool.

REVISIONS

Monster Tool Company reserves the right to revise listings and specifications in this catalog without notice. Monster Tool Company is not responsible for any typographical errors in this catalog. Please verify the current data at the time of your order.





SA

Cylinder Shape - No End Cut

Applications:

- *Deburring*

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT	ALUMA CUT
SA-61	1/16	1/4	3/32	310-001001	310-002001	
SA-41	1/16	1/4	1/8	310-001002	310-002002	
SA-41L2	1/16	1/4	1/8	310-001002B	310-002002B	
SA-41L3	1/16	1/4	1/8	310-00100C	310-002002C	
SA-63	3/32	3/8	3/32	310-001007	310-002007	
SA-42	3/32	7/16	1/8	310-001004	310-002004	
SA-42L2	3/32	7/16	1/8	310-001004B	310-002004B	
SA-42L3	3/32	7/16	1/8	310-001004A	310-002004A	
SA-11	1/8	1/2	1/4	310-001005C	310-002005C	
SA-43	1/8	9/16	1/8	310-001006	310-002006	
SA-43L2	1/8	9/16	1/8	310-006025	310-006050	
SA-43L3	1/8	9/16	1/8	310-002631	310-002006A	
SA-12	1/8	5/8	1/4	310-001005D	310-002005D	
SA-52	5/32	1/2	1/8	310-001008	310-002008	
SA-13	5/32	5/8	1/4	310-001009	310-002009C	
SA-53	3/16	1/2	1/8	310-001010	310-002010	
SA-81	3/16	5/8	3/16	310-001011	310-002011	
SA-14	3/16	5/8	1/4	310-001012C	310-002012C	
SA-50	1/4	3/16	1/8	310-001013	310-002013	
SA-51	1/4	1/2	1/8	310-001015	310-002015	
SA-1	1/4	5/8	1/4	310-001017C	310-002017C	
SA-1L6	1/4	1/2	1/4	310-002601	310-002701	
SA-1NF	1/4	5/8	1/4			310-002518
SA-1L	1/4	1	1/4	310-001936	310-002936	
SA-2	5/16	3/4	1/4	310-001018	310-002018	
SA-3	3/8	3/4	1/4	310-001019	310-002019	
SA-3L6	3/8	3/4	1/4	310-002602	310-002702A	
SA-3NF	3/8	3/4	1/4			310-002500
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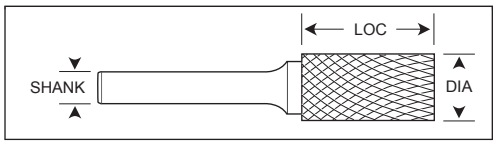
SA-5	1/2	1	1/4	310-001021	310-002021	
SA-5L6	1/2	1	1/4	310-002603	310-002703	
SA-5NF	1/2	1	1/4			310-002501
SA-6	5/8	1	1/4	310-001022	310-002022	
SA-6NF	5/8	1	1/4			310-002502
SA-15	3/4	1/2	1/4	310-001023	310-002023	
SA-16	3/4	3/4	1/4	310-001024	310-002024	
SA-7	3/4	1	1/4	310-001025	310-002025	
SA-7NF	3/4	1	1/4			310-002539
SA-8	7/8	1	1/4	310-001025A	310-002025A	
SA-9	1	1	1/4	310-001026	310-002026	

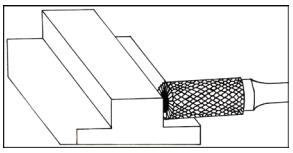
SA-41, SA-42 & SA-43 have a 1-1/2"overall length • SA-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank

BURR MONSTER



SB

Cylinder Shape - with End Cut

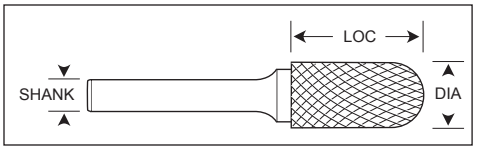


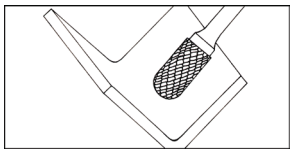
Applications:

- *Peripheral Milling*
- *Face Milling*

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT	ALUMA CUT
SB-41	1/16	1/4	1/8	310-001031	310-002031	
SB-41L2	1/16	1/4	1/8	310-001056	310-002056	
SB-41L3	1/16	1/4	1/8	310-001057	310-002057	
SB-42	3/32	7/16	1/8	310-001033	310-002033	
SB-42L2	3/32	7/16	1/8	310-001033A	310-002033A	
SB-42L3	3/32	7/16	1/8	310-001033B	310-002033B	
SB-42-ECO D.E.	3/32		1/8	310-002390		
SB-11	1/8	1/2	1/4	310-001034C	310-002034C	
SB-43	1/8	9/16	1/8	310-001035	310-002035	
SB-43L2	1/8	9/16	1/8	310-001035E	310-002035A	
SB-43L3	1/8	9/16	1/8	310-001036A	310-002036A	
SB-12	1/8	5/8	1/4	310-001029	310-002029	
SB-13	5/32	5/8	1/4	310-001038C	310-002038C	
SB-14	3/16	5/8	1/4	310-001041C	310-002041	
SB-51	1/4	3/16	1/8	310-001044	310-002044	
SB-51A	1/4	1/2	1/8	310-001044A	310-002044AA	
SB-1	1/4	5/8	1/4	310-001046C	310-002046C	
SB-1L6	1/4	5/8	1/4	310-001027	310-002027A	
SB-1NF	1/4	5/8	1/4			310-002546
SB-1L	1/4	1	1/4	310-001968	310-002938	
SB-1-ECO D.E.	1/4		1/4	310-002400		
SB-2	5/16	3/4	1/4	310-001047	310-002048	
SB-3	3/8	3/4	1/4	310-001048	310-002047	
SB-3L6	3/8	3/4	1/4	310-002941	310-002941A	
SB-3NF	3/8	3/4	1/4			310-002588
SB-3L	3/8	1	1/4	310-001939	310-002939	
SB-3X	3/8	1-1/2	1/4	310-001048A	310-002047X	
SB-4	7/16	1	1/4	310-001049	310-002049	
SB-5	1/2	1	1/4	310-001055	310-002055	
SB-5L6	1/2	1	1/4	310-004299	310-004300	
SB-5NF	1/2	1	1/4			310-002589
SB-6	5/8	1	1/4	310-001050	310-002050	
SB-6NF	5/8	1	1/4			310-002590
SB-15	3/4	1/2	1/4	310-001051	310-002051	
SB-16	3/4	3/4	1/4	310-001052	310-002052	
SB-7	3/4	1	1/4	310-001053	310-002053	
SB-7NF	3/4	1	1/4			310-002591
SB-8	7/8	1	1/4	310-001053A	310-002053A	
SB-9	1	1	1/4	310-001054	310-002054	

SB-41, SB-42 & SB-43 have a 1-1/2"overall length • SB-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank





SC

Cylinder Shape - Radius End

Applications:

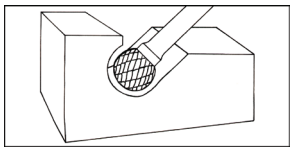
- *Surface Milling*
- *Contouring*

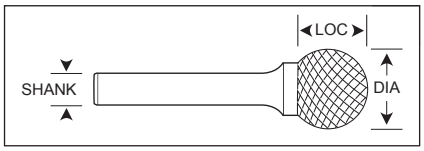
PROUDLY MADE IN THE USA

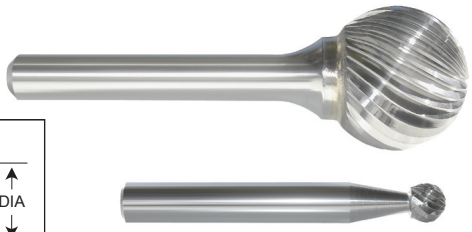
TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT	ALUMA CUT
SC-61	3/32	3/8	3/32	310-001060	310-002060	
SC-41	3/32	7/16	1/8	310-001061	310-002061	
SC-42	1/8	9/16	1/8	310-001063	310-002063	
SC-42L2	1/8	9/16	1/8	310-006075	310-006100	
SC-42L3	1/8	9/16	1/8	310-001063A	310-002732	
SC-11	1/8	1/2	1/4	310-001062C	310-002062C	
SC-12	1/8	5/8	1/4	310-001062D	310-002062D	
SC-52	5/32	1/2	1/8	310-001070	310-002070	
SC-13	5/32	5/8	1/4	310-001065C	310-002065C	
SC-53	3/16	1/2	1/8	310-001066	310-002066	
SC-81	3/16	5/8	3/16	310-001067	310-002067	
SC-14	3/16	5/8	1/4	310-001068C	310-002068C	
SC-51	1/4	1/2	1/8	310-001069	310-002069	
SC-1	1/4	5/8	1/4	310-001071C	310-002072C	
SC-1L	1/4	1	1/4	310-001250	310-002250	
SC-1L6	1/4	1/2	1/4	310-002605	310-002705	
SC-1NF	1/4	5/8	1/4			310-002519
SC-2	5/16	3/4	1/4	310-001072	310-002071	
SC-3	3/8	3/4	1/4	310-001073	310-002073	
SC-3L	3/8	1	1/4	310-001940	310-002940	
SC-3L6	3/8	3/4	1/4	310-002606	310-002706	
SC-3X	3/8	1-1/2	1/4	310-001706X	310-002706X	
SC-3NF	3/8	3/4	1/4			310-002503
SC-4	7/16	1	1/4	310-001074	310-002074	
SC-5	1/2	1	1/4	310-001075	310-002075	
SC-5L6	1/2	1	1/4	310-002607	310-002707	
SC-5NF	1/2	1	1/4			310-002504
SC-6	5/8	1	1/4	310-001076	310-002076	
SC-6NF	5/8	1	1/4			310-002505
SC-15	3/4	1/2	1/4	310-001068A	310-002068A	
SC-16	3/4	3/4	1/4	310-001078A	310-002078A	
SC-7	3/4	1	1/4	310-001077	310-002077	
SC-7NF	3/4	1	1/4			310-002525
SC-9	1	1	1/4	310-001079	310-002078	

SC-41 & SC-42 have a 1-1/2"overall length • SC-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank

BURR MONSTER







PROUDLY MADE IN THE USA

SD

Ball Shape

Applications:

- *Contouring*
- *Hole Deburring*
- *Build-up Welding Preparation*

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT	ALUMA CUT
SD-40	1/16	1/16	1/8	310-001079A	310-002079	
SD-61	3/32	3/32	3/32	310-001080	310-002080	
SD-41	3/32	3/32	1/8	310-001081	310-002081	
SD-42	1/8	1/8	1/8	310-001082	310-002082	
SD-42L2	1/8	1/8	1/8	310-006125	310-006150	
SD-42L3	1/8	1/8	1/8	310-001082A	310-002733	
SD-11	1/8	3/32	1/4	310-001083C	310-002083C	
SD-52	5/32	5/32	1/8	310-001088	310-002088	
SD-53	3/16	5/32	1/8	310-001084	310-002084	
SD-81	3/16	5/32	3/16	310-001085	310-002085	
SD-14	3/16	1/8	1/4	310-001086C	310-002086C	
SD-51	1/4	7/32	1/8	310-001087	310-002087	
SD-1	1/4	7/32	1/4	310-001089C	310-002089C	
SD-1L6	1/4	7/32	1/4	310-002609	310-002709	
SD-1NF	1/4	7/32	1/4			310-002520
SD-2	5/16	1/4	1/4	310-001090	310-002090	
SD-3	3/8	5/16	1/4	310-001091	310-002091	
SD-3L6	3/8	5/16	1/4	310-002610	310-002710	
SD-3NF	3/8	5/16	1/4			310-002506
SD-4	7/16	3/8	1/4	310-001092	310-002092	
SD-5	1/2	7/16	1/4	310-001093	310-002093	
SD-5L6	1/2	7/16	1/4	310-002611	310-002711	
SD-5NF	1/2	7/16	1/4			310-002507
SD-6	5/8	9/16	1/4	310-001094	310-002094	
SD-6NF	5/8	9/16	1/4			310-002508
SD-7	3/4	11/16	1/4	310-001095	310-002095	
SD-7NF	3/4	11/16	1/4			310-003005
SD-9	1	15/16	1/4	310-001096	310-002096	

SD-40, SD-41 & SD-42 have a 1-1/2"overall length • SD-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
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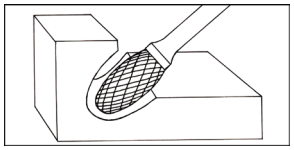
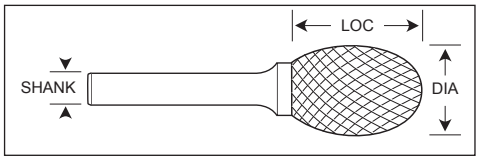




SE

Oval / Egg Shape

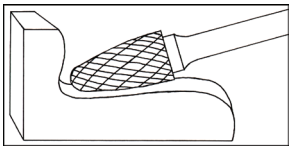
Applications:

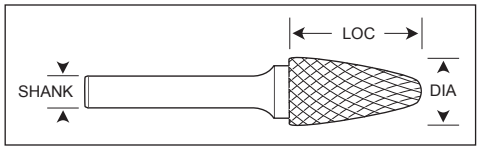
- *Contouring*

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT	ALUMA CUT
SE-61	3/32	1/8	3/32	310-001108A	310-002108A	
SE-41	1/8	7/32	1/8	310-001100	310-002100	
SE-41L2	1/8	7/32	1/8	310-006175	310-006200	
SE-41L3	1/8	7/32	1/8	310-001100B	310-002100A	
SE-53	3/16	9/32	1/8	310-001101	310-002101	
SE-81	3/16	9/32	3/16	310-001102	310-002102	
SE-11	3/16	5/16	1/4	310-004127	310-004128	
SE-51	1/4	3/8	1/8	310-001103	310-002103	
SE-1	1/4	3/8	1/4	310-001105C	310-002105C	
SE-1L6	1/4	3/8	1/4	310-002613	310-002713	
SE-3	3/8	5/8	1/4	310-001106	310-002106	
SE-3L6	3/8	5/8	1/4	310-002614	310-002714	
SE-3NF	3/8	5/8	1/4			310-002509
SE-5	1/2	7/8	1/4	310-001107	310-002107	
SE-5L6	1/2	7/8	1/4	310-005020	310-002715	
SE-5NF	1/2	7/8	1/4			310-002510
SE-6	5/8	1	1/4	310-001108	310-002108	
SE-6NF	5/8	1	1/4			310-002511
SE-7	3/4	1	1/4	310-001109	310-002109	
SE-7NF	3/4	1	1/4			310-004302

SE-41 has a 1-1/2"overall length • SE-1 burrs has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank

BURR MONSTER





PROUDLY MADE IN THE USA

SF

Tree Shape - Radius

Applications:

- *Narrow Contours*

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT	ALUMA CUT
SF-61	3/32	1/4	3/32	310-003702A	310-003702	
SF-41	1/8	1/4	1/8	310-001110	310-002110	
SF-42	1/8	1/2	1/8	310-001111	310-002111	
SF-42L2	1/8	1/2	1/8	310-006225	310-006250	
SF-42L3	1/8	1/2	1/8	310-001146	310-002735	
SF-11	1/8	1/2	1/4	310-001112C	310-002112C	
SF-53	3/16	1/2	1/8	310-001113	310-002113	
SF-81	3/16	1/2	3/16	310-001114	310-002114	
SF-51	1/4	1/2	1/8	310-001115	310-002115	
SF-1	1/4	5/8	1/4	310-001117C	310-002117C	
SF-1L6	1/4	1/2	1/4	310-002617	310-002717	
SF-1NF	1/4	5/8	1/4			310-002521
SF-3	3/8	3/4	1/4	310-001118	310-002118	
SF-3L6	3/8	3/4	1/4	310-002618	310-002718	
SF-3NF	3/8	3/4	1/4			310-002512
SF-4	7/16	1	1/4	310-001119	310-002119	
SF-13	1/2	3/4	1/4	310-001120	310-002120	
SF-5	1/2	1	1/4	310-001121	310-002121	
SF-5L6	1/2	1	1/4	310-002619	310-002719	
SF-5NF	1/2	1	1/4			310-002513
SF-6	5/8	1	1/4	310-001122	310-002122	
SF-6NF	5/8	1	1/4			310-002514
SF-7	3/4	1	1/4	310-001123	310-002123	
SF-7NF	3/4	1	1/4			310-002544
SF-14	3/4	1-1/4	1/4	310-001124	310-002124C	
SF-14NF	3/4	1-1/4	1/4			310-003006
SF-15	3/4	1-1/2	1/4	310-001125	310-002125	

SF-41 & SF-42 have a 1-1/2"overall length • SF-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
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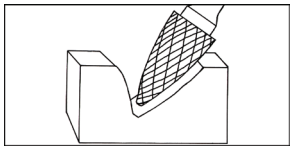
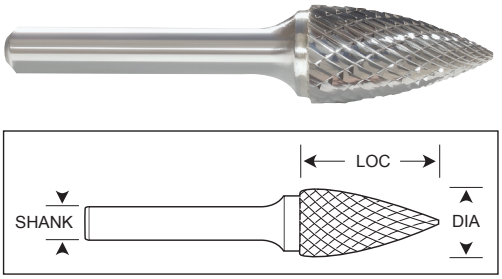




SG

Tree Shape - Pointed

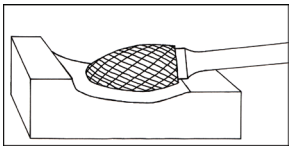
Applications:

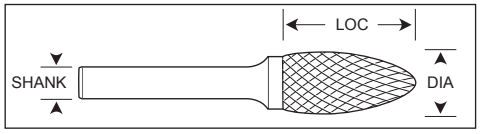
- *Milling*
- *Acute Angle Milling*
- *Narrow Contouring*

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT
SG-61	3/32	1/4	3/32	310-002148	310-002147
SG-41	1/8	1/4	1/8	310-001130	310-002130
SG-42	1/8	5/16	1/8	310-001131	310-002131
SG-43	1/8	3/8	1/8	310-001132	310-002132
SG-44	1/8	1/2	1/8	310-001145	310-002145
SG-44L2	1/8	1/2	1/8	310-006275	310-006300
SG-44L3	1/8	1/2	1/8	310-006875	310-006900
SG-53	3/16	1/2	1/8	310-001133	310-002133
SG-81	3/16	1/2	3/16	310-001134	310-002134
SG-51	1/4	1/2	1/8	310-001135	310-002135
SG-1	1/4	5/8	1/4	310-001137C	310-002137C
SG-1L6	1/4	1/2	1/4	310-002621	310-002721
SG-2	5/16	3/4	1/4	310-001138	310-002138
SG-3	3/8	3/4	1/4	310-001139	310-002139
SG-3L6	3/8	3/4	1/4	310-002622	310-002722
SG-13	1/2	3/4	1/4	310-001140	310-002140
SG-5	1/2	1	1/4	310-001141	310-002141
SG-5L6	1/2	1	1/4	310-002623	310-002723
SG-6	5/8	1	1/4	310-001142	310-002142
SG-7	3/4	1	1/4	310-001143	310-002143
SG-15	3/4	1-1/2	1/4	310-001144	310-002144

SG-41, SG-42, SG-43 & SG-44 have 1-1/2"overall length • SG-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank

BURR MONSTER





PROUDLY MADE IN THE USA

SH

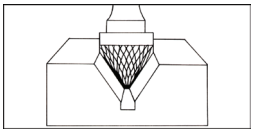
Flame Shape

Applications:

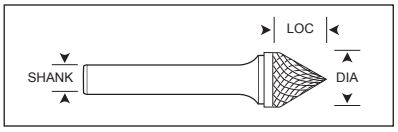
- *Contouring*
- *Milling*

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT
SH-41	1/8	1/4	1/8	310-001150	310-002150
SH-41L2	1/8	1/4	1/8	310-006325	310-006350
SH-41L3	1/8	1/4	1/8	310-002637	310-002737
SH-53	3/16	3/8	1/8	310-001151	310-002151
SH-1	1/4	5/8	1/4	310-001157C	310-002157C
SH-2	5/16	3/4	1/4	310-001153	310-002153
SH-2L6	5/16	3/4	1/4	310-002629	310-002729
SH-5	1/2	1-1/4	1/4	310-001154	310-002154
SH-5L6	1/2	1-1/4	1/4	310-002630	310-002730
SH-6	5/8	1-7/16	1/4	310-001155	310-002155
SH-7	3/4	1-5/8	1/4	310-001156	310-002156

SH-41 has a 1-1/2"overall length • SH-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank



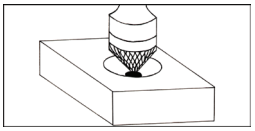
Applications:
- *Acute Angle Machining*
- *Chamfering*
- *Countersinking*



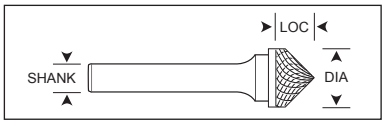
SJ

60˚ Cone Shape

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT
SJ-42	1/8	3/32	1/8	310-001160	310-002160
SJ-42 D.E.	1/8	3/32	1/8	310-001160D	310-002160D
SJ-81	3/16	9/64	3/16	310-001168	310-002161
SJ-81 D.E.	3/16	9/64	3/16	310-001168D	
SJ-1	1/4	3/16	1/4	310-001162	310-002162
SJ-1 D.E.	1/4	3/16	1/4	310-001162D	310-002162D
SJ-3	3/8	5/16	1/4	310-001163	310-002163
SJ-5	1/2	7/16	1/4	310-001164	310-002164
SJ-6	5/8	9/16	1/4	310-001165	310-002165
SJ-7	3/4	11/16	1/4	310-001166	310-002166
SJ-9	1	15/16	1/4	310-001167	310-002167



Applications:
- *Acute Angle Machining*
- *Chamfering*
- *Countersinking*

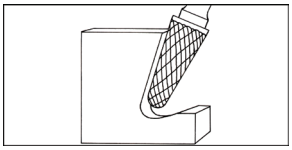


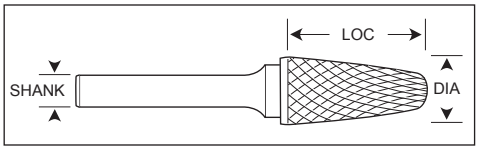
SK

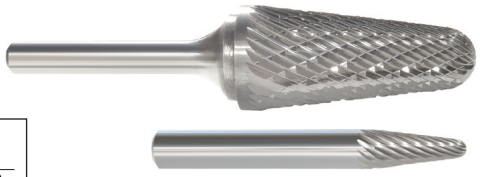
90˚ Cone Shape

TOOL	DIA	LOC	SHANK	SINGLE CUT	DOUBLE CUT
SK-42	1/8	1/16	1/8	310-001169	310-002169
SK-42 D.E.	1/8	1/16	1/8	310-001169D	310-002169D
SK-81	3/16	3/32	3/16	310-001171	310-002171
SK-81 D.E.	3/16	3/32	3/16	310-001171D	310-002171D
SK-1	1/4	1/8	1/4	310-001172	310-002172C
SK-3	3/8	3/16	1/4	310-001173	310-002173
SK-5	1/2	1/4	1/4	310-001174	310-002174
SK-6	5/8	5/16	1/4	310-001175	310-002175
SK-7	3/4	3/8	1/4	310-001176	310-002176
SK-9	1	1/2	1/4	310-001177C	310-002177

SJ-42 & SK-42 have a 1-1/2"overall length • SJ-1 & SK-1 burr has a 2"overall length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank







SL

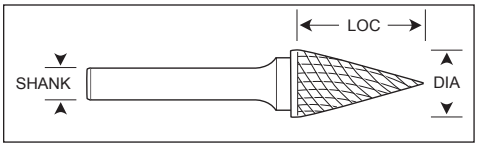
Taper Shape - Radius

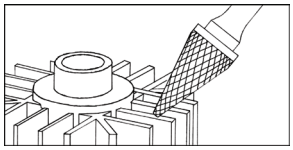
Applications:

- *Surface Machining*
- *Narrow Contours & Surfaces*

TOOL	DIA	LOC	SHANK	INCLUDED ANGLE	SINGLE CUT	DOUBLE CUT	ALUMA CUT
SL-41	1/8	3/8	1/8	14˚	310-001180	310-002180	
SL-42	1/8	1/2	1/8	14˚	310-001181	310-002181	
SL-42L2	1/8	1/2	1/8	14˚	310-001181A	310-002181A	
SL-42L3	1/8	1/2	1/8	14˚	310-002640	310-002740	
SL-53	3/16	1/2	1/8	14˚	310-001182	310-002182	
SL-81	3/16	1/2	3/16	14˚	310-001183	310-002183	
SL-51	1/4	1/2	1/8	14˚	310-001178	310-002178	
SL-1	1/4	5/8	1/4	14˚	310-001184	310-002184	
SL-1L6	1/4	5/8	1/4	14˚	310-002625	310-002725	
SL-1NF	1/4	5/8	1/4	14˚			310-002547
SL-2	5/16	7/8	1/4	14˚	310-001185	310-002185	
SL-3	3/8	1-1/16	1/4	14˚	310-001186	310-002186	
SL-3L6	3/8	1-1/16	1/4	14˚	310-002626	310-002726	
SL-3NF	3/8	1-1/16	1/4	14˚			310-002515
SL-4	1/2	1-1/8	1/4	14˚	310-001187	310-002187	
SL-4L6	1/2	1-1/8	1/4	14˚	310-001187B	310-002187B	
SL-4NF	1/2	1-1/8	1/4	14˚			310-002516
SL-5	5/8	1-3/16	1/4	14˚	310-001188	310-002188	
SL-5NF	5/8	1-3/16	1/4	14˚			310-003007
SL-6	5/8	1-5/16	1/4	14˚	310-001179	310-002179	
SL-6NF	5/8	1-5/16	1/4	14˚			310-002517
SL-7	3/4	1-1/2	1/4	14˚	310-001189	310-002189	
SL-7NF	3/4	1-1/2	1/4	14˚			310-004303

SL-41 & SL-42 have a 1-1/2"overall length • SL-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length • L6 denotes a 6" shank length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank





SM

Pointed Cone Shape

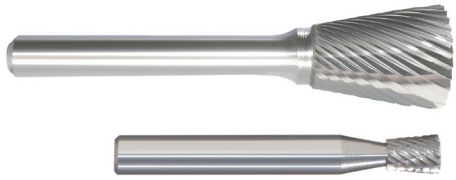
Applications:

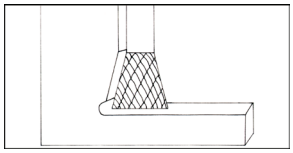
- *Surface Machining*
- *Narrow Contouring*

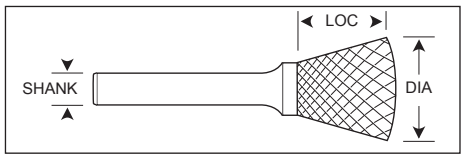
TOOL	DIA	LOC	SHANK	INCLUDED ANGLE	SINGLE CUT	DOUBLE CUT
SM-61	3/32	1/4	3/32	10°	310-001190	310-002190
SM-41	1/8	11/32	1/8	12°	310-001191	310-002191
SM-42	1/8	7/16	1/8	14°	310-001192	310-002192
SM-42L2	1/8	7/16	1/8	14°	310-001192A	310-002192A
SM-42L3	1/8	7/16	1/8	14°	310-001192B	310-002192B
SM-43	1/8	5/8	1/8	7°	310-001193	310-002193
SM-53	3/16	1/2	1/8	16°	310-001194	310-002194
SM-51	1/4	1/2	1/8	22°	310-001196	310-002196
SM-1	1/4	1/2	1/4	22°	310-001198C	310-002198C
SM-1L6	1/4	1/2	1/4	22°	310-002753	310-002754
SM-2	1/4	3/4	1/4	14°	310-001199	310-002199
SM-3	1/4	1	1/4	10°	310-001200	310-002200
SM-3L6	1/4	1	1/4	10°	310-002850	310-002851A
SM-4	3/8	5/8	1/4	28°	310-001201	310-002201
SM-4L6	3/8	5/8	1/4	28°	310-002632	310-002849
SM-5	1/2	7/8	1/4	28°	310-001202	310-002202
SM-5L6	1/2	7/8	1/4	28°	310-002636	310-002204
SM-6	5/8	1	1/4	31°	310-001203	310-002203

PROUDLY MADE IN THE USA

SM-41, SM-42 & SM-43 have 1-1/2"overall length • SM-1 burr has a 2"overall length
L2 denotes 2"overall length • L3 denotes 3" overall length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank







SN

Inverted Cone Shape

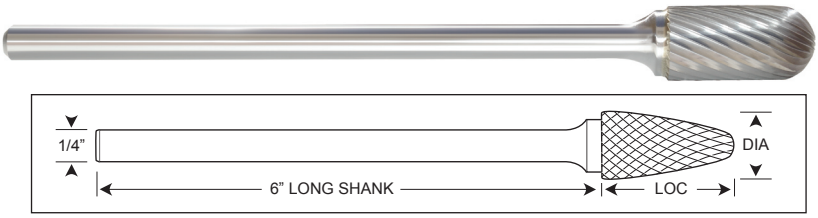
Applications:

- *Edge Milling*
- *Rear Machining on difficult to reach areas*

TOOL	DIA	LOC	SHANK	INCLUDED ANGLE	SINGLE CUT	DOUBLE CUT
SN-61	3/32	1/8	3/32	10°	310-001220	310-002220
SN-41	3/32	1/8	1/8	10°	310-001221	310-002221
SN-42	1/8	3/16	1/8	10°	310-001222	310-002222
SN-53	3/16	1/4	1/8	10°	310-001223	310-002223
SN-81	3/16	1/4	3/16	10°	310-001224	310-002224
SN-51	1/4	1/4	1/8	10°	310-001225	310-002225
SN-1	1/4	5/16	1/4	10°	310-001227	310-002227
SN-2	3/8	3/8	1/4	13°	310-001231	310-002231
SN-4	1/2	1/2	1/4	28°	310-001228	310-002228
SN-6	5/8	3/4	1/4	18°	310-001229	310-002229
SN-7	3/4	5/8	1/4	30°	310-001230	310-002230

SN-41 & SN-42 have a 1-1/2"overall length • SN-1 burr has a 2"overall length
Diameters of 1/8, 5/32 & 3/16 with 1/4 shanks have a 2"overall length
All cutting diameters of 5/16" and larger are brazed on a 1-3/4" long hardened steel shank

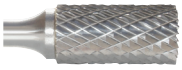
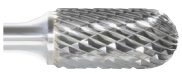
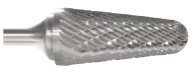
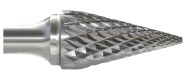
PROUDLY MADE IN THE USA



LONG SHANK

Applications:

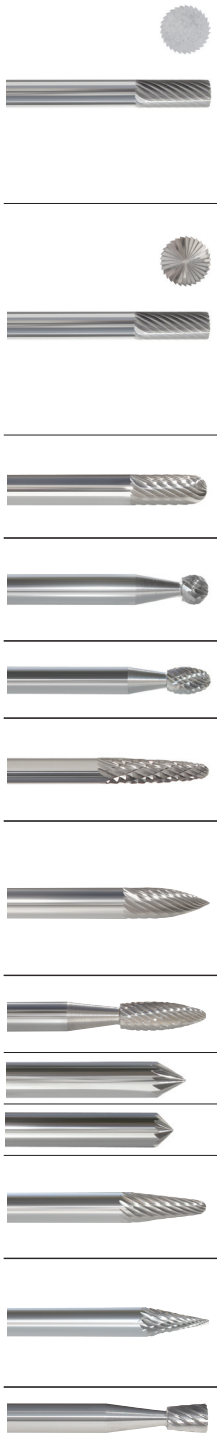
- *Hard to reach areas*

	TOOL	DIA	LOC	SHANK	INCLUDED ANGLE	SINGLE CUT	DOUBLE CUT
	SA-1L6	1/4	1/2	1/4		310-002601	310-002701
	SA-3L6	3/8	3/4	1/4		310-002602	310-002702A
	SA-5L6	1/2	1	1/4		310-002603	310-002703
	SC-1L6	1/4	1/2	1/4		310-002605	310-002705
	SC-3L6	3/8	3/4	1/4		310-002606	310-002706
	SC-5L6	1/2	1	1/4		310-002607	310-002707
	SD-1L6	1/4	7/32	1/4		310-002609	310-002709
	SD-3L6	3/8	5/16	1/4		310-002610	310-002710
	SD-5L6	1/2	7/16	1/4		310-002611	310-002711
	SE-1L6	1/4	3/8	1/4		310-002613	310-002713
	SE-3L6	3/8	5/8	1/4		310-002614	310-002714
	SE-5L6	1/2	7/8	1/4		310-005020	310-002715
	SF-1L6	1/4	1/2	1/4		310-002617	310-002717
	SF-3L6	3/8	3/4	1/4		310-002618	310-002718
	SF-5L6	1/2	1	1/4		310-002619	310-002719
	SG-1L6	1/4	1/2	1/4		310-002621	310-002721
	SG-3L6	3/8	3/4	1/4		310-002622	310-002722
	SG-5L6	1/2	1	1/4		310-002623	310-002723
	SH-2L6	5/16	3/4	1/4		310-002629	310-002729
	SH-5L6	1/2	1-1/4	1/4		310-002630	310-002730
	SL-1L6	1/4	5/8	1/4	14˚	310-002625	310-002725
	SL-3L6	3/8	1-1/16	1/4	14˚	310-002626	310-002726
	SL-4L6	1/2	1-1/8	1/4	14˚	310-001187B	310-002187B
	SM-1L6	1/4	1/2	1/4	22°	310-002753	310-002754
	SM-3L6	1/4	1	1/4	10°	310-002850	310-002851A
	SM-4L6	3/8	5/8	1/4	28°	310-002632	310-002849
	SM-5L6	1/2	7/8	1/4	28°	310-002636	310-002204

All cutting diameters of 5/16" and larger are brazed on a 6" long hardened steel shank

BURR MONSTER
MOLD TOOL & DIE

Applications:
- *Engraving*
- *Dremel-type tools*



TOOL	DIA	LOC	SHANK	INCLUDED ANGLE	SINGLE CUT	DOUBLE CUT
SA-41	1/16	1/4	1/8		310-001002	310-002002
SA-41L2	1/16	1/4	1/8		310-001002B	310-002002B
SA-41L3	1/16	1/4	1/8		310-00100C	310-002002C
SA-42	3/32	7/16	1/8		310-001004	310-002004
SA-42L2	3/32	7/16	1/8		310-001004B	310-002004B
SA-42L3	3/32	7/16	1/8		310-001004A	310-002004A
SA-43	1/8	9/16	1/8		310-001006	310-002006
SA-43L2	1/8	9/16	1/8		310-006025	310-006050
SA-43L3	1/8	9/16	1/8		310-002631	310-002006A
SB-41	1/16	1/4	1/8		310-001031	310-002031
SB-41L2	1/16	1/4	1/8		310-001056	310-002056
SB-41L3	1/16	1/4	1/8		310-001057	310-002057
SB-42	3/32	7/16	1/8		310-001033	310-002033
SB-42L2	3/32	7/16	1/8		310-001033A	310-002033A
SB-42L3	3/32	7/16	1/8		310-001033B	310-002033B
SB-43	1/8	9/16	1/8		310-001035	310-002035
SB-43L2	1/8	9/16	1/8		310-001035E	310-002035A
SB-43L3	1/8	9/16	1/8		310-001036A	310-002036A
SC-41	3/32	7/16	1/8		310-001061	310-002061
SC-42	1/8	9/16	1/8		310-001063	310-002063
SC-42L2	1/8	9/16	1/8		310-006075	310-006100
SC-42L3	1/8	9/16	1/8		310-001063A	310-002732
SD-41	3/32	3/32	1/8		310-001081	310-002081
SD-42	1/8	1/8	1/8		310-001082	310-002082
SD-42L2	1/8	1/8	1/8		310-006125	310-006150
SD-42L3	1/8	1/8	1/8		310-001082A	310-002733
SE-41	1/8	7/32	1/8		310-001100	310-002100
SE-41L2	1/8	7/32	1/8		310-006175	310-006200
SE-41L3	1/8	7/32	1/8		310-001100B	310-002100A
SF-41	1/8	1/4	1/8		310-001110	310-002110
SF-42	1/8	1/2	1/8		310-001111	310-002111
SF-42L2	1/8	1/2	1/8		310-006225	310-006250
SF-42L3	1/8	1/2	1/8		310-001146	310-002735
SG-41	1/8	1/4	1/8		310-001130	310-002130
SG-42	1/8	5/16	1/8		310-001131	310-002131
SG-43	1/8	3/8	1/8		310-001132	310-002132
SG-44	1/8	1/2	1/8		310-001145	310-002145
SG-44L2	1/8	1/2	1/8		310-006275	310-006300
SG-44L3	1/8	1/2	1/8		310-006875	310-006900
SH-41	1/8	1/4	1/8		310-001150	310-002150
SH-41L2	1/8	1/4	1/8		310-006325	310-006350
SH-41L3	1/8	1/4	1/8		310-002637	310-002737
SJ-42	1/8	3/32	1/8	60˚	310-001160	310-002160
SJ-42 D.E.	1/8	3/32	1/8	60˚	310-001160D	310-002160D
SK-42	1/8	1/16	1/8	90˚	310-001169	310-002169
SK-42 D.E.	1/8	1/16	1/8	90˚	310-001169D	310-002169D
SL-41	1/8	3/8	1/8	14˚	310-001180	310-002180
SL-42	1/8	1/2	1/8	14˚	310-001181	310-002181
SL-42L2	1/8	1/2	1/8	14˚	310-001181A	310-002181A
SL-42L3	1/8	1/2	1/8	14˚	310-002640	310-002740
SM-41	1/8	11/32	1/8	12˚	310-001191	310-002191
SM-42	1/8	7/16	1/8	14˚	310-001192	310-002192
SM-42L2	1/8	7/16	1/8	14˚	310-001192A	310-002192A
SM-42L3	1/8	7/16	1/8	14˚	310-001192B	310-002192B
SM-43	1/8	5/8	1/8	7˚	310-001193	310-002193
SN-41	3/32	1/8	1/8	10˚	310-001221	310-002221
SN-42	1/8	3/16	1/8	10˚	310-001222	310-002222

BURR MONSTER CARBIDE BURR SETS

PROUDLY MADE IN THE USA

Miniature Burr Sets

1/16	3/32	1/8	SET DESCRIPTION	SINGLE CUT	DOUBLE CUT
	X	X	**SET A** *12 Pieces in a Rosewood Case* SA-42, SA-43, SC-42, SD-42, SE-41, SF-41, SF-42, SG-41, SL-41, SM-43, SN-41, SN-42	310-110001	310-120001
X	X	X	**SET B** *12 Pieces in a Rosewood Case* SA-41, SA-42, SC-41, SC-42, SD-42, SE-41, SF-41, SF-42, SH-41, SL-41, SL-42, SN-42	310-110002	310-120002
X	X	X	**SET C** *11 Pieces in a Rosewood Case* SA-41, SB-41, SC-41, SD-41, SE-41, SF-41, SG-41, SH-41, SL-41, SM-41, SN-41	310-110003	310-120003
	X	X	**SET D** *11 Pieces in a Rosewood Case* SA-42, SB-42, SC-42, SD-42, SF-42, SG-42, SJ-42, SK-42, SL-42, SM-42, SN-42	310-110004	310-120004

Aluma Burr Sets

1/4	3/8	1/2	SET DESCRIPTION	ALUMA CUT
X	X		**SET AL1** *10 Pieces in a Rosewood Case* SA-1NF, SA-3NF, SB-3NF, SC-1NF, SC-3NF, SD-1NF, SD-3NF, SE-3NF, SF-3NF, SL-3NF	310-130001
X	X	X	**SET AL2** *12 Pieces in a Rosewood Case* SA-1NF, SA-3NF, SA-5NF, SC-1NF, SC-3NF, SC-5NF, SD-1NF, SD-3NF, SD-5NF, SF-1NF, SF-3NF, SF-5NF	310-130002
X	X	X	**SET AL3** *12 Pieces in a Rosewood Case* SA-1NF, SA-3NF, SA-5NF, SB-5NF, SD-1NF, SD-3NF, SD-5NF, SF-1NF, SF-3NF, SF-5NF, SL-3NF, SL-4NF	310-130003
X	X	X	**SET AL4** *11 Pieces in a Rosewood Case* SA-1NF, SA-3NF, SA-5NF, SC-1NF, SC-3NF, SC-5NF, SF-1NF, SF-3NF, SF-5NF, SL-3NF, SL-4NF	310-130004
	X	X	**SET AL5** *8 Pieces in a Rosewood Case* SA-5NF, SB-5NF, SC-5NF, SD-5NF, SE-5NF, SF-5NF, SL-3NF, SL-4NF	310-130005
	X	X	**SET AL6** *10 Pieces in a Rosewood Case* SA-3NF, SA-5NF, SD-3NF, SD-5NF, SE-3NF, SE-5NF, SF-3NF, SF-5NF, SL-3NF, SL-4NF	310-130006

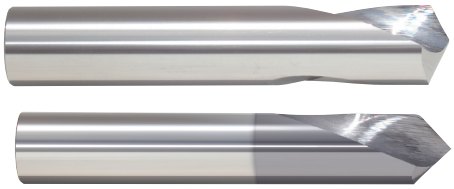
BURR MONSTER

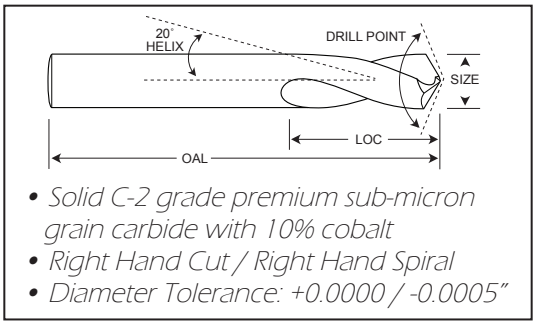
Standard Burr Sets

1/8	5/32	3/16	1/4	3/8	1/2	SET DESCRIPTION	SINGLE CUT	DOUBLE CUT
X	X	X	X			**SET K** *12 Pieces in a Rosewood Case* SA-11, SB-14, SC-13, SD-14, SE-11, SF-11, SG-1, SH-1, SJ-1, SK-1, SM-1, SN-1	310-110011	310-120011
	X	X				**SET F** *12 Pieces in a Rosewood Case* SA-52, SA-53, SC-52, SC-53, SD-52, SD-53, SE-53, SF-53, SG-53, SH-53, SM-53, SN-53	310-110006	310-120006
	X		X			**SET H** *12 Pieces in a Rosewood Case* SA-51, SA-52, SB-51, SC-51, SC-52, SD-51, SD-52, SE-51, SF-51, SG-51, SM-51, SN-51	310-110008	310-120008
		X				**SET E** *10 Pieces in a Rosewood Case* SA-53, SC-53, SD-53, SE-53, SF-53, SG-53, SH-53, SL-53, SM-53, SN-53	310-110005	310-120005
		X	X			**SET L** *12 Pieces in a Rosewood Case* SA-1, SA-14, SC-1, SC-14, SD-1, SE-1, SF-1, SG-1, SJ-1, SL-1, SH-1, SN-1	310-110012	310-120012
			X			**SET G** *9 Pieces in a Rosewood Case* SA-51, SB-51, SC-51, SD-51, SE-51, SF-51, SG-51, SM-51, SN-51	310-110007	310-120007
			X			**SET I** *12 Pieces in a Rosewood Case* SA-1, SB-1, SC-1, SD-1, SE-1, SF-1, SG-1, SH-1, SJ-1, SK-1, SM-1, SN-1	310-110009	310-120009
			X			**SET J** *12 Pieces in a Rosewood Case* SB-1, SC-1, SD-1, SE-1, SF-1, SG-1, SH-1, SJ-1, SK-1, SL-1, SM-1, SN-1	310-110010	310-120010
			X			**SET AA** *12 Pieces in a Rosewood Case* SA-1, SB-1, SC-1, SD-1, SE-1, SF-1, SG-1, SH-1, SJ-1, SK-1, SL-1, SM-1	310-110026	310-120026
				X		**SET AB** *12 Pieces in a Rosewood Case* SA-3, SB-3, SC-3, SD-3, SE-3, SF-3, SG-3, SJ-3, SK-3, SL-3, SM-4, SN-2	310-110027	310-120027
			X	X		**SET M** *9 Pieces in a Rosewood Case* SA-3, SC-3, SD-3, SE-3, SF-3, SG-3, SJ-3, SM-3, SN-2	310-110013	310-120013
			X	X		**SET N** *9 Pieces in a Rosewood Case* SB-3, SC-3, SD-3, SE-3, SF-3, SG-3, SK-3, SL-3, SM-3	310-110014	310-120014
			X	X	X	**SET O** *12 Pieces in a Rosewood Case* SA-1, SA-3, SA-5, SD-1, SD-3, SD-5, SF-1, SF-3, SF-5, SG-1, SG-3, SG-5	310-110021	310-120021
			X	X	X	**SET P** *9 Pieces in a Rosewood Case* SA-1, SA-3, SA-5, SC-1, SC-3, SC-5, SF-1, SF-3, SF-5	310-110015	310-120015
			X	X	X	**SET Q** *9 Pieces in a Rosewood Case* SB-1, SB-3, SB-5, SD-1, SD-3, SD-5, SE-1, SE-3, SE-5	310-110016	310-120016
			X	X	X	**SET R** *9 Pieces in a Rosewood Case* SA-1, SA-3, SA-5, SE-1, SE-3, SE-5, SN-1, SN-2, SN-4	310-110017	310-120017
			X	X	X	**SET S** *9 Pieces in a Rosewood Case* SB-1, SB-3, SB-5, SC-1, SC-3, SC-5, SF-1, SF-3, SF-5	310-110018	310-120018
			X	X	X	**SET V** *12 Pieces in a Rosewood Case* SA-1, SA-3, SA-5, SC-1, SC-3, SC-5, SE-1, SE-3, SE-5, SM-1, SM-3, SM-5	310-110022	310-120022
			X	X	X	**SET W** *12 Pieces in a Rosewood Case* SB-1, SB-3, SB-5, SD-1, SD-3, SD-5, SF-1, SF-3, SF-5, SN-1, SN-2, SN-4	310-110023	310-120023
			X	X	X	**SET X** *12 Pieces in a Rosewood Case* SA-1, SA-3, SA-5, SC-1, SC-3, SC-5, SG-1, SG-3, SG-5, SM-1, SM-3, SM-5	310-110024	310-120024
			X	X	X	**SET Y** *12 Pieces in a Rosewood Case* SF-1, SF-3, SF-5, SG-1, SG-3, SG-5, SL-1, SL-3, SL-4, SM-1, SM-3, SM-5	310-110025	310-120025
					X	**SET AC** *12 Pieces in a Rosewood Case* SA-5, SB-5, SC-5, SD-5, SE-5, SF-5, SG-5, SH-5, SJ-5, SK-5, SL-4, SM-5	310-110028	310-120028
					X	**SET T** *8 Pieces in a Rosewood Case* SA-5, SC-5, SD-5, SE-5, SG-5, SH-5, SK-5, SM-5	310-110019	310-120019
					X	**SET U** *8 Pieces in a Rosewood Case* SB-5, SC-5, SD-5, SF-5, SG-5, SH-5, SJ-5, SK-5	310-110020	310-120020

DRILL MONSTER
N/C Spot Drill

PROUDLY MADE IN THE USA





- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.0000 / -0.0005"*

- ***Designed for exceptional precision & higher speeds and feeds***
- ***Short flute & overall lengths provide superior rigidity***
- ***Chamfers and centers in one operation***

90°
INCLUDED ANGLE

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
1/8	0.1250	5/8	2	402-125090	402-125090B
3/16	0.1875	3/4	2	402-187090	402-187090B
1/4	0.2500	3/4	2-1/2	402-250090	402-250090B
5/16	0.3125	1	2-1/2	402-312090	402-312090B
3/8	0.3750	1	2-1/2	402-375090	402-375090B
1/2	0.5000	1-1/4	3	402-500090	402-500090B

120°
INCLUDED ANGLE

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
1/8	0.1250	5/8	2	402-125120	402-125120B
3/16	0.1875	3/4	2	402-187120	402-187120B
1/4	0.2500	3/4	2-1/2	402-250120	402-250120B
5/16	0.3125	1	2-1/2	402-312120	402-312120B
3/8	0.3750	1	2-1/2	402-375120	402-375120B
1/2	0.5000	1-1/4	3	402-500120	402-500120B

140°
INCLUDED ANGLE

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
1/8	0.1250	5/8	2	402-125140	402-125140B
3/16	0.1875	3/4	2	402-187140	402-187140B
1/4	0.2500	3/4	2-1/2	402-250140	402-250140B
5/16	0.3125	1	2-1/2	402-312140	402-312140B
3/8	0.3750	1	2-1/2	402-375140	402-375140B
1/2	0.5000	1-1/4	3	402-500140	402-500140B

DRILL MONSTER

PROUDLY MADE IN THE USA

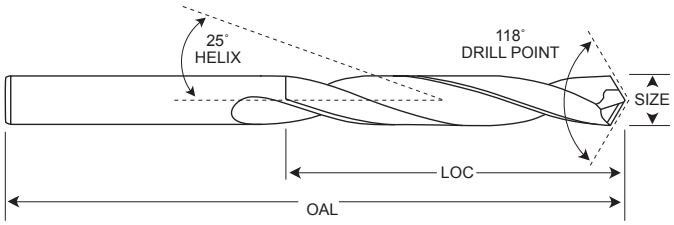
Twist Drill - Jobber Length

Materials:

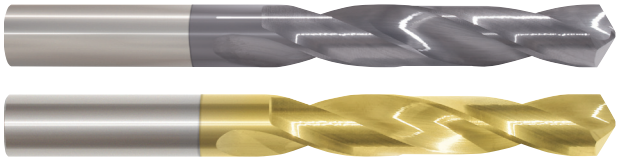
- *Non-ferrous alloys, cast iron, plastics, aluminum and highly abrasive materials*

TWIST DRILLS

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiN Coated	TiAlN Coated
#80	**0.0135**	3/16	1-1/4	450-300135	450-300135A	450-300135B
#79	**0.0145**	3/16	1-1/4	450-300145	450-300145A	450-300145B
1/64	**0.0156**	3/16	1-1/4	450-100156	450-100156A	450-100156B
#78	**0.0160**	3/16	1-1/4	450-300160	450-300160A	450-300160B
#77	**0.0180**	3/16	1-1/4	450-300180	450-300180A	450-300180B
#76	**0.0200**	1/4	1-1/4	450-300200	450-300200A	450-300200B
#75	**0.0210**	1/4	1-1/4	450-300210	450-300210A	450-300210B
#74	**0.0225**	1/4	1-1/4	450-300225	450-300225A	450-300225B
#73	**0.0240**	1/4	1-1/4	450-300240	450-300240A	450-300240B
#72	**0.0250**	5/16	1-1/4	450-300250	450-300250A	450-300250B
#71	**0.0260**	5/16	1-1/4	450-300260	450-300260A	450-300260B
#70	**0.0280**	5/16	1-1/4	450-300280	450-300280A	450-300280B
#69	**0.0292**	5/16	1-1/4	450-300292	450-300292A	450-300292B
#68	**0.0310**	5/16	1-1/4	450-300310	450-300310A	450-300310B
1/32	**0.0312**	5/16	1-1/4	450-100312	450-100312A	450-100312B
#67	**0.0320**	5/16	1-1/4	450-300320	450-300320A	450-300320B
#66	**0.0330**	5/16	1-1/4	450-300330	450-300330A	450-300330B
#65	**0.0350**	5/8	1-3/8	450-300350	450-300350A	450-300350B
#64	**0.0360**	5/8	1-3/8	450-300360	450-300360A	450-300360B
#63	**0.0370**	5/8	1-3/8	450-300370	450-300370A	450-300370B
#62	**0.0380**	5/8	1-3/8	450-300380	450-300380A	450-300380B
#61	**0.0390**	5/8	1-3/8	450-300390	450-300390A	450-300390B
1.0 mm	**0.0394**	16 mm	38 mm	450-400394	450-400394A	450-400394B
#60	**0.0400**	3/4	1-1/2	450-300400	450-300400A	450-300400B
#59	**0.0410**	3/4	1-1/2	450-300410	450-300410A	450-300410B
#58	**0.0420**	3/4	1-1/2	450-300420	450-300420A	450-300420B
#57	**0.0430**	3/4	1-1/2	450-300430	450-300430A	450-300430B
#56	**0.0465**	3/4	1-1/2	450-300465	450-300465A	450-300465B
3/64	**0.0469**	3/4	1-1/2	450-100469	450-100469A	450-100469B
#55	**0.0520**	3/4	1-1/2	450-300520	450-300520A	450-300520B
#54	**0.0550**	3/4	1-1/2	450-300550	450-300550A	450-300550B
1.5 mm	**0.0591**	19 mm	38 mm	450-400591	450-400591A	450-400591B
#53	**0.0595**	3/4	1-1/2	450-300595	450-300595A	450-300595B
1/16	**0.0625**	3/4	1-1/2	450-100625	450-100625A	450-100625B
#52	**0.0635**	3/4	1-1/2	450-300635	450-300635A	450-300635B
#51	**0.0670**	3/4	1-1/2	450-300670	450-300670A	450-300670B



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.0000 / -0.0005"*



TWIST DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiN Coated	TiAlN Coated
#50	0.0700	7/8	1-3/4	450-300700	450-300700A	450-300700B
#49	0.0730	7/8	1-3/4	450-300730	450-300730A	450-300730B
#48	0.0760	7/8	1-3/4	450-300760	450-300760A	450-300760B
5/64	0.0781	7/8	1-3/4	450-100781	450-100781A	450-100781B
#47	0.0785	7/8	1-3/4	450-300785	450-300785A	450-300785B
2.0 mm	0.0787	22 mm	45 mm	450-400787	450-400787A	450-400787B
#46	0.0810	7/8	1-3/4	450-300810	450-300810A	450-300810B
#45	0.0820	7/8	1-3/4	450-300820	450-300820A	450-300820B
#44	0.0860	1	2	450-300860	450-300860A	450-300860B
#43	0.0890	1	2	450-300890	450-300890A	450-300890B
#42	0.0935	1	2	450-300935	450-300935A	450-300935B
3/32	0.0938	1	2	450-100938	450-100938A	450-100938B
#41	0.0960	1	2	450-300960	450-300960A	450-300960B
#40	0.0980	1	2	450-300980	450-300980A	450-300980B
2.5 mm	0.0984	25 mm	51 mm	450-400984	450-400984A	450-400984B
#39	0.0995	1-1/4	2-1/4	450-300995	450-300995A	450-300995B
#38	0.1015	1-1/4	2-1/4	450-301015	450-301015A	450-301015B
#37	0.1040	1-1/4	2-1/4	450-301040	450-301040A	450-301040B
#36	0.1065	1-1/4	2-1/4	450-301065	450-301065A	450-301065B
7/64	0.1094	1-1/4	2-1/4	450-101094	450-101094A	450-101094B
#35	0.1100	1-1/4	2-1/4	450-301100	450-301100A	450-301100B
#34	0.1110	1-1/4	2-1/4	450-301110	450-301110A	450-301110B
#33	0.1130	1-1/4	2-1/4	450-301130	450-301130A	450-301130B
#32	0.1160	1-1/4	2-1/4	450-301160	450-301160A	450-301160B
3.0 mm	0.1181	32 mm	57 mm	450-401181	450-401181A	450-401181B
#31	0.1200	1-1/4	2-1/4	450-301200	450-301200A	450-301200B
1/8	0.1250	1-1/4	2-1/4	450-101250	450-101250A	450-101250B
#30	0.1285	1-1/4	2-1/4	450-301285	450-301285A	450-301285B
#29	0.1360	1-3/8	2-1/2	450-301360	450-301360A	450-301360B
3.5 mm	0.1378	35 mm	64 mm	450-401378	450-401378A	450-401378B
#28	0.1405	1-3/8	2-1/2	450-301405	450-301405A	450-301405B
9/64	0.1406	1-3/8	2-1/2	450-101406	450-101406A	450-101406B
#27	0.1440	1-3/8	2-1/2	450-301440	450-301440A	450-301440B
#26	0.1470	1-3/8	2-1/2	450-301470	450-301470A	450-301470B
#25	0.1495	1-3/8	2-1/2	450-301495	450-301495A	450-301495B
#24	0.1520	1-3/8	2-1/2	450-301520	450-301520A	450-301520B

Twist Drill - Jobber Length

TWIST DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiN Coated	TiAlN Coated
#23	0.1540	1-3/8	2-1/2	450-301540	450-301540A	450-301540B
5/32	0.1562	1-3/8	2-1/2	450-101562	450-101562A	450-101562B
#22	0.1570	1-3/8	2-1/2	450-301570	450-301570A	450-301570B
4.0 mm	0.1575	35 mm	64 mm	450-401575	450-401575A	450-401575B
#21	0.1590	1-3/8	2-1/2	450-301590	450-301590A	450-301590B
#20	0.1610	1-3/8	2-1/2	450-301610	450-301610A	450-301610B
#19	0.1660	1-5/8	2-3/4	450-301660	450-301660A	450-301660B
#18	0.1695	1-5/8	2-3/4	450-301695	450-301695A	450-301695B
11/64	0.1719	1-5/8	2-3/4	450-101719	450-101719A	450-101719B
#17	0.1730	1-5/8	2-3/4	450-301730	450-301730A	450-301730B
#16	0.1770	1-5/8	2-3/4	450-301770	450-301770A	450-301770B
4.5 mm	0.1772	41 mm	70 mm	450-401772	450-401772A	450-401772B
#15	0.1800	1-5/8	2-3/4	450-301800	450-301800A	450-301800B
#14	0.1820	1-5/8	2-3/4	450-301820	450-301820A	450-301820B
#13	0.1850	1-5/8	2-3/4	450-301850	450-301850A	450-301850B
3/16	0.1875	1-5/8	2-3/4	450-101875	450-101875A	450-101875B
#12	0.1890	1-5/8	2-3/4	450-301890	450-301890A	450-301890B
#11	0.1910	1-5/8	2-3/4	450-301910	450-301910A	450-301910B
#10	0.1935	1-5/8	2-3/4	450-301935	450-301935A	450-301935B
#9	0.1960	1-3/4	3	450-301960	450-301960A	450-301960B
5.0 mm	0.1969	45 mm	76 mm	450-401969	450-401969A	450-401969B
#8	0.1990	1-3/4	3	450-301990	450-301990A	450-301990B
#7	0.2010	1-3/4	3	450-302010	450-302010A	450-302010B
13/64	0.2031	1-3/4	3	450-102031	450-102031A	450-102031B
#6	0.2040	1-3/4	3	450-302040	450-302040A	450-302040B
#5	0.2055	1-3/4	3	450-302055	450-302055A	450-302055B
#4	0.2090	1-3/4	3	450-302090	450-302090A	450-302090B
#3	0.2130	1-3/4	3	450-302130	450-302130A	450-302130B
5.5 mm	0.2165	45 mm	76 mm	450-402165	450-402165A	450-402165B
7/32	0.2188	1-3/4	3	450-102188	450-102188A	450-102188B
#2	0.2210	1-3/4	3	450-302210	450-302210A	450-302210B
#1	0.2280	1-3/4	3	450-302280	450-302280A	450-302280B
A	0.2340	2	3-1/4	450-202340	450-202340A	450-202340B
15/64	0.2344	2	3-1/4	450-102344	450-102344A	450-102344B
6.0 mm	0.2362	51 mm	83 mm	450-402362	450-402362A	450-402362B
B	0.2380	2	3-1/4	450-202380	450-202380A	450-202380B
C	0.2420	2	3-1/4	450-202420	450-202420A	450-202420B
D	0.2460	2	3-1/4	450-202460	450-202460A	450-202460B
1/4	0.2500	2	3-1/4	450-102500	450-102500A	450-102500B
E	0.2500	2	3-1/4	450-202500	450-202500A	450-202500B
6.5 mm	0.2559	51 mm	83 mm	450-402559	450-402559A	450-402559B
F	0.2570	2	3-1/4	450-202570	450-202570A	450-202570B
G	0.2610	2-1/8	3-1/2	450-202610	450-202610A	450-202610B
17/64	0.2656	2-1/8	3-1/2	450-102656	450-102656A	450-102656B
H	0.2660	2-1/8	3-1/2	450-202660	450-202660A	450-202660B

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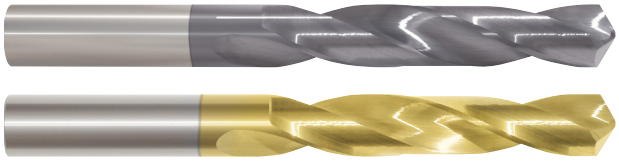


TWIST DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiN Coated	TiAlN Coated
I	0.2720	2-1/8	3-1/2	450-202720	450-202720A	450-202720B
7.0 mm	0.2756	54 mm	89 mm	450-402756	450-402756A	450-402756B
J	0.2770	2-1/8	3-1/2	450-202770	450-202770A	450-202770B
K	0.2810	2-1/8	3-1/2	450-202810	450-202810A	450-202810B
9/32	0.2812	2-1/8	3-1/2	450-102812	450-102812A	450-102812B
L	0.2900	2-1/8	3-1/2	450-202900	450-202900A	450-202900B
M	0.2950	2-3/8	3-3/4	450-202950	450-202950A	450-202950B
7.5 mm	0.2953	60 mm	95 mm	450-402953	450-402953A	450-402953B
19/64	0.2969	2-3/8	3-3/4	450-102969	450-102969A	450-102969B
N	0.3020	2-3/8	3-3/4	450-203020	450-203020A	450-203020B
5/16	0.3125	2-3/8	3-3/4	450-103125	450-103125A	450-103125B
8.0 mm	0.3150	60 mm	95 mm	450-403150	450-403150A	450-403150B
O	0.3160	2-3/8	3-3/4	450-203160	450-203160A	450-203160B
P	0.3230	2-3/8	3-3/4	450-203230	450-203230A	450-203230B
21/64	0.3281	2-1/2	4	450-103281	450-103281A	450-103281B
Q	0.3320	2-1/2	4	450-203320	450-203320A	450-203320B
8.5 mm	0.3346	64 mm	102 mm	450-403346	450-403346A	450-403346B
R	0.3390	2-1/2	4	450-203390	450-203390A	450-203390B
11/32	0.3438	2-1/2	4	450-103438	450-103438A	450-103438B
S	0.3480	2-1/2	4	450-203480	450-203480A	450-203480B
9.0 mm	0.3543	64 mm	102 mm	450-403543	450-403543A	450-403543B
T	0.3580	2-3/4	4-1/4	450-203580	450-203580A	450-203580B
23/64	0.3594	2-3/4	4-1/4	450-103594	450-103594A	450-103594B
U	0.3680	2-3/4	4-1/4	450-203680	450-203680A	450-203680B
9.5 mm	0.3740	70 mm	108 mm	450-403740	450-403740A	450-403740B
3/8	0.3750	2-3/4	4-1/4	450-103750	450-103750A	450-103750B
V	0.3770	2-3/4	4-1/4	450-203770	450-203770A	450-203770B
W	0.3860	2-7/8	4-1/2	450-203860	450-203860A	450-203860B
25/64	0.3906	2-7/8	4-1/2	450-103906	450-103906A	450-103906B
10.0 mm	0.3937	73 mm	114 mm	450-403937	450-403937A	450-403937B
X	0.3970	2-7/8	4-1/2	450-203970	450-203970A	450-203970B
Y	0.4040	2-7/8	4-1/2	450-204040	450-204040A	450-204040B
13/32	0.4062	2-7/8	4-1/2	450-104062	450-104062A	450-104062B
Z	0.4130	2-7/8	4-1/2	450-204130	450-204130A	450-204130B
10.5 mm	0.4134	73 mm	114 mm	450-404134	450-404134A	450-404134B
27/64	0.4219	2-7/8	4-1/2	450-104219	450-104219A	450-104219B
11.0 mm	0.4331	73 mm	114 mm	450-404331	450-404331A	450-404331B
7/16	0.4375	2-7/8	4-1/2	450-104375	450-104375A	450-104375B
11.5 mm	0.4528	76 mm	121 mm	450-404528	450-404528A	450-404528B
29/64	0.4531	3	4-3/4	450-104531	450-104531A	450-104531B
15/32	0.4688	3	4-3/4	450-104688	450-104688A	450-104688B
12.0 mm	0.4724	76 mm	121 mm	450-404724	450-404724A	450-404724B
31/64	0.4844	3	4-3/4	450-104844	450-104844A	450-104844B
12.5 mm	0.4921	76 mm	121 mm	450-404921	450-404921A	450-404921B
1/2	0.5000	3	4-3/4	450-105000	450-105000A	450-105000B

Stub Drill - Screw Machine Length

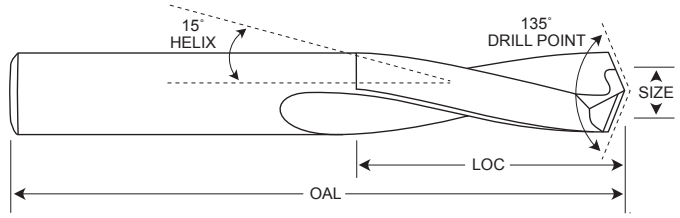
Materials:
- *Cast iron, stainless steel, tool steel, titanium & nickel alloys*

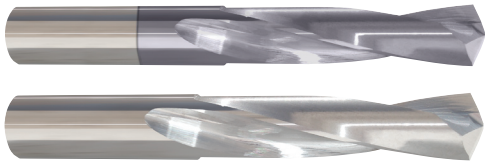
PROUDLY MADE IN THE USA

STUB DRILLS

SIZE	DECIMAL INCHES	LOC	OAL	[illegible]	T[illegible]d
1/32	0.0312	1/2	1-1/2	460-100312	460-100312B
1.0 mm	0.0394	13 mm	38 mm	460-400394	460-400394B
#60	0.0400	1/2	1-1/2	460-300400	460-300400B
#59	0.0410	1/2	1-1/2	460-300410	460-300410B
#58	0.0420	1/2	1-1/2	460-300420	460-300420B
#57	0.0430	1/2	1-1/2	460-300430	460-300430B
#56	0.0465	1/2	1-1/2	460-300465	460-300465B
3/64	0.0469	1/2	1-1/2	460-100469	460-100469B
#55	0.0520	1/2	1-1/2	460-300520	460-300520B
#54	0.0550	1/2	1-1/2	460-300550	460-300550B
1.5 mm	0.0591	13 mm	38 mm	460-400591	460-400591B
#53	0.0595	1/2	1-1/2	460-300595	460-300595B
1/16	0.0625	5/8	1-5/8	460-100625	460-100625B
#52	0.0635	11/16	1-11/16	460-300635	460-300635B
#51	0.0670	11/16	1-11/16	460-300670	460-300670B
#50	0.0700	11/16	1-11/16	460-300700	460-300700B
#49	0.0730	11/16	1-11/16	460-300730	460-300730B
#48	0.0760	11/16	1-11/16	460-300760	460-300760B
5/64	0.0781	11/16	1-11/16	460-100781	460-100781B
#47	0.0785	3/4	1-3/4	460-300785	460-300785B
2.0 mm	0.0787	19 mm	45 mm	460-400787	460-400787B
#46	0.0810	3/4	1-3/4	460-300810	460-300810B
#45	0.0820	3/4	1-3/4	460-300820	460-300820B
#44	0.0860	3/4	1-3/4	460-300860	460-300860B
#43	0.0890	3/4	1-3/4	460-300890	460-300890B
#42	0.0935	3/4	1-3/4	460-300935	460-300935B
3/32	0.0938	3/4	1-3/4	460-100938	460-100938B
#41	0.0960	13/16	1-13/16	460-300960	460-300960B
#40	0.0980	13/16	1-13/16	460-300980	460-300980B
2.5 mm	0.0984	21 mm	46 mm	460-400984	460-400984B
#39	0.0995	13/16	1-13/16	460-300995	460-300995B
#38	0.1015	13/16	1-13/16	460-301015	460-301015B
#37	0.1040	13/16	1-13/16	460-301040	460-301040B
#36	0.1065	13/16	1-13/16	460-301065	460-301065B

Stub Drill - Screw Machine Length





- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.0000 / -0.0005"*

STUB DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
7/64	0.1094	13/16	1-13/16	460-101094	460-101094B
#35	0.1100	7/8	1-7/8	460-301100	460-301100B
#34	0.1110	7/8	1-7/8	460-301110	460-301110B
#33	0.1130	7/8	1-7/8	460-301130	460-301130B
#32	0.1160	7/8	1-7/8	460-301160	460-301160B
3.0 mm	0.1181	22 mm	48 mm	460-401181	460-401181B
#31	0.1200	7/8	1-7/8	460-301200	460-301200B
1/8	0.1250	7/8	1-7/8	460-101250	460-101250B
#30	0.1285	15/16	1-15/16	460-301285	460-301285B
#29	0.1360	15/16	1-15/16	460-301360	460-301360B
3.5 mm	0.1378	24 mm	49 mm	460-401378	460-401378B
#28	0.1405	15/16	1-15/16	460-301405	460-301405B
9/64	0.1406	15/16	1-15/16	460-101406	460-101406B
#27	0.1440	1	2-1/16	460-301440	460-301440B
#26	0.1470	1	2-1/16	460-301470	460-301470B
#25	0.1495	1	2-1/16	460-301495	460-301495B
#24	0.1520	1	2-1/16	460-301520	460-301520B
#23	0.1540	1	2-1/16	460-301540	460-301540B
5/32	0.1562	1	2-1/16	460-101562	460-101562B
#22	0.1570	1-1/16	2-1/8	460-301570	460-301570B
4.0 mm	0.1575	27 mm	54 mm	460-401575	460-401575B
#21	0.1590	1-1/16	2-1/8	460-301590	460-301590B
#20	0.1610	1-1/16	2-1/8	460-301610	460-301610B
#19	0.1660	1-1/16	2-1/8	460-301660	460-301660B
#18	0.1695	1-1/16	2-1/8	460-301695	460-301695B
11/64	0.1719	1-1/16	2-1/8	460-101719	460-101719B
#17	0.1730	1-1/8	2-3/16	460-301730	460-301730B
#16	0.1770	1-1/8	2-3/16	460-301770	460-301770B
4.5 mm	0.1772	29 mm	56 mm	460-401772	460-401772B
#15	0.1800	1-1/8	2-3/16	460-301800	460-301800B
#14	0.1820	1-1/8	2-3/16	460-301820	460-301820B

Stub Drill - Screw Machine Length

STUB DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
#13	0.1850	1-1/8	2-3/16	460-301850	460-301850B
3/16	0.1875	1-1/8	2-3/16	460-101875	460-101875B
#12	0.1890	1-3/16	2-1/4	460-301890	460-301890B
#11	0.1910	1-3/16	2-1/4	460-301910	460-301910B
#10	0.1935	1-3/16	2-1/4	460-301935	460-301935B
#9	0.1960	1-3/16	2-1/4	460-301960	460-301960B
5.0 mm	0.1969	30 mm	57 mm	460-401969	460-401969B
#8	0.1990	1-3/16	2-1/4	460-301990	460-301990B
#7	0.2010	1-3/16	2-1/4	460-302010	460-302010B
13/64	0.2031	1-3/16	2-1/4	460-102031	460-102031B
#6	0.2040	1-1/4	2-3/8	460-302040	460-302040B
#5	0.2055	1-1/4	2-3/8	460-302055	460-302055B
#4	0.2090	1-1/4	2-3/8	460-302090	460-302090B
#3	0.2130	1-1/4	2-3/8	460-302130	460-302130B
5.5 mm	0.2165	32 mm	60 mm	460-402165	460-402165B
7/32	0.2188	1-1/4	2-3/8	460-102188	460-102188B
#2	0.2210	1-5/16	2-7/16	460-302210	460-302210B
#1	0.2280	1-5/16	2-7/16	460-302280	460-302280B
A	0.2340	1-5/16	2-7/16	460-202340	460-202340B
15/64	0.2344	1-5/16	2-7/16	460-102344	460-102344B
6.0 mm	0.2362	33 mm	62 mm	460-402362	460-402362B
B	0.2380	1-3/8	2-1/2	460-202380	460-202380B
C	0.2420	1-3/8	2-1/2	460-202420	460-202420B
D	0.2460	1-3/8	2-1/2	460-202460	460-202460B
1/4	0.2500	1-3/8	2-1/2	460-102500	460-102500B
E	0.2500	1-3/8	2-1/2	460-202500	460-202500B
6.5 mm	0.2559	35 mm	64 mm	460-402559	460-402559B
F	0.2570	1-7/16	2-5/8	460-202570	460-202570B
G	0.2610	1-7/16	2-5/8	460-202610	460-202610B
17/64	0.2656	1-7/16	2-5/8	460-102656	460-102656B
H	0.2660	1-1/2	2-11/16	460-202660	460-202660B
I	0.2720	1-1/2	2-11/16	460-202720	460-202720B
7.0 mm	0.2756	38 mm	68 mm	460-402756	460-402756B
J	0.2770	1-1/2	2-11/16	460-202770	460-202770B
K	0.2810	1-1/2	2-11/16	460-202810	460-202810B
9/32	0.2812	1-1/2	2-11/16	460-102812	460-102812B
L	0.2900	1-9/16	2-3/4	460-202900	460-202900B
M	0.2950	1-9/16	2-3/4	460-202950	460-202950B
7.5 mm	0.2953	40 mm	70 mm	460-402953	460-402953B
19/64	0.2969	1-9/16	2-3/4	460-102969	460-102969B

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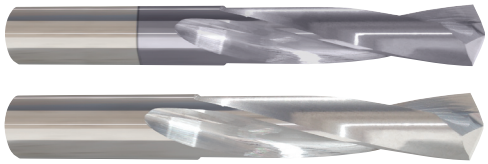
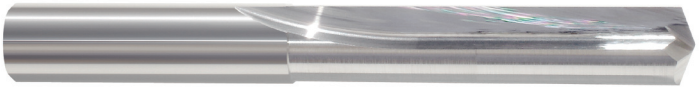


STUB DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
N	0.3020	1-5/8	2-13/16	460-203020	460-203020B
5/16	0.3125	1-5/8	2-13/16	460-103125	460-103125B
8.0 mm	0.3150	41 mm	72 mm	460-403150	460-403150B
O	0.3160	1-11/16	2-15/16	460-203160	460-203160B
P	0.3230	1-11/16	2-15/16	460-203230	460-203230B
21/64	0.3281	1-11/16	2-15/16	460-103281	460-103281B
Q	0.3320	1-11/16	3	460-203320	460-203320B
8.5 mm	0.3346	43 mm	76 mm	460-403346	460-403346B
R	0.3390	1-11/16	3	460-203390	460-203390B
11/32	0.3438	1-11/16	3	460-103438	460-103438B
S	0.3480	1-3/4	3-1/16	460-203480	460-203480B
9.0 mm	0.3543	45 mm	78 mm	460-403543	460-403543B
T	0.3580	1-3/4	3-1/16	460-203580	460-203580B
23/64	0.3594	1-3/4	3-1/16	460-103594	460-103594B
U	0.3680	1-13/16	3-1/8	460-203680	460-203680B
9.5 mm	0.3740	46 mm	79 mm	460-403740	460-403740B
3/8	0.3750	1-13/16	3-1/8	460-103750	460-103750B
V	0.3770	1-7/8	3-1/4	460-203770	460-203770B
W	0.3860	1-7/8	3-1/4	460-203860	460-203860B
25/64	0.3906	1-7/8	3-1/4	460-103906	460-103906B
10.0 mm	0.3937	48 mm	83 mm	460-403937	460-403937B
X	0.3970	1-15/16	3-5/16	460-203970	460-203970B
Y	0.4040	1-15/16	3-5/16	460-204040	460-204040B
13/32	0.4062	1-15/16	3-5/16	460-104062	460-104062B
Z	0.4130	2	3-3/8	460-204130	460-204130B
10.5 mm	0.4134	51 mm	86 mm	460-404134	460-404134B
27/64	0.4219	2	3-3/8	460-104219	460-104219B
11.0 mm	0.4331	51 mm	86 mm	460-404331	460-404331B
7/16	0.4375	2-1/16	3-7/16	460-104375	460-104375B
11.5 mm	0.4528	52 mm	88 mm	460-404528	460-404528B
29/64	0.4531	2-1/8	3-9/16	460-104531	460-104531B
15/32	0.4688	2-1/8	3-5/8	460-104688	460-104688B
12.0 mm	0.4724	54 mm	92 mm	460-404724	460-404724B
31/64	0.4844	2-3/16	3-11/16	460-104844	460-104844B
12.5 mm	0.4921	56 mm	94 mm	460-404921	460-404921B
1/2	0.5000	2-1/4	3-3/4	460-105000	460-105000B
17/32	0.5312	2-3/8	3-7/8	460-105312	460-105312B
9/16	0.5625	2-1/2	4	460-105625	460-105625B
5/8	0.6250	2-3/4	4-1/4	460-106250	460-106250B
3/4	0.7500	3-1/8	5	460-107500	460-107500B



Straight Flute Drill

Applications:

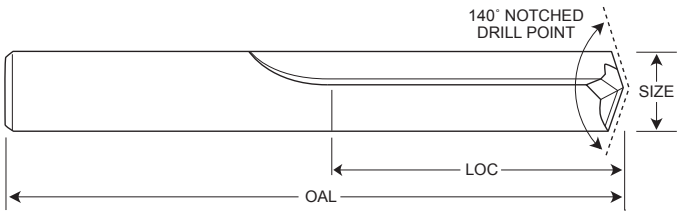
- *Capable of producing reamer type finishes in work hardened and abrasive materials*

Materials:

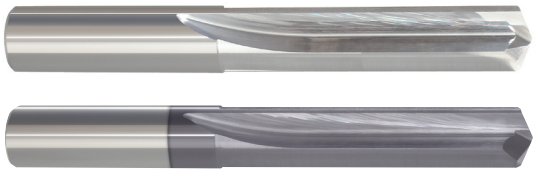
- *Chrome alloys, heat alloys, nickel alloys, titanium alloys, steel & stainless steel weldments*

STRAIGHT FLUTE DRILLS

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
1/32	0.0312	1/2	1-1/2	470-100312	470-100312B
#65	0.0350	1/2	1-1/2	470-300350	470-300350B
#64	0.0360	1/2	1-1/2	470-300360	470-300360B
#63	0.0370	1/2	1-1/2	470-300370	470-300370B
#62	0.0380	1/2	1-1/2	470-300380	470-300380B
#61	0.0390	1/2	1-1/2	470-300390	470-300390B
1.0 mm	0.0394	13 mm	38 mm	470-400394	470-400394B
#60	0.0400	1/2	1-1/2	470-300400	470-300400B
#59	0.0410	1/2	1-1/2	470-300410	470-300410B
#58	0.0420	1/2	1-1/2	470-300420	470-300420B
#57	0.0430	1/2	1-1/2	470-300430	470-300430B
#56	0.0465	1/2	1-1/2	470-300465	470-300465B
3/64	0.0469	1/2	1-1/2	470-100469	470-100469B
#55	0.0520	1/2	1-1/2	470-300520	470-300520B
#54	0.0550	1/2	1-1/2	470-300550	470-300550B
1.5 mm	0.0591	13 mm	38 mm	470-400591	470-400591B
#53	0.0595	1/2	1-1/2	470-300595	470-300595B
1/16	0.0625	5/8	1-5/8	470-100625	470-100625B
#52	0.0635	11/16	1-11/16	470-300635	470-300635B
#51	0.0670	11/16	1-11/16	470-300670	470-300670B
#50	0.0700	11/16	1-11/16	470-300700	470-300700B
#49	0.0730	11/16	1-11/16	470-300730	470-300730B
#48	0.0760	11/16	1-11/16	470-300760	470-300760B
5/64	0.0781	11/16	1-11/16	470-100781	470-100781B
#47	0.0785	3/4	1-3/4	470-300785	470-300785B
2.0 mm	0.0787	19 mm	45 mm	470-400787	470-400787B
#46	0.0810	3/4	1-3/4	470-300810	470-300810B
#45	0.0820	3/4	1-3/4	470-300820	470-300820B
#44	0.0860	3/4	1-3/4	470-300860	470-300860B
#43	0.0890	3/4	1-3/4	470-300890	470-300890B
#42	0.0935	3/4	1-3/4	470-300935	470-300935B
3/32	0.0938	3/4	1-3/4	470-100938	470-100938B
#41	0.0960	13/16	1-13/16	470-300960	470-300960B
#40	0.0980	13/16	1-13/16	470-300980	470-300980B
2.5 mm	0.0984	21 mm	46 mm	470-400984	470-400984B



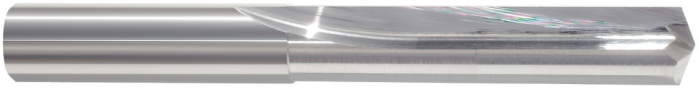
- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut*
- *Diameter Tolerance: +0.0000 / -0.0005"*



Specifically designed for edge strength & precision tight tolerance holes

STRAIGHT FLUTE DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
#39	0.0995	13/16	1-13/16	470-300995	470-300995B
#38	0.1015	13/16	1-13/16	470-301015	470-301015B
#37	0.1040	13/16	1-13/16	470-301040	470-301040B
#36	0.1065	13/16	1-13/16	470-301065	470-301065B
7/64	0.1094	13/16	1-13/16	470-101094	470-101094B
#35	0.1100	7/8	1-7/8	470-301100	470-301100B
#34	0.1110	7/8	1-7/8	470-301110	470-301110B
#33	0.1130	7/8	1-7/8	470-301130	470-301130B
#32	0.1160	7/8	1-7/8	470-301160	470-301160B
3.0 mm	0.1181	22 mm	48 mm	470-401181	470-401181B
#31	0.1200	7/8	1-7/8	470-301200	470-301200B
1/8	0.1250	7/8	1-7/8	470-101250	470-101250B
#30	0.1285	15/16	1-15/16	470-301285	470-301285B
#29	0.1360	15/16	1-15/16	470-301360	470-301360B
3.5 mm	0.1378	24 mm	49 mm	470-401378	470-401378B
#28	0.1405	15/16	1-15/16	470-301405	470-301405B
9/64	0.1406	15/16	1-15/16	470-101406	470-101406B
#27	0.1440	1	2-1/16	470-301440	470-301440B
#26	0.1470	1	2-1/16	470-301470	470-301470B
#25	0.1495	1	2-1/16	470-301495	470-301495B
#24	0.1520	1	2-1/16	470-301520	470-301520B
#23	0.1540	1	2-1/16	470-301540	470-301540B
5/32	0.1562	1	2-1/16	470-101562	470-101562B
#22	0.1570	1-1/16	2-1/8	470-301570	470-301570B
4.0 mm	0.1575	27 mm	54 mm	470-401575	470-401575B
#21	0.1590	1-1/16	2-1/8	470-301590	470-301590B
#20	0.1610	1-1/16	2-1/8	470-301610	470-301610B
#19	0.1660	1-1/16	2-1/8	470-301660	470-301660B
#18	0.1695	1-1/16	2-1/8	470-301695	470-301695B
11/64	0.1719	1-1/16	2-1/8	470-101719	470-101719B
#17	0.1730	1-1/8	2-3/16	470-301730	470-301730B
#16	0.1770	1-1/8	2-3/16	470-301770	470-301770B
4.5 mm	0.1772	29 mm	56 mm	470-401772	470-401772B



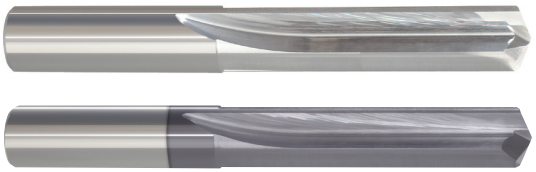
Straight Flute Drill

STRAIGHT FLUTE DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
#15	0.1800	1-1/8	2-3/16	470-301800	470-301800B
#14	0.1820	1-1/8	2-3/16	470-301820	470-301820B
#13	0.1850	1-1/8	2-3/16	470-301850	470-301850B
3/16	0.1875	1-1/8	2-3/16	470-101875	470-101875B
#12	0.1890	1-3/16	2-1/4	470-301890	470-301890B
#11	0.1910	1-3/16	2-1/4	470-301910	470-301910B
#10	0.1935	1-3/16	2-1/4	470-301935	470-301935B
#9	0.1960	1-3/16	2-1/4	470-301960	470-301960B
5.0 mm	0.1969	30 mm	57 mm	470-401969	470-401969B
#8	0.1990	1-3/16	2-1/4	470-301990	470-301990B
#7	0.2010	1-3/16	2-1/4	470-302010	470-302010B
13/64	0.2031	1-3/16	2-1/4	470-102031	470-102031B
#6	0.2040	1-1/4	2-3/8	470-302040	470-302040B
#5	0.2055	1-1/4	2-3/8	470-302055	470-302055B
#4	0.2090	1-1/4	2-3/8	470-302090	470-302090B
#3	0.2130	1-1/4	2-3/8	470-302130	470-302130B
5.5 mm	0.2165	32 mm	60 mm	470-402165	470-402165B
7/32	0.2188	1-1/4	2-3/8	470-102188	470-102188B
#2	0.2210	1-5/16	2-7/16	470-302210	470-302210B
#1	0.2280	1-5/16	2-7/16	470-302280	470-302280B
A	0.2340	1-5/16	2-7/16	470-202340	470-202340B
15/64	0.2344	1-5/16	2-7/16	470-102344	470-102344B
6.0 mm	0.2362	33 mm	62 mm	470-402362	470-402362B
B	0.2380	1-3/8	2-1/2	470-202380	470-202380B
C	0.2420	1-3/8	2-1/2	470-202420	470-202420B
D	0.2460	1-3/8	2-1/2	470-202460	470-202460B
1/4	0.2500	1-3/8	2-1/2	470-102500	470-102500B
E	0.2500	1-3/8	2-1/2	470-202500	470-202500B
6.5 mm	0.2559	35 mm	64 mm	470-402559	470-402559B
F	0.2570	1-7/16	2-5/8	470-202570	470-202570B
G	0.2610	1-7/16	2-5/8	470-202610	470-202610B
17/64	0.2656	1-7/16	2-5/8	470-102656	470-102656B
H	0.2660	1-1/2	2-11/16	470-202660	470-202660B
I	0.2720	1-1/2	2-11/16	470-202720	470-202720B
7.0 mm	0.2756	38 mm	68 mm	470-402756	470-402756B
J	0.2770	1-1/2	2-11/16	470-202770	470-202770B
K	0.2810	1-1/2	2-11/16	470-202810	470-202810B
9/32	0.2812	1-1/2	2-11/16	470-102812	470-102812B
L	0.2900	1-9/16	2-3/4	470-202900	470-202900B
M	0.2950	1-9/16	2-3/4	470-202950	470-202950B
7.5 mm	0.2953	38 mm	70 mm	470-402953	470-402953B

Straight Flute Drill

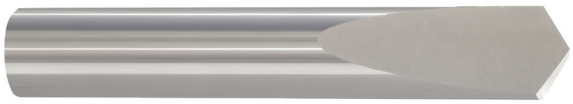
PROUDLY MADE IN THE USA



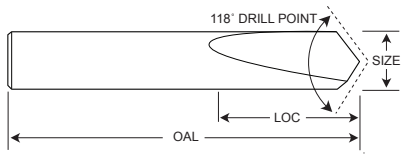
STRAIGHT FLUTE DRILLS *Continued*

SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED	TiAlN Coated
19/64	0.2969	1-9/16	2-3/4	470-102969	470-102969B
N	0.3020	1-5/8	2-13/16	470-203020	470-203020B
5/16	0.3125	1-5/8	2-13/16	470-103125	470-103125B
8.0 mm	0.3150	41 mm	71 mm	470-403150	470-403150B
O	0.3160	1-11/16	2-15/16	470-203160	470-203160B
P	0.3230	1-11/16	2-15/16	470-203230	470-203230B
21/64	0.3281	1-11/16	2-15/16	470-103281	470-103281B
Q	0.3320	1-11/16	3	470-203320	470-203320B
8.5 mm	0.3346	43 mm	76 mm	470-403346	470-403346B
R	0.3390	1-11/16	3	470-203390	470-203390B
11/32	0.3438	1-11/16	3	470-103438	470-103438B
S	0.3480	1-3/4	3-1/16	470-203480	470-203480B
9.0 mm	0.3543	45 mm	78 mm	470-403543	470-403543B
T	0.3580	1-3/4	3-1/16	470-203580	470-203580B
23/64	0.3594	1-3/4	3-1/16	470-103594	470-103594B
U	0.3680	1-13/16	3-1/8	470-203680	470-203680B
9.5 mm	0.3740	46 mm	79 mm	470-403740	470-403740B
3/8	0.3750	1-13/16	3-1/8	470-103750	470-103750B
V	0.3770	1-7/8	3-1/4	470-203770	470-203770B
W	0.3860	1-7/8	3-1/4	470-203860	470-203860B
25/64	0.3906	1-7/8	3-1/4	470-103906	470-103906B
10.0 mm	0.3937	48 mm	83 mm	470-403937	470-403937B
X	0.3970	1-15/16	3-5/16	470-203970	470-203970B
Y	0.4040	1-15/16	3-5/16	470-204040	470-204040B
13/32	0.4062	1-15/16	3-5/16	470-104062	470-104062B
Z	0.4130	2	3-3/8	470-204130	470-204130B
10.5 mm	0.4134	51 mm	86 mm	470-404134	470-404134B
27/64	0.4219	2	3-3/8	470-104219	470-104219B
11.0 mm	0.4331	51 mm	86 mm	470-404331	470-404331B
7/16	0.4375	2-1/16	3-7/16	470-104375	470-104375B
11.5 mm	0.4528	52 mm	87 mm	470-404528	470-404528B
29/64	0.4531	2-1/8	3-9/16	470-104531	470-104531B
15/32	0.4688	2-1/8	3-5/8	470-104688	470-104688B
12.0 mm	0.4724	54 mm	92 mm	470-404724	470-404724B
31/64	0.4844	2-3/16	3-11/16	470-104844	470-104844B
12.5 mm	0.4921	56 mm	94 mm	470-404921	470-404921B
1/2	0.5000	2-1/4	3-3/4	470-105000	470-105000B
9/16	0.5625	1-1/8	3-1/2	470-105625	470-105625B
5/8	0.6250	1-1/4	3-1/2	470-106250	470-106250B
3/4	0.7500	1-1/2	4	470-107500	470-107500B

DRILL MONSTER
Spade Drills



Massive web construction reduces breakage & ensures maximum tool life



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut*
- *Diameter Tolerance: +0.0000 / -0.0005"*

Applications:

- ***Well suited for shallow-hole drilling & spot drilling***

Materials:

- ***Ideal for drilling: thin sheet materials, hard steel, high strength materials & Rc-50***

SPADE DRILLS

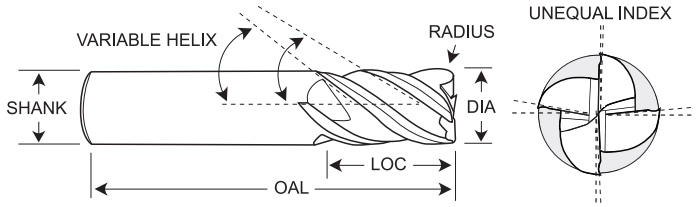
SIZE	DECIMAL INCHES	LOC	OAL	UNCOATED
1/32	0.0312	3/16	1-1/2	400-001002
3/64	0.0469	7/32	1-1/2	400-001005
1/16	0.0625	5/16	1-1/2	400-001007
3/32	0.0938	7/16	1-1/2	400-001010
7/64	0.1094	7/16	1-1/2	400-001011
1/8	0.1250	1/2	1-1/2	400-001020
9/64	0.1406	1/2	2	400-001021
5/32	0.1562	9/16	2	400-001030
11/64	0.1719	9/16	2	400-001031
3/16	0.1875	11/16	2	400-001040
7/32	0.2188	19/32	2	400-001050
1/4	0.2500	11/16	2	400-001060
9/32	0.2812	7/8	2-1/2	400-001070
5/16	0.3125	7/8	2-1/2	400-001080
11/32	0.3438	15/16	2-1/2	400-001090
3/8	0.3750	1-1/8	2-1/2	400-001100
13/32	0.4062	1-1/8	2-3/4	400-001110
7/16	0.4375	1-3/16	2-3/4	400-001120
15/32	0.4688	1-3/16	3	400-001130
1/2	0.5000	1-3/16	3	400-001140

PROUDLY MADE IN THE USA

High Performance
Variable Helix

MEGA MONSTER
HIGH PERFORMANCE
4 Flute - Variable Helix Unequal Index

- *Reduces vibration and chatter*
- *Maximum material removal and feed rates*
- *Excellent finishes in high speed machining*



- *Variable Helix*
- *Unequal Index*
- *Polished Raised Land Flutes*
- *Primary Edge Prep*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0003"*

Applications:
- *Slotting, side milling, & pocketing*
- *Roughing & finishing*

Materials:
- *Alloy, Carbon & Stainless steels*
- *Cast irons*
- *Titanium and nickel alloys*

PROUDLY MADE IN THE USA

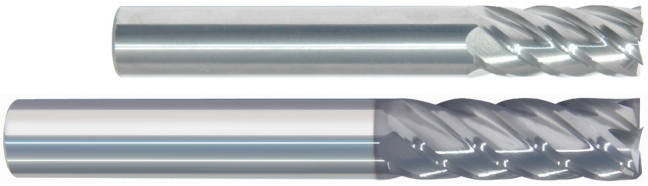
4 Flute Corner Radius

DIA	LOC	SHANK	OAL	RADIUS	AlTiN coated
1/8	1/4	1/8	1-1/2	0.015	294-001011
1/8	1/2	1/8	1-1/2	0.015	294-002011
3/16	3/8	3/16	2	0.015	294-001021
3/16	5/8	3/16	2	0.015	294-002021
1/4	1/2	1/4	2	0.020	294-001031
1/4	3/4	1/4	2-1/2	0.020	294-002031
1/4	1-1/8	1/4	4	0.020	294-003031
5/16	5/8	5/16	2	0.030	294-001041
5/16	3/4	5/16	2-1/2	0.030	294-002041
3/8	5/8	3/8	2	0.030	294-001051
3/8	1	3/8	2-1/2	0.030	294-002051
3/8	1-1/2	3/8	4	0.030	294-003051
7/16	1	7/16	2-3/4	0.030	294-002056
1/2	5/8	1/2	2-1/2	0.030	294-001061
1/2	1-1/4	1/2	3	0.030	294-002061
1/2	2	1/2	4	0.030	294-003061
5/8	3/4	5/8	3	0.040	294-001071
5/8	1-1/4	5/8	3-1/2	0.040	294-002071
5/8	2-1/4	5/8	5	0.040	294-003071
3/4	1	3/4	3	0.050	294-001081
3/4	1-1/2	3/4	4	0.050	294-002081
3/4	2-1/4	3/4	5	0.050	294-003081
1	1-1/2	1	4	0.060	294-002091
1	2-1/4	1	5	0.060	294-003091

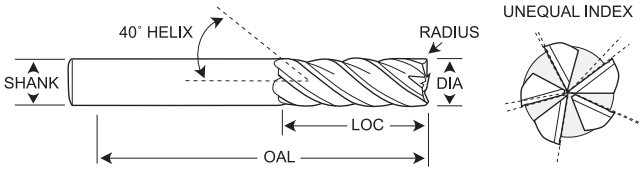
MEGA MONSTER

HIGH PERFORMANCE

5 Flute - 40˚ Helix Unequal Index



- *Progressive Geometry*
- *Smoother cutting action, reduces vibrations*
- *Maximum material removal and feed rates*
- *Excellent finishes in high speed machining*

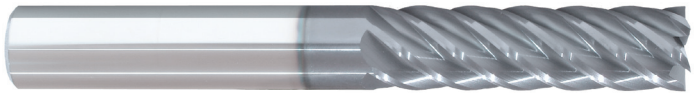


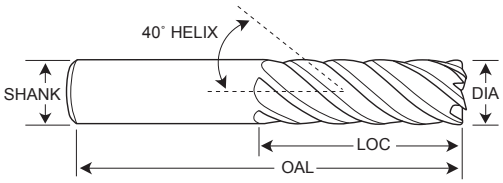
- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0003"*

5 Flute Corner Radius

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
1/8	1/4	1/8	2-1/2	.005-.010	295-010125	295-010125B
1/8	1/2	1/8	2-1/2	.005-.010	295-020125	295-020125B
3/16	3/8	3/16	2-1/2	.005-.010	295-010187	295-010187B
3/16	5/8	3/16	2-1/2	.005-.010	295-020187	295-020187B
1/4	3/8	1/4	2-1/2	.010-.020	295-010250	295-010250B
1/4	3/4	1/4	2-1/2	.010-.020	295-020250	295-020250B
1/4	1-1/4	1/4	4	.010-.020	295-030250	295-030250B
5/16	1/2	5/16	2-1/2	.010-.020	295-010312	295-010312B
5/16	13/16	5/16	2-1/2	.010-.020	295-020312	295-020312B
5/16	1-1/4	5/16	4	.010-.020	295-030312	295-030312B
3/8	1/2	3/8	2-1/2	.010-.020	295-010375	295-010375B
3/8	1	3/8	2-1/2	.010-.020	295-020375	295-020375B
3/8	1-1/2	3/8	4	.010-.020	295-030375	295-030375B
1/2	5/8	1/2	3	.010-.020	295-010500	295-010500B
1/2	1-1/4	1/2	3	.010-.020	295-020500	295-020500B
1/2	1-5/8	1/2	4	.010-.020	295-030490	295-030490B
1/2	2-1/8	1/2	4	.010-.020	295-030500	295-030500B
5/8	3/4	5/8	3-1/2	.010-.020	295-010625	295-010625B
5/8	1-1/4	5/8	3-1/2	.010-.020	295-020625	295-020625B
5/8	2-1/2	5/8	5	.010-.020	295-030625	295-030625B
3/4	1	3/4	4	.010-.020	295-010750	295-010750B
3/4	1-5/8	3/4	4	.010-.020	295-020750	295-020750B
3/4	2-1/2	3/4	5	.010-.020	295-030750	295-030750B
1	1-3/4	1	4	.010-.020	295-021000	295-021000B
1	2-5/8	1	6	.010-.020	295-031000	295-031000B

HIGH PERFORMANCE
6 Flute - 40˚ Helix





- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Offering maximum productivity in a wide range of materials by permitting higher feeds & improved tool life***
- ***Suitable to machine any ferrous materials, including heat treated mold, die steels up to 60 Hcr***

6 Flute Corner Radius

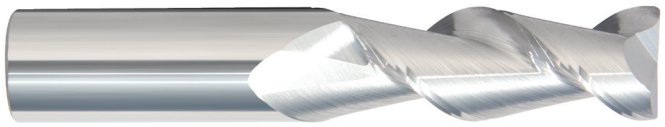
DIA	LOC	SHANK	OAL	RADIUS	AlTiN Coated
1/4	1/2	1/4	2	.010-.020	292-201133
1/4	3/4	1/4	2-1/2	.010-.020	292-301133
1/4	1-1/8	1/4	3	.010-.020	292-401133
1/4	1-1/2	1/4	4	.010-.020	292-501133
1/4	1-1/2	1/4	6	.010-.020	292-601133
5/16	13/16	5/16	2-1/2	.010-.020	292-301153
5/16	1-1/8	5/16	3	.010-.020	292-401153
5/16	1-5/8	5/16	4	.010-.020	292-501153
5/16	1-1/2	5/16	6	.010-.020	292-601153
3/8	5/8	3/8	2	.010-.020	292-201173
3/8	1	3/8	2-1/2	.010-.020	292-301173
3/8	1-1/8	3/8	3	.010-.020	292-401173
3/8	1-3/4	3/8	4	.010-.020	292-501173
3/8	1-1/2	3/8	6	.010-.020	292-601173
1/2	5/8	1/2	2-1/2	.010-.020	292-201203
1/2	1	1/2	3	.010-.020	292-301203
1/2	1-1/2	1/2	4	.010-.020	292-401193
1/2	2	1/2	4	.010-.020	292-401203
1/2	1-1/2	1/2	6	.010-.020	292-601203
1/2	3	1/2	6	.010-.020	292-501203
5/8	1	5/8	3	.010-.020	292-201223
5/8	1-1/4	5/8	3-1/2	.010-.020	292-301223
5/8	2-1/4	5/8	5	.010-.020	292-401223
5/8	1-1/2	5/8	6	.010-.020	292-601223
5/8	3	5/8	6	.010-.020	292-501223
3/4	1	3/4	3	.010-.020	292-201243
3/4	1-1/2	3/4	4	.010-.020	292-301243
3/4	2-1/4	3/4	5	.010-.020	292-401243
3/4	1-1/2	3/4	6	.010-.020	292-601233
3/4	3-1/4	3/4	6	.010-.020	292-501243
3/4	4	3/4	7	.010-.020	292-601243
1	1-3/4	1	4	.010-.020	292-301263
1	2-1/4	1	5	.010-.020	292-401263
1	1-1/2	1	6	.010-.020	292-601253
1	3-1/4	1	6	.010-.020	292-501263
1	4	1	7	.010-.020	292-601263

PROUDLY MADE IN THE USA

MEGA MONSTER

HIGH PERFORMANCE

2 Flute - 45˚ Helix Aluminum Cutters

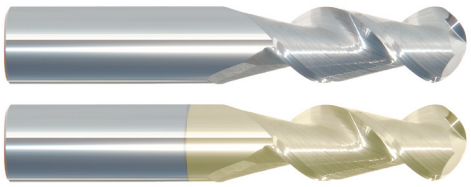


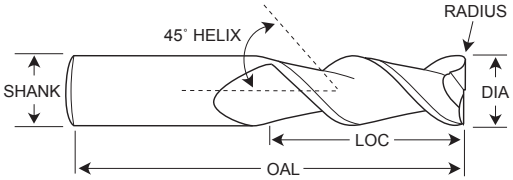
- *Specifically designed for maximum productivity in non-ferrous materials*
- *Excellent work piece finish*
- *Extremely high feed rates*
- *ZrN coating offers excellent wear resistance & increased lubricity*

2 Flute Corner Radius

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	ZrN Coated
1/8	1/4	1/8	1-1/2	.005-.010	282-125250	282-125250D
1/8	1/2	1/8	1-1/2	.005-.010	282-125500	282-125500D
1/8	1-1/8	1/8	3	.005-.010	282-126112	282-126112D
5/32	5/8	3/16	2	.005-.010	282-156625	282-156625D
3/16	5/16	3/16	2	.005-.010	282-187312	282-187312D
3/16	5/8	3/16	2	.005-.010	282-187625	282-187625D
3/16	1-1/8	3/16	3	.005-.010	282-188112	282-188112D
7/32	3/4	1/4	2-1/2	.005-.010	282-218750	282-218750D
1/4	1/2	1/4	2	.005-.010	282-250500	282-250500D
1/4	3/4	1/4	2-1/2	.005-.010	282-250750	282-250750D
1/4	1-1/4	1/4	3	.005-.010	282-251500	282-251500D
1/4	2	1/4	4	.005-.010	282-252000	282-252000D
9/32	13/16	5/16	2-1/2	.005-.010	282-281812	282-281812D
5/16	1/2	5/16	2-1/2	.005-.010	282-312500	282-312500D
5/16	13/16	5/16	2-1/2	.005-.010	282-312812	282-312812D
5/16	1-3/8	5/16	3	.005-.010	282-313375	282-313375D
5/16	2	5/16	4	.005-.010	282-314000	282-314000D
3/8	5/8	3/8	2-1/2	.005-.010	282-370625	282-370625D
3/8	1-1/8	3/8	2-1/2	.005-.010	282-371125	282-371125D
3/8	1-3/8	3/8	3	.005-.010	282-371375	282-371375D
3/8	2	3/8	4	.005-.010	282-372000	282-372000D
3/8	3	3/8	6	.005-.010	282-373000	282-373000D
7/16	1-1/4	7/16	2-3/4	.005-.010	282-431250	282-431250D
1/2	3/4	1/2	2-1/2	.005-.010	282-500750	282-500750D
1/2	1-1/4	1/2	3	.005-.010	282-501250	282-501250D
1/2	2	1/2	4	.005-.010	282-502000	282-502000D
1/2	3-1/8	1/2	6	.005-.010	282-503125	282-503125D
5/8	1-1/4	5/8	3	.005-.010	282-621250	282-621250D
5/8	1-5/8	5/8	3-1/2	.005-.010	282-621625	282-621625D
5/8	2-1/2	5/8	5	.005-.010	282-622500	282-622500D
5/8	3-1/8	5/8	6	.005-.010	282-623125	282-623125D
3/4	1-1/4	3/4	3	.005-.010	282-751000	282-751000D
3/4	1-3/4	3/4	4	.005-.010	282-751750	282-751750D
3/4	2-1/2	3/4	5	.005-.010	282-752500	282-752500D
3/4	3-1/4	3/4	6	.005-.010	282-753250	282-753250D
1	1-3/4	1	4	.005-.010	282-911750	282-911750D
1	2-5/8	1	5	.005-.010	282-912625	282-912625D
1	3-1/4	1	6	.005-.010	282-913250	282-913250D
1	4-1/8	1	7	.005-.010	282-914125	282-914125D

High Performance
Aluminum / Non-Ferrous Cutters





- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0003"*

2 Flute Ballnose

DIA	LOC	SHANK	OAL	UNCOATED	ZrN Coated
1/8	1/2	1/8	1-1/2	282-125510	282-125510D
5/32	5/8	3/16	2	282-156635	282-156635D
3/16	5/8	3/16	2	282-187635	282-187635D
7/32	3/4	1/4	2-1/2	282-218760	282-218760D
1/4	3/4	1/4	2-1/2	282-250760	282-250760D
5/16	13/16	5/16	2-1/2	282-312822	282-312822D
3/8	1-1/8	3/8	2-1/2	282-371135	282-371135D
7/16	1-1/4	7/16	2-3/4	282-431260	282-431260D
1/2	1-1/4	1/2	3	282-501260	282-501260D
5/8	1-5/8	5/8	3-1/2	282-621635	282-621635D
3/4	1-3/4	3/4	4	282-751760	282-751760D
1	1-3/4	1	4	282-911760	282-911760D

PROUDLY MADE IN THE USA

MEGA MONSTER

HIGH PERFORMANCE

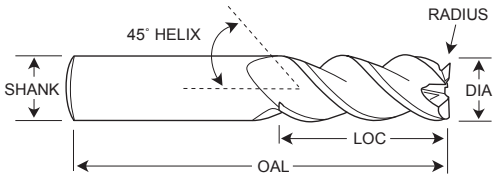
3 Flute - 45˚ Helix Aluminum Cutters

- *Specifically designed for maximum productivity in non-ferrous materials*
- *Excellent work piece finish*
- *Extremely high feed rates*
- *ZrN coating offers excellent wear resistance & increased lubricity*

3 Flute Corner Radius

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	ZrN Coated
1/8	1/4	1/8	1-1/2	.005-.010	283-125250	283-125250D
1/8	1/2	1/8	1-1/2	.005-.010	283-125500	283-125500D
1/8	1-1/8	1/8	3	.005-.010	283-126112	283-126112D
5/32	5/8	3/16	2	.005-.010	283-156625	283-156625D
3/16	5/16	3/16	2	.005-.010	283-187312	283-187312D
3/16	5/8	3/16	2	.005-.010	283-187625	283-187625D
3/16	1-1/8	3/16	3	.005-.010	283-188112	283-188112D
7/32	3/4	1/4	2-1/2	.005-.010	283-218750	283-218750D
1/4	1/2	1/4	2	.005-.010	283-250500	283-250500D
1/4	3/4	1/4	2-1/2	.005-.010	283-250750	283-250750D
1/4	1-1/4	1/4	3	.005-.010	283-251500	283-251500D
1/4	2	1/4	4	.005-.010	283-252000	283-252000D
9/32	13/16	5/16	2-1/2	.005-.010	283-281812	283-281812D
5/16	1/2	5/16	2-1/2	.005-.010	283-312500	283-312500D
5/16	13/16	5/16	2-1/2	.005-.010	283-312812	283-312812D
5/16	1-3/8	5/16	3	.005-.010	283-313375	283-313375D
5/16	2	5/16	4	.005-.010	283-314000	283-314000D
3/8	5/8	3/8	2-1/2	.005-.010	283-370625	283-370625D
3/8	1-1/8	3/8	2-1/2	.005-.010	283-371125	283-371125D
3/8	1-3/8	3/8	3	.005-.010	283-371375	283-371375D
3/8	2	3/8	4	.005-.010	283-372000	283-372000D
3/8	3	3/8	6	.005-.010	283-373000	283-373000D
7/16	1-1/4	7/16	2-3/4	.005-.010	283-431250	283-431250D
1/2	3/4	1/2	2-1/2	.005-.010	283-500750	283-500750D
1/2	1-1/4	1/2	3	.005-.010	283-501250	283-501250D
1/2	2	1/2	4	.005-.010	283-502000	283-502000D
1/2	3-1/8	1/2	6	.005-.010	283-503125	283-503125D
5/8	1-1/4	5/8	3	.005-.010	283-621250	283-621250D
5/8	1-5/8	5/8	3-1/2	.005-.010	283-621625	283-621625D
5/8	2-1/2	5/8	5	.005-.010	283-622500	283-622500D
5/8	3-1/8	5/8	6	.005-.010	283-623125	283-623125D
3/4	1-1/4	3/4	3	.005-.010	283-751000	283-751000D
3/4	1-3/4	3/4	4	.005-.010	283-751750	283-751750D
3/4	2-1/2	3/4	5	.005-.010	283-752500	283-752500D
3/4	3-1/4	3/4	6	.005-.010	283-753250	283-753250D
1	1-3/4	1	4	.005-.010	283-911750	283-911750D
1	2-5/8	1	5	.005-.010	283-912625	283-912625D
1	3-1/4	1	6	.005-.010	283-913250	283-913250D
1	4-1/8	1	7	.005-.010	283-914125	283-914125D

High Performance
Aluminum / Non-Ferrous Cutters



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0003"*

3 Flute Ballnose

DIA	LOC	SHANK	OAL	UNCOATED	ZrN Coated
1/8	1/2	1/8	1-1/2	283-125510	283-125510D
5/32	5/8	3/16	2	283-156635	283-156635D
3/16	5/8	3/16	2	283-187635	283-187635D
7/32	3/4	1/4	2-1/2	283-218760	283-218760D
1/4	3/4	1/4	2-1/2	283-250760	283-250760D
5/16	13/16	5/16	2-1/2	283-312822	283-312822D
3/8	1-1/8	3/8	2-1/2	283-371135	283-371135D
7/16	1-1/4	7/16	2-3/4	283-431260	283-431260D
1/2	1-1/4	1/2	3	283-501260	283-501260D
5/8	1-5/8	5/8	3-1/2	283-621635	283-621635D
3/4	1-3/4	3/4	4	283-751760	283-751760D
1	1-3/4	1	4	283-911760	283-911760D

PROUDLY MADE IN THE USA

MEGA MONSTER

HIGH PERFORMANCE

Rougher-Finishers Chipbreaker Style

- *Designed with tooth overlap to produce fairly smooth part finish*
- *Extremely high feed rates in roughing operations*
- *Minimizes cutting forces for longer tool life*
- *Corner Radius promotes increased edge strength for longer tool life*

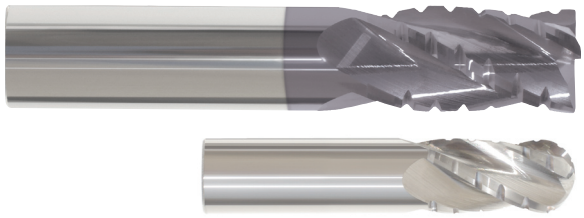
3 Flute Corner Radius

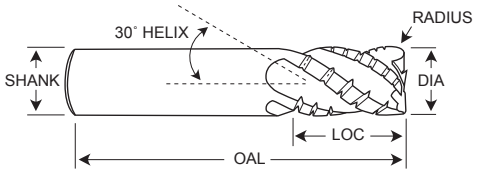
DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	TiAlN Coated
1/8	1/2	1/8	1-1/2	.005-.010	267-125500	267-125503
3/16	5/8	3/16	2	.005-.010	267-187625	267-187628
1/4	3/4	1/4	2-1/2	.005-.010	267-250750	267-250753
5/16	13/16	5/16	2-1/2	.005-.010	267-312812	267-312815
3/8	1	3/8	2-1/2	.010-.015	267-375875	267-375878
7/16	1	7/16	2-3/4	.010-.015	267-437100	267-437103
1/2	1	1/2	3	.010-.015	267-500100	267-500103
5/8	1-1/4	5/8	3-1/2	.015-.020	267-625114	267-625117
3/4	1-1/2	3/4	4	.015-.020	267-750112	267-750115
1	1-1/2	1	4	.015-.020	267-100112	267-100115

3 Flute Ballnose

DIA	LOC	SHANK	OAL	UNCOATED	TiAlN Coated
1/8	1/2	1/8	1-1/2	268-125500	268-125503
3/16	5/8	3/16	2	268-187625	268-187628
1/4	3/4	1/4	2-1/2	268-250750	268-250753
5/16	13/16	5/16	2-1/2	268-312812	268-312815
3/8	1	3/8	2-1/2	268-375875	268-375878
7/16	1	7/16	2-3/4	268-437100	268-437103
1/2	1	1/2	3	268-500100	268-500103
5/8	1-1/4	5/8	3-1/2	268-625114	268-625117
3/4	1-1/2	3/4	4	268-750112	268-750115
1	1-1/2	1	4	268-100112	268-100115

High Performance
Chipbreakers





- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0003"*

4 Flute Corner Radius

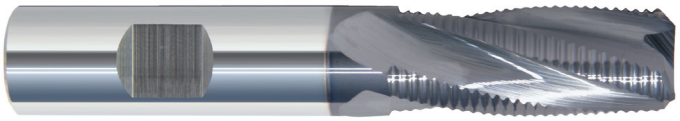
DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	TiAlN Coated
1/8	1/2	1/8	1-1/2	.005-.010	257-125500	257-125503
3/16	5/8	3/16	2	.005-.010	257-187625	257-187628
1/4	3/4	1/4	2-1/2	.005-.010	257-250750	257-250753
5/16	13/16	5/16	2-1/2	.005-.010	257-312812	257-312815
3/8	1	3/8	2-1/2	.010-.015	257-375875	257-375878
7/16	1	7/16	2-3/4	.010-.015	257-437100	257-437103
1/2	1	1/2	3	.010-.015	257-500100	257-500103
5/8	1-1/4	5/8	3-1/2	.015-.020	257-625114	257-625117
3/4	1-1/2	3/4	4	.015-.020	257-750112	257-750115
1	1-1/2	1	4	.015-.020	257-100112	257-100115

4 Flute Ballnose

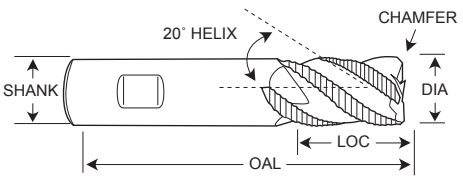
DIA	LOC	SHANK	OAL	UNCOATED	TiAlN Coated
1/8	1/2	1/8	1-1/2	258-125500	258-125503
3/16	5/8	3/16	2	258-187625	258-187628
1/4	3/4	1/4	2-1/2	258-250750	258-250753
5/16	13/16	5/16	2-1/2	258-312812	258-312815
3/8	1	3/8	2-1/2	258-375875	258-375878
7/16	1	7/16	2-3/4	258-437100	258-437103
1/2	1	1/2	3	258-500100	258-500103
5/8	1-1/4	5/8	3-1/2	258-625114	258-625117
3/4	1-1/2	3/4	4	258-750112	258-750115
1	1-1/2	1	4	258-100112	258-100115

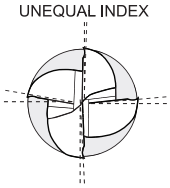
MEGA MONSTER

HIGH PERFORMANCE



Roughers
Progressive Unequal Index Geometry





- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Weldon Flats*
- *Diameter Tolerance: +0.000 / -0.003"*
- *Shank Tolerance: +0.0000 / -0.0003"*

Applications:

- ***Shallow slotting***
- ***Peripheral milling***

Materials:

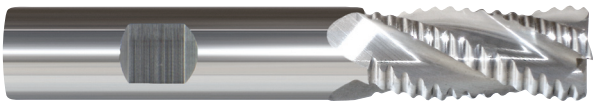
- ***Difficult to Machine & abrasive materials***

Fine Pitch Roughers

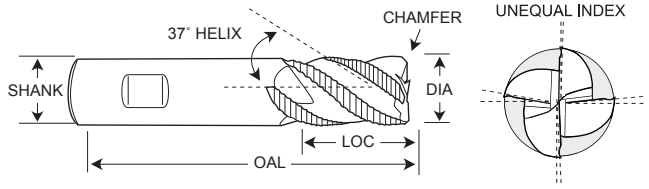
FLUTES	DIA	LOC	SHANK	OAL	CHAMFER	UNCOATED	AlTiN Coated
4	**1/4**	1/2	1/4	2	.020	255-100240	255-100240B
4	**1/4**	3/4	1/4	2-1/2	.020	255-100250	255-100250B
4	**5/16**	1/2	5/16	2	.020	255-100302	255-100302B
4	**5/16**	13/16	5/16	2-1/2	.020	255-100312	255-100312B
4	**3/8**	5/8	3/8	2	.020	255-100365	255-100365B
4	**3/8**	1	3/8	2-1/2	.020	255-100375	255-100375B
4	**7/16**	1	7/16	2-3/4	.020	255-100437	255-100437B
4	**1/2**	5/8	1/2	2-1/2	.025	255-100490	255-100490B
4	**1/2**	1-1/4	1/2	3	.025	255-100500	255-100500B
4	**1/2**	2	1/2	4	.025	255-200500	255-200500B
4	**5/8**	3/4	5/8	3	.025	255-100615	255-100615B
4	**5/8**	1-5/8	5/8	4	.025	255-100625	255-100625B
4	**3/4**	1	3/4	3-1/2	.025	255-100740	255-100740B
4	**3/4**	1-3/4	3/4	4	.025	255-100750	255-100750B
4	**3/4**	2-1/4	3/4	5	.025	255-200750	255-200750B
4	**3/4**	3	3/4	6	.025	255-300750	255-300750B
5	**1**	2	1	5	.025	255-101000	255-101000B
5	**1**	2-5/8	1	5	.025	255-201000	255-201000B
5	**1**	3-1/4	1	6	.025	255-301000	255-301000B
5	**1**	4-1/8	1	7	.025	255-301100	255-301100B

High Performance
Unequal Index Roughers

PROUDLY MADE IN THE USA



- *Reduced chatter and vibration*
- *Maximum material removal rates*



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Weldon Flats*
- *Diameter Tolerance: +0.000 / -0.003"*
- *Shank Tolerance: +0.0000 / -0.0003"*

MEGA MONSTER

Applications:
- ***Slotting***
- ***Peripheral milling***

Materials:
- ***Difficult to Machine & abrasive materials***

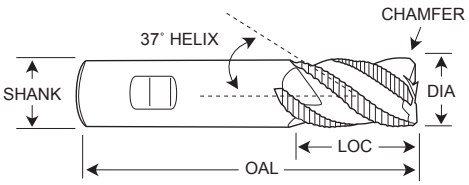
Medium Pitch Roughers

FLUTES	DIA	LOC	SHANK	OAL	CHAMFER	UNCOATED	AlTiN Coated
3	3/16	5/8	3/16	2	.020	256-187625	256-187628
4	1/4	3/4	1/4	2-1/2	.020	256-250750	256-250753
4	5/16	3/4	5/16	2-1/2	.020	256-312812	256-312815
4	3/8	7/8	3/8	2-1/2	.020	256-375875	256-375878
4	7/16	1	7/16	2-3/4	.025	256-437100	256-437103
4	1/2	1-1/4	1/2	3	.025	256-500100	256-500103
4	5/8	1-1/4	5/8	3-1/2	.025	256-625114	256-625117
4	3/4	1-5/8	3/4	4	.025	256-750112	256-750115
5	1	1-3/4	1	4	.025	256-100112	256-100115

MEGA MONSTER

HIGH PERFORMANCE

Roughers
Progressive Unequal Index Geometry



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut / Right Hand Spiral*
- *Weldon Flats*
- *Diameter Tolerance: +0.000 / -0.003"*
- *Shank Tolerance: +0.0000 / -0.0003"*

Applications:

- ***Rough milling***
- ***Profiling***
- ***Open ended slots***

Materials:

- ***Difficult to Machine & abrasive materials***

Coarse Pitch Roughers

FLUTES	DIA	LOC	SHANK	OAL	CHAMFER	UNCOATED	ZrN Coated
3	**3/16**	3/4	3/16	2	.020	255-050187	255-050187D
3	**1/4**	3/4	1/4	2-1/2	.020	255-050250	255-050250D
3	**5/16**	7/8	5/16	2-1/2	.020	255-050312	255-050312D
3	**3/8**	1	3/8	2-1/2	.020	255-050375	255-050375D
3	**1/2**	1-1/4	1/2	3	.025	255-050500	255-050500D
3	**5/8**	1-1/4	5/8	3-1/2	.025	255-050625	255-050625D
3	**3/4**	1-5/8	3/4	4	.025	255-050750	255-050750D
3	**1**	1-3/4	1	4	.025	255-051000	255-051000D

PROUDLY MADE
IN THE USA

METAL MONSTER CARBIDE ROUNDS

Solid Carbide Rod

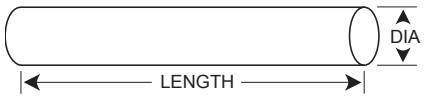
- *Premium sub-micron C-2 carbide with 10% cobalt*
- *Diameter Tolerance: +0.0000 / -0.0005"*

STYLE	DIA	LENGTH	PART #
SR-44	1/8	1/2	702-000300
SR-46	1/8	3/4	702-000400
SR-48	1/8	1	702-000500
SR-55	5/32	5/8	702-000600
SR-63	3/16	3/8	702-000700
SR-64	3/16	1/2	702-000800
SR-65	3/16	5/8	702-000890
SR-66	3/16	3/4	702-000900
SR-68	3/16	1	702-000950
SR-69	3/16	1-1/8	702-001000
SR-77	7/32	7/8	702-001100
SR-84	1/4	1/2	702-001190
SR-86	1/4	3/4	702-001195
SR-88	1/4	1	702-001200
SR-810	1/4	1-1/4	702-001300
SR-812	1/4	1-1/2	702-001400
SR-814	1/4	1-3/4	702-001500
SR-1010	5/16	1-1/4	702-001600
SR-1210	3/8	1-1/2	702-001700
SR-1610	1/2	1-1/2	702-001800

CUT TO LENGTH ROD

CENTERLESS GROUND

DIA	LENGTH	PART #
.025	1-1/2	701-001000
1/32	1-1/2	701-001150
3/64	1-1/2	701-001350
3/64	2	701-001450
1/16	1-1/2	701-001550
1/16	3	701-001595
5/64	2	701-001750
3/32	1-1/2	701-001850
3/32	2	701-001950
3/32	2-1/2	701-002050
3/32	3	701-002055
7/64	2	701-002250
7/64	2-1/2	701-002350
1/8	1	701-002370
1/8	1-1/8	701-002375
1/8	1-1/4	701-002380
1/8	1-1/2	701-002450
1/8	1-3/4	701-002455
1/8	2	701-002550
1/8	2-1/8	701-002575
1/8	2-1/4	701-002650
1/8	2-1/2	701-002750
1/8	3	701-002850
1/8	4	701-002950
1/8	6	702-005900
5/32	1-1/2	701-003050
5/32	2	701-003053
5/32	2-1/2	701-003066
3/16	1-1/2	701-003250
3/16	2	701-003350
3/16	2-1/2	701-003550
3/16	2-3/4	701-003585
3/16	3	701-003650
3/16	4	701-003750
3/16	6	702-006300
1/4	2	701-003850
1/4	2-1/4	701-003950
1/4	2-1/2	701-004050
1/4	3	701-004150
1/4	4	701-004250
1/4	6	702-006750
5/16	2	701-004350
5/16	2-1/8	701-004360
5/16	2-1/2	701-004450
5/16	3	701-004550
5/16	3-1/4	701-004551
5/16	4	701-004650
5/16	6	702-007150



- *Premium sub-micron C-2 carbide with 10% cobalt*

Diameter Tolerance:
- *Ground: +0.0000 / -0.0005"*
- *Unground: +size Grind Stock*

DIA	LENGTH	PART #
3/8	1-1/2	701-004690
3/8	2	701-004750
3/8	2-1/2	701-004850
3/8	3	701-004950
3/8	3-1/8	701-004959
3/8	3-1/2	701-005050
3/8	4	701-005150
3/8	6	701-005250
7/16	2-1/2	701-005350
7/16	2-3/4	701-005450
7/16	3	701-005490
7/16	4	701-005550
7/16	6	701-005650
1/2	2	701-005750
1/2	2-1/2	701-005850
1/2	3	701-005950
1/2	3-1/2	701-005975
1/2	4	701-006050
1/2	6	701-006150
9/16	3-1/2	701-006250
9/16	6	702-007850
5/8	3	701-006280
5/8	3-1/2	701-006350
5/8	4	701-006355
5/8	5	701-006450
5/8	6	701-006550
3/4	3	701-006690
3/4	3-1/2	701-006696
3/4	4	701-006750
3/4	5	701-006850
3/4	6	701-006950
3/4	7	701-007050
7/8	4	701-007150
7/8	6	702-008150
1	4	701-007250
1	5	701-007350
1	6	701-007450
1	7	701-007550

12" RANDOM ROD

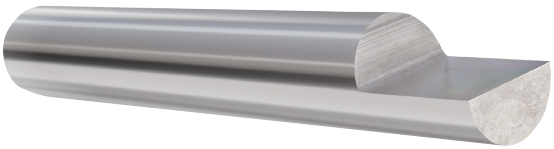
CENTERLESS GROUND

DIA	LENGTH	PART #
1/32	12	702-100200
3/64	12	702-100350
1/16	12	702-100450
5/64	12	702-100550
3/32	12	702-100650
7/64	12	702-100750
1/8	12	702-100900
9/64	12	702-101000
5/32	12	702-101100
11/64	12	702-101200
3/16	12	702-101300
13/64	12	702-101450
7/32	12	702-101550
15/64	12	702-101650
1/4	12	702-101750
17/64	12	702-101850
9/32	12	702-101950
19/64	12	702-102050
5/16	12	702-102150
21/64	12	702-102250
11/32	12	702-102350
23/64	12	702-102450
3/8	12	702-102550
25/64	12	702-102650
13/32	12	702-102750
27/64	12	702-102770
7/16	12	702-102850
29/64	12	702-102890
15/32	12	702-102950
31/64	12	702-102995
1/2	12	702-103050
17/32	12	702-103080
9/16	12	702-103150
5/8	12	702-103250
11/16	12	702-103350
3/4	12	702-103450
13/16	12	702-103550
7/8	12	702-103650
1	12	702-103850

UNGROUND

DIA	LENGTH	PART #
1/32	12	702-100150
3/64	12	702-100300
1/16	12	702-100400
5/64	12	702-100500
3/32	12	702-100600
7/64	12	702-100700
1/8	12	702-100850
9/64	12	702-100950
5/32	12	702-101050
11/64	12	702-101150
3/16	12	702-101250
13/64	12	702-101400
7/32	12	702-101500
15/64	12	702-101600
1/4	12	702-101700
17/64	12	702-101800
9/32	12	702-101900
19/64	12	702-102000
5/16	12	702-102100
21/64	12	702-102200
11/32	12	702-102300
23/64	12	702-102400
3/8	12	702-102500
25/64	12	702-102600
13/32	12	702-102700
27/64	12	702-102760
7/16	12	702-102800
29/64	12	702-102880
15/32	12	702-102900
31/64	12	702-102990
1/2	12	702-103000
17/32	12	702-103070
9/16	12	702-103100
5/8	12	702-103200
11/16	12	702-103300
3/4	12	702-103400
13/16	12	702-103500
7/8	12	702-103600
1	12	702-103800

SPLIT END BLANKS

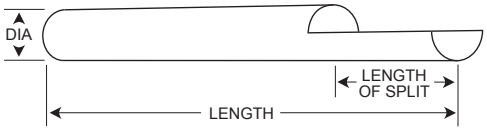


Applications:

- *Used for special engraving tools & cutting tools*

SINGLE END

DIA	LENGTH	LENGTH OF SPLIT	PART #
1/8	1-1/2	3/8	710-125150
1/8	2	3/8	710-125200
1/8	3	3/8	710-125300
1/8	4	3/8	710-125400
1/8	6	3/8	710-125600
3/16	2	1/2	710-187200
3/16	2-1/2	1/2	710-187250
3/16	3	1/2	710-187300
3/16	4	1/2	710-187400
3/16	6	1/2	710-187600
1/4	2	1/2	710-250200
1/4	2-1/2	1/2	710-250250
1/4	3	1/2	710-250300
1/4	4	1/2	710-250400
1/4	6	1/2	710-250600
5/16	2-1/2	1/2	710-312250
5/16	3	1/2	710-312300
5/16	4	1/2	710-312400
5/16	6	1/2	710-312600
3/8	2-1/2	1/2	710-375250
3/8	3	1/2	710-375300
3/8	4	1/2	710-375400
3/8	6	1/2	710-375600
7/16	2-1/2	5/8	710-437250
7/16	3	5/8	710-437300
7/16	4	5/8	710-437400
7/16	6	5/8	710-437600
1/2	3	5/8	710-500300
1/2	4	5/8	710-500400
1/2	6	5/8	710-500600



- *Premium sub-micron C-2 carbide with 10% cobalt*
- *Diameter Tolerance: +0.0000 / -0.0005"*

DOUBLE END

DIA	LENGTH	LENGTH OF SPLIT	PART #
1/8	1-1/2	3/8	720-125150
1/8	2	3/8	720-125200
1/8	3	3/8	720-125300
1/8	4	3/8	720-125400
1/8	6	3/8	720-125600
3/16	2	1/2	720-187200
3/16	2-1/2	1/2	720-187250
3/16	3	1/2	720-187300
3/16	4	1/2	720-187400
3/16	6	1/2	720-187600
1/4	2	1/2	720-250200
1/4	2-1/2	1/2	720-250250
1/4	3	1/2	720-250300
1/4	4	1/2	720-250400
1/4	6	1/2	720-250600
5/16	2-1/2	1/2	720-312250
5/16	3	1/2	720-312300
5/16	4	1/2	720-312400
5/16	6	1/2	720-312600
3/8	2-1/2	1/2	720-375250
3/8	3	1/2	720-375300
3/8	4	1/2	720-375400
3/8	6	1/2	720-375600
7/16	2-1/2	5/8	720-437250
7/16	3	5/8	720-437300
7/16	4	5/8	720-437400
7/16	6	5/8	720-437600
1/2	3	5/8	720-500300
1/2	4	5/8	720-500400
1/2	6	5/8	720-500600

METAL MONSTER

STANDARD UNGROUND BLANKS
1000 SERIES

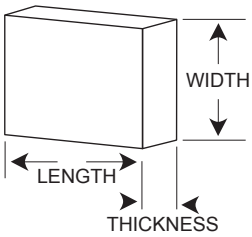
Applications:
- *Custom components and assemblies*
- *Replacement tips for brazed cutting tools*

C-2 GRADE

STYLE	THICKNESS	WIDTH	LENGTH	C-2 GRADE
1010	1/16	1/8	5/8	700-007001
1020	1/16	3/16	1/4	700-007005
1030	1/16	1/4	5/16	700-007010
1040	3/32	3/16	5/16	700-007012
1050	3/32	3/16	1/2	700-007012B
1060	3/32	1/4	3/8	700-007011
1070	3/32	1/4	1/2	700-007013
1080	3/32	5/16	3/8	700-007014
1090	3/32	3/8	3/8	700-007016
1100	3/32	3/8	1/2	700-007020
1105	3/32	7/16	1/2	700-007030
1110	1/8	3/16	3/4	700-007035
1120	1/8	1/4	1/2	700-007055
1130	1/8	1/4	5/8	700-007057
1140	1/8	1/4	3/4	700-007049A
1150	1/8	5/16	7/16	700-007050
1160	1/8	5/16	1/2	700-007059
1170	1/8	5/16	5/8	700-007070
1180	1/8	3/8	1/2	700-007080
1190	1/8	3/8	3/4	700-007082
1200	1/8	1/2	1/2	700-007084
1210	1/8	1/2	3/4	700-007086
1215	1/8	3/4	3/4	700-007088
1220	5/32	3/8	9/16	700-007089
1230	5/32	3/8	3/4	700-007098A
1240	5/32	5/8	5/8	700-007099
1250	3/16	5/16	7/16	700-007099A
1260	3/16	5/16	5/8	700-007099B
1270	3/16	3/8	1/2	700-007091
1280	3/16	3/8	5/8	700-007092
1290	3/16	3/8	3/4	700-007090
1300	3/16	7/16	5/8	700-007110
1310	3/16	7/16	13/16	700-007150
1320	3/16	1/2	1/2	700-007160
1330	3/16	1/2	3/4	700-007180
1340	3/16	3/4	3/4	700-007190

STYLE	THICKNESS	WIDTH	LENGTH	C-2 GRADE
1350	1/4	3/8	9/16	700-007200
1360	1/4	3/8	3/4	700-007200A
1370	1/4	7/16	5/8	700-007311
1380	1/4	1/2	3/4	700-007203
1390	1/4	9/16	1	700-007202
1400	1/4	5/8	5/8	700-007208
1405	1/4	3/4	3/4	700-007208B
1410	1/4	3/4	1	700-007201
1430	5/16	7/16	15/16	700-007312
1440	5/16	1/2	3/4	700-007209
1450	5/16	1/2	1	700-007313
1460	5/16	5/8	1	700-007314
1470	5/16	3/4	3/4	700-007315
1475	5/16	3/4	1	700-007317
1480	5/16	3/4	1-1/4	700-007316
1490	3/8	1/2	3/4	700-007209B
1500	3/8	1/2	1	700-007209C
1510	3/8	5/8	1	700-007318
1520	3/8	3/4	1-1/4	700-007319
1525	3/8	3/4	1-1/2	700-007320
1530	1/2	3/4	1	700-007321
1540	1/2	3/4	1-1/4	700-007322
1550	1/2	3/4	1-1/2	700-007323

Standard Unground Blanks
1000 Series



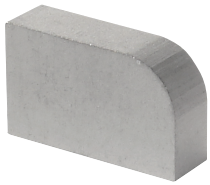
Solid premium medium grain carbide
- *C-2 grade contains 6-8% cobalt*
- *C-5 Grade contains 9-10% cobalt*

Minimum grind stock on all dimensions:
- *Thickness from: 1/16 - 5/16"* *+0.004 - +0.015"*
- *Thickness from: 3/8 - 1"* *+0.006 - +0.020"*

C-5 GRADE

STYLE	THICKNESS	WIDTH	LENGTH	C-5 GRADE
1010	1/16	1/8	5/8	700-007001A
1020	1/16	3/16	1/4	700-007005A
1030	1/16	1/4	5/16	700-007010A
1040	3/32	3/16	5/16	700-007012A
1050	3/32	3/16	1/2	700-007012C
1060	3/32	1/4	3/8	700-007011A
1070	3/32	1/4	1/2	700-007013A
1080	3/32	5/16	3/8	700-007014A
1090	3/32	3/8	3/8	700-007017
1100	3/32	3/8	1/2	700-007020A
1105	3/32	7/16	1/2	700-007032
1110	1/8	3/16	3/4	700-007035A
1120	1/8	1/4	1/2	700-007056
1130	1/8	1/4	5/8	700-007057A
1140	1/8	1/4	3/4	700-007049
1160	1/8	5/16	1/2	700-007060
1180	1/8	3/8	1/2	700-007081
1190	1/8	3/8	3/4	700-007083
1200	1/8	1/2	1/2	700-007085
1210	1/8	1/2	3/4	700-007087
1215	1/8	3/4	3/4	700-007088A
1250	3/16	5/16	7/16	700-007099D
1260	3/16	5/16	5/8	700-007099C
1270	3/16	3/8	1/2	700-007093
1290	3/16	3/8	3/4	700-007100
1310	3/16	7/16	13/16	700-007150A
1320	3/16	1/2	1/2	700-007160A
1330	3/16	1/2	3/4	700-007180A
1340	3/16	3/4	3/4	700-007190A
1380	1/4	1/2	3/4	700-007204
1410	1/4	3/4	1	700-007206

STANDARD UNGROUND BLANKS 2000 SERIES



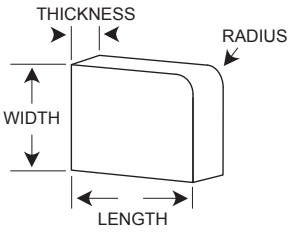
Applications:

- *Custom components and assemblies*
- *Replacement tips for brazed cutting tools*

C-2 GRADE

STYLE	THICKNESS	WIDTH	LENGTH	RADIUS	C-2 GRADE
2010	1/16	1/8	5/8	1/8	700-007208A
2020	1/16	3/16	1/4	1/8	700-007209A
2030	1/16	1/4	5/16	1/8	700-007210
2040	3/32	3/16	5/16	1/8	700-007211
2050	3/32	3/16	1/2	1/8	700-007213
2060	3/32	1/4	3/8	1/8	700-007215
2070	3/32	1/4	1/2	1/8	700-007218
2080	3/32	5/16	3/8	3/16	700-007220
2090	3/32	3/8	3/8	3/16	700-007221
2100	3/32	3/8	1/2	3/16	700-007226
2105	3/32	7/16	1/2	1/4	700-007228
2110	1/8	3/16	3/4	1/8	700-007230
2120	1/8	1/4	1/2	1/8	700-007232
2130	1/8	1/4	5/8	1/8	700-007233
2140	1/8	1/4	3/4	1/8	700-007235
2150	1/8	5/16	7/16	3/16	700-007236
2160	1/8	5/16	1/2	3/16	700-007237
2170	1/8	5/16	5/8	3/16	700-007241
2180	1/8	3/8	1/2	3/16	700-007243
2190	1/8	3/8	3/4	3/16	700-007245B
2200	1/8	1/2	1/2	1/4	700-007247
2210	1/8	1/2	3/4	1/4	700-007260
2215	1/8	3/4	3/4	1/4	700-007270
2220	5/32	3/8	9/16	3/16	700-007276
2230	5/32	3/8	3/4	3/16	700-007280
2240	5/32	5/8	5/8	1/4	700-007282
2250	3/16	5/16	7/16	3/16	700-007284
2260	3/16	5/16	5/8	3/16	700-007290
2270	3/16	3/8	1/2	3/16	700-007292
2280	3/16	3/8	5/8	3/16	700-007294
2290	3/16	3/8	3/4	3/16	700-007300
2300	3/16	7/16	5/8	1/4	700-007302
2310	3/16	7/16	13/16	1/4	700-007304
2320	3/16	1/2	1/2	1/4	700-007306
2330	3/16	1/2	3/4	1/4	700-007308
2340	3/16	3/4	3/4	1/4	700-007310

Standard Unground Blanks
2000 Series



Solid premium medium grain carbide
- *C-2 grade contains 6-8% cobalt*
- *C-5 Grade contains 9-10% cobalt*

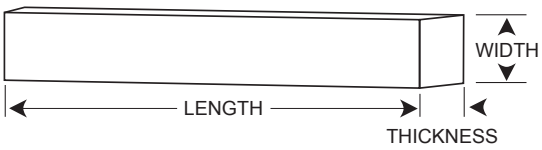
Minimum grind stock on all dimensions:
- *Thickness from: 1/16 - 5/16" +0.004 - +0.015"*
- *Thickness from: 3/8 - 1" +0.006 - +0.020"*

C-5 GRADE

STYLE	THICKNESS	WIDTH	LENGTH	RADIUS	C-5 GRADE
2020	1/16	3/16	1/4	1/8	700-007209D
2030	1/16	1/4	5/16	1/8	700-007210A
2040	3/32	3/16	5/16	1/8	700-007211A
2050	3/32	3/16	1/2	1/8	700-007214
2060	3/32	1/4	3/8	1/8	700-007216
2070	3/32	1/4	1/2	1/8	700-007219
2100	3/32	3/8	1/2	3/16	700-007226A
2110	1/8	3/16	3/4	1/8	700-007231
2120	1/8	1/4	1/2	1/8	700-007232A
2130	1/8	1/4	5/8	1/8	700-007234
2140	1/8	1/4	3/4	1/8	700-007235A
2170	1/8	5/16	5/8	3/16	700-007242
2180	1/8	3/8	1/2	3/16	700-007244
2190	1/8	3/8	3/4	3/16	700-007245A
2210	1/8	1/2	3/4	1/4	700-007265
2215	1/8	3/4	3/4	1/4	700-007275
2310	3/16	7/16	13/16	1/4	700-007304A
2320	3/16	1/2	1/2	1/4	700-007306A
2330	3/16	1/2	3/4	1/4	700-007308A

METAL MONSTER

STB & STB-L Carbide Strips



- *Premium medium grain C-2 carbide with 6-8% cobalt*
- *Parallelism & Flatness Tolerances: within 0 .020"*
- *Minimum grind stock:*
  Thickness: +0.008" Width: +0.012" Length: +0.008"

Applications:

- ***Wear Parts***
- ***Grinder Rests***
- ***Tools***
- ***Appliance Parts***

STYLE	THICKNESS	WIDTH	LENGTH	PART #
STB-12	1/32	1/16	1	777-001038
STB-12A	1/32	1/16	1-1/2	777-001039
STB-13A	3/64	3/32	13/16	777-001041
STB-13	3/64	3/32	1	777-001040
STB-22L	1/16	1/16	6	777-001042
STB-24A	1/16	1/8	1	777-001047
STB-24C	1/16	1/8	1-1/4	777-001047E
STB-24D	1/16	1/8	1-1/2	777-001047F
STB-24B	1/16	1/8	3	777-001047B
STB-24L	1/16	1/8	6	777-001047G
STB-26A	1/16	3/16	1	777-001048
STB-26C	1/16	3/16	3	777-001048C
STB-26L	1/16	3/16	6	777-001048H
STB-28A	1/16	1/4	1	777-001059
STB-28B	1/16	1/4	1-1/4	777-001059A
STB-28D	1/16	1/4	3	777-001060
STB-28L	1/16	1/4	6	777-001061
STB-210L	1/16	5/16	6	777-001062
STB-212L	1/16	3/8	6	777-001067
STB-216L	1/16	1/2	6	777-001067A
STB-220L	1/16	5/8	6	777-001067B
STB-224L	1/16	3/4	6	777-001067C
STB-232L	1/16	1	6	777-001067D
STB-14	5/64	1/8	1-1/8	777-001045
STB-34	3/32	1/8	5	777-001068
STB-34L	3/32	1/8	8	777-001068A
STB-36	3/32	3/16	1-1/8	777-001064

STB STRIPS *Continued*

STYLE	THICKNESS	WIDTH	LENGTH	PART #
STB-36A	3/32	3/16	1-1/4	777-001069
STB-36L	3/32	3/16	8	777-001069A
STB-38A	3/32	1/4	1	777-001050C
STB-38B	3/32	1/4	1-1/2	777-001050D
STB-38D	3/32	1/4	5	777-001050
STB-38L	3/32	1/4	8	777-001050E
STB-310A	3/32	5/16	2	777-001065
STB-310B	3/32	5/16	3	777-001065A
STB-310C	3/32	5/16	5	777-001066
STB-310L	3/32	5/16	8	777-001066C
STB-312	3/32	3/8	5	777-001070
STB-312C	3/32	3/8	6	777-001070D
STB-312L	3/32	3/8	8	777-001070C
STB-316	3/32	1/2	6	777-001072
STB-316L	3/32	1/2	8	777-001072A
STB-320	3/32	5/8	6	777-001079
STB-320L	3/32	5/8	8	777-001079A
STB-324	3/32	3/4	6	777-001073
STB-328	3/32	7/8	6	777-001074
STB-332	3/32	1	6	777-001076
STB-336	3/32	1-1/8	6	777-001077
STB-340	3/32	1-1/4	6	777-001078
STB-348	3/32	1-1/2	6	777-001080
STB-44L	1/8	1/8	12	777-001083
STB-46	1/8	3/16	6	777-001086
STB-46L	1/8	3/16	12	777-001086A
STB-48A	1/8	1/4	1	777-001052C
STB-48B	1/8	1/4	1-1/4	777-001052D
STB-48F	1/8	1/4	1-1/2	777-001052E
STB-48C	1/8	1/4	2-1/4	777-001052F
STB-48D	1/8	1/4	3	777-001052G
STB-48E	1/8	1/4	6	777-001052H
STB-48L	1/8	1/4	12	777-001052I
STB-410A	1/8	5/16	1-1/2	777-001080E
STB-410B	1/8	5/16	3	777-001080F
STB-410	1/8	5/16	6	777-001080B
STB-410L	1/8	5/16	12	777-001080G
STB-412D	1/8	3/8	1	777-001082
STB-412A	1/8	3/8	2	777-001081D
STB-412B	1/8	3/8	3	777-001081
STB-412C	1/8	3/8	6	777-001082A
STB-412L	1/8	3/8	12	777-001082E

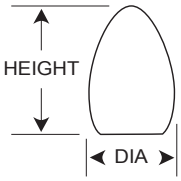
STB STRIPS *Continued*

STYLE	THICKNESS	WIDTH	LENGTH	PART #
STB-416A	1/8	1/2	1	777-001085
STB-416B	1/8	1/2	1-1/2	777-001090
STB-416C	1/8	1/2	3	777-001087
STB-416	1/8	1/2	6	777-001084
STB-416L	1/8	1/2	12	777-001084A
STB-420	1/8	5/8	6	777-001091
STB-420L	1/8	5/8	12	777-001091A
STB-424	1/8	3/4	6	777-001095
STB-424L	1/8	3/4	12	777-001095A
STB-428	1/8	7/8	6	777-001096
STB-432	1/8	1	6	777-001055
STB-432L	1/8	1	12	777-001055A
STB-436	1/8	1-1/8	6	777-010555
STB-440	1/8	1-1/4	6	777-0140554
STB-448	1/8	1-1/2	6	777-010553
STB-456	1/8	1-3/4	6	777-010552
STB-512C	5/32	3/8	6	777-010551
STB-516	5/32	1/2	6	777-010550
STB-520	5/32	5/8	6	777-010549
STB-524	5/32	3/4	6	777-010548
STB-528	5/32	7/8	6	777-010547
STB-532	5/32	1	6	777-010546
STB-536	5/32	1-1/8	6	777-010545
STB-540	5/32	1-1/4	6	777-010544
STB-544	5/32	1-3/8	6	777-010543
STB-548	5/32	1-1/2	6	777-010542
STB-564	5/32	2	6	777-010541
STB-66L	3/16	3/16	12	777-001056
STB-68A	3/16	1/4	3	777-001058B
STB-68	3/16	1/4	6	777-001058
STB-68L	3/16	1/4	12	777-001058A
STB-610A	3/16	5/16	3	777-001115
STB-610	3/16	5/16	6	777-001116
STB-610L	3/16	5/16	12	777-001117
STB-612A	3/16	3/8	3	777-001100A
STB-612	3/16	3/8	6	777-001100
STB-612L	3/16	3/8	12	777-001100B
STB-616A	3/16	1/2	3	777-001110
STB-616	3/16	1/2	6	777-001110A

STB STRIPS *Continued*

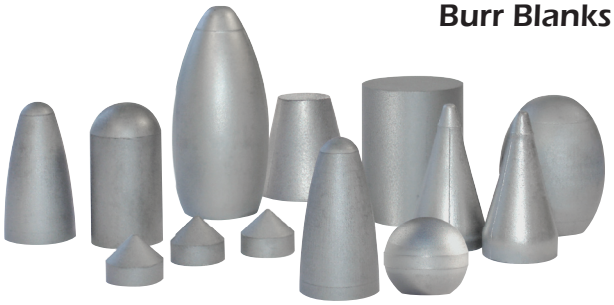
STYLE	THICKNESS	WIDTH	LENGTH	PART #
STB-616L	3/16	1/2	12	777-001110B
STB-620A	3/16	5/8	3	777-001057A
STB-620	3/16	5/8	6	777-001057
STB-620L	3/16	5/8	12	777-001057B
STB-624B	3/16	3/4	2	777-001051B
STB-624A	3/16	3/4	4	777-001051A
STB-624	3/16	3/4	6	777-001051
STB-624L	3/16	3/4	12	777-001051C
STB-628	3/16	7/8	6	777-001151
STB-632	3/16	1	6	777-001114A
STB-632L	3/16	1	12	777-001114
STB-640	3/16	1-1/4	6	777-001113A
STB-640L	3/16	1-1/4	12	777-001113
STB-648	3/16	1-1/2	6	777-010113
STB-88L	1/4	1/4	12	777-001450
STB-812A	1/4	3/8	3	777-001190
STB-812	1/4	3/8	6	777-001188
STB-812L	1/4	3/8	12	777-001190A
STB-816C	1/4	1/2	2	777-001195C
STB-816A	1/4	1/2	3	777-001195A
STB-816B	1/4	1/2	4	777-001195B
STB-816	1/4	1/2	6	777-001195
STB-816L	1/4	1/2	12	777-001195D
STB-820A	1/4	5/8	3	777-001210B
STB-820	1/4	5/8	6	777-001210
STB-820L	1/4	5/8	12	777-001210A
STB-824A	1/4	3/4	3	777-001290A
STB-824	1/4	3/4	6	777-001290
STB-824L	1/4	3/4	12	777-001290B
STB-832	1/4	1	6	777-001350
STB-832L	1/4	1	12	777-001400
STB-840L	1/4	1-1/4	12	777-001420
STB-1010L	5/16	5/16	12	777-001427
STB-1212L	3/8	3/8	12	777-001421
STB-1216L	3/8	1/2	12	777-001422
STB-1224L	3/8	3/4	12	777-001423
STB-1232L	3/8	1	12	777-001424
STB-1616L	1/2	1/2	12	777-001425
STB-1624L	1/2	3/4	12	777-001426

METAL MONSTER
SOLID CARBIDE BURR BLANKS



Solid premium sub-micron grain carbide C-2 grade with 8-10% cobalt

STYLE	DIA	HEIGHT	PART #
BSA-52	5/32	1/2	700-008150A
BSA-53	3/16	1/2	700-008151
BSA-51	1/4	1/2	700-008150
BSA-2	5/16	3/4	700-008169
BSA-3	3/8	3/4	700-008170
BSA-3L	3/8	1	700-008194
BSA-3X	3/8	1-1/2	700-008172
BSA-4	7/16	1	700-008175
BSA-5	1/2	1	700-008180
BSA-6	5/8	1	700-008181
BSA-15	3/4	1/2	700-008182B
BSA-16	3/4	3/4	700-008182C
BSA-7	3/4	1	700-008182
BSA-8	7/8	1	700-008182A
BSA-17	1	1/4	700-008182D
BSA-9	1	1	700-008183
BSB-51	1/4	3/16	700-008186
BSC-52	5/32	1/2	700-008187A
BSC-53	3/16	1/2	700-008188
BSC-51	1/4	1/2	700-008187
BSC-2	5/16	3/4	700-008189
BSC-3	3/8	3/4	700-008190
BSC-3L	3/8	1	700-008193
BSC-3X	3/8	1-1/2	700-008192
BSC-4	7/16	1	700-008199
BSC-5	1/2	1	700-008200
BSC-6	5/8	1	700-008201
BSC-15	3/4	1/2	700-008202A
BSC-16	3/4	3/4	700-008202B
BSC-7	3/4	1	700-008202
BSC-9	1	1	700-008203



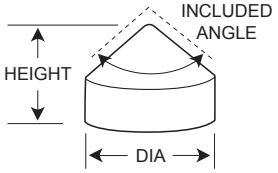
BURR BLANKS *Continued*

STYLE	DIA	HEIGHT	PART #
BSD-52	5/32	5/32	700-008210A
BSD-53	3/16	5/32	700-008211
BSD-51	1/4	7/32	700-008210
BSD-2	5/16	1/4	700-008215
BSD-3	3/8	5/16	700-008220
BSD-4	7/16	3/8	700-008223
BSD-5	1/2	7/16	700-008225
BSD-6	5/8	9/16	700-008226
BSD-7	3/4	11/16	700-008226A
BSD-9	1	15/16	700-008226B
BSE-53	3/16	9/32	700-008228
BSE-51	1/4	3/8	700-008227
BSE-2	5/16	7/16	700-008229
BSE-3	3/8	5/8	700-008230
BSE-5	1/2	7/8	700-008240
BSE-6	5/8	1	700-008241
BSE-7	3/4	1	700-008242
BSF-53	3/16	1/2	700-008246
BSF-51	1/4	1/2	700-008245
BSF-3	3/8	3/4	700-008250
BSF-4	7/16	1	700-008251
BSF-13	1/2	3/4	700-008263
BSF-5	1/2	1	700-008260
BSF-6	5/8	1	700-008261
BSF-7	3/4	1	700-008262
BSF-14	3/4	1-1/4	700-008263A
BSF-15	3/4	1-1/2	700-008264
BSF-17	1-1/8	2	700-008266
BSG-53	3/16	1/2	700-008269A
BSG-51	1/4	1/2	700-008265
BSG-2	5/16	3/4	700-008269
BSG-3	3/8	3/4	700-008270
BSG-13	1/2	3/4	700-008282A
BSG-5	1/2	1	700-008280
BSG-6	5/8	1	700-008281
BSG-7	3/4	1	700-008282
BSG-15	3/4	1-1/2	700-008282B

BURR BLANKS *Continued*

STYLE	DIA	HEIGHT	PART #
BSH-53	3/16	3/8	700-008282C
BSH-2	5/16	3/4	700-008283
BSH-5	1/2	1-1/4	700-008286
BSH-6	5/8	1-7/16	700-008284
BSH-7	3/4	1-5/8	700-008286A
BSJ-3	3/8	5/16	700-008286B
BSJ-5	1/2	7/16	700-008310
BSJ-6	5/8	9/16	700-008312
BSJ-7	3/4	11/16	700-008311
BSJ-9	1	15/16	700-008335
BSK-3	3/8	3/16	700-008328
BSK-5	1/2	1/4	700-008287A
BSK-6	5/8	5/16	700-008331
BSK-7	3/4	3/8	700-008332
BSK-9	1	1/2	700-008334
BSL-53	3/16	1/2	700-008287B
BSL-2	5/16	7/8	700-008287
BSL-3	3/8	1-1/16	700-008288
BSL-4	1/2	1-1/8	700-008289
BSL-5	5/8	1-3/16	700-008289B
BSL-6	5/8	1-5/16	700-008289A
BSL-7	3/4	1-1/2	700-008289C
BSM-53	3/16	1/2	700-008292
BSM-51	1/4	1/2	700-008291
BSM-4	3/8	5/8	700-008295
BSM-5	1/2	7/8	700-008300
BSM-6	5/8	1	700-008301
BSN-53	3/16	1/4	700-008303
BSN-51	1/4	1/4	700-008320
BSN-2	3/8	3/8	700-008305
BSN-4	1/2	1/2	700-008306
BSN-6	5/8	3/4	700-008308
BSN-7	3/4	5/8	700-008309
BST-3	3/8	1/4	700-008338
BST-5	1/2	3/8	700-008339
BST-6	5/8	7/16	700-008340
BST-7	3/4	1/2	700-008341
BST-9	1	5/8	700-008342

SOLID CARBIDE COUNTERSINK BLANKS

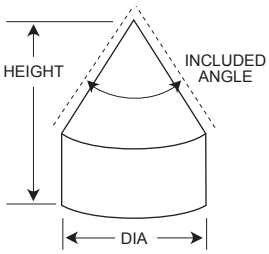


Solid premium sub-micron grain carbide
C-2 grade with 10% cobalt

DIA	HEIGHT	INCLUDED ANGLE	PART #
5/16	13/16	60˚	715-0010312
5/16	11/16	82˚	715-0020312
5/16	11/16	90˚	715-0030312
5/16	11/16	100˚	715-0040312
5/16	11/16	120˚	715-0050312
3/8	13/16	60˚	715-0010375
3/8	11/16	82˚	715-0020375
3/8	11/16	90˚	715-0030375
3/8	11/16	100˚	715-0040375
3/8	11/16	120˚	715-0050375
1/2	7/8	60˚	715-0010500
1/2	3/4	82˚	715-0020500
1/2	3/4	90˚	715-0030500
1/2	3/4	100˚	715-0040500
1/2	3/4	120˚	715-0050500
5/8	1	60˚	715-0010625
5/8	7/8	82˚	715-0020625
5/8	3/4	90˚	715-0030625
5/8	3/4	100˚	715-0040625
5/8	3/4	120˚	715-0050625
3/4	1	60˚	715-0010750
3/4	7/8	82˚	715-0020750
3/4	7/8	90˚	715-0030750
3/4	7/8	100˚	715-0040750
3/4	7/8	120˚	715-0050750

DIA	HEIGHT	INCLUDED ANGLE	PART #
7/8	1-1/8	60˚	715-0010775
7/8	15/16	82˚	715-0020775
7/8	15/16	90˚	715-0030775
7/8	15/16	100˚	715-0040775
7/8	15/16	120˚	715-0050775
1	1-1/4	60˚	715-0011000
1	1	82˚	715-0021000
1	1	90˚	715-0031000
1	1	100˚	715-0041000
1	1	120˚	715-0051000
1-1/4	1-1/2	60˚	715-0011250
1-1/4	1-1/4	82˚	715-0021250
1-1/4	1-1/4	90˚	715-0031250
1-1/4	1-1/4	100˚	715-0041250
1-1/4	1-1/4	120˚	715-0051250
1-1/2	1-3/4	60˚	715-0011500
1-1/2	1-1/2	82˚	715-0021500
1-1/2	1-1/2	90˚	715-0031500
1-1/2	1-1/2	100˚	715-0041500
1-1/2	1-1/2	120˚	715-0051500

SOLID CARBIDE CENTER TIPPED BLANKS



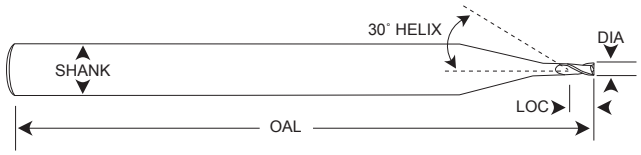
Solid premium sub-micron grain carbide C-2 grade with 10% cobalt

- *Diameter Tolerance: +0.0000 / -0.0005"*
- *Angle Tolerance: ±1˚*

STYLE	DIA	HEIGHT	INCLUDED ANGLE	PART #
CT-40	1/4	7/16	60˚	716-000001
CT-50	5/16	9/16	60˚	716-000002
CT-60	3/8	11/16	60˚	716-000003
CT-80	1/2	7/8	60˚	716-000004
CT-100	5/8	1-1/16	60˚	716-000005
CT-120	3/4	1-1/4	60˚	716-000006
CT-140	7/8	1-3/8	60˚	716-000007
CT-160	1"	1-1/2"	60˚	716-000008
CT-200	1-1/4	1-3/4	60˚	716-000009

MICRO MONSTER

MINIATURE END MILLS - SQUARE END
2 FLUTE - STUB LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Stub length promotes rigidity***
- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

2FL STUB SQUARE

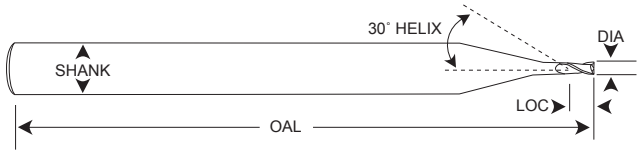
DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.005	0.008	0.125	1.50	250-300100	—
0.006	0.009	0.125	1.50	250-300110	—
0.007	0.011	0.125	1.50	250-300120	—
0.008	0.012	0.125	1.50	250-300130	—
0.009	0.014	0.125	1.50	250-300140	—
0.010	0.015	0.125	1.50	250-300150	250-300150B
0.011	0.017	0.125	1.50	250-300160	250-300160B
0.012	0.018	0.125	1.50	250-300170	250-300170B
0.013	0.020	0.125	1.50	250-300180	250-300180B
0.014	0.021	0.125	1.50	250-300190	250-300190B
0.015	0.023	0.125	1.50	250-300200	250-300200B
0.016	0.024	0.125	1.50	250-300210	250-300210B
0.017	0.026	0.125	1.50	250-300220	250-300220B
0.018	0.027	0.125	1.50	250-300230	250-300230B
0.019	0.029	0.125	1.50	250-300240	250-300240B
0.020	0.030	0.125	1.50	250-300250	250-300250B
0.021	0.032	0.125	1.50	250-300260	250-300260B
0.022	0.033	0.125	1.50	250-300270	250-300270B
0.023	0.035	0.125	1.50	250-300280	250-300280B
0.024	0.036	0.125	1.50	250-300290	250-300290B
0.025	0.038	0.125	1.50	250-300300	250-300300B
0.026	0.039	0.125	1.50	250-300310	250-300310B
0.027	0.041	0.125	1.50	250-300320	250-300320B
0.028	0.042	0.125	1.50	250-300330	250-300330B
0.029	0.044	0.125	1.50	250-300340	250-300340B
0.030	0.045	0.125	1.50	250-300350	250-300350B
0.031	0.047	0.125	1.50	250-300360	250-300360B
0.032	0.048	0.125	1.50	250-300370	250-300370B
0.033	0.050	0.125	1.50	250-300380	250-300380B
0.034	0.051	0.125	1.50	250-300390	250-300390B

PROUDLY MADE IN THE USA

2FL STUB SQUARE *Continued*

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.035	0.053	0.125	1.50	250-300400	250-300400B
0.036	0.054	0.125	1.50	250-300410	250-300410B
0.037	0.056	0.125	1.50	250-300420	250-300420B
0.038	0.057	0.125	1.50	250-300430	250-300430B
0.039	0.059	0.125	1.50	250-300440	250-300440B
0.040	0.060	0.125	1.50	250-300450	250-300450B
0.041	0.062	0.125	1.50	250-300460	250-300460B
0.042	0.063	0.125	1.50	250-300470	250-300470B
0.043	0.065	0.125	1.50	250-300480	250-300480B
0.044	0.066	0.125	1.50	250-300490	250-300490B
0.045	0.068	0.125	1.50	250-300500	250-300500B
0.046	0.069	0.125	1.50	250-300510	250-300510B
0.047	0.071	0.125	1.50	250-300520	250-300520B
0.048	0.072	0.125	1.50	250-300530	250-300530B
0.049	0.074	0.125	1.50	250-300540	250-300540B
0.050	0.075	0.125	1.50	250-300550	250-300550B
0.051	0.077	0.125	1.50	250-300560	250-300560B
0.052	0.078	0.125	1.50	250-300570	250-300570B
0.053	0.080	0.125	1.50	250-300580	250-300580B
0.054	0.081	0.125	1.50	250-300590	250-300590B
0.055	0.083	0.125	1.50	250-300600	250-300600B
0.056	0.084	0.125	1.50	250-300610	250-300610B
0.057	0.086	0.125	1.50	250-300620	250-300620B
0.058	0.087	0.125	1.50	250-300630	250-300630B
0.059	0.089	0.125	1.50	250-300640	250-300640B
0.060	0.090	0.125	1.50	250-300650	250-300650B
0.061	0.092	0.125	1.50	250-300660	250-300660B
0.062	0.093	0.125	1.50	250-300670	250-300670B
0.063	0.095	0.125	1.50	250-300680	250-300680B
0.064	0.096	0.125	1.50	250-300690	250-300690B
0.065	0.098	0.125	1.50	250-300700	250-300700B
0.070	0.105	0.125	1.50	250-300750	250-300750B
0.075	0.113	0.125	1.50	250-300800	250-300800B
0.080	0.120	0.125	1.50	250-300850	250-300850B
0.085	0.128	0.125	1.50	250-300900	250-300900B
0.090	0.135	0.125	1.50	250-300950	250-300950B
0.095	0.143	0.125	1.50	250-301000	250-301000B
0.100	0.150	0.125	1.50	250-301050	250-301050B
0.105	0.158	0.125	1.50	250-301100	250-301100B
0.110	0.165	0.125	1.50	250-301150	250-301150B
0.115	0.173	0.125	1.50	250-301200	250-301200B
0.120	0.180	0.125	1.50	250-301250	250-301250B

MINIATURE END MILLS - SQUARE END 2 FLUTE - REGULAR LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***AlTiN coating provides for provides for increased lubricity & heat resistance for longer tool life***

2FL REG SQUARE

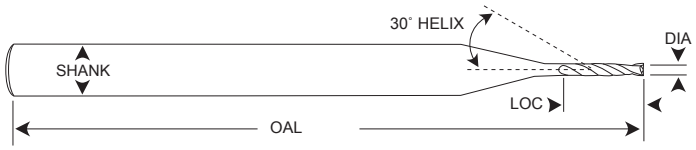
DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.005	0.015	0.125	1.50	250-100010	—
0.006	0.018	0.125	1.50	250-200110	—
0.007	0.021	0.125	1.50	250-200120	—
0.008	0.024	0.125	1.50	250-200130	—
0.009	0.027	0.125	1.50	250-200140	—
0.010	0.030	0.125	1.50	250-100030	250-100030B
0.011	0.033	0.125	1.50	250-200160	250-200160B
0.012	0.036	0.125	1.50	250-200170	250-200170B
0.013	0.039	0.125	1.50	250-200180	250-200180B
0.014	0.042	0.125	1.50	250-200190	250-200190B
0.015	0.045	0.125	1.50	250-100050	250-100050B
0.016	0.048	0.125	1.50	250-200210	250-200210B
0.017	0.051	0.125	1.50	250-200220	250-200220B
0.018	0.054	0.125	1.50	250-200230	250-200230B
0.019	0.057	0.125	1.50	250-200240	250-200240B
0.020	0.060	0.125	1.50	250-100070	250-100070B
0.021	0.063	0.125	1.50	250-200260	250-200260B
0.022	0.066	0.125	1.50	250-200270	250-200270B
0.023	0.069	0.125	1.50	250-200280	250-200280B
0.024	0.072	0.125	1.50	250-200290	250-200290B
0.025	0.075	0.125	1.50	250-100090	250-100090B
0.026	0.078	0.125	1.50	250-200310	250-200310B
0.027	0.081	0.125	1.50	250-200320	250-200320B
0.028	0.084	0.125	1.50	250-200330	250-200330B
0.029	0.087	0.125	1.50	250-200340	250-200340B
0.030	0.090	0.125	1.50	250-100110	250-100110B
0.031	0.093	0.125	1.50	250-200360	250-200360B
0.032	0.096	0.125	1.50	250-200370	250-200370B
0.033	0.099	0.125	1.50	250-200380	250-200380B
0.034	0.102	0.125	1.50	250-200390	250-200390B

PROUDLY MADE IN THE USA

2FL REG SQUARE *Continued*

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.035	0.105	0.125	1.50	250-100130	250-100130B
0.036	0.108	0.125	1.50	250-200410	250-200410B
0.037	0.111	0.125	1.50	250-200420	250-200420B
0.038	0.114	0.125	1.50	250-200430	250-200430B
0.039	0.117	0.125	1.50	250-200440	250-200440B
0.040	0.120	0.125	1.50	250-100150	250-100150B
0.041	0.123	0.125	1.50	250-200460	250-200460B
0.042	0.126	0.125	1.50	250-200470	250-200470B
0.043	0.129	0.125	1.50	250-200480	250-200480B
0.044	0.132	0.125	1.50	250-200490	250-200490B
0.045	0.135	0.125	1.50	250-100170	250-100170B
0.046	0.138	0.125	1.50	250-200510	250-200510B
0.047	0.141	0.125	1.50	250-200520	250-200520B
0.048	0.144	0.125	1.50	250-200530	250-200530B
0.049	0.147	0.125	1.50	250-200540	250-200540B
0.050	0.150	0.125	1.50	250-100190	250-100190B
0.051	0.153	0.125	1.50	250-200560	250-200560B
0.052	0.156	0.125	1.50	250-200570	250-200570B
0.053	0.159	0.125	1.50	250-200580	250-200580B
0.054	0.162	0.125	1.50	250-200590	250-200590B
0.055	0.165	0.125	1.50	250-100210	250-100210B
0.056	0.168	0.125	1.50	250-200610	250-200610B
0.057	0.171	0.125	1.50	250-200620	250-200620B
0.058	0.174	0.125	1.50	250-200630	250-200630B
0.059	0.177	0.125	1.50	250-200640	250-200640B
0.060	0.180	0.125	1.50	250-100230	250-100230B
0.061	0.183	0.125	1.50	250-200660	250-200660B
0.062	0.186	0.125	1.50	250-200670	250-200670B
0.063	0.189	0.125	1.50	250-200680	250-200680B
0.064	0.192	0.125	1.50	250-200690	250-200690B
0.065	0.195	0.125	1.50	250-100250	250-100250B
0.070	0.210	0.125	1.50	250-100270	250-100270B
0.075	0.225	0.125	1.50	250-100290	250-100290B
0.080	0.240	0.125	1.50	250-100310	250-100310B
0.085	0.255	0.125	1.50	250-100330	250-100330B
0.090	0.270	0.125	1.50	250-100350	250-100350B
0.095	0.285	0.125	1.50	250-100370	250-100370B
0.100	0.300	0.125	1.50	250-100390	250-100390B
0.105	0.315	0.125	1.50	250-100401	250-100401B
0.110	0.330	0.125	1.50	250-100403	250-100403B
0.115	0.345	0.125	1.50	250-100406	250-100406B
0.120	0.360	0.125	1.50	250-100408	250-100408B

MINIATURE END MILLS - SQUARE END
2 FLUTE LONG LENGTH



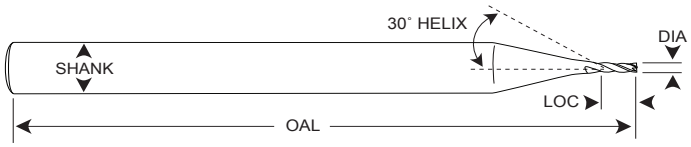
- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Long flute lengths up - to 16x the diameter***
- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

2FL LONG SQUARE

DIA		LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.015	1/64	0.125	0.125	2.50	251-001000	251-001000B
0.031	1/32	0.250	0.125	2.50	251-001001	251-001001B
0.031	1/32	0.375	0.125	2.50	251-001002	251-001002B
0.047	3/64	0.250	0.125	2.50	251-001010	251-001010B
0.047	3/64	0.375	0.125	2.50	251-001011	251-001011B
0.047	3/64	0.500	0.125	2.50	251-001013	251-001013B
0.062	1/16	0.500	0.125	2.50	251-001020	251-001020B
0.062	1/16	0.750	0.125	2.50	251-001021	251-001021B
0.062	1/16	1.000	0.125	2.50	251-001022	251-001022B
0.078	5/64	0.500	0.125	2.50	251-001030	251-001030B
0.093	3/32	0.500	0.125	2.50	251-001040	251-001040B
0.093	3/32	0.750	0.125	2.50	251-001041	251-001041B

MICRO MONSTER
MINIATURE END MILLS
4 FLUTE



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Stub length promotes rigidity***
- ***AlTiN coating provides for provides for increased lubricity & heat resistance for longer tool life***

4FL STUB SQUARE

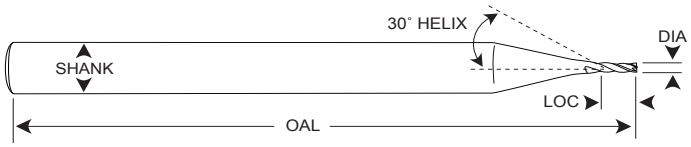
DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.005	0.008	0.125	1.50	250-305100	—
0.006	0.009	0.125	1.50	250-305110	—
0.007	0.011	0.125	1.50	250-305120	—
0.008	0.012	0.125	1.50	250-305130	—
0.009	0.014	0.125	1.50	250-305140	—
0.010	0.015	0.125	1.50	250-305150	250-305150B
0.011	0.017	0.125	1.50	250-305160	250-305160B
0.012	0.018	0.125	1.50	250-305170	250-305170B
0.013	0.020	0.125	1.50	250-305180	250-305180B
0.014	0.021	0.125	1.50	250-305190	250-305190B
0.015	0.023	0.125	1.50	250-305200	250-305200B
0.016	0.024	0.125	1.50	250-305210	250-305210B
0.017	0.026	0.125	1.50	250-305220	250-305220B
0.018	0.027	0.125	1.50	250-305230	250-305230B
0.019	0.029	0.125	1.50	250-305240	250-305240B
0.020	0.030	0.125	1.50	250-305250	250-305250B
0.021	0.032	0.125	1.50	250-305260	250-305260B
0.022	0.033	0.125	1.50	250-305270	250-305270B
0.023	0.035	0.125	1.50	250-305280	250-305280B
0.024	0.036	0.125	1.50	250-305290	250-305290B
0.025	0.038	0.125	1.50	250-305300	250-305300B
0.026	0.039	0.125	1.50	250-305310	250-305310B
0.027	0.041	0.125	1.50	250-305320	250-305320B
0.028	0.042	0.125	1.50	250-305330	250-305330B
0.029	0.044	0.125	1.50	250-305340	250-305340B
0.030	0.045	0.125	1.50	250-305350	250-305350B

PROUDLY MADE IN THE USA

4FL STUB SQUARE *Continued*

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.031	0.047	0.125	1.50	250-305360	250-305360B
0.032	0.048	0.125	1.50	250-305370	250-305370B
0.033	0.050	0.125	1.50	250-305380	250-305380B
0.034	0.051	0.125	1.50	250-305390	250-305390B
0.035	0.053	0.125	1.50	250-305400	250-305400B
0.036	0.054	0.125	1.50	250-305410	250-305410B
0.037	0.056	0.125	1.50	250-305420	250-305420B
0.038	0.057	0.125	1.50	250-305430	250-305430B
0.039	0.059	0.125	1.50	250-305440	250-305440B
0.040	0.060	0.125	1.50	250-305450	250-305450B
0.041	0.062	0.125	1.50	250-305460	250-305460B
0.042	0.063	0.125	1.50	250-305470	250-305470B
0.043	0.065	0.125	1.50	250-305480	250-305480B
0.044	0.066	0.125	1.50	250-305490	250-305490B
0.045	0.068	0.125	1.50	250-305500	250-305500B
0.046	0.069	0.125	1.50	250-305510	250-305510B
0.047	0.071	0.125	1.50	250-305520	250-305520B
0.048	0.072	0.125	1.50	250-305530	250-305530B
0.049	0.074	0.125	1.50	250-305540	250-305540B
0.050	0.075	0.125	1.50	250-305550	250-305550B
0.051	0.077	0.125	1.50	250-305560	250-305560B
0.052	0.078	0.125	1.50	250-305570	250-305570B
0.053	0.080	0.125	1.50	250-305580	250-305580B
0.054	0.081	0.125	1.50	250-305590	250-305590B
0.055	0.083	0.125	1.50	250-305600	250-305600B
0.056	0.084	0.125	1.50	250-305610	250-305610B
0.057	0.086	0.125	1.50	250-305620	250-305620B
0.058	0.087	0.125	1.50	250-305630	250-305630B
0.059	0.089	0.125	1.50	250-305640	250-305640B
0.060	0.090	0.125	1.50	250-305650	250-305650B
0.061	0.092	0.125	1.50	250-305660	250-305660B
0.062	0.093	0.125	1.50	250-305670	250-305670B
0.063	0.095	0.125	1.50	250-305680	250-305680B
0.064	0.096	0.125	1.50	250-305690	250-305690B
0.065	0.098	0.125	1.50	250-305700	250-305700B
0.070	0.105	0.125	1.50	250-305750	250-305750B
0.075	0.113	0.125	1.50	250-305800	250-305800B
0.080	0.120	0.125	1.50	250-305850	250-305850B
0.085	0.128	0.125	1.50	250-305900	250-305900B
0.090	0.135	0.125	1.50	250-305950	250-305950B
0.095	0.143	0.125	1.50	250-306000	250-306000B
0.100	0.150	0.125	1.50	250-306050	250-306050B
0.105	0.158	0.125	1.50	250-306100	250-306100B
0.110	0.165	0.125	1.50	250-306150	250-306150B
0.115	0.173	0.125	1.50	250-306200	250-306200B
0.120	0.180	0.125	1.50	250-306250	250-306250B

MICRO MONSTER
MINIATURE END MILLS
4 FLUTE



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

4FL REG SQUARE

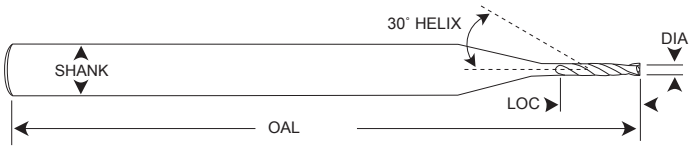
DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.005	0.015	0.125	1.50	250-100410	—
0.006	0.018	0.125	1.50	250-205110	—
0.007	0.021	0.125	1.50	250-205120	—
0.008	0.024	0.125	1.50	250-205130	—
0.009	0.027	0.125	1.50	250-205140	—
0.010	0.030	0.125	1.50	250-100430	250-100430B
0.011	0.033	0.125	1.50	250-205160	250-205160B
0.012	0.036	0.125	1.50	250-205170	250-205170B
0.013	0.039	0.125	1.50	250-205180	250-205180B
0.014	0.042	0.125	1.50	250-205190	250-205190B
0.015	0.045	0.125	1.50	250-100450	250-100450B
0.016	0.048	0.125	1.50	250-205210	250-205210B
0.017	0.051	0.125	1.50	250-205220	250-205220B
0.018	0.054	0.125	1.50	250-205230	250-205230B
0.019	0.057	0.125	1.50	250-205240	250-205240B
0.020	0.060	0.125	1.50	250-100470	250-100470B
0.021	0.063	0.125	1.50	250-205260	250-205260B
0.022	0.066	0.125	1.50	250-205270	250-205270B
0.023	0.069	0.125	1.50	250-205280	250-205280B
0.024	0.072	0.125	1.50	250-205290	250-205290B
0.025	0.075	0.125	1.50	250-100490	250-100490B
0.026	0.078	0.125	1.50	250-205310	250-205310B
0.027	0.081	0.125	1.50	250-205320	250-205320B
0.028	0.084	0.125	1.50	250-205330	250-205330B
0.029	0.087	0.125	1.50	250-205340	250-205340B
0.030	0.090	0.125	1.50	250-100510	250-100510B
0.031	0.093	0.125	1.50	250-205360	250-205360B
0.032	0.096	0.125	1.50	250-205370	250-205370B
0.033	0.099	0.125	1.50	250-205380	250-205380B
0.034	0.102	0.125	1.50	250-205390	250-205390B

PROUDLY MADE IN THE USA

4FL REG SQUARE *Continued*

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.035	0.105	0.125	1.50	250-100530	250-100530B
0.036	0.108	0.125	1.50	250-205410	250-205410B
0.037	0.111	0.125	1.50	250-205420	250-205420B
0.038	0.114	0.125	1.50	250-205430	250-205430B
0.039	0.117	0.125	1.50	250-205440	250-205440B
0.040	0.120	0.125	1.50	250-100550	250-100550B
0.041	0.123	0.125	1.50	250-205460	250-205460B
0.042	0.126	0.125	1.50	250-205470	250-205470B
0.043	0.129	0.125	1.50	250-205480	250-205480B
0.044	0.132	0.125	1.50	250-205490	250-205490B
0.045	0.135	0.125	1.50	250-100570	250-100570B
0.046	0.138	0.125	1.50	250-205510	250-205510B
0.047	0.141	0.125	1.50	250-205520	250-205520B
0.048	0.144	0.125	1.50	250-205530	250-205530B
0.049	0.147	0.125	1.50	250-205540	250-205540B
0.050	0.150	0.125	1.50	250-100590	250-100590B
0.051	0.153	0.125	1.50	250-205560	250-205560B
0.052	0.156	0.125	1.50	250-205570	250-205570B
0.053	0.159	0.125	1.50	250-205580	250-205580B
0.054	0.162	0.125	1.50	250-205590	250-205590B
0.055	0.165	0.125	1.50	250-100610	250-100610B
0.056	0.168	0.125	1.50	250-205610	250-205610B
0.057	0.171	0.125	1.50	250-205620	250-205620B
0.058	0.174	0.125	1.50	250-205630	250-205630B
0.059	0.177	0.125	1.50	250-205640	250-205640B
0.060	0.180	0.125	1.50	250-100630	250-100630B
0.061	0.183	0.125	1.50	250-205660	250-205660B
0.062	0.186	0.125	1.50	250-205670	250-205670B
0.063	0.189	0.125	1.50	250-205680	250-205680B
0.064	0.192	0.125	1.50	250-205690	250-205690B
0.065	0.195	0.125	1.50	250-100650	250-100650B
0.070	0.210	0.125	1.50	250-100670	250-100670B
0.075	0.225	0.125	1.50	250-100690	250-100690B
0.080	0.240	0.125	1.50	250-100710	250-100710B
0.085	0.255	0.125	1.50	250-100730	250-100730B
0.090	0.270	0.125	1.50	250-100750	250-100750B
0.095	0.285	0.125	1.50	250-100770	250-100770B
0.100	0.300	0.125	1.50	250-100790	250-100790B
0.105	0.315	0.125	1.50	250-100801	250-100801B
0.110	0.330	0.125	1.50	250-100803	250-100803B
0.115	0.345	0.125	1.50	250-100805	250-100805B
0.120	0.360	0.125	1.50	250-100807	250-100807B

MINIATURE END MILLS - SQUARE END
4 FLUTE LONG LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

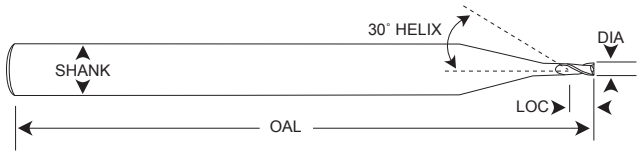
- ***Long flute lengths up - to 16x the diameter***
- ***AlTiN coating provides for provides for increased lubricity & heat resistance for longer tool life***

4FL LONG SQUARE

DIA		LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.015	1/64	0.125	0.125	2.50	251-002000	251-002000B
0.031	1/32	0.250	0.125	2.50	251-002001	251-002001B
0.031	1/32	0.375	0.125	2.50	251-002002	251-002002B
0.047	3/64	0.250	0.125	2.50	251-002010	251-002010B
0.047	3/64	0.375	0.125	2.50	251-002011	251-002011B
0.047	3/64	0.500	0.125	2.50	251-002013	251-002013B
0.062	1/16	0.500	0.125	2.50	251-002020	251-002020B
0.062	1/16	0.750	0.125	2.50	251-002021	251-002021B
0.062	1/16	1.000	0.125	2.50	251-002022	251-002022B
0.078	5/64	0.500	0.125	2.50	251-002030	251-002030B
0.093	3/32	0.500	0.125	2.50	251-002040	251-002040B
0.093	3/32	0.750	0.125	2.50	251-002041	251-002041B

PROUDLY MADE
IN THE USA

MINIATURE END MILLS - BALLNOSE END
2 FLUTE - STUB LENGTH



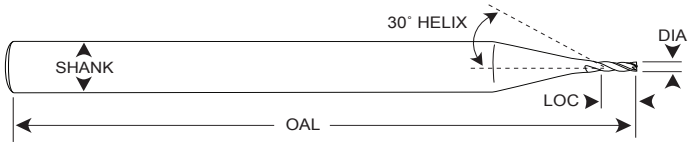
- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Stub length promotes rigidity***
- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

2FL STUB BALLNOSE

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.010	0.015	0.125	1.50	250-360100	250-360100B
0.015	0.023	0.125	1.50	250-360200	250-360200B
0.020	0.030	0.125	1.50	250-360250	250-360250B
0.025	0.038	0.125	1.50	250-360300	250-360300B
0.030	0.045	0.125	1.50	250-360350	250-360350B
0.035	0.053	0.125	1.50	250-360400	250-360400B
0.040	0.060	0.125	1.50	250-360450	250-360450B
0.045	0.068	0.125	1.50	250-360500	250-360500B
0.050	0.075	0.125	1.50	250-360550	250-360550B
0.055	0.083	0.125	1.50	250-360600	250-360600B
0.060	0.090	0.125	1.50	250-360620	250-360620B
0.065	0.098	0.125	1.50	250-360640	250-360640B
0.070	0.105	0.125	1.50	250-360660	250-360660B
0.075	0.113	0.125	1.50	250-360680	250-360680B
0.080	0.120	0.125	1.50	250-360700	250-360700B
0.085	0.128	0.125	1.50	250-360720	250-360720B
0.090	0.135	0.125	1.50	250-360740	250-360740B
0.095	0.143	0.125	1.50	250-360760	250-360760B
0.100	0.150	0.125	1.50	250-360780	250-360780B
0.105	0.158	0.125	1.50	250-360800	250-360800B
0.110	0.165	0.125	1.50	250-360820	250-360820B
0.115	0.173	0.125	1.50	250-360840	250-360840B
0.120	0.180	0.125	1.50	250-360860	250-360860B

MINIATURE END MILLS
2 FLUTE REGULAR - BALLNOSE



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

2FL REG BALLNOSE

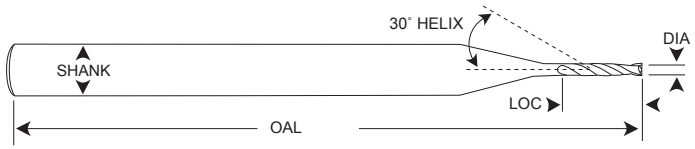
DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.010	0.030	0.125	1.50	250-320010	250-320010B
0.011	0.033	0.125	1.50	250-320011	250-320011B
0.012	0.036	0.125	1.50	250-320012	250-320012B
0.013	0.039	0.125	1.50	250-320013	250-320013B
0.014	0.042	0.125	1.50	250-320014	250-320014B
0.015	0.045	0.125	1.50	250-320015	250-320015B
0.016	0.048	0.125	1.50	250-320016	250-320016B
0.017	0.051	0.125	1.50	250-320017	250-320017B
0.018	0.054	0.125	1.50	250-320018	250-320018B
0.019	0.057	0.125	1.50	250-320019	250-320019B
0.020	0.060	0.125	1.50	250-320020	250-320020B
0.021	0.063	0.125	1.50	250-320021	250-320021B
0.022	0.066	0.125	1.50	250-320022	250-320022B
0.023	0.069	0.125	1.50	250-320023	250-320023B
0.024	0.072	0.125	1.50	250-320024	250-320024B
0.025	0.075	0.125	1.50	250-320025	250-320025B
0.026	0.078	0.125	1.50	250-320026	250-320026B
0.027	0.081	0.125	1.50	250-320027	250-320027B
0.028	0.084	0.125	1.50	250-320028	250-320028B
0.029	0.087	0.125	1.50	250-320029	250-320029B
0.030	0.090	0.125	1.50	250-320030	250-320030B
0.031	0.093	0.125	1.50	250-320031	250-320031B
0.032	0.096	0.125	1.50	250-320032	250-320032B
0.033	0.099	0.125	1.50	250-320033	250-320033B
0.034	0.102	0.125	1.50	250-320034	250-320034B
0.035	0.105	0.125	1.50	250-320035	250-320035B

PROUDLY MADE IN THE USA

2FL REG BALLNOSE *Continued*

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.036	0.108	0.125	1.50	250-320036	250-320036B
0.037	0.111	0.125	1.50	250-320037	250-320037B
0.038	0.114	0.125	1.50	250-320038	250-320038B
0.039	0.117	0.125	1.50	250-320039	250-320039B
0.040	0.120	0.125	1.50	250-320040	250-320040B
0.041	0.123	0.125	1.50	250-320041	250-320041B
0.042	0.126	0.125	1.50	250-320042	250-320042B
0.043	0.129	0.125	1.50	250-320043	250-320043B
0.044	0.132	0.125	1.50	250-320044	250-320044B
0.045	0.135	0.125	1.50	250-320045	250-320045B
0.046	0.138	0.125	1.50	250-320046	250-320046B
0.047	0.141	0.125	1.50	250-320047	250-320047B
0.048	0.144	0.125	1.50	250-320048	250-320048B
0.049	0.147	0.125	1.50	250-320049	250-320049B
0.050	0.150	0.125	1.50	250-320050	250-320050B
0.051	0.153	0.125	1.50	250-320051	250-320051B
0.052	0.156	0.125	1.50	250-320052	250-320052B
0.053	0.159	0.125	1.50	250-320053	250-320053B
0.054	0.162	0.125	1.50	250-320054	250-320054B
0.055	0.165	0.125	1.50	250-320055	250-320055B
0.056	0.168	0.125	1.50	250-320056	250-320056B
0.057	0.171	0.125	1.50	250-320057	250-320057B
0.058	0.174	0.125	1.50	250-320058	250-320058B
0.059	0.177	0.125	1.50	250-320059	250-320059B
0.060	0.180	0.125	1.50	250-320060	250-320060B
0.061	0.183	0.125	1.50	250-320061	250-320061B
0.062	0.186	0.125	1.50	250-320062	250-320062B
0.063	0.189	0.125	1.50	250-320063	250-320063B
0.064	0.192	0.125	1.50	250-320064	250-320064B
0.065	0.195	0.125	1.50	250-320065	250-320065B
0.070	0.210	0.125	1.50	250-320070	250-320070B
0.075	0.225	0.125	1.50	250-320075	250-320075B
0.080	0.240	0.125	1.50	250-320080	250-320080B
0.085	0.255	0.125	1.50	250-320085	250-320085B
0.090	0.270	0.125	1.50	250-320090	250-320090B
0.095	0.285	0.125	1.50	250-320095	250-320095B
0.100	0.300	0.125	1.50	250-320100	250-320100B
0.105	0.315	0.125	1.50	250-320105	250-320105B
0.110	0.330	0.125	1.50	250-320110	250-320110B
0.115	0.345	0.125	1.50	250-320115	250-320115B
0.120	0.360	0.125	1.50	250-320120	250-320120B

MINIATURE END MILLS - BALLNOSE END
2 FLUTE LONG LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

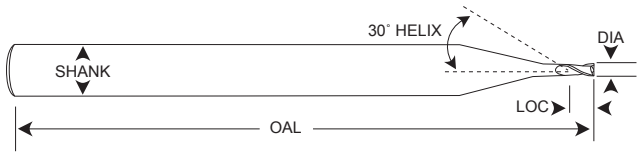
- ***Long flute lengths up - to 16x the diameter***
- ***AlTiN coating provides for provides for increased lubricity & heat resistance for longer tool life***

2FL LONG BALLNOSE

DIA		LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.015	1/64	0.125	0.125	2.50	251-001100	251-001100B
0.031	1/32	0.250	0.125	2.50	251-001101	251-001101B
0.031	1/32	0.375	0.125	2.50	251-001102	251-001102B
0.047	3/64	0.250	0.125	2.50	251-001110	251-001110B
0.047	3/64	0.375	0.125	2.50	251-001111	251-001111B
0.047	3/64	0.500	0.125	2.50	251-001112	251-001112B
0.062	1/16	0.500	0.125	2.50	251-001120	251-001120B
0.062	1/16	0.750	0.125	2.50	251-001121	251-001121B
0.062	1/16	1.000	0.125	2.50	251-001122	251-001122B
0.078	5/64	0.500	0.125	2.50	251-001130	251-001130B
0.093	3/32	0.500	0.125	2.50	251-001140	251-001140B
0.093	3/32	0.750	0.125	2.50	251-001141	251-001141B

PROUDLY MADE
IN THE USA

MINIATURE END MILLS - BALLNOSE END
4 FLUTE - STUB LENGTH



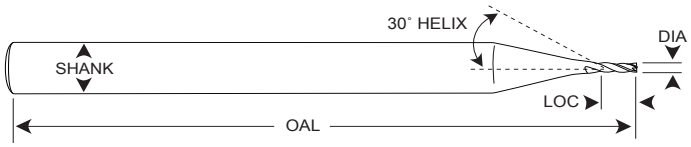
- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Stub length promotes rigidity***
- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

4FL STUB BALLNOSE

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.010	0.015	0.125	1.50	250-370150	250-370150B
0.015	0.023	0.125	1.50	250-370200	250-370200B
0.020	0.030	0.125	1.50	250-370250	250-370250B
0.025	0.038	0.125	1.50	250-370300	250-370300B
0.030	0.045	0.125	1.50	250-370350	250-370350B
0.035	0.053	0.125	1.50	250-370400	250-370400B
0.040	0.060	0.125	1.50	250-370450	250-370450B
0.045	0.068	0.125	1.50	250-370500	250-370500B
0.050	0.075	0.125	1.50	250-370550	250-370550B
0.055	0.083	0.125	1.50	250-370600	250-370600B
0.060	0.090	0.125	1.50	250-370620	250-370620B
0.065	0.098	0.125	1.50	250-370640	250-370640B
0.070	0.105	0.125	1.50	250-370660	250-370660B
0.075	0.113	0.125	1.50	250-370680	250-370680B
0.080	0.120	0.125	1.50	250-370700	250-370700B
0.085	0.128	0.125	1.50	250-370720	250-370720B
0.090	0.135	0.125	1.50	250-370740	250-370740B
0.095	0.143	0.125	1.50	250-370760	250-370760B
0.100	0.150	0.125	1.50	250-370780	250-370780B
0.105	0.158	0.125	1.50	250-370800	250-370800B
0.110	0.165	0.125	1.50	250-370820	250-370820B
0.115	0.173	0.125	1.50	250-370840	250-370840B
0.120	0.180	0.125	1.50	250-370860	250-370860B

MICRO MONSTER
MINIATURE END MILLS
4 FLUTE



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

4FL REG BALLNOSE

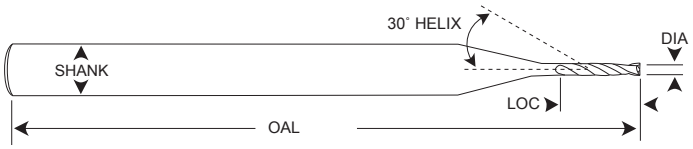
DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.010	0.030	0.125	1.50	250-340010	250-340010B
0.011	0.033	0.125	1.50	250-340011	250-340011B
0.012	0.036	0.125	1.50	250-340012	250-340012B
0.013	0.039	0.125	1.50	250-340013	250-340013B
0.014	0.042	0.125	1.50	250-340014	250-340014B
0.015	0.045	0.125	1.50	250-340015	250-340015B
0.016	0.048	0.125	1.50	250-340016	250-340016B
0.017	0.051	0.125	1.50	250-340017	250-340017B
0.018	0.054	0.125	1.50	250-340018	250-340018B
0.019	0.057	0.125	1.50	250-340019	250-340019B
0.020	0.060	0.125	1.50	250-340020	250-340020B
0.021	0.063	0.125	1.50	250-340021	250-340021B
0.022	0.066	0.125	1.50	250-340022	250-340022B
0.023	0.069	0.125	1.50	250-340023	250-340023B
0.024	0.072	0.125	1.50	250-340024	250-340024B
0.025	0.075	0.125	1.50	250-340025	250-340025B
0.026	0.078	0.125	1.50	250-340026	250-340026B
0.027	0.081	0.125	1.50	250-340027	250-340027B
0.028	0.084	0.125	1.50	250-340028	250-340028B
0.029	0.087	0.125	1.50	250-340029	250-340029B
0.030	0.090	0.125	1.50	250-340030	250-340030B
0.031	0.093	0.125	1.50	250-340031	250-340031B
0.032	0.096	0.125	1.50	250-340032	250-340032B
0.033	0.099	0.125	1.50	250-340033	250-340033B
0.034	0.102	0.125	1.50	250-340034	250-340034B
0.035	0.105	0.125	1.50	250-340035	250-340035B
0.036	0.108	0.125	1.50	250-340036	250-340036B
0.037	0.111	0.125	1.50	250-340037	250-340037B

PROUDLY MADE IN THE USA

4FL REG BALLNOSE *Continued*

DIA	LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.038	0.114	0.125	1.50	250-340038	250-340038B
0.039	0.117	0.125	1.50	250-340039	250-340039B
0.040	0.120	0.125	1.50	250-340040	250-340040B
0.041	0.123	0.125	1.50	250-340041	250-340041B
0.042	0.126	0.125	1.50	250-340042	250-340042B
0.043	0.129	0.125	1.50	250-340043	250-340043B
0.044	0.132	0.125	1.50	250-340044	250-340044B
0.045	0.135	0.125	1.50	250-340045	250-340045B
0.046	0.138	0.125	1.50	250-340046	250-340046B
0.047	0.141	0.125	1.50	250-340047	250-340047B
0.048	0.144	0.125	1.50	250-340048	250-340048B
0.049	0.147	0.125	1.50	250-340049	250-340049B
0.050	0.150	0.125	1.50	250-340050	250-340050B
0.051	0.153	0.125	1.50	250-340051	250-340051B
0.052	0.156	0.125	1.50	250-340052	250-340052B
0.053	0.159	0.125	1.50	250-340053	250-340053B
0.054	0.162	0.125	1.50	250-340054	250-340054B
0.055	0.165	0.125	1.50	250-340055	250-340055B
0.056	0.168	0.125	1.50	250-340056	250-340056B
0.057	0.171	0.125	1.50	250-340057	250-340057B
0.058	0.174	0.125	1.50	250-340058	250-340058B
0.059	0.177	0.125	1.50	250-340059	250-340059B
0.060	0.180	0.125	1.50	250-340060	250-340060B
0.061	0.183	0.125	1.50	250-340061	250-340061B
0.062	0.186	0.125	1.50	250-340062	250-340062B
0.063	0.189	0.125	1.50	250-340063	250-340063B
0.064	0.192	0.125	1.50	250-340064	250-340064B
0.065	0.195	0.125	1.50	250-340065	250-340065B
0.070	0.210	0.125	1.50	250-340070	250-340070B
0.075	0.225	0.125	1.50	250-340075	250-340075B
0.080	0.240	0.125	1.50	250-340080	250-340080B
0.085	0.255	0.125	1.50	250-340085	250-340085B
0.090	0.270	0.125	1.50	250-340090	250-340090B
0.095	0.285	0.125	1.50	250-340095	250-340095B
0.100	0.300	0.125	1.50	250-340100	250-340100B
0.105	0.315	0.125	1.50	250-340105	250-340105B
0.110	0.330	0.125	1.50	250-340110	250-340110B
0.115	0.345	0.125	1.50	250-340115	250-340115B
0.120	0.360	0.125	1.50	250-340120	250-340120B

MINIATURE END MILLS - BALLNOSE END
4 FLUTE LONG LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

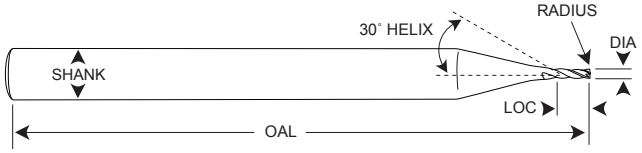
- ***Long flute lengths up - to 16x the diameter***
- ***AlTiN coating provides for longer tool life, especially when milling steels, alloy steels and hardened steels***

4FL LONG BALLNOSE

DIA		LOC	SHANK	OAL	UNCOATED	AlTiN COATED
0.015	1/64	0.125	0.125	2.50	251-002100	251-002100B
0.031	1/32	0.250	0.125	2.50	251-002101	251-002101B
0.031	1/32	0.375	0.125	2.50	251-002102	251-002102B
0.047	3/64	0.250	0.125	2.50	251-002110	251-002110B
0.047	3/64	0.375	0.125	2.50	251-002111	251-002111B
0.047	3/64	0.500	0.125	2.50	251-002112	251-002112B
0.062	1/16	0.500	0.125	2.50	251-002120	251-002120B
0.062	1/16	0.750	0.125	2.50	251-002121	251-002121B
0.062	1/16	1.000	0.125	2.50	251-002122	251-002122B
0.078	5/64	0.500	0.125	2.50	251-002130	251-002130B
0.093	3/32	0.500	0.125	2.50	251-002140	251-002140B
0.093	3/32	0.750	0.125	2.50	251-002141	251-002141B

PROUDLY MADE
IN THE USA

MINIATURE END MILLS - CORNER RADIUS 2 FLUTE STUB LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Corner radius promotes additional strength for longer tool life resulting in greater productivity***

2FL STUB RADIUS

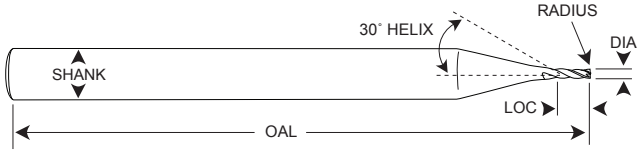
DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.010	0.015	0.125	1.50	**.002**	250-6201002	250-6201002B
0.015	0.023	0.125	1.50	**.002**	250-6201502	250-6201502B
0.020	0.030	0.125	1.50	**.005**	250-6202005	250-6202005B
0.025	0.038	0.125	1.50	**.005**	250-6202505	250-6202505B
0.030	0.045	0.125	1.50	**.005**	250-6203005	250-6203005B
0.030	0.045	0.125	1.50	**.010**	250-6203010	250-6203010B
0.031	0.047	0.125	1.50	**.005**	250-6203105	250-6203105B
0.031	0.047	0.125	1.50	**.010**	250-6203110	250-6203110B
0.035	0.053	0.125	1.50	**.005**	250-6203505	250-6203505B
0.035	0.053	0.125	1.50	**.010**	250-6203510	250-6203510B
0.040	0.060	0.125	1.50	**.005**	250-6204005	250-6204005B
0.040	0.060	0.125	1.50	**.010**	250-6204010	250-6204010B
0.045	0.068	0.125	1.50	**.005**	250-6204505	250-6204505B
0.045	0.068	0.125	1.50	**.010**	250-6204510	250-6204510B
0.045	0.068	0.125	1.50	**.015**	250-6204515	250-6204515B
0.047	0.071	0.125	1.50	**.005**	250-6204705	250-6204705B
0.047	0.071	0.125	1.50	**.010**	250-6204710	250-6204710B
0.047	0.071	0.125	1.50	**.015**	250-6204715	250-6204715B
0.050	0.075	0.125	1.50	**.005**	250-6205005	250-6205005B
0.050	0.075	0.125	1.50	**.010**	250-6205010	250-6205010B
0.050	0.075	0.125	1.50	**.015**	250-6205015	250-6205015B
0.055	0.083	0.125	1.50	**.005**	250-6205505	250-6205505B
0.055	0.083	0.125	1.50	**.010**	250-6205510	250-6205510B
0.055	0.083	0.125	1.50	**.015**	250-6205515	250-6205515B
0.060	0.090	0.125	1.50	**.005**	250-6206005	250-6206005B
0.060	0.090	0.125	1.50	**.010**	250-6206010	250-6206010B
0.060	0.090	0.125	1.50	**.015**	250-6206015	250-6206015B
0.062	0.093	0.125	1.50	**.005**	250-6206205	250-6206205B
0.062	0.093	0.125	1.50	**.010**	250-6206210	250-6206210B
0.062	0.093	0.125	1.50	**.015**	250-6206215	250-6206215B

PROUDLY MADE IN THE USA

2FL STUB RADIUS *Continued*

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.065	0.098	0.125	1.50	**.005**	250-6206505	250-6206505B
0.065	0.098	0.125	1.50	**.010**	250-6206510	250-6206510B
0.065	0.098	0.125	1.50	**.015**	250-6206515	250-6206515B
0.070	0.105	0.125	1.50	**.005**	250-6207005	250-6207005B
0.070	0.105	0.125	1.50	**.010**	250-6207010	250-6207010B
0.070	0.105	0.125	1.50	**.015**	250-6207015	250-6207015B
0.075	0.113	0.125	1.50	**.005**	250-6207505	250-6207505B
0.075	0.113	0.125	1.50	**.010**	250-6207510	250-6207510B
0.075	0.113	0.125	1.50	**.015**	250-6207515	250-6207515B
0.078	0.117	0.125	1.50	**.005**	250-6207805	250-6207805B
0.078	0.117	0.125	1.50	**.010**	250-6207810	250-6207810B
0.078	0.117	0.125	1.50	**.015**	250-6207815	250-6207815B
0.080	0.120	0.125	1.50	**.005**	250-6208005	250-6208005B
0.080	0.120	0.125	1.50	**.010**	250-6208010	250-6208010B
0.080	0.120	0.125	1.50	**.015**	250-6208015	250-6208015B
0.085	0.128	0.125	1.50	**.005**	250-6208505	250-6208505B
0.085	0.128	0.125	1.50	**.010**	250-6208510	250-6208510B
0.085	0.128	0.125	1.50	**.015**	250-6208515	250-6208515B
0.090	0.135	0.125	1.50	**.005**	250-6209005	250-6209005B
0.090	0.135	0.125	1.50	**.010**	250-6209010	250-6209010B
0.090	0.135	0.125	1.50	**.015**	250-6209015	250-6209015B
0.093	0.140	0.125	1.50	**.005**	250-6209305	250-6209305B
0.093	0.140	0.125	1.50	**.010**	250-6209310	250-6209310B
0.093	0.140	0.125	1.50	**.015**	250-6209315	250-6209315B
0.095	0.143	0.125	1.50	**.005**	250-6209505	250-6209505B
0.095	0.143	0.125	1.50	**.010**	250-6209510	250-6209510B
0.095	0.143	0.125	1.50	**.015**	250-6209515	250-6209515B
0.100	0.150	0.125	1.50	**.005**	250-6210005	250-6210005B
0.100	0.150	0.125	1.50	**.010**	250-6210010	250-6210010B
0.100	0.150	0.125	1.50	**.015**	250-6210015	250-6210015B
0.105	0.158	0.125	1.50	**.010**	250-6210510	250-6210510B
0.105	0.158	0.125	1.50	**.015**	250-6210515	250-6210515B
0.105	0.158	0.125	1.50	**.020**	250-6210520	250-6210520B
0.110	0.165	0.125	1.50	**.010**	250-6211010	250-6211010B
0.110	0.165	0.125	1.50	**.015**	250-6211015	250-6211015B
0.110	0.165	0.125	1.50	**.020**	250-6211020	250-6211020B
0.115	0.173	0.125	1.50	**.010**	250-6211510	250-6211510B
0.115	0.173	0.125	1.50	**.015**	250-6211515	250-6211515B
0.115	0.173	0.125	1.50	**.020**	250-6211520	250-6211520B
0.120	0.180	0.125	1.50	**.010**	250-6212010	250-6212010B
0.120	0.180	0.125	1.50	**.015**	250-6212015	250-6212015B
0.120	0.180	0.125	1.50	**.020**	250-6212020	250-6212020B

MINIATURE END MILLS - CORNER RADIUS 2 FLUTE REGULAR LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Corner radius promotes additional strength for longer tool life resulting in greater productivity***

2FL REG RADIUS

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.010	0.030	0.125	1.50	**.002**	250-5201002	250-5201002B
0.015	0.045	0.125	1.50	**.002**	250-5201502	250-5201502B
0.020	0.060	0.125	1.50	**.005**	250-5202005	250-5202005B
0.025	0.075	0.125	1.50	**.005**	250-5202505	250-5202505B
0.030	0.090	0.125	1.50	**.005**	250-5203005	250-5203005B
0.030	0.090	0.125	1.50	**.010**	250-5203010	250-5203010B
0.031	0.093	0.125	1.50	**.005**	250-5203105	250-5203105B
0.031	0.093	0.125	1.50	**.010**	250-5203110	250-5203110B
0.035	0.105	0.125	1.50	**.005**	250-5203505	250-5203505B
0.035	0.105	0.125	1.50	**.010**	250-5203510	250-5203510B
0.040	0.120	0.125	1.50	**.005**	250-5204005	250-5204005B
0.040	0.120	0.125	1.50	**.010**	250-5204010	250-5204010B
0.045	0.135	0.125	1.50	**.005**	250-5204505	250-5204505B
0.045	0.135	0.125	1.50	**.010**	250-5204510	250-5204510B
0.045	0.135	0.125	1.50	**.015**	250-5204515	250-5204515B
0.047	0.141	0.125	1.50	**.005**	250-5204705	250-5204705B
0.047	0.141	0.125	1.50	**.010**	250-5204710	250-5204710B
0.047	0.141	0.125	1.50	**.015**	250-5204715	250-5204715B
0.050	0.150	0.125	1.50	**.005**	250-5205005	250-5205005B
0.050	0.150	0.125	1.50	**.010**	250-5205010	250-5205010B
0.050	0.150	0.125	1.50	**.015**	250-5205015	250-5205015B
0.055	0.165	0.125	1.50	**.005**	250-5205505	250-5205505B
0.055	0.165	0.125	1.50	**.010**	250-5205510	250-5205510B
0.055	0.165	0.125	1.50	**.015**	250-5205515	250-5205515B
0.060	0.180	0.125	1.50	**.005**	250-5206005	250-5206005B
0.060	0.180	0.125	1.50	**.010**	250-5206010	250-5206010B
0.060	0.180	0.125	1.50	**.015**	250-5206015	250-5206015B
0.062	0.186	0.125	1.50	**.005**	250-5206205	250-5206205B
0.062	0.186	0.125	1.50	**.010**	250-5206210	250-5206210B
0.062	0.186	0.125	1.50	**.015**	250-5206215	250-5206215B

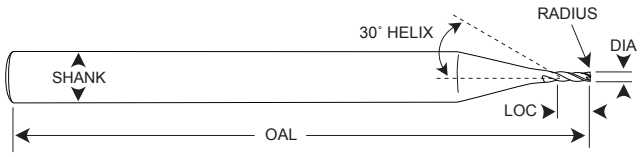
PROUDLY MADE IN THE USA

- *AlTiN coating provides for provides for increased lubricity & heat resistance for longer tool life*

2FL REG RADIUS *Continued*

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.065	0.195	0.125	1.50	**.005**	250-5206505	250-5206505B
0.065	0.195	0.125	1.50	**.010**	250-5206510	250-5206510B
0.065	0.195	0.125	1.50	**.015**	250-5206515	250-5206515B
0.070	0.210	0.125	1.50	**.005**	250-5207005	250-5207005B
0.070	0.210	0.125	1.50	**.010**	250-5207010	250-5207010B
0.070	0.210	0.125	1.50	**.015**	250-5207015	250-5207015B
0.075	0.225	0.125	1.50	**.005**	250-5207505	250-5207505B
0.075	0.225	0.125	1.50	**.010**	250-5207510	250-5207510B
0.075	0.225	0.125	1.50	**.015**	250-5207515	250-5207515B
0.078	0.234	0.125	1.50	**.005**	250-5207805	250-5207805B
0.078	0.234	0.125	1.50	**.010**	250-5207810	250-5207810B
0.078	0.234	0.125	1.50	**.015**	250-5207815	250-5207815B
0.080	0.240	0.125	1.50	**.005**	250-5208005	250-5208005B
0.080	0.240	0.125	1.50	**.010**	250-5208010	250-5208010B
0.080	0.240	0.125	1.50	**.015**	250-5208015	250-5208015B
0.085	0.255	0.125	1.50	**.005**	250-5208505	250-5208505B
0.085	0.255	0.125	1.50	**.010**	250-5208510	250-5208510B
0.085	0.255	0.125	1.50	**.015**	250-5208515	250-5208515B
0.090	0.270	0.125	1.50	**.005**	250-5209005	250-5209005B
0.090	0.270	0.125	1.50	**.010**	250-5209010	250-5209010B
0.090	0.270	0.125	1.50	**.015**	250-5209015	250-5209015B
0.093	0.279	0.125	1.50	**.005**	250-5209305	250-5209305B
0.093	0.279	0.125	1.50	**.010**	250-5209310	250-5209310B
0.093	0.279	0.125	1.50	**.015**	250-5209315	250-5209315B
0.095	0.285	0.125	1.50	**.005**	250-5209505	250-5209505B
0.095	0.285	0.125	1.50	**.010**	250-5209510	250-5209510B
0.095	0.285	0.125	1.50	**.015**	250-5209515	250-5209515B
0.100	0.300	0.125	1.50	**.005**	250-5210005	250-5210005B
0.100	0.300	0.125	1.50	**.010**	250-5210010	250-5210010B
0.100	0.300	0.125	1.50	**.015**	250-5210015	250-5210015B
0.105	0.315	0.125	1.50	**.010**	250-5210510	250-5210510B
0.105	0.315	0.125	1.50	**.015**	250-5210515	250-5210515B
0.105	0.315	0.125	1.50	**.020**	250-5210520	250-5210520B
0.110	0.330	0.125	1.50	**.010**	250-5211010	250-5211010B
0.110	0.330	0.125	1.50	**.015**	250-5211015	250-5211015B
0.110	0.330	0.125	1.50	**.020**	250-5211020	250-5211020B
0.115	0.345	0.125	1.50	**.010**	250-5211510	250-5211510B
0.115	0.345	0.125	1.50	**.015**	250-5211515	250-5211515B
0.115	0.345	0.125	1.50	**.020**	250-5211520	250-5211520B
0.120	0.360	0.125	1.50	**.010**	250-5212010	250-5212010B
0.120	0.360	0.125	1.50	**.015**	250-5212015	250-5212015B
0.120	0.360	0.125	1.50	**.020**	250-5212020	250-5212020B

MINIATURE END MILLS - CORNER RADIUS 4 FLUTE STUB LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Corner radius promotes additional strength for longer tool life resulting in greater productivity***

4FL STUB RADIUS

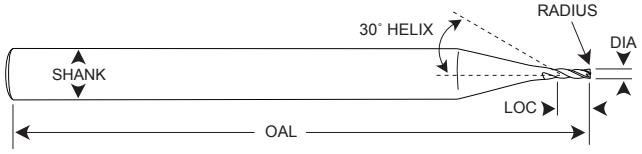
DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.010	0.015	0.125	1.50	**.002**	250-6401002	250-6401002B
0.015	0.023	0.125	1.50	**.002**	250-6401502	250-6401502B
0.020	0.030	0.125	1.50	**.005**	250-6402005	250-6402005B
0.025	0.038	0.125	1.50	**.005**	250-6402505	250-6402505B
0.030	0.045	0.125	1.50	**.005**	250-6403005	250-6403005B
0.030	0.045	0.125	1.50	**.010**	250-6403010	250-6403010B
0.031	0.047	0.125	1.50	**.005**	250-6403105	250-6403105B
0.031	0.047	0.125	1.50	**.010**	250-6403110	250-6403110B
0.035	0.053	0.125	1.50	**.005**	250-6403505	250-6403505B
0.035	0.053	0.125	1.50	**.010**	250-6403510	250-6403510B
0.040	0.060	0.125	1.50	**.005**	250-6404005	250-6404005B
0.040	0.060	0.125	1.50	**.010**	250-6404010	250-6404010B
0.045	0.068	0.125	1.50	**.005**	250-6404505	250-6404505B
0.045	0.068	0.125	1.50	**.010**	250-6404510	250-6404510B
0.045	0.068	0.125	1.50	**.015**	250-6404515	250-6404515B
0.047	0.071	0.125	1.50	**.005**	250-6404705	250-6404705B
0.047	0.071	0.125	1.50	**.010**	250-6404710	250-6404710B
0.047	0.071	0.125	1.50	**.015**	250-6404715	250-6404715B
0.050	0.075	0.125	1.50	**.005**	250-6405005	250-6405005B
0.050	0.075	0.125	1.50	**.010**	250-6405010	250-6405010B
0.050	0.075	0.125	1.50	**.015**	250-6405015	250-6405015B
0.055	0.083	0.125	1.50	**.005**	250-6405505	250-6405505B
0.055	0.083	0.125	1.50	**.010**	250-6405510	250-6405510B
0.055	0.083	0.125	1.50	**.015**	250-6405515	250-6405515B
0.060	0.090	0.125	1.50	**.005**	250-6406005	250-6406005B
0.060	0.090	0.125	1.50	**.010**	250-6406010	250-6406010B
0.060	0.090	0.125	1.50	**.015**	250-6406015	250-6406015B
0.062	0.093	0.125	1.50	**.005**	250-6406205	250-6406205B
0.062	0.093	0.125	1.50	**.010**	250-6406210	250-6406210B
0.062	0.093	0.125	1.50	**.015**	250-6406215	250-6406215B

PROUDLY MADE IN THE USA

4FL STUB RADIUS *Continued*

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.065	0.098	0.125	1.50	**.005**	250-6406505	250-6406505B
0.065	0.098	0.125	1.50	**.010**	250-6406510	250-6406510B
0.065	0.098	0.125	1.50	**.015**	250-6406515	250-6406515B
0.070	0.105	0.125	1.50	**.005**	250-6407005	250-6407005B
0.070	0.105	0.125	1.50	**.010**	250-6407010	250-6407010B
0.070	0.105	0.125	1.50	**.015**	250-6407015	250-6407015B
0.075	0.113	0.125	1.50	**.005**	250-6407505	250-6407505B
0.075	0.113	0.125	1.50	**.010**	250-6407510	250-6407510B
0.075	0.113	0.125	1.50	**.015**	250-6407515	250-6407515B
0.078	0.117	0.125	1.50	**.005**	250-6407805	250-6407805B
0.078	0.117	0.125	1.50	**.010**	250-6407810	250-6407810B
0.078	0.117	0.125	1.50	**.015**	250-6407815	250-6407815B
0.080	0.120	0.125	1.50	**.005**	250-6408005	250-6408005B
0.080	0.120	0.125	1.50	**.010**	250-6408010	250-6408010B
0.080	0.120	0.125	1.50	**.015**	250-6408015	250-6408015B
0.085	0.128	0.125	1.50	**.005**	250-6408505	250-6408505B
0.085	0.128	0.125	1.50	**.010**	250-6408510	250-6408510B
0.085	0.128	0.125	1.50	**.015**	250-6408515	250-6408515B
0.090	0.135	0.125	1.50	**.005**	250-6409005	250-6409005B
0.090	0.135	0.125	1.50	**.010**	250-6409010	250-6409010B
0.090	0.135	0.125	1.50	**.015**	250-6409015	250-6409015B
0.093	0.140	0.125	1.50	**.005**	250-6409305	250-6409305B
0.093	0.140	0.125	1.50	**.010**	250-6409310	250-6409310B
0.093	0.140	0.125	1.50	**.015**	250-6409315	250-6409315B
0.095	0.143	0.125	1.50	**.005**	250-6409505	250-6409505B
0.095	0.143	0.125	1.50	**.010**	250-6409510	250-6409510B
0.095	0.143	0.125	1.50	**.015**	250-6409515	250-6409515B
0.100	0.150	0.125	1.50	**.005**	250-6410005	250-6410005B
0.100	0.150	0.125	1.50	**.010**	250-6410010	250-6410010B
0.100	0.150	0.125	1.50	**.015**	250-6410015	250-6410015B
0.105	0.158	0.125	1.50	**.010**	250-6410510	250-6410510B
0.105	0.158	0.125	1.50	**.015**	250-6410515	250-6410515B
0.105	0.158	0.125	1.50	**.020**	250-6410520	250-6410520B
0.110	0.165	0.125	1.50	**.010**	250-6411010	250-6411010B
0.110	0.165	0.125	1.50	**.015**	250-6411015	250-6411015B
0.110	0.165	0.125	1.50	**.020**	250-6411020	250-6411020B
0.115	0.173	0.125	1.50	**.010**	250-6411510	250-6411510B
0.115	0.173	0.125	1.50	**.015**	250-6411515	250-6411515B
0.115	0.173	0.125	1.50	**.020**	250-6411520	250-6411520B
0.120	0.180	0.125	1.50	**.010**	250-6412010	250-6412010B
0.120	0.180	0.125	1.50	**.015**	250-6412015	250-6412015B
0.120	0.180	0.125	1.50	**.020**	250-6412020	250-6412020B

MINIATURE END MILLS - CORNER RADIUS 4 FLUTE REGULAR LENGTH



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Corner radius promotes additional strength for longer tool life resulting in greater productivity***

4FL REG RADIUS

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.010	0.030	0.125	1.50	**.002**	250-5401002	250-5401002B
0.015	0.045	0.125	1.50	**.002**	250-5401502	250-5401502B
0.020	0.060	0.125	1.50	**.005**	250-5402005	250-5402005B
0.025	0.075	0.125	1.50	**.005**	250-5402505	250-5402505B
0.030	0.090	0.125	1.50	**.005**	250-5403005	250-5403005B
0.030	0.090	0.125	1.50	**.010**	250-5403010	250-5403010B
0.031	0.093	0.125	1.50	**.005**	250-5403105	250-5403105B
0.031	0.093	0.125	1.50	**.010**	250-5403110	250-5403110B
0.035	0.105	0.125	1.50	**.005**	250-5403505	250-5403505B
0.035	0.105	0.125	1.50	**.010**	250-5403510	250-5403510B
0.040	0.120	0.125	1.50	**.005**	250-5404005	250-5404005B
0.040	0.120	0.125	1.50	**.010**	250-5404010	250-5404010B
0.045	0.135	0.125	1.50	**.005**	250-5404505	250-5404505B
0.045	0.135	0.125	1.50	**.010**	250-5404510	250-5404510B
0.045	0.135	0.125	1.50	**.015**	250-5404515	250-5404515B
0.047	0.141	0.125	1.50	**.005**	250-5404705	250-5404705B
0.047	0.141	0.125	1.50	**.010**	250-5404710	250-5404710B
0.047	0.141	0.125	1.50	**.015**	250-5404715	250-5404715B
0.050	0.150	0.125	1.50	**.005**	250-5405005	250-5405005B
0.050	0.150	0.125	1.50	**.010**	250-5405010	250-5405010B
0.050	0.150	0.125	1.50	**.015**	250-5405015	250-5405015B
0.055	0.165	0.125	1.50	**.005**	250-5405505	250-5405505B
0.055	0.165	0.125	1.50	**.010**	250-5405510	250-5405510B
0.055	0.165	0.125	1.50	**.015**	250-5405515	250-5405515B
0.060	0.180	0.125	1.50	**.005**	250-5406005	250-5406005B
0.060	0.180	0.125	1.50	**.010**	250-5406010	250-5406010B
0.060	0.180	0.125	1.50	**.015**	250-5406015	250-5406015B
0.062	0.186	0.125	1.50	**.005**	250-5406205	250-5406205B
0.062	0.186	0.125	1.50	**.010**	250-5406210	250-5406210B
0.062	0.186	0.125	1.50	**.015**	250-5406215	250-5406215B

MICRO MONSTER

PROUDLY MADE IN THE USA

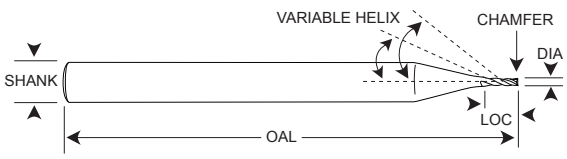
- *AlTiN coating provides for provides for increased lubricity & heat resistance for longer tool life*

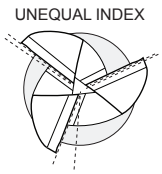
4FL REG RADIUS *Continued*

DIA	LOC	SHANK	OAL	RADIUS	UNCOATED	AlTiN Coated
0.065	0.195	0.125	1.50	**.005**	250-5406505	250-5406505B
0.065	0.195	0.125	1.50	**.010**	250-5406510	250-5406510B
0.065	0.195	0.125	1.50	**.015**	250-5406515	250-5406515B
0.070	0.210	0.125	1.50	**.005**	250-5407005	250-5407005B
0.070	0.210	0.125	1.50	**.010**	250-5407010	250-5407010B
0.070	0.210	0.125	1.50	**.015**	250-5407015	250-5407015B
0.075	0.225	0.125	1.50	**.005**	250-5407505	250-5407505B
0.075	0.225	0.125	1.50	**.010**	250-5407510	250-5407510B
0.075	0.225	0.125	1.50	**.015**	250-5407515	250-5407515B
0.078	0.234	0.125	1.50	**.005**	250-5407805	250-5407805B
0.078	0.234	0.125	1.50	**.010**	250-5407810	250-5407810B
0.078	0.234	0.125	1.50	**.015**	250-5407815	250-5407815B
0.080	0.240	0.125	1.50	**.005**	250-5408005	250-5408005B
0.080	0.240	0.125	1.50	**.010**	250-5408010	250-5408010B
0.080	0.240	0.125	1.50	**.015**	250-5408015	250-5408015B
0.085	0.255	0.125	1.50	**.005**	250-5408505	250-5408505B
0.085	0.255	0.125	1.50	**.010**	250-5408510	250-5408510B
0.085	0.255	0.125	1.50	**.015**	250-5408515	250-5408515B
0.090	0.270	0.125	1.50	**.005**	250-5409005	250-5409005B
0.090	0.270	0.125	1.50	**.010**	250-5409010	250-5409010B
0.090	0.270	0.125	1.50	**.015**	250-5409015	250-5409015B
0.093	0.279	0.125	1.50	**.005**	250-5409305	250-5409305B
0.093	0.279	0.125	1.50	**.010**	250-5409310	250-5409310B
0.093	0.279	0.125	1.50	**.015**	250-5409315	250-5409315B
0.095	0.285	0.125	1.50	**.005**	250-5409505	250-5409505B
0.095	0.285	0.125	1.50	**.010**	250-5409510	250-5409510B
0.095	0.285	0.125	1.50	**.015**	250-5409515	250-5409515B
0.100	0.300	0.125	1.50	**.005**	250-5410005	250-5410005B
0.100	0.300	0.125	1.50	**.010**	250-5410010	250-5410010B
0.100	0.300	0.125	1.50	**.015**	250-5410015	250-5410015B
0.105	0.315	0.125	1.50	**.010**	250-5410510	250-5410510B
0.105	0.315	0.125	1.50	**.015**	250-5410515	250-5410515B
0.105	0.315	0.125	1.50	**.020**	250-5410520	250-5410520B
0.110	0.330	0.125	1.50	**.010**	250-5411010	250-5411010B
0.110	0.330	0.125	1.50	**.015**	250-5411015	250-5411015B
0.110	0.330	0.125	1.50	**.020**	250-5411020	250-5411020B
0.115	0.345	0.125	1.50	**.010**	250-5411510	250-5411510B
0.115	0.345	0.125	1.50	**.015**	250-5411515	250-5411515B
0.115	0.345	0.125	1.50	**.020**	250-5411520	250-5411520B
0.120	0.360	0.125	1.50	**.010**	250-5412010	250-5412010B
0.120	0.360	0.125	1.50	**.015**	250-5412015	250-5412015B
0.120	0.360	0.125	1.50	**.020**	250-5412020	250-5412020B

HIGH PERFORMANCE
Miniature Endmills
Variable Helix & Unequal Index

- *Reduces harmonics & chatter, allowing for faster feed and speeds*
- *Designed for aerospace materials, exotic alloys & difficult to machine ferrous & non-ferrous materials*





- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

3FL STUB LENGTH CHAMFERED CORNER

DIA	LOC	SHANK	OAL	CHAMFER	UNCOATED	AlTiN Coated
0.031 1/32	0.0465	0.125	1.50	.002 - .004	251-003005	251-003005B
0.047 3/64	0.0705	0.125	1.50	.002 - .004	251-003025	251-003025B
0.062 1/16	0.0930	0.125	1.50	.002 - .004	251-003045	251-003045B
0.078 5/64	0.1170	0.125	1.50	.002 - .004	251-003065	251-003065B
0.093 3/32	0.1395	0.125	1.50	.002 - .004	251-003085	251-003085B
0.125 1/8	0.1875	0.125	1.50	.002 - .004	251-003105	251-003105B

3FL REGULAR LENGTH CHAMFERED CORNER

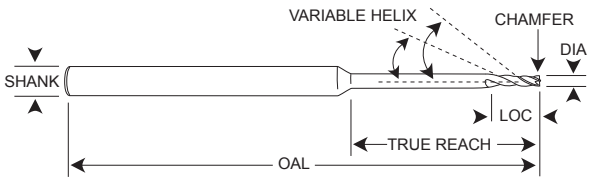
DIA	LOC	SHANK	OAL	CHAMFER	UNCOATED	AlTiN Coated
0.031 1/32	0.0930	0.125	1.50	.002 - .004	251-003010	251-003010B
0.047 3/64	0.1410	0.125	1.50	.002 - .004	251-003030	251-003030B
0.062 1/16	0.1860	0.125	1.50	.002 - .004	251-003050	251-003050B
0.078 5/64	0.2340	0.125	1.50	.002 - .004	251-003070	251-003070B
0.093 3/32	0.2790	0.125	1.50	.002 - .004	251-003090	251-003090B
0.125 1/8	0.3750	0.125	1.50	.002 - .004	251-003110	251-003110B

MICRO MONSTER

HIGH PERFORMANCE

Miniature Endmills
Variable Helix & Unequal Index

- *Reduced Harmonics & chatter*
- *Superior material removal rates*
- *Finer surface finishes*



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

3FL LONG LENGTH CHAMFERED CORNER

DIA	LOC	SHANK	OAL	CHAMFER	TOTAL REACH	UNCOATED	AlTiN Coated
0.031 1/32	0.0620	0.125	2.50	.002 - .004	**0.1870**	251-003015	251-003015B
0.047 3/64	0.0940	0.125	2.50	.002 - .004	**0.2820**	251-003035	251-003035B
0.062 1/16	0.1240	0.125	2.50	.002 - .004	**0.3750**	251-003055	251-003055B
0.078 5/64	0.1560	0.125	2.50	.002 - .004	**0.4680**	251-003075	251-003075B
0.093 3/32	0.1860	0.125	2.50	.002 - .004	**0.5620**	251-003095	251-003095B
0.125 1/8	0.2500	0.125	2.50	.002 - .004	**0.7500**	251-003115	251-003115B

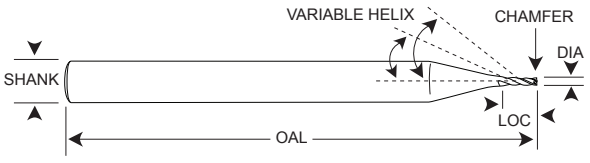
3FL X/LONG LENGTH CHAMFERED CORNER

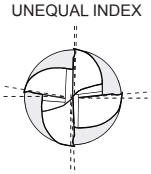
DIA	LOC	SHANK	OAL	CHAMFER	TOTAL REACH	UNCOATED	AlTiN Coated
0.031 1/32	0.0620	0.125	2.50	.002 - .004	**0.3120**	251-003020	251-003020B
0.047 3/64	0.0940	0.125	2.50	.002 - .004	**0.4700**	251-003040	251-003040B
0.062 1/16	0.1240	0.125	2.50	.002 - .004	**0.6250**	251-003060	251-003060B
0.078 5/64	0.1560	0.125	2.50	.002 - .004	**0.7810**	251-003080	251-003080B
0.093 3/32	0.1860	0.125	2.50	.002 - .004	**0.9380**	251-003100	251-003100B
0.125 1/8	0.2500	0.125	2.50	.002 - .004	**1.2500**	251-003120	251-003120B

PROUDLY MADE IN THE USA

High Performance Miniature Endmills

Unequal Index \ Variable Helix





- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- ***Reduces harmonics & chatter, allowing for faster feed and speeds***
- ***Designed for aerospace materials, exotic alloys & difficult to machine ferrous & non-ferrous materials***

4FL STUB LENGTH CHAMFERED CORNER

DIA	LOC	SHANK	OAL	CHAMFER	UNCOATED	AlTiN Coated
0.031 1/32	0.0465	0.125	1.50	.002 - .004	251-004005	251-004005B
0.047 3/64	0.0705	0.125	1.50	.002 - .004	251-004025	251-004025B
0.062 1/16	0.0930	0.125	1.50	.002 - .004	251-004045	251-004045B
0.078 5/64	0.1170	0.125	1.50	.002 - .004	251-004065	251-004065B
0.093 3/32	0.1395	0.125	1.50	.002 - .004	251-004085	251-004085B
0.125 1/8	0.1875	0.125	1.50	.002 - .004	251-004105	251-004105B

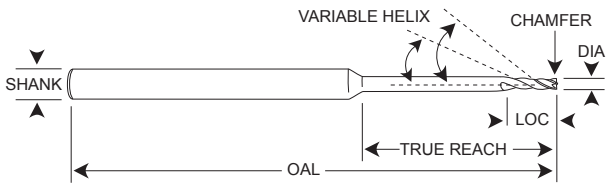
4FL REGULAR LENGTH CHAMFERED CORNER

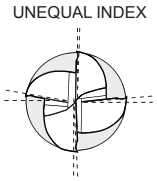
DIA	LOC	SHANK	OAL	CHAMFER	UNCOATED	AlTiN Coated
0.031 1/32	0.0930	0.125	1.50	.002 - .004	251-004010	251-004010B
0.047 3/64	0.1410	0.125	1.50	.002 - .004	251-004030	251-004030B
0.062 1/16	0.1860	0.125	1.50	.002 - .004	251-004050	251-004050B
0.078 5/64	0.2340	0.125	1.50	.002 - .004	251-004070	251-004070B
0.093 3/32	0.2790	0.125	1.50	.002 - .004	251-004090	251-004090B
0.125 1/8	0.3750	0.125	1.50	.002 - .004	251-004110	251-004110B

MICRO MONSTER

- *Reduced Harmonics & chatter*
- *Superior material removal rates*
- *Finer surface finishes*

PROUDLY MADE IN THE USA





- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: ±0.0005"*
- *Length of Cut Tolerance: +0.0000 / +0.0120"*
- *Shank Tolerance: +0.0000 / -0.0003"*

- *Designed for aerospace materials, exotic alloys & diffucult to machine ferrous & non-ferrous materials*

4FL LONG LENGTH CHAMFERED CORNER

DIA	LOC	SHANK	OAL	CHAMFER	TOTAL REACH	UNCOATED	AlTiN Coated
0.031 1/32	0.0620	0.125	2.50	.002 - .004	**0.1870**	251-004015	251-004015B
0.047 3/64	0.0940	0.125	2.50	.002 - .004	**0.2820**	251-004035	251-004035B
0.062 1/16	0.1240	0.125	2.50	.002 - .004	**0.3750**	251-004055	251-004055B
0.078 5/64	0.1560	0.125	2.50	.002 - .004	**0.4680**	251-004075	251-004075B
0.093 3/32	0.1860	0.125	2.50	.002 - .004	**0.5620**	251-004095	251-004095B
0.125 1/8	0.2500	0.125	2.50	.002 - .004	**0.7500**	251-004115	251-004115B

4FL X/LONG LENGTH CHAMFERED CORNER

DIA	LOC	SHANK	OAL	CHAMFER	TOTAL REACH	UNCOATED	AlTiN Coated
0.031 1/32	0.0620	0.125	2.50	.002 - .004	**0.3120**	251-004020	251-004020B
0.047 3/64	0.0940	0.125	2.50	.002 - .004	**0.4700**	251-004040	251-004040B
0.062 1/16	0.1240	0.125	2.50	.002 - .004	**0.6250**	251-004060	251-004060B
0.078 5/64	0.1560	0.125	2.50	.002 - .004	**0.7810**	251-004080	251-004080B
0.093 3/32	0.1860	0.125	2.50	.002 - .004	**0.9380**	251-004100	251-004100B
0.125 1/8	0.2500	0.125	2.50	.002 - .004	**1.2500**	251-004120	251-004120B

MILL MONSTER
STANDARD ENDMILLS 2 FLUTE

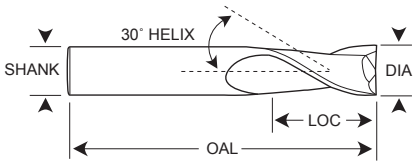
2 Flute geometry allows for maximum chip removal and roughing capabilities

PROUDLY MADE IN THE USA

Applications:
- *Slotting, pocketing and plunging*

Materials:
- *Cast iron, non-ferrous metals, plastics and abrasive materials*

STUB LENGTH: *Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes*
REGULAR LENGTH: *Standard flute lengths for general all purpose milling*
LONG, XLONG & EXTENDED LENGTHS: *For deep pocket milling and long reach applications*



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

2 FLUTE SQUARE

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/64	0.0156	3/64	1/8	1-1/2	Regular	204-001000	204-000995	—	204-000997
1/32	0.0312	1/16	1/8	1-1/2	Stub	202-001001	202-001002	202-001003	202-001004
1/32	0.0312	1/8	1/8	1-1/2	Regular	204-001001	204-001002	204-001003	204-001005
1.0 mm	0.0394	4.0 mm	3.0 mm	39.0 mm	Regular	204-001275	—	—	204-001270B
1.0 mm	0.0394	5.5 mm	3.0 mm	39.0 mm	Regular	204-001277	—	—	—
3/64	0.0469	3/32	1/8	1-1/2	Stub	202-001010	202-001011	202-001012	202-001013
3/64	0.0469	1/8	1/8	1-1/2	Regular	204-001010	204-001011	204-021010	204-001013
1.5 mm	0.0591	5.0 mm	3.0 mm	39.0 mm	Regular	204-001285	—	—	204-001285B
1.5 mm	0.0591	6.5 mm	3.0 mm	39.0 mm	Regular	204-001288	—	—	—
1/16	0.0625	1/8	1/8	1-1/2	Stub	202-001020	202-001021	202-001022	202-001023
1/16	0.0625	1/4	1/8	1-1/2	Regular	204-001020	204-001021	204-001022	204-001023

2 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
5/64	0.0781	5/32	1/8	1-1/2	Stub	202-001030	202-001031	202-001032	202-001033
5/64	0.0781	1/4	1/8	1-1/2	Regular	204-001030	204-001032	204-001033	204-001036
2.0 mm	0.0787	8.0 mm	3.0 mm	39.0 mm	Regular	204-001295	—	—	204-001295B
3/32	0.0938	3/16	1/8	1-1/2	Stub	202-001040	202-001041	202-001042	202-001043
3/32	0.0938	3/8	1/8	1-1/2	Regular	204-001040	204-001041	204-001042	204-001043
2.5 mm	0.0984	9.5 mm	3.0 mm	39.0 mm	Regular	204-001301	—	—	204-001297B
7/64	0.1094	7/32	1/8	1-1/2	Stub	202-001050	202-001051	202-001052	202-001053
7/64	0.1094	3/8	1/8	1-1/2	Regular	204-001050	204-001052	204-021050	204-001055
3.0 mm	0.1181	12.0 mm	3.0 mm	39.0 mm	Regular	204-001313	—	—	204-001311B
1/8	0.1250	1/4	1/8	1-1/2	Stub	202-001060	202-001061	202-001062	202-001063
1/8	0.1250	1/2	1/8	1-1/2	Regular	204-001060	204-001061	204-001062	204-001063
1/8	0.1250	3/4	1/8	2-1/4	Long	213-001001	213-001002	213-001003	213-001004
1/8	0.1250	1	1/8	3	XLong	216-001001	216-001002	216-001003	216-001004
3.5 mm	0.1378	12.0 mm	4.0 mm	51.0 mm	Regular	204-001321	—	—	204-001321B
9/64	0.1406	9/32	3/16	2	Stub	202-001070	202-001071	202-001072	202-001073
9/64	0.1406	9/16	3/16	2	Regular	204-001070	204-001072	204-021070	204-001074
5/32	0.1562	5/16	3/16	2	Stub	202-001080	202-001081	202-001082	202-001083
5/32	0.1562	9/16	3/16	2	Regular	204-001080	204-001081	204-001083	204-001084
5/32	0.1562	3/4	3/16	2-1/2	Long	213-001005	213-001006	213-001007	213-001008
5/32	0.1562	1-1/8	3/16	3	XLong	216-001005	216-001006	216-001007	216-001008
4.0 mm	0.1575	14.0 mm	4.0 mm	51.0 mm	Regular	204-001330	—	—	204-001330B
11/64	0.1719	5/16	3/16	2	Stub	202-001090	202-001091	202-001092	202-001093
11/64	0.1719	9/16	3/16	2	Regular	204-001090	204-001092	204-021090	204-001094
4.5 mm	0.1772	16.0 mm	5.0 mm	51.0 mm	Regular	204-001341	—	—	204-001341B
3/16	0.1875	3/8	3/16	2	Stub	202-001100	202-001101	202-001102	202-001103
3/16	0.1875	5/8	3/16	2	Regular	204-001100	204-001101	204-001103	204-001104
3/16	0.1875	3/4	3/16	2-1/2	Long	213-001012	213-001013	213-001016	213-001014
3/16	0.1875	1-1/8	3/16	3	XLong	216-001010	216-001011	216-001012	216-001013

Standard Endmills
2 Flute Square

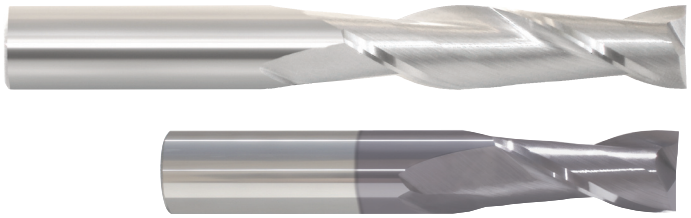
PROUDLY MADE IN THE USA

2 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
5.0 mm	0.1969	16.0 mm	5.0 mm	51.0 mm	Regular	204-001351	—	—	204-001351B
13/64	0.2031	3/8	1/4	2	Stub	202-001110	202-001111	202-001112	202-001113
13/64	0.2031	5/8	1/4	2-1/2	Regular	204-001110	204-001112	204-021110	204-001114
7/32	0.2188	7/16	1/4	2	Stub	202-001120	202-001121	202-001122	202-001123
7/32	0.2188	5/8	1/4	2-1/2	Regular	204-001120	204-001121	204-001123	204-001124
15/64	0.2344	7/16	1/4	2	Stub	202-001125	202-001126	202-001127	202-001128
15/64	0.2344	3/4	1/4	2-1/2	Regular	204-001125	204-001127	204-021125	204-001129
6.0 mm	0.2362	19.0 mm	6.0 mm	63.0 mm	Regular	204-001361	—	—	204-001361B
1/4	0.2500	1/2	1/4	2	Stub	202-001130	202-001131	202-001132	202-001133
1/4	0.2500	3/4	1/4	2-1/2	Regular	204-001130	204-001131	204-001133	204-001134
1/4	0.2500	1-1/8	1/4	3	Long	213-001020	213-001021	213-001022	213-001023
1/4	0.2500	1-1/2	1/4	4	XLong	216-001020	216-001021	216-001022	216-001023
1/4	0.2500	1-1/2	1/4	6	Ext XXL	216-001025	216-001027	216-001028	216-001029
17/64	0.2656	3/4	5/16	2-1/2	Regular	204-001135	204-001137	204-021181	204-001139
7.0 mm	0.2756	19.0 mm	8.0 mm	63.0 mm	Regular	204-001371	—	—	204-001371B
9/32	0.2812	3/4	5/16	2-1/2	Regular	204-001140	204-001141	204-001143	204-001144
19/64	0.2969	13/16	5/16	2-1/2	Regular	204-001145	204-001148	204-021145	204-031145
5/16	0.3125	1/2	5/16	2	Stub	202-001150	202-001151	202-001152	202-001153
5/16	0.3125	13/16	5/16	2-1/2	Regular	204-001150	204-001151	204-001155	204-001153
5/16	0.3125	1-1/8	5/16	3	Long	213-001030	213-001031	213-001032	213-001033
5/16	0.3125	1-1/2	5/16	6	Ext XXL	216-001034	216-001035	216-001036	216-001034A
5/16	0.3125	1-5/8	5/16	4	XLong	216-001030	216-001031	216-001032	216-001033
8.0 mm	0.3150	20.0 mm	8.0 mm	63.0 mm	Regular	204-001381	—	—	204-001381B
21/64	0.3281	1	3/8	2-1/2	Regular	204-001154	204-001157	204-021154	204-031154
11/32	0.3438	1	3/8	2-1/2	Regular	204-001160	204-001162	204-001163	204-001164
9.0 mm	0.3543	22.0 mm	10.0 mm	63.0 mm	Regular	204-001391	—	—	204-001391B
23/64	0.3594	1	3/8	2-1/2	Regular	204-001165	204-001166	204-021165	204-031165

MILL MONSTER

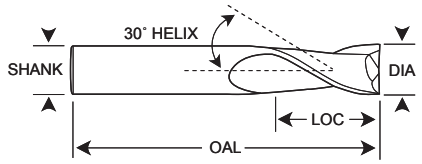
PROUDLY MADE IN THE USA



2 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
3/8	0.3750	5/8	3/8	2	Stub	202-001170	202-001171	202-001172	202-001173
3/8	0.3750	1	3/8	2-1/2	Regular	204-001170	204-001171	204-001179	204-001173
3/8	0.3750	1-1/8	3/8	3	Long	213-001040	213-001009	213-001015	213-001010
3/8	0.3750	1-1/2	3/8	6	Ext XXL	216-001045	216-001046	216-001047	216-001048
3/8	0.3750	1-3/4	3/8	4	XLong	216-001040	216-001041	216-001042	216-001043
25/64	0.3906	1	7/16	2-3/4	Regular	204-001175	204-001178	204-021175	204-031175
10.0 mm	0.3937	22.0 mm	10.0 mm	76.0 mm	Regular	204-001400	—	—	204-001400B
13/32	0.4063	1	7/16	2-3/4	Regular	204-001180	204-001182	204-021180	204-001184
27/64	0.4219	1	7/16	2-3/4	Regular	204-001185	204-001187	204-021185	204-031185
11.0 mm	0.4331	25.0 mm	12.0 mm	76.0 mm	Regular	204-001410	—	—	204-001410B
7/16	0.4375	5/8	7/16	2-1/2	Stub	202-001190	202-001191	202-001192	202-001193
7/16	0.4375	1	7/16	2-3/4	Regular	204-001190	204-001191	204-001189	204-001198
7/16	0.4375	2	7/16	4	Long	213-001050	213-001051	213-001053	213-001052
7/16	0.4375	3	7/16	6	XLong	216-001050	216-001051	216-001052	216-001053
29/64	0.4531	1	1/2	3	Regular	204-001192	204-001194	204-021192	204-031192
15/32	0.4688	1	1/2	3	Regular	204-001193	204-001197	204-021193	204-001196
12.0 mm	0.4724	25.0 mm	12.0 mm	76.0 mm	Regular	204-001420	—	—	204-001420B
31/64	0.4844	1	1/2	3	Regular	204-001195	204-001199	204-021195	204-031195
1/2	0.5000	5/8	1/2	2-1/2	Stub	202-001200	202-001201	202-001202	202-001203
1/2	0.5000	1	1/2	3	Regular	204-001200	204-001201	204-001202	204-001205
1/2	0.5000	1-1/4	1/2	3	Regular	204-001200A	—	—	204-001205A
1/2	0.5000	1-1/2	1/2	4	Medium	213-001059	213-001056	213-001062	213-001063
1/2	0.5000	1-1/2	1/2	6	Ext XLong	216-001053A	216-001057	216-001058	216-001059
1/2	0.5000	2	1/2	4	Long	213-001060	213-001061	213-001065	213-001064
1/2	0.5000	3	1/2	6	XLong	216-001054	216-001061	216-001062	216-001063
33/64	0.5156	1-1/4	9/16	3-1/2	Regular	204-001206	—	—	—
17/32	0.5313	1-1/4	9/16	3-1/2	Regular	204-001207	—	—	—

Standard Endmills
2 Flute Square



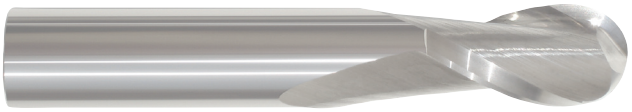
- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

2 FLUTE SQUARE *Continued*

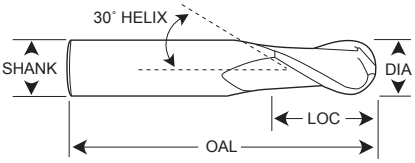
DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
14.0 mm	0.5512	32.0 mm	14.0 mm	90.0 mm	Regular	204-001430	—	—	204-001430B
9/16	0.5625	1-1/4	9/16	3-1/2	Regular	204-001210	204-001209	204-001211	204-001212
5/8	0.6250	3/4	5/8	3	Stub	202-001220	202-001221	202-001222	202-001223
5/8	0.6250	1-1/4	5/8	3-1/2	Regular	204-001220	204-001222	204-001225	204-001224
5/8	0.6250	1-1/2	5/8	6	Ext XLong	216-001074	216-001076	216-001075	216-001074A
5/8	0.6250	2-1/4	5/8	5	Long	213-001070	213-001071	213-001072	213-001073
5/8	0.6250	3	5/8	6	XLong	216-001070	216-001071	216-001072	216-001073
16.0 mm	0.6299	38.0 mm	16.0 mm	102.0 mm	Regular	204-001440	—	—	204-001440B
11/16	0.6875	1-1/2	3/4	4	Regular	204-001230	204-001231	204-001233	204-001232
18.0 mm	0.7087	38.0 mm	18.0 mm	102.0 mm	Regular	204-001450	—	—	204-001450B
3/4	0.7500	1	3/4	3	Stub	202-001240	202-001241	202-001242	202-001243
3/4	0.7500	1-1/2	3/4	4	Regular	204-001240	204-001241	204-001243	204-001242
3/4	0.7500	1-1/2	3/4	6	Ext XLong	216-001084	216-001085	216-001086	216-001084A
3/4	0.7500	2-1/4	3/4	5	Long	213-001080	213-001081	213-001082	213-001083
3/4	0.7500	3	3/4	6	XLong	216-001080	216-001081	216-001082	216-001083
3/4	0.7500	4	3/4	7	XXL	216-001087	—	—	—
20.0 mm	0.7874	38.0 mm	20.0 mm	102.0 mm	Regular	204-001460	—	—	204-001460B
22.0 mm	0.8661	38.0 mm	22.0 mm	102.0 mm	Regular	204-001470	—	—	204-001470B
7/8	0.8750	1-1/2	7/8	4	Regular	204-001250	204-001251	204-001252	204-001253
25.0 mm	0.9843	38.0 mm	25.0 mm	102.0 mm	Regular	204-001480	—	—	204-001480B
1	1.0000	1-1/2	1	4	Regular	204-001260	204-001261	204-001262	204-001263
1	1.0000	1-1/2	1	6	Ext XLong	216-001095	216-001097	216-001098	216-001096
1	1.0000	2-1/4	1	5	Long	213-001090	213-001091	213-001092	213-001093
1	1.0000	3	1	6	XLong	216-001090	216-001091	216-001092	216-001093
1	1.0000	4	1	7	XXL	216-001099	—	—	—

MILL MONSTER

STANDARD ENDMILLS
2 FLUTE



2 Flute geometry allows for maximum chip removal and roughing capabilities



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

Applications:
- ***Slotting, pocketing and plunging***
- ***Ball end allows for three axis contour slotting and contour finishing***

Materials:
- ***Cast iron, non-ferrous metals, plastics and abrasive materials***

STUB LENGTH: ***Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes***
REGULAR LENGTH: ***Standard flute lengths for general all purpose milling***
LONG, XLONG & EXTENDED LENGTHS: ***For deep pocket milling and long reach applications***

2 FLUTE BALLNOSE

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/64	0.0156	3/64	1/8	1-1/2	Regular	221-001000	221-000995	221-000996	221-000997
1/32	0.0312	1/16	1/8	1-1/2	Stub	219-001001	219-001002	219-001003	219-001004
1/32	0.0312	1/8	1/8	1-1/2	Regular	221-001005	221-001006	221-021005	221-001016
1.0 mm	0.0394	4.0 mm	3.0 mm	39.0 mm	Regular	221-001395	—	—	—
1.0 mm	0.0394	5.5 mm	3.0 mm	39.0 mm	Regular	221-001400	—	—	221-001400B
3/64	0.0469	3/32	1/8	1-1/2	Stub	219-001010	219-001011	219-001012	219-001013
3/64	0.0469	1/8	1/8	1-1/2	Regular	221-001007	221-001004	221-021007	221-001013
1.5 mm	0.0591	5.0 mm	3.0 mm	39.0 mm	Regular	221-001410	—	—	221-001410B
1/16	0.0625	1/8	1/8	1-1/2	Stub	219-001020	219-001021	219-001022	219-001023
1/16	0.0625	1/4	1/8	1-1/2	Regular	221-001008AA	221-001002	221-000999	221-001003
5/64	0.0781	5/32	1/8	1-1/2	Stub	219-001025	219-011025	219-021025	219-031025
5/64	0.0781	1/4	1/8	1-1/2	Regular	221-001009	221-001008	221-021009	221-001018
2.0 mm	0.0787	8.0 mm	3.0 mm	39.0 mm	Regular	221-001420	—	—	221-001420B

PROUDLY MADE IN THE USA

Standard Endmills
2 Flute Ballnose

2 FLUTE BALLNOSE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
3/32	0.0938	3/16	1/8	1-1/2	Stub	219-001030	219-001031	219-001032	219-001033
3/32	0.0938	3/8	1/8	1-1/2	Regular	221-001010	221-001011	221-001012	221-001019
2.5 mm	0.0984	9.5 mm	3.0 mm	39.0 mm	Regular	221-001425	—	—	221-001425B
7/64	0.1094	7/32	1/8	1-1/2	Stub	219-001035	219-011035	219-021035	219-031035
7/64	0.1094	3/8	1/8	1-1/2	Regular	221-001014	221-001015	221-021014	221-001017
3.0 mm	0.1181	12.0 mm	3.0 mm	39.0 mm	Regular	221-001430	—	—	221-001430B
1/8	0.1250	1/4	1/8	1-1/2	Stub	219-001040	219-001041	219-001042	219-001043
1/8	0.1250	1/2	1/8	1-1/2	Regular	221-001020	221-001021	221-001026	221-001023
1/8	0.1250	3/4	1/8	2-1/4	Long	224-001001	224-001002	224-001003	224-001004
1/8	0.1250	1	1/8	3	XL	227-001001	227-001002	227-001003	227-001004
3.5 mm	0.1378	12.0 mm	4.0 mm	51.0 mm	Regular	221-001435	—	—	221-001435B
9/64	0.1406	9/32	3/16	2	Stub	219-001045	219-011045	219-021045	219-031045
9/64	0.1406	9/16	3/16	2	Regular	221-001024	221-001025	221-021024	221-001027
5/32	0.1562	5/16	3/16	2	Stub	219-001050	219-001051	219-001052	219-001053
5/32	0.1562	9/16	3/16	2	Regular	221-001030	221-001031	221-001032	221-001033
5/32	0.1562	3/4	3/16	2-1/2	Long	224-001005	224-001006	224-001007	224-001008
5/32	0.1562	1-1/8	3/16	3	XL	227-001005	227-001006	227-001007	227-001008
4.0 mm	0.1575	14.0 mm	4.0 mm	51.0 mm	Regular	221-001440	—	—	221-001440B
11/64	0.1719	5/16	3/16	2	Stub	219-001055	219-011055	219-021055	219-031055
11/64	0.1719	9/16	3/16	2	Regular	221-001034	221-001035	221-021034	221-001037
4.5 mm	0.1772	16.0 mm	5.0 mm	51.0 mm	Regular	221-001445	—	—	221-001445B
3/16	0.1875	3/8	3/16	2	Stub	219-001060	219-001061	219-001062	219-001063
3/16	0.1875	5/8	3/16	2	Regular	221-001040	221-001041	221-001042	221-001043
3/16	0.1875	3/4	3/16	2-1/2	Long	224-001012	224-001013	224-001014	224-001015
3/16	0.1875	1-1/8	3/16	3	XL	227-001010	227-001011	227-001012	227-001013
5.0 mm	0.1969	16.0 mm	5.0 mm	51.0 mm	Regular	221-001450	—	—	221-001450B
13/64	0.2031	3/8	1/4	2	Stub	219-001065	219-011065	219-021065	219-031065
13/64	0.2031	5/8	1/4	2-1/2	Regular	221-001044	221-001045	221-021044	221-001047
7/32	0.2188	7/16	1/4	2	Stub	219-001070	219-001071	219-001072	219-001073
7/32	0.2188	5/8	1/4	2-1/2	Regular	221-001050	221-001051	221-001052	221-001053
15/64	0.2344	7/16	1/4	2	Stub	219-001075	219-011075	219-021075	219-031075
15/64	0.2344	3/4	1/4	2-1/2	Regular	221-001054	221-001055	221-021054	221-001057
6.0 mm	0.2362	19.0 mm	6.0 mm	63.0 mm	Regular	221-001460	—	—	221-001460B

2 FLUTE BALLNOSE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/4	0.2500	1/2	1/4	2	Stub	219-001080	219-001081	219-001082	219-001083
1/4	0.2500	3/4	1/4	2-1/2	Regular	221-001060	221-001061	221-001059	221-001062
1/4	0.2500	1-1/8	1/4	3	Long	224-001020	224-001021	224-001022	224-001023
1/4	0.2500	1-1/2	1/4	4	XL	227-001020	227-001021	227-001022	227-001023
1/4	0.2500	1-1/2	1/4	6	Ext XXL	227-001025	227-001027	227-001028	227-001029
17/64	0.2656	3/4	5/16	2-1/2	Regular	221-001063	221-001064	221-001065	221-001066
7.0 mm	0.2756	19.0 mm	8.0 mm	63.0 mm	Regular	221-001470	—	—	221-001470B
9/32	0.2812	3/4	5/16	2-1/2	Regular	221-001070	221-001071	221-001072	221-001073
19/64	0.2969	13/16	5/16	2-1/2	Regular	221-001075	221-001076	221-001077	221-001078
5/16	0.3125	1/2	5/16	2	Stub	219-001090	219-001091	219-001092	219-001093
5/16	0.3125	13/16	5/16	2-1/2	Regular	221-001080	221-001081	221-001082	221-001079
5/16	0.3125	1-1/8	5/16	3	Long	224-001030	224-001031	224-001032	224-001033
5/16	0.3125	1-1/2	5/16	6	Ext XXL	227-001033A	227-001033C	227-001033D	227-001033B
5/16	0.3125	1-5/8	5/16	4	XL	227-001030	227-001031	227-001032	227-001033
8.0 mm	0.3150	20.0 mm	8.0 mm	63.0 mm	Regular	221-001480	—	—	221-001480B
21/64	0.3281	1	3/8	2-1/2	Regular	221-001083	221-001084	221-021083	221-031083
11/32	0.3438	1	3/8	2-1/2	Regular	221-001085	221-001086	221-001165	221-001087
9.0 mm	0.3543	22.0 mm	10.0 mm	63.0 mm	Regular	221-001490	—	—	221-001490B
23/64	0.3594	1	3/8	2-1/2	Regular	221-001088	221-001089	221-021088	221-031088
3/8	0.3750	5/8	3/8	2	Stub	219-001100	219-001101	219-001102	219-001103
3/8	0.3750	1	3/8	2-1/2	Regular	221-001090	221-001095	221-001167	221-001091
3/8	0.3750	1-1/8	3/8	3	Long	224-001040	224-001041	224-001042	224-001044
3/8	0.3750	1-1/2	3/8	6	Ext XXL	227-001035	227-001049	227-001037	227-001035A
3/8	0.3750	1-3/4	3/8	4	XL	227-001040	227-001041	227-001042	227-001043
25/64	0.3906	1	7/16	2-3/4	Regular	221-001093	221-001094	221-021093	221-031093
10.0 mm	0.3937	22.0 mm	10.0 mm	76.0 mm	Regular	221-001500	—	—	221-001500B
13/32	0.4062	1	7/16	2-3/4	Regular	221-001096	221-001097	221-021096	221-001118
27/64	0.4219	1	7/16	2-3/4	Regular	221-001098	221-001099	221-021099	221-031099
11.0 mm	0.4331	25.0 mm	12.0 mm	76.0 mm	Regular	221-001510	—	—	221-001510B
7/16	0.4375	5/8	7/16	2-1/2	Stub	219-001110	219-001111	219-001112	219-001113
7/16	0.4375	1	7/16	2-3/4	Regular	221-001100	221-001101	221-001104	221-001119
7/16	0.4375	2	7/16	4	Long	224-001050	224-001051	224-001052	224-001053
7/16	0.4375	3	7/16	6	XL	227-001050	227-001051	227-001052	227-001053

PROUDLY MADE IN THE USA

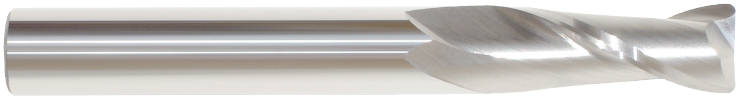
Standard Endmills
2 Flute Ballnose

2 FLUTE BALLNOSE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
29/64	0.4531	1	1/2	3	Regular	221-001102	221-001103	221-021102	221-031102
15/32	0.4688	1	1/2	3	Regular	221-001105	221-001106	221-021105	221-001123
12.0 mm	0.4724	25.0 mm	12.0 mm	76.0 mm	Regular	221-001520	—	—	221-001520B
31/64	0.4844	1	1/2	3	Regular	221-001108	221-001109	221-021108	221-031108
1/2	0.5000	5/8	1/2	2-1/2	Stub	219-001120	219-001121	219-001122	219-001123
1/2	0.5000	1	1/2	3	Regular	221-001110	221-001115	221-001116	221-001117
1/2	0.5000	1-1/2	1/2	4	Medium	224-001059	—	—	224-001059B
1/2	0.5000	1-1/2	1/2	6	Ext XL	227-001053A	227-001057	227-001058	227-001059
1/2	0.5000	2	1/2	4	Long	224-001060	224-001061	224-001062	224-001063
1/2	0.5000	3	1/2	6	XL	227-001054	227-001061	227-001062	227-001064
14.0 mm	0.5512	32.0 mm	14.0 mm	90.0 mm	Regular	221-001540	—	—	221-001540B
9/16	0.5625	1-1/4	9/16	3-1/2	Regular	221-001120	221-001121	221-001125	221-001124
5/8	0.6250	3/4	5/8	3	Stub	219-001130	219-001131	219-001132	219-001133
5/8	0.6250	1-1/4	5/8	3-1/2	Regular	221-001130	221-001131	221-001133	221-001134
5/8	0.6250	1-1/2	5/8	6	Ext XL	227-001073A	227-001073C	227-001073D	227-001073B
5/8	0.6250	2-1/4	5/8	5	Long	224-001070	224-001071	224-001072	224-001073
5/8	0.6250	3	5/8	6	XL	227-001070	227-001071	227-001072	227-001074
16.0 mm	0.6299	32.0 mm	16.0 mm	102.0 mm	Regular	221-001560	—	—	221-001560B
11/16	0.6875	1-1/2	3/4	4	Regular	221-001140	221-001141	221-021140	221-031140
18.0 mm	0.7087	38.0 mm	18.0 mm	102.0 mm	Regular	221-001580	—	—	221-001580B
3/4	0.7500	1	3/4	3	Stub	219-001140	219-001141	219-001142	219-001143
3/4	0.7500	1-1/2	3/4	4	Regular	221-001150	221-001151	221-001153	221-001154
3/4	0.7500	1-1/2	3/4	6	Ext XL	227-001085	227-001085A	227-001085B	227-001086
3/4	0.7500	2-1/4	3/4	5	Long	224-001080	224-001081	224-001082	224-001083
3/4	0.7500	3	3/4	6	XL	227-001080	227-001081	227-001082	227-001084
20.0 mm	0.7874	38.0 mm	20.0 mm	102.0 mm	Regular	221-001600	—	—	221-001600B
22.0 mm	0.8661	38.0 mm	22.0 mm	102.0 mm	Regular	221-001620	—	—	221-001620B
7/8	0.8750	1-1/2	7/8	4	Regular	221-001155	221-001156	221-021155	221-001158
25.0 mm	0.9843	38.0 mm	25.0 mm	102.0 mm	Regular	221-001650	—	—	221-001650B
1	1.0000	1-1/2	1	4	Regular	221-001160	221-001161	221-001163	221-001164
1	1.0000	1-1/2	1	6	Ext XL	227-001088	227-001088A	227-001088C	227-001089
1	1.0000	2-1/4	1	5	Long	224-001090	224-001091	224-001092	224-001093
1	1.0000	3	1	6	XL	227-001090	227-001091	227-001092	227-001094

MILL MONSTER

REGULAR LENGTH 2 FLUTE



Applications:

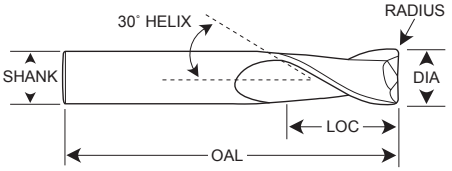
- *Profiling, slotting, production milling, finishing applications*
- *Corner Radius promotes additional strength for longer tool life resulting in greater productivity*
- *Use for generating corner radius on work piece*

Materials:

- *Cast iron, non-ferrous metals, plastics and abrasive materials*

CORNER RADIUS

DIA	Decimal Inches	LOC	SHANK	OAL	RADIUS	UNCOATED	TiN Coated	TiCN Coated	TiAlN COATED
1/8	0.1250	1/2	1/8	1-1/2	.010	204-602300	204-602301	204-602302	204-602303
1/8	0.1250	1/2	1/8	1-1/2	.015	204-602306	204-602307	204-602308	204-602309
1/8	0.1250	1/2	1/8	1-1/2	.020	204-602312	204-602313	204-602314	204-602315
1/8	0.1250	1/2	1/8	1-1/2	.030	204-602318	204-602319	204-602320	204-602321
3/16	0.1875	5/8	3/16	2	.010	204-602424	204-602425	204-602426	204-602427
3/16	0.1875	5/8	3/16	2	.015	204-602430	204-602431	204-602432	204-602433
3/16	0.1875	5/8	3/16	2	.020	204-602436	204-602437	204-602438	204-602439
3/16	0.1875	5/8	3/16	2	.030	204-602442	204-602443	204-602444	204-602445
3/16	0.1875	5/8	3/16	2	.045	204-602448	204-602449	204-602450	204-602451
3/16	0.1875	5/8	3/16	2	.060	204-602452	—	—	—
1/4	0.2500	3/4	1/4	2-1/2	.015	204-602551	204-602552	204-602553	204-602554
1/4	0.2500	3/4	1/4	2-1/2	.020	204-602557	204-602558	204-602559	204-602560
1/4	0.2500	3/4	1/4	2-1/2	.025	204-602563	204-602564	204-602565	204-602566
1/4	0.2500	3/4	1/4	2-1/2	.030	204-602569	204-602570	204-602571	204-602572
1/4	0.2500	3/4	1/4	2-1/2	.045	204-602575	204-602576	204-602577	204-602578
1/4	0.2500	3/4	1/4	2-1/2	.060	204-602581	204-602582	204-602583	204-602584
5/16	0.3125	13/16	5/16	2-1/2	.015	204-602684	204-602685	204-602686	204-602687
5/16	0.3125	13/16	5/16	2-1/2	.020	204-602690	204-602691	204-602692	204-602693
5/16	0.3125	13/16	5/16	2-1/2	.025	204-602696	204-602697	204-602698	204-602699
5/16	0.3125	13/16	5/16	2-1/2	.030	204-602702	204-602703	204-602704	204-602705
5/16	0.3125	13/16	5/16	2-1/2	.045	204-602708	204-602709	204-602710	204-602711
5/16	0.3125	13/16	5/16	2-1/2	.060	204-602714	204-602715	204-602716	204-602717
3/8	0.3750	1	3/8	2-1/2	.015	204-602820	204-602821	204-602822	204-602823
3/8	0.3750	1	3/8	2-1/2	.020	204-602826	204-602827	204-602828	204-602829
3/8	0.3750	1	3/8	2-1/2	.025	204-602832	204-602833	204-602834	204-602835
3/8	0.3750	1	3/8	2-1/2	.030	204-602838	204-602839	204-602840	204-602841
3/8	0.3750	1	3/8	2-1/2	.045	204-602844	204-602845	204-602846	204-602847
3/8	0.3750	1	3/8	2-1/2	.060	204-602850	204-602851	204-602852	204-602853
3/8	0.3750	1	3/8	2-1/2	.090	204-602856	204-602857	204-602858	204-602859
3/8	0.3750	1	3/8	2-1/2	.125	204-999375	—	—	—
7/16	0.4375	1	7/16	2-3/4	.015	204-602961	204-602962	204-602963	204-602964
7/16	0.4375	1	7/16	2-3/4	.020	204-602967	204-602968	204-602969	204-602970
7/16	0.4375	1	7/16	2-3/4	.025	204-602974	204-602975	204-602976	204-602977
7/16	0.4375	1	7/16	2-3/4	.030	204-602980	204-602981	204-602982	204-602983
7/16	0.4375	1	7/16	2-3/4	.045	204-602986	204-602987	204-602988	204-602989
7/16	0.4375	1	7/16	2-3/4	.060	204-602992	204-602993	204-602994	204-602995
7/16	0.4375	1	7/16	2-3/4	.090	204-602998	204-602999	204-603000	204-603001



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

Standard Endmills
2 Flute Corner Radus

PROUDLY MADE IN THE USA

CORNER RADIUS *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	RADIUS	UNCOATED	TiN Coated	TiCN Coated	TiAlN COATED
1/2	0.5000	1	1/2	3	.015	204-603003	204-603004	204-603005	204-603006
1/2	0.5000	1	1/2	3	.020	204-603009	204-603010	204-603011	204-603012
1/2	0.5000	1	1/2	3	.025	204-603015	204-603016	204-603017	204-603018
1/2	0.5000	1	1/2	3	.030	204-603021	204-603022	204-603023	204-603024
1/2	0.5000	1	1/2	3	.045	204-603027	204-603028	204-603029	204-603030
1/2	0.5000	1	1/2	3	.060	204-603033	204-603034	204-603035	204-603036
1/2	0.5000	1	1/2	3	.090	204-603039	204-603040	204-603041	204-603042
1/2	0.5000	1	1/2	3	.125	204-603045	204-603046	204-603047	204-603048
5/8	0.6250	1-1/4	5/8	3-1/2	.015	204-603150	204-603151	204-603152	204-603153
5/8	0.6250	1-1/4	5/8	3-1/2	.020	204-603156	204-603157	204-603158	204-603159
5/8	0.6250	1-1/4	5/8	3-1/2	.025	204-603162	204-603163	204-603164	204-603165
5/8	0.6250	1-1/4	5/8	3-1/2	.030	204-603168	204-603169	204-603170	204-603171
5/8	0.6250	1-1/4	5/8	3-1/2	.045	204-603174	204-603175	204-603176	204-603177
5/8	0.6250	1-1/4	5/8	3-1/2	.060	204-603180	204-603181	204-603182	204-603183
5/8	0.6250	1-1/4	5/8	3-1/2	.090	204-603186	204-603187	204-603188	204-603189
5/8	0.6250	1-1/4	5/8	3-1/2	.125	204-603192	204-603193	204-603194	204-603195
5/8	0.6250	1-1/4	5/8	3-1/2	.250	204-603196	—	—	—
3/4	0.7500	1-1/2	3/4	4	.015	204-603297	204-603298	204-603299	204-603300
3/4	0.7500	1-1/2	3/4	4	.020	204-603303	204-603304	204-603305	204-603306
3/4	0.7500	1-1/2	3/4	4	.025	204-603309	204-603310	204-603311	204-603312
3/4	0.7500	1-1/2	3/4	4	.030	204-603315	204-603316	204-603317	204-603318
3/4	0.7500	1-1/2	3/4	4	.045	204-603321	204-603322	204-603323	204-603324
3/4	0.7500	1-1/2	3/4	4	.060	204-603327	204-603328	204-603329	204-603330
3/4	0.7500	1-1/2	3/4	4	.090	204-603333	204-603334	204-603335	204-603336
3/4	0.7500	1-1/2	3/4	4	.125	204-603339	204-603340	204-603341	204-603342
3/4	0.7500	1-1/2	3/4	4	.190	204-603345	204-603346	204-603347	204-603348
3/4	0.7500	1-1/2	3/4	4	.250	204-603349	—	—	—
1	1.0000	1-1/2	1	4	.015	204-603450	204-603451	204-603452	204-603453
1	1.0000	1-1/2	1	4	.020	204-603456	204-603457	204-603458	204-603459
1	1.0000	1-1/2	1	4	.025	204-603462	204-603463	204-603464	204-603465
1	1.0000	1-1/2	1	4	.030	204-603468	204-603469	204-603470	204-603471
1	1.0000	1-1/2	1	4	.045	204-603474	204-603475	204-603476	204-603477
1	1.0000	1-1/2	1	4	.060	204-603480	204-603481	204-603482	204-603483
1	1.0000	1-1/2	1	4	.090	204-603486	204-603487	204-603488	204-603489
1	1.0000	1-1/2	1	4	.125	204-603492	204-603493	204-603494	204-603495
1	1.0000	1-1/2	1	4	.190	204-603498	204-603499	204-603500	204-603501
1	1.0000	1-1/2	1	4	.250	204-603504	204-603505	204-603506	204-603507

MILL MONSTER
STANDARD ENDMILLS
2 FLUTE DOUBLE END

Applications:
- *Pocketing, production milling and finishing applications*

Materials:
- *Cast iron, non-ferrous metals, plastics and abrasive materials*

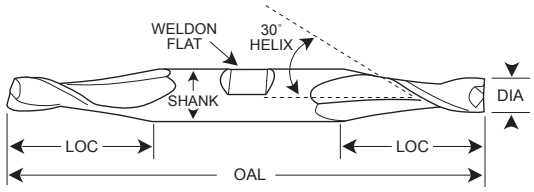
STUB LENGTH: Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes
REGULAR LENGTH: Standard flute lengths for general all purpose milling

2 FLUTE SQUARE

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/32	0.0312	1/16	1/8	1-1/2	No	Stub	234-001001	234-001002	234-001003	234-001004
3/64	0.0469	3/32	1/8	1-1/2	No	Stub	234-001010	234-001011	234-021010	234-031010
1/16	0.0625	1/8	1/8	1-1/2	No	Stub	234-001011A	234-001021	234-001022	234-001015
5/64	0.0781	1/8	1/8	1-1/2	No	Stub	234-001012	234-001013	234-001014	234-001024
3/32	0.0938	3/16	1/8	1-1/2	No	Stub	234-001030	234-001031	234-001033	234-001034
7/64	0.1094	3/16	1/8	1-1/2	No	Stub	234-001035	234-001036	234-001037	234-001038
1/8	0.1250	1/4	1/8	1-1/2	No	Stub	234-001040	234-001041	234-021040	234-001044
1/8	0.1250	3/8	3/8	3	Yes	Regular	237-001001	—	—	237-001004
9/64	0.1406	5/16	3/16	2	No	Stub	234-001042	234-001043	234-001048	234-001049
5/32	0.1562	5/16	3/16	2	No	Stub	234-001050	234-001051	234-001052	234-001054
5/32	0.1562	7/16	3/8	3	Yes	Regular	237-001010	—	—	237-001013
11/64	0.1719	5/16	3/16	2	No	Stub	234-001055	234-001056	234-001057	234-001058
3/16	0.1875	3/8	3/16	2	No	Stub	234-001060	234-001061	234-021061	234-001059
3/16	0.1875	1/2	3/8	3	Yes	Regular	237-001020	—	—	237-001023
13/64	0.2031	1/2	1/4	2-1/2	No	Stub	234-001063	234-001064	234-001065	234-001066

Standard Endmills
2 Flute Double End Square

PROUDLY MADE IN THE USA

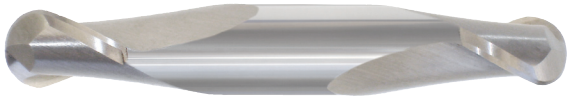


- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

2 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
7/32	0.2188	1/2	1/4	2-1/2	No	Stub	234-001070	234-001071	234-001072	234-001074
7/32	0.2188	9/16	3/8	3-1/2	Yes	Regular	237-001030	—	—	237-001033
15/64	0.2344	1/2	1/4	2-1/2	No	Stub	234-001075	234-001076	234-001077	234-001078
1/4	0.2500	1/2	1/4	2-1/2	No	Stub	234-001080	234-001081	234-021081	234-001084
1/4	0.2500	5/8	3/8	3-1/2	Yes	Regular	237-001040	—	—	237-001043
9/32	0.2812	1/2	5/16	2-1/2	No	Stub	234-001082	234-001086	234-001087	234-001088
9/32	0.2812	11/16	3/8	3-1/2	Yes	Regular	237-001050	—	—	237-001053
5/16	0.3125	1/2	5/16	2-1/2	No	Stub	234-001090	234-001091	234-001092	234-001093
5/16	0.3125	3/4	3/8	3-1/2	Yes	Regular	237-001060	—	—	237-001063
11/32	0.3438	9/16	3/8	2-1/2	No	Stub	234-001094	234-001095	234-001096	234-001098
11/32	0.3438	3/4	3/8	3-1/2	Yes	Regular	237-001070	—	—	237-001073
3/8	0.3750	9/16	3/8	2-1/2	No	Stub	234-001100	234-001101	234-001102	234-001104
3/8	0.3750	3/4	3/8	3-1/2	Yes	Regular	237-001080	—	—	237-001083
7/16	0.4375	9/16	7/16	2-3/4	No	Stub	234-001110	234-001111	234-021111	234-001114
7/16	0.4375	7/8	1/2	4	Yes	Regular	237-001090	—	—	237-001093
1/2	0.5000	5/8	1/2	3	No	Stub	234-001120	234-001121	234-021121	234-001124
1/2	0.5000	1	1/2	4	Yes	Regular	237-001100	—	—	237-001103

MILL MONSTER
STANDARD ENDMILLS
2 FLUTE DOUBLE END



Application:
- *Pocketing, production milling and finishing applications*
- *Ball end allows for three axis contour slotting and contour finishing*

Materials:
- *Cast iron, non-ferrous metals, plastics and abrasive materials*

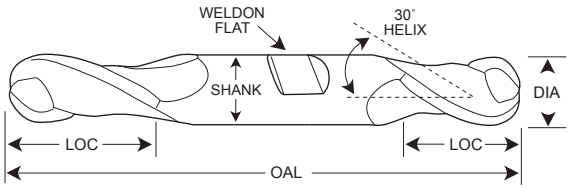
STUB LENGTH: *Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes*
REGULAR LENGTH: *Standard flute lengths for general all purpose milling*

2 FLUTE BALLNOSE

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/32	0.0312	1/16	1/8	1-1/2	No	Stub	240-001001	240-001005	240-021001	240-031001
3/64	0.0469	3/32	1/8	1-1/2	No	Stub	240-001001A	240-001011	240-021010	240-031010
1/16	0.0625	1/8	1/8	1-1/2	No	Stub	240-001002	240-001021	240-021002	240-031003
5/64	0.0781	1/8	1/8	1-1/2	No	Stub	240-001003	240-001013	240-021003	240-031002
3/32	0.0938	3/16	1/8	1-1/2	No	Stub	240-001003A	240-001031	240-021030	240-031030
7/64	0.1094	3/16	1/8	1-1/2	No	Stub	240-001004	240-001036	240-021004	240-031004
1/8	0.1250	1/4	1/8	1-1/2	No	Stub	240-001040	240-001041	240-021040	240-031040
1/8	0.1250	3/8	3/8	3	Yes	Regular	243-001001	—	—	243-001004
9/64	0.1406	5/16	3/16	2	No	Stub	240-001044	240-001043	240-021044	240-031044
5/32	0.1562	5/16	3/16	2	No	Stub	240-001050	240-001051	240-021050	240-031050
5/32	0.1562	7/16	3/8	3	Yes	Regular	243-001010	—	—	243-001013
11/64	0.1719	5/16	3/16	2	No	Stub	240-001055	240-001056	240-001057	240-031055
3/16	0.1875	3/8	3/16	2	No	Stub	240-001060	240-001061	240-021060	240-031060
3/16	0.1875	1/2	3/8	3	Yes	Regular	243-001020	—	—	243-001023
13/64	0.2031	1/2	1/4	2-1/2	No	Stub	240-001065	240-001066	240-021065	240-031065

Standard Endmills
2 Flute Double End Ballnose

PROUDLY MADE IN THE USA



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

2 FLUTE BALLNOSE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
7/32	0.2188	1/2	1/4	2-1/2	No	Stub	240-001070	240-001071	240-021070	240-031070
7/32	0.2188	9/16	3/8	3-1/2	Yes	Regular	243-001030	—	—	243-001033
15/64	0.2344	1/2	1/4	2-1/2	No	Stub	240-001075	240-001076	240-021075	240-031075
1/4	0.2500	1/2	1/4	2-1/2	No	Stub	240-001080	240-001081	240-021080	240-031080
1/4	0.2500	5/8	3/8	3-1/2	Yes	Regular	243-001040	—	—	243-001043
9/32	0.2812	1/2	5/16	2-1/2	No	Stub	240-001085	240-001086	240-021085	240-031085
9/32	0.2812	11/16	3/8	3-1/2	Yes	Regular	243-001050	—	—	243-001053
5/16	0.3125	1/2	5/16	2-1/2	No	Stub	240-001090	240-001091	240-021090	240-031090
5/16	0.3125	3/4	3/8	3-1/2	Yes	Regular	243-001060	—	—	243-001063
11/32	0.3438	9/16	3/8	2-1/2	No	Stub	240-001094	240-001095	240-021094	240-031094
11/32	0.3438	3/4	3/8	3-1/2	Yes	Regular	243-001070	—	—	243-001073
3/8	0.3750	9/16	3/8	2-1/2	No	Stub	240-001100	240-001101	240-021100	240-031100
3/8	0.3750	3/4	3/8	3-1/2	Yes	Regular	243-001080	—	—	243-001083
7/16	0.4375	9/16	7/16	2-3/4	No	Stub	240-001110	240-001111	240-021110	240-031110
7/16	0.4375	7/8	1/2	4	Yes	Regular	243-001090	—	—	243-001093
1/2	0.5000	5/8	1/2	3	No	Stub	240-001120	240-001121	240-021120	240-031120
1/2	0.5000	1	1/2	4	Yes	Regular	243-001100	—	—	243-001103

MILL MONSTER

REGULAR LENGTH 3 FLUTE

3 Flute geometry allows for less chatter and better work piece finishes, using a stronger geometry than 2 flute endmills

Applications:
- *Slotting and Pocketing*

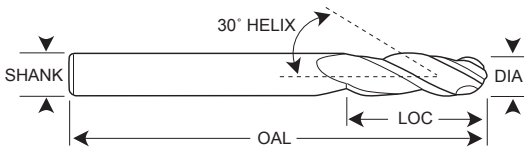
Materials:
- *Cast iron, non-ferrous metals, plastics and abrasive type materials*

PROUDLY MADE IN THE USA

3 FLUTE SQUARE

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN COATED
1/32	0.0312	1/8	1/8	1-1/2	Regular	205-001001	205-001002	205-001003	205-001004
3/64	0.0469	1/8	1/8	1-1/2	Regular	205-001020	205-001021	205-001022	205-001023
1/16	0.0625	1/4	1/8	1-1/2	Regular	205-001030	205-001031	205-001032	205-001033
5/64	0.0781	1/4	1/8	1-1/2	Regular	205-001040	205-001041	205-001042	205-001043
3/32	0.0938	3/8	1/8	1-1/2	Regular	205-001050	205-001051	205-001052	205-001053
7/64	0.1094	3/8	1/8	1-1/2	Regular	205-001060	205-001061	205-001062	205-001063
1/8	0.1250	1/2	1/8	1-1/2	Regular	205-001070	205-001071	205-001072	205-001073
5/32	0.1562	9/16	3/16	2	Regular	205-001090	205-001091	205-001092	205-001093
3/16	0.1875	5/8	3/16	2	Regular	205-001110	205-001111	205-001112	205-001113
7/32	0.2188	5/8	1/4	2-1/2	Regular	205-001130	205-001131	205-001132	205-001133
1/4	0.2500	3/4	1/4	2-1/2	Regular	205-001140	205-001143	205-021140	205-031140
9/32	0.2812	3/4	5/16	2-1/2	Regular	205-001150	—	—	—
5/16	0.3125	13/16	5/16	2-1/2	Regular	205-001160	205-001161	205-001162	205-001163
3/8	0.3750	1	3/8	2-1/2	Regular	205-001180	205-001184	205-001185	205-001186
25/64	0.3906	1	7/16	2-3/4	Regular	205-001188	—	—	—
7/16	0.4375	1	7/16	2-3/4	Regular	205-001200	205-001201	205-001202	205-001203
1/2	0.5000	1	1/2	3	Regular	205-001210	205-001214	205-001215	205-001216
9/16	0.5625	1-1/4	9/16	3-1/2	Regular	205-001220	—	—	—
5/8	0.6250	1-1/4	5/8	3-1/2	Regular	205-001230	205-001231	205-001232	205-001233
3/4	0.7500	1-1/2	3/4	4	Regular	205-001250	205-001251	205-001252	205-001253
1	1.0000	1-1/2	1	4	Regular	205-001270	205-001271	205-001272	205-001273

Standard Endmills
3 Flute

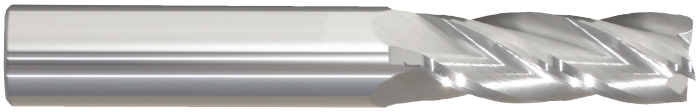


- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

3 FLUTE BALLNOSE

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN COATED
1/32	0.0312	1/8	1/8	1-1/2	Regular	222-001001	222-001002	222-001003	222-001004
3/64	0.0469	1/8	1/8	1-1/2	Regular	222-001020	222-001021	222-001022	222-001023
1/16	0.0625	1/4	1/8	1-1/2	Regular	222-001030	222-001031	222-001032	222-001033
5/64	0.0781	1/4	1/8	1-1/2	Regular	222-001040	222-001041	222-001042	222-001043
3/32	0.0938	3/8	1/8	1-1/2	Regular	222-001050	222-001051	222-001052	222-001053
7/64	0.1094	3/8	1/8	1-1/2	Regular	222-001060	222-001061	222-001062	222-001063
1/8	0.1250	1/2	1/8	1-1/2	Regular	222-001070	222-001071	222-001072	222-001073
5/32	0.1562	9/16	3/16	2	Regular	222-001090	222-001091	222-001092	222-001093
3/16	0.1875	5/8	3/16	2	Regular	222-001110	222-001111	222-001112	222-001113
7/32	0.2188	5/8	1/4	2-1/2	Regular	222-001130	222-001131	222-001132	222-001133
1/4	0.2500	3/4	1/4	2-1/2	Regular	222-001140	222-001141	222-001142	222-001143
9/32	0.2812	3/4	5/16	2-1/2	Regular	222-001150	—	—	—
5/16	0.3125	13/16	5/16	2-1/2	Regular	222-001160	222-001161	222-001162	222-001163
3/8	0.3750	1	3/8	2-1/2	Regular	222-001180	222-001181	222-001182	222-001183
25/64	0.3906	1	7/16	2-3/4	Regular	222-001185	—	—	—
7/16	0.4375	1	7/16	2-3/4	Regular	222-001200	222-001201	222-001202	222-001203
1/2	0.5000	1	1/2	3	Regular	222-001210	222-001211	222-001212	222-001213
9/16	0.5625	1-1/4	9/16	3-1/2	Regular	222-001220	—	—	—
5/8	0.6250	1-1/4	5/8	3-1/2	Regular	222-001230	222-001231	222-001232	222-001233
3/4	0.7500	1-1/2	3/4	4	Regular	222-001250	222-001251	222-001252	222-001253
1	1.0000	1-1/2	1	4	Regular	222-001270	222-001271	222-001272	222-001273

MILL MONSTER
STANDARD ENDMILLS
4 FLUTE

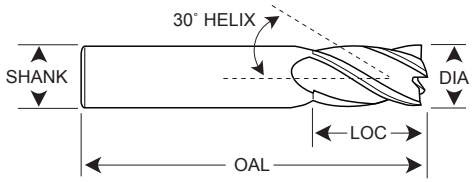


4 flute geometry offers increased core strength

Applications:
- *Profiling, slotting, production milling and finishing applications*

Materials:
- *A wide range of ferrous metals, including stainless steels and high temperature alloys*

STUB LENGTH: *Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes*
REGULAR LENGTH: *Standard flute lengths for general all purpose milling*
LONG, XLONG & EXTENDED LENGTHS: *For deep pocket milling and long reach applications*



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

4 FLUTE SQUARE

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/64	0.0156	3/64	1/8	1-1/2	Regular	206-001000	206-000995	—	206-000997
1/32	0.0312	1/16	1/8	1-1/2	Stub	203-001001	203-001002	203-001003	203-001004
1/32	0.0312	1/8	1/8	1-1/2	Regular	206-001001	206-001002	206-001003	206-001005
1.0 mm	0.0394	4.0 mm	3.0 mm	39.0 mm	Regular	206-001275	—	—	206-001272
1.0 mm	0.0394	5.5 mm	3.0 mm	39.0 mm	Regular	206-001279	—	—	—
3/64	0.0469	3/32	1/8	1-1/2	Stub	203-001010	203-001011	203-001012	203-001013
3/64	0.0469	1/8	1/8	1-1/2	Regular	206-001010	206-001011	206-001013	206-001015
1.5 mm	0.0591	5.0 mm	3.0 mm	39.0 mm	Regular	206-001285	—	—	206-001287
1.5 mm	0.0591	6.5 mm	3.0 mm	39.0 mm	Regular	206-001286AA	—	—	—
1/16	0.0625	1/8	1/8	1-1/2	Stub	203-001020	203-001021	203-001022	203-001023
1/16	0.0625	1/4	1/8	1-1/2	Regular	206-001020	206-001021	206-001022	206-001027

PROUDLY MADE IN THE USA

Standard Endmills
4 Flute Square

4 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
5/64	0.0781	5/32	1/8	1-1/2	Stub	203-001030	203-001031	203-001032	203-001033
5/64	0.0781	1/4	1/8	1-1/2	Regular	206-001030	206-001031	206-001032	206-001036
2.0 mm	0.0787	8.0 mm	3.0 mm	39.0 mm	Regular	206-001295	—	—	206-001292
3/32	0.0938	3/16	1/8	1-1/2	Stub	203-001040	203-001041	203-001042	203-001043
3/32	0.0938	3/8	1/8	1-1/2	Regular	206-001040	206-001041	206-001042	206-001044
2.5 mm	0.0984	9.5 mm	3.0 mm	39.0 mm	Regular	206-001300	—	—	206-001302
7/64	0.1094	7/32	1/8	1-1/2	Stub	203-001050	203-001051	203-001052	203-001053
7/64	0.1094	3/8	1/8	1-1/2	Regular	206-001050	206-001051	206-001052	206-001053
3.0 mm	0.1181	12.0 mm	3.0 mm	39.0 mm	Regular	206-001313	—	—	206-001314
1/8	0.1250	1/4	1/8	1-1/2	Stub	203-001060	203-001061	203-001062	203-001063
1/8	0.1250	1/2	1/8	1-1/2	Regular	206-001060	206-001061	206-001063	206-001067
1/8	0.1250	3/4	1/8	2-1/4	Long	215-001001	215-001002	215-001003	215-001004
1/8	0.1250	1	1/8	3	XLong	218-001001	218-001002	218-001003	218-001004
3.5 mm	0.1378	12.0 mm	4.0 mm	51.0 mm	Regular	206-001320	—	—	206-001322
9/64	0.1406	9/32	3/16	2	Stub	203-001070	203-001071	203-001072	203-001073
9/64	0.1406	9/16	3/16	2	Regular	206-001070	206-001071	206-001072	206-001073
5/32	0.1562	5/16	3/16	2	Stub	203-001080	203-001081	203-001082	203-001083
5/32	0.1562	9/16	3/16	2	Regular	206-001080	206-001081	206-001082	206-001083
5/32	0.1562	3/4	3/16	2-1/2	Long	215-001005	215-001006	215-001007	215-001008
5/32	0.1562	1-1/8	3/16	3	XLong	218-001005	218-001006	218-001007	218-001008
4.0 mm	0.1575	14.0 mm	4.0 mm	51.0 mm	Regular	206-001330	—	—	206-001330B
11/64	0.1719	5/16	3/16	2	Stub	203-001090	203-001091	203-001092	203-001093
11/64	0.1719	9/16	3/16	2	Regular	206-001090	206-001091	206-021090	206-001093
4.5 mm	0.1772	16.0 mm	5.0 mm	51.0 mm	Regular	206-001340	—	—	206-001340B
3/16	0.1875	3/8	3/16	2	Stub	203-001100	203-001101	203-001105	203-001103
3/16	0.1875	5/8	3/16	2	Regular	206-001100	206-001101	206-001102	206-001107
3/16	0.1875	3/4	3/16	2-1/2	Long	215-001012	215-001013	215-001014	215-001015
3/16	0.1875	1	3/16	4	Ext XL	218-001015	—	—	—
3/16	0.1875	1-1/8	3/16	3	XLong	218-001010	218-001011	218-001012	218-001013
5.0 mm	0.1969	16.0 mm	5.0 mm	51.0 mm	Regular	206-001350	—	—	206-001350B

4 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
13/64	0.2031	3/8	1/4	2	Stub	203-001110	203-001111	203-001112	203-001113
13/64	0.2031	5/8	1/4	2-1/2	Regular	206-001110	206-001111	206-021110	206-001113
7/32	0.2188	7/16	1/4	2	Stub	203-001120	203-001121	203-001122	203-001123
7/32	0.2188	5/8	1/4	2-1/2	Regular	206-001120	206-001121	206-001122	206-001123
15/64	0.2344	7/16	1/4	2	Stub	203-001125	203-001126	203-001127	203-001128
15/64	0.2344	3/4	1/4	2-1/2	Regular	206-001125	206-001126	206-021125	206-001128
6.0 mm	0.2362	19.0 mm	6.0 mm	63.0 mm	Regular	206-001360	—	—	206-001360B
1/4	0.2500	1/2	1/4	2	Stub	203-001130	203-001131	203-001132	203-001133
1/4	0.2500	3/4	1/4	2-1/2	Regular	206-001130	206-001131	206-001132	206-001137
1/4	0.2500	1	1/4	4	Ext XL	218-001019	—	—	—
1/4	0.2500	1-1/8	1/4	3	Long	215-001020	215-001021	215-001022	215-001023
1/4	0.2500	1-1/2	1/4	4	XLong	218-001020	218-001021	218-001024	218-001023
1/4	0.2500	1-1/2	1/4	6	Ext XXL	218-001025	218-001026	218-001027	218-001028
17/64	0.2656	3/4	5/16	2-1/2	Regular	206-001133	206-001135	206-021133	206-001136
7.0 mm	0.2756	19.0 mm	8.0 mm	63.0 mm	Regular	206-001370	—	—	—
7.0 mm	0.2756	20.0 mm	8.0 mm	63.0 mm	Regular	—	—	—	206-001372
9/32	0.2812	3/4	5/16	2-1/2	Regular	206-001140	206-001142	206-001143	206-001144
19/64	0.2969	13/16	5/16	2-1/2	Regular	206-001147	206-001145	206-021147	206-031147
5/16	0.3125	1/2	5/16	2	Stub	203-001150	203-001151	203-001152	203-001153
5/16	0.3125	13/16	5/16	2-1/2	Regular	206-001150	206-001151	206-001152	206-001153
5/16	0.3125	1-1/8	5/16	3	Long	215-001030	215-001033	215-001029	215-001028
5/16	0.3125	1-1/2	5/16	6	Ext XXL	218-001029	218-001029AA	218-001029B	218-001029A
5/16	0.3125	1-5/8	5/16	4	XLong	218-001030	218-001031	218-001032	218-001033
8.0 mm	0.3150	20.0 mm	8.0 mm	63.0 mm	Regular	206-001380	—	—	206-001380B
21/64	0.3281	1	3/8	2-1/2	Regular	206-001154	206-001157	206-021154	206-031154
11/32	0.3438	1	3/8	2-1/2	Regular	206-001160	206-001161	206-001162	206-001163
9.0 mm	0.3543	22.0 mm	10.0 mm	63.0 mm	Regular	206-001390	—	—	206-001390B
23/64	0.3594	1	3/8	2-1/2	Regular	206-001169	206-001165	206-021169	206-031169
3/8	0.3750	5/8	3/8	2	Stub	203-001170	203-001171	203-001172	203-001173
3/8	0.3750	1	3/8	2-1/2	Regular	206-001170	206-001171	206-001176	206-001177
3/8	0.3750	1	3/8	4	XLong	218-001035	—	—	218-001037

PROUDLY MADE IN THE USA

Standard Endmills
4 Flute Square

4 FLUTE SQUARE *Continued*

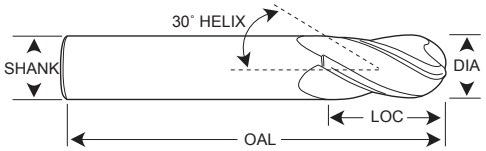
DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
3/8	0.3750	1-1/8	3/8	3	Long	215-001040	215-001041	215-001044	215-001043
3/8	0.3750	1-1/2	3/8	6	Ext XXL	218-001045	218-001046	218-001048	218-001047
3/8	0.3750	1-3/4	3/8	4	XLong	218-001040	218-001039	218-001036	218-001038
25/64	0.3906	1	7/16	2-3/4	Regular	206-001175	206-001178	206-021175	206-031175
10.0 mm	0.3937	22.0 mm	10.0 mm	76.0 mm	Regular	206-001400	—	—	206-001402
13/32	0.4062	1	7/16	2-3/4	Regular	206-001180	206-001181	206-001182	206-001183
27/64	0.4219	1	7/16	2-3/4	Regular	206-001185	206-001187	206-021185	206-031185
11.0 mm	0.4331	25.0 mm	12.0 mm	76.0 mm	Regular	206-001410	—	—	206-001412
7/16	0.4375	5/8	7/16	2-1/2	Stub	203-001190	203-001191	203-001192	203-001193
7/16	0.4375	1	7/16	2-3/4	Regular	206-001190	206-001191	206-001192	206-001193
7/16	0.4375	2	7/16	4	Long	215-001050	215-001051	215-001052	215-001053
7/16	0.4375	2	7/16	4-1/2	Long	206-001267	—	—	—
7/16	0.4375	3	7/16	6	XLong	218-001050	218-001051	218-001052	218-001053
29/64	0.4531	1	1/2	3	Regular	206-001195	206-001194	206-021195	206-031195
15/32	0.4688	1	1/2	3	Regular	206-001198	206-001196	206-021198	206-001206
12.0 mm	0.4724	25.0 mm	12.0 mm	76.0 mm	Regular	206-001420	—	—	206-001420B
31/64	0.4844	1	1/2	3	Regular	206-001199	206-001197	206-021199	206-031199
1/2	0.5000	5/8	1/2	2-1/2	Stub	203-001200	203-001201	203-001202	203-001203
1/2	0.5000	1	1/2	3	Regular	206-001200	206-001201	206-001204	206-001207
1/2	0.5000	1	1/2	4	Medium	215-001054	—	—	215-001054B
1/2	0.5000	1-1/4	1/2	3	Regular	206-001203	—	—	206-001203A
1/2	0.5000	1-1/2	1/2	4	Medium	215-001059	215-001058	215-001057	215-001056
1/2	0.5000	1-1/2	1/2	6	Ext XLong	218-001053A	218-001061	218-001062	218-001059
1/2	0.5000	2	1/2	4	Long	215-001060	215-001063	215-001065	215-001067
1/2	0.5000	3	1/2	6	XLong	218-001053AA	218-001056	218-001057	218-001058
33/64	0.5156	1-1/4	9/16	3-1/2	Regular	206-001208	—	—	206-001218
17/32	0.5312	1-1/4	9/16	3-1/2	Regular	206-001209	—	—	206-001219
14.0 mm	0.5512	32.0 mm	14.0 mm	90.0 mm	Regular	206-001430	—	—	206-001430B
9/16	0.5625	1-1/4	9/16	3-1/2	Regular	206-001210	206-001211	206-001212	206-001213
19/32	0.5938	1-1/4	5/8	3-1/2	Regular	206-001217	—	—	206-001217B

4 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
5/8	0.6250	3/4	5/8	3	Stub	203-001220	203-001221	203-001222	203-001223
5/8	0.6250	1-1/4	5/8	3-1/2	Regular	206-001220	206-001221	206-001225	206-001226
5/8	0.6250	1-1/2	5/8	6	Ext XLong	218-001074	218-001075	218-001076	218-001074A
5/8	0.6250	2-1/4	5/8	5	Long	215-001070	215-001071	215-001072	215-001073
5/8	0.6250	3	5/8	6	XLong	218-001070	218-001071	218-001072	218-001073
16.0 mm	0.6299	32.0 mm	16.0 mm	102.0 mm	Regular	206-001440	—	—	206-001442
41/64	0.6406	1-1/2	3/4	4	Regular	206-001236	—	—	206-001237
21/32	0.6562	1-1/2	3/4	4	Regular	206-001228	—	—	206-001228B
11/16	0.6875	1-1/2	3/4	4	Regular	206-001230	206-001231	206-001232	206-001233
18.0 mm	0.7087	38.0 mm	18.0 mm	102.0 mm	Regular	206-001450	—	—	206-001452
47/64	0.7344	1-1/2	3/4	4	Regular	206-001237F	—	—	206-001237FB
3/4	0.7500	1	3/4	3	Stub	203-001240	203-001241	203-001242	203-001243
3/4	0.7500	1	3/4	4	Regular	206-001238	—	—	206-001238B
3/4	0.7500	1-1/2	3/4	4	Regular	206-001239	206-001241	206-001243	206-001244
3/4	0.7500	1-1/2	3/4	6	Ext XLong	218-001101	218-001101A	218-001101B	218-001102
3/4	0.7500	2-1/4	3/4	5	Long	215-001080	215-001081	215-001082	215-001083
3/4	0.7500	3	3/4	6	XLong	218-001080	218-001082	218-001086	218-001079
3/4	0.7500	4	3/4	7	XXLong	218-001081	218-001083	218-001087	218-001084
20.0 mm	0.7874	38.0 mm	20.0 mm	102.0 mm	Regular	206-001460	—	—	206-001460B
13/16	0.8125	1-1/2	7/8	4	Regular	206-001245	—	—	206-001246
22.0 mm	0.8661	38.0 mm	22.0 mm	102.0 mm	Regular	206-001470	—	—	206-001470B
7/8	0.8750	1-1/2	7/8	4	Regular	206-001250	206-001251	206-001252	206-001254
15/16	0.9375	1-1/2	1	4	Regular	206-001255	—	—	206-001256
25.0 mm	0.9843	38.0 mm	25.0 mm	102.0 mm	Regular	206-001480	—	—	206-001480B
1	1.0000	1	1	3	Stub	203-001260	203-001261	—	203-001263
1	1.0000	1	1	4	Regular	206-001259	—	—	206-001259B
1	1.0000	1-1/2	1	4	Regular	206-001260	206-001261	206-001263	206-001264
1	1.0000	1-1/2	1	6	Ext XLong	218-001103	218-001105	218-001106	218-001104
1	1.0000	2-1/4	1	5	Long	215-001090	215-001091	215-001092	215-001093
1	1.0000	3	1	6	XLong	218-001090	218-001088	218-001097	218-001094
1	1.0000	4	1	7	XXLong	218-001091	218-001089	218-001098	218-001095
1-1/4	1.2500	2	1-1/4	4-1/2	Regular	206-001266	—	—	—

STANDARD ENDMILLS
4 FLUTE BALLNOSE

4 flute geometry offers increased core strength



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

Applications:
- ***Profiling, slotting, production milling and finishing applications***
- ***Ball end allows for three axis contour slotting and contour finishing***

Materials:
- ***A wide range of ferrous metals, including stainless steels and high temperature alloys***

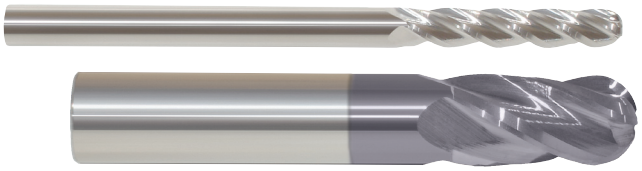
STUB LENGTH: ***Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes***
REGULAR LENGTH: ***Standard flute lengths for general all purpose milling***
LONG, XLONG & EXTENDED LENGTHS: ***For deep pocket milling and long reach applications***

4 FLUTE BALLNOSE

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/64	0.0156	3/64	1/8	1-1/2	Regular	223-000998	223-000995	223-020998	223-001007
1/32	0.0312	1/16	1/8	1-1/2	Stub	220-001001	220-001002	220-001003	220-001004
1/32	0.0312	1/8	1/8	1-1/2	Regular	223-000999	223-001003	223-000996	223-001009
1.0 mm	0.0394	4.0 mm	3.0 mm	39.0 mm	Regular	223-001400	—	—	223-001400B
1.0 mm	0.0394	5.5 mm	3.0 mm	39.0 mm	Regular	223-001401	—	—	—
3/64	0.0469	3/32	1/8	1-1/2	Stub	220-001010	220-001011	220-001012	220-001013
3/64	0.0469	1/8	1/8	1-1/2	Regular	223-001000	223-001004	223-021000	223-001014
1.5 mm	0.0591	5.0 mm	3.0 mm	39.0 mm	Regular	223-001405	—	—	223-001410B
1.5 mm	0.0591	6.5 mm	3.0 mm	39.0 mm	Regular	223-001410	—	—	—
1/16	0.0625	1/8	1/8	1-1/2	Stub	220-001020	220-001022	220-001021	220-001023
1/16	0.0625	1/4	1/8	1-1/2	Regular	223-001001	223-001002	223-001015	223-001016
5/64	0.0781	5/32	1/8	1-1/2	Stub	220-001025	220-011025	220-021025	220-031025
5/64	0.0781	1/4	1/8	1-1/2	Regular	223-001005	223-001006	223-001008	223-001019
2.0 mm	0.0787	8.0 mm	3.0 mm	39.0 mm	Regular	223-001421	—	—	223-001420B
3/32	0.0938	3/16	1/8	1-1/2	Stub	220-001030	220-001032	220-001031	220-001033
3/32	0.0938	3/8	1/8	1-1/2	Regular	223-001010	223-001011	223-001012	223-001013
2.5 mm	0.0984	9.5 mm	3.0 mm	39.0 mm	Regular	223-001425	—	—	223-001425B
7/64	0.1094	7/32	1/8	1-1/2	Stub	220-001035	220-011035	220-021035	220-031035
7/64	0.1094	3/8	1/8	1-1/2	Regular	223-001017	223-001052	223-021051	223-001039
3.0 mm	0.1181	12.0 mm	3.0 mm	39.0 mm	Regular	223-001430	—	—	223-001430B
1/8	0.1250	1/4	1/8	1-1/2	Stub	220-001040	220-001042	220-001041	220-001043
1/8	0.1250	1/2	1/8	1-1/2	Regular	223-001020	223-001021	223-001023	223-001028
1/8	0.1250	3/4	1/8	2-1/4	Long	226-001001	226-001002	226-001003	226-001004
1/8	0.1250	1	1/8	3	XL	229-001001	229-001002	229-001003	229-001004
3.5 mm	0.1378	12.0 mm	4.0 mm	51.0 mm	Regular	223-001435	—	—	223-001435B

MILL MONSTER

PROUDLY MADE IN THE USA



4 FLUTE BALLNOSE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
9/64	0.1406	9/32	3/16	2	Stub	220-001045	220-011045	220-021045	220-031045
9/64	0.1406	9/16	3/16	2	Regular	223-001025	223-001026	223-001027	223-001029
5/32	0.1562	5/16	3/16	2	Stub	220-001050	220-001052	220-001051	220-001053
5/32	0.1562	9/16	3/16	2	Regular	223-001030	223-001031	223-001033	223-001032
5/32	0.1562	3/4	3/16	2-1/2	Long	226-001005	226-001006	226-001008	226-001007
5/32	0.1562	1-1/8	3/16	3	XL	229-001005	229-001006	229-001008	229-001009
4.0 mm	0.1575	14.0 mm	4.0 mm	51.0 mm	Regular	223-001440	—	—	223-001440B
11/64	0.1719	5/16	3/16	2	Stub	220-001055	220-011055	220-021055	220-031055
11/64	0.1719	9/16	3/16	2	Regular	223-001035	223-001055	223-021054	223-001043
4.5 mm	0.1772	16.0 mm	5.0 mm	51.0 mm	Regular	223-001445	—	—	223-001445B
3/16	0.1875	3/8	3/16	2	Stub	220-001060	220-001062	220-001061	220-001063
3/16	0.1875	5/8	3/16	2	Regular	223-001040	223-001041	223-001042	223-001034
3/16	0.1875	3/4	3/16	2-1/2	Long	226-001012	226-001013	226-001014	226-001016
3/16	0.1875	1	3/16	4	Ext XL	229-001015	—	—	—
3/16	0.1875	1-1/8	3/16	3	XL	229-001010	229-001011	229-001012	229-001014
5.0 mm	0.1969	16.0 mm	5.0 mm	51.0 mm	Regular	223-001450	—	—	223-001450B
13/64	0.2031	3/8	1/4	2	Stub	220-001065	220-011065	220-021065	220-031065
13/64	0.2031	5/8	1/4	2-1/2	Regular	223-001046	223-001059	223-021058	223-001047
7/32	0.2188	7/16	1/4	2	Stub	220-001070	220-001072	220-001071	220-001073
7/32	0.2188	5/8	1/4	2-1/2	Regular	223-001050	223-001056	223-001037	223-001036
15/64	0.2344	7/16	1/4	2	Stub	220-001075	220-011075	220-021075	220-031075
15/64	0.2344	3/4	1/4	2-1/2	Regular	223-001053	223-001057	223-021053	223-001045
6.0 mm	0.2362	19.0 mm	6.0 mm	63.0 mm	Regular	223-001460	—	—	223-001460B
1/4	0.2500	1/2	1/4	2	Stub	220-001080	220-001082	220-001081	220-001083
1/4	0.2500	3/4	1/4	2-1/2	Regular	223-001060	223-001062	223-001063	223-001066
1/4	0.2500	1	1/4	4	Ext XL	229-001019	—	—	—
1/4	0.2500	1-1/8	1/4	3	Long	226-001020	226-001021	226-001022	226-001024
1/4	0.2500	1-1/2	1/4	4	XL	229-001020	229-001021	229-001022	229-001024
1/4	0.2500	1-1/2	1/4	6	Ext XXL	229-001026	229-001026A	229-001026C	229-001027
17/64	0.2656	3/4	5/16	2-1/2	Regular	223-001061	223-001064	223-021061	223-031061
7.0 mm	0.2756	19.0 mm	8.0 mm	63.0 mm	Regular	223-001470	—	—	223-001470B
9/32	0.2812	3/4	5/16	2-1/2	Regular	223-001070	223-001065	223-001067	223-001068
19/64	0.2969	13/16	5/16	2-1/2	Regular	223-001071	223-001072	223-021071	223-031071
5/16	0.3125	1/2	5/16	2	Stub	220-001090	220-001092	220-001091	220-001093
5/16	0.3125	13/16	5/16	2-1/2	Regular	223-001080	223-001082	223-001083	223-001073
5/16	0.3125	1-1/8	5/16	3	Long	226-001030	226-001031	226-001032	226-001034
5/16	0.3125	1-1/2	5/16	6	Ext XXL	229-001035	229-001035A	229-001035C	229-001036
5/16	0.3125	1-5/8	5/16	4	XL	229-001030	229-001031	229-001032	229-001034
8.0 mm	0.3150	20.0 mm	8.0 mm	63.0 mm	Regular	223-001480	—	—	223-001480B
21/64	0.3281	1	3/8	2-1/2	Regular	223-001084	223-001085	223-021084	223-031084
11/32	0.3438	1	3/8	2-1/2	Regular	223-001086	223-001087	223-001169	223-001115
9.0 mm	0.3543	22.0 mm	10.0 mm	63.0 mm	Regular	223-001490	—	—	223-001490B
23/64	0.3594	1	3/8	2-1/2	Regular	223-001088	223-001089	223-021088	223-031088

4 FLUTE BALLNOSE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
3/8	0.3750	5/8	3/8	2	Stub	220-001100	220-001101	220-001102	220-001103
3/8	0.3750	1	3/8	2-1/2	Regular	223-001090	223-001092	223-001093	223-001116
3/8	0.3750	1-1/8	3/8	3	Long	226-001040	226-001041	226-001042	226-001044
3/8	0.3750	1-1/2	3/8	6	Ext XXL	229-001046	229-001048	229-001049	229-001047
3/8	0.3750	1-3/4	3/8	4	XL	229-001040	229-001041	229-001042	229-001044
25/64	0.3906	1	7/16	2-3/4	Regular	223-001094	223-001096	223-021094	223-031094
10.0 mm	0.3937	22.0 mm	10.0 mm	76.0 mm	Regular	223-001500	—	—	223-001500B
13/32	0.4062	1	7/16	2-3/4	Regular	223-001095	223-001097	223-021095	223-001117
27/64	0.4219	1	7/16	2-3/4	Regular	223-001098	223-001099	223-021098	223-031098
11.0 mm	0.4331	25.0 mm	12.0 mm	76.0 mm	Regular	223-001510	—	—	223-001510B
7/16	0.4375	5/8	7/16	2-1/2	Stub	220-001110	220-001111	220-001112	220-001113
7/16	0.4375	1	7/16	2-3/4	Regular	223-001100	223-001101	223-001102	223-001118
7/16	0.4375	2	7/16	4	Long	226-001050	226-001051	226-001052	226-001054
7/16	0.4375	3	7/16	6	XL	229-001050	229-001051	229-001052	229-001053
29/64	0.4531	1	1/2	3	Regular	223-001103	223-001104	223-021103	223-031103
15/32	0.4688	1	1/2	3	Regular	223-001105	223-001107	223-001121	223-001119
12.0 mm	0.4724	25.0 mm	12.0 mm	76.0 mm	Regular	223-001520	—	—	223-001520B
31/64	0.4844	1	1/2	3	Regular	223-001109	223-001108	223-021108	223-031108
1/2	0.5000	5/8	1/2	2-1/2	Stub	220-001120	220-001121	220-001122	220-001123
1/2	0.5000	1	1/2	3	Regular	223-001110	223-001111	223-001112	223-001114
1/2	0.5000	1-1/2	1/2	4	Medium	226-001059	226-001057	226-001058	226-001059A
1/2	0.5000	1-1/2	1/2	6	Ext XL	229-001053A	229-001055	229-001056	229-001057
1/2	0.5000	2	1/2	4	Long	226-001060	226-001061	226-001062	226-001064
1/2	0.5000	3	1/2	6	XL	229-001053AA	229-001066	229-001067	229-001068
14.0 mm	0.5512	32.0 mm	14.0 mm	90.0 mm	Regular	223-001540	—	—	223-001540B
9/16	0.5625	1-1/4	9/16	3-1/2	Regular	223-001120	223-001125	223-001126	223-001127
5/8	0.6250	3/4	5/8	3	Stub	220-001130	220-001131	220-001132	220-001133
5/8	0.6250	1-1/4	5/8	3-1/2	Regular	223-001130	223-001131	223-001132	223-001135
5/8	0.6250	1-1/2	5/8	6	Ext XL	229-001076	229-001076A	229-001076C	229-001077
5/8	0.6250	2-1/4	5/8	5	Long	226-001070	226-001071	226-001072	226-001074
5/8	0.6250	3	5/8	6	XL	229-001070	229-001071	229-001072	229-001074
16.0 mm	0.6299	32.0 mm	16.0 mm	102.0 mm	Regular	223-001560	—	—	223-001560B
11/16	0.6875	1-1/2	3/4	4	Regular	223-001140	223-001155	223-021156	223-001167
18.0 mm	0.7087	38.0 mm	18.0 mm	102.0 mm	Regular	223-001580	—	—	223-001580B
3/4	0.7500	1	3/4	3	Stub	220-001140	220-001141	220-001142	220-001143
3/4	0.7500	1-1/2	3/4	4	Regular	223-001150	223-001151	223-001152	223-001154
3/4	0.7500	1-1/2	3/4	6	Ext XL	229-001085	229-001085A	229-001085C	229-001086
3/4	0.7500	2-1/4	3/4	5	Long	226-001080	226-001081	226-001082	226-001084
3/4	0.7500	3	3/4	6	XL	229-001080	229-001081	229-001082	229-001084
20.0 mm	0.7874	38.0 mm	20.0 mm	102.0 mm	Regular	223-001600	—	—	223-001600B
22.0 mm	0.8661	38.0 mm	22.0 mm	102.0 mm	Regular	223-001620	—	—	223-001620B
7/8	0.8750	1-1/2	7/8	4	Regular	223-001157	223-001159	223-021157	223-001165
25.0 mm	0.9843	38.0 mm	25.0 mm	102.0 mm	Regular	223-001650	—	—	223-001650B
1	1.0000	1-1/2	1	4	Regular	223-001160	223-001161	223-001162	223-001163
1	1.0000	1-1/2	1	6	Ext XL	229-001095	229-001095A	229-001095C	229-001096
1	1.0000	2-1/4	1	5	Long	226-001090	226-001091	226-001092	226-001097
1	1.0000	3	1	6	XL	229-001090	229-001091	229-001092	229-001094

MILL MONSTER

STANDARD ENDMILLS 4 FLUTE

Applications:

- *Profiling, slotting, production milling, finishing applications & generating corner radius on work piece*
- *Corner Radius promotes additional strength for longer tool life resulting in greater productivity*
- *Use for generating corner radius on work piece*

Materials:

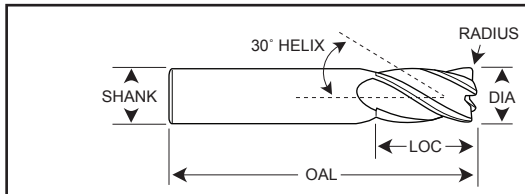
- *A wide range of ferrous metals, including stainless steels and high temperature alloys*

REGULAR LENGTH: Standard flute lengths for general all purpose milling

4 FLUTE CORNER RADIUS

DIA	Decimal Inches	LOC	SHANK	OAL	RADIUS	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN COATED
1/8	0.1250	1/2	1/8	1-1/2	.005	Regular	206-602297	—	—	206-602298
1/8	0.1250	1/2	1/8	1-1/2	.010	Regular	206-602300	206-602301	206-602302	206-602303
1/8	0.1250	1/2	1/8	1-1/2	.015	Regular	206-602306	206-602307	206-602308	206-602309
1/8	0.1250	1/2	1/8	1-1/2	.020	Regular	206-602312	206-602313	206-602314	206-602315
1/8	0.1250	1/2	1/8	1-1/2	.030	Regular	206-602318	206-602319	206-602320	206-602321
3/16	0.1875	5/8	3/16	2	.010	Regular	206-602424	206-602425	206-602426	206-602427
3/16	0.1875	5/8	3/16	2	.015	Regular	206-602430	206-602431	206-602432	206-602433
3/16	0.1875	5/8	3/16	2	.020	Regular	206-602436	206-602437	206-602438	206-602439
3/16	0.1875	5/8	3/16	2	.030	Regular	206-602442	206-602443	206-602444	206-602445
3/16	0.1875	5/8	3/16	2	.045	Regular	206-602448	206-602449	206-602450	206-602451
3/16	0.1875	5/8	3/16	2	.050	Regular	206-602452	—	—	206-602455
3/16	0.1875	5/8	3/16	2	.060	Regular	206-602453	—	—	206-602456
1/4	0.2500	3/4	1/4	2-1/2	.010	Regular	206-602548	—	—	206-602549
1/4	0.2500	3/4	1/4	2-1/2	.015	Regular	206-602551	206-602552	206-602553	206-602554
1/4	0.2500	3/4	1/4	2-1/2	.020	Regular	206-602557	206-602558	206-602559	206-602560
1/4	0.2500	3/4	1/4	2-1/2	.025	Regular	206-602563	206-602564	206-602565	206-602566
1/4	0.2500	3/4	1/4	2-1/2	.030	Regular	206-602569	206-602570	206-602571	206-602572
1/4	0.2500	3/4	1/4	2-1/2	.045	Regular	206-602575	206-602576	206-602577	206-602578
1/4	0.2500	3/4	1/4	2-1/2	.060	Regular	206-602581	206-602582	206-602583	206-602584
1/4	0.2500	3/4	1/4	2-1/2	.090	Regular	206-602595	—	—	206-602598

Standard Endmills
4 Flute Corner Radus



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

PROUDLY MADE IN THE USA

4 FLUTE CORNER RADIUS *Continued*

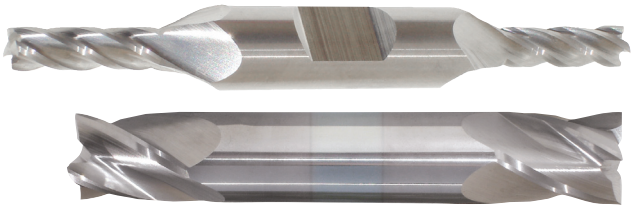
DIA	Decimal Inches	LOC	SHANK	OAL	RADIUS	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN COATED
5/16	0.3125	13/16	5/16	2-1/2	.015	Regular	206-602684	206-602685	206-602686	206-602687
5/16	0.3125	13/16	5/16	2-1/2	.020	Regular	206-602690	206-602691	206-602692	206-602693
5/16	0.3125	13/16	5/16	2-1/2	.025	Regular	206-602696	206-602697	206-602698	206-602699
5/16	0.3125	13/16	5/16	2-1/2	.030	Regular	206-602702	206-602703	206-602704	206-602705
5/16	0.3125	13/16	5/16	2-1/2	.045	Regular	206-602708	206-602709	206-602710	206-602711
5/16	0.3125	13/16	5/16	2-1/2	.060	Regular	206-602714	206-602715	206-602716	206-602717
5/16	0.3125	13/16	5/16	2-1/2	.090	Regular	206-602719	—	—	206-602722
5/16	0.3125	13/16	5/16	2-1/2	.125	Regular	206-602723	—	—	206-602726
3/8	0.3750	1	3/8	2-1/2	.015	Regular	206-602820	206-602821	206-602822	206-602823
3/8	0.3750	1	3/8	2-1/2	.020	Regular	206-602826	206-602827	206-602828	206-602829
3/8	0.3750	1	3/8	2-1/2	.025	Regular	206-602832	206-602833	206-602834	206-602835
3/8	0.3750	1	3/8	2-1/2	.030	Regular	206-602838	206-602839	206-602840	206-602841
3/8	0.3750	1	3/8	2-1/2	.045	Regular	206-602844	206-602845	206-602846	206-602847
3/8	0.3750	1	3/8	2-1/2	.060	Regular	206-602850	206-602851	206-602852	206-602853
3/8	0.3750	1	3/8	2-1/2	.090	Regular	206-602856	206-602857	206-602858	206-602859
3/8	0.3750	1	3/8	2-1/2	.125	Regular	206-602860	—	—	206-602863
7/16	0.4375	1	7/16	2-3/4	.015	Regular	206-602961	206-602962	206-602963	206-602964
7/16	0.4375	1	7/16	2-3/4	.020	Regular	206-602967	206-602968	206-602969	206-602970
7/16	0.4375	1	7/16	2-3/4	.025	Regular	206-602974	206-602975	206-602976	206-602977
7/16	0.4375	1	7/16	2-3/4	.030	Regular	206-602980	206-602981	206-602982	206-602983
7/16	0.4375	1	7/16	2-3/4	.045	Regular	206-602986	206-602987	206-602988	206-602989
7/16	0.4375	1	7/16	2-3/4	.060	Regular	206-602992	206-602993	206-602994	206-602995
7/16	0.4375	1	7/16	2-3/4	.090	Regular	206-602998	206-602999	206-603000	206-603001

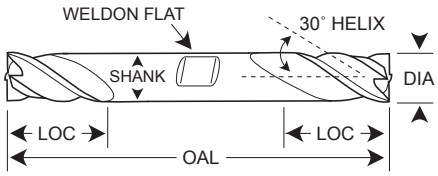
4 FLUTE CORNER RADIUS *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	RADIUS	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN COATED
1/2	0.5000	1	1/2	3	.015	Regular	206-603003	206-603004	206-603005	206-603006
1/2	0.5000	1	1/2	3	.020	Regular	206-603009	206-603010	206-603011	206-603012
1/2	0.5000	1	1/2	3	.025	Regular	206-603015	206-603016	206-603017	206-603018
1/2	0.5000	1	1/2	3	.030	Regular	206-603021	206-603022	206-603023	206-603024
1/2	0.5000	1	1/2	3	.045	Regular	206-603027	206-603028	206-603029	206-603030
1/2	0.5000	1	1/2	3	.060	Regular	206-603033	206-603034	206-603035	206-603036
1/2	0.5000	1	1/2	3	.090	Regular	206-603039	206-603040	206-603041	206-603042
1/2	0.5000	1	1/2	3	.125	Regular	206-603045	206-603046	206-603047	206-603048
5/8	0.6250	1-1/4	5/8	3-1/2	.015	Regular	206-603150	206-603151	206-603152	206-603153
5/8	0.6250	1-1/4	5/8	3-1/2	.020	Regular	206-603156	206-603157	206-603158	206-603159
5/8	0.6250	1-1/4	5/8	3-1/2	.025	Regular	206-603162	206-603163	206-603164	206-603165
5/8	0.6250	1-1/4	5/8	3-1/2	.030	Regular	206-603168	206-603169	206-603170	206-603171
5/8	0.6250	1-1/4	5/8	3-1/2	.045	Regular	206-603174	206-603175	206-603176	206-603177
5/8	0.6250	1-1/4	5/8	3-1/2	.060	Regular	206-603180	206-603181	206-603182	206-603183
5/8	0.6250	1-1/4	5/8	3-1/2	.090	Regular	206-603186	206-603187	206-603188	206-603189
5/8	0.6250	1-1/4	5/8	3-1/2	.125	Regular	206-603192	206-603193	206-603194	206-603195
3/4	0.7500	1-1/2	3/4	4	.015	Regular	206-603297	206-603298	206-603299	206-603300
3/4	0.7500	1-1/2	3/4	4	.020	Regular	206-603303	206-603304	206-603305	206-603306
3/4	0.7500	1-1/2	3/4	4	.025	Regular	206-603309	206-603310	206-603311	206-603312
3/4	0.7500	1-1/2	3/4	4	.030	Regular	206-603315	206-603316	206-603317	206-603318
3/4	0.7500	1-1/2	3/4	4	.045	Regular	206-603321	206-603322	206-603323	206-603324
3/4	0.7500	1-1/2	3/4	4	.060	Regular	206-603327	206-603328	206-603329	206-603330
3/4	0.7500	1-1/2	3/4	4	.090	Regular	206-603333	206-603334	206-603335	206-603336
3/4	0.7500	1-1/2	3/4	4	.125	Regular	206-603339	206-603340	206-603341	206-603342
3/4	0.7500	1-1/2	3/4	4	.190	Regular	206-603345	206-603346	206-603347	206-603348
3/4	0.7500	1-1/2	3/4	4	.250	Regular	206-603350	—	—	206-603353
1	1.0000	1-1/2	1	4	.015	Regular	206-603450	206-603451	206-603452	206-603453
1	1.0000	1-1/2	1	4	.020	Regular	206-603456	206-603457	206-603458	206-603459
1	1.0000	1-1/2	1	4	.025	Regular	206-603462	206-603463	206-603464	206-603465
1	1.0000	1-1/2	1	4	.030	Regular	206-603468	206-603469	206-603470	206-603471
1	1.0000	1-1/2	1	4	.045	Regular	206-603474	206-603475	206-603476	206-603477
1	1.0000	1-1/2	1	4	.060	Regular	206-603480	206-603481	206-603482	206-603483
1	1.0000	1-1/2	1	4	.090	Regular	206-603486	206-603487	206-603488	206-603489
1	1.0000	1-1/2	1	4	.125	Regular	206-603492	206-603493	206-603494	206-603495
1	1.0000	1-1/2	1	4	.190	Regular	206-603498	206-603499	206-603500	206-603501
1	1.0000	1-1/2	1	4	.250	Regular	206-603504	206-603505	206-603506	206-603507

STANDARD ENDMILLS
4 FLUTE DOUBLE END

PROUDLY MADE IN THE USA





- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

Applications:
- ***Profiling, slotting, production milling and finishing applications***

Materials:
- ***A wide range of ferrous metals, including stainless steels and high temperature alloys***

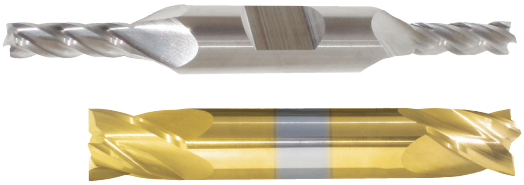
STUB LENGTH: ***Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes***
REGULAR LENGTH: ***Standard flute lengths for general all purpose milling***

4 FLUTE SQUARE

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/32	0.0312	1/16	1/8	1-1/2	No	Stub	236-001001	236-001011	236-001003	236-001004
3/64	0.0469	3/32	1/8	1-1/2	No	Stub	236-001010	236-001012	236-001013	236-001014
1/16	0.0625	1/8	1/8	1-1/2	No	Stub	236-001020	236-001021	236-001028	236-031025
5/64	0.0781	1/8	1/8	1-1/2	No	Stub	236-001025	236-001026	236-021025	236-001027
3/32	0.0938	3/16	1/8	1-1/2	No	Stub	236-001030	236-001031	236-001037	236-001034
7/64	0.1094	3/16	1/8	1-1/2	No	Stub	236-001035	236-001036	236-021036	236-031035
1/8	0.1250	1/4	1/8	1-1/2	No	Stub	236-001040	236-001041	236-001045	236-001047
1/8	0.1250	3/8	3/8	3	Yes	Regular	239-001001	—	—	239-001003

MILL MONSTER

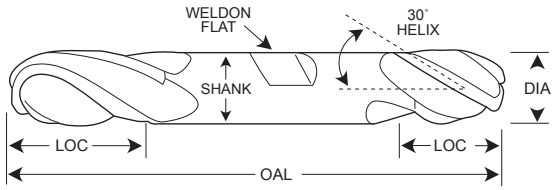
PROUDLY MADE IN THE USA



4 FLUTE SQUARE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
9/64	0.1406	5/16	3/16	2	No	Stub	236-001042	236-001044	236-021044	236-031042
5/32	0.1562	5/16	3/16	2	No	Stub	236-001050	236-001051	236-001053	236-001054
5/32	0.1562	7/16	3/8	3	Yes	Regular	239-001010	—	—	239-001013
11/64	0.1719	5/16	3/16	2	No	Stub	236-001055	236-001056	236-021055	236-001057
3/16	0.1875	3/8	3/16	2	No	Stub	236-001060	236-001061	236-001062	236-001064
3/16	0.1875	1/2	3/8	3	Yes	Regular	239-001020	—	—	239-001023
13/64	0.2031	1/2	1/4	2-1/2	No	Stub	236-001065	236-001066	236-021065	236-031065
7/32	0.2188	1/2	1/4	2-1/2	No	Stub	236-001070	236-001071	236-001073	236-001074
7/32	0.2188	9/16	3/8	3-1/2	Yes	Regular	239-001030	—	—	239-001033
15/64	0.2344	1/2	1/4	2-1/2	No	Stub	236-001075	236-001076	236-021075	236-031075
1/4	0.2500	1/2	1/4	2-1/2	No	Stub	236-001080	236-001081	236-001083	236-001085
1/4	0.2500	5/8	3/8	3-1/2	Yes	Regular	239-001040	—	—	239-001043
9/32	0.2812	1/2	5/16	2-1/2	No	Stub	236-001082	236-001087	236-001088	236-001089
9/32	0.2812	11/16	3/8	3-1/2	Yes	Regular	239-001050	—	—	239-001053
5/16	0.3125	1/2	5/16	2-1/2	No	Stub	236-001090	236-001091	236-001093	236-001094
5/16	0.3125	3/4	3/8	3-1/2	Yes	Regular	239-001060	—	—	239-001063
11/32	0.3438	9/16	3/8	2-1/2	No	Stub	236-001092	236-001095	236-001096	236-031092
11/32	0.3438	3/4	3/8	3-1/2	Yes	Regular	239-001070	—	—	239-001073
3/8	0.3750	9/16	3/8	2-1/2	No	Stub	236-001100	236-001101	236-001102	236-001103
3/8	0.3750	3/4	3/8	3-1/2	Yes	Regular	239-001080	—	—	239-001083
7/16	0.4375	9/16	7/16	2-3/4	No	Stub	236-001110	236-021111	236-001111	236-031110
7/16	0.4375	7/8	1/2	4	Yes	Regular	239-001090	—	—	239-001093
1/2	0.5000	5/8	1/2	3	No	Stub	236-001120	236-001121	236-001122	236-001124
1/2	0.5000	1	1/2	4	Yes	Regular	239-001100	—	—	239-001103

STANDARD ENDMILLS
4 FLUTE DOUBLE END



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*

Application:
- ***Pocketing, production milling and finishing applications***
- ***Ball end allows for three axis contour slotting and contour finishing***

Materials:
- ***Cast iron, non-ferrous metals, plastics and abrasive materials***

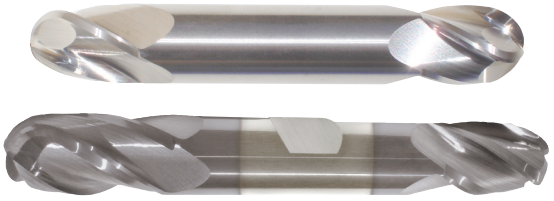
STUB LENGTH: ***Reduces tool deflection and promotes rigidity - Maintains excellent surface finishes***
REGULAR LENGTH: ***Standard flute lengths for general all purpose milling***

4 FLUTE BALLNOSE

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
1/32	0.0312	1/16	1/8	1-1/2	No	Stub	242-001001	242-001011	242-021001	242-031011
3/64	0.0469	3/32	1/8	1-1/2	No	Stub	242-001010	242-001012	242-021010	242-031012
1/16	0.0625	1/8	1/8	1-1/2	No	Stub	242-001010A	242-001021	242-001022	242-031026
5/64	0.0781	1/8	1/8	1-1/2	No	Stub	242-001019	242-001026	242-001027	242-031021
3/32	0.0938	3/16	1/8	1-1/2	No	Stub	242-001030	242-001031	242-001032	242-031031
7/64	0.1094	3/16	1/8	1-1/2	No	Stub	242-001035	242-001036	242-001037	242-031036
1/8	0.1250	1/4	1/8	1-1/2	No	Stub	242-001040	242-001041	242-001042	242-001043
1/8	0.1250	3/8	3/8	3	Yes	Regular	245-001001	—	—	245-001003
9/64	0.1406	5/16	3/16	2	No	Stub	242-001044	242-001045	242-001046	242-031044

MILL MONSTER

PROUDLY MADE IN THE USA

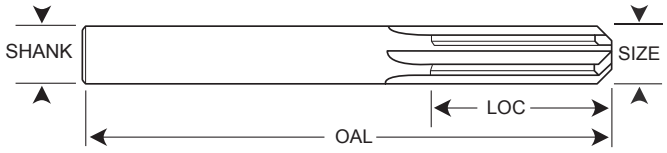


4 FLUTE BALLNOSE *Continued*

DIA	Decimal Inches	LOC	SHANK	OAL	WELDON FLAT	LENGTH	UNCOATED	TiN Coated	TiCN Coated	TiAlN Coated
5/32	0.1562	5/16	3/16	2	No	Stub	242-001050	242-001051	242-001052	242-001053
5/32	0.1562	7/16	3/8	3	Yes	Regular	245-001010	—	—	245-001013
11/64	0.1719	5/16	3/16	2	No	Stub	242-001055	242-001056	242-001057	242-031055
3/16	0.1875	3/8	3/16	2	No	Stub	242-001060	242-001061	242-001062	242-001063
3/16	0.1875	1/2	3/8	3	Yes	Regular	245-001020	—	—	245-001023
13/64	0.2031	1/2	1/4	2-1/2	No	Stub	242-001065	242-001066	242-001067	242-031065
7/32	0.2188	1/2	1/4	2-1/2	No	Stub	242-001070	242-001071	242-001072	242-031070
7/32	0.2188	9/16	3/8	3-1/2	Yes	Regular	245-001030	—	—	245-001033
15/64	0.2344	1/2	1/4	2-1/2	No	Stub	242-001075	242-001076	242-001077	242-031075
1/4	0.2500	1/2	1/4	2-1/2	No	Stub	242-001080	242-001081	242-001082	242-001083
1/4	0.2500	5/8	3/8	3-1/2	Yes	Regular	245-001040	—	—	245-001043
9/32	0.2812	1/2	5/16	2-1/2	No	Stub	242-001085	242-001087	242-001088	242-031085
9/32	0.2812	11/16	3/8	3-1/2	Yes	Regular	245-001050	—	—	245-001053
5/16	0.3125	1/2	5/16	2-1/2	No	Stub	242-001090	242-001091	242-001093	242-001094
5/16	0.3125	3/4	3/8	3-1/2	Yes	Regular	245-001060	—	—	245-001063
11/32	0.3438	9/16	3/8	2-1/2	No	Stub	242-001092	242-001095	242-001096	242-031092
11/32	0.3438	3/4	3/8	3-1/2	Yes	Regular	245-001070	—	—	245-001073
3/8	0.3750	9/16	3/8	2-1/2	No	Stub	242-001100	242-001101	242-001102	242-001104
3/8	0.3750	3/4	3/8	3-1/2	Yes	Regular	245-001080	—	—	245-001083
7/16	0.4375	9/16	7/16	2-3/4	No	Stub	242-001110	242-001111	242-001112	242-001114
7/16	0.4375	7/8	1/2	4	Yes	Regular	245-001090	—	—	245-001093
1/2	0.5000	5/8	1/2	3	No	Stub	242-001120	242-001121	242-001122	242-001124
1/2	0.5000	1	1/2	4	Yes	Regular	245-001100	—	—	245-001103

REAM MONSTER

STRAIGHT FLUTE CHUCKING REAMERS



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

PROUDLY MADE IN THE USA

Materials:

- ***Aluminum, brass, bronze, plastics, steels & abrasive materials***

REAMERS

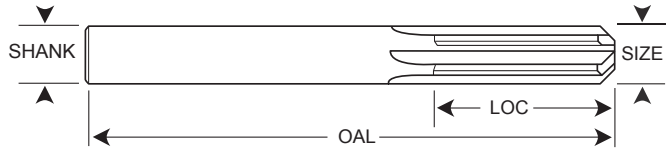
FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.0280	#70	1/4	1-1/2	500-003070
4	0.0285		1/4	1-1/2	500-0000285
4	0.0290		1/4	1-1/2	500-0000290
4	0.0292	#69	1/4	1-1/2	500-003069
4	0.0295		1/4	1-1/2	500-0000295
4	0.0300		1/4	1-1/2	500-0000300
4	0.0305		1/4	1-1/2	500-0000305
4	0.0310	#68	1/4	1-1/2	500-003068
4	0.0312	1/32	1/4	1-1/2	500-001002
4	0.0315		1/4	1-1/2	500-0000315
4	0.0320	#67	1/4	1-1/2	500-003067
4	0.0325		1/4	1-1/2	500-0000325
4	0.0330	#66	1/4	1-1/2	500-003066
4	0.0335		1/4	1-1/2	500-0000335
4	0.0340		1/4	1-1/2	500-0000340
4	0.0345		1/4	1-1/2	500-0000345
4	0.0350	#65	1/4	1-1/2	500-003065
4	0.0355		1/4	1-1/2	500-0000355
4	0.0360	#64	1/4	1-1/2	500-003064
4	0.0365		1/4	1-1/2	500-0000365
4	0.0370	#63	1/4	1-1/2	500-003063
4	0.0375		1/4	1-1/2	500-0000375
4	0.0380	#62	1/4	1-1/2	500-003062
4	0.0385		1/4	1-1/2	500-0000385
4	0.0390	#61	1/4	1-1/2	500-003061
4	0.0394	1.0 mm	6 mm	38 mm	500-004001
4	0.0395		1/4	1-1/2	500-0000395
4	0.0400	#60	1/4	1-1/2	500-003060
4	0.0405		1/4	1-1/2	500-0000405
4	0.0410	#59	1/4	1-1/2	500-003059
4	0.0415		1/4	1-1/2	500-0000415
4	0.0420	#58	3/8	1-1/2	500-003058
4	0.0425		3/8	1-1/2	500-0000425

Straight Flute Chucking Reamers

REAMERS *Continued*

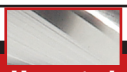
FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.0430	#57	3/8	1-1/2	500-003057
4	0.0435		3/8	1-1/2	500-0000435
4	0.0440		3/8	1-1/2	500-0000440
4	0.0445		3/8	1-1/2	500-0000445
4	0.0450		3/8	1-1/2	500-0000450
4	0.0455		3/8	1-1/2	500-0000455
4	0.0460		3/8	1-1/2	500-0000460
4	0.0465	#56	3/8	1-1/2	500-003056
4	0.0469	3/64	3/8	1-1/2	500-001003
4	0.0470		3/8	1-1/2	500-0000470
4	0.0475		3/8	1-1/2	500-0000475
4	0.0480		3/8	1-1/2	500-0000480
4	0.0485		3/8	1-1/2	500-0000485
4	0.0490		3/8	1-1/2	500-0000490
4	0.0495		3/8	1-1/2	500-0000495
4	0.0500		3/8	1-1/2	500-0000500
4	0.0505		3/8	1-1/2	500-0000505
4	0.0510		3/8	1-1/2	500-0000510
4	0.0515		3/8	1-1/2	500-0000515
4	0.0520	#55	3/8	1-1/2	500-003055
4	0.0525		3/8	1-1/2	500-0000525
4	0.0530		3/8	1-1/2	500-0000530
4	0.0535		3/8	1-1/2	500-0000535
4	0.0540		3/8	1-1/2	500-0000540
4	0.0545		3/8	1-1/2	500-0000545
4	0.0550	#54	3/8	1-1/2	500-003054
4	0.0555		3/8	1-1/2	500-0000555
4	0.0560		3/8	1-1/2	500-0000560
4	0.0565		3/8	1-1/2	500-0000565
4	0.0570		3/8	1-1/2	500-0000570
4	0.0575		3/8	1-1/2	500-0000575
4	0.0580		3/8	1-1/2	500-0000580
4	0.0585		3/8	1-1/2	500-0000585
4	0.0590		3/8	1-1/2	500-0000590
4	0.0591	1.5 mm	10 mm	38 mm	500-004001.5
4	0.0595	#53	3/8	1-1/2	500-003053
4	0.0600		3/8	1-1/2	500-0000600
4	0.0605		3/8	1-1/2	500-0000605
4	0.0610		3/8	1-1/2	500-0000610
4	0.0615		3/8	1-1/2	500-0000615
4	0.0620		3/8	1-1/2	500-0000620
4	0.0622		3/8	1-1/2	500-0000622
4	0.0623		3/8	1-1/2	500-0000623
4	0.0625	1/16	3/8	1-1/2	500-001004
4	0.0630		3/8	1-1/2	500-0000630
4	0.0635	#52	3/8	1-1/2	500-003052
4	0.0640		3/8	1-1/2	500-0000640
4	0.0645		3/8	1-1/2	500-0000645

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

REAMERS *Continued*



FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.0650		3/8	1-1/2	500-0000650
4	0.0655		1/2	1-3/4	500-0000655
4	0.0660		1/2	1-3/4	500-0000660
4	0.0665		1/2	1-3/4	500-0000665
4	0.0670	#51	1/2	1-3/4	500-003051
4	0.0675		1/2	1-3/4	500-0000675
4	0.0680		1/2	1-3/4	500-0000680
4	0.0685		1/2	1-3/4	500-0000685
4	0.0690		1/2	1-3/4	500-0000690
4	0.0695		1/2	1-3/4	500-0000695
4	0.0700	#50	1/2	1-3/4	500-003050
4	0.0705		1/2	1-3/4	500-0000705
4	0.0710		1/2	1-3/4	500-0000710
4	0.0715		1/2	1-3/4	500-0000715
4	0.0720		1/2	1-3/4	500-0000720
4	0.0725		1/2	1-3/4	500-0000725
4	0.0730	#49	1/2	1-3/4	500-003049
4	0.0735		1/2	1-3/4	500-0000735
4	0.0740		1/2	1-3/4	500-0000740
4	0.0745		1/2	1-3/4	500-0000745
4	0.0750		1/2	1-3/4	500-0000750
4	0.0755		1/2	1-3/4	500-0000755
4	0.0760	#48	1/2	1-3/4	500-003048
4	0.0765		1/2	1-3/4	500-0000765
4	0.0770		1/2	1-3/4	500-0000770
4	0.0775		1/2	1-3/4	500-0000775
4	0.0780		1/2	1-3/4	500-0000780
4	0.0781	5/64	1/2	1-3/4	500-001005
4	0.0785	#47	1/2	1-3/4	500-003047
4	0.0787	2.0 mm	13 mm	44 mm	500-004002
4	0.0790		1/2	1-3/4	500-0000790
4	0.0795		1/2	1-3/4	500-0000795
4	0.0800		1/2	1-3/4	500-0000800
4	0.0805		1/2	1-3/4	500-0000805
4	0.0810	#46	1/2	1-3/4	500-003046
4	0.0815		1/2	2	500-0000815
4	0.0820	#45	1/2	2	500-003045
4	0.0825		1/2	2	500-0000825
4	0.0830		1/2	2	500-0000830
4	0.0835		1/2	2	500-0000835
4	0.0840		1/2	2	500-0000840
4	0.0845		1/2	2	500-0000845
4	0.0850		1/2	2	500-0000850
4	0.0855		1/2	2	500-0000855

PROUDLY MADE IN THE USA

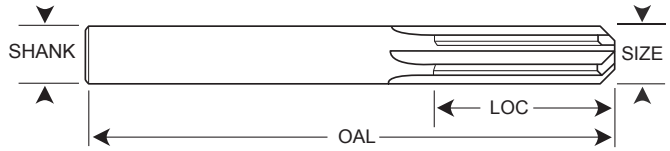
Straight Flute Chucking Reamers

REAMERS *Continued*

PROUDLY MADE IN THE USA

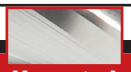
FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.0860	#44	1/2	2	500-003044
4	0.0865		1/2	2	500-0000865
4	0.0870		1/2	2	500-0000870
4	0.0875		1/2	2	500-0000875
4	0.0880		1/2	2	500-0000880
4	0.0885		1/2	2	500-0000885
4	0.0890	#43	1/2	2	500-003043
4	0.0895		1/2	2	500-0000895
4	0.0900		1/2	2	500-0000900
4	0.0905		1/2	2	500-0000905
4	0.0910		1/2	2	500-0000910
4	0.0915		1/2	2	500-0000915
4	0.0920		1/2	2	500-0000920
4	0.0925		1/2	2	500-0000925
4	0.0930		1/2	2	500-0000930
4	0.0933		1/2	2	500-0000933
4	0.0935	#42	1/2	2	500-003042
4	0.0937		1/2	2	500-0000937
4	0.0938	3/32	1/2	2	500-001006
4	0.0940		1/2	2	500-0000940
4	0.0945		1/2	2	500-0000945
4	0.0950		1/2	2	500-0000950
4	0.0955		1/2	2	500-0000955
4	0.0960	#41	1/2	2	500-003041
4	0.0965		1/2	2	500-0000965
4	0.0970		5/8	2-1/4	500-0000970
4	0.0975		5/8	2-1/4	500-0000975
4	0.0980	#40	5/8	2-1/4	500-003040
4	0.0984	2.5 mm	16 mm	57 mm	500-004002.5
4	0.0985		5/8	2-1/4	500-0000985
4	0.0990		5/8	2-1/4	500-0000990
4	0.0995	#39	5/8	2-1/4	500-003039
4	0.1000		5/8	2-1/4	500-0001000
4	0.1005		5/8	2-1/4	500-0001005
4	0.1010		5/8	2-1/4	500-0001010
4	0.1015	#38	5/8	2-1/4	500-003038
4	0.1020		5/8	2-1/4	500-0001020
4	0.1025		5/8	2-1/4	500-0001025
4	0.1030		5/8	2-1/4	500-0001030
4	0.1035		5/8	2-1/4	500-0001035
4	0.1040	#37	5/8	2-1/4	500-003037
4	0.1045		5/8	2-1/4	500-0001045
4	0.1050		5/8	2-1/4	500-0001050
4	0.1055		5/8	2-1/4	500-0001055
4	0.1060		5/8	2-1/4	500-0001060
4	0.1065	#36	5/8	2-1/4	500-003036
4	0.1070		5/8	2-1/4	500-0001070
4	0.1075		5/8	2-1/4	500-0001075

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

REAMERS *Continued*



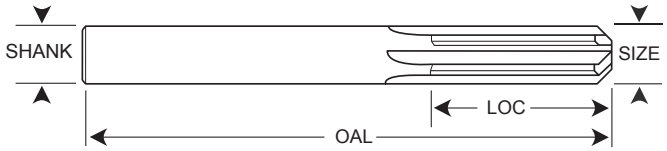
FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.1080		5/8	2-1/4	500-0001080
4	0.1085		5/8	2-1/4	500-0001085
4	0.1090		5/8	2-1/4	500-0001090
4	0.1094	7/64	5/8	2-1/4	500-001007
4	0.1095		5/8	2-1/4	500-0001095
4	0.1100	#35	5/8	2-1/4	500-003035
4	0.1105		5/8	2-1/4	500-0001105
4	0.1110	#34	5/8	2-1/4	500-003034
4	0.1115		5/8	2-1/4	500-0001115
4	0.1120		5/8	2-1/4	500-0001120
4	0.1125		5/8	2-1/4	500-0001125
4	0.1130	#33	5/8	2-1/4	500-003033
4	0.1135		5/8	2-1/4	500-0001135
4	0.1140		5/8	2-1/4	500-0001140
4	0.1145		5/8	2-1/4	500-0001145
4	0.1150		5/8	2-1/4	500-0001150
4	0.1155		5/8	2-1/4	500-0001155
4	0.1160	#32	5/8	2-1/4	500-003032
4	0.1165		5/8	2-1/4	500-0001165
4	0.1170		5/8	2-1/4	500-0001170
4	0.1175		5/8	2-1/4	500-0001175
4	0.1180		5/8	2-1/4	500-0001180
4	0.1181	3.0 mm	16 mm	57 mm	500-004003
4	0.1185		5/8	2-1/4	500-0001185
4	0.1190		5/8	2-1/4	500-0001190
4	0.1195		5/8	2-1/4	500-0001195
4	0.1200	#31	5/8	2-1/4	500-003031
4	0.1205		5/8	2-1/4	500-0001205
4	0.1210		5/8	2-1/4	500-0001210
4	0.1215		5/8	2-1/4	500-0001215
4	0.1220		5/8	2-1/4	500-0001220
4	0.1225		5/8	2-1/4	500-0001225
4	0.1230	D/P	5/8	2-1/4	500-0001230
4	0.1235		5/8	2-1/4	500-0001235
4	0.1240	U/S	5/8	2-1/4	500-0001240
4	0.1245		5/8	2-1/4	500-0001245
4	0.1247	D/P	5/8	2-1/4	500-0001247
4	0.1250	1/8	5/8	2-1/4	500-001008
4	0.1255		5/8	2-1/4	500-0001255
4	0.1260	O/S	5/8	2-1/4	500-0001260
4	0.1265		5/8	2-1/4	500-0001265
4	0.1270		5/8	2-1/4	500-0001270
4	0.1275		5/8	2-1/4	500-0001275
4	0.1280		5/8	2-1/4	500-0001280

Straight Flute Chucking Reamers

REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.1285	#30	5/8	2-1/4	500-003030
4	0.1290		5/8	2-1/4	500-0001290
4	0.1295		5/8	2-1/4	500-0001295
4	0.1300		5/8	2-1/4	500-0001300
4	0.1305		3/4	2-1/2	500-0001305
4	0.1310		3/4	2-1/2	500-0001310
4	0.1315		3/4	2-1/2	500-0001315
4	0.1320		3/4	2-1/2	500-0001320
4	0.1325		3/4	2-1/2	500-0001325
4	0.1330		3/4	2-1/2	500-0001330
4	0.1335		3/4	2-1/2	500-0001335
4	0.1340		3/4	2-1/2	500-0001340
4	0.1345		3/4	2-1/2	500-0001345
4	0.1350		3/4	2-1/2	500-0001350
4	0.1355		3/4	2-1/2	500-0001355
4	0.1360	#29	3/4	2-1/2	500-003029
4	0.1365		3/4	2-1/2	500-0001365
4	0.1370		3/4	2-1/2	500-0001370
4	0.1375		3/4	2-1/2	500-0001375
4	0.1378	3.5 mm	19 mm	64 mm	500-004003.5
4	0.1380		3/4	2-1/2	500-0001380
4	0.1385		3/4	2-1/2	500-0001385
4	0.1390		3/4	2-1/2	500-0001390
4	0.1395		3/4	2-1/2	500-0001395
4	0.1400		3/4	2-1/2	500-0001400
4	0.1405	#28	3/4	2-1/2	500-003028
4	0.1406	9/64	3/4	2-1/2	500-001009
4	0.1410		3/4	2-1/2	500-0001410
4	0.1415		3/4	2-1/2	500-0001415
4	0.1420		3/4	2-1/2	500-0001420
4	0.1425		3/4	2-1/2	500-0001425
4	0.1430		3/4	2-1/2	500-0001430
4	0.1435		3/4	2-1/2	500-0001435
4	0.1440	#27	3/4	2-1/2	500-003027
4	0.1445		3/4	2-1/2	500-0001445
4	0.1450		3/4	2-1/2	500-0001450
4	0.1455		3/4	2-1/2	500-0001455
4	0.1460		3/4	2-1/2	500-0001460
4	0.1465		3/4	2-1/2	500-0001465
4	0.1470	#26	3/4	2-1/2	500-003026
4	0.1475		3/4	2-1/2	500-0001475
4	0.1480		3/4	2-1/2	500-0001480
4	0.1485		3/4	2-1/2	500-0001485
4	0.1490		3/4	2-1/2	500-0001490
4	0.1495	#25	3/4	2-1/2	500-003025
4	0.1500		3/4	2-1/2	500-0001500
4	0.1505		3/4	2-1/2	500-0001505
4	0.1507		3/4	2-1/2	500-0001507
4	0.1510		3/4	2-1/2	500-0001510

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.1515		3/4	2-1/2	500-0001515
4	0.1520	#24	3/4	2-1/2	500-003024
4	0.1525		3/4	2-1/2	500-0001525
4	0.1530		3/4	2-1/2	500-0001530
4	0.1535		3/4	2-1/2	500-0001535
4	0.1540	#23	3/4	2-1/2	500-003023
4	0.1541		3/4	2-1/2	500-0001541
4	0.1545		3/4	2-1/2	500-0001545
4	0.1550		3/4	2-1/2	500-0001550
4	0.1555		3/4	2-1/2	500-0001555
4	0.1560		3/4	2-1/2	500-0001560
4	0.1562	5/32	3/4	2-1/2	500-001010
4	0.1565		3/4	2-1/2	500-0001565
4	0.1570	#22	3/4	2-1/2	500-003022
4	0.1575	4.0 mm	19 mm	64 mm	500-004004
4	0.1580		3/4	2-1/2	500-0001580
4	0.1585		3/4	2-1/2	500-0001585
4	0.1590	#21	3/4	2-1/2	500-003021
4	0.1595		3/4	2-1/2	500-0001595
4	0.1600		3/4	2-1/2	500-0001600
4	0.1605		3/4	2-1/2	500-0001605
4	0.1610	#20	7/8	2-3/4	500-003020
4	0.1615		7/8	2-3/4	500-0001615
4	0.1620		7/8	2-3/4	500-0001620
4	0.1625		7/8	2-3/4	500-0001625
4	0.1630		7/8	2-3/4	500-0001630
4	0.1635		7/8	2-3/4	500-0001635
4	0.1640		7/8	2-3/4	500-0001640
4	0.1645		7/8	2-3/4	500-0001645
4	0.1650		7/8	2-3/4	500-0001650
4	0.1655		7/8	2-3/4	500-0001655
4	0.1660	#19	7/8	2-3/4	500-003019
4	0.1665		7/8	2-3/4	500-0001665
4	0.1670		7/8	2-3/4	500-0001670
4	0.1675		7/8	2-3/4	500-0001675
4	0.1680		7/8	2-3/4	500-0001680
4	0.1685		7/8	2-3/4	500-0001685
4	0.1690		7/8	2-3/4	500-0001690
4	0.1695	#18	7/8	2-3/4	500-003018
4	0.1700		7/8	2-3/4	500-0001700
4	0.1705		7/8	2-3/4	500-0001705
4	0.1710		7/8	2-3/4	500-0001710
4	0.1715		7/8	2-3/4	500-0001715
4	0.1719	11/64	7/8	2-3/4	500-001011
4	0.1720		7/8	2-3/4	500-0001720

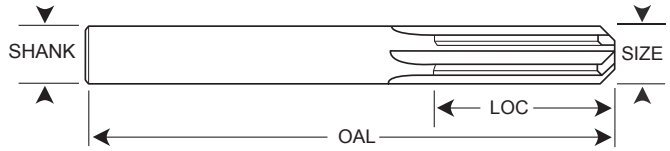
Straight Flute Chucking Reamers

REAMERS *Continued*

PROUDLY MADE IN THE USA

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.1725		7/8	2-3/4	500-0001725
4	0.1730	#17	7/8	2-3/4	500-003017
4	0.1735		7/8	2-3/4	500-0001735
4	0.1740		7/8	2-3/4	500-0001740
4	0.1745		7/8	2-3/4	500-0001745
4	0.1750		7/8	2-3/4	500-0001750
4	0.1755		7/8	2-3/4	500-0001755
4	0.1760		7/8	2-3/4	500-0001760
4	0.1765		7/8	2-3/4	500-0001765
4	0.1770	#16	7/8	2-3/4	500-003016
4	0.1772	4.5 mm	22 mm	70 mm	500-004004.5
4	0.1775		7/8	2-3/4	500-0001775
4	0.1780		7/8	2-3/4	500-0001780
4	0.1785		7/8	2-3/4	500-0001785
4	0.1790		7/8	2-3/4	500-0001790
4	0.1795		7/8	2-3/4	500-0001795
4	0.1800	#15	7/8	2-3/4	500-003015
4	0.1805		7/8	2-3/4	500-0001805
4	0.1810		7/8	2-3/4	500-0001810
4	0.1814		7/8	2-3/4	500-0001814
4	0.1815		7/8	2-3/4	500-0001815
4	0.1820	#14	7/8	2-3/4	500-003014
4	0.1825		7/8	2-3/4	500-0001825
4	0.1830		7/8	2-3/4	500-0001830
4	0.1835		7/8	2-3/4	500-0001835
4	0.1840		7/8	2-3/4	500-0001840
4	0.1845		7/8	2-3/4	500-0001845
4	0.1850	#13	7/8	2-3/4	500-003013
4	0.1855	D/P	7/8	2-3/4	500-0001855
4	0.1860		7/8	2-3/4	500-0001860
4	0.1865	U/S	7/8	2-3/4	500-0001865
4	0.1867		7/8	2-3/4	500-0001867
4	0.1870	D/P	7/8	2-3/4	500-0001870
4	0.1872		7/8	2-3/4	500-0001872
4	0.1875	3/16	7/8	2-3/4	500-001012
4	0.1877		7/8	2-3/4	500-0001877
4	0.1880		7/8	2-3/4	500-0001880
4	0.1885	O/S	7/8	2-3/4	500-0001885
4	0.1890	#12	7/8	2-3/4	500-003012
4	0.1895		7/8	2-3/4	500-0001895
4	0.1900		7/8	2-3/4	500-0001900
4	0.1905		7/8	2-3/4	500-0001905
4	0.1910	#11	7/8	2-3/4	500-003011
4	0.1915		7/8	2-3/4	500-0001915
4	0.1920		1	3	500-0001920
4	0.1925		1	3	500-0001925
4	0.1930		1	3	500-0001930
4	0.1935	#10	1	3	500-003010

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

REAMERS *Continued*

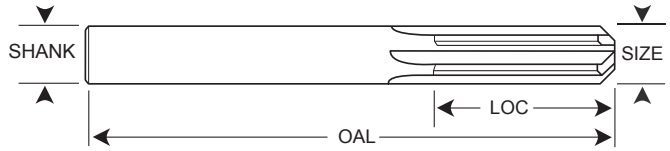
FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.1940		1	3	500-0001940
4	0.1945		1	3	500-0001945
4	0.1950		1	3	500-0001950
4	0.1955		1	3	500-0001955
4	0.1960	#9	1	3	500-003009
4	0.1965		1	3	500-0001965
4	0.1969	5.0 mm	25 mm	76 mm	500-004005
4	0.1970		1	3	500-0001970
4	0.1975		1	3	500-0001975
4	0.1980		1	3	500-0001980
4	0.1985		1	3	500-0001985
4	0.1990	#8	1	3	500-003008
4	0.1995		1	3	500-0001995
4	0.2000		1	3	500-0002000
4	0.2005		1	3	500-0002005
4	0.2010	#7	1	3	500-003007
4	0.2015		1	3	500-0002015
4	0.2020		1	3	500-0002020
4	0.2025		1	3	500-0002025
4	0.2030		1	3	500-0002030
4	0.2031	13/64	1	3	500-001013
4	0.2035		1	3	500-0002035
4	0.2040	#6	1	3	500-003006
4	0.2045		1	3	500-0002045
4	0.2050		1	3	500-0002050
4	0.2055	#5	1	3	500-003005
4	0.2060		1	3	500-0002060
4	0.2065		1	3	500-0002065
4	0.2070		1	3	500-0002070
4	0.2075		1	3	500-0002075
4	0.2080		1	3	500-0002080
4	0.2085		1	3	500-0002085
4	0.2090	#4	1	3	500-003004
4	0.2095		1	3	500-0002095
4	0.2100		1	3	500-0002100
4	0.2105		1	3	500-0002105
4	0.2110		1	3	500-0002110
4	0.2115		1	3	500-0002115
4	0.2120		1	3	500-0002120
4	0.2125		1	3	500-0002125
4	0.2130	#3	1	3	500-003003
4	0.2135		1	3	500-0002135
4	0.2140		1	3	500-0002140
4	0.2145		1	3	500-0002145
4	0.2150		1	3	500-0002150

Straight Flute Chucking Reamers

REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.2155		1	3	500-0002155
4	0.2160		1	3	500-0002160
4	0.2165	5.5 mm	25 mm	76 mm	500-004005.5
4	0.2170		1	3	500-0002170
4	0.2175		1	3	500-0002175
4	0.2177		1	3	500-0002177
4	0.2180		1	3	500-0002180
4	0.2185		1	3	500-0002185
4	0.2188	7/32	1	3	500-001014
4	0.2190		1	3	500-0002190
4	0.2195		1	3	500-0002195
4	0.2200		1	3	500-0002200
4	0.2205		1	3	500-0002205
4	0.2210	#2	1	3	500-003002
4	0.2215		1	3	500-0002215
4	0.2220		1	3	500-0002220
4	0.2225		1	3	500-0002225
4	0.2230		1	3	500-0002230
4	0.2235		1	3	500-0002235
4	0.2240		1	3	500-0002240
4	0.2245		1	3	500-0002245
4	0.2250		1	3	500-0002250
4	0.2255		1	3	500-0002255
4	0.2260		1	3	500-0002260
4	0.2265		1	3	500-0002265
4	0.2270		1	3	500-0002270
4	0.2275		1	3	500-0002275
4	0.2280	#1	1	3	500-003001
4	0.2285		1	3	500-0002285
4	0.2290		1	3	500-0002290
4	0.2295		1	3	500-0002295
4	0.2300		1	3	500-0002300
4	0.2305		1	3	500-0002305
4	0.2310		1	3	500-0002310
4	0.2315		1	3	500-0002315
4	0.2320		1	3	500-0002320
4	0.2325		1	3	500-0002325
4	0.2330		1	3	500-0002330
4	0.2335		1	3	500-0002335
4	0.2340	A	1	3	500-002000
4	0.2344	15/64	1	3	500-001015
4	0.2345		1	3	500-0002345
4	0.2350		1	3	500-0002350
4	0.2355		1	3	500-0002355
4	0.2360		1	3	500-0002360
4	0.2362	6.0 mm	25 mm	76 mm	500-004006
4	0.2365		1	3	500-0002365
4	0.2370		1	3	500-0002370

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  0.0280 to 0.2500" +0.0000 / +0.0002"
  0.2501" and up +0.0000 / +0.0003"

REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
4	0.2375		1	3	500-0002375
4	0.2380	B	1	3	500-002001
4	0.2385		1	3	500-0002385
4	0.2390		1	3	500-0002390
4	0.2395		1	3	500-0002395
4	0.2400		1	3	500-0002400
4	0.2405		1	3	500-0002405
4	0.2410		1	3	500-0002410
4	0.2415		1	3	500-0002415
4	0.2420	C	1	3	500-002002
4	0.2425		1	3	500-0002425
4	0.2430		1	3	500-0002430
4	0.2435		1	3	500-0002435
4	0.2440		1	3	500-0002440
4	0.2445		1	3	500-0002445
4	0.2450		1	3	500-0002450
4	0.2455		1	3	500-0002455
4	0.2460	D	1	3	500-002003
4	0.2465		1	3	500-0002465
4	0.2470		1	3	500-0002470
4	0.2475		1	3	500-0002475
4	0.2480	D/P	1	3	500-0002480
4	0.2485		1	3	500-0002485
4	0.2490	U/S	1	3	500-0002490
4	0.2495	D/P	1	3	500-0002495
4	0.2498		1	3	500-0002498
4	0.2500	1/4	1	3	500-001016
4	0.2500	E	1	3	500-002004
4	0.2502		1	3	500-0002502
4	0.2505		1	3	500-0002505
4	0.2510	O/S	1	3	500-0002510
4	0.2515		1	3	500-0002515
4	0.2520		1	3	500-0002520
4	0.2525		1	3	500-0002525
4	0.2530		1	3	500-0002530
4	0.2535		1	3	500-0002535
4	0.2540		1	3	500-0002540
4	0.2545		1	3	500-0002545
4	0.2550		1	3	500-0002550
6	0.2555		1	3	500-0002555
6	0.2559	6.5 mm	29 mm	83 mm	500-004006.5
6	0.2560		1-1/8	3-1/4	500-0002560
6	0.2565		1-1/8	3-1/4	500-0002565
6	0.2570	F	1-1/8	3-1/4	500-002005

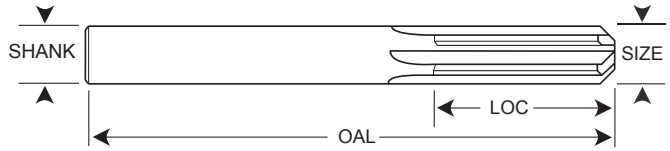
Straight Flute Chucking Reamers

REAMERS *Continued*

PROUDLY MADE IN THE USA

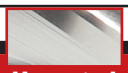
FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
6	0.2575		1-1/8	3-1/4	500-0002575
6	0.2580		1-1/8	3-1/4	500-0002580
6	0.2590		1-1/8	3-1/4	500-0002590
6	0.2600		1-1/8	3-1/4	500-0002600
6	0.2610	G	1-1/8	3-1/4	500-002006
6	0.2620		1-1/8	3-1/4	500-0002620
6	0.2630		1-1/8	3-1/4	500-0002630
6	0.2635		1-1/8	3-1/4	500-0002635
6	0.2640		1-1/8	3-1/4	500-0002640
6	0.2650		1-1/8	3-1/4	500-0002650
6	0.2655		1-1/8	3-1/4	500-0002655
6	0.2656	17/64	1-1/8	3-1/4	500-001017
6	0.2660	H	1-1/8	3-1/4	500-002007
6	0.2670		1-1/8	3-1/4	500-0002670
6	0.2680		1-1/8	3-1/4	500-0002680
6	0.2685		1-1/8	3-1/4	500-0002685
6	0.2690		1-1/8	3-1/4	500-0002690
6	0.2700		1-1/8	3-1/4	500-0002700
6	0.2710		1-1/8	3-1/4	500-0002710
6	0.2720	I	1-1/8	3-1/4	500-002008
6	0.2730		1-1/8	3-1/4	500-0002730
6	0.2740		1-1/8	3-1/4	500-0002740
6	0.2750		1-1/8	3-1/4	500-0002750
6	0.2756	7.0 mm	29 mm	83 mm	500-004007
6	0.2760		1-1/8	3-1/4	500-0002760
6	0.2765		1-1/8	3-1/4	500-0002765
6	0.2770	J	1-1/8	3-1/4	500-002009
6	0.2780		1-1/8	3-1/4	500-0002780
6	0.2785		1-1/8	3-1/4	500-0002785
6	0.2790		1-1/8	3-1/4	500-0002790
6	0.2800		1-1/8	3-1/4	500-0002800
6	0.2805		1-1/8	3-1/4	500-0002805
6	0.2810	K	1-1/8	3-1/4	500-002010
6	0.2812	9/32	1-1/8	3-1/4	500-001018
6	0.2818		1-1/8	3-1/4	500-0002818
6	0.2820		1-1/8	3-1/4	500-0002820
6	0.2830		1-1/8	3-1/4	500-0002830
6	0.2840		1-1/8	3-1/4	500-0002840
6	0.2850		1-1/8	3-1/4	500-0002850
6	0.2860		1-1/8	3-1/4	500-0002860
6	0.2870		1-1/8	3-1/4	500-0002870
6	0.2880		1-1/8	3-1/4	500-0002880
6	0.2890		1-1/8	3-1/4	500-0002890
6	0.2900	L	1-1/8	3-1/4	500-002011
6	0.2910		1-1/8	3-1/4	500-0002910
6	0.2920		1-1/8	3-1/4	500-0002920
6	0.2930		1-1/8	3-1/4	500-0002930
6	0.2940		1-1/8	3-1/4	500-0002940
6	0.2950	M	1-1/8	3-1/4	500-002012

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

REAMERS *Continued*



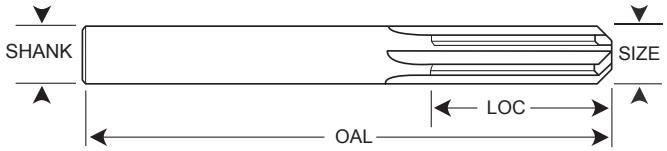
FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
6	0.2953	7.5 mm	29 mm	83 mm	500-004007.5
6	0.2960		1-1/8	3-1/4	500-0002960
6	0.2969	19/64	1-1/8	3-1/4	500-001019
6	0.2970		1-1/8	3-1/4	500-0002970
6	0.2980		1-1/8	3-1/4	500-0002980
6	0.2990		1-1/8	3-1/4	500-0002990
6	0.3000		1-1/8	3-1/4	500-0003000
6	0.3010		1-1/8	3-1/4	500-0003010
6	0.3020	N	1-1/8	3-1/4	500-002013
6	0.3030		1-1/8	3-1/4	500-0003030
6	0.3040		1-1/8	3-1/4	500-0003040
6	0.3050		1-1/8	3-1/4	500-0003050
6	0.3060		1-1/8	3-1/4	500-0003060
6	0.3070		1-1/8	3-1/4	500-0003070
6	0.3080		1-1/8	3-1/4	500-0003080
6	0.3090		1-1/8	3-1/4	500-0003090
6	0.3100		1-1/8	3-1/4	500-0003100
6	0.3105	D/P	1-1/8	3-1/4	500-0003105
6	0.3110		1-1/8	3-1/4	500-0003110
6	0.3115	U/S	1-1/8	3-1/4	500-0003115
6	0.3120	D/P	1-1/8	3-1/4	500-0003120
6	0.3125	5/16	1-1/8	3-1/4	500-001020
6	0.3130		1-1/8	3-1/4	500-0003130
6	0.3135	O/S	1-1/8	3-1/4	500-0003135
6	0.3140		1-1/8	3-1/4	500-0003140
6	0.3145		1-1/8	3-1/4	500-0003145
6	0.3150	8.0 mm	29 mm	83 mm	500-004008
6	0.3155		1-1/8	3-1/4	500-0003155
6	0.3160	O	1-1/8	3-1/4	500-002014
6	0.3165		1-1/8	3-1/4	500-0003165
6	0.3170		1-1/4	3-1/2	500-0003170
6	0.3175		1-1/4	3-1/2	500-0003175
6	0.3177		1-1/4	3-1/2	500-0003177
6	0.3180		1-1/4	3-1/2	500-0003180
6	0.3185		1-1/4	3-1/2	500-0003185
6	0.3190		1-1/4	3-1/2	500-0003190
6	0.3195		1-1/4	3-1/2	500-0003195
6	0.3200		1-1/4	3-1/2	500-0003200
6	0.3210		1-1/4	3-1/2	500-0003210
6	0.3220		1-1/4	3-1/2	500-0003220
6	0.3230	P	1-1/4	3-1/2	500-002015
6	0.3240		1-1/4	3-1/2	500-0003240
6	0.3250		1-1/4	3-1/2	500-0003250
6	0.3255		1-1/4	3-1/2	500-0003255

Straight Flute Chucking Reamers

REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
6	0.3260		1-1/4	3-1/2	500-0003260
6	0.3270		1-1/4	3-1/2	500-0003270
6	0.3280		1-1/4	3-1/2	500-0003280
6	0.3281	21/64	1-1/4	3-1/2	500-001021
6	0.3290		1-1/4	3-1/2	500-0003290
6	0.3300		1-1/4	3-1/2	500-0003300
6	0.3310		1-1/4	3-1/2	500-0003310
6	0.3320	Q	1-1/4	3-1/2	500-002016
6	0.3330		1-1/4	3-1/2	500-0003330
6	0.3340		1-1/4	3-1/2	500-0003340
6	0.3346	8.5 mm	32 mm	89 mm	500-004008.5
6	0.3350		1-1/4	3-1/2	500-0003350
6	0.3360		1-1/4	3-1/2	500-0003360
6	0.3365		1-1/4	3-1/2	500-0003365
6	0.3370		1-1/4	3-1/2	500-0003370
6	0.3380		1-1/4	3-1/2	500-0003380
6	0.3390	R	1-1/4	3-1/2	500-002017
6	0.3400		1-1/4	3-1/2	500-0003400
6	0.3410		1-1/4	3-1/2	500-0003410
6	0.3420		1-1/4	3-1/2	500-0003420
6	0.3430		1-1/4	3-1/2	500-0003430
6	0.3438	11/32	1-1/4	3-1/2	500-001022
6	0.3440		1-1/4	3-1/2	500-0003440
6	0.3450		1-1/4	3-1/2	500-0003450
6	0.3460		1-1/4	3-1/2	500-0003460
6	0.3465		1-1/4	3-1/2	500-0003465
6	0.3470		1-1/4	3-1/2	500-0003470
6	0.3480	S	1-1/4	3-1/2	500-002018
6	0.3490		1-1/4	3-1/2	500-0003490
6	0.3500		1-1/4	3-1/2	500-0003500
6	0.3510		1-1/4	3-1/2	500-0003510
6	0.3520		1-1/4	3-1/2	500-0003520
6	0.3530		1-1/4	3-1/2	500-0003530
6	0.3540		1-1/4	3-1/2	500-0003540
6	0.3543	9.0 mm	32 mm	89 mm	500-004009
6	0.3550		1-1/4	3-1/2	500-0003550
6	0.3560		1-1/4	3-1/2	500-0003560
6	0.3570		1-1/4	3-1/2	500-0003570
6	0.3580	T	1-1/4	3-1/2	500-002019
6	0.3590		1-1/4	3-1/2	500-0003590
6	0.3594	23/64	1-1/4	3-1/2	500-001023
6	0.3600		1-1/4	3-1/2	500-0003600
6	0.3610		1-1/4	3-1/2	500-0003610
6	0.3620		1-1/4	3-1/2	500-0003620
6	0.3630		1-1/4	3-1/2	500-0003630
6	0.3640		1-1/4	3-1/2	500-0003640
6	0.3650		1-1/4	3-1/2	500-0003650
6	0.3660		1-1/4	3-1/2	500-0003660
6	0.3670		1-1/4	3-1/2	500-0003670

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
6	0.3675		1-1/4	3-1/2	500-0003675
6	0.3680	U	1-1/4	3-1/2	500-002020
6	0.3690		1-1/4	3-1/2	500-0003690
6	0.3700		1-1/4	3-1/2	500-0003700
6	0.3710		1-1/4	3-1/2	500-0003710
6	0.3720		1-1/4	3-1/2	500-0003720
6	0.3730	D/P	1-1/4	3-1/2	500-0003730
6	0.3735		1-1/4	3-1/2	500-0003735
6	0.3740	9.5 mm	32 mm	89 mm	500-004009.5
6	0.3745	D/P	1-1/4	3-1/2	500-0003745
6	0.3750	3/8	1-1/4	3-1/2	500-001024
6	0.3755		1-1/4	3-1/2	500-0003755
6	0.3760	O/S	1-1/4	3-1/2	500-0003760
6	0.3765		1-1/4	3-1/2	500-0003765
6	0.3770	V	1-1/4	3-1/2	500-002021
6	0.3780		1-1/4	3-1/2	500-0003780
6	0.3790		1-1/4	3-1/2	500-0003790
6	0.3795		1-1/4	3-1/2	500-0003795
6	0.3800		1-1/4	3-1/2	500-0003800
6	0.3810		1-1/4	3-1/2	500-0003810
6	0.3820		1-1/4	3-1/2	500-0003820
6	0.3830		1-1/4	3-1/2	500-0003830
6	0.3840		1-1/4	3-1/2	500-0003840
6	0.3850		1-1/4	3-1/2	500-0003850
6	0.3860	W	1-1/4	3-1/2	500-002022
6	0.3870		1-1/4	3-1/2	500-0003870
6	0.3880		1-1/4	3-1/2	500-0003880
6	0.3890		1-1/4	3-1/2	500-0003890
6	0.3900		1-1/4	3-1/2	500-0003900
6	0.3906	25/64	1-1/4	3-1/2	500-001025
6	0.3910		1-1/4	3-1/2	500-0003910
6	0.3920		1-1/4	3-1/2	500-0003920
6	0.3930		1-1/4	3-1/2	500-0003930
6	0.3937	10.0 mm	32 mm	89 mm	500-004010
6	0.3940		1-1/4	3-1/2	500-0003940
6	0.3950		1-1/4	3-1/2	500-0003950
6	0.3960		1-1/4	3-1/2	500-0003960
6	0.3970	X	1-1/4	3-1/2	500-002023
6	0.3980		1-1/4	3-1/2	500-0003980
6	0.3990		1-1/4	3-1/2	500-0003990
6	0.4000		1-1/4	3-1/2	500-0004000
6	0.4010		1-1/4	3-1/2	500-0004010
6	0.4020		1-1/4	3-1/2	500-0004020
6	0.4030		1-1/4	3-1/2	500-0004030
6	0.4040	Y	1-1/4	3-1/2	500-002024

PROUDLY MADE IN THE USA

REAM MONSTER

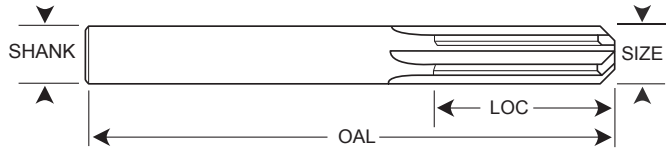
Straight Flute Chucking Reamers

REAMERS *Continued*

PROUDLY MADE IN THE USA

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
6	0.4050		1-1/4	3-1/2	500-0004050
6	0.4060		1-1/4	3-1/2	500-0004060
6	0.4062	13/32	1-1/4	3-1/2	500-001026
6	0.4070		1-1/4	3-1/2	500-0004070
6	0.4080		1-1/4	3-1/2	500-0004080
6	0.4090		1-1/4	3-1/2	500-0004090
6	0.4100		1-1/4	3-1/2	500-0004100
6	0.4110		1-1/4	3-1/2	500-0004110
6	0.4120		1-1/4	3-1/2	500-0004120
6	0.4130	Z	1-1/4	3-1/2	500-002025
6	0.4134	10.5 mm	32 mm	89 mm	500-004010.5
6	0.4140		1-1/4	3-1/2	500-0004140
6	0.4150		1-1/4	3-1/2	500-0004150
6	0.4160		1-1/4	3-1/2	500-0004160
6	0.4170		1-3/8	4	500-0004170
6	0.4180		1-3/8	4	500-0004180
6	0.4190		1-3/8	4	500-0004190
6	0.4200		1-3/8	4	500-0004200
6	0.4210		1-3/8	4	500-0004210
6	0.4219	27/64	1-3/8	4	500-001027
6	0.4230		1-3/8	4	500-0004230
6	0.4240		1-3/8	4	500-0004240
6	0.4250		1-3/8	4	500-0004250
6	0.4260		1-3/8	4	500-0004260
6	0.4270		1-3/8	4	500-0004270
6	0.4280		1-3/8	4	500-0004280
6	0.4290		1-3/8	4	500-0004290
6	0.4300		1-3/8	4	500-0004300
6	0.4310		1-3/8	4	500-0004310
6	0.4320		1-3/8	4	500-0004320
6	0.4330		1-3/8	4	500-0004330
6	0.4331	11.0 mm	35 mm	102 mm	500-004011
6	0.4340		1-3/8	4	500-0004340
6	0.4350		1-3/8	4	500-0004350
6	0.4355	D/P	1-3/8	4	500-0004355
6	0.4360		1-3/8	4	500-0004360
6	0.4365	U/S	1-3/8	4	500-0004365
6	0.4370	D/P	1-3/8	4	500-0004370
6	0.4375	7/16	1-3/8	4	500-001028
6	0.4380		1-3/8	4	500-0004380
6	0.4385	O/S	1-3/8	4	500-0004385
6	0.4390		1-3/8	4	500-0004390
6	0.4400		1-3/8	4	500-0004400
6	0.4410		1-3/8	4	500-0004410
6	0.4420		1-3/8	4	500-0004420
6	0.4430		1-3/8	4	500-0004430
6	0.4440		1-3/8	4	500-0004440

Straight Flute Chucking Reamers



- *Solid C-2 grade premium sub-micron carbide with 10% cobalt*
- *45˚ Chamfered End*
- *Diameter Tolerances:*
  - *0.0280 to 0.2500" +0.0000 / +0.0002"*
  - *0.2501" and up +0.0000 / +0.0003"*

REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
6	0.4450		1-3/8	4	500-0004450
6	0.4460		1-3/8	4	500-0004460
6	0.4470		1-3/8	4	500-0004470
6	0.4480		1-3/8	4	500-0004480
6	0.4490		1-3/8	4	500-0004490
6	0.4500		1-3/8	4	500-0004500
6	0.4510		1-3/8	4	500-0004510
6	0.4520		1-3/8	4	500-0004520
6	0.4528	11.5 mm	35 mm	102 mm	500-004011.5
6	0.4530		1-3/8	4	500-0004530
6	0.4531	29/64	1-3/8	4	500-001029
6	0.4540		1-3/8	4	500-0004540
6	0.4550		1-3/8	4	500-0004550
6	0.4560		1-3/8	4	500-0004560
6	0.4570		1-3/8	4	500-0004570
6	0.4580		1-3/8	4	500-0004580
6	0.4590		1-3/8	4	500-0004590
6	0.4600		1-3/8	4	500-0004600
6	0.4610		1-3/8	4	500-0004610
6	0.4620		1-3/8	4	500-0004620
6	0.4630		1-3/8	4	500-0004630
6	0.4640		1-3/8	4	500-0004640
6	0.4650		1-3/8	4	500-0004650
6	0.4660		1-3/8	4	500-0004660
6	0.4670		1-3/8	4	500-0004670
6	0.4680		1-3/8	4	500-0004680
6	0.4688	15/32	1-3/8	4	500-001030
6	0.4690		1-3/8	4	500-0004690
6	0.4700		1-3/8	4	500-0004700
6	0.4710		1-3/8	4	500-0004710
6	0.4720		1-3/8	4	500-0004720
6	0.4724	12.0 mm	35 mm	102 mm	500-004012
6	0.4730		1-3/8	4	500-0004730
6	0.4740		1-3/8	4	500-0004740
6	0.4750		1-3/8	4	500-0004750
6	0.4760		1-3/8	4	500-0004760
6	0.4770		1-3/8	4	500-0004770
6	0.4780		1-3/8	4	500-0004780
6	0.4790		1-1/2	4	500-0004790
6	0.4800		1-1/2	4	500-0004800
6	0.4805		1-1/2	4	500-0004805
6	0.4810		1-1/2	4	500-0004810
6	0.4820		1-1/2	4	500-0004820

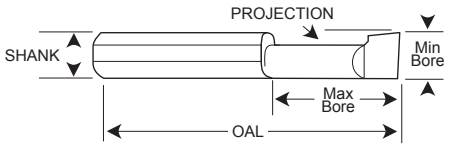
Straight Flute Chucking Reamers

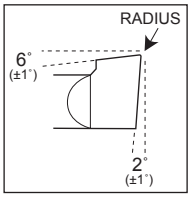
REAMERS *Continued*

FLUTES	DECIMAL INCH	SIZE	LOC	OAL	Uncoated
6	0.4830		1-1/2	4	500-0004830
6	0.4840		1-1/2	4	500-0004840
6	0.4844	31/64	1-1/2	4	500-001031
6	0.4850		1-1/2	4	500-0004850
6	0.4860		1-1/2	4	500-0004860
6	0.4870		1-1/2	4	500-0004870
6	0.4880		1-1/2	4	500-0004880
6	0.4890		1-1/2	4	500-0004890
6	0.4900		1-1/2	4	500-0004900
6	0.4910		1-1/2	4	500-0004910
6	0.4921	12.5 mm	38 mm	102 mm	500-004012.5
6	0.4930		1-1/2	4	500-0004930
6	0.4940		1-1/2	4	500-0004940
6	0.4950		1-1/2	4	500-0004950
6	0.4960		1-1/2	4	500-0004960
6	0.4970		1-1/2	4	500-0004970
6	0.4980	D/P	1-1/2	4	500-0004980
6	0.4990	U/S	1-1/2	4	500-0004990
6	0.4995	D/P	1-1/2	4	500-0004995
6	0.5000	1/2	1-1/2	4	500-001032
6	0.5005		1-1/2	4	500-0005005
6	0.5010	O/S	1-1/2	4	500-0005010
6	0.5015		1-1/2	4	500-0005015
6	0.5020		1-1/2	4	500-0005020
6	0.5030		1-1/2	4	500-0005030
6	0.5040		1-1/2	4	500-0005040
6	0.5050		1-1/2	4	500-0005050
6	0.5118	13.0 mm	38 mm	102 mm	500-004013
6	0.5512	14.0 mm	38 mm	102 mm	500-004014
6	0.5625	9/16	1-1/2	4	500-001036
6	0.5905	15.0 mm	44 mm	102 mm	500-004015
6	0.6235		1-3/4	4	500-0006235
6	0.6240		1-3/4	4	500-0006240
6	0.6245		1-3/4	4	500-0006245
6	0.6250	5/8	1-3/4	4	500-001040
6	0.6255		1-3/4	4	500-0006255
6	0.6260		1-3/4	4	500-0006260
6	0.6270		1-3/4	4	500-0006270
6	0.6310		1-3/4	4	500-0006310
6	0.7490		1-3/4	4	500-0007490
6	0.7495		1-3/4	4	500-0007495
6	0.7500	3/4	1-3/4	4	500-001048
6	0.7505		1-3/4	4	500-0007505
6	0.7510		1-3/4	4	500-0007510

TOOL MONSTER
BORING BARS
NC Generation • BB Series

- *4RMS finish*
- *Mirror polished cutting surface*
- *Lockdown flat automatically locates tool on center*





- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut*
- *Shank Tolerance: +0.0000 / -0.0005"*

SHANK	MIN BORE	OAL	MAX BORE	PROJECTION	RADIUS	PART #
1/8	.050	1-1/2	.150	.013	.003-.005	601-050150
1/8	.050	1-1/2	.200	.013	.003-.005	601-050200
1/8	.050	1-1/2	.300	.013	.003-.005	601-050300
1/8	.050	1-1/2	.400	.013	.003-.005	601-050400
1/8	.060	1-1/2	.150	.015	.003-.005	601-060150
1/8	.060	1-1/2	.200	.015	.003-.005	601-060200
1/8	.060	1-1/2	.300	.015	.003-.005	601-060300
1/8	.060	1-1/2	.400	.015	.003-.005	601-060400
1/8	.060	1-1/2	.500	.015	.003-.005	601-060500
1/8	.080	1-1/2	.150	.020	.003-.005	601-080150
1/8	.080	1-1/2	.200	.020	.003-.005	601-080200
1/8	.080	1-1/2	.300	.020	.003-.005	601-080300
1/8	.080	1-1/2	.400	.020	.003-.005	601-080400
1/8	.080	1-1/2	.500	.020	.003-.005	601-080500
1/8	.080	1-1/2	.600	.020	.003-.005	601-080600
1/8	.100	1-1/2	.150	.025	.003-.005	601-100150
1/8	.100	1-1/2	.200	.025	.003-.005	601-100200
1/8	.100	1-1/2	.300	.025	.003-.005	601-100300
1/8	.100	1-1/2	.400	.025	.003-.005	601-100400
1/8	.100	1-1/2	.500	.025	.003-.005	601-100500
1/8	.100	1-1/2	.600	.025	.003-.005	601-100600
1/8	.100	1-1/2	.700	.025	.003-.005	601-100700
1/8	.110	1-1/2	.150	.028	.003-.005	601-110150
1/8	.110	1-1/2	.200	.028	.003-.005	601-110200
1/8	.110	1-1/2	.300	.028	.003-.005	601-110300
1/8	.110	1-1/2	.400	.028	.003-.005	601-110400
1/8	.110	1-1/2	.500	.028	.003-.005	601-110500
1/8	.110	1-1/2	.600	.028	.003-.005	601-110600
1/8	.110	1-1/2	.700	.028	.003-.005	601-110700
3/16	.120	2	.250	.030	.005-.008	601-120250
3/16	.120	2	.350	.030	.005-.008	601-120350
3/16	.120	2	.500	.030	.005-.008	601-120500
3/16	.120	2	.600	.030	.005-.008	601-120600
3/16	.120	2	.700	.030	.005-.008	601-120700
3/16	.120	2	.800	.030	.005-.008	601-120800

BORING BARS *Continued*

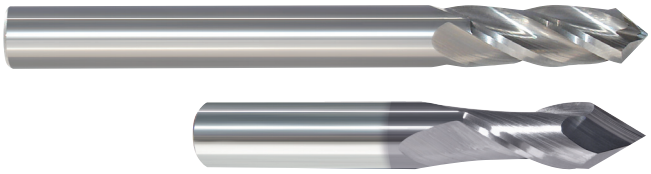
SHANK	MIN BORE	OAL	MAX BORE	PROJECTION	RADIUS	PART #
3/16	.140	2	.250	.035	.005-.008	601-140250
3/16	.140	2	.400	.035	.005-.008	601-140400
3/16	.140	2	.500	.035	.005-.008	601-140500
3/16	.140	2	.600	.035	.005-.008	601-140600
3/16	.140	2	.700	.035	.005-.008	601-140700
3/16	.140	2	.750	.035	.005-.008	601-140750
3/16	.140	2	.800	.035	.005-.008	601-140800
3/16	.160	2	.250	.040	.005-.008	601-160250
3/16	.160	2	.400	.040	.005-.008	601-160400
3/16	.160	2	.500	.040	.005-.008	601-160500
3/16	.160	2	.600	.040	.005-.008	601-160600
3/16	.160	2	.750	.040	.005-.008	601-160750
3/16	.160	2	.900	.040	.005-.008	601-160900
3/16	.160	2	1.000	.040	.005-.008	601-1601000
1/4	.180	2-1/2	.350	.045	.005-.008	601-180350
1/4	.180	2-1/2	.500	.045	.005-.008	601-180500
1/4	.180	2-1/2	.600	.045	.005-.008	601-180600
1/4	.180	2-1/2	.750	.045	.005-.008	601-180750
1/4	.180	2-1/2	.900	.045	.005-.008	601-180900
1/4	.180	2-1/2	1.000	.045	.005-.008	601-1801000
1/4	.180	2-1/2	1.100	.045	.005-.008	601-1801100
1/4	.180	2-1/2	1.250	.045	.005-.008	601-1801250
1/4	.180	2-1/2	1.500	.045	.005-.008	601-1801500
1/4	.200	2-1/2	.400	.050	.005-.008	601-200400
1/4	.200	2-1/2	.500	.050	.005-.008	601-200500
1/4	.200	2-1/2	.600	.050	.005-.008	601-200600
1/4	.200	2-1/2	.700	.050	.005-.008	601-200700
1/4	.200	2-1/2	.800	.050	.005-.008	601-200800
1/4	.200	2-1/2	.900	.050	.005-.008	601-200900
1/4	.200	2-1/2	1.000	.050	.005-.008	601-2001000
1/4	.200	2-1/2	1.100	.050	.005-.008	601-2001100
1/4	.200	2-1/2	1.200	.050	.005-.008	601-2001200
1/4	.200	2-1/2	1.300	.050	.005-.008	601-2001300
5/16	.230	2-1/2	.400	.058	.005-.008	601-230400
5/16	.230	2-1/2	.500	.058	.005-.008	601-230500
5/16	.230	2-1/2	.600	.058	.005-.008	601-230600
5/16	.230	2-1/2	.700	.058	.005-.008	601-230700
5/16	.230	2-1/2	.800	.058	.005-.008	601-230800
5/16	.230	2-1/2	.900	.058	.005-.008	601-230900
5/16	.230	2-1/2	1.000	.058	.005-.008	601-2301000
5/16	.230	2-1/2	1.100	.058	.005-.008	601-2301100
5/16	.230	2-1/2	1.150	.058	.005-.008	601-2301150
5/16	.230	2-1/2	1.200	.058	.005-.008	601-2301200
5/16	.230	2-1/2	1.250	.058	.005-.008	601-2301250
5/16	.230	2-1/2	1.400	.058	.005-.008	601-2301400
5/16	.230	2-1/2	1.500	.058	.005-.008	601-2301500
5/16	.230	2-1/2	1.600	.058	.005-.008	601-2301600

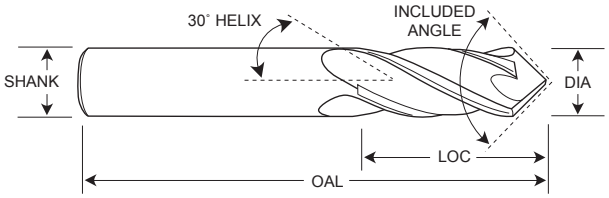
PROUDLY MADE IN THE USA

BORING BARS *Continued*

SHANK	MIN BORE	OAL	MAX BORE	PROJECTION	RADIUS	PART #
5/16	.290	2-1/2	.500	.073	.005-.008	601-290500
5/16	.290	2-1/2	.600	.073	.005-.008	601-290600
5/16	.290	2-1/2	.750	.073	.005-.008	601-290750
5/16	.290	2-1/2	.900	.073	.005-.008	601-290900
5/16	.290	2-1/2	1.000	.073	.005-.008	601-2901000
5/16	.290	2-1/2	1.100	.073	.005-.008	601-2901100
5/16	.290	2-1/2	1.250	.073	.005-.008	601-2901250
5/16	.290	2-1/2	1.350	.073	.005-.008	601-2901350
5/16	.290	2-1/2	1.500	.073	.005-.008	601-2901500
5/16	.290	2-1/2	1.600	.073	.005-.008	601-2901600
5/16	.290	2-1/2	1.750	.073	.005-.008	601-2901750
3/8	.320	2-1/2	.500	.080	.005-.008	601-320500
3/8	.320	2-1/2	.600	.080	.005-.008	601-320600
3/8	.320	2-1/2	.750	.080	.005-.008	601-320750
3/8	.320	2-1/2	.900	.080	.005-.008	601-320900
3/8	.320	2-1/2	1.000	.080	.005-.008	601-3201000
3/8	.320	2-1/2	1.100	.080	.005-.008	601-3201100
3/8	.320	2-1/2	1.250	.080	.005-.008	601-3201250
3/8	.320	2-1/2	1.500	.080	.005-.008	601-3201500
3/8	.320	2-1/2	1.600	.080	.005-.008	601-3201600
3/8	.320	2-1/2	1.800	.080	.005-.008	601-3201800
3/8	.320	4	2.000	.080	.005-.008	601-3202000
3/8	.320	4	2.500	.080	.005-.008	601-3202500
3/8	.320	4	3.000	.080	.005-.008	601-3203000
3/8	.360	2-1/2	.500	.090	.005-.008	601-360500
3/8	.360	2-1/2	.600	.090	.005-.008	601-360600
3/8	.360	2-1/2	.750	.090	.005-.008	601-360750
3/8	.360	2-1/2	.900	.090	.005-.008	601-360900
3/8	.360	2-1/2	1.000	.090	.005-.008	601-3601000
3/8	.360	2-1/2	1.150	.090	.005-.008	601-3601150
3/8	.360	2-1/2	1.250	.090	.005-.008	601-3601250
3/8	.360	2-1/2	1.500	.090	.005-.008	601-3601500
3/8	.360	2-1/2	1.600	.090	.005-.008	601-3601600
3/8	.360	2-1/2	1.800	.090	.005-.008	601-3601800
3/8	.360	4	2.000	.090	.005-.008	601-3602000
3/8	.360	4	2.500	.090	.005-.008	601-3602500
3/8	.360	4	3.000	.090	.005-.008	601-3603000
1/2	.490	3	.750	.123	.005-.008	601-490750
1/2	.490	3	1.000	.123	.005-.008	601-4901000
1/2	.490	3	1.250	.123	.005-.008	601-4901250
1/2	.490	3	1.500	.123	.005-.008	601-4901500
1/2	.490	4	2.000	.123	.005-.008	601-4902000
1/2	.490	4	2.500	.123	.005-.008	601-4902500
1/2	.490	4	2.600	.123	.005-.008	601-4902600
1/2	.490	4	2.750	.123	.005-.008	601-4902750
1/2	.490	6	3.000	.123	.005-.008	601-4903000
1/2	.490	6	3.500	.123	.005-.008	601-4903500
1/2	.490	6	4.000	.123	.005-.008	601-4904000
1/2	.490	6	4.500	.123	.005-.008	601-4904500

TOOL MONSTER
DRILL MILLS





- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut / Right Hand Spiral*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*
- *Included Angle Tolerance: ±1°*

Applications:

- ***Chamfering***
- ***Countersinking***
- ***Drilling***
- ***Side Milling***
- ***Spotting***

PROUDLY MADE IN THE USA

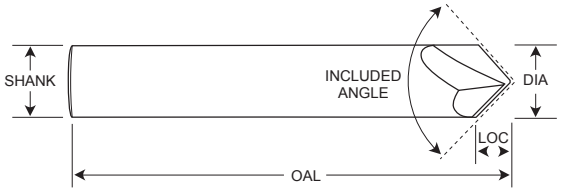
2 FLUTE

				Included Angle 60°		Included Angle 90°	
DIA	LOC	SHANK	OAL	UNCOATED	TiAlN Coated	UNCOATED	TiAlN Coated
1/8	1/2	1/8	1-1/2	208-621250	208-621253	208-000125	208-010125
3/16	5/8	3/16	2	208-621870	208-621873	208-000187	208-010187
1/4	3/4	1/4	2-1/2	208-622500	208-622503	208-000250	208-010250
5/16	13/16	5/16	2-1/2	208-623120	208-623123	208-000312	208-010312
3/8	1	3/8	2-1/2	208-623750	208-623753	208-000375	208-010375
7/16	1	7/16	2-3/4	208-624370	208-624373	208-000437	208-010437
1/2	1	1/2	3	208-625000	208-625003	208-000500	208-010500
5/8	1-1/4	5/8	3-1/2	208-626250	208-626253	208-000625	208-010625
3/4	1-1/2	3/4	4	208-627500	208-627503	208-000750	208-010750

4 FLUTE

1/8	1/2	1/8	1-1/2	208-641250	208-641253	208-400125	208-420125
3/16	5/8	3/16	2	208-641870	208-641873	208-400187	208-420187
1/4	3/4	1/4	2-1/2	208-642500	208-642503	208-400250	208-420250
5/16	13/16	5/16	2-1/2	208-643120	208-643123	208-400312	208-420312
3/8	1	3/8	2-1/2	208-643750	208-643753	208-400375	208-420375
7/16	1	7/16	2-3/4	208-644370	208-644373	208-400437	208-420437
1/2	1	1/2	3	208-645000	208-645003	208-400500	208-420500
5/8	1-1/4	5/8	3-1/2	208-646250	208-646253	208-400625	208-420625
3/4	1-1/2	3/4	4	208-647500	208-647503	208-400750	208-420750

CHAMFER MILLS



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Center Cutting*
- *Right Hand Cut*
- *Diameter Tolerance: +0.000 / -0.002"*
- *Shank Tolerance: +0.0000 / -0.0005"*
- *Included Angle Tolerance: ±1 °*

Application:

- ***Eliminates hand deburring operations & provides consistent work piece finishes***

SINGLE END

2 FLUTE

				Included Angle 60°		Included Angle 90°	
DIA	LOC	SHANK	OAL	UNCOATED	TiAlN Coated	UNCOATED	TiAlN Coated
1/8	1/2	1/8	1-1/2	209-062125	209-062125B	209-092125	209-092125B
3/16	5/8	3/16	2	209-062187	209-062187B	209-092187	209-092187B
1/4	3/4	1/4	2-1/2	209-062250	209-062250B	209-092250	209-092250B
3/8	1	3/8	2-1/2	209-062375	209-062375B	209-092375	209-092375B
1/2	1	1/2	3	209-062500	209-062500B	209-092500	209-092500B
3/4	1-1/2	3/4	3	209-062750	209-062750B	209-092750	209-092750B

4 FLUTE

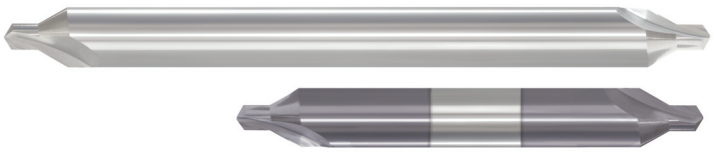
1/8	1/2	1/8	1-1/2	209-064125	209-064125B	209-094125	209-094125B
3/16	5/8	3/16	2	209-064187	209-064187B	209-094187	209-094187B
1/4	3/4	1/4	2-1/2	209-064250	209-064250B	209-094250	209-094250B
3/8	1	3/8	2-1/2	209-064375	209-064375B	209-094375	209-094375B
1/2	1	1/2	3	209-064500	209-064500B	209-094500	209-094500B
3/4	1-1/2	3/4	3	209-064750	209-064750B	209-094750	209-094750B

DOUBLE END

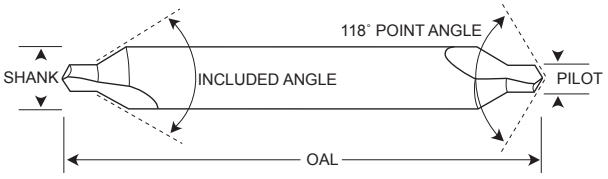
2 FLUTE

				Included Angle 90°
DIA	LOC	SHANK	OAL	UNCOATED
1/8	1/2	1/8	1-1/2	209-292125
3/16	5/8	3/16	2	209-292187
1/4	3/4	1/4	2-1/2	209-292250
3/8	1	3/8	2-1/2	209-292375
1/2	1	1/2	3	209-292500

TOOL MONSTER
Center Drills



Combined Drill & Countersink



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut*
- *Pilot Tolerance: +0.0030 / -0.0000"*
- *Shank Tolerance: +0.0000 / -0.0005"*
- *Included Angle Tolerance: ±1°*

• Ideal for high production applications where tolerance, finish and down-time are concerns

INCLUDED ANGLE

REGULAR

SIZE	PILOT DIA	SHANK	OAL	UNCOATED	TiN Coated	TiAlN Coated
00	0.0265	1/8	1-1/2	300-001001	300-001501	300-001001B
0	1/32	1/8	1-1/2	300-001002	300-001502	300-001002B
1	3/64	1/8	1-1/2	300-001003	300-001503	300-001003B
2	5/64	3/16	1-7/8	300-001004	300-001504	300-001004B
3	7/64	1/4	2	300-001005	300-001505	300-001005B
4	1/8	5/16	2-1/8	300-001006	300-001506	300-001006B
5	3/16	7/16	2-3/4	300-001007	300-001507	300-001007B
6	7/32	1/2	3	300-001008	300-001508	300-001008B
7	1/4	5/8	3-1/4	300-001009	300-001509	300-001009B
8	5/16	3/4	3-1/2	300-001010	300-001510	300-001010B

LONG

1	3/64	1/8	4	300-005001	300-005501	300-005001B
2	5/64	3/16	4	300-005002	300-005502	300-005002B
3	7/64	1/4	4	300-005003	300-005503	300-005003B
4	1/8	5/16	4	300-005004	300-005504	300-005004B
5	3/16	7/16	6	300-005005	300-005505	300-005005B
6	7/32	1/2	6	300-005006	300-005506	300-005006B
7	1/4	5/8	6	300-005007	300-005507	300-005007B
8	5/16	3/4	6	300-005008	300-005508	300-005008B

PROUDLY MADE IN THE USA

Center Drills

82°
INCLUDED ANGLE

REGULAR

SIZE	PILOT DIA	SHANK	OAL	UNCOATED	TiAlN Coated
00	0.0265	1/8	1-1/2	300-002001	300-002001B
0	1/32	1/8	1-1/2	300-002002	300-002002B
1	3/64	1/8	1-1/2	300-002003	300-002003B
2	5/64	3/16	1-7/8	300-002004	300-002004B
3	7/64	1/4	2	300-002005	300-002005B
4	1/8	5/16	2-1/8	300-002006	300-002006B
5	3/16	7/16	2-3/4	300-002007	300-002007B
6	7/32	1/2	3	300-002008	300-002008B
7	1/4	5/8	3-1/4	300-002009	300-002009B
8	5/16	3/4	3-1/2	300-002010	300-002010B

LONG

1	3/64	1/8	4	300-006001	300-006001B
2	5/64	3/16	4	300-006002	300-006002B
3	7/64	1/4	4	300-006003	300-006003B
4	1/8	5/16	4	300-006004	300-006004B
5	3/16	7/16	6	300-006005	300-006005B
6	7/32	1/2	6	300-006006	300-006006B
7	1/4	5/8	6	300-006007	300-006007B
8	5/16	3/4	6	300-006008	300-006008B

90°
INCLUDED ANGLE

REGULAR

SIZE	PILOT DIA	SHANK	OAL	UNCOATED	TiAlN Coated
00	0.0265	1/8	1-1/2	300-003001	300-003001B
0	1/32	1/8	1-1/2	300-003002	300-003002B
1	3/64	1/8	1-1/2	300-003003	300-003003B
2	5/64	3/16	1-7/8	300-003004	300-003004B
3	7/64	1/4	2	300-003005	300-003005B
4	1/8	5/16	2-1/8	300-003006	300-003006B
5	3/16	7/16	2-3/4	300-003007	300-003007B
6	7/32	1/2	3	300-003008	300-003008B
7	1/4	5/8	3-1/4	300-003009	300-003009B
8	5/16	3/4	3-1/2	300-003010	300-003010B

LONG

1	3/64	1/8	4	300-007001	300-007001B
2	5/64	3/16	4	300-007002	300-007002B
3	7/64	1/4	4	300-007003	300-007003B
4	1/8	5/16	4	300-007004	300-007004B
5	3/16	7/16	6	300-007005	300-007005B
6	7/32	1/2	6	300-007006	300-007006B
7	1/4	5/8	6	300-007007	300-007007B
8	5/16	3/4	6	300-007008	300-007008B

TOOL MONSTER

CARBIDE COUNTERSINKS SINGLE END

PROUDLY MADE IN THE USA

- *Larger sizes are solid carbide heads, induction brazed onto hardened steel shanks to ensure a solid and safe-secure bond*

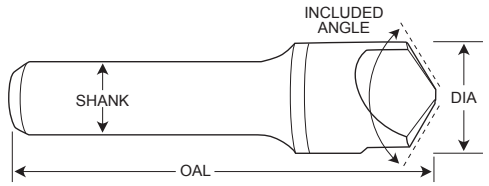
1 FLUTE

			Included Angle				
			60°	82°	90°	100°	120°
DIA	SHANK	OAL	PART #	PART #	PART #	PART #	PART #
1/8	1/8	1-1/2	331-001050	331-001060	331-001070	331-001080	331-001090
3/16	3/16	2	331-002050	331-002060	331-002070	331-002080	331-002090
1/4	1/4	2	331-003050	331-003060	331-003070	331-003080	331-003090
3/8	1/4	2-1/2	331-005050	331-005060	331-005070	331-005080	331-005090
1/2	1/4	2-1/2	331-006050	331-006060	331-006070	331-006080	331-006090
5/8	1/4	2-1/2	331-007050	331-007060	331-007070	331-007080	331-007090
3/4	3/8	3	331-008050	331-008060	331-008070	331-008080	331-008090
1	1/2	3	331-010050	331-010060	331-010070	331-010080	331-010090
1-1/4	3/4	3-1/2	331-011050	331-011060	331-011070	331-011080	331-011090
1-1/2	3/4	3-1/2	331-012050	331-012060	331-012070	331-012080	331-012090

3 FLUTE

			Included Angle				
			60°	82°	90°	100°	120°
DIA	SHANK	OAL	PART #	PART #	PART #	PART #	PART #
1/8	1/8	1-1/2	333-001050	333-001060	333-001070	333-001080	333-001090
3/16	3/16	2	333-002050	333-002060	333-002070	333-002080	333-002090
1/4	1/4	2	333-003050	333-003060	333-003070	333-003080	333-003090
3/8	1/4	2-1/2	333-005050	333-005060	333-005070	333-005080	333-005090
1/2	1/4	2-1/2	333-006050	333-006060	333-006070	333-006080	333-006090
5/8	3/8	2-3/4	333-007050	333-007060	333-007070	333-007080	333-007090
3/4	3/8	3	333-008050	333-008060	333-008070	333-008080	333-008090
1	1/2	3	333-010050	333-010060	333-010070	333-010080	333-010090
1-1/4	3/4	3-1/2	333-011050	333-011060	333-011070	333-011080	333-011090
1-1/2	3/4	3-1/2	333-012050	333-012060	333-012070	333-012080	333-012090

Carbide Countersinks
Single End



- *C-2 grade premium sub-micron carbide with 10% cobalt*
- *Right Hand Cut*

4 FLUTE

			Included Angle				
			60°	82°	90°	100°	120°
DIA	SHANK	OAL	PART #	PART #	PART #	PART #	PART #
1/8	1/8	1-1/2	334-001050	334-001060	334-001070	334-001080	334-001090
1/4	1/4	2	334-003050	334-003060	334-003070	334-003080	334-003090
3/8	1/4	2-1/2	334-005050	334-005060	334-005070	334-005080	334-005090
1/2	3/8	2-1/2	334-006050	334-006060	334-006070	334-006080	334-006090
5/8	3/8	2-1/2	334-007050	334-007060	334-007070	334-007080	334-007090
3/4	1/2	3	334-008050	334-008060	334-008070	334-008080	334-008090
1	1/2	3	334-010050	334-010060	334-010070	334-010080	334-010090

6 FLUTE

			Included Angle				
			60°	82°	90°	100°	120°
DIA	SHANK	OAL	PART #	PART #	PART #	PART #	PART #
1/8	1/8	1-1/2	336-001050	336-001060	336-001070	336-001080	336-001090
3/16	3/16	2	336-002050	336-002060	336-002070	336-002080	336-002090
1/4	1/4	2	336-003050	336-003060	336-003070	336-003080	336-003090
5/16	1/4	2	336-004050	336-004060	336-004070	336-004080	336-004090
3/8	1/4	2-1/2	336-005050	336-005060	336-005070	336-005080	336-005090
1/2	1/4	2-1/2	336-006050	336-006060	336-006070	336-006080	336-006090
5/8	3/8	2-3/4	336-007050	336-007060	336-007070	336-007080	336-007090
3/4	3/8	3	336-008050	336-008060	336-008070	336-008080	336-008090
7/8	1/2	3	336-009050	336-009060	336-009070	336-009080	336-009090
1	1/2	3	336-010050	336-010060	336-010070	336-010080	336-010090
1-1/4	3/4	3-1/2	336-011050	336-011060	336-011070	336-011080	336-011090
1-1/2	3/4	3-1/2	336-012050	336-012060	336-012070	336-012080	336-012090

TOOL MONSTER

CARBIDE COUNTERSINKS DOUBLE END

PROUDLY MADE IN THE USA

- *Solid carbide construction with economical double cutting ends*

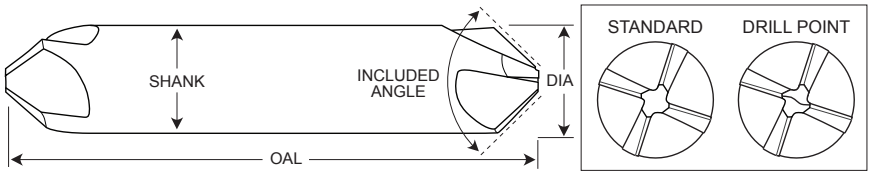
1 FLUTE

			Included Angle					
			60°	82°	90°	100°	110°	120°
DIA	SHANK	OAL	PART #	PART #	PART #	PART #	PART #	PART #
1/8	1/8	1-1/2	331-201050	331-201060	331-201070	331-201080	331-201090	331-201100
3/16	3/16	2	331-202050	331-202060	331-202070	331-202080	331-202090	331-202200
1/4	1/4	2	331-203050	331-203060	331-203070	331-203080	331-203090	331-203100
5/16	5/16	2-1/8	331-204050	331-204060	331-204070	331-204080	331-204090	331-204100
3/8	3/8	2-1/2	331-205050	331-205060	331-205070	331-205080	331-205090	331-205100
1/2	1/2	3	331-206050	331-206060	331-206070	331-206080	331-206090	331-206100
5/8	5/8	3-1/4	331-207050	331-207060	331-207070	331-207080	331-207090	331-207100
3/4	3/4	3-1/2	331-208050	331-208060	331-208070	331-208080	331-208090	331-208100

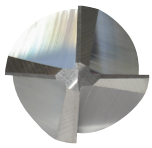
4 FLUTE

			Included Angle					
			60°	82°	90°	100°	110°	120°
DIA	SHANK	OAL	PART #	PART #	PART #	PART #	PART #	PART #
1/8	1/8	1-1/2	334-201050	334-201060	334-201070	334-201080	334-201090	334-201100
3/16	3/16	2	334-202050	334-202060	334-202070	334-202080	334-202090	334-202100
1/4	1/4	2	334-203050	334-203060	334-203070	334-203080	334-203090	334-203100
5/16	5/16	2-1/8	334-204050	334-204060	334-204070	334-204080	334-204090	334-204100
3/8	3/8	2-1/2	334-205050	334-205060	334-205070	334-205080	334-205090	334-205100
1/2	1/2	3	334-206050	334-206060	334-206070	334-206080	334-206090	334-206100
5/8	5/8	3-1/4	334-207050	334-207060	334-207070	334-207080	334-207090	334-207100
3/4	3/4	3-1/2	334-208050	334-208060	334-208070	334-208080	334-208090	334-208100

Carbide Countersinks
Double End



- *Solid C-2 grade premium sub-micron grain carbide with 10% cobalt*
- *Right Hand Cut*



4 FLUTE with Drill Point

			Included Angle					
			60°	82°	90°	100°	110°	120°
DIA	SHANK	OAL	PART #	PART #	PART #	PART #	PART #	PART #
1/8	1/8	1-1/2	334-301050	334-301060	334-301070	334-301080	334-301090	334-301100
3/16	3/16	2	334-302050	334-302060	334-302070	334-302080	334-302090	334-302100
1/4	1/4	2	334-303050	334-303060	334-303070	334-303080	334-303090	334-303100
5/16	5/16	2-1/8	334-304050	334-304060	334-304070	334-304080	334-304090	334-304100
3/8	3/8	2-1/2	334-305050	334-305060	334-305070	334-305080	334-305090	334-305100
1/2	1/2	3	334-306050	334-306060	334-306070	334-306080	334-306090	334-306100
5/8	5/8	3-1/4	334-307050	334-307060	334-307070	334-307080	334-307090	334-307100
3/4	3/4	3-1/2	334-308050	334-308060	334-308070	334-308080	334-308090	334-308100

6 FLUTE

			Included Angle		
			60°	82°	90°
DIA	SHANK	OAL	PART #	PART #	PART #
1/8	1/8	1-1/2	336-201050	336-201060	336-201070
3/16	3/16	2	336-202050	336-202060	336-202070
1/4	1/4	2	336-203050	336-203060	336-203070
5/16	5/16	2-1/8	336-204050	336-204060	336-204070
3/8	3/8	2-1/2	336-205050	336-205060	336-205070
1/2	1/2	3	336-206050	336-206060	336-206070
5/8	5/8	3-1/4	336-207050	336-207060	336-207070
3/4	3/4	3-1/2	336-208050	336-208060	336-208070

TOOL MONSTER

CARBIDE COUNTERSINKS SETS

- *All sets contain the most popular countersink sizes in a handsome wood case*

					Included Angle				
	1/4	1/2	3/4	1"	60°	82°	90°	100°	120°
FLUTES					PART #	PART #	PART #	PART #	PART #
1	X	X	X	X	331-100060	331-100082	331-100090	331-100100	331-100120
3	X	X	X	X	333-100060	333-100082	333-100090	333-100100	333-100120
6	X	X	X	X	336-100060	336-100082	336-100090	336-100100	336-100120

PROUDLY MADE IN THE USA

PROUDLY MADE IN THE USA

End Mills - General Purpose

Material	SFM RANGE	Chipload Per Tooth 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Aluminum/Aluminum Alloys	800-1300	0.0015"	0.0020"	0.0025"	0.0030"	0.0040"	0.0050"	0.0060"	0.0080"
Brass	300-450	0.0018"	0.0020"	0.0023"	0.0025"	0.0030"	0.0035"	0.0040"	0.0050"
Bronze	250-350	0.0018"	0.0020"	0.0023"	0.0025"	0.0030"	0.0035"	0.0040"	0.0050"
Cast Iron (Malleable)	150-300	0.0008"	0.0010"	0.0013"	0.0015"	0.0020"	0.0030"	0.0040"	0.0060"
Cast Iron (Medium)	100-350	0.0005"	0.0010"	0.0015"	0.0020"	0.0030"	0.0040"	0.0050"	0.0080"
Cast Iron (Soft)	250-500	0.0009"	0.0015"	0.0022"	0.0028"	0.0040"	0.0050"	0.0060"	0.0080"
Coppers/Copper Alloys	400-900	0.0018"	0.0020"	0.0023"	0.0025"	0.0030"	0.0040"	0.0050"	0.0070"
Magnesium	1000 min	0.0015"	0.0020"	0.0025"	0.0030"	0.0040"	0.0050"	0.0060"	0.0080"
Nickel Alloys	100-300	0.0008"	0.0010"	0.0012"	0.0015"	0.0020"	0.0025"	0.0030"	0.0040"
Plastic	600-1200	0.0023"	0.0030"	0.0038"	0.0045"	0.0060"	0.0080"	.1000"	0.0150"
Plastic (Glass Filled)	300-800	0.0015"	0.0020"	0.0025"	0.0030"	0.0040"	0.0060"	0.0080"	0.0120"
Stainless Steel (Free Machining)	300-400	0.0008"	0.0010"	0.0013"	0.0015"	0.0020"	0.0030"	0.0040"	0.0060"
Stainless Steel (Work Hardening)	150-300	0.0004"	0.0005"	0.0007"	0.0008"	0.0010"	0.0020"	0.0030"	0.0050"
Steel (High Tensile 35-40 Rc)	175-300	0.0004"	0.0005"	0.0007"	0.0008"	0.0010"	0.0015"	0.0020"	0.0030"
Steel (High Tensile 40-45 Rc)	150-250	0.0004"	0.0005"	0.0007"	0.0008"	0.0010"	0.0015"	0.0020"	0.0030"
Steel (High Tensile 45+ Rc)	75-150	0.0004"	0.0005"	0.0007"	0.0008"	0.0010"	0.0015"	0.0020"	0.0030"
Steel (Low Carbon)	300-600	0.0005"	0.0010"	0.0015"	0.0020"	0.0030"	0.0040"	0.0050"	0.0060"
Steel (Medium Carbon)	200-500	0.0005"	0.0010"	0.0015"	0.0020"	0.0030"	0.0040"	0.0050"	0.0060"
Titanium (Hard)	60-150	0.0004"	0.0005"	0.0007"	0.0008"	0.0010"	0.0015"	0.0020"	0.0040"
Titanium (Soft)	75-250	0.0008"	0.0010"	0.0012"	0.0015"	0.0020"	0.0030"	0.0040"	0.0060"
Tool Steel	150-300	0.0008"	0.0010"	0.0012"	0.0015"	0.0020"	0.0025"	0.0030"	0.0040"

Speeds and Feeds Formulas

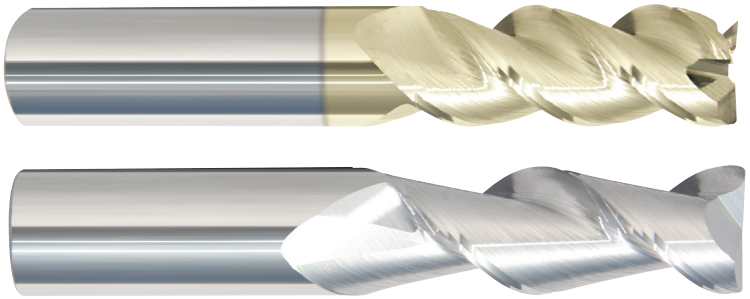
IF YOU WANT TO FIND THIS:	AND YOU KNOW THIS:	DO THIS:
RPM	SFM	(SFM. x 12) / (Dia. x 3.1416)
SFM	RPM	(Dia. x RPM x 3.1416) / 12
Feedrate Per RPM (FR)	SFM and FM	(Dia. x FM x 3.1416) / (SFM x 12)
Feedrate Per RPM (FR)	RPM and FM	FM / RPM
Feedrate Per Minute (FM)	RPM AND FR	FR x RPM
SFM	RPM and Diameter	.26 x RPM x Dia.
RPM	SFM and Diameter	(SFM / Dia.) x 3.8

For online calculators, please visit the "Tech Data" section of our website

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

PROUDLY MADE IN THE USA



Endmills - HP 2 & 3 FLUTE 45˚ Helix

Material	SFM		Chipload per tooth							
	Uncoated	ZrN	1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Aluminum	800-2300	1000-2875	0.0015"	0.0030"	0.0040"	0.0050"	0.0060"	0.0087"	0.0093"	0.0100"
Aluminum Alloys (6061, 7075)	800-2300	1000-2875	0.0015"	0.0030"	0.0040"	0.0050"	0.0060"	0.0087"	0.0093"	0.0100"
Brass/Bronze	300-400	375-500	0.0010"	0.0020"	0.0023"	0.0026"	0.0028"	0.0045"	0.0062"	0.0080"
Copper	300-500	375-625	0.0010"	0.0020"	0.0023"	0.0026"	0.0028"	0.0045"	0.0062"	0.0080"
Copper Alloys	300-400	375-500	0.0010"	0.0020"	0.0023"	0.0026"	0.0028"	0.0045"	0.0062"	0.0080"
Magnesium	300-400	375-500	0.0015"	0.0030"	0.0035"	0.0040"	0.0045"	0.0066"	0.0087"	0.0100"
Plastic/Acrylic	450-1200	560-1500	0.0015"	0.0030"	0.0040"	0.0050"	0.0060"	0.0087"	0.0093"	0.0100"
Titanium Alloys (Pure)	200-400	250-500	0.0010"	0.0015"	0.0019"	0.0025"	0.0030"	0.0038"	0.0043"	0.0050"

For online calculators, please visit the "Tech Data" section of our website

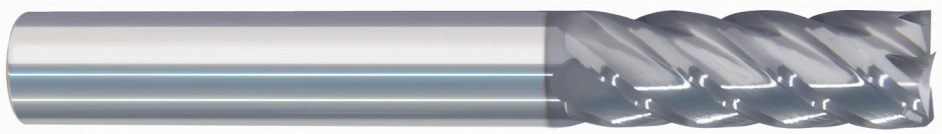
Endmills - HP 4 Flute Variable Helix

Material	SFM RANGE	Chipload Per Tooth							
		1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Aluminum/Aluminum Alloys	1000-1625	0.0019"	0.0025"	0.0031"	0.0038"	0.0050"	0.0063"	0.0075"	0.0100"
Brass	375-565	0.0023"	0.0025"	0.0029"	0.0031"	0.0038"	0.0044"	0.0050"	0.0063"
Bronze	315-440	0.0023"	0.0025"	0.0029"	0.0031"	0.0038"	0.0044"	0.0050"	0.0063"
Cast Iron (Malleable)	190-375	0.0010"	0.0013"	0.0016"	0.0019"	0.0025"	0.0038"	0.0050"	0.0075"
Cast Iron (Medium)	125-440	0.0006"	0.0013"	0.0019"	0.0025"	0.0038"	0.0050"	0.0063"	0.0100"
Cast Iron (Soft)	315-625	0.0011"	0.0019"	0.0028"	0.0035"	0.0050"	0.0063"	0.0075"	0.0100"
Coppers/Copper Alloys	500-1125	0.0023"	0.0025"	0.0029"	0.0031"	0.0038"	0.0050"	0.0063"	0.0088"
Magnesium	1250 min	0.0019"	0.0025"	0.0031"	0.0038"	0.0050"	0.0063"	0.0075"	0.0100"
Nickel Alloys	125-375	0.0010"	0.0013"	0.0015"	0.0019"	0.0025"	0.0031"	0.0038"	0.0050"
Plastic	750-1500	0.0029"	0.0038"	0.0048"	0.0056"	0.0075"	0.0100"	0.0125"	0.0188"
Plastic (Glass Filled)	375-1000	0.0019"	0.0025"	0.0031"	0.0038"	0.0050"	0.0075"	0.0100"	0.0150"
Stainless Steel (Free Machining)	375-500	0.0010"	0.0013"	0.0016"	0.0019"	0.0025"	0.0038"	0.0050"	0.0075"
Stainless Steel (Work Hardening)	190-375	0.0005"	0.0006"	0.0009"	0.0010"	0.0013"	0.0025"	0.0038"	0.0063"
Steel (High Tensile 35-40 Rc)	220-375	0.0005"	0.0006"	0.0009"	0.0010"	0.0013"	0.0019"	0.0025"	0.0038"
Steel (High Tensile 40-45 Rc)	190-315	0.0005"	0.0006"	0.0009"	0.0010"	0.0013"	0.0019"	0.0025"	0.0038"
Steel (High Tensile 45+ Rc)	95-190	0.0005"	0.0006"	0.0009"	0.0010"	0.0013"	0.0019"	0.0025"	0.0038"
Steel (Low Carbon)	375-750	0.0006"	0.0013"	0.0019"	0.0025"	0.0038"	0.0050"	0.0063"	0.0075"
Steel (Medium Carbon)	250-625	0.0006"	0.0013"	0.0019"	0.0025"	0.0038"	0.0050"	0.0063"	0.0075"
Titanium (Hard)	75-190	0.0005"	0.0006"	0.0009"	0.0010"	0.0013"	0.0019"	0.0025"	0.0050"
Titanium (Soft)	95-315	0.0010"	0.0013"	0.0015"	0.0019"	0.0025"	0.0038"	0.0050"	0.0075"
Tool Steel	190-375	0.0010"	0.0013"	0.0015"	0.0019"	0.0025"	0.0031"	0.0038"	0.0050"

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

For online calculators, please visit the "Tech Data" section of our website



Endmills - HP 5 Flute - 40˚ Helix

Material	SFM <32Rc	SFM >32Rc	LIGHT PERIPHERAL - Chipload per tooth 1/8	1/4	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	80-140	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"
Cast Iron (Gray)	250-450	130-300	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"
High Temp Alloys	70-120	40-90	0.0005"	0.0010"	0.0014"	0.0020"	0.0024"	0.0029"	0.0060"
Stainless Steel (Precipitation)	80-250	90-125	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"
Stainless Steel (300)	150-350	80-200	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"
Stainless Steel (400)	200-450	100-250	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"
Steel (Alloys)	150-300	80-200	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"
Steel (Carbon)	200-450	100-250	0.0008"	0.0017"	0.0025"	0.0035"	0.0042"	0.0050"	0.0090"
Titanium (Cast/Wrought Iron)	140-200	90-160	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"
Titanium (Pure)	140-220	90-160	0.0007"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0080"

Material	SFM <32Rc	SFM >32Rc	HEAVY PERIPHERAL - Chipload per tooth 1/8	1/4	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	80-140	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"
Cast Iron (Gray)	250-450	130-300	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"
High Temp Alloys	70-120	40-90	0.0010"	0.0014"	0.0021"	0.0030"	0.0036"	0.0043"	0.0060"
Stainless Steel (Precipitation)	80-250	90-125	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"
Stainless Steel (300)	150-350	80-200	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"
Stainless Steel (400)	200-450	100-250	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"
Steel (Alloys)	150-300	80-200	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"
Steel (Carbon)	200-450	100-250	0.0011"	0.0021"	0.0032"	0.0045"	0.0053"	0.0064"	0.0090"
Titanium (Cast/Wrought Iron)	140-200	90-160	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"
Titanium (Pure)	140-220	90-160	0.0010"	0.0019"	0.0029"	0.0040"	0.0048"	0.0057"	0.0080"

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

For online calculators, please visit the "Tech Data" section of our website

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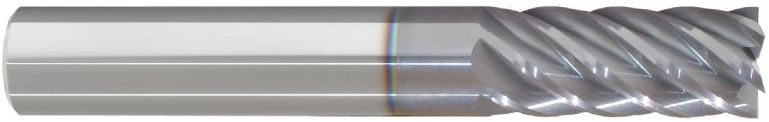


Endmills - HP - 6 Flute - 40˚Helix

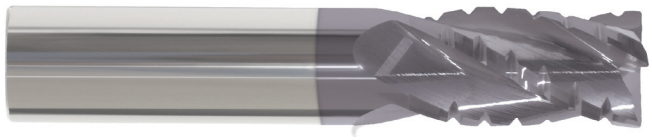
Material	SFM <32Rc	SFM >32Rc	Chipload Per Tooth 1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	280-490		0.0008"	0.0008"	0.0013"	0.002"	0.0018"	0.0040"	0.0044"	0.0045"	0.0070"
Cast Iron (Gray)	245-385		0.0008"	0.0008"	0.0015"	0.0018"	0.0016"	0.0038"	0.0040"	0.0040"	0.0060"
Cobalt Base Alloys	315-385		0.0007"	0.0007"	0.0012"	0.0012"	0.0015"	0.0025"	0.0030"	0.0040"	0.0055"
Iron Base Alloys	315-385	210-280	0.0007"	0.0007"	0.0012"	0.0012"	0.0015"	0.0025"	0.0030"	0.0040"	0.0055"
Monel	280-350		0.0007"	0.0007"	0.0012"	0.0012"	0.0015"	0.0025"	0.0030"	0.0040"	0.0055"
Nickel Base Alloys	315-385	210-280	0.0007"	0.0007"	0.0012"	0.0012"	0.0015"	0.0025"	0.0030"	0.0040"	0.0055"
Stainless Steel (Precipitation)	350-490	210-350	0.0008"	0.0008"	0.0013"	0.0012"	0.0016"	0.0035"	0.0040"	0.0040"	0.0060"
Stainless Steel (200 & 300)	175-280	126-175	0.0009"	0.0009"	0.0014"	0.0013"	0.0016"	0.0038"	0.0040"	0.0040"	0.0060"
Stainless Steel (3xxL)	350-490	245-385	0.0009"	0.0009"	0.0014"	0.0013"	0.0016"	0.0038"	0.0040"	0.0040"	0.0060"
Stainless Steel (400)	280-490	210-350	0.0008"	0.0008"	0.0012"	0.0013"	0.0016"	0.0035"	0.0040"	0.0045"	0.0060"
Steel (Alloys)	350-525	210-315	0.0008"	0.0008"	0.0016"	0.0018"	0.0015"	0.0030"	0.0038"	0.0050"	0.0060"
Steel (Carbon)	350-525	210-315	0.0005"	0.0005"	0.0019"	0.0020"	0.0025"	0.0035"	0.0040"	0.0060"	0.0070"
Steel (High Strength)	315-420		0.0008"	0.0008"	0.0012"	0.0018"	0.0022"	0.0032"	0.0040"	0.0050"	0.0060"
Titanium Alloy (Commercially Pure)	350-560		0.0009"	0.0007"	0.0014"	0.0015"	0.0018"	0.0030"	0.0038"	0.0045"	0.0060"
Tool Steel	175-315		0.0008"	0.0008"	0.0016"	0.0018"	0.0022"	0.0032"	0.0040"	0.0050"	0.0060"

NOTE: All recommendations are considered as starting parameters only

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

PROUDLY MADE IN THE USA



Rougher - Finishers Chipbreaker Style

Material	SFM <32Rc	SFM >32Rc	SLOTTING - Chipload Per Tooth 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	8-140	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Cast Iron (Gray)	250-450	130-300	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
High Temp Alloys	70-120	40-90	0.0005"	0.0010"	0.0012"	0.0014"	0.0020"	0.0025"	0.0030"	0.0040"
Stainless Steel (Precipitation)	80-250	90-125	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Stainless Steel (300)	150-300	80-200	0.0007"	0.0013"	0.0017"	0.0020"	0.0028"	0.0035"	0.0042"	0.0056"
Stainless Steel (400)	200-450	100-250	0.0007"	0.0013"	0.0017"	0.0020"	0.0028"	0.0035"	0.0042"	0.0056"
Steel (Alloys)	150-300	80-200	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Steel (Carbon)	200-450	100-250	0.0007"	0.0014"	0.0018"	0.0021"	0.0031"	0.0030"	0.0045"	0.0060"
Titanium (Cast/Wrought Iron)	140-220	90-160	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Titanium (Pure)	140-220	90-160	0.0007"	0.0013"	0.0017"	0.0020"	0.0028"	0.0035"	0.0042"	0.0056"

Material	SFM <32Rc	SFM >32Rc	LIGHT PERIPHERAL - Chipload Per Tooth 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	8-140	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Cast Iron (Gray)	250-450	130-300	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
High Temp Alloys	70-120	40-90	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Stainless Steel (Precipitation)	80-250	90-125	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Stainless Steel (300)	150-300	80-200	0.0009"	0.0018"	0.0023"	0.0027"	0.0038"	0.0048"	0.0057"	0.0076"
Stainless Steel (400)	200-450	100-250	0.0009"	0.0018"	0.0023"	0.0027"	0.0038"	0.0048"	0.0057"	0.0076"
Steel (Alloys)	150-300	80-200	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Steel (Carbon)	200-450	100-250	0.0010"	0.0019"	0.0024"	0.0029"	0.0040"	0.0050"	0.0060"	0.0081"
Titanium (Cast/Wrought Iron)	140-220	90-160	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Titanium (Pure)	140-220	90-160	0.0009"	0.0018"	0.0023"	0.0027"	0.0038"	0.0048"	0.0057"	0.0076"

Material	SFM <32Rc	SFM >32Rc	HEAVY PERIPHERAL - Chipload Per Tooth 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	8-140	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Cast Iron (Gray)	250-450	130-300	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
High Temp Alloys	70-120	40-90	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Stainless Steel (Precipitation)	80-250	90-125	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Stainless Steel (300)	150-300	80-200	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Stainless Steel (400)	200-450	100-250	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Steel (Alloys)	150-300	80-200	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Steel (Carbon)	200-450	100-250	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Titanium (Cast/Wrought Iron)	140-220	90-160	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Titanium (Pure)	140-220	90-160	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

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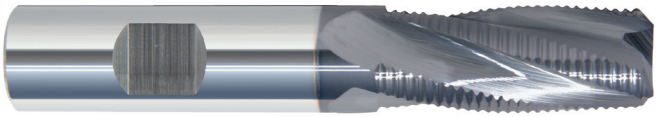

Roughers - Fine, Medium & Coarse Pitch

Material	SFM <32Rc	SFM >32Rc	SLOTTING - Chipload Per Tooth 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	80-140	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Cast Iron (Gray)	250-450	130-300	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
High Temp Alloys	70-120	40-90	0.0005"	0.0010"	0.0012"	0.0014"	0.0020"	0.0025"	0.0030"	0.0040"
Stainless Steel (Precipitation)	80-250	90-125	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Stainless Steel (300)	150-300	80-200	0.0007"	0.0013"	0.0017"	0.0020"	0.0028"	0.0035"	0.0042"	0.0056"
Stainless Steel (400)	200-450	100-250	0.0007"	0.0013"	0.0017"	0.0020"	0.0028"	0.0035"	0.0042"	0.0056"
Steel (Alloys)	150-300	80-200	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Steel (Carbon)	200-450	100-250	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Titanium (Cast/Wrought Iron)	140-200	90-160	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Titanium (Pure)	140-220	90-160	0.0007"	0.0013"	0.0017"	0.0020"	0.0028"	0.0035"	0.0042"	0.0056"

Material	SFM <32Rc	SFM >32Rc	LIGHT PERIPHERAL - Chipload Per Tooth 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	80-140	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Cast Iron (Gray)	250-450	130-300	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
High Temp Alloys	70-120	40-90	0.0006"	0.0012"	0.0015"	0.0018"	0.0025"	0.0031"	0.0038"	0.0050"
Stainless Steel (Precipitation)	80-250	90-125	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Stainless Steel (300)	150-300	80-200	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Stainless Steel (400)	200-450	100-250	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Steel (Alloys)	150-300	80-200	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Steel (Carbon)	200-450	100-250	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Titanium (Cast/Wrought Iron)	140-200	90-160	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Titanium (Pure)	140-220	90-160	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"

Material	SFM <32Rc	SFM >32Rc	HEAVY PERIPHERAL - Chipload Per Tooth 1/8	1/4	5/16	3/8	1/2	5/8	3/4	1
Cast Iron (Ductile)	120-350	80-140	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Cast Iron (Gray)	250-450	130-300	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
High Temp Alloys	70-120	40-90	0.0007"	0.0014"	0.0018"	0.0021"	0.0030"	0.0038"	0.0045"	0.0060"
Stainless Steel (Precipitation)	80-250	90-125	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Stainless Steel (300)	150-300	80-200	0.0009"	0.0018"	0.0023"	0.0027"	0.0038"	0.0048"	0.0057"	0.0076"
Stainless Steel (400)	200-450	100-250	0.0009"	0.0018"	0.0023"	0.0027"	0.0038"	0.0048"	0.0057"	0.0076"
Steel (Alloys)	150-300	80-200	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Steel (Carbon)	200-450	100-250	0.0010"	0.0019"	0.0024"	0.0029"	0.0040"	0.0050"	0.0060"	0.0081"
Titanium (Cast/Wrought Iron)	140-200	90-160	0.0008"	0.0017"	0.0021"	0.0025"	0.0035"	0.0044"	0.0053"	0.0070"
Titanium (Pure)	140-220	90-160	0.0009"	0.0018"	0.0023"	0.0027"	0.0038"	0.0048"	0.0057"	0.0076"

NOTE: All recommendations are considered as starting parameters only

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

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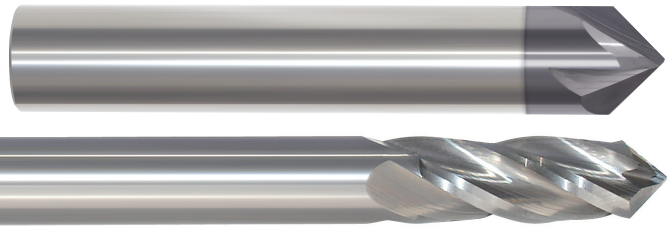

Drill Mills & Chamfer Mills

Material	SFM <32Rc	SFM >32Rc	CHAMFERING - Chipload Per Tooth 1/8	3/16	1/4	3/8	1/2	3/4
Cast Iron (Ductile)	120-350	80-140	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
Cast Iron (Gray)	250-450	130-300	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
High Temp Alloys	70-120	40-90	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
Stainless Steel (Precipitation)	80-250	90-125	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
Stainless Steel (300)	150-350	80-200	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
Stainless Steel (400)	200-450	100-250	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
Steel (Alloys)	150-300	80-200	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
Steel (Carbon)	200-450	100-250	0.0006"	0.0009"	0.0012"	0.0018"	0.0025"	0.0030"
Titanium (Cast/Wrought Iron)	140-250	90-160	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"
Titanium (Pure)	140-220	90-160	0.0004"	0.0007"	0.0010"	0.0014"	0.0020"	0.0024"

Material	SFM <32Rc	SFM >32Rc	MILLING - Chipload Per Tooth 1/8	3/16	1/4	3/8	1/2	3/4
Cast Iron (Ductile)	120-350	70-150	0.0006"	0.0009"	0.0012"	0.0018"	0.0027"	0.0040"
Cast Iron (Gray)	250-450	120-350	0.0006"	0.0009"	0.0012"	0.0014"	0.0022"	0.0032"
High Temp Alloys	60-120	30-90	0.0004"	0.0005"	0.0008"	0.0014"	0.0018"	0.0027"
Stainless Steel (Precipitation)	70-240	80-125	0.0005"	0.0007"	0.0010"	0.0012"	0.0022"	0.0035"
Stainless Steel (300)	140-300	75-110	0.0005"	0.0008"	0.0012"	0.0015"	0.0025"	0.0035"
Stainless Steel (400)	140-350	75-200	0.0006"	0.0008"	0.0012"	0.0015"	0.0025"	0.0035"
Steel (Alloys)	150-300	75-200	0.0005"	0.0007"	0.0012"	0.0016"	0.0025"	0.0040"
Steel (Carbon)	200-650	80-200	0.0007"	0.0012"	0.0012"	0.0018"	0.0030"	0.0040"
Titanium (Cast/Wrought Iron)	140-300	90-160	0.0004"	0.0005"	0.0010"	0.0015"	0.0023"	0.0038"
Titanium (Pure)	140-300	80-180	0.0004"	0.0005"	0.0010"	0.0015"	0.0023"	0.0038"

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

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Endmills - Miniature

Material	SFM RANGE	Chipload Per Tooth .020″	.040″	.060″	.080″	.100″	.120″
Aluminum/Aluminum Alloys	1480-1640	0.0015”-0.0023"	0.0018”-0.0025"	0.0020”-0.0027"	0.0023”-0.0031"	0.0027”-0.0035"	0.0031”-0.0041"
Brass/Bronze	665-720	0.0009”-0.0021"	0.0011”-0.0024"	0.0014”-0.0027"	0.0016”-0.0031"	0.0018”-0.0036"	0.0021”-0.0041"
Cast Iron (Malleable)	325-360	0.0007”-0.0018"	0.0008”-0.0020"	0.0009”-0.0023"	0.0010”-0.0025"	0.0012”-0.0030"	0.0014”-0.0034"
Cast Iron (Medium)	230-300	0.0007”-0.0018"	0.0008”-0.0020"	0.0009”-0.0023"	0.0010”-0.0025"	0.0012”-0.0030"	0.0014”-0.0034"
Cast Iron (Soft)	360-430	0.0007”-0.0018"	0.0008”-0.0020"	0.0009”-0.0023"	0.0010”-0.0025"	0.0012”-0.0030"	0.0014”-0.0034"
Copper/Copper Alloys	520-720	0.0008”-0.0014"	0.0010”-0.0016"	0.0011”-0.0018"	0.0013”-0.0021"	0.0015”-0.0024"	0.0017”-0.0028"
Nickel Alloys	180-215	0.0003”-0.0005"	0.0004”-0.0006"	0.0005”-0.0007"	0.0005”-0.0008"	0.0006”-0.0009"	0.0007”-0.0010"
Nickel Alloys (Inconel)	080-120	0.0002”-0.0004"	0.0002”-0.0004"	0.0002”-0.0005"	0.0006”-0.0005"	0.0003”-0.0006"	0.0003”-0.0007"
Nickel Alloys (Monel)	060-175	0.0003”-0.0005"	0.0004”-0.0006"	0.0005”-0.0007"	0.0005”-0.0008"	0.0006”-0.0009"	0.0007”-0.0010"
Plastic	590-700	0.0015”-0.0090"	0.0020”-0.0100"	0.0030”-0.0115"	0.0025”-0.0130"	0.0030”-0.0150"	0.0035”-0.0175"
Stainless Steel (Precipitation)	215-250	0.0002”-0.0004"	0.0002”-0.0006"	0.0002”-0.0007"	0.0003”-0.0008"	0.0003”-0.0009"	0.0003”-0.0014"
Stainless Steel (300)	230-260	0.0002”-0.0007"	0.0002”-0.0010"	0.0002”-0.0011"	0.0002”-0.0013"	0.0003”-0.0015"	0.0003”-0.0017"
Stainless Steel (400)	200-250	0.0002”-0.0005"	0.0002”-0.0008"	0.0002”-0.0009"	0.0003”-0.0010"	0.0003”-0.0009"	0.0003”-0.0014"
Steel (High Tensile 35-40 Rc)	255-330	0.0004”-0.0012"	0.0005”-0.0014"	0.0005”-0.0016"	0.0005”-0.0018"	0.0007”-0.0021"	0.0008”-0.0024"
Steel (High Tensile 40-45 Rc)	230-300	0.0003”-0.0008"	0.0004”-0.0010"	0.0005”-0.0011"	0.0004”-0.0008"	0.0003”-0.0009"	0.0005”-0.0010"
Steel (High Tensile 45+ Rc)	200-250	0.0002”-0.0004"	0.0003”-0.0005"	0.0003”-0.0007"	0.0004”-0.0008"	0.0003”-0.0009"	0.0005”-0.0010"
Steel (Low Carbon)	330-390	0.0003”-0.0005"	0.0003”-0.0006"	0.0003”-0.0007"	0.0004”-0.0008"	0.0003”-0.0009"	0.0005”-0.0010"
Steel (Medium Carbon)	490-615	0.0004”-0.0012"	0.0005”-0.0014"	0.0005”-0.0016"	0.0006”-0.0018"	0.0007”-0.0021"	0.0008”-0.0024"
Titanium (Cast/Wrought Iron)	235-300	0.0002”-0.0008"	0.0003”-0.0010"	0.0003”-0.0011"	0.0004”-0.0013"	0.0004”-0.0015"	0.0005”-0.0017"
Titanium (Hard)	230-250	0.0002”-0.0008"	0.0003”-0.0010"	0.0003”-0.0011"	0.0004”-0.0013"	0.0004”-0.0015"	0.0005”-0.0017"
Titanium (Soft)	260-330	0.0002”-0.0008"	0.0003”-0.0010"	0.0003”-0.0011"	0.0004”-0.0013"	0.0004”-0.0015"	0.0005”-0.0017"
Tool Steel	230-305	0.0003”-0.0008"	0.0004”-0.0010"	0.0005”-0.0011"	0.0004”-0.0008"	0.0003”-0.0009"	0.0005”-0.0010

NOTE: All recommendations are considered as starting parameters only

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

For online calculators, please visit the “Tech Data” section of our website

PROUDLY MADE IN THE USA

Drills

Material	SFM	CHIPLOAD PER TOOTH										
		1/16 1.5mm	3/32 2.4mm	1/8 3mm	3/16 4mm	1/4 6mm	5/16 8mm	3/8 9.5mm	7/16 11mm	1/2 12mm	5/8 16mm	3/4 20mm
Aluminum/Aluminum Alloys	250-650	0.0008"	0.0019"	0.0030"	0.0050"	0.0070"	0.0083"	0.0095"	0.0108"	0.0120"	0.0144"	0.0169"
Aluminum Alloyed > 10%	100-400	0.0008"	0.0014"	0.0020"	0.0040"	0.0060"	0.0070"	0.0080"	0.0090"	0.0100"	0.0120"	0.0140"
Brass	250-450	0.0007"	0.0014"	0.0020"	0.0025"	0.0030"	0.0033"	0.0035"	0.0038"	0.0040"	0.0045"	0.0050"
Bronze	150-250	0.0007"	0.0014"	0.0020"	0.0025"	0.0030"	0.0033"	0.0035"	0.0038"	0.0040"	0.0045"	0.0050"
Cast Iron (Soft)	150-300	0.0010"	0.0020"	0.0030"	0.0040"	0.0050"	0.0063"	0.0075"	0.0088"	0.0100"	0.0125"	0.0150"
Cast Iron (Medium)	125-250	0.0010"	0.0020"	0.0030"	0.0040"	0.0050"	0.0058"	0.0065"	0.0073"	0.0080"	0.0950"	0.1100"
Cast Iron (Ductile)	80-200	0.0005"	0.0013"	0.0020"	0.0030"	0.0040"	0.0045"	0.0050"	0.0055"	0.0060"	0.0069"	0.0078"
Cast Iron (Malleable)	65-200	0.0005"	0.0013"	0.0020"	0.0030"	0.0040"	0.0048"	0.0055"	0.0063"	0.0070"	0.0079"	0.0085"
Coppers/Copper Alloys	150-300	0.0010"	0.0020"	0.0030"	0.0050"	0.0070"	0.0083"	0.0095"	0.0108"	0.0120"	0.0144"	0.0169"
Magnesium/Magnesium Alloys	300-600	0.0010"	0.0020"	0.0030"	0.0050"	0.0070"	0.0083"	0.0095"	0.0108"	0.0120"	0.0144"	0.0169"
Monel / High Nickel Steel	75-200	0.0010"	0.0020"	0.0030"	0.0040"	0.0050"	0.0060"	0.0070"	0.0080"	0.0090"	0.0110"	0.0130"
Plastics	150-450	0.0010"	0.0015"	0.0020"	0.0030"	0.0040"	0.0043"	0.0045"	0.0048"	0.0050"	0.0058"	0.0063"
Stainless Steel (Soft)	80-300	0.0010"	0.0020"	0.0030"	0.0040"	0.0050"	0.0058"	0.0065"	0.0073"	0.0080"	0.0950"	0.1100"
Stainless Steel (Hard)	40-100	0.0005"	0.0013"	0.0020"	0.0030"	0.0040"	0.0045"	0.0050"	0.0055"	0.0060"	0.0069"	0.0078"
Steel (Low Carbon)	150-300	0.0010"	0.0015"	0.0020"	0.0030"	0.0040"	0.0048"	0.0055"	0.0063"	0.0070"	0.0079"	0.0085"
Steel (Medium Carbon)	100-200	0.0010"	0.0015"	0.0020"	0.0025"	0.0030"	0.0038"	0.0045"	0.0053"	0.0060"	0.0061"	0.0068"
Steel (High Tensile 35-40 Rc)	75-150	0.0010"	0.0015"	0.0020"	0.0025"	0.0030"	0.0033"	0.0035"	0.0038"	0.0040"	0.0045"	0.0050"
Steel (High Tensile 40-45 Rc)	50-100	0.0007"	0.0009"	0.0010"	0.0015"	0.0020"	0.0023"	0.0025"	0.0028"	0.0030"	0.0035"	0.0040"
Steel (High Tensile 46+ Rc)	25-75	0.0005"	0.0006"	0.0007"	0.0009"	0.0010"	0.0013"	0.0015"	0.0018"	0.0020"	0.0025"	0.0029"
Steel (Mold)	60-130	0.0005"	0.0008"	0.0010"	0.0020"	0.0030"	0.0035"	0.0040"	0.0045"	0.0050"	0.0061"	0.0071"
Steel (Tool)	40-100	0.0010"	0.0013"	0.0015"	0.0023"	0.0030"	0.0035"	0.0040"	0.0045"	0.0050"	0.0061"	0.0071"
Titanium (Soft)	80-350	0.0010"	0.0015"	0.0020"	0.0030"	0.0040"	0.0045"	0.0050"	0.0055"	0.0060"	0.0069"	0.0078"
Titanium (Hard)	40-100	0.0007"	0.0009"	0.0010"	0.0015"	0.0020"	0.0028"	0.0035"	0.0043"	0.0050"	0.0064"	0.0078"

NOTE: All recommendations are considered as starting parameters only

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

For online calculators, please visit the "Tech Data" section of our website

Reamers - Straight Flute Chucking

Material	SFM	INCH PER REVOLUTION						
		1/16 1.5mm	1/8 3mm	1/4 6mm	3/8 9.5mm	1/2 12mm	5/8 16mm	3/4 20mm
Aluminum/Aluminum Alloys	500-1000	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Aluminum Alloyed > 10%	300-800	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Brass	250-400	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Bronze	150-250	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Cast Iron (Soft)	150-250	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Cast Iron (Medium)	75-150	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Cast Iron (Ductile)	125-200	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Cast Iron (Malleable)	125-200	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Coppers/Copper Alloys	100-175	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Magnesium/Magnesium Alloys	400-1000	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Monel / High Nickel Steel	40-80	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Plastics	400-1000	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Stainless Steel (Soft)	150-200	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Stainless Steel (Hard)	60-130	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Steel (Low Carbon)	200-350	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Steel (Medium Carbon)	125-250	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Steel (High Tensile 35-40 Rc)	40-125	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Steel (High Tensile 40-45 Rc)	35-75	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Steel (High Tensile 46+ Rc)	15-45	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Steel (Mold)	30-55	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Steel (Tool)	40-150	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Titanium (Soft)	40-160	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"
Titanium (Hard)	35-70	0.0005"-0.0030"	0.0020"-0.0070"	0.0040"-0.0100"	0.0040"-0.0120"	0.0060"-0.0200"	0.0060"-0.0250"	0.0060"-0.0300"

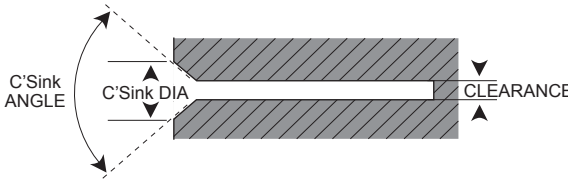
NOTE: All recommendations are considered as starting parameters only

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

Countersinks

Material	SFM
Aluminum Alloys	300-500
Brass/Bronze	150-250
Cast Iron	125-225
Malleable Iron	90-150
Magnesium	250-400
Inconel/Monel	50-75
Plastic	250-400
Steel (Annealed)	50-80
Steel (Mild)	80-170
Steel (Rc 18-24)	40-60
Steel (Rc 25-37)	35-55
Stainless Steel (Free Machining)	80-125
Stainless Steel (Other)	50-75
Titanium	60-90



SCREW SIZE		SCREW HEAD DIAMETER	SCREW HEAD HEIGHT	C'SINK SIZE		CLEARANCE CLOSE		CLEARANCE FREE	
#2	(0.086″)	0.168”	0.064”	3/16	(0.214″)	3/32	(0.094”)	# 36	(0.106”)
#4	(0.112″)	0.218”	0.083”	1/4	(0.272″)	1/8	(0.125”)	# 29	(0.136”)
#6	(0.138″)	0.263”	0.097”	5/16	(0.324″)	# 23	(0.154”)	# 18	(0.170”)
#8	(0.164″)	0.311”	0.112”	3/8	(0.376″)	#15	(0.180”)	# 9	(0.196”)
#10	(0.190″)	0.359”	0.127”	3/8	(0.428″)	# 5	(0.206”)	# 2	(0.221”)
1/4	(0.250″)	0.480”	0.161”	1/2	(0.548″)	17/64	(0.266”)	9/32	(0.281”)
5/16	(0.313″)	0.600”	0.198”	5/8	(0.673″)	21/64	(0.328”)	11/32	(0.344”)
3/8	(0.375″)	0.720”	0.234”	3/4	(0.798″)	25/64	(0.391”)	13/32	(0.406”)
7/16	(0.438″)	0.781”	0.234”	7/8	(0.861″)	29/64	(0.453”)	15/32	(0.469”)
1/2	(0.500″)	0.872”	0.251”	1	(1.000″)	33/64	(0.516”)	17/32	(0.531”)
5/8	(0.625″)	1.112”	0.324”	1-1/4	(1.250″)	41/64	(0.641”)	21/32	(0.656”)
3/4	(0.750″)	1.355”	0.396”	1-1/2	(1.500″)	49/64	(0.766”)	25/32	(0.781”)
7/8	(0.875″)	1.604”	0.468”	1-3/4	(1.750″)	57/64	(0.891”)	29/32	(0.906”)
1	(1.000″)	1.841”	0.540”	2	(2.000″)	1-1/64	(1.016”)	1-1/32	(1.031”)

- Countersink diameters are based on the theoretical maximum head diameter at a depth of .005 to .015 & an angle of 82°
- Actual depth may vary depending on actual head diameter and angle.
- Free should be used unless close is required

Boring Bars

Material	SFM	Chipload per Tooth
Aluminum	2000	0.001" - 0.005"
Brass, Bronze & Copper	750 - 900	0.001" - 0.005"
Cast Iron (Soft)	350 - 450	0.001" - 0.005"
Cast Iron (Medium)	260 - 400	0.001" - 0.005"
Cast Iron (Malleable)	450 - 500	0.001" - 0.005"
High Temperature Alloys	160 - 200	0.001" - 0.005"
Inconel	80	0.001" - 0.005"
Magnesium	2000	0.001" - 0.005"
Mold Steel (P-20)	375 - 475	0.001" - 0.005"
Molybdenum	210 - 250	0.001" - 0.005"
Monel	200	0.001" - 0.005"
Nickel Alloys	300	0.001" - 0.005"
Steel (High Tensile 30-40 Rc)	250 - 300	0.001" - 0.005"
Steel (High Tensile 45+ Rc)	130	0.001" - 0.005"
Steel (Low Carbon)	375	0.001" - 0.005"
Steel (Medium Carbon)	325 - 425	0.001" - 0.005"
Stainless Steel (15-5 PH)	250	0.001" - 0.005"
Stainless Steel (17-4 PH)	275	0.001" - 0.005"
Stainless Steel (304)	250	0.001" - 0.005"
Stainless Steel (316/316L)	200	0.001" - 0.005"
Titanium	210 - 250	0.001" - 0.005"
Tool Steel (D-2)	160 - 200	0.001" - 0.005"

NOTE: All recommendations are considered as starting parameters only

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

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Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool OAL for application
5. Recommended coolant type directed to point of cut
6. Match recommended feeds and speeds
7. Resharpen or replace tool before catastrophic failure

PROUDLY MADE IN THE USA

Burrs

CUT DIAMETER	RECOMMENDED RPM	
	STANDARD MATERIALS	STAINLESS STEEL
1/16	72500	97500
3/32	65500	89000
1/8	56000	76000
5/32	46000	70000
3/16	40000	65500
1/4	35000	61000
5/16	28000	47500
3/8	25000	43000
7/16	22000	40000
1/2	11800	34000
5/8	17000	28000
3/4	14900	22000
1	12600	18500

Use reduced speeds when using:

- **Aluma Cut flute geometry**
- **Long Shanks Burrs**

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