MILL MONSTER®

CATALOG

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. Mill Monster and other Monster Tool products are available from stock at your local distributor or catalog company.

Mill Monster products offer the following advantages:

- Extensive product offerings in all industry standard sizes.
- Cutting flutes are precision ground.
- Close tolerances and consistent tool accuracy.
- Lab inspected raw materials.
- Highest quality tools.

SUPERIOR TOOL PERFORMANCE

Mill Monster products offer the advantage of very close tolerance precision ground cutting tools. This precision results in superior tool finishes on all cutting surfaces providing cleaner cuts and better work piece finishes. Monster Tool Company products are manufactured from premium sub-micron C - 2 carbide material with 10% cobalt; these tools are engineered to better serve the needs of modern metalworking in a wide range of applications.

POLICIES AND PROCEDURES

ORDERING INFORMATION

All items in the MILL MONSTER® catalog carry unique part 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.

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.

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.

DISTRIBUTOR DISCOUNT

Call for terms and 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 30% 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 & PRICING

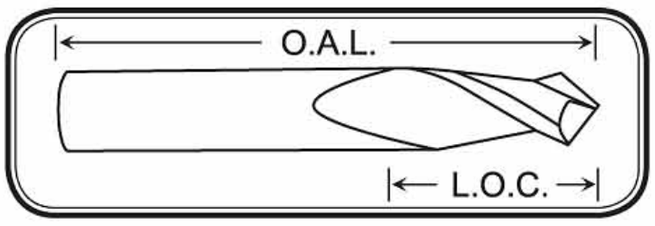
Monster Tool Company reserves the right to revise listings, specifications, and pricing in this catalog without notice. Monster Tool Company is not responsible for any typographical or pricing errors in this catalog. Please verify current pricing at the time of your order.

60° & 90° Drill Mills

MILL MONSTER®

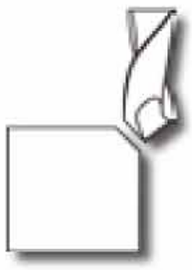
- 30° Helix RHS / RHC
- Center Cutting
- Coated Tools Offer Longer Tool Life and Increased Speeds & Feeds
- APPLICATIONS: Chamfering, Countersinking, Drilling, Side Milling and Spotting

Premium Sub-Micron C-2 Carbide with 10% Cobalt



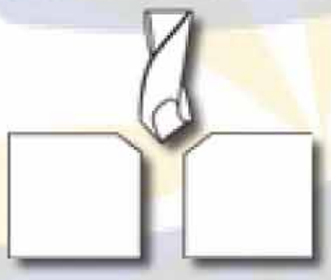
Proudly Made in the U.S.A.

5 IN ONE TOOL!



CHAMFERING

COUNTERSINKING



DRILLING

SIDE MILLING

SPOTTING

2 FLUTE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	60° UNCOATED ITEM #	90° UNCOATED ITEM #	LIST PRICE	60° TiAlN ITEM #	90° TiAlN ITEM #	LIST PRICE
1/8	1/2	1/8	1-1/2	208-621250	208-000125	$16.20	208-621253	208-010125	$21.00
3/16	5/8	3/16	2	208-621870	208-000187	$21.60	208-621873	208-010187	$27.80
1/4	3/4	1/4	2-1/2	208-622500	208-000250	$29.00	208-622503	208-010250	$35.40
5/16	13/16	5/16	2-1/2	208-623120	208-000312	$39.20	208-623123	208-010312	$45.80
3/8	1	3/8	2-1/2	208-623750	208-000375	$40.60	208-623753	208-010375	$51.00
7/16	1	7/16	2-3/4	208-624370	208-000437	$67.80	208-624373	208-010437	$82.60
1/2	1	1/2	3	208-625000	208-000500	$75.80	208-625003	208-010500	$90.30
5/8	1-1/4	5/8	3-1/2	208-626250	208-000625	$127.40	208-626253	208-010625	$147.80
3/4	1-1/2	3/4	4	208-627500	208-000750	$210.40	208-627503	208-010750	$235.00

4 FLUTE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	60° UNCOATED ITEM #	90° UNCOATED ITEM #	LIST PRICE	60° TiAlN ITEM #	90° TiAlN ITEM #	LIST PRICE
1/8	1/2	1/8	1-1/2	208-641250	208-400125	$16.20	208-641253	208-420125	$21.00
3/16	5/8	3/16	2	208-641870	208-400187	$21.60	208-641873	208-420187	$27.80
1/4	3/4	1/4	2-1/2	208-642500	208-400250	$29.00	208-642503	208-420250	$35.40
5/16	13/16	5/16	2-1/2	208-643120	208-400312	$39.20	208-643123	208-420312	$45.80
3/8	1	3/8	2-1/2	208-643750	208-400375	$40.60	208-643753	208-420375	$51.00
7/16	1	7/16	2-3/4	208-644370	208-400437	$67.80	208-644373	208-420437	$82.60
1/2	1	1/2	3	208-645000	208-400500	$75.80	208-645003	208-420500	$90.30
5/8	1-1/4	5/8	3-1/2	208-646250	208-400625	$127.40	208-646253	208-420625	$147.80
3/4	1-1/2	3/4	4	208-647500	208-400750	$210.40	208-647503	208-420750	$235.00

MILL MONSTER®

2 Flute Single End Stub Length

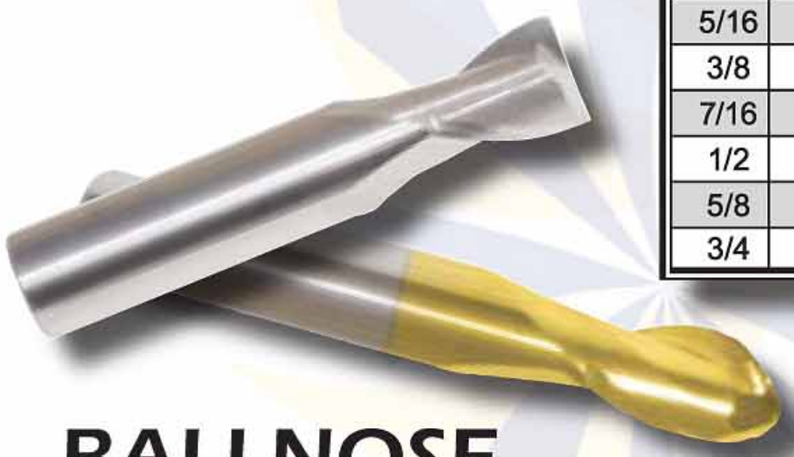
TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting
- Maximum Chip Clearance

- APPLICATIONS: Slotting and Peripheral Milling

- MATERIALS: Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Materials



SQUARE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	202-001001	$17.25	202-001002	$20.65	202-001003	202-001004	$23.25
3/64	3/32	1/8	1-1/2	202-001010	$17.25	202-001011	$20.65	202-001012	202-001013	$23.25
1/16	1/8	1/8	1-1/2	202-001020	$14.75	202-001021	$18.15	202-001022	202-001023	$20.75
5/64	5/32	1/8	1-1/2	202-001030	$14.75	202-001031	$18.15	202-001032	202-001033	$20.75
3/32	3/16	1/8	1-1/2	202-001040	$14.75	202-001041	$18.15	202-001042	202-001043	$20.75
7/64	7/32	1/8	1-1/2	202-001050	$14.75	202-001051	$18.15	202-001052	202-001053	$20.75
1/8	1/4	1/8	1-1/2	202-001060	$13.75	202-001061	$17.15	202-001062	202-001063	$19.75
9/64	9/32	3/16	2	202-001070	$21.25	202-001071	$26.25	202-001072	202-001073	$28.25
5/32	5/16	3/16	2	202-001080	$21.25	202-001081	$26.25	202-001082	202-001083	$28.25
11/64	5/16	3/16	2	202-001090	$21.25	202-001091	$26.25	202-001092	202-001093	$28.25
3/16	3/8	3/16	2	202-001100	$18.75	202-001101	$23.75	202-001102	202-001103	$25.75
13/64	3/8	1/4	2	202-001110	$27.25	202-001111	$34.25	202-001112	202-001113	$36.85
7/32	7/16	1/4	2	202-001120	$27.25	202-001121	$34.25	202-001122	202-001123	$36.85
15/64	7/16	1/4	2	202-001125	$27.25	202-001126	$34.25	202-001127	202-001128	$36.85
1/4	1/2	1/4	2	202-001130	$24.75	202-001131	$31.75	202-001132	202-001133	$34.35
5/16	1/2	5/16	2	202-001150	$32.75	202-001151	$40.75	202-001152	202-001153	$46.75
3/8	5/8	3/8	2	202-001170	$42.25	202-031171	$51.25	202-001172	202-001173	$56.25
7/16	5/8	7/16	2-1/2	202-001190	$62.25	202-001191	$75.45	202-001192	202-001193	$82.25
1/2	5/8	1/2	2-1/2	202-001200	$69.75	202-001201	$84.00	202-001202	202-001203	$89.20
5/8	3/4	5/8	3	202-001220	$132.25	202-001221	$162.25	202-001222	202-001223	$170.25
3/4	1	3/4	3	202-001240	$205.00	202-001241	$237.00	202-001242	202-001243	$245.00

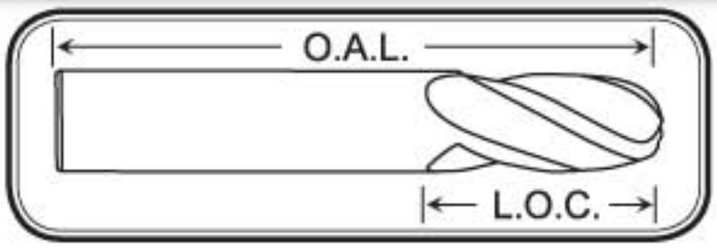
BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	219-001001	$22.25	219-001002	$25.65	219-001003	219-001004	$28.25
3/64	3/32	1/8	1-1/2	219-001010	$22.25	219-001011	$25.65	219-001012	219-001013	$28.25
1/16	1/8	1/8	1-1/2	219-001020	$19.75	219-001021	$23.15	219-001022	219-001023	$25.75
5/64	5/32	1/8	1-1/2	219-001025	$19.75	219-011025	$23.15	219-021025	219-031025	$25.75
3/32	3/16	1/8	1-1/2	219-001030	$19.75	219-001031	$23.15	219-001032	219-001033	$25.75
7/64	7/32	1/8	1-1/2	219-001035	$19.75	219-011035	$23.15	219-021035	219-031035	$25.75
1/8	1/4	1/8	1-1/2	219-001040	$18.75	219-001041	$22.15	219-001042	219-001043	$24.75
9/64	9/32	3/16	2	219-001045	$27.00	219-011045	$32.00	219-021045	219-031045	$34.00
5/32	5/16	3/16	2	219-001050	$27.00	219-001051	$32.00	219-001052	219-001053	$34.00
11/64	5/16	3/16	2	219-001055	$27.00	219-011055	$32.00	219-021055	219-031055	$34.00
3/16	3/8	3/16	2	219-001060	$24.50	219-001061	$29.50	219-001062	219-001063	$31.50
13/64	3/8	1/4	2	219-001065	$34.00	219-011065	$41.00	219-021065	219-031065	$43.60
7/32	7/16	1/4	2	219-001070	$34.00	219-001071	$41.00	219-001072	219-001073	$43.60
15/64	7/16	1/4	2	219-001075	$34.00	219-011075	$41.00	219-021075	219-031075	$43.60
1/4	1/2	1/4	2	219-001080	$31.50	219-001081	$38.50	219-001082	219-001083	$41.10
5/16	1/2	5/16	2	219-001090	$40.25	219-001091	$48.25	219-001092	219-001093	$54.25
3/8	5/8	3/8	2	219-001100	$53.75	219-001101	$62.75	219-001102	219-001103	$67.75
7/16	5/8	7/16	2-1/2	219-001110	$76.00	219-001111	$89.20	219-001112	219-001113	$96.00
1/2	5/8	1/2	2-1/2	219-001120	$87.25	219-001121	$107.25	219-001122	219-001123	$112.45
5/8	3/4	5/8	3	219-001130	$162.25	219-001131	$192.25	219-001132	219-001133	$200.25
3/4	1	3/4	3	219-001140	$247.50	219-001141	$279.50	219-001142	219-001143	$287.50

Proudly Made in the U.S.A.

MILL MONSTER®

4 Flute Single End Stub Length



SQUARE

Premium Sub-Micron C-2 Carbide with 10% Cobalt

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	203-001001	$17.25	203-001002	$20.65	203-001003	203-001004	$23.25
3/64	3/32	1/8	1-1/2	203-001010	$17.25	203-001011	$20.65	203-001012	203-001013	$23.25
1/16	1/8	1/8	1-1/2	203-001020	$14.75	203-001021	$18.15	203-001022	203-001023	$20.75
5/64	5/32	1/8	1-1/2	203-001030	$14.75	203-001031	$18.15	203-001032	203-001033	$20.75
3/32	3/16	1/8	1-1/2	203-001040	$14.75	203-001041	$18.15	203-001042	203-001043	$20.75
7/64	7/32	1/8	1-1/2	203-001050	$14.75	203-001051	$18.15	203-001052	203-001053	$20.75
1/8	1/4	1/8	1-1/2	203-001060	$13.75	203-001061	$17.15	203-001062	203-001063	$19.75
9/64	9/32	3/16	2	203-001070	$21.25	203-001071	$26.25	203-001072	203-001073	$28.25
5/32	5/16	3/16	2	203-001080	$21.25	203-001081	$26.25	203-001082	203-001083	$28.25
11/64	5/16	3/16	2	203-001090	$21.25	203-001091	$26.25	203-001092	203-001093	$28.25
3/16	3/8	3/16	2	203-001100	$18.75	203-001101	$23.75	203-001105	203-001103	$25.75
13/64	3/8	1/4	2	203-001110	$27.25	203-001111	$34.25	203-001112	203-001113	$36.85
7/32	7/16	1/4	2	203-001120	$27.25	203-001121	$34.25	203-001122	203-001123	$36.85
15/64	7/16	1/4	2	203-001125	$27.25	203-001126	$34.25	203-001127	203-001128	$36.85
1/4	1/2	1/4	2	203-001130	$24.75	203-001131	$31.75	203-001132	203-001133	$34.35
5/16	1/2	5/16	2	203-001150	$32.75	203-001151	$40.75	203-001152	203-001153	$46.75
3/8	5/8	3/8	2	203-001170	$42.25	203-001171	$51.25	203-001172	203-001173	$56.25
7/16	5/8	7/16	2-1/2	203-001190	$62.25	203-001191	$75.45	203-001192	203-001193	$82.25
1/2	5/8	1/2	2-1/2	203-001200	$69.75	203-001201	$84.00	203-001202	203-001203	$89.20
5/8	3/4	5/8	3	203-011220	$132.25	203-001221	$162.25	203-001222	203-001223	$170.25
3/4	1	3/4	3	203-001240	$205.00	203-001241	$237.00	203-001242	203-001243	$245.00

- 30° Helix RHS / RHC
- Center Cutting
- Stub Length Promotes Rigidity
- Reduces Tool Deflection
- Maintains Excellent Surface Finishes
- MATERIALS: Wide Range of Ferrous and Non-Ferrous Materials

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	220-001001	$22.25	220-001002	$25.65	220-001003	220-001004	$28.25
3/64	3/32	1/8	1-1/2	220-001010	$22.25	220-001011	$25.65	220-001012	220-001013	$28.25
1/16	1/8	1/8	1-1/2	220-001020	$19.75	220-001022	$23.15	220-001021	220-001023	$25.75
5/64	5/32	1/8	1-1/2	220-001025	$19.75	220-011025	$23.15	220-021025	220-031025	$25.75
3/32	3/16	1/8	1-1/2	220-001030	$19.75	220-001032	$23.15	220-001031	220-001033	$25.75
7/64	7/32	1/8	1-1/2	220-001035	$19.75	220-011035	$23.15	220-021035	220-031035	$25.75
1/8	1/4	1/8	1-1/2	220-001040	$18.75	220-001042	$22.15	220-001041	220-001043	$24.75
9/64	9/32	3/16	2	220-001045	$27.00	220-011045	$32.00	220-021045	220-031045	$34.00
5/32	5/16	3/16	2	220-001050	$27.00	220-001052	$32.00	220-001051	220-001053	$34.00
11/64	5/16	3/16	2	220-001055	$27.00	220-011055	$32.00	220-021055	220-031055	$34.00
3/16	3/8	3/16	2	220-001060	$24.50	220-001062	$29.50	220-001061	220-001063	$31.50
13/64	3/8	1/4	2	220-001065	$34.00	220-011065	$41.00	220-021065	220-031065	$43.60
7/32	7/16	1/4	2	220-001070	$34.00	220-001072	$41.00	220-001071	220-001073	$43.60
15/64	7/16	1/4	2	220-001075	$34.00	220-011075	$41.00	220-021075	220-031075	$43.60
1/4	1/2	1/4	2	220-001080	$31.50	220-001082	$38.50	220-001081	220-001083	$41.10
5/16	1/2	5/16	2	220-001090	$40.25	220-001092	$48.25	220-001091	220-001093	$54.25
3/8	5/8	3/8	2	220-001100	$53.75	220-001101	$62.75	220-001102	220-001103	$67.75
7/16	5/8	7/16	2-1/2	220-001110	$76.00	220-001111	$89.20	220-001112	220-001113	$96.00
1/2	5/8	1/2	2-1/2	220-001120	$87.25	220-001121	$107.25	220-001122	220-001123	$112.45
5/8	3/4	5/8	3	220-001130	$162.25	220-001131	$192.25	220-001132	220-001133	$200.25
3/4	1	3/4	3	220-001140	$247.50	220-001141	$279.50	220-001142	220-001143	$287.50

MILL MONSTER®

2 Flute Single End Regular Square

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

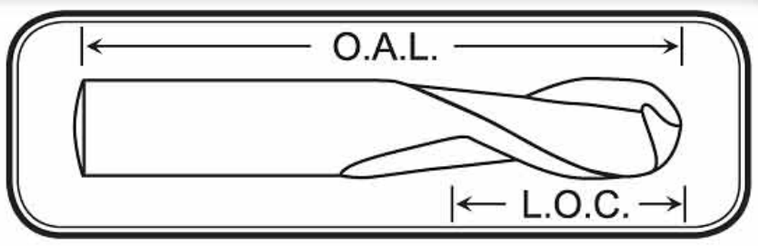
Premium Sub-Micron C-2 Carbide with 10% Cobalt

Proudly Made in the U.S.A.

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM	LIST PRICE
1/64	3/64	1/8	1-1/2	204-001000	$39.75	NO COATING AVAILABLE				
1/32	1/8	1/8	1-1/2	204-001001	$17.25	204-001002	$20.65	204-001003	204-001005	$23.25
3/64	1/8	1/8	1-1/2	204-001010	$17.25	204-001011	$20.65	204-021010	204-001013	$23.25
1/16	1/4	1/8	1-1/2	204-001020	$14.75	204-001021	$18.15	204-001022	204-001023	$20.75
5/64	1/4	1/8	1-1/2	204-001030	$14.75	204-001032	$18.15	204-001033	204-001036	$20.75
3/32	3/8	1/8	1-1/2	204-001040	$14.75	204-001041	$18.15	204-001042	204-001043	$20.75
7/64	3/8	1/8	1-1/2	204-001050	$14.75	204-001052	$18.15	204-021050	204-001055	$20.75
1/8	1/2	1/8	1-1/2	204-001060	$13.75	204-001061	$17.15	204-001062	204-001063	$19.75
9/64	9/16	3/16	2	204-001070	$21.25	204-001072	$26.25	204-021070	204-001074	$28.25
5/32	9/16	3/16	2	204-001080	$21.25	204-001081	$26.25	204-001083	204-001084	$28.25
11/64	9/16	3/16	2	204-001090	$21.25	204-001092	$26.25	204-021090	204-001094	$28.25
3/16	5/8	3/16	2	204-001100	$18.75	204-001101	$23.75	204-001103	204-001104	$25.75
13/64	5/8	1/4	2-1/2	204-001110	$27.25	204-001112	$34.25	204-021110	204-001114	$36.85
7/32	5/8	1/4	2-1/2	204-001120	$27.25	204-001121	$34.25	204-001123	204-001124	$36.85
15/64	3/4	1/4	2-1/2	204-001125	$27.25	204-001127	$34.25	204-021125	204-001129	$36.85
1/4	3/4	1/4	2-1/2	204-001130	$24.75	204-001131	$31.75	204-001133	204-001134	$34.35
17/64	3/4	5/16	2-1/2	204-001135	$36.75	204-001137	$43.55	204-021181	204-001139	$49.55
9/32	3/4	5/16	2-1/2	204-001140	$36.75	204-001141	$43.55	204-001143	204-001144	$49.55
19/64	13/16	5/16	2-1/2	204-001145	$36.75	204-001148	$43.55	204-021145	204-031145	$49.55
5/16	13/16	5/16	2-1/2	204-001150	$32.75	204-001151	$40.75	204-001155	204-001153	$46.75
21/64	1	3/8	2-1/2	204-001154	$47.25	204-001157	$56.25	204-021154	204-031154	$61.25
11/32	1	3/8	2-1/2	204-001160	$47.25	204-001162	$56.25	204-001163	204-001164	$61.25
23/64	1	3/8	2-1/2	204-001165	$47.25	204-001166	$56.25	204-021165	204-031165	$61.25
3/8	1	3/8	2-1/2	204-001170	$42.25	204-001171	$51.25	204-001179	204-001173	$56.25
25/64	1	7/16	2-3/4	204-001175	$68.50	204-001178	$81.70	204-021175	204-031175	$88.50
13/32	1	7/16	2-3/4	204-001180	$68.50	204-001182	$81.70	204-021180	204-001184	$88.50
27/64	1	7/16	2-3/4	204-001185	$68.50	204-001187	$81.70	204-021185	204-031185	$88.50
7/16	1	7/16	2-3/4	204-001190	$62.25	204-001191	$75.45	204-001189	204-001198	$82.25
29/64	1	1/2	3	204-001192	$77.25	204-001194	$91.60	204-021192	204-031192	$96.80
15/32	1	1/2	3	204-001193	$77.25	204-001197	$91.60	204-021193	204-001196	$96.80
31/64	1	1/2	3	204-001195	$77.25	204-001199	$91.60	204-021195	204-031195	$96.80
1/2	1	1/2	3	204-001200	$69.75	204-001201	$84.00	204-001202	204-001205	$89.20
9/16	1-1/4	9/16	3-1/2	204-001210	$123.25	204-001209	$153.25	204-001211	204-001212	$161.25
5/8	1-1/4	5/8	3-1/2	204-001220	$132.25	204-001222	$162.25	204-001225	204-001224	$170.25
11/16	1-1/2	3/4	4	204-001230	$224.75	204-001231	$256.75	204-001233	204-001232	$264.75
3/4	1-1/2	3/4	4	204-001240	$205.00	204-001241	$237.00	204-001243	204-001242	$245.00
7/8	1-1/2	7/8	4	204-001250	$343.75	204-001251	$383.75	204-001252	204-001253	$390.15
1	1-1/2	1	4	204-001260	$367.50	204-001261	$412.30	204-001262	204-001263	$418.70

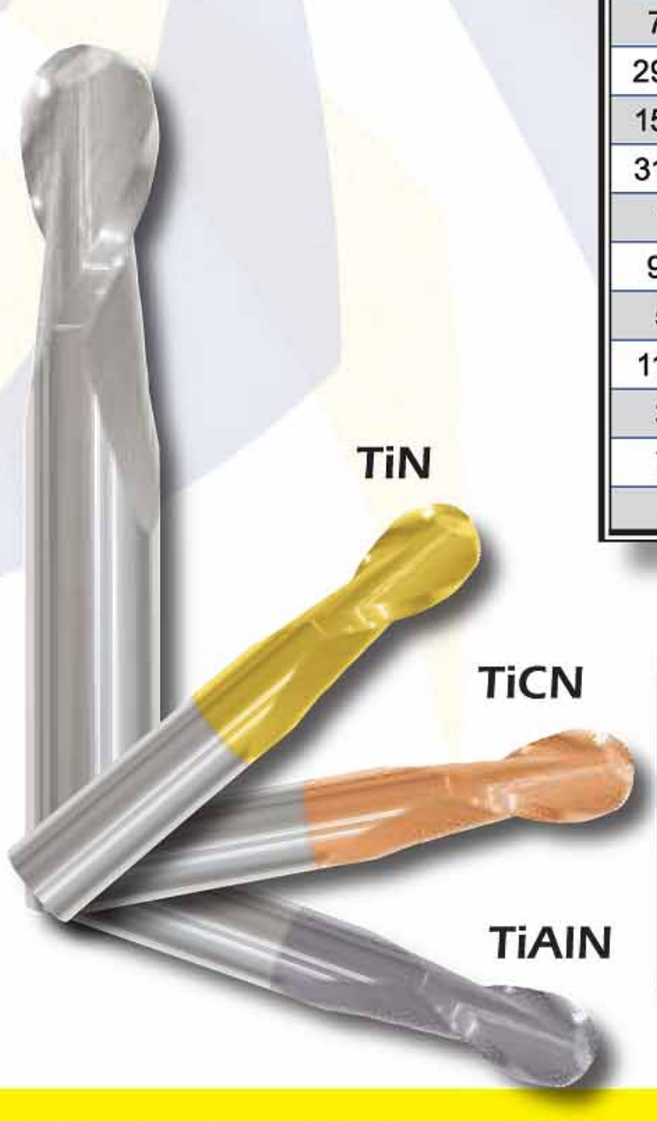
- 30° Helix RHS / RHC
- Center Cutting
- 2 Flute Geometry Allows for Maximum Chip Removal and Roughing Capabilities
- APPLICATIONS: Slotting, Pocketing and Plunging
- MATERIALS: Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Materials

2 Flute Single End Regular Ballnose



- Ball End Allows for Three Axis Contour Slotting and Contour Finishing

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM	LIST PRICE
1/64	3/64	1/8	1-1/2	221-001000	$49.75	NO COATING AVAILABLE				
1/32	1/8	1/8	1-1/2	221-001005	$22.25	221-001006	$25.65	221-021005	221-001016	$28.25
3/64	1/8	1/8	1-1/2	221-001007	$22.25	221-001004	$25.65	221-021007	221-001013	$28.25
1/16	1/4	1/8	1-1/2	221-001008AA	$19.75	221-001002	$23.15	221-000999	221-001003	$25.75
5/64	1/4	1/8	1-1/2	221-001009	$19.75	221-001008	$23.15	221-021009	221-001018	$25.75
3/32	3/8	1/8	1-1/2	221-001010	$19.75	221-001011	$23.15	221-001012	221-001019	$25.75
7/64	3/8	1/8	1-1/2	221-001014	$19.75	221-001015	$23.15	221-021014	221-001017	$25.75
1/8	1/2	1/8	1-1/2	221-001020	$18.75	221-001021	$22.15	221-001026	221-001023	$24.75
9/64	9/16	3/16	2	221-001024	$27.00	221-001025	$32.00	221-021024	221-001027	$34.00
5/32	9/16	3/16	2	221-001030	$27.00	221-001031	$32.00	221-001032	221-001033	$34.00
11/64	9/16	3/16	2	221-001034	$27.00	221-001035	$32.00	221-021034	221-001037	$34.00
3/16	5/8	3/16	2	221-001040	$24.50	221-001041	$29.50	221-001042	221-001043	$31.50
13/64	5/8	1/4	2-1/2	221-001044	$34.00	221-001045	$41.00	221-021044	221-001047	$43.60
7/32	5/8	1/4	2-1/2	221-001050	$34.00	221-001051	$41.00	221-001052	221-001053	$43.60
15/64	3/4	1/4	2-1/2	221-001054	$34.00	221-001055	$41.00	221-021054	221-001057	$43.60
1/4	3/4	1/4	2-1/2	221-001060	$31.50	221-001061	$38.50	221-001059	221-001062	$41.10
17/64	3/4	5/16	2-1/2	221-001063	$44.25	221-001064	$52.25	221-001065	221-001066	$58.25
9/32	3/4	5/16	2-1/2	221-001070	$44.25	221-001071	$52.25	221-001072	221-001073	$58.25
19/64	13/16	5/16	2-1/2	221-001075	$44.25	221-001076	$52.25	221-001077	221-001078	$58.25
5/16	13/16	5/16	2-1/2	221-001080	$40.25	221-001081	$48.25	221-001082	221-001079	$54.25
21/64	1	3/8	2-1/2	221-001083	$58.75	221-001084	$67.75	221-021083	221-031083	$72.75
11/32	1	3/8	2-1/2	221-001085	$58.75	221-001086	$67.75	221-001165	221-001087	$72.75
23/64	1	3/8	2-1/2	221-001088	$58.75	221-001089	$67.75	221-021088	221-031088	$72.75
3/8	1	3/8	2-1/2	221-001090	$53.75	221-001095	$62.75	221-001167	221-001091	$67.75
25/64	1	7/16	2-3/4	221-001093	$82.25	221-001094	$95.45	221-021093	221-031093	$102.25
13/32	1	7/16	2-3/4	221-001096	$82.25	221-001097	$95.45	221-021096	221-001118	$102.25
27/64	1	7/16	2-3/4	221-001098	$82.25	221-001099	$95.45	221-021099	221-031099	$102.25
7/16	1	7/16	2-3/4	221-001100	$76.00	221-001101	$89.20	221-001104	221-001119	$96.00
29/64	1	1/2	3	221-001102	$94.75	221-001103	$114.75	221-021102	221-031102	$119.95
15/32	1	1/2	3	221-001105	$94.75	221-001106	$114.75	221-021105	221-001123	$119.95
31/64	1	1/2	3	221-001108	$94.75	221-001109	$114.75	221-021108	221-031108	$119.95
1/2	1	1/2	3	221-001110	$87.25	221-001115	$107.25	221-001116	221-001117	$112.45
9/16	1-1/4	9/16	3-1/2	221-001120	$153.25	221-001121	$183.25	221-001125	221-001124	$191.25
5/8	1-1/4	5/8	3-1/2	221-001130	$162.25	221-001131	$192.25	221-001133	221-001134	$200.25
11/16	1-1/2	3/4	4	221-001140	$267.25	221-001141	$299.25	221-021140	221-031140	$307.25
3/4	1-1/2	3/4	4	221-001150	$247.50	221-001151	$279.50	221-001153	221-001154	$287.50
7/8	1-1/2	7/8	4	221-001155	$400.75	221-001156	$440.75	221-021155	221-001158	$447.15
1	1-1/2	1	4	221-001160	$426.25	221-001161	$471.05	221-001163	221-001164	$477.45



UNCOATED » General Purpose Milling of all Materials

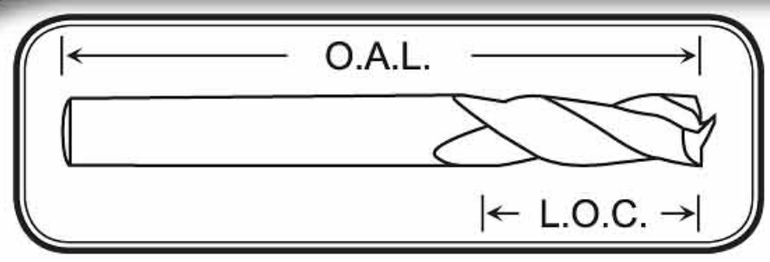
TiN COATED (Gold) » Increased Tool Life in Milling of all Ferrous Materials

TiCN COATED (Copper) » Increased Tool Life in Milling of Non-Ferrous Materials. Brass, Bronze, Copper, Aluminum

TiAlN COATED (Dark Grey) » Increased Tool Life in Milling of Steels, Alloy Steels & Hardened Steels

MILL MONSTER®

3 Flute Single End Regular Square



Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting
- 3 Flute Geometry offers allows for less chatter and better work piece finishes
- Choose Coated Tools for Increased Tool Life

- MATERIALS:
  Cast Iron, Non-Ferrous Metals, Plastics and

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/8	1/8	1-1/2	205-001001	$19.25	205-001002	$22.65	205-001003	205-001004	$25.25
3/64	1/8	1/8	1-1/2	205-001020	$19.25	205-001021	$22.65	205-001022	205-001023	$25.25
1/16	1/4	1/8	1-1/2	205-001030	$16.50	205-001031	$19.90	205-001032	205-001033	$22.50
5/64	1/4	1/8	1-1/2	205-001040	$16.50	205-001041	$19.90	205-001042	205-001043	$22.50
3/32	3/8	1/8	1-1/2	205-001050	$16.50	205-001051	$19.90	205-001052	205-001053	$22.50
7/64	3/8	1/8	1-1/2	205-001060	$16.50	205-001061	$19.90	205-001062	205-001063	$22.50
1/8	1/2	1/8	1-1/2	205-001070	$15.25	205-001071	$18.65	205-001072	205-001073	$21.25
5/32	9/16	3/16	2	205-001090	$23.50	205-001091	$28.50	205-001092	205-001093	$30.50
3/16	5/8	3/16	2	205-001110	$21.00	205-001111	$26.00	205-001112	205-001113	$28.00
7/32	5/8	1/4	2-1/2	205-001130	$30.25	205-001131	$37.25	205-001132	205-001133	$39.85
1/4	3/4	1/4	2-1/2	205-001140	$27.50	205-001143	$34.50	205-021140	205-031140	$37.10
5/16	13/16	5/16	2-1/2	205-001160	$36.50	205-001161	$44.50	205-001162	205-001163	$50.50
3/8	1	3/8	2-1/2	205-001180	$47.00	205-001184	$56.00	205-001185	205-001186	$61.00
7/16	1	7/16	2-3/4	205-001200	$69.25	205-001201	$82.45	205-001202	205-001203	$89.25
1/2	1	1/2	3	205-001210	$77.50	205-001214	$91.75	205-001215	205-001216	$96.95
5/8	1-1/4	5/8	3-1/2	205-001230	$147.00	205-001231	$177.00	205-001232	205-001233	$185.00
3/4	1-1/2	3/4	4	205-001250	$228.25	205-001251	$260.25	205-001252	205-001253	$268.25
1	1-1/2	1	4	205-001270	$408.25	205-001271	$453.05	205-001272	205-001273	$459.45

Proudly Made in the U.S.A.

3 Flute Single End Regular Ballnose

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

- Stronger Geometry Than 2 Flute Endmills
- Ballnose Ends Allow for Three Axis Contour Slotting and Contour Finishing

- APPLICATIONS:
  Slotting and Pocketing Applications

Premium Sub-Micron C-2 Carbide with 10% Cobalt

Proudly Made in the U.S.A.

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/8	1/8	1-1/2	222-001001	$24.25	222-001002	$27.65	222-001003	222-001004	$30.25
3/64	1/8	1/8	1-1/2	222-001020	$24.25	222-001021	$27.65	222-001022	222-001023	$30.25
1/16	1/4	1/8	1-1/2	222-001030	$21.50	222-001031	$24.90	222-001032	222-001033	$27.50
5/64	1/4	1/8	1-1/2	222-001040	$21.50	222-001041	$24.90	222-001042	222-001043	$27.50
3/32	3/8	1/8	1-1/2	222-001050	$21.50	222-001051	$24.90	222-001052	222-001053	$27.50
7/64	3/8	1/8	1-1/2	222-001060	$21.50	222-001061	$24.90	222-001062	222-001063	$27.50
1/8	1/2	1/8	1-1/2	222-001070	$20.25	222-001071	$23.65	222-001072	222-001073	$26.25
5/32	9/16	3/16	2	222-001090	$29.25	222-001091	$34.25	222-001092	222-001093	$36.25
3/16	5/8	3/16	2	222-001110	$26.75	222-001111	$31.75	222-001112	222-001113	$33.75
7/32	5/8	1/4	2-1/2	222-001130	$37.00	222-001131	$44.00	222-001132	222-001133	$46.60
1/4	3/4	1/4	2-1/2	222-001140	$34.25	222-001141	$41.25	222-001142	222-001143	$43.85
5/16	13/16	5/16	2-1/2	222-001160	$44.00	222-001161	$52.00	222-001162	222-001163	$58.00
3/8	1	3/8	2-1/2	222-001180	$58.50	222-001181	$67.50	222-001182	222-001183	$72.50
7/16	1	7/16	2-3/4	222-001200	$83.00	222-001201	$96.20	222-001202	222-001203	$103.00
1/2	1	1/2	3	222-001210	$95.00	222-001211	$115.00	222-001212	222-001213	$120.20
5/8	1-1/4	5/8	3-1/2	222-001230	$177.00	222-001231	$207.00	222-001232	222-001233	$215.00
3/4	1-1/2	3/4	4	222-001250	$270.75	222-001251	$302.75	222-001252	222-001253	$310.75
1	1-1/2	1	4	222-001270	$467.00	222-001271	$511.80	222-001272	222-001273	$518.20

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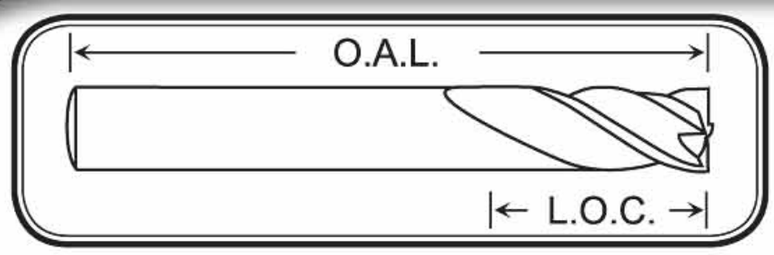
MILL MONSTER®

4 Flute Single End Regular Square



Proudly Made in the U.S.A.

- 30° Helix RHS / RHC
- Center Cutting
- Increased Core Strength

Premium Sub-Micron C-2 Carbide with 10% Cobalt

- MATERIALS:
  Ferrous Materials Including Stainless Steel and High Temperature Alloys

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM	LIST PRICE
1/64	3/64	1/8	1-1/2	206-001000	$39.75	NO COATING AVAILABLE				
1/32	1/8	1/8	1-1/2	206-001001	$17.25	206-001002	$20.65	206-001003	206-001005	$23.25
3/64	1/8	1/8	1-1/2	206-001010	$17.25	206-001011	$20.65	206-001013	206-001015	$23.25
1/16	1/4	1/8	1-1/2	206-001020	$14.75	206-001021	$18.15	206-001022	206-001027	$20.75
5/64	1/4	1/8	1-1/2	206-001030	$14.75	206-001031	$18.15	206-001032	206-001036	$20.75
3/32	3/8	1/8	1-1/2	206-001040	$14.75	206-001041	$18.15	206-001042	206-001044	$20.75
7/64	3/8	1/8	1-1/2	206-001050	$14.75	206-001051	$18.15	206-001052	206-001053	$20.75
1/8	1/2	1/8	1-1/2	206-001060	$13.75	206-001061	$17.15	206-001063	206-001067	$19.75
9/64	9/16	3/16	2	206-001070	$21.25	206-001071	$26.25	206-001072	206-001073	$28.25
5/32	9/16	3/16	2	206-001080	$21.25	206-001081	$26.25	206-001082	206-001083	$28.25
11/64	9/16	3/16	2	206-001090	$21.25	206-001091	$26.25	206-021090	206-001093	$28.25
3/16	5/8	3/16	2	206-001100	$18.75	206-001101	$23.75	206-001102	206-001107	$25.75
13/64	5/8	1/4	2-1/2	206-001110	$27.25	206-001111	$34.25	206-021110	206-001113	$36.85
7/32	5/8	1/4	2-1/2	206-001120	$27.25	206-001121	$34.25	206-001122	206-001123	$36.85
15/64	3/4	1/4	2-1/2	206-001125	$27.25	206-001126	$34.25	206-021125	206-001128	$36.85
1/4	3/4	1/4	2-1/2	206-001130	$24.75	206-001131	$31.75	206-001132	206-001137	$34.35
17/64	3/4	5/16	2-1/2	206-001133	$36.75	206-001135	$43.55	206-021133	206-001136	$49.55
9/32	3/4	5/16	2-1/2	206-001140	$36.75	206-001142	$43.55	206-001143	206-001144	$49.55
19/64	13/16	5/16	2-1/2	206-001147	$36.75	206-001145	$43.55	206-021147	206-031147	$49.55
5/16	13/16	5/16	2-1/2	206-001150	$32.75	206-001151	$40.75	206-001152	206-001153	$46.75
21/64	1	3/8	2-1/2	206-001154	$47.25	206-001157	$56.25	206-021154	206-031154	$61.25
11/32	1	3/8	2-1/2	206-001160	$47.25	206-001161	$56.25	206-001162	206-001163	$61.25
23/64	1	3/8	2-1/2	206-001169	$47.25	206-001165	$56.25	206-021169	206-031169	$61.25
3/8	1	3/8	2-1/2	206-001170	$42.25	206-001171	$51.25	206-001176	206-001177	$56.25
25/64	1	7/16	2-3/4	206-001175	$68.50	206-001178	$81.70	206-021175	206-031175	$88.50
13/32	1	7/16	2-3/4	206-001180	$68.50	206-001181	$81.70	206-001182	206-001183	$88.50
27/64	1	7/16	2-3/4	206-001185	$68.50	206-001187	$81.70	206-021185	206-031185	$88.50
7/16	1	7/16	2-3/4	206-001190	$62.25	206-001191	$75.45	206-001192	206-001193	$82.25
29/64	1	1/2	3	206-001195	$77.25	206-001194	$91.60	206-021195	206-031195	$96.80
15/32	1	1/2	3	206-001198	$77.25	206-001196	$91.60	206-021198	206-001206	$96.80
31/64	1	1/2	3	206-001199	$77.25	206-001197	$91.60	206-021199	206-031199	$96.80
1/2	1	1/2	3	206-001200	$69.75	206-001201	$84.00	206-001204	206-001207	$89.20
9/16	1-1/4	9/16	3-1/2	206-001210	$123.25	206-001211	$153.25	206-001212	206-001213	$161.25
5/8	1-1/4	5/8	3-1/2	206-001220	$132.25	206-001221	$162.25	206-001225	206-001226	$170.25
11/16	1-1/2	3/4	4	206-001230	$224.75	206-001231	$256.75	206-001232	206-001233	$264.75
3/4	1-1/2	3/4	4	206-001239	$205.00	206-001241	$237.00	206-001243	206-001244	$245.00
7/8	1-1/2	7/8	4	206-001250	$343.75	206-001251	$383.75	206-001252	206-001254	$390.15
1	1-1/2	1	4	206-001260	$367.50	206-001261	$412.30	206-001263	206-001264	$418.70

4 Flute Single End Regular Ballnose

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

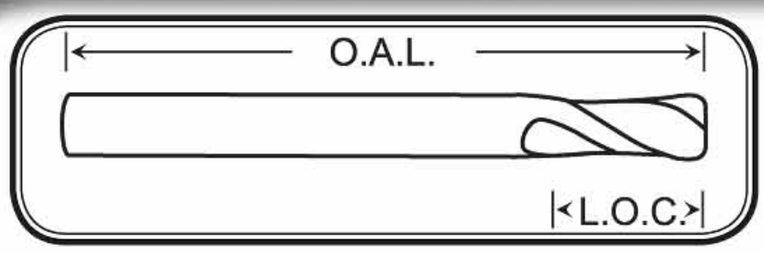
- APPLICATIONS: Profiling, Slotting, Production Milling and Finishing Applications
- The Ball End Allows for Three Axis Contour Slotting and Contour Finishing

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM	LIST PRICE
1/64	3/64	1/8	1-1/2	223-000998	$49.75	NO COATING AVAILABLE				
1/32	1/8	1/8	1-1/2	223-000999	$22.25	223-001003	$25.65	223-000996	223-001009	$28.25
3/64	1/8	1/8	1-1/2	223-001000	$22.25	223-001004	$25.65	223-021000	223-001014	$28.25
1/16	1/4	1/8	1-1/2	223-001001	$19.75	223-001002	$2 3.15	223-001015	223-001016	$25.75
5/64	1/4	1/8	1-1/2	223-001005	$19.75	223-001006	$23.15	223-001008	223-001019	$25.75
3/32	3/8	1/8	1-1/2	223-001010	$19.75	223-001011	$23.15	223-001012	223-001013	$25.75
7/64	3/8	1/8	1-1/2	223-001017	$19.75	223-001052	$23.15	223-021051	223-001039	$25.75
1/8	1/2	1/8	1-1/2	223-001020	$18.75	223-001021	$22.15	223-001023	223-001028	$24.75
9/64	9/16	3/16	2	223-001025	$27.00	223-001026	$32.00	223-001027	223-001029	$34.00
5/32	9/16	3/16	2	223-001030	$27.00	223-001031	$32.00	223-001033	223-001032	$34.00
11/64	9/16	3/16	2	223-001035	$27.00	223-001055	$32.00	223-021054	223-001043	$34.00
3/16	5/8	3/16	2	223-001040	$24.50	223-001041	$29.50	223-001042	223-001034	$31.50
13/64	5/8	1/4	2-1/2	223-001046	$34.00	223-001059	$41.00	223-021058	223-001047	$43.60
7/32	5/8	1/4	2-1/2	223-001050	$34.00	223-001056	$41.00	223-001037	223-001036	$43.60
15/64	3/4	1/4	2-1/2	223-001053	$34.00	223-001057	$41.00	223-021053	223-001045	$43.60
1/4	3/4	1/4	2-1/2	223-001060	$31.50	223-001062	$38.50	223-001063	223-001066	$41.10
17/64	3/4	5/16	2-1/2	223-001061	$44.25	223-001064	$52.25	223-021061	223-031061	$58.25
9/32	3/4	5/16	2-1/2	223-001070	$44.25	223-001065	$52.25	223-001067	223-001068	$58.25
19/64	13/16	5/16	2-1/2	223-001071	$44.25	223-001072	$52.25	223-021071	223-031071	$58.25
5/16	13/16	5/16	2-1/2	223-001080	$40.25	223-001082	$48.25	223-001083	223-001073	$54.25
21/64	1	3/8	2-1/2	223-001084	$58.75	223-001085	$67.75	223-021084	223-031084	$72.75
11/32	1	3/8	2-1/2	223-001086	$58.75	223-001087	$67.75	223-001169	223-001115	$72.75
23/64	1	3/8	2-1/2	223-001088	$58.75	223-001089	$67.75	223-021088	223-031088	$72.75
3/8	1	3/8	2-1/2	223-001090	$53.75	223-001092	$62.75	223-001093	223-001116	$67.75
25/64	1	7/16	2-3/4	223-001094	$82.25	223-001096	$95.45	223-021094	223-031094	$102.25
13/32	1	7/16	2-3/4	223-001095	$82.25	223-001097	$95.45	223-021095	223-001117	$102.25
27/64	1	7/16	2-3/4	223-001098	$82.25	223-001099	$95.45	223-021098	223-031098	$102.25
7/16	1	7/16	2-3/4	223-001100	$76.00	223-001101	$89.20	223-001102	223-001118	$96.00
29/64	1	1/2	3	223-001103	$94.75	223-001104	$114.75	223-021103	223-031103	$119.95
15/32	1	1/2	3	223-001105	$94.75	223-001107	$114.75	223-001121	223-001119	$119.95
31/64	1	1/2	3	223-001109	$94.75	223-001108	$114.75	223-021108	223-031108	$119.95
1/2	1	1/2	3	223-001110	$87.25	223-001111	$107.25	223-001112	223-001114	$112.45
9/16	1-1/4	9/16	3-1/2	223-001120	$153.25	223-001125	$183.25	223-001126	223-001127	$191.25
5/8	1-1/4	5/8	3-1/2	223-001130	$162.25	223-001131	$192.25	223-001132	223-001135	$200.25
11/16	1-1/2	3/4	4	223-001140	$267.25	223-001155	$299.25	223-021156	223-001167	$307.25
3/4	1-1/2	3/4	4	223-001150	$247.50	223-001151	$279.50	223-001152	223-001154	$287.50
7/8	1-1/2	7/8	4	223-001157	$400.75	223-001159	$440.75	223-021157	223-001165	$447.15
1	1-1/2	1	4	223-001160	$426.25	223-001161	$471.05	223-001162	223-001163	$477.45

Proudly Made in the U.S.A.

MILL MONSTER®

2 Flute Single End Corner Radius



Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting
- Use for Generating Corner Radius on Work Piece
- Corner Radius Promotes Additional Strength for Longer Tool Life resulting in Greater Productivity
- Use Coated Tools for Increased Tool Life

DIA.	L.O.C.	SHANK DIA.	O.A.L.	CORNER RADIUS	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/8	1/2	1/8	1-1/2	0.010	204-602300	$18.75	204-602301	$22.15	204-602302	204-602303	$24.75
				0.015	204-602306	$18.75	204-602307	$22.15	204-602308	204-602309	$24.75
				0.020	204-602312	$18.75	204-602313	$22.15	204-602314	204-602315	$24.75
				0.030	204-602318	$18.75	204-602319	$22.15	204-602320	204-602321	$24.75
3/16	5/8	3/16	2	0.010	204-602424	$24.50	204-602425	$29.50	204-602426	204-602427	$31.50
				0.015	204-602430	$24.50	204-602431	$29.50	204-602432	204-602433	$31.50
				0.020	204-602436	$24.50	204-602437	$29.50	204-602438	204-602439	$31.50
				0.030	204-602442	$24.50	204-602443	$29.50	204-602444	204-602445	$31.50
				0.045	204-602448	$24.50	204-602449	$29.50	204-602450	204-602451	$31.50
1/4	3/4	1/4	2-1/2	0.015	204-602551	$31.50	204-602552	$38.50	204-602553	204-602554	$41.10
				0.020	204-602557	$31.50	204-602558	$38.50	204-602559	204-602560	$41.10
				0.025	204-602563	$31.50	204-602564	$38.50	204-602565	204-602566	$41.10
				0.030	204-602569	$31.50	204-602570	$38.50	204-602571	204-602572	$41.10
				0.045	204-602575	$31.50	204-602576	$38.50	204-602577	204-602578	$41.10
				0.060	204-602581	$31.50	204-602582	$38.50	204-602583	204-602584	$41.10
5/16	13/16	5/16	2-1/2	0.015	204-602684	$40.25	204-602685	$48.25	204-602686	204-602687	$54.25
				0.020	204-602690	$40.25	204-602691	$48.25	204-602692	204-602693	$54.25
				0.025	204-602696	$40.25	204-602697	$48.25	204-602698	204-602699	$54.25
				0.030	204-602702	$40.25	204-602703	$48.25	204-602704	204-602705	$54.25
				0.045	204-602708	$40.25	204-602709	$48.25	204-602710	204-602711	$54.25
				0.060	204-602714	$40.25	204-602715	$48.25	204-602716	204-602717	$54.25
3/8	1	3/8	2-1/2	0.015	204-602820	$53.75	204-602821	$62.75	204-602822	204-602823	$67.75
				0.020	204-602826	$53.75	204-602827	$62.75	204-602828	204-602829	$67.75
				0.025	204-602832	$53.75	204-602833	$62.75	204-602834	204-602835	$67.75
				0.030	204-602838	$53.75	204-602839	$62.75	204-602840	204-602841	$67.75
				0.045	204-602844	$53.75	204-602845	$62.75	204-602846	204-602847	$67.75
				0.060	204-602850	$53.75	204-602851	$62.75	204-602852	204-602853	$67.75
				0.090	204-602856	$53.75	204-602857	$62.75	204-602858	204-602859	$67.75
7/16	1	7/16	2-3/4	0.015	204-602961	$76.00	204-602962	$89.20	204-602963	204-602964	$96.00
				0.020	204-602967	$76.00	204-602968	$89.20	204-602969	204-602970	$96.00
				0.025	204-602974	$76.00	204-602975	$89.20	204-602976	204-602977	$96.00
				0.030	204-602980	$76.00	204-602981	$89.20	204-602982	204-602983	$96.00
				0.045	204-602986	$76.00	204-602987	$89.20	204-602988	204-602989	$96.00
				0.060	204-602992	$76.00	204-602993	$89.20	204-602994	204-602995	$96.00
				0.090	204-602998	$76.00	204-602999	$89.20	204-603000	204-603001	$96.00

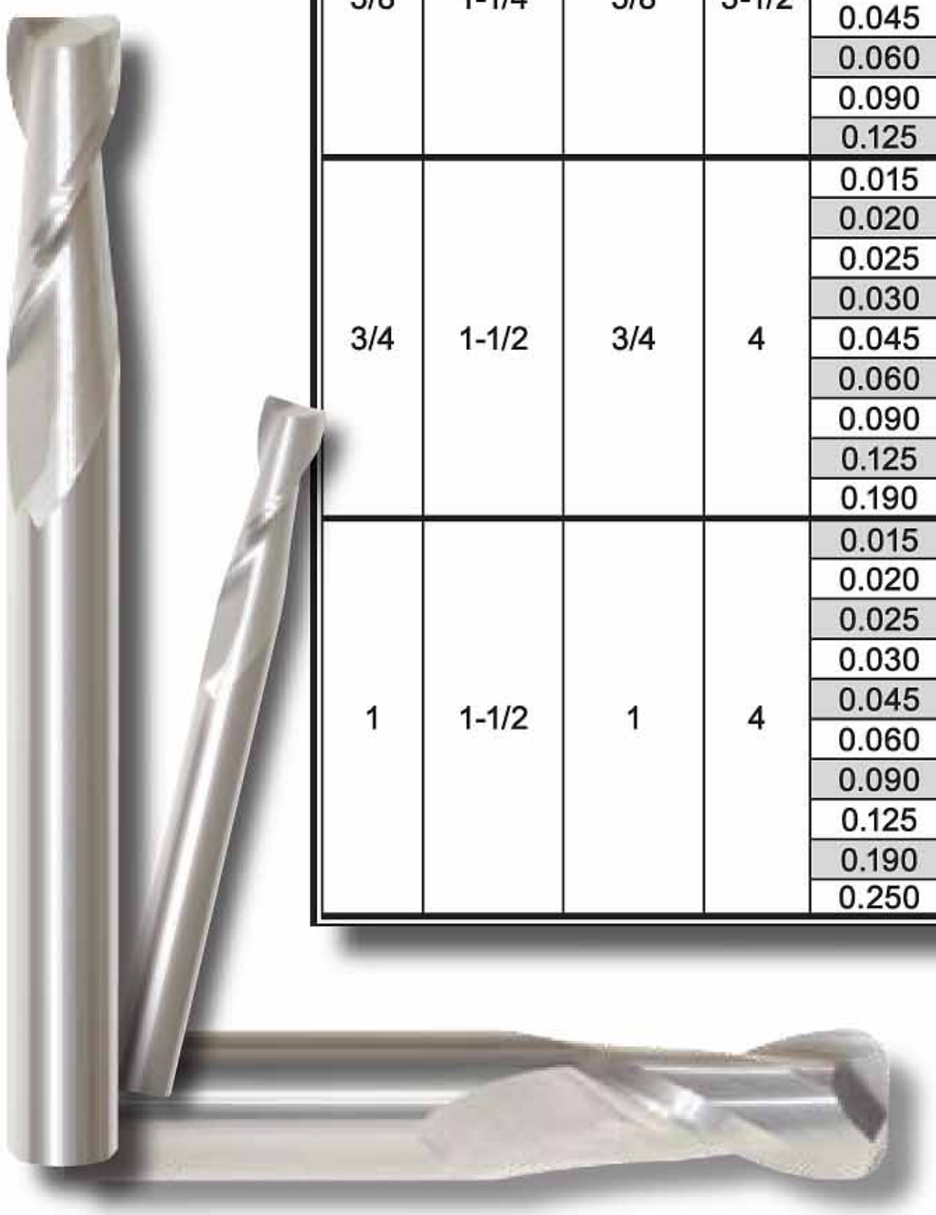
2 Flute Single End Corner Radius

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

Premium Sub-Micron C-2 Carbide with 10% Cobalt

Proudly Made in the U.S.A.

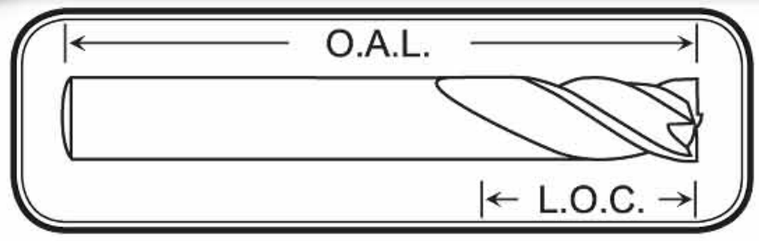
- **MATERIALS:** Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Materials



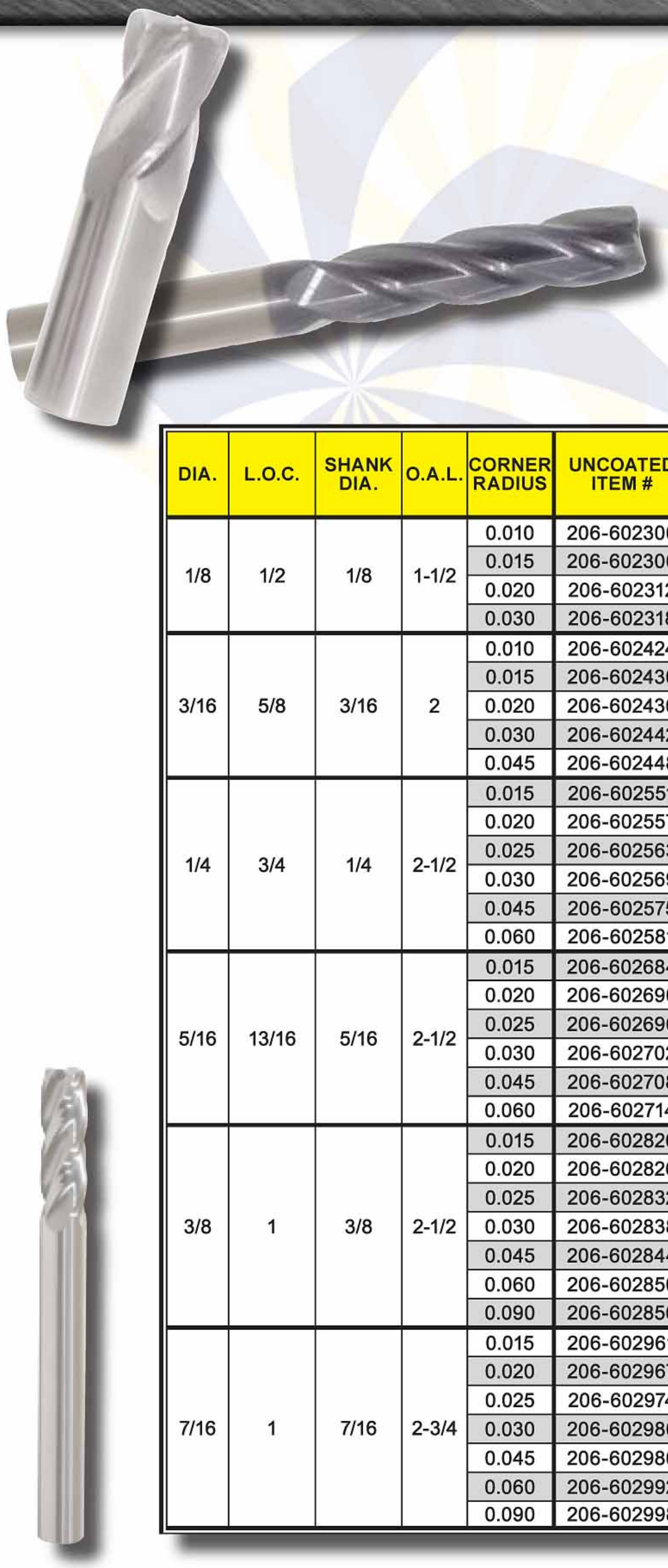
DIA.	L.O.C.	SHANK DIA.	O.A.L.	CORNER RADIUS	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/2	1	1/2	3	0.015	204-603003	$87.25	204-603004	$107.25	204-603005	204-603006	$112.45
				0.020	204-603009	$87.25	204-603010	$107.25	204-603011	204-603012	$112.45
				0.025	204-603015	$87.25	204-603016	$107.25	204-603017	204-603018	$112.45
				0.030	204-603021	$87.25	204-603022	$107.25	204-603023	204-603024	$112.45
				0.045	204-603027	$87.25	204-603028	$107.25	204-603029	204-603030	$112.45
				0.060	204-603033	$87.25	204-603034	$107.25	204-603035	204-603036	$112.45
				0.090	204-603039	$87.25	204-603040	$107.25	204-603041	204-603042	$112.45
				0.125	204-603045	$87.25	204-603046	$107.25	204-603047	204-603048	$112.45
5/8	1-1/4	5/8	3-1/2	0.015	204-603150	$162.25	204-603151	$192.25	204-603152	204-603153	$200.25
				0.020	204-603156	$162.25	204-603157	$192.25	204-603158	204-603159	$200.25
				0.025	204-603162	$162.25	204-603163	$192.25	204-603164	204-603165	$200.25
				0.030	204-603168	$162.25	204-603169	$192.25	204-603170	204-603171	$200.25
				0.045	204-603174	$162.25	204-603175	$192.25	204-603176	204-603177	$200.25
				0.060	204-603180	$162.25	204-603181	$192.25	204-603182	204-603183	$200.25
				0.090	204-603186	$162.25	204-603187	$192.25	204-603188	204-603189	$200.25
				0.125	204-603192	$162.25	204-603193	$192.25	204-603194	204-603195	$200.25
3/4	1-1/2	3/4	4	0.015	204-603297	$247.50	204-603298	$279.50	204-603299	204-603300	$287.50
				0.020	204-603303	$247.50	204-603304	$279.50	204-603305	204-603306	$287.50
				0.025	204-603309	$247.50	204-603310	$279.50	204-603311	204-603312	$287.50
				0.030	204-603315	$247.50	204-603316	$279.50	204-603317	204-603318	$287.50
				0.045	204-603321	$247.50	204-603322	$279.50	204-603323	204-603324	$287.50
				0.060	204-603327	$247.50	204-603328	$279.50	204-603329	204-603330	$287.50
				0.090	204-603333	$247.50	204-603334	$279.50	204-603335	204-603336	$287.50
				0.125	204-603339	$247.50	204-603340	$279.50	204-603341	204-603342	$287.50
				0.190	204-603345	$247.50	204-603346	$279.50	204-603347	204-603348	$287.50
1	1-1/2	1	4	0.015	204-603450	$426.25	204-603451	$471.05	204-603452	204-603453	$477.45
				0.020	204-603456	$426.25	204-603457	$471.05	204-603458	204-603459	$477.45
				0.025	204-603462	$426.25	204-603463	$471.05	204-603464	204-603465	$477.45
				0.030	204-603468	$426.25	204-603469	$471.05	204-603470	204-603471	$477.45
				0.045	204-603474	$426.25	204-603475	$471.05	204-603476	204-603477	$477.45
				0.060	204-603480	$426.25	204-603481	$471.05	204-603482	204-603483	$477.45
				0.090	204-603486	$426.25	204-603487	$471.05	204-603488	204-603489	$477.45
				0.125	204-603492	$426.25	204-603493	$471.05	204-603494	204-603495	$477.45
				0.190	204-603498	$426.25	204-603499	$471.05	204-603500	204-603501	$477.45
				0.250	204-603504	$426.25	204-603505	$471.05	204-603506	204-603507	$477.45

MILL MONSTER®

4 Flute Single End Corner Radius



Premium Sub-Micron C-2 Carbide with 10% Cobalt



- 30° Helix RHS / RHC
- Center Cutting
- Use for Generating Corner Radius on Work Piece
- Corner Radius Promotes Additional Strength for Longer Tool Life resulting in Greater Productivity
- Use Coated Tools for Increased Tool Life

DIA.	L.O.C.	SHANK DIA.	O.A.L.	CORNER RADIUS	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/8	1/2	1/8	1-1/2	0.010	206-602300	$18.75	206-602301	$22.15	206-602302	206-602303	$24.75
				0.015	206-602306	$18.75	206-602307	$22.15	206-602308	206-602309	$24.75
				0.020	206-602312	$18.75	206-602313	$22.15	206-602314	206-602315	$24.75
				0.030	206-602318	$18.75	206-602319	$22.15	206-602320	206-602321	$24.75
3/16	5/8	3/16	2	0.010	206-602424	$24.50	206-602425	$29.50	206-602426	206-602427	$31.50
				0.015	206-602430	$24.50	206-602431	$29.50	206-602432	206-602433	$31.50
				0.020	206-602436	$24.50	206-602437	$29.50	206-602438	206-602439	$31.50
				0.030	206-602442	$24.50	206-602443	$29.50	206-602444	206-602445	$31.50
				0.045	206-602448	$24.50	206-602449	$29.50	206-602450	206-602451	$31.50
1/4	3/4	1/4	2-1/2	0.015	206-602551	$31.50	206-602552	$38.50	206-602553	206-602554	$41.10
				0.020	206-602557	$31.50	206-602558	$38.50	206-602559	206-602560	$41.10
				0.025	206-602563	$31.50	206-602564	$38.50	206-602565	206-602566	$41.10
				0.030	206-602569	$31.50	206-602570	$38.50	206-602571	206-602572	$41.10
				0.045	206-602575	$31.50	206-602576	$38.50	206-602577	206-602578	$41.10
				0.060	206-602581	$31.50	206-602582	$38.50	206-602583	206-602584	$41.10
5/16	13/16	5/16	2-1/2	0.015	206-602684	$40.25	206-602685	$48.25	206-602686	206-602687	$54.25
				0.020	206-602690	$40.25	206-602691	$48.25	206-602692	206-602693	$54.25
				0.025	206-602696	$40.25	206-602697	$48.25	206-602698	206-602699	$54.25
				0.030	206-602702	$40.25	206-602703	$48.25	206-602704	206-602705	$54.25
				0.045	206-602708	$40.25	206-602709	$48.25	206-602710	206-602711	$54.25
				0.060	206-602714	$40.25	206-602715	$48.25	206-602716	206-602717	$54.25
3/8	1	3/8	2-1/2	0.015	206-602820	$53.75	206-602821	$62.75	206-602822	206-602823	$67.75
				0.020	206-602826	$53.75	206-602827	$62.75	206-602828	206-602829	$67.75
				0.025	206-602832	$53.75	206-602833	$62.75	206-602834	206-602835	$67.75
				0.030	206-602838	$53.75	206-602839	$62.75	206-602840	206-602841	$67.75
				0.045	206-602844	$53.75	206-602845	$62.75	206-602846	206-602847	$67.75
				0.060	206-602850	$53.75	206-602851	$62.75	206-602852	206-602853	$67.75
				0.090	206-602856	$53.75	206-602857	$62.75	206-602858	206-602859	$67.75
7/16	1	7/16	2-3/4	0.015	206-602961	$76.00	206-602962	$89.20	206-602963	206-602964	$96.00
				0.020	206-602967	$76.00	206-602968	$89.20	206-602969	206-602970	$96.00
				0.025	206-602974	$76.00	206-602975	$89.20	206-602976	206-602977	$96.00
				0.030	206-602980	$76.00	206-602981	$89.20	206-602982	206-602983	$96.00
				0.045	206-602986	$76.00	206-602987	$89.20	206-602988	206-602989	$96.00
				0.060	206-602992	$76.00	206-602993	$89.20	206-602994	206-602995	$96.00
				0.090	206-602998	$76.00	206-602999	$89.20	206-603000	206-603001	$96.00

4 Flute Single End Corner Radius

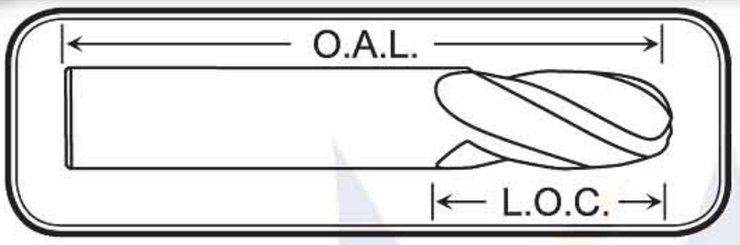
TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

Proudly Made in the U.S.A.

DIA.	L.O.C.	SHANK DIA.	O.A.L.	CORNER RADIUS	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/2	1	1/2	3	0.015	206-603003	$87.25	206-603004	$107.25	206-603005	206-603006	$112.45
				0.020	206-603009	$87.25	206-603010	$107.25	206-603011	206-603012	$112.45
				0.025	206-603015	$87.25	206-603016	$107.25	206-603017	206-603018	$112.45
				0.030	206-603021	$87.25	206-603022	$107.25	206-603023	206-603024	$112.45
				0.045	206-603027	$87.25	206-603028	$107.25	206-603029	206-603030	$112.45
				0.060	206-603033	$87.25	206-603034	$107.25	206-603035	206-603036	$112.45
				0.090	206-603039	$87.25	206-603040	$107.25	206-603041	206-603042	$112.45
				0.125	206-603045	$87.25	206-603046	$107.25	206-603047	206-603048	$112.45
5/8	1-1/4	5/8	3-1/2	0.015	206-603150	$162.25	206-603151	$192.25	206-603152	206-603153	$200.25
				0.020	206-603156	$162.25	206-603157	$192.25	206-603158	206-603159	$200.25
				0.025	206-603162	$162.25	206-603163	$192.25	206-603164	206-603165	$200.25
				0.030	206-603168	$162.25	206-603169	$192.25	206-603170	206-603171	$200.25
				0.045	206-603174	$162.25	206-603175	$192.25	206-603176	206-603177	$200.25
				0.060	206-603180	$162.25	206-603181	$192.25	206-603182	206-603183	$200.25
				0.090	206-603186	$162.25	206-603187	$192.25	206-603188	206-603189	$200.25
				0.125	206-603192	$162.25	206-603193	$192.25	206-603194	206-603195	$200.25
3/4	1-1/2	3/4	4	0.015	206-603297	$247.50	206-603298	$279.50	206-603299	206-603300	$287.50
				0.020	206-603303	$247.50	206-603304	$279.50	206-603305	206-603306	$287.50
				0.025	206-603309	$247.50	206-603310	$279.50	206-603311	206-603312	$287.50
				0.030	206-603315	$247.50	206-603316	$279.50	206-603317	206-603318	$287.50
				0.045	206-603321	$247.50	206-603322	$279.50	206-603323	206-603324	$287.50
				0.060	206-603327	$247.50	206-603328	$279.50	206-603329	206-603330	$287.50
				0.090	206-603333	$247.50	206-603334	$279.50	206-603335	206-603336	$287.50
				0.125	206-603339	$247.50	206-603340	$279.50	206-603341	206-603342	$287.50
				0.190	206-603345	$247.50	206-603346	$279.50	206-603347	206-603348	$287.50
1	1-1/2	1	4	0.015	206-603450	$426.25	206-603451	$471.05	206-603452	206-603453	$477.45
				0.020	206-603456	$426.25	206-603457	$471.05	206-603458	206-603459	$477.45
				0.025	206-603462	$426.25	206-603463	$471.05	206-603464	206-603465	$477.45
				0.030	206-603468	$426.25	206-603469	$471.05	206-603470	206-603471	$477.45
				0.045	206-603474	$426.25	206-603475	$471.05	206-603476	206-603477	$477.45
				0.060	206-603480	$426.25	206-603481	$471.05	206-603482	206-603483	$477.45
				0.090	206-603486	$426.25	206-603487	$471.05	206-603488	206-603489	$477.45
				0.125	206-603492	$426.25	206-603493	$471.05	206-603494	206-603495	$477.45
				0.190	206-603498	$426.25	206-603499	$471.05	206-603500	206-603501	$477.45
				0.250	206-603504	$426.25	206-603505	$471.05	206-603506	206-603507	$477.45

MILL MONSTER®

2 Flute Single End Long



Proudly Made in the U.S.A.

Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting
- 2 Flute Geometry allows for maximum chip removal

- APPLICATIONS:
  Deep Pocket Milling and Long Reach Applications

- MATERIALS:
  Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Type Materials

SQUARE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/8	3/4	1/8	2-1/4	213-001001	$24.25	213-001002	$28.25	213-001003	213-001004	$31.00
5/32	3/4	3/16	2-1/2	213-001005	$32.25	213-001006	$38.50	213-001007	213-001008	$39.50
3/16	3/4	3/16	2-1/2	213-001012	$29.75	213-001013	$36.00	213-001016	213-001014	$37.00
1/4	1-1/8	1/4	3	213-001020	$37.25	213-001021	$46.00	213-001022	213-001023	$49.75
5/16	1-1/8	5/16	3	213-001030	$49.75	213-001031	$60.75	213-001032	213-001033	$64.50
3/8	1-1/8	3/8	3	213-001040	$58.25	213-001009	$69.25	213-001015	213-001010	$76.50
7/16	2	7/16	4	213-001050	$105.75	213-001051	$127.75	213-001053	213-001052	$135.00
1/2	1-1/2	1/2	4	213-001059	$116.00	213-001056	$138.00	213-001062	213-001063	$145.25
1/2	2	1/2	4	213-001060	$121.75	213-001061	$143.75	213-001065	213-001064	$151.00
5/8	2-1/4	5/8	5	213-001070	$229.25	213-001071	$264.00	213-001072	213-001073	$274.00
3/4	2-1/4	3/4	5	213-001080	$283.50	213-001081	$323.23	213-001082	213-001083	$335.75
1	2-1/4	1	5	213-001090	$482.75	213-001091	$542.00	213-001092	213-001093	$554.00

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/8	3/4	1/8	2-1/4	224-001001	$29.25	224-001002	$33.25	224-001003	224-001004	$36.00
5/32	3/4	3/16	2-1/2	224-001005	$38.25	224-001006	$44.50	224-001007	224-001008	$45.50
3/16	3/4	3/16	2-1/2	224-001012	$35.75	224-001013	$42.00	224-001014	224-001015	$43.00
1/4	1-1/8	1/4	3	224-001020	$44.85	224-001021	$53.50	224-001022	224-001023	$57.25
5/16	1-1/8	5/16	3	224-001030	$58.35	224-001031	$69.25	224-001032	224-001033	$73.00
3/8	1-1/8	3/8	3	224-001040	$69.75	224-001041	$80.75	224-001042	224-001044	$88.00
7/16	2	7/16	4	224-001050	$119.50	224-001051	$141.50	224-001052	224-001053	$148.75
1/2	2	1/2	4	224-001060	$139.25	224-001061	$161.25	224-001062	224-001063	$168.50
5/8	2-1/4	5/8	5	224-001070	$259.25	224-001071	$294.00	224-001072	224-001073	$304.00
3/4	2-1/4	3/4	5	224-001080	$326.00	224-001081	$365.73	224-001082	224-001083	$378.25
1	2-1/4	1	5	224-001090	$541.50	224-001091	$600.75	224-001092	224-001093	$612.75

MILL MONSTER®

4 Flute Single End Long

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

- **APPLICATIONS:**
  Profiling, Slotting, Deep Pocket Milling and Long Reach Applications
- **MATERIALS:**
  Ferrous Metals, Stainless Steel, and High Temperature Alloys

Premium Sub-Micron C-2 Carbide with 10% Cobalt

SQUARE

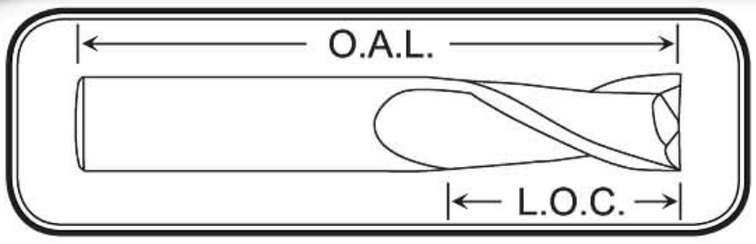
DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAIN ITEM #	LIST PRICE
1/8	3/4	1/8	2-1/4	215-001001	$24.25	215-001002	$28.25	215-001003	215-001004	$31.00
5/32	3/4	3/16	2-1/2	215-001005	$32.25	215-001006	$38.50	215-001007	215-001008	$39.50
3/16	3/4	3/16	2-1/2	215-001012	$29.75	215-001013	$36.00	215-001014	215-001015	$37.00
1/4	1-1/8	1/4	3	215-001020	$37.25	215-001021	$46.00	215-001022	215-001023	$49.75
5/16	1-1/8	5/16	3	215-001030	$49.75	215-001033	$60.75	215-001029	215-001028	$64.50
3/8	1-1/8	3/8	3	215-001040	$58.25	215-001041	$69.25	215-001044	215-001043	$76.50
7/16	2	7/16	4	215-001050	$105.75	215-001051	$127.75	215-001052	215-001053	$135.00
1/2	1-1/2	1/2	4	215-001059	$116.00	215-001058	$138.00	215-001057	215-001056	$145.25
1/2	2	1/2	4	215-001060	$121.75	215-001063	$143.75	215-001065	215-001067	$151.00
5/8	2-1/4	5/8	5	215-001070	$229.25	215-001071	$264.00	215-001072	215-001073	$274.00
3/4	2-1/4	3/4	5	215-001080	$283.50	215-001081	$323.23	215-001082	215-001083	$335.75
1	2-1/4	1	5	215-001090	$482.75	215-001091	$542.00	215-001092	215-001093	$554.00

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAIN ITEM #	LIST PRICE
1/8	3/4	1/8	2-1/4	226-001001	$29.25	226-001002	$33.25	226-001003	226-001004	$36.00
5/32	3/4	3/16	2-1/2	226-001005	$38.25	226-001006	$44.50	226-001008	226-001007	$45.50
3/16	3/4	3/16	2-1/2	226-001012	$35.75	226-001013	$42.00	226-001014	226-001016	$43.00
1/4	1-1/8	1/4	3	226-001020	$44.85	226-001021	$53.50	226-001022	226-001024	$57.25
5/16	1-1/8	5/16	3	226-001030	$58.35	226-001031	$69.25	226-001032	226-001034	$73.00
3/8	1-1/8	3/8	3	226-001040	$69.75	226-001041	$80.75	226-001042	226-001044	$88.00
7/16	2	7/16	4	226-001050	$119.50	226-001051	$141.50	226-001052	226-001054	$148.75
1/2	1-1/2	1/2	4	226-001059	$133.50	226-001057	$155.50	226-001058	226-001059A	$162.75
1/2	2	1/2	4	226-001060	$139.25	226-001061	$161.25	226-001062	226-001064	$168.50
5/8	2-1/4	5/8	5	226-001070	$259.25	226-001071	$294.00	226-001072	226-001074	$304.00
3/4	2-1/4	3/4	5	226-001080	$326.00	226-001081	$365.73	226-001082	226-001084	$378.25
1	2-1/4	1	5	226-001090	$541.50	226-001091	$600.75	226-001092	226-001097	$612.75

MILL MONSTER®

2 Flute Single End X/Long



Premium Sub-Micron C-2 Carbide with 10% Cobalt

Proudly Made in the U.S.A.

- 30° Helix RHS / RHC
- Center Cutting
- 2 Flute Geometry allows for maximum chip removal

- APPLICATIONS:
  Deep Pocket Milling and Long Reach Applications

- MATERIALS:
  Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Type Materials

SQUARE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAIN ITEM #	LIST PRICE
1/8	1	1/8	3	216-001001	$29.75	216-001002	$35.00	216-001003	216-001004	$37.75
5/32	1-1/8	3/16	3	216-001005	$39.25	216-001006	$47.50	216-001007	216-001008	$48.50
3/16	1-1/8	3/16	3	216-001010	$34.75	216-001011	$43.00	216-001012	216-001013	$44.00
1/4	1-1/2	1/4	4	216-001020	$51.25	216-001021	$63.00	216-001022	216-001023	$67.00
5/16	1-5/8	5/16	4	216-001030	$62.25	216-001031	$76.00	216-001032	216-001033	$83.00
3/8	1-3/4	3/8	4	216-001040	$72.25	216-001041	$87.25	216-001042	216-001043	$97.00
7/16	3	7/16	6	216-001050	$143.50	216-001051	$174.75	216-001052	216-001053	$182.50
1/2	3	1/2	6	216-001054	$169.25	216-001061	$202.50	216-001062	216-001063	$210.50
5/8	3	5/8	6	216-001070	$313.25	216-001071	$359.50	216-001072	216-001073	$375.50
3/4	3	3/4	6	216-001080	$383.50	216-001081	$436.50	216-001082	216-001083	$464.75
1	3	1	6	216-001090	$593.75	216-001091	$672.75	216-001092	216-001093	$688.75

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAIN ITEM #	LIST PRICE
1/8	1	1/8	3	227-001001	$36.00	227-001002	$41.25	227-001003	227-001004	$44.00
5/32	1-1/8	3/16	3	227-001005	$46.75	227-001006	$55.00	227-001007	227-001008	$56.00
3/16	1-1/8	3/16	3	227-001010	$42.25	227-001011	$50.50	227-001012	227-001013	$51.50
1/4	1-1/2	1/4	4	227-001020	$60.25	227-001021	$72.00	227-001022	227-001023	$76.00
5/16	1-5/8	5/16	4	227-001030	$72.25	227-001031	$86.00	227-001032	227-001033	$93.00
3/8	1-3/4	3/8	4	227-001040	$86.00	227-001041	$101.00	227-001042	227-001043	$110.75
7/16	3	7/16	6	227-001050	$166.50	227-001051	$197.75	227-001052	227-001053	$205.50
1/2	3	1/2	6	227-001054	$192.25	227-001061	$225.50	227-001062	227-001064	$233.50
5/8	3	5/8	6	227-001070	$354.50	227-001071	$400.75	227-001072	227-001074	$416.75
3/4	3	3/4	6	227-001080	$443.50	227-001081	$496.50	227-001082	227-001084	$524.75
1	3	1	6	227-001090	$676.25	227-001091	$755.25	227-001092	227-001094	$771.25

4 Flute Single End X/Long

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting

- APPLICATIONS:
  Profiling, Slotting, Deep Pocket Milling and Long Reach Applications

- MATERIALS:
  Ferrous Metals, Stainless Steel and High Temperature Alloys

SQUARE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/8	1	1//8	3	218-001001	$29.75	218-001002	$35.00	218-001003	218-001004	$37.75
5/32	1-1/8	3/16	3	218-001005	$39.25	218-001006	$47.50	218-001007	218-001008	$48.50
3/16	1-1/8	3/16	3	218-001010	$34.75	218-010011	$43.00	218-001012	218-001013	$44.00
1/4	1-1/2	1/4	4	218-001020	$51.25	218-001021	$63.00	218-001024	218-001023	$67.00
5/16	1-5/8	5/16	4	218-001030	$62.25	218-001031	$76.00	218-001032	218-001033	$83.00
3/8	1-3/4	3/8	4	218-001040	$72.25	218-001039	$87.25	218-001036	218-001038	$97.00
7/16	3	7/16	6	218-001050	$143.50	218-001051	$174.75	218-001052	218-001053	$182.50
1/2	3	1/2	6	218-001053AA	$169.25	218-001056	$202.50	218-001057	218-001058	$210.50
5/8	3	5/8	6	218-001070	$313.25	218-001071	$359.50	218-001072	218-001073	$375.50
3/4	3	3/4	6	218-001080	$383.50	218-001082	$436.50	218-001086	218-001079	$464.75
3/4	4	3/4	7	218-001081	$664.25	218-001083	$734.00	218-001087	218-001084	$770.50
1	3	1	6	218-001090	$593.75	218-001088	$672.75	218-001097	218-001094	$688.75
1	4	1	7	218-001091	$942.50	218-001089	$1,049.50	218-001098	218-001095	$1,066.75

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/8	1	1//8	3	229-001001	$36.00	229-001002	$41.25	229-001003	229-001004	$44.00
5/32	1-1/8	3/16	3	229-001005	$46.75	229-001006	$55.00	229-001008	229-001009	$56.00
3/16	1-1/8	3/16	3	229-001010	$42.25	229-001011	$50.50	229-001012	229-001014	$51.50
1/4	1-1/2	1/4	4	229-001020	$60.25	229-001021	$72.00	229-001022	229-001024	$76.00
5/16	1-5/8	5/16	4	229-001030	$72.25	229-001031	$86.00	229-001032	229-001034	$93.00
3/8	1-3/4	3/8	4	229-001040	$86.00	229-001041	$101.00	229-001042	229-001044	$110.75
7/16	3	7/16	6	229-001050	$166.50	229-001051	$197.75	229-001052	229-001053	$205.50
1/2	3	1/2	6	229-001053AA	$192.25	229-001066	$225.50	229-001067	229-001068	$233.50
5/8	3	5/8	6	229-001070	$354.50	229-001071	$400.75	229-001072	229-001074	$416.75
3/4	3	3/4	6	229-001080	$443.50	229-001081	$496.50	229-001082	229-001084	$524.75
1	3	1	6	229-001090	$676.25	229-001091	$755.25	229-001092	229-001094	$771.25

MILL MONSTER®

2 Flute Single End Extended Length

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting
- 2 Flute Geometry allows for maximum chip removal

- APPLICATIONS:
  Deep Pocket Milling and Long Reach Applications

- MATERIALS:
  Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Type Materials

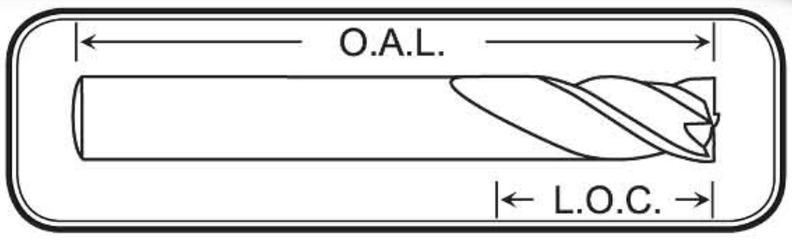
SQUARE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/4	1-1/2	1/4	6	216-001025	$79.50	216-001027	$91.25	216-001028	216-001029	$95.25
5/16	1-1/2	5/16	6	216-001034	$99.25	216-001035	$113.00	216-001036	216-001034A	$120.00
3/8	1-1/2	3/8	6	216-001045	$124.00	216-001046	$139.00	216-001047	216-001048	$148.75
1/2	1-1/2	1/2	6	216-001053A	$161.50	216-001057	$194.75	216-001058	216-001059	$202.75
5/8	1-1/2	5/8	6	216-001074	$304.75	216-001076	$351.00	216-001075	216-001074A	$367.00
3/4	1-1/2	3/4	6	216-001084	$373.25	216-001085	$426.25	216-001086	216-001084A	$454.50
1	1-1/2	1	6	216-001095	$581.25	216-001097	$660.25	216-001098	216-001096	$676.25

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/4	1-1/2	1/4	6	227-001025	$88.50	227-001027	$100.25	227-001028	227-001029	$104.25
5/16	1-1/2	5/16	6	227-001033A	$109.25	227-001033C	$123.00	227-001033D	227-001033B	$130.00
3/8	1-1/2	3/8	6	227-001035	$137.75	227-001049	$152.75	227-001037	227-001035A	$162.50
1/2	1-1/2	1/2	6	227-001053A	$184.50	227-001057	$217.75	227-001058	227-001059	$225.75
5/8	1-1/2	5/8	6	227-001073A	$346.00	227-001073C	$392.25	227-001073D	227-001073B	$408.25
3/4	1-1/2	3/4	6	227-001085	$433.25	227-001085A	$486.25	227-001085B	227-001086	$514.50
1	1-1/2	1	6	227-001088	$663.75	227-001088A	$742.75	227-001088C	227-001089	$758.75

4 Flute Single End Extended Length



Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting

- APPLICATIONS:
  Profiling, Slotting, Deep Pocket Milling and Long Reach Applications

- MATERIALS:
  Ferrous Metals, Stainless Steel and High Temperature Alloys

Proudly Made in the U.S.A.

SQUARE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAIN ITEM #	LIST PRICE
1/4	1-1/2	1/4	6	218-001025	$79.50	218-001026	$91.25	218-001027	218-001028	$95.25
5/16	1-1/2	5/16	6	218-001029	$99.25	218-001029AA	$113.00	218-001029B	218-001029A	$120.00
3/8	1-1/2	3/8	6	218-001045	$124.00	218-001046	$139.00	218-001048	218-001047	$148.75
1/2	1-1/2	1/2	6	218-001053A	$161.50	218-001061	$194.75	218-001062	218-001059	$202.75
5/8	1-1/2	5/8	6	218-001074	$304.75	218-001075	$351.00	218-001076	218-001074A	$367.00
3/4	1-1/2	3/4	6	218-001101	$373.25	218-001101A	$426.25	218-001101B	218-001102	$454.50
1	1-1/2	1	6	218-001103	$581.25	218-001105	$660.25	218-001106	218-001104	$676.25

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAIN ITEM #	LIST PRICE
1/4	1-1/2	1/4	6	229-001026	$88.50	229-001026A	$100.25	229-001026C	229-001027	$104.25
5/16	1-1/2	5/16	6	229-001035	$109.25	229-001035A	$123.00	229-001035C	229-001036	$130.00
3/8	1-1/2	3/8	6	229-001046	$137.75	229-001048	$152.75	229-001049	229-001047	$162.50
1/2	1-1/2	1/2	6	229-001053A	$184.50	229-001055	$217.75	229-001056	229-001057	$225.75
5/8	1-1/2	5/8	6	229-001076	$346.00	229-001076A	$392.25	229-001076C	229-001077	$408.25
3/4	1-1/2	3/4	6	229-001085	$433.25	229-001085A	$486.25	229-001085C	229-001086	$514.50
1	1-1/2	1	6	229-001095	$663.75	229-001095A	$742.75	229-001095C	229-001096	$758.75

MILL MONSTER®

Proudly Made in the U.S.A.

2 Flute Double End Stub

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

Premium Sub-Micron C-2 Carbide with 10% Cobalt

- 30° Helix RHS / RHC
- Center Cutting
- Double End Tools offer Significant Cost Saving Over Single End Tools
- Maximum Chip Clearance
- MATERIALS: Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Materials

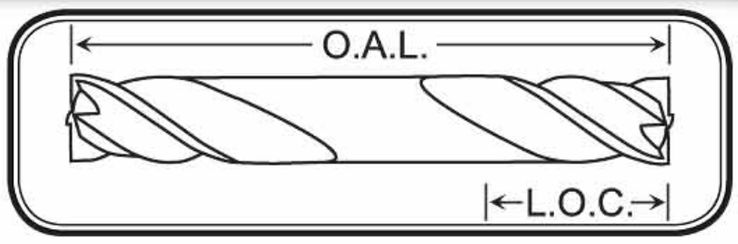
SQUARE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	234-001001	$29.75	234-001002	$34.50	234-001003	234-001004	$40.25
3/64	3/32	1/8	1-1/2	234-001010	$29.75	234-001011	$34.50	234-021010	234-031010	$40.25
1/16	1/8	1/8	1-1/2	234-001011A	$24.25	234-001021	$29.00	234-001022	234-001015	$34.75
5/64	1/8	1/8	1-1/2	234-001012	$24.25	234-001013	$29.00	234-001014	234-001024	$34.75
3/32	3/16	1/8	1-1/2	234-001030	$24.25	234-001031	$29.00	234-001033	234-001034	$34.75
7/64	3/16	1/8	1-1/2	234-001035	$24.25	234-001036	$29.00	234-001037	234-001038	$34.75
1/8	1/4	1/8	1-1/2	234-001040	$21.75	234-001041	$26.50	234-021040	234-001044	$32.25
9/64	5/16	3/16	2	234-001042	$38.75	234-001043	$46.50	234-001048	234-001049	$51.75
5/32	5/16	3/16	2	234-001050	$38.75	234-001051	$46.50	234-001052	234-001054	$51.75
11/64	5/16	3/16	2	234-001055	$38.75	234-001056	$46.50	234-001057	234-001058	$51.75
3/16	3/8	3/16	2	234-001060	$29.75	234-001061	$37.50	234-021061	234-001059	$42.75
13/64	1/2	1/4	2-1/2	234-001063	$46.25	234-001064	$59.50	234-001065	234-001066	$62.00
7/32	1/2	1/4	2-1/2	234-001070	$46.25	234-001071	$59.50	234-001072	234-001074	$62.00
15/64	1/2	1/4	2-1/2	234-001075	$46.25	234-001076	$59.50	234-001077	234-001078	$62.00
1/4	1/2	1/4	2-1/2	234-001080	$38.75	234-001081	$52.00	234-021081	234-001084	$54.50
9/32	1/2	5/16	2-1/2	234-001082	$58.75	234-001086	$74.75	234-001087	234-001088	$83.50
5/16	1/2	5/16	2-1/2	234-001090	$49.75	234-001091	$65.75	234-001092	234-001093	$74.50
11/32	9/16	3/8	2-1/2	234-001094	$63.25	234-001095	$81.25	234-001096	234-001098	$89.75
3/8	9/16	3/8	2-1/2	234-001100	$53.25	234-001101	$71.25	234-001102	234-001104	$79.75
7/16	9/16	7/16	2-3/4	234-001110	$83.75	234-001111	$109.75	234-021111	234-001114	$114.25
1/2	5/8	1/2	3	234-001120	$92.25	234-001121	$119.25	234-021121	234-001124	$124.50

BALLNOSE

DIA.	LOC	SHANK DIA.	OAL	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	240-001001	$39.75	240-001005	$44.50	240-021001	240-031001	$50.25
3/64	3/32	1/8	1-1/2	240-001001A	$39.75	240-001011	$44.50	240-021010	240-031010	$50.25
1/16	1/8	1/8	1-1/2	240-001002	$31.75	240-001021	$36.50	240-021002	240-031003	$42.25
5/64	1/8	1/8	1-1/2	240-001003	$31.75	240-001013	$36.50	240-021003	240-031002	$42.25
3/32	3/16	1/8	1-1/2	240-001003A	$31.75	240-001031	$36.50	240-021030	240-031030	$42.25
7/64	3/16	1/8	1-1/2	240-001004	$31.75	240-001036	$36.50	240-021004	240-031004	$42.25
1/8	1/4	1/8	1-1/2	240-001040	$29.25	240-001041	$34.00	240-021040	240-031040	$39.75
9/64	5/16	3/16	2	240-001044	$48.75	240-001043	$56.50	240-021044	240-031044	$61.75
5/32	5/16	3/16	2	240-001050	$48.75	240-001051	$56.50	240-021050	240-031050	$61.75
11/64	5/16	3/16	2	240-001055	$48.75	240-001056	$56.50	240-001057	240-031055	$61.75
3/16	3/8	3/16	2	240-001060	$39.75	240-001061	$47.50	240-021060	240-031060	$52.75
13/64	1/2	1/4	2-1/2	240-001065	$59.25	240-001066	$72.50	240-021065	240-031065	$75.00
7/32	1/2	1/4	2-1/2	240-001070	$59.25	240-001071	$72.50	240-021070	240-031070	$75.00
15/64	1/2	1/4	2-1/2	240-001075	$62.25	240-001076	$75.50	240-021075	240-031075	$78.00
1/4	1/2	1/4	2-1/2	240-001080	$54.75	240-001081	$68.00	240-021080	240-031080	$70.50
9/32	1/2	5/16	2-1/2	240-001085	$78.75	240-001086	$94.75	240-021085	240-031085	$103.50
5/16	1/2	5/16	2-1/2	240-001090	$69.75	240-001091	$85.75	240-021090	240-031090	$94.50
11/32	9/16	3/8	2-1/2	240-001094	$88.25	240-001095	$106.25	240-021094	240-031094	$114.75
3/8	9/16	3/8	2-1/2	240-001100	$78.25	240-001101	$96.25	240-021100	240-031100	$104.75
7/16	9/16	7/16	2-3/4	240-001110	$112.25	240-001111	$138.25	240-021110	240-031110	$142.75
1/2	5/8	1/2	3	240-001120	$123.25	240-001121	$150.25	240-021120	240-031120	$155.50

4 Flute Double End Stub



SQUARE

DIA.	LOC	SHANK DIA.	OAL	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	236-001001	$29.75	236-001011	$34.50	236-001003	236-001004	$40.25
3/64	3/32	1/8	1-1/2	236-001010	$29.75	236-001012	$34.50	236-001013	236-001014	$40.25
1/16	1/8	1/8	1-1/2	236-001020	$24.25	236-001021	$29.00	236-001028	236-031025	$34.75
5/64	1/8	1/8	1-1/2	236-001025	$24.25	236-001026	$29.00	236-021025	236-001027	$34.75
3/32	3/16	1/8	1-1/2	236-001030	$24.25	236-001031	$29.00	236-001037	236-001034	$34.75
7/64	3/16	1/8	1-1/2	236-001035	$24.25	236-001036	$29.00	236-021036	236-031035	$34.75
1/8	1/4	1/8	1-1/2	236-001040	$21.75	236-001041	$26.50	236-001045	236-001047	$32.25
9/64	5/16	3/16	2	236-001042	$38.75	236-001044	$46.50	236-021044	236-031042	$51.75
5/32	5/16	3/16	2	236-001050	$38.75	236-001051	$46.50	236-001053	236-001054	$51.75
11/64	5/16	3/16	2	236-001055	$38.75	236-001056	$46.50	236-021055	236-001057	$51.75
3/16	3/8	3/16	2	236-001060	$29.75	236-001061	$37.50	236-001062	236-001064	$42.75
13/64	1/2	1/4	2-1/2	236-001065	$46.25	236-001066	$59.50	236-021065	236-031065	$62.00
7/32	1/2	1/4	2-1/2	236-001070	$46.25	236-001071	$59.50	236-001073	236-001074	$62.00
15/64	1/2	1/4	2-1/2	236-001075	$46.25	236-001076	$59.50	236-021075	236-031075	$62.00
1/4	1/2	1/4	2-1/2	236-001080	$38.75	236-001081	$52.00	236-001083	236-001085	$54.50
9/32	1/2	5/16	2-1/2	236-001082	$58.75	236-001087	$74.75	236-001088	236-001089	$83.50
5/16	1/2	5/16	2-1/2	236-001090	$49.75	236-001091	$65.75	236-001093	236-001094	$74.50
11/32	9/16	3/8	2-1/2	236-001092	$63.25	236-001095	$81.25	236-001096	236-031092	$89.75
3/8	9/16	3/8	2-1/2	236-001100	$53.25	236-001101	$71.25	236-001102	236-001103	$79.75
7/16	9/16	7/16	2-3/4	236-001110	$83.75	236-021111	$109.75	236-001111	236-031110	$114.25
1/2	5/8	1/2	3	236-001120	$92.25	236-001121	$119.25	236-001122	236-001124	$124.50

Premium Sub-Micron C-2 Carbide with 10% Cobalt

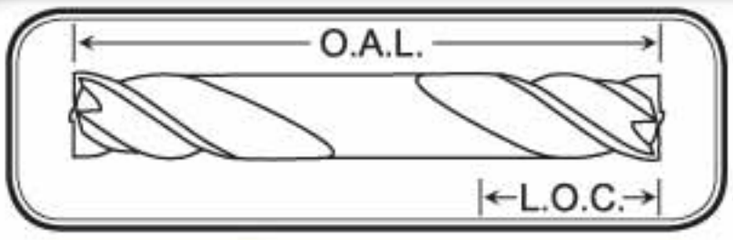
- 30° Helix RHS / RHC
- Center Cutting
- Stub Length Promotes Rigidity
- Reduces Tool Deflection
- Increased Speeds and Feeds
- Ballnose Ends Allow for Three Axis Contour Slotting and Contour Finishing

BALLNOSE

DIA.	L.O.C.	SHANK DIA.	O.A.L.	UNCOATED ITEM #	LIST PRICE	TiN ITEM #	LIST PRICE	TiCN ITEM #	TiAlN ITEM #	LIST PRICE
1/32	1/16	1/8	1-1/2	242-001001	$39.75	242-001011	$44.50	242-021001	242-031011	$50.25
3/64	3/32	1/8	1-1/2	242-001010	$39.75	242-001012	$44.50	242-021010	242-031012	$50.25
1/16	1/8	1/8	1-1/2	242-001010A	$31.75	242-001021	$36.50	242-001022	242-031026	$42.25
5/64	1/8	1/8	1-1/2	242-001019	$31.75	242-001026	$36.50	242-001027	242-031021	$42.25
3/32	3/16	1/8	1-1/2	242-001030	$31.75	242-001031	$36.50	242-001032	242-031031	$42.25
7/64	3/16	1/8	1-1/2	242-001035	$31.75	242-001036	$36.50	242-001037	242-031036	$42.25
1/8	1/4	1/8	1-1/2	242-001040	$29.25	242-001041	$34.00	242-001042	242-001043	$39.75
9/64	5/16	3/16	2	242-001044	$48.75	242-001045	$56.50	242-001046	242-031044	$61.75
5/32	5/16	3/16	2	242-001050	$48.75	242-001051	$56.50	242-001052	242-001053	$61.75
11/64	5/16	3/16	2	242-001055	$48.75	242-001056	$56.50	242-001057	242-031055	$61.75
3/16	3/8	3/16	2	242-001060	$39.75	242-001061	$47.50	242-001062	242-001063	$52.75
13/64	1/2	1/4	2-1/2	242-001065	$59.25	242-001066	$72.50	242-001067	242-031065	$75.00
7/32	1/2	1/4	2-1/2	242-001070	$59.25	242-001071	$72.50	242-001072	242-031070	$75.00
15/64	1/2	1/4	2-1/2	242-001075	$62.25	242-001076	$75.50	242-001077	242-031075	$78.00
1/4	1/2	1/4	2-1/2	242-001080	$54.75	242-001081	$68.00	242-001082	242-001083	$70.50
9/32	1/2	5/16	2-1/2	242-001085	$78.75	242-001087	$94.75	242-001088	242-031085	$103.50
5/16	1/2	5/16	2-1/2	242-001090	$69.75	242-001091	$85.75	242-001093	242-001094	$94.50
11/32	9/16	3/8	2-1/2	242-001092	$88.25	242-001095	$106.25	242-001096	242-031092	$114.75
3/8	9/16	3/8	2-1/2	242-001100	$78.25	242-001101	$96.25	242-001102	242-001104	$104.75
7/16	9/16	7/16	2-3/4	242-001110	$112.25	242-001111	$138.25	242-001112	242-001114	$142.75
1/2	5/8	1/2	3	242-001120	$123.25	242-001121	$150.25	242-001122	242-001124	$155.50

MILL MONSTER®

Double End Regular



Proudly Made in the U.S.A.

Premium Sub-Micron C-2 Carbide with 10% Cobalt

TOLERANCES	
Cutting Diameter	Shank Dia.
+.000 / -.002	+.0000 / -.0005

- 30° Helix RHS / RHC
- Center Cutting

- 2 Flute Geometry allows for maximum chip removal
- APPLICATIONS:
  Pocketing, Production Milling and Finishing Applications
- MATERIALS:
  Cast Iron, Non-Ferrous Metals, Plastics and Abrasive Type Materials

2 Flute

DIA.	L.O.C.	SHANK DIA.	O.A.L.	SQUARE ITEM #	LIST PRICE	BALL ITEM #	LIST PRICE
1/8	3/8	3/8	3	237-001001	$83.25	243-001001	$100.75
5/32	7/16	3/8	3	237-001010	$87.00	243-001010	$106.00
3/16	1/2	3/8	3	237-001020	$89.25	243-001020	$108.25
7/32	9/16	3/8	3-1/2	237-001030	$96.00	243-001030	$116.00
1/4	5/8	3/8	3-1/2	237-001040	$98.00	243-001040	$118.00
9/32	11/16	3/8	3-1/2	237-001050	$107.25	243-001050	$132.25
5/16	3/4	3/8	3-1/2	237-001060	$119.50	243-001060	$144.50
11/32	3/4	3/8	3-1/2	237-001070	$126.00	243-001070	$153.50
3/8	3/4	3/8	3-1/2	237-001080	$128.25	243-001080	$158.25
7/16	7/8	1/2	4	237-001090	$173.50	243-001090	$208.50
1/2	1	1/2	4	237-001100	$184.25	243-001100	$221.75

- Weldon Flat
- Cost Saving Double Ends

- APPLICATIONS:
  Pocketing, Production Milling and Finishing Applications
- MATERIALS:
  Ferrous Metals, Stainless Steel, and High Temperature Alloys

4 Flute

DIA.	L.O.C.	SHANK DIA.	O.A.L.	SQUARE ITEM #	LIST PRICE	BALL ITEM #	LIST PRICE
1/8	3/8	3/8	3	239-001001	$83.25	245-001001	$100.75
5/32	7/16	3/8	3	239-001010	$87.00	245-001010	$106.00
3/16	1/2	3/8	3	239-001020	$89.25	245-001020	$108.25
7/32	9/16	3/8	3-1/2	239-001030	$96.00	245-001030	$116.00
1/4	5/8	3/8	3-1/2	239-001040	$98.00	245-001040	$118.00
9/32	11/16	3/8	3-1/2	239-001050	$107.25	245-001050	$132.25
5/16	3/4	3/8	3-1/2	239-001060	$119.50	245-001060	$144.50
11/32	3/4	3/8	3-1/2	239-001070	$126.00	245-001070	$153.50
3/8	3/4	3/8	3-1/2	239-001080	$128.25	245-001080	$158.25
7/16	7/8	1/2	4	239-001090	$173.50	245-001090	$208.50
1/2	1	1/2	4	239-001100	$184.25	245-001100	$221.75

Coatings available upon request

Speeds and Feeds Information

NOTE: All recommendations are considered as starting parameters only

Material	SFM START (RANGE)	FEED (Feed Per Tooth) Cutting Diameter 1/4	1/2	3/4	1
Aluminum/ Aluminum Alloys	1000 (800-1300)	.002	.004	.006	.008
Aluminum Alloyed Si .10%	800 (500-900)	.002	.004	.006	.008
Cast Irons -Soft	325 (250-500)	.0015	.004	.006	.008
Cast Irons -Medium	200 (100-350)	.001	.003	.005	.008
Cast Irons -Malleable	200 (150-300)	.001	.002	.004	.006
Brass	350 (300-450)	.002	.003	.004	.005
Bronze	300 (250-350)	.002	.003	.004	.005
Coppers/Copper Alloys	500 (400-900)	.002	.003	.005	.007
Magnesium	1200 (1000 min)	.002	.004	.006	.008
Nickel Alloys	150 (100-300)	.001	.002	.003	.004
Plastic	800 (600-1200)	.003	.006	.100	.015
Plastic -Glass Filled	500 (300-800)	.002	.004	.008	.012
Stainless Steels -Free Machining	350 (300-400)	.001	.002	.004	.006
Stainless Steels - Work Hardening	200 (150-300)	.0005	.001	.003	.005
Steels -Low Carbon	400 (300-600)	.001	.003	.005	.006
Steels -Medium Carbon	300 (200-500)	.001	.003	.005	.006
Steels -High Tensile (35-40 Rc)	210 (175-300)	.0005	.001	.002	.003
Steels -High Tensile (40-45 Rc)	200 (150-250)	.0005	.001	.002	.003
Steels -High Tensile (45+ Rc)	110 (75-150)	.0005	.001	.002	.003
Tool Steels	200 (150-300)	.001	.002	.003	.004
Titanium -Soft	130 (75-250)	.001	.002	.004	.006
Titanium -Hard	100 (60-150)	.0005	.001	.002	.004

Consider the following variables when trying to optimize performance:

1. Machine rigidity
2. Concentricity at spindle
3. Work piece rigidity
4. Use minimum tool O.A.L. 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

RPM

SFM	CUTTING DIAMETER 1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
10	917	306	204	153	122	102	87	76	68	61	56	51	47	44	41	38
15	1222	458	306	229	183	153	131	115	102	92	83	76	71	65	61	57
20	1528	611	407	306	244	204	175	153	136	122	111	102	94	87	81	76
25	1834	764	509	382	306	255	218	191	170	153	139	127	118	109	102	96
50	3667	1528	1019	764	611	509	437	382	340	306	278	255	235	218	204	191
100	9168	3056	2037	1528	1222	1019	873	764	679	611	556	509	470	437	407	382
150	12224	4584	3056	2292	1834	1528	1310	1146	1019	917	833	764	705	655	611	573
200	15280	6112	4075	3056	2445	2037	1746	1528	1358	1222	1111	1019	940	873	815	764
300	21392	9168	6112	4584	3667	3056	2619	2292	2037	1834	1667	1528	1410	1310	1222	1146
400	27504	12224	8149	6112	4890	4075	3493	3056	2716	2445	2223	2037	1881	1746	1630	1528
500	36672	15280	10187	7640	6112	5093	4366	3820	3396	3056	2778	2547	2351	2183	2037	1910
1000	67232	30560	20373	15280	12224	10187	8731	7640	6791	6112	5556	5093	4702	4366	4075	3820
1500	97792	45840	30560	22920	18336	15280	13097	11460	10187	9168	8335	7640	7052	6549	6112	5730
2000	---	61120	40747	30560	24448	20373	17463	15280	13582	12224	11113	10187	9403	8731	8149	7640

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