
AHB
TOOLING & MACHINERY
COMPLETE METALWORKING SOLUTIONS
(800) 991-4225
ISO Certified
www.ahbinc.com
customerservice@ahbinc.com
GORILLA MILL®
HIGH PERFORMANCE CUTTING TOOLS
FULL PRODUCT LINE
END MILLS | DRILLS | THREAD MILLS | 3D SURFACING | REGRINDS | SPECIALS
WEAPONS OF MASS PRODUCTION®

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HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE CUTTING TOOLS

3 FLUTE | 4 FLUTE | 5 FLUTE | 6 FLUTE | 7 FLUTE

HIGH PERFORMANCE ALUMINUM CUTTING TOOLS

2 FLUTE | 3 FLUTE

HIGH PERFORMANCE DIE/MOLD CHIMPS

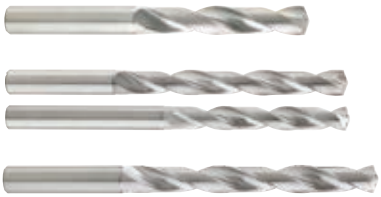
2 FLUTE

STANDARD PERFORMANCE CUTTING TOOLS

2 FLUTE | 3 FLUTE | 4 FLUTE

HIGH PERFORMANCE DRILLS

3X | 5X | 7X



STANDARD & HIGH PERFORMANCE CHAMFER MILLS

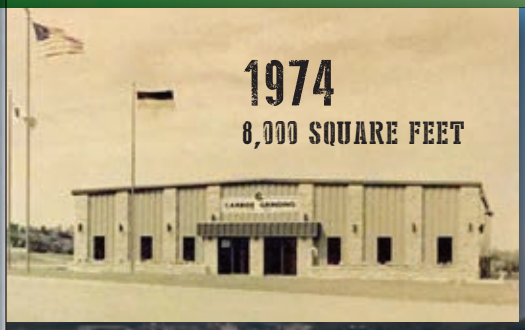
2 FLUTE | 3 FLUTE | 4 FLUTE | 5 FLUTE

HIGH PERFORMANCE THREADMILLS

SUPER BITCHIN' PERFORMANCE PICATINNY FORM CUTTERS

3 FLUTE | 4 FLUTE | 5 FLUTE

OUR HISTORY



- Carbide Grinding Co., Inc. (CGC) founded in 1974 in Waukesha, WI
- In 1979, moved to an 8,000 sq ft facility
- Produced special and customized tooling for local companies such as Harley-Davidson®, Snap On Tools, and Milwaukee Electric for almost 40 years.
- In 2005, defeated a nationally produced, end milling cutter at Snap On Tools
- Gorilla Mill name is born and in 2006 Gorilla Mill goes national

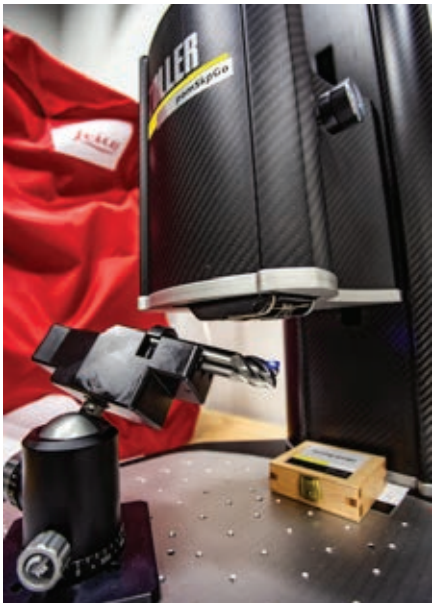
2018
24,000 SQ FT FACILITY

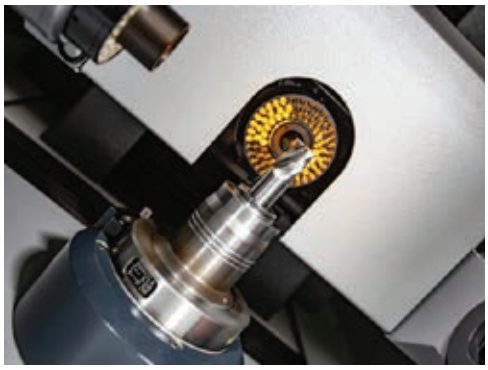
In the summer of 2005, the face of High-Performance milling forever changed with the birth of Gorilla Mill. These tools, with eye-popping patented results and a disruptive marketing attitude, has forever transformed the industry.

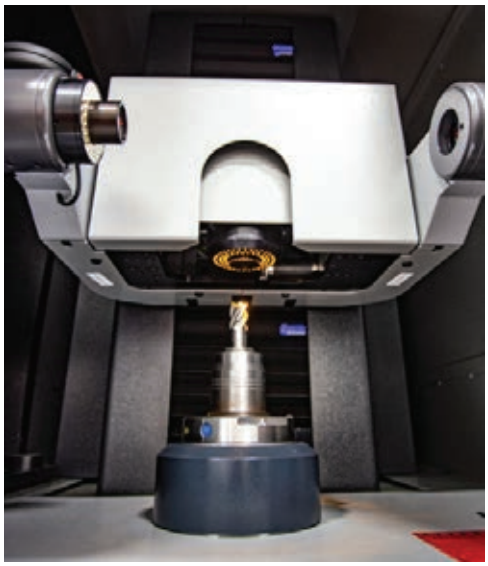
The family-owned company out of Waukesha, Wisconsin continues to stomp the snot out of multi-billion dollar cutting tool companies that have been around 50-100 years.

QUALITY ASSURANCE

Our primary responsibility is to ensure the accuracy and consistency of product being manufactured. We have an array of quality inspection equipment including three Eurotech PG1000's with up to 145x magnification, a Leica M205 C computerized photo microscope with up to 500x magnification, a Zoller pomSkpGo for edge prep measurements at 100x magnification and two Zoller Genius3 machines which are CNC controlled programmable inspection machines with 50X magnification.







Our equipment is regularly serviced, updated, and calibrated by qualified manufacturer service technicians. All work performed is documented as accurate in accordance with the original manufacturers standards.

This equipment also allows us to assist in research and development of new product before testing and going to market. In some cases we have the ability to reverse engineer from existing product in the case of special tooling as it may be required by a customer.

All product produced goes through a number of inspections. No orders are released for full production until inspection has been performed and is satisfied by the requirements of the Gorilla Mill Quality Control Department. Once an order has been completed and all production operations have been verified, a final inspection of product is performed.

CUSTOM TOOLING

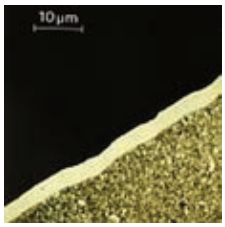
40+ years of experience producing some of the most complex tools in the industry. Per tool print or part print.

GORILLA MILL IS NOT LIMITED TO END MILLS.

- Coolant-Fed Tooling
- Form Tools
- Keyseat Cutters
- Dovetail Cutters
- Lollipop Cutters
- Concave Radius Cutters
- Radius Cutters
- Tapered End Mills
- Drill Mills
- Porting Tool
- Step Drills
- Die/Mold Cutters

JUST CALL US AT **866.888.9600** OR EMAIL US AT **ORDERS@GORILLAMILL.COM** TO GET YOUR CUSTOM TOOL QUOTED.

HIGH PERFORMANCE
COATINGS



Gorilla Coatings

Gorilla coatings are just a few thousandths of a millimeter thick but harder than steel; these low-friction coatings are extremely wear-resistant and chemically inert. The optimum coating is determined on the basis of both conditions of use and economic considerations.

GMX-35

Newly formulated, special high-performance coating for high speed machining. GMX-35 performance surpasses all conventional coatings. This universal high-performance coating is especially designed for milling and drilling. Also suitable for dry machining.

GMS²

Introducing a revolutionary, newly formulated, PVD coating process. GMS² marks a breakthrough in PVD deposition technology. The performance and hardness stem from the coating's unique structure. GMS² is specifically designed to punish high temp alloys.

GDX-59

Introducing a revolutionary, newly formulated, PVD coating process. This process marks a breakthrough in PVD deposition technology. The performance and hardness of GDX-59 greatly increases tool life in drilling applications.

Coating	TiAlN	ZrN	GMX-35	GDX-59	GMS²
Structure	Multilayer	Monolayer	Gradient	Gradient	Gradient
Nanohardness (GPa)	28	20	32	35	32
Friction (fretting) Coefficient	0.6	0.4	0.35	0.35	0.30
Thickness (µm)	2-4	2-4	2-4	2-4	2-4
Maximum Working Temperature	700° C (1290° F)	550° C (1020° F)	1100° C (2012° F)	1000° C (1832° F)	1100° C (2012° F)
Color	Violet	Pale Yellow	Silver-Gray	Silver-Gray	Bright-Gray

Standard coating process temperature is 475° C (890° F).

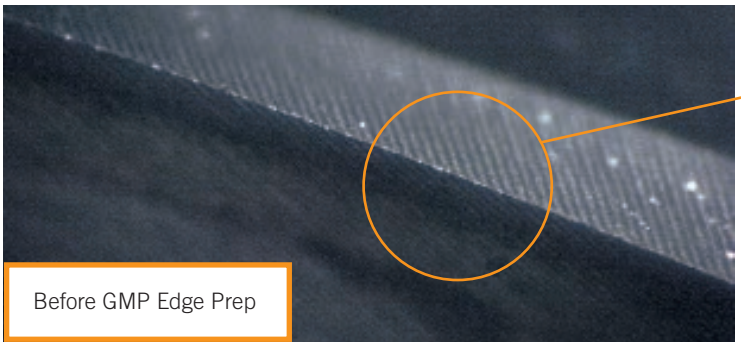
GMP EDGE PREP

Tool edge preparation is one of the four main factors in successful cutting tool manufacturing. The other three factors include tool substrate composition, tool geometry, and proper coating. While considerable resources have been channeled into making the processes of tool composition, tool geometry and coating more reliable and repeatable, tool edge preparation is fast becoming a necessity on all cutting tools manufactured of cemented carbide because of increased performance demands.

Edge defects are present in nearly all tools prior to edge prep. The defects are the result of the grinding process. Although microscopic in size, these defects must be eliminated to achieve optimum tool performance.

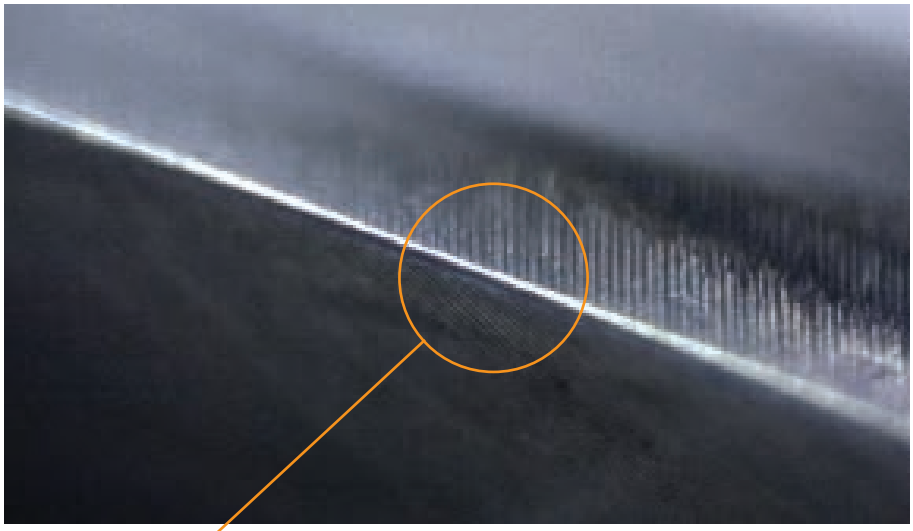
The tool edge preparation process, adds strength to the tool cutting edge, lengthens usable tool life, minimizes the propensity of the edge to chip, improves part quality and consistency, and enhances work piece surface finish.

With GMP Edge Prep, we have taken edge preparation to the next level, making it a science. Now the technology and equipment exists to overcome nearly all the current processing problems and to produce a tool that will yield optimum performance in any given operation or application.



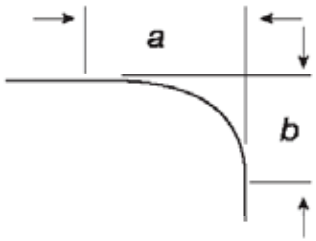
Seen here at 145x magnification the “ridges” created by the grinding process can create a fracture point on the sharp cutting edge of carbide.

Before GMP Edge Prep



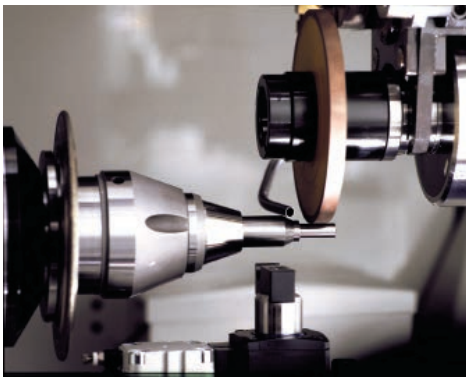
GMP technology hones these “ridges” in a controlled environment to reduce the fracturing that occurs to the cutting edge during the milling process while greatly increasing tool life and enhancing finish.

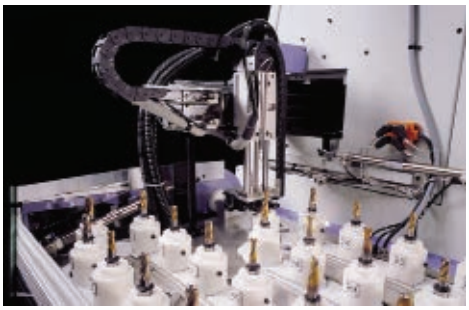
GMP Hone Shape



REGRINDS

The vast majority of your tooling that Gorilla Mill or anyone else manufactures can be re-sharpened and recoated to “like new” condition on one of our state-of-the-art CNC tool and cutter grinders at a fraction of a new tool’s cost. At Gorilla Mill, our goal is to show cost savings while maintaining a high accuracy rate. Whether it’s Gorilla Mills,® or other variable end mills, standard end mills, Gorilla Drills or any other high performance drills, Gorilla Mill has over 40 years of knowledge and experience to help your bottom line.



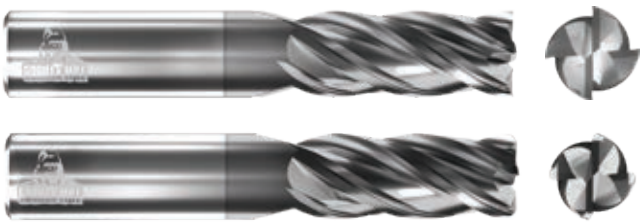


Strong Protection for Regrinds

How do you pack a gorilla for a trip? If your gorilla is a Gorilla Mill end mill heading back to Gorilla Mill for regrinding, you pack it in our proprietary monkey grinding box. This heavy-duty mini crate with interior padding is perfect for protecting your end mills in transit. Simply request the box from us. Then all you’ve got to do is place your end mills inside and close the box using the built-in fasteners. We also recommend you wrap the box with a fiber tape for secure shipping. After we’ve reground your mills, we’ll ship them back to you in the same secure package. Just keep the crate and use for the next re-grinding.

HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE (INCH)

HIGH PERFORMANCE | GMX-35 COATED



Patented variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

PATENT NO. 7,367,754

SUPER BITCHIN' PERFORMANCE | GMS² COATED

Based off the original Patented 4-flute Gorilla Mill, the Gorilla Mill Yeti is built tough for heavy roughing in all materials especially high temperature alloys. Its GMS² coating and geometric enhancements allow for work on difficult-to-machine materials including: Inconel, Waspaloy, Hastelloy, Rene, Stellite, 17-4 SS, 15-5 SS, 13-8 SS, and Titanium. The Gorilla Mill Yeti is a monster in full slotting applications with very large material removal rates in all materials.

Available in special diameters, lengths and completely resharpenable.

PATENT NO. 7,367,754

See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog.

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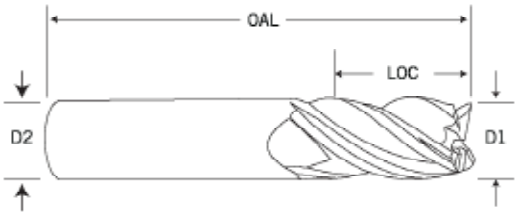
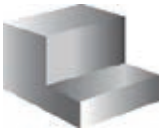
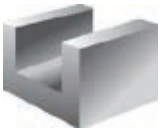
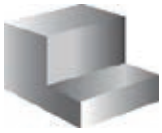


TOLERANCES	TOLERANCES
Cut Dia +.000/-.002	Cut Dia +.000/-.050mm
Shank Dia -.0001/-.0005	Shank Dia -.0025/-.0127mm
LOC +.025/+.050	LOC +.635/+1.270mm
OAL +/-.050	OAL +/-1.270mm

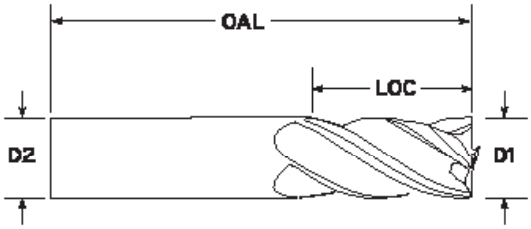
MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

PROFILING	FULL SLOTTING	POCKETING	HIGH-VELOCITY
			

HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS

4 FLUTE (INCH) SQUARE



SQUARE END

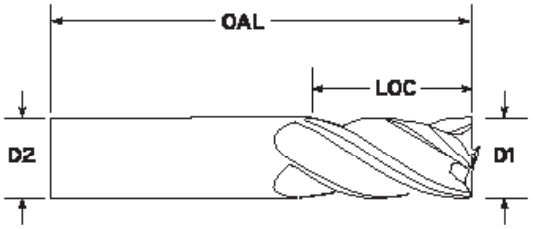
Speeds & Feeds Chart Page 166 & 174

HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
1/8	1/8	1/4	1-1/2	GM18FS4	10309	$22.26	GMRF18FS4	00175	$25.30
1/8	1/8	1/2	1-1/2	GM18F4	10305	$23.35	GMRF18F4	00174	$26.55
1/8	1/8	1	3	GM18FL4	10307	$29.66	N/A	–	–
5/32	3/16	1/2	2	GM532F4	10535	$25.52	N/A	–	–
3/16	3/16	3/8	2	GM316FS4	10348	$23.44	GMRF316FS4	00197	$26.64
3/16	3/16	5/8	2	GM316F4	10344	$24.17	GMRF316F4	00196	$27.46
3/16	3/16	1-1/4	3	GM316FL4	10346	$30.42	N/A	–	–
1/4	1/4	1/2	2	GM14FS4	10252	$25.25	GMRF14FS4	00146	$27.56
1/4	1/4	3/4	2-1/2	GM14F4	10248	$26.55	GMRF14F4	00144	$29.02
1/4	1/4	1-1/4	3	GM14FL4	10250	$31.04	GMRF14FL4	00145	$43.53
1/4	1/4	1-1/2	4	GM14FXL4	10256	$34.16	GMRF14FXL4	00147	$45.39
1/4	1/4	3	6	GM14FSL4	10254	$89.65	N/A	–	–
5/16	5/16	1/2	2	GM516FS4	10506	$32.53	GMRF516FS4	00266	$36.56
5/16	5/16	7/8	2-1/2	GM516F4	10502	$33.90	GMRF516F4	00264	$38.09
5/16	5/16	1-1/4	3	GM516FL4	10504	$42.59	GMRF516FL4	00265	$47.86
5/16	5/16	1-1/2	4	GM516FXL4	10508	$49.80	N/A	–	–
3/8	3/8	5/8	2	GM38FS4	10460	$37.99	GMRF38FS4	00246	$40.55
3/8	3/8	7/8	2-1/2	GM38F4	10456	$39.97	GMRF38F4	00244	$42.67
3/8	3/8	1-1/4	3	GM38FL4	10458	$50.18	GMRF38FL4	00245	$49.89
3/8	3/8	2	4	GM38FXL4	10464	$55.51	GMRF38FXL4	00247	$56.68
3/8	3/8	3	6	GM38FSL4	10462	$99.80	N/A	–	–
7/16	7/16	5/8	2-1/2	GM716FS4	10595	$50.32	GMRF716FS4	00303	$55.94
7/16	7/16	5/8	2-1/2	GM716FS4WF	10596	$50.32	GMRF716FS4WF	00304	$55.94
7/16	7/16	1	2-1/2	GM716F4	10592	$52.80	GMRF716F4	00301	$58.66
7/16	7/16	1	2-1/2	GM716F4WF	10593	$52.80	GMRF716F4WF	00302	$58.66
1/2	1/2	5/8	2-1/2	GM12FS4	10165	$62.70	GMRF12FS4	00101	$66.19
1/2	1/2	5/8	2-1/2	GM12FS4WF	10166	$62.70	GMRF12FS4WF	00102	$66.19
1/2	1/2	1	3	GM12FH4	10160	$65.59	GMRF12FH4	00098	$72.89
1/2	1/2	1	3	GM12FH4WF	10161	$65.59	GMRF12FH4WF	00099	$72.89
1/2	1/2	1-1/4	3	GM12F4	10157	$65.59	GMRF12F4	00096	$72.88
1/2	1/2	1-1/4	3	GM12F4WF	10158	$65.59	GMRF12F4WF	00097	$72.88
1/2	1/2	1-1/2	4	GM12FL4	10163	$74.90	GMRF12FL4	00100	$81.58
1/2	1/2	1-1/2	4	GM12FL4WF	10906	$83.23	GMRF12FL4WF	00327	$89.92
1/2	1/2	1-5/8	4	N/A	–		GMRF12FLH4	00321	$85.26
1/2	1/2	1-5/8	4	N/A	–		GMRF12FLH4WF	00333	$93.59
1/2	1/2	2	4	GM12FXL4	10170	$84.20	GMRF12FXL4	00103	$88.85
1/2	1/2	2	4	GM12FXL4WF	10912	$92.53	GMRF12FXL4WF	00339	$97.19
1/2	1/2	3	6	GM12FSL4	10168	$109.79	N/A	–	–

4 FLUTE (INCH) SQUARE



SQUARE END

Speeds & Feeds Chart Page 166 & 174

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	HIGH PERFORMANCE | GMX-35 COATED SKU WF= Weldon Flat	EDP	LIST PRICE	SUPER BITCHIN' PERFORMANCE | GMS² COATED SKU WF= Weldon Flat	EDP	LIST PRICE
5/8	5/8	3/4	3-1/2	**GM58FS4**	10545	$117.65	**GMRF58FS4**	00279	$120.21
5/8	5/8	3/4	3-1/2	**GM58FS4WF**	10546	$117.65	**GMRF58FS4WF**	00280	$120.21
5/8	5/8	1-1/4	3-1/2	**GM58F4**	10540	$123.40	**GMRF58F4**	00276	$126.76
5/8	5/8	1-1/4	3-1/2	**GM58F4WF**	10541	$123.40	**GMRF58F4WF**	00277	$126.76
5/8	5/8	2	4	**GM58FL4**	10543	$143.14	**GMRF58FL4**	00278	$147.04
5/8	5/8	2	4	**GM58FL4WF**	10918	$153.03	**GMRF58FL4WF**	00345	$156.94
5/8	5/8	3	6	**GM58FXL4**	10548	$166.94	**N/A**	–	–
3/4	3/4	1	4	**GM34FS4**	10370	$172.54	**GMRF34FS4**	00206	$185.54
3/4	3/4	1	4	**GM34FS4WF**	10371	$172.54	**GMRF34FS4WF**	00207	$185.54
3/4	3/4	1-1/2	4	**GM34F4**	10364	$181.00	**GMRF34F4**	00202	$194.61
3/4	3/4	1-1/2	4	**GM34F4WF**	10365	$181.00	**GMRF34F4WF**	00203	$194.61
3/4	3/4	1-5/8	4	**GM34FHL4**	10951	$183.75	**GMRF34FHL4**	00378	$197.57
3/4	3/4	1-5/8	4	**GM34FHL4WF**	10952	$189.95	**GMRF34FHL4WF**	00379	$203.30
3/4	3/4	2	4	**GM34FL4**	10367	$186.50	**GMRF34FL4**	00204	$200.53
3/4	3/4	2	4	**GM34FL4WF**	10923	$198.90	**GMRF34FL4WF**	00350	$211.99
3/4	3/4	2-1/4	5	**GM34FLH4**	10369	$192.01	**GMRF34FLH4**	00205	$206.45
3/4	3/4	2-1/4	5	**GM34FLH4WF**	10930	$203.47	**GMRF34FLH4WF**	00357	$217.91
3/4	3/4	3	6	**GM34FXL4**	10375	$248.04	**N/A**	–	–
3/4	3/4	4	7	**GM34FSL4**	10373	$259.89	**N/A**	–	–
1	1	1	4	**GM10FS4**	10050	$270.69	**GMRF10FS4**	00040	$287.98
1	1	1	4	**GM10FS4WF**	10051	$270.69	**GMRF10FS4WF**	00041	$287.98
1	1	1-1/2	4	**GM10F4**	10044	$284.85	**GMRF10F4**	00036	$287.88
1	1	1-1/2	4	**GM10F4WF**	10045	$284.85	**GMRF10F4WF**	00037	$300.90
1	1	2	4	**GM10FL4**	10047	$337.15	**GMRF10FL4**	00038	$340.72
1	1	2	4	**GM10FL4WF**	10937	$350.17	**GMRF10FL4WF**	00364	$353.74
1	1	2-1/4	5	**GM10FLH4**	10049	$358.55	**GMRF10FLH4**	00039	$368.51
1	1	2-1/4	5	**GM10FLH4WF**	10944	$371.57	**GMRF10FLH4WF**	00371	$381.53
1	1	3	6	**GM10FXL4**	10055	$379.95	**N/A**	–	–
1	1	4	7	**GM10FSL4**	10053	$470.28	**N/A**	–	–

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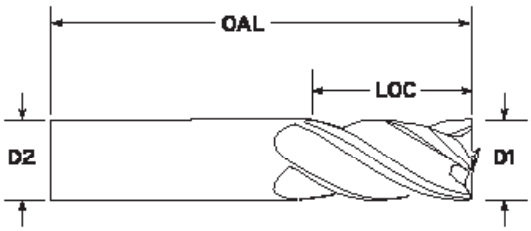
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE (INCH) RADIUS



RADIUS END

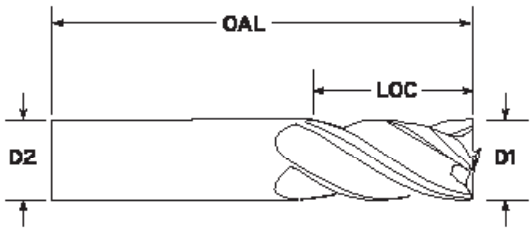
Speeds & Feeds Chart Page 166 & 174

HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
1/8	1/8	1/4	1-1/2	0.015	GM18RS4015	10319	$23.44	GMRF18RS4015	00178	$26.64
1/8	1/8	1/4	1-1/2	0.030	GM18RS4030	10320	$23.44	GMRF18RS4030	00179	$26.64
1/8	1/8	1/2	1-1/2	0.015	GM18R4015	10311	$24.52	GMRF18R4015	00176	$27.88
1/8	1/8	1/2	1-1/2	0.030	GM18R4030	10312	$24.52	GMRF18R4030	00177	$27.88
1/8	1/8	1	3	0.015	GM18RL4015	10315	$30.80	N/A	–	–
1/8	1/8	1	3	0.030	GM18RL4030	10316	$30.80	N/A	–	–
5/32	3/16	1/2	2	0.015	GM532R4015	10536	$26.79	N/A	–	–
5/32	3/16	1/2	2	0.030	GM532R4030	10537	$26.79	N/A	–	–
3/16	3/16	3/8	2	0.015	GM316RS4015	10358	$24.52	GMRF316RS4015	00200	$27.88
3/16	3/16	3/8	2	0.030	GM316RS4030	10359	$24.52	GMRF316RS4030	00201	$27.88
3/16	3/16	5/8	2	0.015	GM316R4015	10350	$25.45	GMRF316R4015	00198	$28.92
3/16	3/16	5/8	2	0.030	GM316R4030	10351	$25.45	GMRF316R4030	00199	$28.92
3/16	3/16	1-1/4	3	0.015	GM316RL4015	10354	$31.94	N/A	–	–
3/16	3/16	1-1/4	3	0.030	GM316RL4030	10355	$31.94	N/A	–	–
1/4	1/4	1/2	2	0.015	GM14RS4015	10270	$26.34	GMRF14RS4015	00154	$32.59
1/4	1/4	1/2	2	0.030	GM14RS4030	10271	$26.34	GMRF14RS4030	00155	$32.59
1/4	1/4	1/2	2	0.060	GM14RS4060	10272	$26.34	GMRF14RS4060	00156	$32.59
1/4	1/4	3/4	2-1/2	0.015	GM14R4015	10258	$28.35	GMRF14R4015	00148	$34.74
1/4	1/4	3/4	2-1/2	0.030	GM14R4030	10259	$28.35	GMRF14R4030	00149	$34.74
1/4	1/4	3/4	2-1/2	0.060	GM14R4060	10260	$28.36	GMRF14R4060	00150	$34.74
1/4	1/4	1-1/4	3	0.015	GM14RL4015	10264	$32.54	GMRF14RL4015	00151	$49.65
1/4	1/4	1-1/4	3	0.030	GM14RL4030	10265	$32.54	GMRF14RL4030	00152	$49.65
1/4	1/4	1-1/4	3	0.060	GM14RL4060	10266	$32.54	GMRF14RL4060	00153	$49.65
1/4	1/4	1-1/2	4	0.015	GM14RXL4015	10282	$35.90	GMRF14RXL4015	00157	$52.25
1/4	1/4	1-1/2	4	0.030	GM14RXL4030	10283	$35.90	GMRF14RXL4030	00158	$52.25
1/4	1/4	1-1/2	4	0.060	GM14RXL4060	10284	$35.90	GMRF14RXL4060	00159	$52.25
1/4	1/4	3	6	0.015	GM14RSL4015	10276	$90.69	N/A	–	–
1/4	1/4	3	6	0.030	GM14RSL4030	10277	$90.69	N/A	–	–
1/4	1/4	3	6	0.060	GM14RSL4060	10278	$90.69	N/A	–	–
5/16	5/16	1/2	2	0.015	GM516RS4015	10522	$34.06	GMRF516RS4015	00273	$38.29
5/16	5/16	1/2	2	0.030	GM516RS4030	10523	$34.06	GMRF516RS4030	00274	$38.29
5/16	5/16	1/2	2	0.060	GM516RS4060	10524	$34.06	GMRF516RS4060	00275	$38.29
5/16	5/16	7/8	2-1/2	0.015	GM516R4015	10510	$35.63	GMRF516R4015	00267	$42.67
5/16	5/16	7/8	2-1/2	0.030	GM516R4030	10511	$35.63	GMRF516R4030	00268	$42.67
5/16	5/16	7/8	2-1/2	0.060	GM516R4060	10512	$35.63	GMRF516R4060	00269	$42.67
5/16	5/16	1-1/4	3	0.015	GM516RL4015	10516	$44.72	GMRF516RL4015	00270	$47.85
5/16	5/16	1-1/4	3	0.030	GM516RL4030	10517	$44.72	GMRF516RL4030	00271	$47.85
5/16	5/16	1-1/4	3	0.060	GM516RL4060	10518	$44.72	GMRF516RL4060	00272	$47.85

4 FLUTE (INCH) RADIUS



RADIUS END

Speeds & Feeds Chart Page 166 & 174

HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
5/16	5/16	1-1/2	4	0.015	GM516RXL4015	10528	$52.17	N/A	–	–
5/16	5/16	1-1/2	4	0.030	GM516RXL4030	10529	$52.17	N/A	–	–
5/16	5/16	1-1/2	4	0.060	GM516RXL4060	10530	$52.17	N/A	–	–
3/8	3/8	5/8	2	0.015	GM38RS4015	10480	$39.97	GMRF38RS4015	00256	$44.91
3/8	3/8	5/8	2	0.030	GM38RS4030	10481	$39.97	GMRF38RS4030	00257	$44.91
3/8	3/8	5/8	2	0.060	GM38RS4060	10482	$39.97	GMRF38RS4060	00258	$44.91
3/8	3/8	5/8	2	0.090	GM38RS4090	10483	$39.97	GMRF38RS4090	00259	$44.91
3/8	3/8	7/8	2-1/2	0.015	GM38R4015	10466	$42.07	GMRF38R4015	00248	$48.47
3/8	3/8	7/8	2-1/2	0.030	GM38R4030	10467	$42.07	GMRF38R4030	00249	$48.47
3/8	3/8	7/8	2-1/2	0.060	GM38R4060	10468	$42.07	GMRF38R4060	00250	$48.47
3/8	3/8	7/8	2-1/2	0.090	GM38R4090	10469	$42.07	GMRF38R4090	00251	$48.47
3/8	3/8	1-1/4	3	0.015	GM38RL4015	10473	$52.85	GMRF38RL4015	00252	$55.89
3/8	3/8	1-1/4	3	0.030	GM38RL4030	10474	$52.85	GMRF38RL4030	00253	$55.89
3/8	3/8	1-1/4	3	0.060	GM38RL4060	10475	$52.85	GMRF38RL4060	00254	$55.89
3/8	3/8	1-1/4	3	0.090	GM38RL4090	10476	$52.85	GMRF38RL4090	00255	$55.89
3/8	3/8	2	4	0.015	GM38RXL4015	10494	$58.17	GMRF38RXL4015	00260	$65.38
3/8	3/8	2	4	0.030	GM38RXL4030	10495	$58.17	GMRF38RXL4030	00261	$65.38
3/8	3/8	2	4	0.060	GM38RXL4060	10496	$58.17	GMRF38RXL4060	00262	$65.38
3/8	3/8	2	4	0.090	GM38RXL4090	10497	$58.17	GMRF38RXL4090	00263	$65.38
3/8	3/8	3	6	0.015	GM38RSL4015	10487	$102.79	N/A	–	–
3/8	3/8	3	6	0.030	GM38RSL4030	10488	$102.79	N/A	–	–
3/8	3/8	3	6	0.060	GM38RSL4060	10489	$102.79	N/A	–	–
3/8	3/8	3	6	0.090	GM38RSL4090	10490	$102.79	N/A	–	–
7/16	7/16	5/8	2-1/2	0.015	GM716RS4015	10609	$53.60	GMRF716RS4015	00313	$59.56
7/16	7/16	5/8	2-1/2	0.015	GM716RS4015WF	10610	$53.60	GMRF716RS4015WF	00314	$59.56
7/16	7/16	5/8	2-1/2	0.030	GM716RS4030	10611	$53.60	GMRF716RS4030	00315	$59.56
7/16	7/16	5/8	2-1/2	0.030	GM716RS4030WF	10612	$53.60	GMRF716RS4030WF	00316	$59.56
7/16	7/16	5/8	2-1/2	0.060	GM716RS4060	10613	$53.60	GMRF716RS4060	00317	$59.56
7/16	7/16	5/8	2-1/2	0.060	GM716RS4060WF	10614	$53.60	GMRF716RS4060WF	00318	$59.56
7/16	7/16	5/8	2-1/2	0.090	GM716RS4090	10615	$53.60	GMRF716RS4090	00319	$59.56
7/16	7/16	5/8	2-1/2	0.090	GM716RS4090WF	10616	$53.60	GMRF716RS4090WF	00320	$59.56
7/16	7/16	1	2-1/2	0.015	GM716R4015	10598	$55.55	GMRF716R4015	00305	$61.73
7/16	7/16	1	2-1/2	0.015	GM716R4015WF	10599	$55.55	GMRF716R4015WF	00306	$61.73
7/16	7/16	1	2-1/2	0.030	GM716R4030	10600	$55.55	GMRF716R4030	00307	$61.73
7/16	7/16	1	2-1/2	0.030	GM716R4030WF	10601	$55.55	GMRF716R4030WF	00308	$61.73
7/16	7/16	1	2-1/2	0.060	GM716R4060	10602	$55.55	GMRF716R4060	00309	$61.73
7/16	7/16	1	2-1/2	0.060	GM716R4060WF	10603	$55.55	GMRF716R4060WF	00310	$61.73
7/16	7/16	1	2-1/2	0.090	GM716R4090	10604	$55.55	GMRF716R4090	00311	$61.73
7/16	7/16	1	2-1/2	0.090	GM716R4090WF	10605	$55.55	GMRF716R4090WF	00312	$61.73

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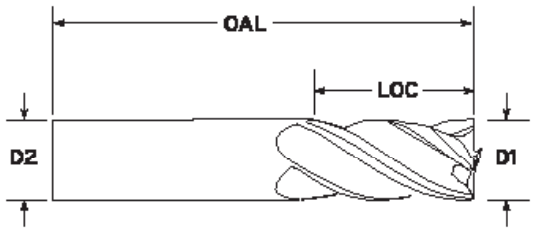
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE (INCH) RADIUS

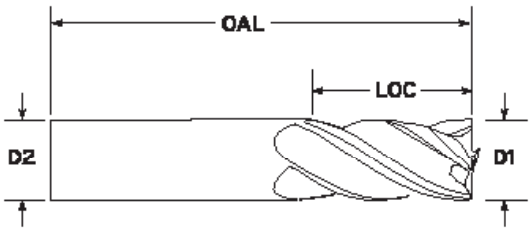


RADIUS END

Speeds & Feeds Chart Page 166 & 174

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
					HIGH PERFORMANCE | GMX-35 COATED			SUPER BITCHIN' PERFORMANCE | GMS² COATED		
1/2	1/2	5/8	2-1/2	0.015	GM12RS4015	10212	$65.86	GMRF12RS4015	00129	$74.24
1/2	1/2	5/8	2-1/2	0.015	GM12RS4015WF	10213	$65.86	GMRF12RS4015WF	00130	$74.24
1/2	1/2	5/8	2-1/2	0.030	GM12RS4030	10214	$65.86	GMRF12RS4030	00131	$74.24
1/2	1/2	5/8	2-1/2	0.030	GM12RS4030WF	10215	$65.86	GMRF12RS4030WF	00132	$74.24
1/2	1/2	5/8	2-1/2	0.060	GM12RS4060	10216	$65.86	GMRF12RS4060	00133	$74.24
1/2	1/2	5/8	2-1/2	0.060	GM12RS4060WF	10217	$65.86	GMRF12RS4060WF	00134	$74.24
1/2	1/2	5/8	2-1/2	0.090	GM12RS4090	10218	$65.86	GMRF12RS4090	00135	$74.24
1/2	1/2	5/8	2-1/2	0.090	GM12RS4090WF	10219	$65.86	GMRF12RS4090WF	00136	$74.24
1/2	1/2	5/8	2-1/2	0.120	GM12RS4120	10220	$65.86	GMRF12RS4120	00137	$74.24
1/2	1/2	5/8	2-1/2	0.120	GM12RS4120WF	10221	$65.86	GMRF12RS4120WF	00138	$74.24
1/2	1/2	1	3	0.015	GM12RH4015	10187	$69.06	GMRF12RH4015	00114	$76.74
1/2	1/2	1	3	0.015	GM12RH4015WF	10188	$69.06	GMRF12RH4015WF	00115	$76.74
1/2	1/2	1	3	0.030	GM12RH4030	10189	$69.06	GMRF12RH4030	00116	$76.74
1/2	1/2	1	3	0.030	GM12RH4030WF	10190	$69.06	GMRF12RH4030WF	00117	$76.74
1/2	1/2	1	3	0.060	GM12RH4060	10191	$69.06	GMRF12RH4060	00118	$76.74
1/2	1/2	1	3	0.060	GM12RH4060WF	10192	$69.06	GMRF12RH4060WF	00119	$76.74
1/2	1/2	1	3	0.090	GM12RH4090	10193	$69.06	GMRF12RH4090	00120	$76.74
1/2	1/2	1	3	0.090	GM12RH4090WF	10194	$69.06	GMRF12RH4090WF	00121	$76.74
1/2	1/2	1	3	0.120	GM12RH4120	10195	$69.06	GMRF12RH4120	00122	$76.74
1/2	1/2	1	3	0.120	GM12RH4120WF	10196	$69.06	GMRF12RH4120WF	00123	$76.74
1/2	1/2	1-1/4	3	0.015	GM12R4015	10172	$69.06	GMRF12R4015	00104	$76.74
1/2	1/2	1-1/4	3	0.015	GM12R4015WF	10173	$69.06	GMRF12R4015WF	00105	$76.74
1/2	1/2	1-1/4	3	0.030	GM12R4030	10174	$69.06	GMRF12R4030	00106	$76.74
1/2	1/2	1-1/4	3	0.030	GM12R4030WF	10175	$69.06	GMRF12R4030WF	00107	$76.74
1/2	1/2	1-1/4	3	0.060	GM12R4060	10176	$69.06	GMRF12R4060	00108	$76.74
1/2	1/2	1-1/4	3	0.060	GM12R4060WF	10177	$69.06	GMRF12R4060WF	00109	$76.74
1/2	1/2	1-1/4	3	0.090	GM12R4090	10178	$69.06	GMRF12R4090	00110	$76.74
1/2	1/2	1-1/4	3	0.090	GM12R4090WF	10179	$69.06	GMRF12R4090WF	00111	$76.74
1/2	1/2	1-1/4	3	0.120	GM12R4120	10180	$69.06	GMRF12R4120	00112	$76.74
1/2	1/2	1-1/4	3	0.120	GM12R4120WF	10181	$69.06	GMRF12R4120WF	00113	$76.74
1/2	1/2	1-1/2	4	0.015	GM12RL4015	10202	$86.69	GMRF12RL4015	00124	$91.36
1/2	1/2	1-1/2	4	0.015	GM12RL4015WF	10907	$95.02	GMRF12RL4015WF	00328	$99.70
1/2	1/2	1-1/2	4	0.030	GM12RL4030	10203	$86.69	GMRF12RL4030	00125	$91.36
1/2	1/2	1-1/2	4	0.030	GM12RL4030WF	10908	$95.02	GMRF12RL4030WF	00329	$99.70
1/2	1/2	1-1/2	4	0.060	GM12RL4060	10204	$86.69	GMRF12RL4060	00126	$91.36
1/2	1/2	1-1/2	4	0.060	GM12RL4060WF	10909	$95.02	GMRF12RL4060WF	00330	$99.70
1/2	1/2	1-1/2	4	0.090	GM12RL4090	10205	$86.69	GMRF12RL4090	00127	$91.36
1/2	1/2	1-1/2	4	0.090	GM12RL4090WF	10910	$95.02	GMRF12RL4090WF	00331	$99.70

4 FLUTE (INCH) RADIUS



RADIUS END

Speeds & Feeds Chart Page 166 & 174

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	HIGH PERFORMANCE | GMX-35 COATED SKU WF= Weldon Flat	EDP	LIST PRICE	SUPER BITCHIN' PERFORMANCE | GMS² COATED SKU WF= Weldon Flat	EDP	LIST PRICE
1/2	1/2	1-1/2	4	0.120	GM12RL4120	10206	$86.69	GMRF12RL4120	00128	$91.36
1/2	1/2	1-1/2	4	0.120	GM12RL4120WF	10911	$95.02	GMRF12RL4120WF	00332	$99.70
1/2	1/2	1-5/8	4	0.015	N/A	–		GMRF12RLH4015	00322	$95.57
1/2	1/2	1-5/8	4	0.015	N/A	–		GMRF12RLH4015WF	00334	$103.91
1/2	1/2	1-5/8	4	0.030	N/A	–		GMRF12RLH4030	00323	$95.57
1/2	1/2	1-5/8	4	0.030	N/A	–		GMRF12RLH4030WF	00335	$103.91
1/2	1/2	1-5/8	4	0.060	N/A	–		GMRF12RLH4060	00324	$95.57
1/2	1/2	1-5/8	4	0.060	N/A	–		GMRF12RLH4060WF	00336	$103.91
1/2	1/2	1-5/8	4	0.090	N/A	–		GMRF12RLH4090	00325	$95.57
1/2	1/2	1-5/8	4	0.090	N/A	–		GMRF12RLH4090WF	00337	$103.91
1/2	1/2	1-5/8	4	0.120	N/A	–		GMRF12RLH4120	00326	$95.57
1/2	1/2	1-5/8	4	0.120	N/A	–		GMRF12RLH4120WF	00338	$103.91
1/2	1/2	2	4	0.015	GM12RXL4015	10237	$95.35	GMRF12RXL4015	00139	$99.00
1/2	1/2	2	4	0.015	GM12RXL4015WF	10913	$103.69	GMRF12RXL4015WF	00340	$107.33
1/2	1/2	2	4	0.030	GM12RXL4030	10238	$95.35	GMRF12RXL4030	00140	$99.00
1/2	1/2	2	4	0.030	GM12RXL4030WF	10914	$103.69	GMRF12RXL4030WF	00341	$107.33
1/2	1/2	2	4	0.060	GM12RXL4060	10239	$95.35	GMRF12RXL4060	00141	$99.00
1/2	1/2	2	4	0.060	GM12RXL4060WF	10915	$103.69	GMRF12RXL4060WF	00342	$107.33
1/2	1/2	2	4	0.090	GM12RXL4090	10240	$95.35	GMRF12RXL4090	00142	$99.00
1/2	1/2	2	4	0.090	GM12RXL4090WF	10916	$103.69	GMRF12RXL4090WF	00343	$107.33
1/2	1/2	2	4	0.120	GM12RXL4120	10241	$95.35	GMRF12RXL4120	00143	$99.00
1/2	1/2	2	4	0.120	GM12RXL4120WF	10917	$103.69	GMRF12RXL4120WF	00344	$107.33
1/2	1/2	3	6	0.015	GM12RSL4015	10227	$136.23	N/A	–	–
1/2	1/2	3	6	0.030	GM12RSL4030	10228	$136.23	N/A	–	–
1/2	1/2	3	6	0.060	GM12RSL4060	10229	$136.23	N/A	–	–
1/2	1/2	3	6	0.090	GM12RSL4090	10230	$136.23	N/A	–	–
1/2	1/2	3	6	0.120	GM12RSL4120	10231	$136.23	N/A	–	–
5/8	5/8	3/4	3-1/2	0.030	GM58RS4030	10570	$123.58	GMRF58RS4030	00293	$134.31
5/8	5/8	3/4	3-1/2	0.030	GM58RS4030WF	10571	$123.58	GMRF58RS4030WF	00294	$134.31
5/8	5/8	3/4	3-1/2	0.060	GM58RS4060	10572	$123.58	GMRF58RS4060	00295	$134.31
5/8	5/8	3/4	3-1/2	0.060	GM58RS4060WF	10573	$123.58	GMRF58RS4060WF	00296	$134.31
5/8	5/8	3/4	3-1/2	0.090	GM58RS4090	10574	$123.58	GMRF58RS4090	00297	$134.31
5/8	5/8	3/4	3-1/2	0.090	GM58RS4090WF	10575	$123.58	GMRF58RS4090WF	00298	$134.31
5/8	5/8	3/4	3-1/2	0.120	GM58RS4120	10576	$123.58	GMRF58RS4120	00299	$134.31
5/8	5/8	3/4	3-1/2	0.120	GM58RS4120WF	10577	$123.58	GMRF58RS4120WF	00300	$134.31
5/8	5/8	1-1/4	3-1/2	0.030	GM58R4030	10550	$129.83	GMRF58R4030	00281	$136.91
5/8	5/8	1-1/4	3-1/2	0.030	GM58R4030WF	10551	$129.83	GMRF58R4030WF	00282	$136.91
5/8	5/8	1-1/4	3-1/2	0.060	GM58R4060	10552	$129.83	GMRF58R4060	00283	$136.91
5/8	5/8	1-1/4	3-1/2	0.060	GM58R4060WF	10553	$129.83	GMRF58R4060WF	00284	$136.91

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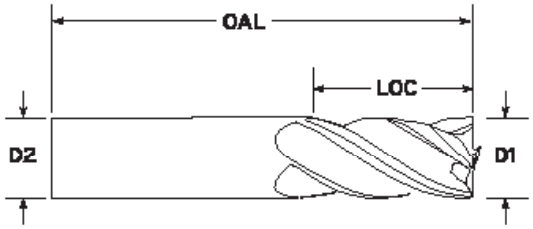
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE (INCH) RADIUS



RADIUS END

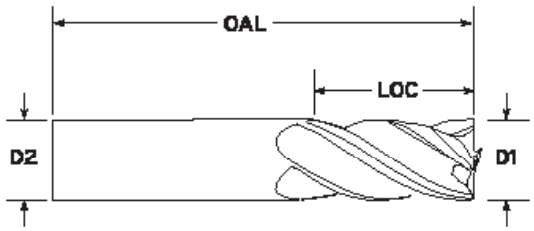
Speeds & Feeds Chart Page 166 & 174

HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
5/8	5/8	1-1/4	3-1/2	0.090	GM58R4090	10554	$129.83	GMRF58R4090	00285	$136.91
5/8	5/8	1-1/4	3-1/2	0.090	GM58R4090WF	10555	$129.83	GMRF58R4090WF	00286	$136.91
5/8	5/8	1-1/4	3-1/2	0.120	GM58R4120	10556	$129.83	GMRF58R4120	00287	$136.91
5/8	5/8	1-1/4	3-1/2	0.120	GM58R4120WF	10557	$129.83	GMRF58R4120WF	00288	$136.91
5/8	5/8	2	4	0.030	GM58RL4030	10562	$163.13	GMRF58RL4030	00289	$172.01
5/8	5/8	2	4	0.030	GM58RL4030WF	10919	$173.02	GMRF58RL4030WF	00346	$181.91
5/8	5/8	2	4	0.060	GM58RL4060	10563	$163.13	GMRF58RL4060	00290	$172.01
5/8	5/8	2	4	0.060	GM58RL4060WF	10920	$173.02	GMRF58RL4060WF	00347	$181.91
5/8	5/8	2	4	0.090	GM58RL4090	10564	$163.13	GMRF58RL4090	00291	$172.01
5/8	5/8	2	4	0.090	GM58RL4090WF	10921	$173.02	GMRF58RL4090WF	00348	$181.91
5/8	5/8	2	4	0.120	GM58RL4120	10565	$163.13	GMRF58RL4120	00292	$172.01
5/8	5/8	2	4	0.120	GM58RL4120WF	10922	$173.02	GMRF58RL4120WF	00349	$181.91
5/8	5/8	3	6	0.030	GM58RXL4030	10582	$171.99	N/A	–	–
5/8	5/8	3	6	0.060	GM58RXL4060	10583	$171.99	N/A	–	–
5/8	5/8	3	6	0.090	GM58RXL4090	10584	$171.99	N/A	–	–
5/8	5/8	3	6	0.120	GM58RXL4120	10585	$171.99	N/A	–	–
3/4	3/4	1	4	0.030	GM34RS4030	10413	$181.53	GMRF34RS4030	00232	$195.19
3/4	3/4	1	4	0.030	GM34RS4030WF	10414	$181.53	GMRF34RS4030WF	00233	$195.21
3/4	3/4	1	4	0.060	GM34RS4060	10415	$181.53	GMRF34RS4060	00234	$195.19
3/4	3/4	1	4	0.060	GM34RS4060WF	10416	$181.53	GMRF34RS4060WF	00235	$195.21
3/4	3/4	1	4	0.090	GM34RS4090	10417	$181.53	GMRF34RS4090	00236	$195.19
3/4	3/4	1	4	0.090	GM34RS4090WF	10418	$181.53	GMRF34RS4090WF	00237	$195.21
3/4	3/4	1	4	0.120	GM34RS4120	10419	$181.53	GMRF34RS4120	00238	$195.21
3/4	3/4	1	4	0.120	GM34RS4120WF	10420	$181.53	GMRF34RS4120WF	00239	$195.21
3/4	3/4	1	4	0.190	GM34RS4190	10421	$181.53	GMRF34RS4190	00240	$195.21
3/4	3/4	1	4	0.190	GM34RS4190WF	10422	$181.53	GMRF34RS4190WF	00241	$195.21
3/4	3/4	1	4	0.250	GM34RS4250	10423	$181.53	GMRF34RS4250	00242	$195.21
3/4	3/4	1	4	0.250	GM34RS4250WF	10424	$181.53	GMRF34RS4250WF	00243	$195.21
3/4	3/4	1-1/2	4	0.030	GM34R4030	10377	$190.34	GMRF34R4030	00208	$204.69
3/4	3/4	1-1/2	4	0.030	GM34R4030WF	10378	$190.34	GMRF34R4030WF	00209	$204.69
3/4	3/4	1-1/2	4	0.060	GM34R4060	10379	$190.34	GMRF34R4060	00210	$204.69
3/4	3/4	1-1/2	4	0.060	GM34R4060WF	10380	$190.34	GMRF34R4060WF	00211	$204.69
3/4	3/4	1-1/2	4	0.090	GM34R4090	10381	$190.34	GMRF34R4090	00212	$204.69
3/4	3/4	1-1/2	4	0.090	GM34R4090WF	10382	$190.34	GMRF34R4090WF	00213	$204.69

4 FLUTE (INCH) RADIUS



RADIUS END

Speeds & Feeds Chart Page 166 & 174

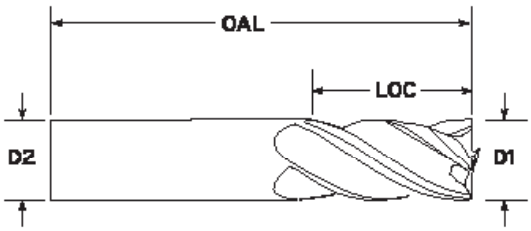
HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
3/4	3/4	1-1/2	4	0.120	GM34R4120	10383	$190.34	GMRF34R4120	00214	$204.69
3/4	3/4	1-1/2	4	0.120	GM34R4120WF	10384	$190.34	GMRF34R4120WF	00215	$204.69
3/4	3/4	1-1/2	4	0.190	GM34R4190	10385	$190.34	GMRF34R4190	00216	$204.69
3/4	3/4	1-1/2	4	0.190	GM34R4190WF	10386	$190.34	GMRF34R4190WF	00217	$204.69
3/4	3/4	1-1/2	4	0.250	GM34R4250	10387	$190.34	GMRF34R4250	00218	$204.69
3/4	3/4	1-1/2	4	0.250	GM34R4250WF	10388	$190.34	GMRF34R4250WF	00219	$204.69
3/4	3/4	1-5/8	4	0.030	GM34RHL4030	10953	$193.06	GMRF34RHL4030	00380	$206.25
3/4	3/4	1-5/8	4	0.030	GM34RHL4030WF	10954	$198.79	GMRF34RHL4030WF	00381	$213.02
3/4	3/4	1-5/8	4	0.060	GM34RHL4060	10955	$193.06	GMRF34RHL4060	00382	$206.25
3/4	3/4	1-5/8	4	0.060	GM34RHL4060WF	10956	$198.79	GMRF34RHL4060WF	00383	$213.02
3/4	3/4	1-5/8	4	0.090	GM34RHL4090	10957	$193.06	GMRF34RHL4090	00384	$206.25
3/4	3/4	1-5/8	4	0.090	GM34RHL4090WF	10958	$198.79	GMRF34RHL4090WF	00385	$213.02
3/4	3/4	1-5/8	4	0.120	GM34RHL4120	10959	$193.06	GMRF34RHL4120	00386	$206.25
3/4	3/4	1-5/8	4	0.120	GM34RHL4120WF	10960	$198.79	GMRF34RHL4120WF	00387	$213.02
3/4	3/4	1-5/8	4	0.190	GM34RHL4190	10961	$193.06	GMRF34RHL4190	00388	$206.25
3/4	3/4	1-5/8	4	0.190	GM34RHL4190WF	10962	$198.79	GMRF34RHL4190WF	00389	$213.02
3/4	3/4	1-5/8	4	0.250	GM34RHL4250	10963	$193.06	GMRF34RHL4250	00390	$206.25
3/4	3/4	1-5/8	4	0.250	GM34RHL4250WF	10964	$198.79	GMRF34RHL4250WF	00391	$213.02
3/4	3/4	2	4	0.030	GM34RL4030	10395	$195.77	GMRF34RL4030	00220	$207.83
3/4	3/4	2	4	0.030	GM34RL4030WF	10924	$207.23	GMRF34RL4030WF	00351	$218.23
3/4	3/4	2	4	0.060	GM34RL4060	10396	$195.77	GMRF34RL4060	00221	$207.83
3/4	3/4	2	4	0.060	GM34RL4060WF	10925	$207.23	GMRF34RL4060WF	00352	$218.23
3/4	3/4	2	4	0.090	GM34RL4090	10397	$195.77	GMRF34RL4090	00222	$207.83
3/4	3/4	2	4	0.090	GM34RL4090WF	10926	$207.23	GMRF34RL4090WF	00353	$218.23
3/4	3/4	2	4	0.120	GM34RL4120	10398	$195.77	GMRF34RL4120	00223	$207.83
3/4	3/4	2	4	0.120	GM34RL4120WF	10927	$207.23	GMRF34RL4120WF	00354	$218.23
3/4	3/4	2	4	0.190	GM34RL4190	10399	$195.77	GMRF34RL4190	00224	$207.83
3/4	3/4	2	4	0.190	GM34RL4190WF	10928	$207.23	GMRF34RL4190WF	00355	$218.23
3/4	3/4	2	4	0.250	GM34RL4250	10400	$195.77	GMRF34RL4250	00225	$207.83
3/4	3/4	2	4	0.250	GM34RL4250WF	10929	$207.23	GMRF34RL4250WF	00356	$218.23
3/4	3/4	2-1/4	5	0.030	GM34RLH4030	10407	$201.19	GMRF34RLH4030	00226	$216.34
3/4	3/4	2-1/4	5	0.030	GM34RLH4030WF	10931	$212.66	GMRF34RLH4030WF	00358	$227.80
3/4	3/4	2-1/4	5	0.060	GM34RLH4060	10408	$201.19	GMRF34RLH4060	00227	$216.34
3/4	3/4	2-1/4	5	0.060	GM34RLH4060WF	10932	$212.66	GMRF34RLH4060WF	00359	$227.80
3/4	3/4	2-1/4	5	0.090	GM34RLH4090	10409	$201.19	GMRF34RLH4090	00228	$216.34
3/4	3/4	2-1/4	5	0.090	GM34RLH4090WF	10933	$212.66	GMRF34RLH4090WF	00360	$227.80
3/4	3/4	2-1/4	5	0.120	GM34RLH4120	10410	$201.19	GMRF34RLH4120	00229	$216.34

Continued on next page

HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE (INCH) RADIUS

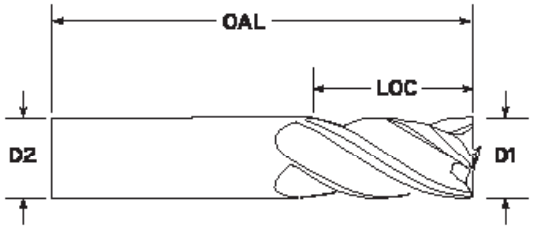


RADIUS END

Speeds & Feeds Chart Page 166 & 174

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	HIGH PERFORMANCE | GMX-35 COATED SKU WF= Weldon Flat	EDP	LIST PRICE	SUPER BITCHIN' PERFORMANCE | GMS² COATED SKU WF= Weldon Flat	EDP	LIST PRICE
3/4	3/4	2-1/4	5	0.120	GM34RLH4120WF	10934	$212.66	GMRF34RLH4120WF	00361	$227.80
3/4	3/4	2-1/4	5	0.190	GM34RLH4190	10411	$201.19	GMRF34RLH4190	00230	$216.34
3/4	3/4	2-1/4	5	0.190	GM34RLH4190WF	10935	$212.66	GMRF34RLH4190WF	00362	$227.80
3/4	3/4	2-1/4	5	0.250	GM34RLH4250	10412	$201.19	GMRF34RLH4250	00231	$216.34
3/4	3/4	2-1/4	5	0.250	GM34RLH4250WF	10936	$212.66	GMRF34RLH4250WF	00363	$227.80
3/4	3/4	3	6	0.030	GM34RXL4030	10443	$233.61	N/A	–	–
3/4	3/4	3	6	0.060	GM34RXL4060	10444	$233.61	N/A	–	–
3/4	3/4	3	6	0.090	GM34RXL4090	10445	$233.61	N/A	–	–
3/4	3/4	3	6	0.120	GM34RXL4120	10446	$233.61	N/A	–	–
3/4	3/4	3	6	0.190	GM34RXL4190	10447	$233.61	N/A	–	–
3/4	3/4	3	6	0.250	GM34RXL4250	10448	$233.61	N/A	–	–
3/4	3/4	4	7	0.030	GM34RSL4030	10431	$300.82	N/A	–	–
3/4	3/4	4	7	0.060	GM34RSL4060	10432	$300.82	N/A	–	–
3/4	3/4	4	7	0.090	GM34RSL4090	10433	$300.82	N/A	–	–
3/4	3/4	4	7	0.120	GM34RSL4120	10434	$300.82	N/A	–	–
3/4	3/4	4	7	0.190	GM34RSL4190	10435	$300.82	N/A	–	–
3/4	3/4	4	7	0.250	GM34RSL4250	10436	$300.82	N/A	–	–
1	1	1	4	0.030	GM10RS4030	10093	$284.85	GMRF10RS4030	00066	$303.02
1	1	1	4	0.030	GM10RS4030WF	10094	$284.85	GMRF10RS4030WF	00067	$303.03
1	1	1	4	0.060	GM10RS4060	10095	$284.85	GMRF10RS4060	00068	$303.02
1	1	1	4	0.060	GM10RS4060WF	10096	$284.85	GMRF10RS4060WF	00069	$303.03
1	1	1	4	0.090	GM10RS4090	10097	$284.85	GMRF10RS4090	00070	$303.02
1	1	1	4	0.090	GM10RS4090WF	10098	$284.85	GMRF10RS4090WF	00071	$303.03
1	1	1	4	0.120	GM10RS4120	10099	$284.85	GMRF10RS4120	00072	$303.02
1	1	1	4	0.120	GM10RS4120WF	10100	$284.85	GMRF10RS4120WF	00073	$303.03
1	1	1	4	0.190	GM10RS4190	10101	$284.85	GMRF10RS4190	00074	$303.02
1	1	1	4	0.190	GM10RS4190WF	10102	$284.85	GMRF10RS4190WF	00075	$303.03
1	1	1	4	0.250	GM10RS4250	10103	$284.85	GMRF10RS4250	00076	$303.02
1	1	1	4	0.250	GM10RS4250WF	10104	$284.85	GMRF10RS4250WF	00077	$303.03
1	1	1-1/2	4	0.030	GM10R4030	10057	$299.85	GMRF10R4030	00042	$318.99
1	1	1-1/2	4	0.030	GM10R4030WF	10058	$299.85	GMRF10R4030WF	00043	$318.99
1	1	1-1/2	4	0.060	GM10R4060	10059	$299.85	GMRF10R4060	00044	$318.99
1	1	1-1/2	4	0.060	GM10R4060WF	10060	$299.85	GMRF10R4060WF	00045	$318.99
1	1	1-1/2	4	0.090	GM10R4090	10061	$299.85	GMRF10R4090	00046	$318.99
1	1	1-1/2	4	0.090	GM10R4090WF	10062	$299.85	GMRF10R4090WF	00047	$318.99
1	1	1-1/2	4	0.120	GM10R4120	10063	$299.85	GMRF10R4120	00048	$318.99
1	1	1-1/2	4	0.120	GM10R4120WF	10064	$299.85	GMRF10R4120WF	00049	$318.99
1	1	1-1/2	4	0.190	GM10R4190	10065	$299.85	GMRF10R4190	00050	$318.99
1	1	1-1/2	4	0.190	GM10R4190WF	10066	$299.85	GMRF10R4190WF	00051	$318.99

4 FLUTE (INCH) RADIUS



RADIUS END

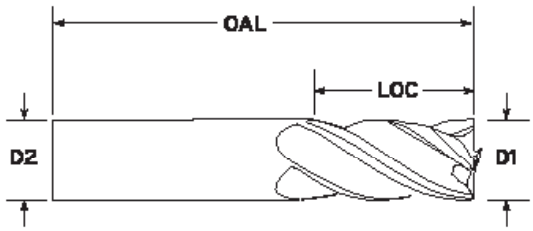
Speeds & Feeds Chart Page 166 & 174

HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
1	1	1-1/2	4	0.250	GM10R4250	10067	$299.85	GMRF10R4250	00052	$318.99
1	1	1-1/2	4	0.250	GM10R4250WF	10068	$299.85	GMRF10R4250WF	00053	$318.99
1	1	2	4	0.030	GM10RL4030	10075	$342.81	GMRF10RL4030	00054	$363.09
1	1	2	4	0.030	GM10RL4030WF	10938	$355.83	GMRF10RL4030WF	00365	$376.11
1	1	2	4	0.060	GM10RL4060	10076	$342.81	GMRF10RL4060	00055	$363.09
1	1	2	4	0.060	GM10RL4060WF	10939	$355.83	GMRF10RL4060WF	00366	$376.11
1	1	2	4	0.090	GM10RL4090	10077	$342.81	GMRF10RL4090	00056	$363.09
1	1	2	4	0.090	GM10RL4090WF	10940	$355.83	GMRF10RL4090WF	00367	$376.11
1	1	2	4	0.120	GM10RL4120	10078	$342.81	GMRF10RL4120	00057	$363.09
1	1	2	4	0.120	GM10RL4120WF	10941	$355.83	GMRF10RL4120WF	00368	$376.11
1	1	2	4	0.190	GM10RL4190	10079	$342.81	GMRF10RL4190	00058	$363.09
1	1	2	4	0.190	GM10RL4190WF	10942	$355.83	GMRF10RL4190WF	00369	$376.11
1	1	2	4	0.250	GM10RL4250	10080	$342.81	GMRF10RL4250	00059	$363.09
1	1	2	4	0.250	GM10RL4250WF	10943	$355.83	GMRF10RL4250WF	00370	$376.11
1	1	2-1/4	5	0.030	GM10RLH4030	10087	$363.52	GMRF10RLH4030	00060	$382.46
1	1	2-1/4	5	0.030	GM10RLH4030WF	10945	$376.54	GMRF10RLH4030WF	00372	$395.48
1	1	2-1/4	5	0.060	GM10RLH4060	10088	$363.52	GMRF10RLH4060	00061	$382.46
1	1	2-1/4	5	0.060	GM10RLH4060WF	10946	$376.54	GMRF10RLH4060WF	00373	$395.48
1	1	2-1/4	5	0.090	GM10RLH4090	10089	$363.52	GMRF10RLH4090	00062	$382.46
1	1	2-1/4	5	0.090	GM10RLH4090WF	10947	$376.54	GMRF10RLH4090WF	00374	$395.48
1	1	2-1/4	5	0.120	GM10RLH4120	10090	$363.52	GMRF10RLH4120	00063	$382.46
1	1	2-1/4	5	0.120	GM10RLH4120WF	10948	$376.54	GMRF10RLH4120WF	00375	$395.48
1	1	2-1/4	5	0.190	GM10RLH4190	10091	$363.52	GMRF10RLH4190	00064	$382.46
1	1	2-1/4	5	0.190	GM10RLH4190WF	10949	$376.54	GMRF10RLH4190WF	00376	$395.48
1	1	2-1/4	5	0.250	GM10RLH4250	10092	$363.52	GMRF10RLH4250	00065	$382.46
1	1	2-1/4	5	0.250	GM10RLH4250WF	10950	$376.54	GMRF10RLH4250WF	00377	$395.48
1	1	3	6	0.030	GM10RXL4030	10123	$439.17	N/A	–	–
1	1	3	6	0.060	GM10RXL4060	10124	$439.17	N/A	–	–
1	1	3	6	0.090	GM10RXL4090	10125	$439.17	N/A	–	–
1	1	3	6	0.120	GM10RXL4120	10126	$439.17	N/A	–	–
1	1	3	6	0.190	GM10RXL4190	10127	$439.17	N/A	–	–
1	1	3	6	0.250	GM10RXL4250	10128	$439.17	N/A	–	–
1	1	4	7	0.030	GM10RSL4030	10111	$487.08	N/A	–	–
1	1	4	7	0.060	GM10RSL4060	10112	$487.08	N/A	–	–
1	1	4	7	0.090	GM10RSL4090	10113	$487.08	N/A	–	–
1	1	4	7	0.120	GM10RSL4120	10114	$487.08	N/A	–	–
1	1	4	7	0.190	GM10RSL4190	10115	$487.08	N/A	–	–
1	1	4	7	0.250	GM10RSL4250	10116	$487.08	N/A	–	–

HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE (METRIC) SQUARE

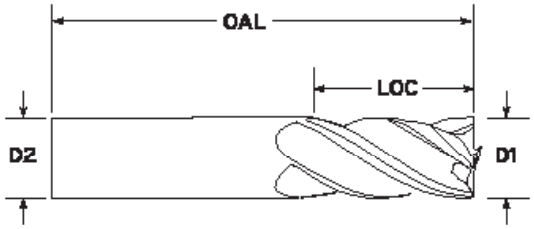


SQUARE END

Speeds & Feeds Chart Page 166 & 174

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
				HIGH PERFORMANCE | GMX-35 COATED			SUPER BITCHIN' PERFORMANCE | GMS² COATED		
3mm	3mm	12mm	38mm	GM0300MMF4	10001	$23.26	GMRF0300MMF4	00001	$26.43
3mm	3mm	8mm	38mm	GM0300MMFS4	10002	$22.18	GMRF0300MMFS4	00002	$25.19
4mm	6mm	12mm	50mm	GM0400MMF4	10007	$27.96	GMRF0400MMF4	00006	$31.79
5mm	6mm	15mm	65mm	GM0500MMF4	10012	$29.90	GMRF0500MMF4	00010	$33.99
6mm	6mm	12mm	50mm	GM0600MMFS4	10018	$25.03	GMRF0600MMFS4	00015	$31.04
6mm	6mm	19mm	65mm	GM0600MMF4	10017	$26.28	GMRF0600MMF4	00014	$34.06
8mm	8mm	12mm	50mm	GM0800MMFS4	10024	$32.53	GMRF0800MMFS4	00020	$36.56
8mm	8mm	22mm	65mm	GM0800MMF4	10023	$33.90	GMRF0800MMF4	00019	$38.09
10mm	10mm	22mm	70mm	GM1000MMF4	10032	$42.41	GMRF1000MMF4	00026	$50.52
12mm	12mm	19mm	63mm	GM1200MMFS4	10139	$60.34	GMRF1200MMFS4	00080	$67.71
12mm	12mm	19mm	63mm	GM1200MMFS4WF	10140	$60.34	GMRF1200MMFS4WF	00081	$67.71
12mm	12mm	32mm	75mm	GM1200MMF4	10137	$63.15	GMRF1200MMF4	00078	$77.19
12mm	12mm	32mm	75mm	GM1200MMF4WF	10138	$63.15	GMRF1200MMF4WF	00079	$77.19
16mm	16mm	32mm	89mm	GM1600MMF4	10290	$123.76	GMRF1600MMF4	00160	$134.52
16mm	16mm	32mm	89mm	GM1600MMF4WF	10291	$123.76	GMRF1600MMF4WF	00161	$134.52
20mm	20mm	38mm	100mm	GM2000MMF4	10325	$185.86	GMRF2000MMF4	00180	$210.00
20mm	20mm	38mm	100mm	GM2000MMF4WF	10326	$185.86	GMRF2000MMF4WF	00181	$210.00
25mm	25mm	38mm	100mm	GM2500MMF4	10337	$278.30	GMRF2500MMF4	00190	$318.75
25mm	25mm	38mm	100mm	GM2500MMF4WF	10338	$278.30	GMRF2500MMF4WF	00191	$318.75

4 FLUTE (METRIC) RADIUS



RADIUS END

Speeds & Feeds Chart Page 166 & 174

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
					HIGH PERFORMANCE I GMX-35 COATED			SUPER BITCHIN' PERFORMANCE I GMS² COATED		
3mm	3mm	12mm	38mm	.20mm	GM0300MMR4020	10003	$24.52	GMRF0300MMR4020	00003	$27.88
3mm	3mm	12mm	38mm	.50mm	GM0300MMR4050	10004	$24.52	GMRF0300MMR4050	00004	$27.88
3mm	3mm	8mm	38mm	.20mm	GM0300MMRS4020	10005	$23.44	GMRF0300MMRS4020	00005	$26.65
4mm	6mm	12mm	50mm	.30mm	GM0400MMR4030	10008	$29.45	GMRF0400MMR4030	00007	$33.47
4mm	6mm	12mm	50mm	.50mm	GM0400MMR4050	10009	$29.45	GMRF0400MMR4050	00008	$33.47
4mm	6mm	8mm	50mm	.30mm	GM0400MMRS4030	10010	$28.16	GMRF0400MMRS4030	00009	$32.01
5mm	6mm	10mm	50mm	.30mm	GM0500MMRS4030	10015	$29.24	GMRF0500MMRS4030	00013	$33.23
5mm	6mm	15mm	65mm	.30mm	GM0500MMR4030	10013	$31.49	GMRF0500MMR4030	00011	$35.79
5mm	6mm	15mm	65mm	.50mm	GM0500MMR4050	10014	$31.49	GMRF0500MMR4050	00012	$35.79
6mm	6mm	12mm	50mm	.30mm	GM0600MMRS4030	10021	$26.10	GMRF0600MMRS4030	00018	$34.17
6mm	6mm	19mm	65mm	.30mm	GM0600MMR4030	10019	$28.09	GMRF0600MMR4030	00016	$37.40
6mm	6mm	19mm	65mm	.50mm	GM0600MMR4050	10020	$28.09	GMRF0600MMR4050	00017	$37.40
8mm	8mm	12mm	50mm	.50mm	GM0800MMRS4050	10029	$34.06	GMRF0800MMRS4050	00025	$38.27
8mm	8mm	22mm	65mm	.30mm	GM0800MMR4030	10025	$35.65	GMRF0800MMR4030	00021	$44.27
8mm	8mm	22mm	65mm	.50mm	GM0800MMR4050	10026	$35.65	GMRF0800MMR4050	00022	$44.27
8mm	8mm	22mm	65mm	1.0mm	GM0800MMR4100	10027	$35.65	GMRF0800MMR4100	00023	$44.27
8mm	8mm	22mm	65mm	1.5mm	GM0800MMR4150	10028	$35.65	GMRF0800MMR4150	00024	$44.27
10mm	10mm	16mm	50mm	.50mm	GM1000MMRS4050	10040	$42.40	GMRF1000MMRS4050	00034	$51.56
10mm	10mm	22mm	70mm	.30mm	GM1000MMR4030	10034	$44.61	GMRF1000MMR4030	00028	$53.54
10mm	10mm	22mm	70mm	.50mm	GM1000MMR4050	10036	$44.61	GMRF1000MMR4050	00030	$53.54
10mm	10mm	22mm	70mm	1.0mm	GM1000MMR4100	10038	$44.61	GMRF1000MMR4100	00032	$53.54
12mm	12mm	19mm	63mm	.30mm	GM1200MMRS4030	10151	$63.43	GMRF1200MMRS4030	00092	$71.15
12mm	12mm	19mm	63mm	.30mm	GM1200MMRS4030WF	10152	$63.43	GMRF1200MMRS4030WF	00093	$71.15
12mm	12mm	19mm	63mm	.50mm	GM1200MMRS4050	10153	$63.43	GMRF1200MMRS4050	00094	$71.15
12mm	12mm	19mm	63mm	.50mm	GM1200MMRS4050WF	10154	$63.43	GMRF1200MMRS4050WF	00095	$71.15
12mm	12mm	32mm	75mm	.30mm	GM1200MMR4030	10141	$66.46	GMRF1200MMR4030	00082	$81.46
12mm	12mm	32mm	75mm	.30mm	GM1200MMR4030WF	10142	$66.46	GMRF1200MMR4030WF	00083	$81.46
12mm	12mm	32mm	75mm	.50mm	GM1200MMR4050	10143	$66.46	GMRF1200MMR4050	00084	$81.46
12mm	12mm	32mm	75mm	.50mm	GM1200MMR4050WF	10144	$66.46	GMRF1200MMR4050WF	00085	$81.46
12mm	12mm	32mm	75mm	1.0mm	GM1200MMR4100	10145	$66.46	GMRF1200MMR4100	00086	$81.46
12mm	12mm	32mm	75mm	1.0mm	GM1200MMR4100WF	10146	$66.46	GMRF1200MMR4100WF	00087	$81.46
12mm	12mm	32mm	75mm	1.5mm	GM1200MMR4150	10147	$66.46	GMRF1200MMR4150	00088	$81.46
12mm	12mm	32mm	75mm	1.5mm	GM1200MMR4150WF	10148	$66.46	GMRF1200MMR4150WF	00089	$81.46
12mm	12mm	32mm	75mm	2.0mm	GM1200MMR4200	10149	$66.46	GMRF1200MMR4200	00090	$81.46
12mm	12mm	32mm	75mm	2.0mm	GM1200MMR4200WF	10150	$66.46	GMRF1200MMR4200WF	00091	$81.46

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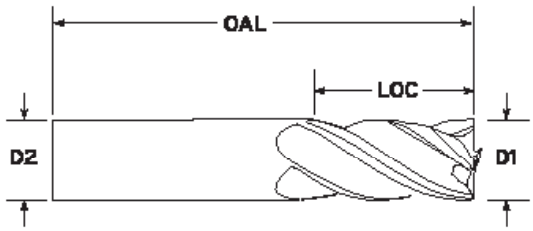
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE (METRIC) RADIUS



RADIUS END

Speeds & Feeds Chart Page 166 & 174

HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
16mm	16mm	19mm	75mm	.30mm	**GM1600MMRS4030**	10300	$118.00	**GMRF1600MMRS4030**	00170	$129.38
16mm	16mm	19mm	75mm	.30mm	**GM1600MMRS4030WF**	10301	$118.00	**GMRF1600MMRS4030WF**	00171	$129.38
16mm	16mm	19mm	75mm	.50mm	**GM1600MMRS4050**	10302	$118.00	**GMRF1600MMRS4050**	00172	$129.38
16mm	16mm	19mm	75mm	.50mm	**GM1600MMRS4050WF**	10303	$118.00	**GMRF1600MMRS4050WF**	00173	$129.38
16mm	16mm	32mm	89mm	.30mm	**GM1600MMR4030**	10292	$130.20	**GMRF1600MMR4030**	00162	$135.31
16mm	16mm	32mm	89mm	.30mm	**GM1600MMR4030WF**	10293	$130.20	**GMRF1600MMR4030WF**	00163	$135.31
16mm	16mm	32mm	89mm	.50mm	**GM1600MMR4050**	10294	$130.20	**GMRF1600MMR4050**	00164	$135.31
16mm	16mm	32mm	89mm	.50mm	**GM1600MMR4050WF**	10295	$130.20	**GMRF1600MMR4050WF**	00165	$135.31
16mm	16mm	32mm	89mm	1.0mm	**GM1600MMR4100**	10296	$130.20	**GMRF1600MMR4100**	00166	$135.31
16mm	16mm	32mm	89mm	1.0mm	**GM1600MMR4100WF**	10297	$130.20	**GMRF1600MMR4100WF**	00167	$135.31
16mm	16mm	32mm	89mm	2.0mm	**GM1600MMR4200**	10298	$130.20	**GMRF1600MMR4200**	00168	$135.31
16mm	16mm	32mm	89mm	2.0mm	**GM1600MMR4200WF**	10299	$130.20	**GMRF1600MMR4200WF**	00169	$135.31
20mm	20mm	22mm	75mm	1.0mm	**GM2000MMRS4100**	10333	$186.42	**GMRF2000MMRS4100**	00188	$210.73
20mm	20mm	22mm	75mm	1.0mm	**GM2000MMRS4100WF**	10334	$186.42	**GMRF2000MMRS4100WF**	00189	$210.73
20mm	20mm	38mm	100mm	.50mm	**GM2000MMR4050**	10327	$195.23	**GMRF2000MMR4050**	00182	$218.54
20mm	20mm	38mm	100mm	.50mm	**GM2000MMR4050WF**	10328	$195.23	**GMRF2000MMR4050WF**	00183	$218.54
20mm	20mm	38mm	100mm	1.0mm	**GM2000MMR4100**	10329	$195.23	**GMRF2000MMR4100**	00184	$218.54
20mm	20mm	38mm	100mm	1.0mm	**GM2000MMR4100WF**	10330	$195.23	**GMRF2000MMR4100WF**	00185	$218.54
20mm	20mm	38mm	100mm	1.5mm	**GM2000MMR4150**	10331	$195.23	**GMRF2000MMR4150**	00186	$218.54
20mm	20mm	38mm	100mm	1.5mm	**GM2000MMR4150WF**	10332	$195.23	**GMRF2000MMR4150WF**	00187	$218.54
25mm	25mm	38mm	100mm	1.0mm	**GM2500MMR4100**	10339	$293.30	**GMRF2500MMR4100**	00192	$331.98
25mm	25mm	38mm	100mm	1.0mm	**GM2500MMR4100WF**	10340	$293.30	**GMRF2500MMR4100WF**	00193	$331.98
25mm	25mm	38mm	100mm	1.5mm	**GM2500MMR4150**	10341	$293.30	**GMRF2500MMR4150**	00194	$331.98
25mm	25mm	38mm	100mm	1.5mm	**GM2500MMR4150WF**	10342	$293.30	**GMRF2500MMR4150WF**	00195	$331.98

4 FLUTE (INCH) BALLNOSE

BALLNOSE END **GMX-35 COATED**

SPEEDS & FEEDS CHART PAGE 167-169

SKU WF= Weldon Flat	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GM18BS4	10880	1/8	1/8	1/4	1-1/2	$25.11
GM18BH4	10881	1/8	1/8	3/8	1-1/2	$25.73
GM18B4	10304	1/8	1/8	1/2	1-1/2	$26.34
GM532B4	10534	5/32	3/16	1/2	2	$28.44
GM316BS4	10882	3/16	3/16	5/16	2	$26.76
GM316B4	10343	3/16	3/16	5/8	2	$27.07
GM14BXS4	10883	1/4	1/4	3/8	2	$29.73
GM14BS4	10884	1/4	1/4	1/2	2-1/2	$30.72
GM14B4	10247	1/4	1/4	3/4	2-1/2	$30.72
GM516BS4	10885	5/16	5/16	1/2	2	$36.60
GM516BH4	10886	5/16	5/16	3/4	2-1/2	$37.98
GM516B4	10501	5/16	5/16	7/8	2-1/2	$38.16
GM516BL4	10887	5/16	5/16	1	2-1/2	$39.79
GM38BS4	10888	3/8	3/8	1/2	2	$43.17
GM38B4	10455	3/8	3/8	7/8	2-1/2	$44.99
GM38BL4	10889	3/8	3/8	1	2-1/2	$46.52
GM716BS4	10890	7/16	7/16	5/8	2-1/2	$58.72
GM716BH4	10891	7/16	7/16	7/8	2-1/2	$60.17
GM716B4	10590	7/16	7/16	1	2-1/2	$61.60
GM716B4WF	10591	7/16	7/16	1	2-1/2	$61.60
GM716BL4	10892	7/16	7/16	1-1/8	3-1/2	$70.48
GM12BS4	10893	1/2	1/2	5/8	2-1/2	$74.51
GM12BH4	10894	1/2	1/2	1	3	$75.43
GM12B4	10155	1/2	1/2	1-1/4	3	$77.96
GM12B4WF	10156	1/2	1/2	1-1/4	3	$77.96
GM12BL4	10895	1/2	1/2	1-5/8	4	$98.75
GM12BXL4	10905	1/2	1/2	2	4	$102.29
GM58BS4	10896	5/8	5/8	3/4	3	$134.27
GM58B4	10538	5/8	5/8	1-1/4	3-1/2	$140.83
GM58B4WF	10539	5/8	5/8	1-1/4	3-1/2	$140.83
GM58BHL4	10897	5/8	5/8	1-5/8	3-1/2	$158.82
GM58BL4	10898	5/8	5/8	2	4	$176.80
GM34BS4	10899	3/4	3/4	7/8	3	$199.68
GM34B4	10362	3/4	3/4	1-1/2	4	$201.71
GM34B4WF	10363	3/4	3/4	1-1/2	4	$201.71
GM34BL4	10900	3/4	3/4	1-5/8	4	$211.88
GM34BLH4	10901	3/4	3/4	2-1/4	5	$217.60
GM10B4	10042	1	1	1-1/2	4	$344.79
GM10B4WF	10043	1	1	1-1/2	4	$344.80
GM10BL4	10902	1	1	2	4-1/2	$353.02
GM10BLH4	10903	1	1	2-5/8	5	$378.85
GM10BXL4	10904	1	1	3	6	$399.17

PATENT NO. 7,367,754

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HP

HIGH PERFORMANCE – FERROUS
4 FLUTE (METRIC) BALLNOSE

BALLNOSE END **GMX-35 COATED**

SPEEDS & FEEDS CHART PAGE 170-172

SKU WF= Weldon Flat	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GM0300MMB4	10000	**3mm**	3mm	12mm	38mm	$26.80
GM0400MMB4	10006	**4mm**	6mm	12mm	50mm	$31.50
GM0500MMB4	10011	**5mm**	6mm	15mm	65mm	$33.69
GM0600MMB4	10016	**6mm**	6mm	19mm	65mm	$30.45
GM0800MMB4	10022	**8mm**	8mm	22mm	65mm	$38.17
GM1000MMB4	10030	**10mm**	10mm	22mm	70mm	$49.47
GM1200MMB4	10135	**12mm**	12mm	32mm	75mm	$73.16
GM1200MMB4WF	10136	**12mm**	12mm	32mm	75mm	$73.16
GM1600MMB4	10288	**16mm**	16mm	32mm	89mm	$141.27
GM1600MMB4WF	10289	**16mm**	16mm	32mm	89mm	$141.27
GM2000MMB4	10323	**20mm**	20mm	38mm	100mm	$208.90
GM2000MMB4WF	10324	**20mm**	20mm	38mm	100mm	$208.90
GM2500MMB4	10335	**25mm**	25mm	38mm	100mm	$313.82
GM2500MMB4WF	10336	**25mm**	25mm	38mm	100mm	$313.82

PATENT NO. 7,367,754

HIGH PERFORMANCE – FERROUS

4 FLUTE NECK RELIEVED (INCH) SQUARE

Patented variable flute and variable index design which reduces chatter and vibration. For finishing of stainless, inconel, titanium, tool steels, hardened steels and other ferrous materials. Extended neck provides clearance for deep pocketing, slotting or profiling. Center cutting. See “Speeds and Feeds” calculator at gorillamill.com or refer to “Speeds and Feeds” chart at the back of the catalog.

Available in special diameters, lengths and completely resharpenable.

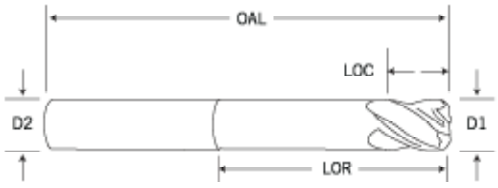
SQUARE END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 173

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LOR Length of Relief	LIST PRICE
GMNR14F40.750	10734	1/4	1/4	3/8	3	3/4	$38.22
GMNR14F41.125	10735	1/4	1/4	3/8	4	1-1/8	$42.74
GMNR14F42.125	10736	1/4	1/4	3/8	4	2-1/8	$45.28
GMNR38F41.125	10800	3/8	3/8	1/2	4	1-1/8	$61.22
GMNR38F42.125	10801	3/8	3/8	1/2	4	2-1/8	$61.71
GMNR38F43.125	10802	3/8	3/8	1/2	6	3-1/8	$81.94
GMNR38F44.125	10803	3/8	3/8	1/2	6	4-1/8	$100.77
GMNR12F41.500	10686	1/2	1/2	5/8	4	1-1/2	$95.95
GMNR12F42.250	10687	1/2	1/2	5/8	4	2-1/4	$95.95
GMNR12F43.375	10688	1/2	1/2	5/8	6	3-3/8	$132.08
GMNR12F44.125	10689	1/2	1/2	5/8	6	4-1/8	$136.07
GMNR58F41.625	10840	5/8	5/8	3/4	4	1-5/8	$156.85
GMNR58F42.375	10841	5/8	5/8	3/4	6	2-3/8	$180.38
GMNR58F43.375	10842	5/8	5/8	3/4	6	3-3/8	$197.35
GMNR58F44.125	10843	5/8	5/8	3/4	6	4-1/8	$203.29
GMNR34F42.250	10758	3/4	3/4	1	4-1/2	2-1/4	$240.77
GMNR34F43.250	10759	3/4	3/4	1	6	3-1/4	$261.89
GMNR34F44.125	10760	3/4	3/4	1	6	4-1/8	$273.46
GMNR10F42.250	10620	1	1	1-1/8	4-1/2	2-1/4	$359.05
GMNR10F43.250	10621	1	1	1-1/8	6	3-1/4	$388.01
GMNR10F44.250	10622	1	1	1-1/8	6	4-1/4	$442.11

PATENT NO. 7,367,754

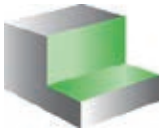


MATERIALS

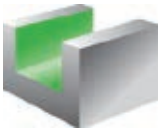
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temp. Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

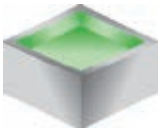
PROFILING



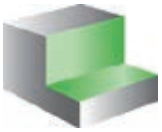
FULL SLOTTING



POCKETING



HIGH-VELOCITY



HP

HIGH PERFORMANCE – FERROUS

4 FLUTE NECK RELIEVED (INCH) RADIUS

Patented variable flute and variable index design which reduces chatter and vibration. For finishing of stainless, inconel, titanium, tool steels, hardened steels and other ferrous materials. Extended neck provides clearance for deep pocketing, slotting or profiling. Center cutting. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog.

Available in special diameters, lengths and completely resharpenable.

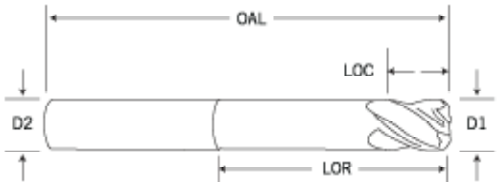
RADIUS END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 173

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Length of Relief	LIST PRICE
GMNR14R40150.750	10740	1/4	1/4	3/8	3	0.015	3/4	$43.38
GMNR14R40151.125	10741	1/4	1/4	3/8	4	0.015	1-1/8	$48.29
GMNR14R40152.125	10742	1/4	1/4	3/8	4	0.015	2-1/8	$51.16
GMNR14R40300.750	10743	1/4	1/4	3/8	3	0.030	3/4	$43.38
GMNR14R40301.125	10744	1/4	1/4	3/8	4	0.030	1-1/8	$48.29
GMNR14R40302.125	10745	1/4	1/4	3/8	4	0.030	2-1/8	$51.16
GMNR14R40600.750	10746	1/4	1/4	3/8	3	0.060	3/4	$43.38
GMNR14R40601.125	10747	1/4	1/4	3/8	4	0.060	1-1/8	$48.29
GMNR14R40602.125	10748	1/4	1/4	3/8	4	0.060	2-1/8	$51.16
GMNR38R40151.125	10808	3/8	3/8	1/2	4	0.015	1-1/8	$63.67
GMNR38R40152.125	10809	3/8	3/8	1/2	4	0.015	2-1/8	$64.38
GMNR38R40153.125	10810	3/8	3/8	1/2	6	0.015	3-1/8	$92.60
GMNR38R40154.125	10811	3/8	3/8	1/2	6	0.015	4-1/8	$113.86
GMNR38R40301.125	10812	3/8	3/8	1/2	4	0.030	1-1/8	$63.67
GMNR38R40302.125	10813	3/8	3/8	1/2	4	0.030	2-1/8	$64.38
GMNR38R40303.125	10814	3/8	3/8	1/2	6	0.030	3-1/8	$92.60
GMNR38R40304.125	10815	3/8	3/8	1/2	6	0.030	4-1/8	$113.86
GMNR38R40601.125	10816	3/8	3/8	1/2	4	0.060	1-1/8	$63.67
GMNR38R40602.125	10817	3/8	3/8	1/2	4	0.060	2-1/8	$64.38
GMNR38R40603.125	10818	3/8	3/8	1/2	6	0.060	3-1/8	$92.60
GMNR38R40604.125	10819	3/8	3/8	1/2	6	0.060	4-1/8	$113.86
GMNR38R40901.125	10820	3/8	3/8	1/2	4	0.090	1-1/8	$63.67
GMNR38R40902.125	10821	3/8	3/8	1/2	4	0.090	2-1/8	$64.38
GMNR38R40903.125	10822	3/8	3/8	1/2	6	0.090	3-1/8	$92.60
GMNR38R40904.125	10823	3/8	3/8	1/2	6	0.090	4-1/8	$113.86

PATENT NO. 7,367,754

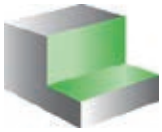


MATERIALS

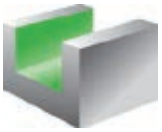
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temp. Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



FULL SLOTTING



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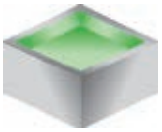
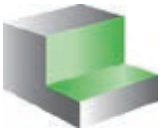


HIGH-VELOCITY



4 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 173

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Length of Relief	LIST PRICE
GMNR12R40151.500	10694	1/2	1/2	5/8	4	0.015	1-1/2	$96.94
GMNR12R40152.250	10695	1/2	1/2	5/8	4	0.015	2-1/4	$100.77
GMNR12R40153.375	10696	1/2	1/2	5/8	6	0.015	3-3/8	$135.80
GMNR12R40154.125	10697	1/2	1/2	5/8	6	0.015	4-1/8	$143.23
GMNR12R40301.500	10698	1/2	1/2	5/8	4	0.030	1-1/2	$96.94
GMNR12R40302.250	10699	1/2	1/2	5/8	4	0.030	2-1/4	$100.77
GMNR12R40303.375	10700	1/2	1/2	5/8	6	0.030	3-3/8	$135.80
GMNR12R40304.125	10701	1/2	1/2	5/8	6	0.030	4-1/8	$143.23
GMNR12R40601.500	10702	1/2	1/2	5/8	4	0.060	1-1/2	$96.94
GMNR12R40602.250	10703	1/2	1/2	5/8	4	0.060	2-1/4	$100.77
GMNR12R40603.375	10704	1/2	1/2	5/8	6	0.060	3-3/8	$135.80
GMNR12R40604.125	10705	1/2	1/2	5/8	6	0.060	4-1/8	$143.23
GMNR12R40901.500	10706	1/2	1/2	5/8	4	0.090	1-1/2	$96.94
GMNR12R40902.250	10707	1/2	1/2	5/8	4	0.090	2-1/4	$100.77
GMNR12R40903.375	10708	1/2	1/2	5/8	6	0.090	3-3/8	$135.80
GMNR12R40904.125	10709	1/2	1/2	5/8	6	0.090	4-1/8	$143.23
GMNR12R41201.500	10710	1/2	1/2	5/8	4	0.120	1-1/2	$96.94
GMNR12R41202.250	10711	1/2	1/2	5/8	4	0.120	2-1/4	$100.77
GMNR12R41203.375	10712	1/2	1/2	5/8	6	0.120	3-3/8	$135.80
GMNR12R41204.125	10713	1/2	1/2	5/8	6	0.120	4-1/8	$143.23
GMNR58R40301.625	10848	5/8	5/8	3/4	4	0.030	1-5/8	$163.84
GMNR58R40302.375	10849	5/8	5/8	3/4	6	0.030	2-3/8	$184.41
GMNR58R40303.375	10850	5/8	5/8	3/4	6	0.030	3-3/8	$204.31
GMNR58R40304.125	10851	5/8	5/8	3/4	6	0.030	4-1/8	$210.27
GMNR58R40601.625	10852	5/8	5/8	3/4	4	0.060	1-5/8	$163.84
GMNR58R40602.375	10853	5/8	5/8	3/4	6	0.060	2-3/8	$184.41
GMNR58R40603.375	10854	5/8	5/8	3/4	6	0.060	3-3/8	$204.31
GMNR58R40604.125	10855	5/8	5/8	3/4	6	0.060	4-1/8	$210.27
GMNR58R40901.625	10856	5/8	5/8	3/4	4	0.090	1-5/8	$163.84
GMNR58R40902.375	10857	5/8	5/8	3/4	6	0.090	2-3/8	$184.41
GMNR58R40903.375	10858	5/8	5/8	3/4	6	0.090	3-3/8	$204.31
GMNR58R40904.125	10859	5/8	5/8	3/4	6	0.090	4-1/8	$210.27
GMNR58R41201.625	10860	5/8	5/8	3/4	4	0.120	1-5/8	$163.84
GMNR58R41202.375	10861	5/8	5/8	3/4	6	0.120	2-3/8	$184.41
GMNR58R41203.375	10862	5/8	5/8	3/4	6	0.120	3-3/8	$204.31
GMNR58R41204.125	10863	5/8	5/8	3/4	6	0.120	4-1/8	$210.27
GMNR34R40302.250	10764	3/4	3/4	1	4-1/2	0.030	2-1/4	$253.45
GMNR34R40303.250	10765	3/4	3/4	1	6	0.030	3-1/4	$274.57
GMNR34R40304.125	10766	3/4	3/4	1	6	0.030	4-1/8	$281.92
GMNR34R40602.250	10767	3/4	3/4	1	4-1/2	0.060	2-1/4	$253.45

PATENT NO. 7,367,754

Continued on next page

HIGH PERFORMANCE – FERROUS
4 FLUTE NECK RELIEVED (INCH) RADIUS

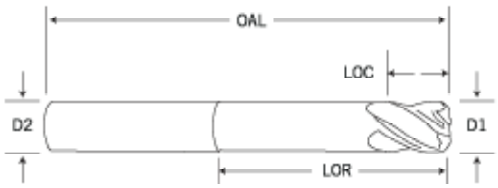
RADIUS END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 173

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Length of Relief	LIST PRICE
GMNR34R40603.250	10768	3/4	3/4	1	6	0.060	3-1/4	$274.57
GMNR34R40604.125	10769	3/4	3/4	1	6	0.060	4-1/8	$281.92
GMNR34R40902.250	10770	3/4	3/4	1	4-1/2	0.090	2-1/4	$253.45
GMNR34R40903.250	10771	3/4	3/4	1	6	0.090	3-1/4	$274.57
GMNR34R40904.125	10772	3/4	3/4	1	6	0.090	4-1/8	$281.92
GMNR34R41202.250	10773	3/4	3/4	1	4-1/2	0.120	2-1/4	$253.45
GMNR34R41203.250	10774	3/4	3/4	1	6	0.120	3-1/4	$274.57
GMNR34R41204.125	10775	3/4	3/4	1	6	0.120	4-1/8	$281.92
GMNR34R41902.250	10776	3/4	3/4	1	4-1/2	0.190	2-1/4	$253.45
GMNR34R41903.250	10777	3/4	3/4	1	6	0.190	3-1/4	$274.57
GMNR34R41904.125	10778	3/4	3/4	1	6	0.190	4-1/8	$281.92
GMNR34R42502.250	10779	3/4	3/4	1	4-1/2	0.250	2-1/4	$253.45
GMNR34R42503.250	10780	3/4	3/4	1	6	0.250	3-1/4	$274.57
GMNR34R42504.125	10781	3/4	3/4	1	6	0.250	4-1/8	$281.92
GMNR10R40302.250	10626	1	1	1-1/8	4-1/2	0.030	2-1/4	$376.64
GMNR10R40303.250	10627	1	1	1-1/8	6	0.030	3-1/4	$407.32
GMNR10R40304.250	10628	1	1	1-1/8	6	0.030	4-1/4	$458.76
GMNR10R40602.250	10629	1	1	1-1/8	4-1/2	0.060	2-1/4	$376.64
GMNR10R40603.250	10630	1	1	1-1/8	6	0.060	3-1/4	$407.32
GMNR10R40604.250	10631	1	1	1-1/8	6	0.060	4-1/4	$458.76
GMNR10R40902.250	10632	1	1	1-1/8	4-1/2	0.090	2-1/4	$376.64
GMNR10R40903.250	10633	1	1	1-1/8	6	0.090	3-1/4	$407.32
GMNR10R40904.250	10634	1	1	1-1/8	6	0.090	4-1/4	$458.76
GMNR10R41202.250	10635	1	1	1-1/8	4-1/2	0.120	2-1/4	$376.64
GMNR10R41203.250	10636	1	1	1-1/8	6	0.120	3-1/4	$407.32
GMNR10R41204.250	10637	1	1	1-1/8	6	0.120	4-1/4	$458.76
GMNR10R41902.250	10638	1	1	1-1/8	4-1/2	0.190	2-1/4	$376.64
GMNR10R41903.250	10639	1	1	1-1/8	6	0.190	3-1/4	$407.32
GMNR10R41904.250	10640	1	1	1-1/8	6	0.190	4-1/4	$458.76
GMNR10R42502.250	10641	1	1	1-1/8	4-1/2	0.250	2-1/4	$376.64
GMNR10R42503.250	10642	1	1	1-1/8	6	0.250	3-1/4	$407.32
GMNR10R42504.250	10643	1	1	1-1/8	6	0.250	4-1/4	$458.76

PATENT NO. 7,367,754



MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temp. Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

HIGH PERFORMANCE – FERROUS

3 & 4 FLUTE ROUGHERS (INCH) CHAMFER

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for extremely aggressive machining applications in all materials including: stainless, Inconel, titanium, tool steels, and alloy and low carbon steels. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

3 FLUTE ROUGHERS

GMS² COATED

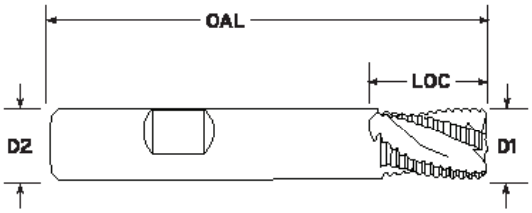
SPEEDS & FEEDS CHART PAGE 175							
SKU	**EDP**	**D1** Cutting Dia.	**D2** Shank Dia.	**LOC**	**OAL**	**SHANK STYLE**	**LIST PRICE**
GMKD14CS3	50060	**1/4**	1/4	5/16	2	–	$72.94
GMKD14C3	50059	**1/4**	1/4	3/4	2-1/2	–	$77.59

4 FLUTE ROUGHERS

GMS² COATED

SPEEDS & FEEDS CHART PAGE 175							
SKU	**EDP**	**D1** Cutting Dia.	**D2** Shank Dia.	**LOC**	**OAL**	**SHANK STYLE**	**LIST PRICE**
GMKD516CS4	50082	**5/16**	5/16	3/8	2	–	$78.73
GMKD516C4	50081	**5/16**	5/16	7/8	2-1/2	–	$82.80
GMKD38CS4	50079	**3/8**	3/8	9/16	2		$84.52
GMKD38C4	50077	**3/8**	3/8	7/8	2-1/2		$88.00
GMKD12CS4	50057	**1/2**	1/2	5/8	2-1/2	WELDON FLAT	$107.68
GMKD12CH4	50055	**1/2**	1/2	1	3	WELDON FLAT	$114.63
GMKD12C4	50053	**1/2**	1/2	1-1/4	3	WELDON FLAT	$114.63
GMKD58CS4	50085	**5/8**	5/8	7/8	3-1/2	WELDON FLAT	$187.57
GMKD58C4	50083	**5/8**	5/8	1-1/4	3-1/2	WELDON FLAT	$202.04
GMKD34CS4	50075	**3/4**	3/4	1	4	WELDON FLAT	$207.20
GMKD34C4	50073	**3/4**	3/4	1-5/8	4	WELDON FLAT	$238.20
GMKD10CS4	50045	**1**	1	1	4	WELDON FLAT	$310.21
GMKD10C4	50043	**1**	1	1-3/4	4	WELDON FLAT	$330.24

PATENT NO. 7,367,754

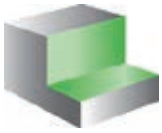


MATERIALS

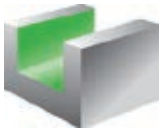
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

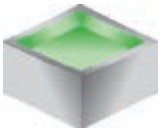
PROFILING



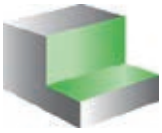
FULL SLOTTING



POCKETING



HIGH-VELOCITY



HP

HIGH PERFORMANCE – FERROUS

3 & 4 FLUTE ROUGHERS (METRIC) CHAMFER

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for extremely aggressive machining applications in all materials including: stainless, Inconel, titanium, tool steels, and alloy and low carbon steels. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

3 FLUTE ROUGHERS

GMS² COATED

SPEEDS & FEEDS CHART PAGE 176

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK STYLE	LIST PRICE
GMKD0600MMCS3	50030	6mm	6mm	12mm	50mm	–	$72.94
GMKD0600MMC3	50029	6mm	6mm	19mm	65mm	–	$77.57

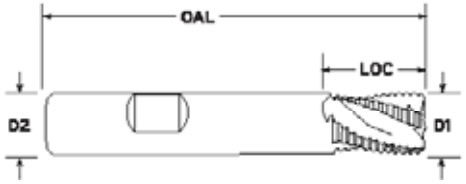
4 FLUTE ROUGHERS

GMS² COATED

SPEEDS & FEEDS CHART PAGE 176

SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	SHANKSTYLE	LISTPRICE
GMKD0800MMCS4	50035	8mm	8mm	12mm	50mm	–	$78.73
GMKD0800MMC4	50031	8mm	8mm	22mm	65mm	–	$82.80
GMKD0800MMCL4	50033	8mm	8mm	40mm	100mm	–	$121.22
GMKD1000MMCS4	50041	10mm	10mm	16mm	50mm		$89.65
GMKD1000MMC4	50037	10mm	10mm	22mm	70mm		$93.33
GMKD1000MMCL4	50039	10mm	10mm	40mm	100mm		$124.86
GMKD1200MMCS4	50051	12mm	12mm	19mm	63mm	WELDON FLAT	$103.68
GMKD1200MMC4	50047	12mm	12mm	32mm	75mm	WELDON FLAT	$110.33
GMKD1200MMCL4	50049	12mm	12mm	50mm	100mm	WELDON FLAT	$157.29
GMKD1600MMCS4	50063	16mm	16mm	19mm	75mm	WELDON FLAT	$179.09
GMKD1600MMC4	50061	16mm	16mm	32mm	89mm	WELDON FLAT	$202.60
GMKD2000MMCS4	50067	20mm	20mm	22mm	75mm	WELDON FLAT	$212.78
GMKD2000MMC4	50065	20mm	20mm	38mm	100mm	WELDON FLAT	$244.31
GMKD2500MMCS4	50071	25mm	25mm	25mm	100mm	WELDON FLAT	$303.08
GMKD2500MMC4	50069	25mm	25mm	38mm	100mm	WELDON FLAT	$323.04

PATENT NO. 7,367,754

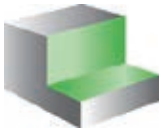


MATERIALS

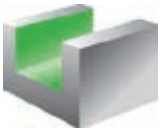
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

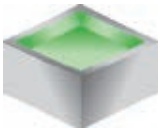
PROFILING



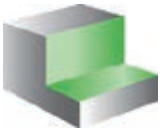
FULL SLOTTING



POCKETING



HIGH-VELOCITY



SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE ROUGHER/FINISHER (INCH) CHAMFE

Engineered using Gorilla Mill technology. Extremely high material removal rates while maintaining a superb finish. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Center cutting. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths, and completely resharpenable.

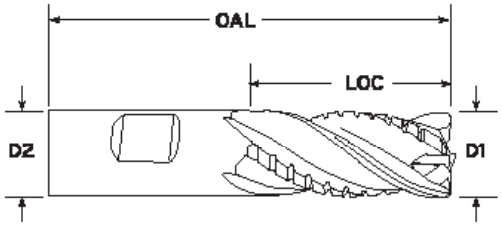
CHAMFER END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 177

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHX38CS4	40112	3/8	3/8	9/16	2	$59.99
GMHX38C4	40111	3/8	3/8	7/8	2-1/2	$63.84
GMHX12CS4	40059	1/2	1/2	5/8	2-1/2	$87.22
GMHX12C4	40058	1/2	1/2	1-1/4	3	$90.88
GMHX58CS4	40122	5/8	5/8	7/8	3-1/2	$152.77
GMHX58C4	40121	5/8	5/8	1-1/4	3-1/2	$161.75
GMHX34CS4	40092	3/4	3/4	1	4	$231.99
GMHX34C4	40090	3/4	3/4	1-5/8	4	$249.63
GMHX34CLH4	40091	3/4	3/4	2-1/4	5	$340.56
GMHX10CS4	40024	1	1	1	4	$393.81
GMHX10C4	40022	1	1	1-3/4	4	$412.95
GMHX10CLH4	40023	1	1	2-1/4	5	$465.15

PATENT NO. 7,367,754

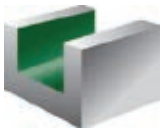


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

FULL SLOTTING



POCKETING

SB

SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE ROUGHER/FINISHER (INCH) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 177							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHX38RS4015	40117	3/8	3/8	9/16	2	0.015	$59.99
GMHX38RS4030	40118	3/8	3/8	9/16	2	0.030	$59.99
GMHX38RS4060	40119	3/8	3/8	9/16	2	0.060	$59.99
GMHX38RS4090	40120	3/8	3/8	9/16	2	0.090	$59.99
GMHX38R4015	40113	3/8	3/8	7/8	2-1/2	0.015	$63.84
GMHX38R4030	40114	3/8	3/8	7/8	2-1/2	0.030	$63.84
GMHX38R4060	40115	3/8	3/8	7/8	2-1/2	0.060	$63.84
GMHX38R4090	40116	3/8	3/8	7/8	2-1/2	0.090	$63.84
GMHX12RS4015	40065	1/2	1/2	5/8	2-1/2	0.015	$87.22
GMHX12RS4030	40066	1/2	1/2	5/8	2-1/2	0.030	$87.22
GMHX12RS4060	40067	1/2	1/2	5/8	2-1/2	0.060	$87.22
GMHX12RS4090	40068	1/2	1/2	5/8	2-1/2	0.090	$87.22
GMHX12RS4120	40069	1/2	1/2	5/8	2-1/2	0.120	$87.22
GMHX12R4015	40060	1/2	1/2	1-1/4	3	0.015	$90.88
GMHX12R4030	40061	1/2	1/2	1-1/4	3	0.030	$90.88
GMHX12R4060	40062	1/2	1/2	1-1/4	3	0.060	$90.88
GMHX12R4090	40063	1/2	1/2	1-1/4	3	0.090	$90.88
GMHX12R4120	40064	1/2	1/2	1-1/4	3	0.120	$90.88
GMHX58RS4030	40127	5/8	5/8	7/8	3-1/2	0.030	$152.77
GMHX58RS4060	40128	5/8	5/8	7/8	3-1/2	0.060	$152.77
GMHX58RS4090	40129	5/8	5/8	7/8	3-1/2	0.090	$152.77
GMHX58RS4120	40130	5/8	5/8	7/8	3-1/2	0.120	$152.77
GMHX58R4030	40123	5/8	5/8	1-1/4	3-1/2	0.030	$161.75
GMHX58R4060	40124	5/8	5/8	1-1/4	3-1/2	0.060	$161.75
GMHX58R4090	40125	5/8	5/8	1-1/4	3-1/2	0.090	$161.75
GMHX58R4120	40126	5/8	5/8	1-1/4	3-1/2	0.120	$161.75
GMHX34RS4030	40105	3/4	3/4	1	4	0.030	$231.98
GMHX34RS4060	40106	3/4	3/4	1	4	0.060	$231.98
GMHX34RS4090	40107	3/4	3/4	1	4	0.090	$231.98
GMHX34RS4120	40108	3/4	3/4	1	4	0.120	$231.98
GMHX34RS4190	40109	3/4	3/4	1	4	0.190	$231.98
GMHX34RS4250	40110	3/4	3/4	1	4	0.250	$231.98

4 FLUTE ROUGHER/FINISHER (INCH) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 177

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHX34R4030	40093	3/4	3/4	1-5/8	4	0.030	$249.61
GMHX34R4060	40094	3/4	3/4	1-5/8	4	0.060	$249.61
GMHX34R4090	40095	3/4	3/4	1-5/8	4	0.090	$249.61
GMHX34R4120	40096	3/4	3/4	1-5/8	4	0.120	$249.61
GMHX34R4190	40097	3/4	3/4	1-5/8	4	0.190	$249.61
GMHX34R4250	40098	3/4	3/4	1-5/8	4	0.250	$249.61
GMHX34RLH4030	40099	3/4	3/4	2-1/4	5	0.030	$340.56
GMHX34RLH4060	40100	3/4	3/4	2-1/4	5	0.060	$340.56
GMHX34RLH4090	40101	3/4	3/4	2-1/4	5	0.090	$340.56
GMHX34RLH4120	40102	3/4	3/4	2-1/4	5	0.120	$340.56
GMHX34RLH4190	40103	3/4	3/4	2-1/4	5	0.190	$340.56
GMHX34RLH4250	40104	3/4	3/4	2-1/4	5	0.250	$340.56
GMHX10RS4030	40037	1	1	1	4	0.030	$393.81
GMHX10RS4060	40038	1	1	1	4	0.060	$393.81
GMHX10RS4090	40039	1	1	1	4	0.090	$393.81
GMHX10RS4120	40040	1	1	1	4	0.120	$393.81
GMHX10RS4190	40041	1	1	1	4	0.190	$393.81
GMHX10RS4250	40042	1	1	1	4	0.250	$393.81
GMHX10R4030	40025	1	1	1-3/4	4	0.030	$412.95
GMHX10R4060	40026	1	1	1-3/4	4	0.060	$412.95
GMHX10R4090	40027	1	1	1-3/4	4	0.090	$412.95
GMHX10R4120	40028	1	1	1-3/4	4	0.120	$412.95
GMHX10R4190	40029	1	1	1-3/4	4	0.190	$412.95
GMHX10R4250	40030	1	1	1-3/4	4	0.250	$412.95
GMHX10RLH4030	40031	1	1	2-1/4	5	0.030	$465.15
GMHX10RLH4060	40032	1	1	2-1/4	5	0.060	$465.15
GMHX10RLH4090	40033	1	1	2-1/4	5	0.090	$465.15
GMHX10RLH4120	40034	1	1	2-1/4	5	0.120	$465.15
GMHX10RLH4190	40035	1	1	2-1/4	5	0.190	$465.15
GMHX10RLH4250	40036	1	1	2-1/4	5	0.250	$465.15

PATENT NO. 7,367,754

SB

SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE ROUGHER/FINISHER (METRIC) CHAMFE

Engineered using Gorilla Mill technology. Extremely high material removal rates while maintaining a superb finish. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Center cutting. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths, and completely resharpenable.

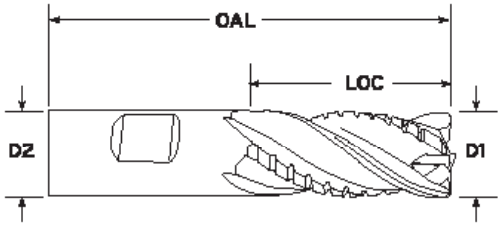
CHAMFER END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 177

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHX0800MMCS4	40002	8.00mm	8.00mm	12.00mm	50.00mm	$51.14
GMHX0800MMC4	40000	8.00mm	8.00mm	22.00mm	65.00mm	$54.06
GMHX0800MMCL4	40001	8.00mm	8.00mm	40.00mm	100.00mm	$79.17
GMHX1000MMCS4	40014	10.00mm	10.00mm	16.00mm	50.00mm	$63.64
GMHX1000MMC4	40012	10.00mm	10.00mm	22.00mm	70.00mm	$67.70
GMHX1000MMCL4	40013	10.00mm	10.00mm	40.00mm	100.00mm	$88.27
GMHX1200MMCS4	40045	12.00mm	12.00mm	19.00mm	63.00mm	$83.99
GMHX1200MMC4	40043	12.00mm	12.00mm	32.00mm	75.00mm	$87.46
GMHX1200MMCL4	40044	12.00mm	12.00mm	50.00mm	100.00mm	$125.49
GMHX1600MMCS4	40071	16.00mm	16.00mm	19.00mm	75.00mm	$154.31
GMHX1600MMC4	40070	16.00mm	16.00mm	32.00mm	89.00mm	$163.40
GMHX2000MMCS4	40079	20.00mm	20.00mm	22.00mm	75.00mm	$238.23
GMHX2000MMC4	40078	20.00mm	20.00mm	38.00mm	100.00mm	$256.02
GMHX2500MMCS4	40085	25.00mm	25.00mm	25.00mm	100.00mm	$385.24
GMHX2500MMC4	40084	25.00mm	25.00mm	38.00mm	100.00mm	$403.93

PATENT NO. 7,367,754

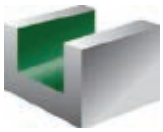


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

FULL SLOTTING



POCKETING

4 FLUTE ROUGHER/FINISHER (METRIC) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 177

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHX0800MMRS4050	40011	**8.00mm**	8.00mm	12.00mm	50.00mm	0.50mm	$51.14
GMHX0800MMR4030	40003	**8.00mm**	8.00mm	22.00mm	65.00mm	0.30mm	$54.06
GMHX0800MMR4050	40004	**8.00mm**	8.00mm	22.00mm	65.00mm	0.50mm	$54.06
GMHX0800MMR4100	40005	**8.00mm**	8.00mm	22.00mm	65.00mm	1.00mm	$54.06
GMHX0800MMR4150	40006	**8.00mm**	8.00mm	22.00mm	65.00mm	1.50mm	$54.06
GMHX0800MMRL4030	40007	**8.00mm**	8.00mm	40.00mm	100.00mm	0.30mm	$79.17
GMHX0800MMRL4050	40008	**8.00mm**	8.00mm	40.00mm	100.00mm	0.50mm	$79.17
GMHX0800MMRL4100	40009	**8.00mm**	8.00mm	40.00mm	100.00mm	1.00mm	$79.17
GMHX0800MMRL4150	40010	**8.00mm**	8.00mm	40.00mm	100.00mm	1.50mm	$79.17
GMHX1000MMRS4050	40021	**10.00mm**	10.00mm	16.00mm	50.00mm	0.50mm	$63.64
GMHX1000MMR4030	40015	**10.00mm**	10.00mm	22.00mm	70.00mm	0.30mm	$67.70
GMHX1000MMR4050	40016	**10.00mm**	10.00mm	22.00mm	70.00mm	0.50mm	$67.70
GMHX1000MMR4100	40017	**10.00mm**	10.00mm	22.00mm	70.00mm	1.00mm	$67.70
GMHX1000MMRL4030	40018	**10.00mm**	10.00mm	40.00mm	100.00mm	0.30mm	$88.27
GMHX1000MMRL4050	40019	**10.00mm**	10.00mm	40.00mm	100.00mm	0.50mm	$88.27
GMHX1000MMRL4100	40020	**10.00mm**	10.00mm	40.00mm	100.00mm	1.00mm	$88.27
GMHX1200MMRS4030	40056	**12.00mm**	12.00mm	19.00mm	63.00mm	0.30mm	$83.99
GMHX1200MMRS4050	40057	**12.00mm**	12.00mm	19.00mm	63.00mm	0.50mm	$83.99
GMHX1200MMR4030	40046	**12.00mm**	12.00mm	32.00mm	75.00mm	0.30mm	$87.46
GMHX1200MMR4050	40047	**12.00mm**	12.00mm	32.00mm	75.00mm	0.50mm	$87.46
GMHX1200MMR4100	40048	**12.00mm**	12.00mm	32.00mm	75.00mm	1.00mm	$87.46
GMHX1200MMR4150	40049	**12.00mm**	12.00mm	32.00mm	75.00mm	1.50mm	$87.46
GMHX1200MMR4200	40050	**12.00mm**	12.00mm	32.00mm	75.00mm	2.00mm	$87.46
GMHX1200MMRL4030	40051	**12.00mm**	12.00mm	50.00mm	100.00mm	0.30mm	$125.49
GMHX1200MMRL4050	40052	**12.00mm**	12.00mm	50.00mm	100.00mm	0.50mm	$125.49
GMHX1200MMRL4100	40053	**12.00mm**	12.00mm	50.00mm	100.00mm	1.00mm	$125.49
GMHX1200MMRL4150	40054	**12.00mm**	12.00mm	50.00mm	100.00mm	1.50mm	$125.49
GMHX1200MMRL4200	40055	**12.00mm**	12.00mm	50.00mm	100.00mm	2.00mm	$125.49
GMHX1600MMRS4030	40076	**16.00mm**	16.00mm	19.00mm	75.00mm	0.30mm	$154.31
GMHX1600MMRS4050	40077	**16.00mm**	16.00mm	19.00mm	75.00mm	0.50mm	$154.31
GMHX1600MMR4030	40072	**16.00mm**	16.00mm	32.00mm	89.00mm	0.30mm	$163.40
GMHX1600MMR4050	40073	**16.00mm**	16.00mm	32.00mm	89.00mm	0.50mm	$163.40
GMHX1600MMR4100	40074	**16.00mm**	16.00mm	32.00mm	89.00mm	1.00mm	$163.40
GMHX1600MMR4200	40075	**16.00mm**	16.00mm	32.00mm	89.00mm	2.00mm	$163.40

PATENT NO. 7,367,754

Continued on next page

SUPER BITCHIN' PERFORMANCE – FERROUS
4 FLUTE ROUGHER/FINISHER (METRIC) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 177							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHX2000MMRS4100	40083	**20.00mm**	20.00mm	22.00mm	75.00mm	1.00mm	$238.23
GMHX2000MMR4050	40080	**20.00mm**	20.00mm	38.00mm	100.00mm	0.50mm	$256.02
GMHX2000MMR4100	40081	**20.00mm**	20.00mm	38.00mm	100.00mm	1.00mm	$256.02
GMHX2000MMR4150	40082	**20.00mm**	20.00mm	38.00mm	100.00mm	1.50mm	$256.02
GMHX2500MMRS4100	40088	**25.00mm**	25.00mm	25.00mm	100.00mm	1.00mm	$385.24
GMHX2500MMRS4150	40089	**25.00mm**	25.00mm	25.00mm	100.00mm	1.50mm	$385.24
GMHX2500MMR4100	40086	**25.00mm**	25.00mm	38.00mm	100.00mm	1.00mm	$403.93
GMHX2500MMR4150	40087	**25.00mm**	25.00mm	38.00mm	100.00mm	1.50mm	$403.93

PATENT NO. 7,367,754

HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (INCH)

HIGH PERFORMANCE | GMX-35 COATED

Patented variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

PATENT NO. 7,153,067

SUPER BITCHIN' PERFORMANCE | GMS^2 COATED

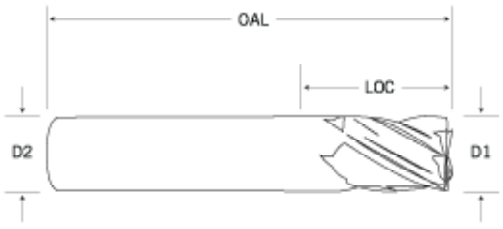
Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

PATENT NO. 7,153,067

See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog.

Continued on next page

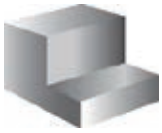


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

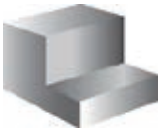
TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING

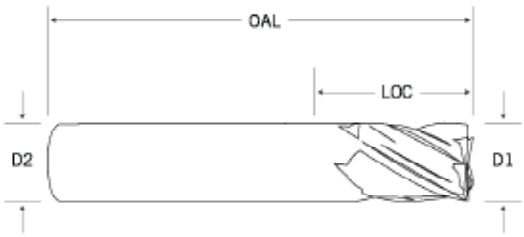


POCKETING

HIGH-VELOCITY



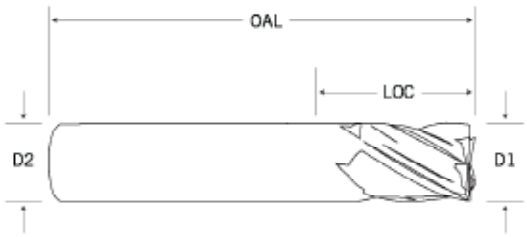
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (INCH) SQUARE



SQUARE END Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	HIGH PERFORMANCE | GMX-35 COATED SKU WF= Weldon Flat	EDP	LIST PRICE	SUPER BITCHIN' PERFORMANCE | GMS² COATED SKU WF= Weldon Flat	EDP	LIST PRICE
1/8	1/8	1/4	1-1/2	GM18FS5	10310	$22.26	N/A	–	–
1/8	1/8	1/2	1-1/2	GM18F5	10306	$23.35	N/A	–	–
1/8	1/8	1	3	GM18FL5	10308	$29.66	N/A	–	–
3/16	3/16	3/8	2	GM316FS5	10349	$23.44	N/A	–	–
3/16	3/16	5/8	2	GM316F5	10345	$24.17	N/A	–	–
3/16	3/16	1-1/4	3	GM316FL5	10347	$30.42	N/A	–	–
1/4	1/4	1/2	2	GM14FS5	10253	$25.25	GMHT14FS5	30260	$29.76
1/4	1/4	3/4	2-1/2	GM14F5	10249	$26.53	GMHT14F5	30256	$30.88
1/4	1/4	1-1/4	3	GM14FL5	10251	$31.04	GMHT14FL5	30258	$37.67
1/4	1/4	1-1/2	4	GM14FXL5	10257	$34.16	N/A	–	–
1/4	1/4	2	4	N/A	–	–	GMHT14FXL5	30262	$44.39
1/4	1/4	3	6	GM14FSL5	10255	$89.65	N/A	–	–
5/16	5/16	1/2	2	GM516FS5	10507	$32.53	GMHT516FS5	30426	$42.19
5/16	5/16	7/8	2-1/2	GM516F5	10503	$33.90	GMHT516F5	30422	$40.32
5/16	5/16	1	2-1/2	N/A	–	–	GMHT516FH5	30424	$43.56
5/16	5/16	1-1/4	3	GM516FL5	10505	$42.59	N/A	–	–
5/16	5/16	1-1/2	4	GM516FXL5	10509	$49.80	N/A	–	–
5/16	5/16	2	4	N/A	–	–	GMHT516FXL5	30428	$60.08
3/8	3/8	5/8	2	GM38FS5	10461	$37.99	GMHT38FS5	30383	$44.91
3/8	3/8	7/8	2-1/2	GM38F5	10457	$39.97	GMHT38F5	30377	$47.18
3/8	3/8	1	2-1/2	N/A	–	–	GMHT38FH5	30379	$47.18
3/8	3/8	1-1/4	3	GM38FL5	10459	$50.18	GMHT38FL5	30381	$53.15
3/8	3/8	1-1/2	3-1/2	N/A	–	–	GMHT38FLH5	31225	$57.23
3/8	3/8	2	4	GM38FXL5	10465	$55.51	N/A	–	–
3/8	3/8	2-1/2	5	N/A	–	–	GMHT38FXL5	30385	$61.30
3/8	3/8	3	6	GM38FSL5	10463	$99.80	N/A	–	–
7/16	7/16	5/8	2-1/2	GM716FS5	10597	$50.32	GMHT716FS5	30494	$58.84
7/16	7/16	1	2-1/2	GM716F5	10594	$52.80	GMHT716F5	30490	$64.31
7/16	7/16	1-1/2	3-1/2	N/A	–	–	GMHT716FL5	30492	$81.05

5 FLUTE (INCH) SQUARE

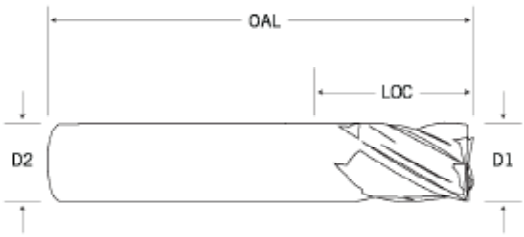


SQUARE END

Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
				HIGH PERFORMANCE | GMX-35 COATED			SUPER BITCHIN' PERFORMANCE | GMS² COATED		
1/2	1/2	5/8	2-1/2	GM12FS5	10167	$62.70	GMHT12FS5	30196	$70.20
1/2	1/2	1	3	GM12FH5	10162	$65.59	GMHT12FH5	30192	$71.56
1/2	1/2	1-1/4	3	GM12F5	10159	$65.59	GMHT12F5	30190	$72.92
1/2	1/2	1-1/2	4	GM12FL5	10164	$74.90	N/A	–	–
1/2	1/2	1-5/8	4	N/A	–	–	GMHT12FLH5	30194	$92.39
1/2	1/2	2	4	GM12FXL5	10171	$84.20	GMHT12FXL5	30199	$93.36
1/2	1/2	3	6	GM12FSL5	10169	$109.79	N/A	–	–
1/2	1/2	3-1/4	6	N/A	–	–	GMHT12FSL5	30198	$118.79
5/8	5/8	3/4	3-1/2	GM58FS5	10547	$117.65	GMHT58FS5	30456	$132.67
5/8	5/8	1-1/4	3-1/2	GM58F5	10542	$123.40	GMHT58F5	30450	$133.02
5/8	5/8	1-5/8	4	N/A	–	–	GMHT58FHL5	30452	$149.69
5/8	5/8	2	4	GM58FL5	10544	$143.14	GMHT58FL5	30454	$155.73
5/8	5/8	3	6	GM58FXL5	10549	$166.94	N/A	–	–
3/4	3/4	1	4	GM34FS5	10372	$172.54	GMHT34FS5	30320	$189.68
3/4	3/4	1-1/2	4	GM34F5	10366	$181.00	GMHT34F5	30314	$200.83
3/4	3/4	1-5/8	4	N/A	–	–	GMHT34FHL5	30316	$209.79
3/4	3/4	2	4	GM34FL5	10368	$186.50	N/A	–	–
3/4	3/4	2-1/4	5	N/A	–	–	GMHT34FLH5	30318	$232.29
3/4	3/4	3	6	GM34FXL5	10376	$248.04	N/A	–	–
3/4	3/4	3-1/4	6	N/A	–	–	GMHT34FXL5	30322	$264.69
3/4	3/4	4	7	GM34FSL5	10374	$259.89	N/A	–	–
1	1	1	4	GM10FS5	10052	$270.69	GMHT10FS5	30051	$293.91
1	1	1-1/2	4	GM10F5	10046	$284.85	GMHT10F5	30047	$308.08
1	1	2	4	GM10FL5	10048	$350.38	N/A	–	–
1	1	2-1/4	5	N/A	–	–	GMHT10FLH5	30049	$355.21
1	1	2-5/8	5	N/A	–	–	GMHT10FXLH5	30056	$357.61
1	1	3	6	GM10FXL5	10056	$379.95	N/A	–	–
1	1	3-1/4	6	N/A	–	–	GMHT10FXL5	30054	$370.46
1	1	4	7	GM10FSL5	10054	$470.30	GMHT10FSL5	30053	$508.65
1-1/4	1-1/4	2	4-1/2	N/A	–	–	GMHT1250F5	30142	$471.39
1-1/4	1-1/4	2-5/8	5 1/2	N/A	–	–	GMHT1250FL5	30144	$666.74
1-1/4	1-1/4	3-1/4	6	N/A	–	–	GMHT1250FXL5	30148	$691.64
1-1/4	1-1/4	4	7	N/A	–	–	GMHT1250FSL5	30146	$779.76

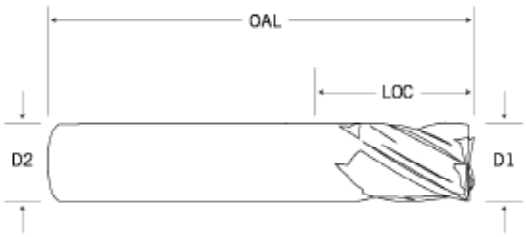
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (INCH) RADIUS



RADIUS END Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	HIGH PERFORMANCE | GMX-35 COATED SKU WF= Weldon Flat	EDP	LIST PRICE	SUPER BITCHIN' PERFORMANCE | GMS² COATED SKU WF= Weldon Flat	EDP	LIST PRICE
1/8	1/8	1/4	1-1/2	0.015	GM18RS5015	10321	$23.44	N/A	–	–
1/8	1/8	1/4	1-1/2	0.030	GM18RS5030	10322	$23.44	N/A	–	–
1/8	1/8	1/2	1-1/2	0.015	GM18R5015	10313	$24.52	N/A	–	–
1/8	1/8	1/2	1-1/2	0.030	GM18R5030	10314	$24.52	N/A	–	–
1/8	1/8	1	3	0.015	GM18RL5015	10317	$30.80	N/A	–	–
1/8	1/8	1	3	0.030	GM18RL5030	10318	$30.80	N/A	–	–
3/16	3/16	3/8	2	0.015	GM316RS5015	10360	$24.52	N/A	–	–
3/16	3/16	3/8	2	0.030	GM316RS5030	10361	$24.52	N/A	–	–
3/16	3/16	5/8	2	0.015	GM316R5015	10352	$25.45	N/A	–	–
3/16	3/16	5/8	2	0.030	GM316R5030	10353	$25.45	N/A	–	–
3/16	3/16	1-1/4	3	0.015	GM316RL5015	10356	$31.94	N/A	–	–
3/16	3/16	1-1/4	3	0.030	GM316RL5030	10357	$31.94	N/A	–	–
1/4	1/4	1/2	2	0.015	GM14RS5015	10273	$26.34	GMHT14RS5015	30275	$34.31
1/4	1/4	1/2	2	0.030	GM14RS5030	10274	$26.34	GMHT14RS5030	30276	$34.31
1/4	1/4	1/2	2	0.060	GM14RS5060	10275	$26.34	GMHT14RS5060	30277	$34.31
1/4	1/4	3/4	2-1/2	0.015	GM14R5015	10261	$28.35	GMHT14R5015	30263	$36.32
1/4	1/4	3/4	2-1/2	0.030	GM14R5030	10262	$28.35	GMHT14R5030	30264	$36.32
1/4	1/4	3/4	2-1/2	0.060	GM14R5060	10263	$28.35	GMHT14R5060	30265	$36.32
1/4	1/4	1-1/4	3	0.015	GM14RL5015	10267	$32.54	GMHT14RL5015	30269	$41.71
1/4	1/4	1-1/4	3	0.030	GM14RL5030	10268	$32.54	GMHT14RL5030	30270	$41.71
1/4	1/4	1-1/4	3	0.060	GM14RL5060	10269	$32.54	GMHT14RL5060	30271	$41.71
1/4	1/4	1-1/2	4	0.015	GM14RXL5015	10285	$35.90	N/A	–	–
1/4	1/4	1-1/2	4	0.030	GM14RXL5030	10286	$35.90	N/A	–	–
1/4	1/4	1-1/2	4	0.060	GM14RXL5060	10287	$35.90	N/A	–	–
1/4	1/4	2	4	0.015	N/A	–	–	GMHT14RXL5015	30281	$45.98
1/4	1/4	2	4	0.030	N/A	–	–	GMHT14RXL5030	30282	$45.98
1/4	1/4	2	4	0.060	N/A	–	–	GMHT14RXL5060	30283	$45.98
1/4	1/4	3	6	0.015	GM14RSL5015	10279	$90.69	N/A	–	–
1/4	1/4	3	6	0.030	GM14RSL5030	10280	$90.69	N/A	–	–
1/4	1/4	3	6	0.060	GM14RSL5060	10281	$90.69	N/A	–	–
5/16	5/16	1/2	2	0.015	GM516RS5015	10525	$34.06	GMHT516RS5015	30441	$38.92
5/16	5/16	1/2	2	0.030	GM516RS5030	10526	$34.06	GMHT516RS5030	30442	$38.92
5/16	5/16	1/2	2	0.060	GM516RS5060	10527	$34.06	GMHT516RS5060	30443	$38.92
5/16	5/16	7/8	2-1/2	0.015	GM516R5015	10513	$35.63	GMHT516R5015	30429	$40.32
5/16	5/16	7/8	2-1/2	0.030	GM516R5030	10514	$35.63	GMHT516R5030	30430	$40.32
5/16	5/16	7/8	2-1/2	0.060	GM516R5060	10515	$35.63	GMHT516R5060	30431	$40.32

5 FLUTE (INCH) RADIUS



HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

RADIUS END Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
5/16	5/16	1	2-1/2	0.015	N/A	–	–	GMHT516RH5015	30435	$40.32
5/16	5/16	1	2-1/2	0.030	N/A	–	–	GMHT516RH5030	30436	$40.32
5/16	5/16	1	2-1/2	0.060	N/A	–	–	GMHT516RH5060	30437	$40.32
5/16	5/16	1-1/4	3	0.015	GM516RL5015	10519	$44.72	N/A	–	–
5/16	5/16	1-1/4	3	0.030	GM516RL5030	10520	$44.72	N/A	–	–
5/16	5/16	1-1/4	3	0.060	GM516RL5060	10521	$44.72	N/A	–	–
5/16	5/16	1-1/2	4	0.015	GM516RXL5015	10531	$52.17	N/A	–	–
5/16	5/16	1-1/2	4	0.030	GM516RXL5030	10532	$52.17	N/A	–	–
5/16	5/16	1-1/2	4	0.060	GM516RXL5060	10533	$52.17	N/A	–	–
5/16	5/16	2	4	0.015	N/A	–	–	GMHT516RXL5015	30447	$63.25
5/16	5/16	2	4	0.030	N/A	–	–	GMHT516RXL5030	30448	$63.25
5/16	5/16	2	4	0.060	N/A	–	–	GMHT516RXL5060	30449	$63.25
3/8	3/8	5/8	2	0.015	GM38RS5015	10484	$39.98	GMHT38RS5015	30410	$49.27
3/8	3/8	5/8	2	0.030	GM38RS5030	10485	$39.98	GMHT38RS5030	30411	$49.27
3/8	3/8	5/8	2	0.060	GM38RS5060	10486	$39.97	GMHT38RS5060	30412	$49.27
3/8	3/8	5/8	2	0.090	N/A	–	–	GMHT38RS5090	30413	$49.27
3/8	3/8	7/8	2-1/2	0.015	GM38R5015	10470	$42.07	GMHT38R5015	30386	$51.38
3/8	3/8	7/8	2-1/2	0.030	GM38R5030	10471	$42.07	GMHT38R5030	30387	$51.38
3/8	3/8	7/8	2-1/2	0.060	GM38R5060	10472	$42.07	GMHT38R5060	30388	$51.38
3/8	3/8	7/8	2-1/2	0.090	N/A	–	–	GMHT38R5090	30389	$51.38
3/8	3/8	1	2-1/2	0.015	N/A	–	–	GMHT38RH5015	30394	$51.38
3/8	3/8	1	2-1/2	0.030	N/A	–	–	GMHT38RH5030	30395	$51.38
3/8	3/8	1	2-1/2	0.060	N/A	–	–	GMHT38RH5060	30396	$51.38
3/8	3/8	1	2-1/2	0.090	N/A	–	–	GMHT38RH5090	30397	$51.38
3/8	3/8	1-1/4	3	0.015	GM38RL5015	10477	$52.85	GMHT38RL5015	30402	$61.27
3/8	3/8	1-1/4	3	0.030	GM38RL5030	10478	$52.85	GMHT38RL5030	30403	$61.27
3/8	3/8	1-1/4	3	0.060	GM38RL5060	10479	$52.85	GMHT38RL5060	30404	$61.27
3/8	3/8	1-1/4	3	0.090	N/A	–	–	GMHT38RL5090	30405	$61.27
3/8	3/8	1-1/2	3-1/2	0.015	N/A	–	–	GMHT38RLH5015	31226	$66.15
3/8	3/8	1-1/2	3-1/2	0.030	N/A	–	–	GMHT38RLH5030	31227	$66.15
3/8	3/8	1-1/2	3-1/2	0.060	N/A	–	–	GMHT38RLH5060	31228	$66.15
3/8	3/8	1-1/2	3-1/2	0.090	N/A	–	–	GMHT38RLH5090	31229	$66.15
3/8	3/8	2	4	0.015	GM38RXL5015	10498	$58.17	N/A	–	–
3/8	3/8	2	4	0.030	GM38RXL5030	10499	$58.17	N/A	–	–
3/8	3/8	2	4	0.060	GM38RXL5060	10500	$58.17	N/A	–	–
3/8	3/8	2-1/2	5	0.015	N/A	–	–	GMHT38RXL5015	30418	$71.03
3/8	3/8	2-1/2	5	0.030	N/A	–	–	GMHT38RXL5030	30419	$71.03
3/8	3/8	2-1/2	5	0.060	N/A	–	–	GMHT38RXL5060	30420	$71.03
3/8	3/8	2-1/2	5	0.090	N/A	–	–	GMHT38RXL5090	30421	$71.03

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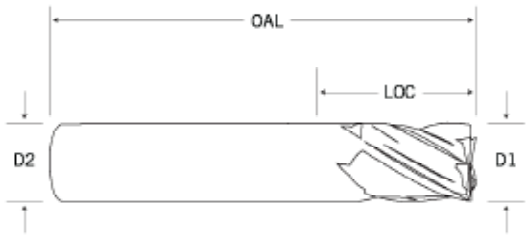
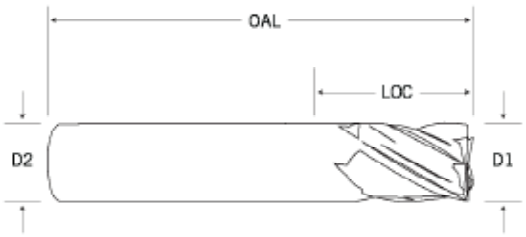
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (INCH) RADIUS



RADIUS END Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	HIGH PERFORMANCE | GMX-35 COATED SKU WF= Weldon Flat	EDP	LIST PRICE	SUPER BITCHIN' PERFORMANCE | GMS² COATED SKU WF= Weldon Flat	EDP	LIST PRICE
3/8	3/8	3	6	0.015	GM38RSL5015	10491	$102.79	N/A	–	–
3/8	3/8	3	6	0.030	GM38RSL5030	10492	$102.79	N/A	–	–
3/8	3/8	3	6	0.060	GM38RSL5060	10493	$102.79	N/A	–	–
7/16	7/16	5/8	2-1/2	0.015	GM716RS5015	10617	$53.60	GMHT716RS5015	30512	$65.14
7/16	7/16	5/8	2-1/2	0.030	GM716RS5030	10618	$53.60	GMHT716RS5030	30513	$65.14
7/16	7/16	5/8	2-1/2	0.060	GM716RS5060	10619	$53.60	GMHT716RS5060	30514	$65.14
7/16	7/16	5/8	2-1/2	0.090	N/A	–	–	GMHT716RS5090	30515	$65.14
7/16	7/16	1	2-1/2	0.015	GM716R5015	10606	$55.55	GMHT716R5015	30496	$67.08
7/16	7/16	1	2-1/2	0.030	GM716R5030	10607	$55.55	GMHT716R5030	30497	$67.08
7/16	7/16	1	2-1/2	0.060	GM716R5060	10608	$55.55	GMHT716R5060	30498	$67.08
7/16	7/16	1	2-1/2	0.090	N/A	–	–	GMHT716R5090	30499	$67.08
7/16	7/16	1-1/2	3-1/2	0.015	N/A	–	–	GMHT716RL5015	30504	$85.33
7/16	7/16	1-1/2	3-1/2	0.030	N/A	–	–	GMHT716RL5030	30505	$85.33
7/16	7/16	1-1/2	3-1/2	0.060	N/A	–	–	GMHT716RL5060	30506	$85.33
7/16	7/16	1-1/2	3-1/2	0.090	N/A	–	–	GMHT716RL5090	30507	$85.33
1/2	1/2	5/8	2-1/2	0.015	GM12RS5015	10222	$65.86	GMHT12RS5015	30231	$77.40
1/2	1/2	5/8	2-1/2	0.030	GM12RS5030	10223	$65.86	GMHT12RS5030	30232	$77.40
1/2	1/2	5/8	2-1/2	0.060	GM12RS5060	10224	$65.86	GMHT12RS5060	30233	$77.40
1/2	1/2	5/8	2-1/2	0.090	GM12RS5090	10225	$65.86	GMHT12RS5090	30234	$77.40
1/2	1/2	5/8	2-1/2	0.120	GM12RS5120	10226	$65.86	GMHT12RS5120	30235	$77.40
1/2	1/2	1	3	0.015	GM12RH5015	10197	$69.06	GMHT12RH5015	30211	$82.08
1/2	1/2	1	3	0.030	GM12RH5030	10198	$69.06	GMHT12RH5030	30212	$82.08
1/2	1/2	1	3	0.060	GM12RH5060	10199	$69.06	GMHT12RH5060	30213	$82.08
1/2	1/2	1	3	0.090	GM12RH5090	10200	$69.06	GMHT12RH5090	30214	$82.08
1/2	1/2	1	3	0.120	GM12RH5120	10201	$69.06	GMHT12RH5120	30215	$82.08
1/2	1/2	1-1/4	3	0.015	GM12R5015	10182	$69.06	GMHT12R5015	30201	$82.08
1/2	1/2	1-1/4	3	0.030	GM12R5030	10183	$69.06	GMHT12R5030	30202	$82.08
1/2	1/2	1-1/4	3	0.060	GM12R5060	10184	$69.06	GMHT12R5060	30203	$82.08
1/2	1/2	1-1/4	3	0.090	GM12R5090	10185	$69.06	GMHT12R5090	30204	$82.08
1/2	1/2	1-1/4	3	0.120	GM12R5120	10186	$69.06	GMHT12R5120	30205	$82.08
1/2	1/2	1-1/2	4	0.015	GM12RL5015	10207	$86.69	N/A	–	–
1/2	1/2	1-1/2	4	0.030	GM12RL5030	10208	$86.69	N/A	–	–
1/2	1/2	1-1/2	4	0.060	GM12RL5060	10209	$86.69	N/A	–	–
1/2	1/2	1-1/2	4	0.090	GM12RL5090	10210	$86.69	N/A	–	–
1/2	1/2	1-1/2	4	0.120	GM12RL5120	10211	$86.69	N/A	–	–
1/2	1/2	1-5/8	4	0.015	N/A	–	–	GMHT12RLH5015	30221	$100.83
1/2	1/2	1-5/8	4	0.030	N/A	–	–	GMHT12RLH5030	30222	$100.83
1/2	1/2	1-5/8	4	0.060	N/A	–	–	GMHT12RLH5060	30223	$100.83
1/2	1/2	1-5/8	4	0.090	N/A	–	–	GMHT12RLH5090	30224	$100.83

5 FLUTE (INCH) RADIUS



RADIUS END

Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
					HIGH PERFORMANCE I GMX-35 COATED			SUPER BITCHIN' PERFORMANCE I GMS² COATED		
1/2	1/2	1-5/8	4	0.120	N/A	–	–	GMHT12RLH5120	30225	$100.83
1/2	1/2	2	4	0.015	GM12RXL5015	10242	$95.35	GMHT12RXL5015	30246	$101.77
1/2	1/2	2	4	0.030	GM12RXL5030	10243	$95.35	GMHT12RXL5030	30247	$101.77
1/2	1/2	2	4	0.060	GM12RXL5060	10244	$95.35	GMHT12RXL5060	30248	$101.77
1/2	1/2	2	4	0.090	GM12RXL5090	10245	$95.35	GMHT12RXL5090	30249	$101.77
1/2	1/2	2	4	0.120	GM12RXL5120	10246	$95.35	GMHT12RXL5120	30250	$101.77
1/2	1/2	3	6	0.015	GM12RSL5015	10232	$136.23	N/A	–	–
1/2	1/2	3	6	0.030	GM12RSL5030	10233	$136.23	N/A	–	–
1/2	1/2	3	6	0.060	GM12RSL5060	10234	$136.23	N/A	–	–
1/2	1/2	3	6	0.090	GM12RSL5090	10235	$136.23	N/A	–	–
1/2	1/2	3	6	0.120	GM12RSL5120	10236	$136.23	N/A	–	–
1/2	1/2	3-1/4	6	0.015	N/A	–	–	GMHT12RSL5015	30241	$158.95
1/2	1/2	3-1/4	6	0.030	N/A	–	–	GMHT12RSL5030	30242	$158.95
1/2	1/2	3-1/4	6	0.060	N/A	–	–	GMHT12RSL5060	30243	$158.95
1/2	1/2	3-1/4	6	0.090	N/A	–	–	GMHT12RSL5090	30244	$158.95
1/2	1/2	3-1/4	6	0.120	N/A	–	–	GMHT12RSL5120	30245	$158.95
5/8	5/8	3/4	3-1/2	0.030	GM58RS5030	10578	$123.58	GMHT58RS5030	30482	$138.60
5/8	5/8	3/4	3-1/2	0.060	GM58RS5060	10579	$123.58	GMHT58RS5060	30483	$138.60
5/8	5/8	3/4	3-1/2	0.090	GM58RS5090	10580	$123.58	GMHT58RS5090	30484	$138.60
5/8	5/8	3/4	3-1/2	0.120	GM58RS5120	10581	$123.58	GMHT58RS5120	30485	$138.60
5/8	5/8	1-1/4	3-1/2	0.030	GM58R5030	10558	$129.83	GMHT58R5030	30458	$144.85
5/8	5/8	1-1/4	3-1/2	0.060	GM58R5060	10559	$129.83	GMHT58R5060	30459	$144.85
5/8	5/8	1-1/4	3-1/2	0.090	GM58R5090	10560	$129.83	GMHT58R5090	30460	$144.85
5/8	5/8	1-1/4	3-1/2	0.120	GM58R5120	10561	$129.83	GMHT58R5120	30461	$144.85
5/8	5/8	1-5/8	4	0.030	N/A	–	–	GMHT58RHL5030	30466	$161.39
5/8	5/8	1-5/8	4	0.060	N/A	–	–	GMHT58RHL5060	30467	$161.39
5/8	5/8	1-5/8	4	0.090	N/A	–	–	GMHT58RHL5090	30468	$161.39
5/8	5/8	1-5/8	4	0.120	N/A	–	–	GMHT58RHL5120	30469	$161.39
5/8	5/8	2	4	0.030	GM58RL5030	10566	$163.13	GMHT58RL5030	30474	$167.48
5/8	5/8	2	4	0.060	GM58RL5060	10567	$163.13	GMHT58RL5060	30475	$167.48
5/8	5/8	2	4	0.090	GM58RL5090	10568	$163.13	GMHT58RL5090	30476	$167.48
5/8	5/8	2	4	0.120	GM58RL5120	10569	$163.13	GMHT58RL5120	30477	$167.48
5/8	5/8	3	6	0.030	GM58RXL5030	10586	$171.99	N/A	–	–
5/8	5/8	3	6	0.060	GM58RXL5060	10587	$171.99	N/A	–	–
5/8	5/8	3	6	0.090	GM58RXL5090	10588	$171.99	N/A	–	–
5/8	5/8	3	6	0.120	GM58RXL5120	10589	$171.99	N/A	–	–

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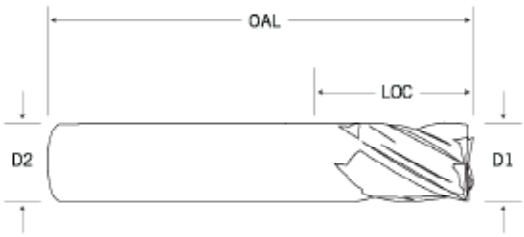
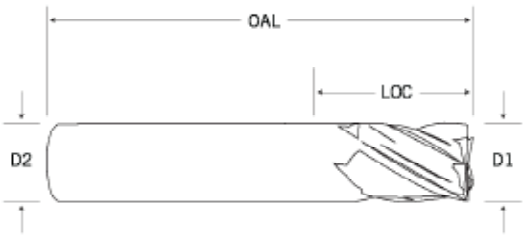
HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (INCH) RADIUS



RADIUS END Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	HIGH PERFORMANCE | GMX-35 COATED SKU WF= Weldon Flat	EDP	LIST PRICE	SUPER BITCHIN' PERFORMANCE | GMS² COATED SKU WF= Weldon Flat	EDP	LIST PRICE
3/4	3/4	1	4	0.030	GM34RS5030	10425	$181.53	GMHT34RS5030	30359	$198.69
3/4	3/4	1	4	0.060	GM34RS5060	10426	$181.53	GMHT34RS5060	30360	$198.69
3/4	3/4	1	4	0.090	GM34RS5090	10427	$181.53	GMHT34RS5090	30361	$198.69
3/4	3/4	1	4	0.120	GM34RS5120	10428	$181.53	GMHT34RS5120	30362	$198.69
3/4	3/4	1	4	0.190	GM34RS5190	10429	$181.53	GMHT34RS5190	30363	$198.69
3/4	3/4	1	4	0.250	GM34RS5250	10430	$181.53	GMHT34RS5250	30364	$198.69
3/4	3/4	1-1/2	4	0.030	GM34R5030	10389	$190.34	GMHT34R5030	30323	$207.50
3/4	3/4	1-1/2	4	0.060	GM34R5060	10390	$190.34	GMHT34R5060	30324	$207.50
3/4	3/4	1-1/2	4	0.090	GM34R5090	10391	$190.34	GMHT34R5090	30325	$207.50
3/4	3/4	1-1/2	4	0.120	GM34R5120	10392	$190.34	GMHT34R5120	30326	$207.50
3/4	3/4	1-1/2	4	0.190	GM34R5190	10393	$190.34	GMHT34R5190	30327	$207.50
3/4	3/4	1-1/2	4	0.250	GM34R5250	10394	$190.34	GMHT34R5250	30328	$207.50
3/4	3/4	1-5/8	4	0.030	N/A	–	–	GMHT34RHL5030	30335	$234.13
3/4	3/4	1-5/8	4	0.060	N/A	–	–	GMHT34RHL5060	30336	$234.13
3/4	3/4	1-5/8	4	0.090	N/A	–	–	GMHT34RHL5090	30337	$234.13
3/4	3/4	1-5/8	4	0.120	N/A	–	–	GMHT34RHL5120	30338	$234.13
3/4	3/4	1-5/8	4	0.190	N/A	–	–	GMHT34RHL5190	30339	$234.13
3/4	3/4	1-5/8	4	0.250	N/A	–	–	GMHT34RHL5250	30340	$234.13
3/4	3/4	2	4	0.030	GM34RL5030	10401	$195.77	N/A	–	–
3/4	3/4	2	4	0.060	GM34RL5060	10402	$195.77	N/A	–	–
3/4	3/4	2	4	0.090	GM34RL5090	10403	$195.77	N/A	–	–
3/4	3/4	2	4	0.120	GM34RL5120	10404	$195.77	N/A	–	–
3/4	3/4	2	4	0.190	GM34RL5190	10405	$195.77	N/A	–	–
3/4	3/4	2	4	0.250	GM34RL5250	10406	$195.77	N/A	–	–
3/4	3/4	2-1/4	5	0.030	N/A	–	–	GMHT34RLH5030	30347	$257.30
3/4	3/4	2-1/4	5	0.060	N/A	–	–	GMHT34RLH5060	30348	$257.30
3/4	3/4	2-1/4	5	0.090	N/A	–	–	GMHT34RLH5090	30349	$257.30
3/4	3/4	2-1/4	5	0.120	N/A	–	–	GMHT34RLH5120	30350	$257.30
3/4	3/4	2-1/4	5	0.190	N/A	–	–	GMHT34RLH5190	30351	$257.30
3/4	3/4	2-1/4	5	0.250	N/A	–	–	GMHT34RLH5250	30352	$257.30
3/4	3/4	3	6	0.030	GM34RXL5030	10449	$233.61	N/A	–	–
3/4	3/4	3	6	0.060	GM34RXL5060	10450	$233.61	N/A	–	–
3/4	3/4	3	6	0.090	GM34RXL5090	10451	$233.61	N/A	–	–
3/4	3/4	3	6	0.120	GM34RXL5120	10452	$233.61	N/A	–	–
3/4	3/4	3	6	0.190	GM34RXL5190	10453	$233.61	N/A	–	–
3/4	3/4	3	6	0.250	GM34RXL5250	10454	$233.61	N/A	–	–
3/4	3/4	3-1/4	6	0.030	N/A	–	–	GMHT34RXL5030	30371	$290.67
3/4	3/4	3-1/4	6	0.060	N/A	–	–	GMHT34RXL5060	30372	$290.67

5 FLUTE (INCH) RADIUS



HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

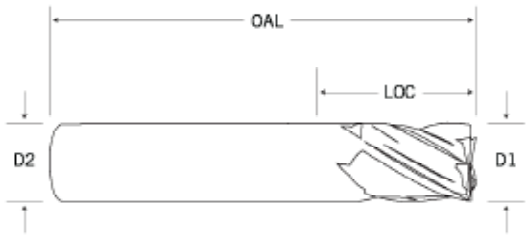
RADIUS END

Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
3/4	3/4	3-1/4	6	0.090	N/A	–	–	GMHT34RXL5090	30373	$290.67
3/4	3/4	3-1/4	6	0.120	N/A	–	–	GMHT34RXL5120	30374	$290.67
3/4	3/4	3-1/4	6	0.190	N/A	–	–	GMHT34RXL5190	30375	$290.67
3/4	3/4	3-1/4	6	0.250	N/A	–	–	GMHT34RXL5250	30376	$290.67
3/4	3/4	4	7	0.030	GM34RSL5030	10437	$300.82	N/A	–	–
3/4	3/4	4	7	0.060	GM34RSL5060	10438	$300.82	N/A	–	–
3/4	3/4	4	7	0.090	GM34RSL5090	10439	$300.82	N/A	–	–
3/4	3/4	4	7	0.120	GM34RSL5120	10440	$300.82	N/A	–	–
3/4	3/4	4	7	0.190	GM34RSL5190	10441	$300.82	N/A	–	–
3/4	3/4	4	7	0.250	GM34RSL5250	10442	$300.82	N/A	–	–
1	1	1	4	0.030	GM10RS5030	10105	$284.85	GMHT10RS5030	30082	$308.08
1	1	1	4	0.060	GM10RS5060	10106	$284.85	GMHT10RS5060	30083	$308.08
1	1	1	4	0.090	GM10RS5090	10107	$284.85	GMHT10RS5090	30084	$308.08
1	1	1	4	0.120	GM10RS5120	10108	$284.85	GMHT10RS5120	30085	$308.08
1	1	1	4	0.190	GM10RS5190	10109	$284.85	GMHT10RS5190	30086	$308.08
1	1	1	4	0.250	GM10RS5250	10110	$284.85	GMHT10RS5250	30087	$308.08
1	1	1-1/2	4	0.030	GM10R5030	10069	$299.85	GMHT10R5030	30058	$323.08
1	1	1-1/2	4	0.060	GM10R5060	10070	$299.85	GMHT10R5060	30059	$323.08
1	1	1-1/2	4	0.090	GM10R5090	10071	$299.85	GMHT10R5090	30060	$323.08
1	1	1-1/2	4	0.120	GM10R5120	10072	$299.85	GMHT10R5120	30061	$323.08
1	1	1-1/2	4	0.190	GM10R5190	10073	$299.85	GMHT10R5190	30062	$323.08
1	1	1-1/2	4	0.250	GM10R5250	10074	$299.85	GMHT10R5250	30063	$323.08
1	1	2	4	0.030	GM10RL5030	10081	$342.81	N/A	–	–
1	1	2	4	0.060	GM10RL5060	10082	$342.81	N/A	–	–
1	1	2	4	0.090	GM10RL5090	10083	$342.81	N/A	–	–
1	1	2	4	0.120	GM10RL5120	10084	$342.81	N/A	–	–
1	1	2	4	0.190	GM10RL5190	10085	$342.81	N/A	–	–
1	1	2	4	0.250	GM10RL5250	10086	$342.81	N/A	–	–
1	1	2-1/4	5	0.030	N/A	–	–	GMHT10RLH5030	30070	$389.72
1	1	2-1/4	5	0.060	N/A	–	–	GMHT10RLH5060	30071	$389.72
1	1	2-1/4	5	0.090	N/A	–	–	GMHT10RLH5090	30072	$389.72
1	1	2-1/4	5	0.120	N/A	–	–	GMHT10RLH5120	30073	$389.72
1	1	2-1/4	5	0.190	N/A	–	–	GMHT10RLH5190	30074	$389.72
1	1	2-1/4	5	0.250	N/A	–	–	GMHT10RLH5250	30075	$389.72
1	1	2-5/8	5	0.030	N/A	–	–	GMHT10RXLH5030	30112	$445.64
1	1	2-5/8	5	0.060	N/A	–	–	GMHT10RXLH5060	30113	$445.64
1	1	2-5/8	5	0.090	N/A	–	–	GMHT10RXLH5090	30114	$445.64
1	1	2-5/8	5	0.120	N/A	–	–	GMHT10RXLH5120	30115	$445.64
1	1	2-5/8	5	0.190	N/A	–	–	GMHT10RXLH5190	30116	$445.64

Continued on next page

HIGH PERFORMANCE & SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (INCH) RADIUS



HIGH PERFORMANCE | GMX-35 COATED

SUPER BITCHIN' PERFORMANCE | GMS² COATED

RADIUS END

Speeds & Feeds Chart Page 178 & 179

D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	SKU WF= Weldon Flat	EDP	LIST PRICE	SKU WF= Weldon Flat	EDP	LIST PRICE
1	1	2-5/8	5	0.250	N/A	–	–	GMHT10RXLH5250	30117	$445.64
1	1	3	6	0.030	GM10RXL5030	10129	$384.23	N/A	–	–
1	1	3	6	0.060	GM10RXL5060	10130	$384.23	N/A	–	–
1	1	3	6	0.090	GM10RXL5090	10131	$384.23	N/A	–	–
1	1	3	6	0.120	GM10RXL5120	10132	$384.23	N/A	–	–
1	1	3	6	0.190	GM10RXL5190	10133	$384.23	N/A	–	–
1	1	3	6	0.250	GM10RXL5250	10134	$384.23	N/A	–	–
1	1	3-1/4	6	0.030	N/A	–	–	GMHT10RXL5030	30100	$475.86
1	1	3-1/4	6	0.060	N/A	–	–	GMHT10RXL5060	30101	$475.86
1	1	3-1/4	6	0.090	N/A	–	–	GMHT10RXL5090	30102	$475.86
1	1	3-1/4	6	0.120	N/A	–	–	GMHT10RXL5120	30103	$475.86
1	1	3-1/4	6	0.190	N/A	–	–	GMHT10RXL5190	30104	$475.86
1	1	3-1/4	6	0.250	N/A	–	–	GMHT10RXL5250	30105	$475.86
1	1	4	7	0.030	GM10RSL5030	10117	$487.08	GMHT10RSL5030	30094	$544.20
1	1	4	7	0.060	GM10RSL5060	10118	$487.08	GMHT10RSL5060	30095	$544.20
1	1	4	7	0.090	GM10RSL5090	10119	$487.08	GMHT10RSL5090	30096	$544.20
1	1	4	7	0.120	GM10RSL5120	10120	$487.08	GMHT10RSL5120	30097	$544.20
1	1	4	7	0.190	GM10RSL5190	10121	$487.08	GMHT10RSL5190	30098	$544.20
1	1	4	7	0.250	GM10RSL5250	10122	$487.08	GMHT10RSL5250	30099	$544.20
1-1/4	1-1/4	2	4-1/2	0.060	N/A	–	–	GMHT1250R5060	30150	$496.21
1-1/4	1-1/4	2	4-1/2	0.090	N/A	–	–	GMHT1250R5090	30151	$496.21
1-1/4	1-1/4	2	4-1/2	0.120	N/A	–	–	GMHT1250R5120	30152	$496.21
1-1/4	1-1/4	2	4-1/2	0.190	N/A	–	–	GMHT1250R5190	30153	$496.21
1-1/4	1-1/4	2	4-1/2	0.250	N/A	–	–	GMHT1250R5250	30154	$496.21
1-1/4	1-1/4	2-5/8	5-1/2	0.060	N/A	–	–	GMHT1250RL5060	30160	$701.83
1-1/4	1-1/4	2-5/8	5-1/2	0.090	N/A	–	–	GMHT1250RL5090	30161	$701.83
1-1/4	1-1/4	2-5/8	5-1/2	0.120	N/A	–	–	GMHT1250RL5120	30162	$701.83
1-1/4	1-1/4	2-5/8	5-1/2	0.190	N/A	–	–	GMHT1250RL5190	30163	$701.83
1-1/4	1-1/4	2-5/8	5-1/2	0.250	N/A	–	–	GMHT1250RL5250	30164	$701.83
1-1/4	1-1/4	3-1/4	6	0.060	N/A	–	–	GMHT1250RXL5060	30180	$728.03
1-1/4	1-1/4	3-1/4	6	0.090	N/A	–	–	GMHT1250RXL5090	30181	$728.03
1-1/4	1-1/4	3-1/4	6	0.120	N/A	–	–	GMHT1250RXL5120	30182	$728.03
1-1/4	1-1/4	3-1/4	6	0.190	N/A	–	–	GMHT1250RXL5190	30183	$728.03
1-1/4	1-1/4	3-1/4	6	0.250	N/A	–	–	GMHT1250RXL5250	30184	$728.03
1-1/4	1-1/4	4	7	0.060	N/A	–	–	GMHT1250RSL5060	30170	$822.39
1-1/4	1-1/4	4	7	0.090	N/A	–	–	GMHT1250RSL5090	30171	$822.39
1-1/4	1-1/4	4	7	0.120	N/A	–	–	GMHT1250RSL5120	30172	$822.39
1-1/4	1-1/4	4	7	0.190	N/A	–	–	GMHT1250RSL5190	30173	$822.39
1-1/4	1-1/4	4	7	0.250	N/A	–	–	GMHT1250RSL5250	30174	$822.39

SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (METRIC) SQUARE

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

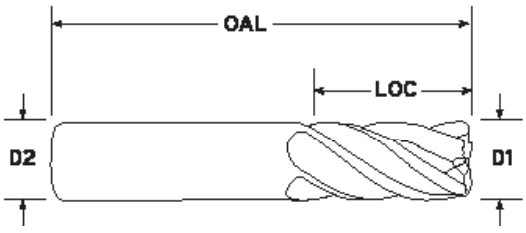
SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 180

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHT0300MMFS5	30001	3mm	3mm	8mm	38mm	$26.05
GMHT0300MMF5	30000	3mm	3mm	12mm	38mm	$27.33
GMHT0400MMF5	30005	4mm	6mm	12mm	50mm	$30.19
GMHT0500MMF5	30009	5mm	6mm	15mm	65mm	$34.07
GMHT0600MMFS5	30015	6mm	6mm	12mm	50mm	$32.29
GMHT0600MMF5	30013	6mm	6mm	19mm	65mm	$37.39
GMHT0800MMFS5	30025	8mm	8mm	12mm	50mm	$42.08
GMHT0800MMF5	30023	8mm	8mm	22mm	65mm	$43.76
GMHT1000MMF5	30037	10mm	10mm	22mm	70mm	$55.73
GMHT1200MMFS5	30126	12mm	12mm	19mm	63mm	$76.77
GMHT1200MMF5	30124	12mm	12mm	32mm	75mm	$85.83
GMHT1600MMF5	30284	16mm	16mm	32mm	89mm	$142.92
GMHT2000MMF5	30298	20mm	20mm	38mm	100mm	$230.83
GMHT2500MMF5	30308	25mm	25mm	38mm	100mm	$349.27

PATENT NO. 7,153,067

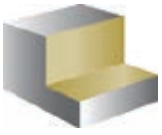


MATERIALS

ray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 04, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature loys, Titanium (6AL4V), Inconel 718, Inconel 625

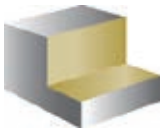
TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



POCKETING

HIGH-VELOCITY



SUPER BITCHIN' PERFORMANCE – FERROUS
5 FLUTE (METRIC) RADIUS

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 180

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHT0300MMRS5020	30004	3mm	3mm	8mm	38mm	.20mm	$27.35
GMHT0300MMR5020	30002	3mm	3mm	12mm	38mm	.20mm	$28.61
GMHT0300MMR5050	30003	3mm	3mm	12mm	38mm	.50mm	$28.61
GMHT0400MMRS5030	30008	4mm	6mm	8mm	50mm	.30mm	$30.25
GMHT0400MMR5030	30006	4mm	6mm	12mm	50mm	.30mm	$33.13
GMHT0400MMR5050	30007	4mm	6mm	12mm	50mm	.50mm	$33.13
GMHT0500MMRS5030	30012	5mm	6mm	10mm	50mm	.30mm	$32.60
GMHT0500MMR5030	30010	5mm	6mm	15mm	65mm	.30mm	$35.42
GMHT0500MMR5050	30011	5mm	6mm	15mm	65mm	.50mm	$35.42
GMHT0600MMRS5030	30021	6mm	6mm	12mm	50mm	.30mm	$35.73
GMHT0600MMR5030	30017	6mm	6mm	19mm	65mm	.30mm	$39.06
GMHT0600MMR5050	30018	6mm	6mm	19mm	65mm	.50mm	$39.06
GMHT0800MMRS5050	30035	8mm	8mm	12mm	50mm	.50mm	$43.61
GMHT0800MMR5030	30027	8mm	8mm	22mm	65mm	.30mm	$46.46
GMHT0800MMR5050	30028	8mm	8mm	22mm	65mm	.50mm	$46.46
GMHT0800MMR5100	30029	8mm	8mm	22mm	65mm	1.0mm	$46.46
GMHT0800MMR5150	30030	8mm	8mm	22mm	65mm	1.5mm	$46.46
GMHT1000MMRS5050	30045	10mm	10mm	16mm	50mm	.50mm	$53.85
GMHT1000MMR5030	30039	10mm	10mm	22mm	70mm	.30mm	$58.52
GMHT1000MMR5050	30040	10mm	10mm	22mm	70mm	.50mm	$58.52
GMHT1000MMR5100	30041	10mm	10mm	22mm	70mm	1.0mm	$58.52
GMHT1200MMRS5030	30138	12mm	12mm	19mm	63mm	.30mm	$80.61
GMHT1200MMRS5050	30139	12mm	12mm	19mm	63mm	.50mm	$80.61
GMHT1200MMR5030	30128	12mm	12mm	32mm	75mm	.30mm	$90.13
GMHT1200MMR5050	30129	12mm	12mm	32mm	75mm	.50mm	$90.13
GMHT1200MMR5100	30130	12mm	12mm	32mm	75mm	1.0mm	$90.13
GMHT1200MMR5150	30131	12mm	12mm	32mm	75mm	1.5mm	$90.13
GMHT1200MMR5200	30132	12mm	12mm	32mm	75mm	2.0mm	$90.13
GMHT1600MMRS5030	30294	16mm	16mm	19mm	75mm	.30mm	$136.77
GMHT1600MMRS5050	30295	16mm	16mm	19mm	75mm	.50mm	$136.77
GMHT1600MMR5030	30286	16mm	16mm	32mm	89mm	.30mm	$150.06
GMHT1600MMR5050	30287	16mm	16mm	32mm	89mm	.50mm	$150.06
GMHT1600MMR5100	30288	16mm	16mm	32mm	89mm	1.0mm	$150.06
GMHT1600MMR5200	30289	16mm	16mm	32mm	89mm	2.0mm	$150.06
GMHT2000MMRS5100	30306	20mm	20mm	22mm	75mm	1.0mm	$223.02
GMHT2000MMR5050	30300	20mm	20mm	38mm	100mm	.50mm	$242.38
GMHT2000MMR5100	30301	20mm	20mm	38mm	100mm	1.0mm	$242.38
GMHT2000MMR5150	30302	20mm	20mm	38mm	100mm	1.5mm	$242.38
GMHT2500MMR5100	30310	25mm	25mm	38mm	100mm	1.0mm	$366.74
GMHT2500MMR5150	30311	25mm	25mm	38mm	100mm	1.5mm	$366.74

PATENT NO. 7,153,067

HIGH PERFORMANCE – FERROUS

5 FLUTE NECK RELIEVED (INCH) SQUARE

Patented variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials including, stainless, inconel, titanium, tool steels and hardened materials. Should be run at specific parameters. See “Speeds and Feeds” calculator at gorillamill.com or refer to ”Speeds and Feeds” chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

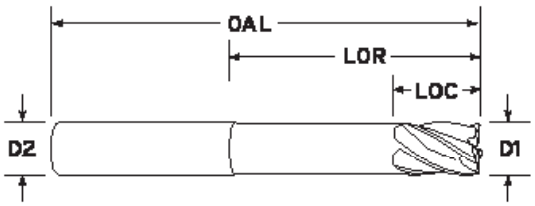
SQUARE END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 181

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LOR Length of Relief	LIST PRICE
GMNR14F50.750	10737	1/4	1/4	3/8	4	3/4	$38.22
GMNR14F51.125	10738	1/4	1/4	3/8	4	1-1/8	$42.74
GMNR14F52.125	10739	1/4	1/4	3/8	4	2-1/8	$45.28
GMNR38F51.125	10804	3/8	3/8	1/2	4	1-1/8	$61.22
GMNR38F52.125	10805	3/8	3/8	1/2	4	2-1/8	$61.71
GMNR38F53.125	10806	3/8	3/8	1/2	6	3-1/8	$81.94
GMNR38F54.125	10807	3/8	3/8	1/2	6	4-1/8	$100.77
GMNR12F51.500	10690	1/2	1/2	5/8	4	1-1/2	$95.57
GMNR12F52.250	10691	1/2	1/2	5/8	4	2-1/4	$95.57
GMNR12F53.375	10692	1/2	1/2	5/8	6	3-3/8	$132.08
GMNR12F54.125	10693	1/2	1/2	5/8	6	4-1/8	$136.05
GMNR58F51.625	10844	5/8	5/8	3/4	4	1-5/8	$156.85
GMNR58F52.375	10845	5/8	5/8	3/4	6	2-3/8	$180.38
GMNR58F53.375	10846	5/8	5/8	3/4	6	3-3/8	$197.33
GMNR58F54.125	10847	5/8	5/8	3/4	6	4-1/8	$203.29
GMNR34F52.500	10761	3/4	3/4	1	6	2-1/2	$240.77
GMNR34F53.375	10762	3/4	3/4	1	6	3-3/8	$266.10
GMNR34F54.125	10763	3/4	3/4	1	6	4-1/8	$273.46
GMNR10F52.625	10623	1	1	1-1/8	6	2-5/8	$375.91
GMNR10F53.250	10624	1	1	1-1/8	6	3-1/4	$386.95
GMNR10F54.250	10625	1	1	1-1/8	7	4-1/4	$442.11
GMNR1250F52.250	10662	1-1/4	1-1/4	1-1/2	5	2-1/4	$600.58
GMNR1250F52.625	10663	1-1/4	1-1/4	1-1/2	6	2-5/8	$622.71
GMNR1250F53.375	10664	1-1/4	1-1/4	1-1/2	6	3-3/8	$639.73
GMNR1250F54.125	10665	1-1/4	1-1/4	1-1/2	6	4-1/8	$732.93

PATENT NO. 7,367,754

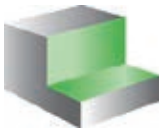


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



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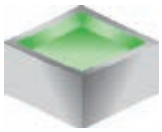
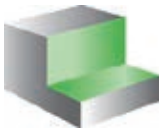


HIGH-VELOCITY



HIGH PERFORMANCE – FERROUS

5 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 181

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Length of Relief	LIST PRICE
GMNR14R50150.750	10749	1/4	1/4	3/8	4.0	0.015	3/4	$43.38
GMNR14R50151.125	10750	1/4	1/4	3/8	4.0	0.015	1-1/8	$48.29
GMNR14R50152.125	10751	1/4	1/4	3/8	4.0	0.015	2-1/8	$51.16
GMNR14R50300.750	10752	1/4	1/4	3/8	4.0	0.030	3/4	$43.38
GMNR14R50301.125	10753	1/4	1/4	3/8	4.0	0.030	1-1/8	$48.29
GMNR14R50302.125	10754	1/4	1/4	3/8	4.0	0.030	2-1/8	$51.16
GMNR14R50600.750	10755	1/4	1/4	3/8	4.0	0.060	3/4	$43.38
GMNR14R50601.125	10756	1/4	1/4	3/8	4.0	0.060	1-1/8	$48.29
GMNR14R50602.125	10757	1/4	1/4	3/8	4.0	0.060	2-1/8	$51.16
GMNR38R50151.125	10824	3/8	3/8	1/2	4.0	0.015	1-1/8	$63.67
GMNR38R50152.125	10825	3/8	3/8	1/2	4.0	0.015	2-1/8	$64.38
GMNR38R50153.125	10826	3/8	3/8	1/2	6.0	0.015	3-1/8	$92.60
GMNR38R50154.125	10827	3/8	3/8	1/2	6.0	0.015	4-1/8	$113.86
GMNR38R50301.125	10828	3/8	3/8	1/2	4.0	0.030	1-1/8	$63.67
GMNR38R50302.125	10829	3/8	3/8	1/2	4.0	0.030	2-1/8	$64.38
GMNR38R50303.125	10830	3/8	3/8	1/2	6.0	0.030	3-1/8	$92.60
GMNR38R50304.125	10831	3/8	3/8	1/2	6.0	0.030	4-1/8	$113.86
GMNR38R50601.125	10832	3/8	3/8	1/2	4.0	0.060	1-1/8	$63.67
GMNR38R50602.125	10833	3/8	3/8	1/2	4.0	0.060	2-1/8	$64.38
GMNR38R50603.125	10834	3/8	3/8	1/2	6.0	0.060	3-1/8	$92.60
GMNR38R50604.125	10835	3/8	3/8	1/2	6.0	0.060	4-1/8	$113.86
GMNR38R50901.125	10836	3/8	3/8	1/2	4.0	0.090	1-1/8	$63.67
GMNR38R50902.125	10837	3/8	3/8	1/2	4.0	0.090	2-1/8	$64.38
GMNR38R50903.125	10838	3/8	3/8	1/2	6.0	0.090	3-1/8	$92.60
GMNR38R50904.125	10839	3/8	3/8	1/2	6.0	0.090	4-1/8	$113.86
GMNR12R50151.500	10714	1/2	1/2	5/8	4.0	0.015	1-1/2	$96.94
GMNR12R50152.250	10715	1/2	1/2	5/8	4.0	0.015	2-1/4	$100.77
GMNR12R50153.375	10716	1/2	1/2	5/8	6.0	0.015	3-3/8	$135.80
GMNR12R50154.125	10717	1/2	1/2	5/8	6.0	0.015	4-1/8	$143.23
GMNR12R50301.500	10718	1/2	1/2	5/8	4.0	0.030	1-1/2	$96.94
GMNR12R50302.250	10719	1/2	1/2	5/8	4.0	0.030	2-1/4	$100.77
GMNR12R50303.375	10720	1/2	1/2	5/8	6.0	0.030	3-3/8	$135.80
GMNR12R50304.125	10721	1/2	1/2	5/8	6.0	0.030	4-1/8	$143.23
GMNR12R50601.500	10722	1/2	1/2	5/8	4.0	0.060	1-1/2	$96.94
GMNR12R50602.250	10723	1/2	1/2	5/8	4.0	0.060	2-1/4	$100.77
GMNR12R50603.375	10724	1/2	1/2	5/8	6.0	0.060	3-3/8	$135.80
GMNR12R50604.125	10725	1/2	1/2	5/8	6.0	0.060	4-1/8	$143.23
GMNR12R50901.500	10726	1/2	1/2	5/8	4.0	0.090	1-1/2	$96.94
GMNR12R50902.250	10727	1/2	1/2	5/8	4.0	0.090	2-1/4	$100.77
GMNR12R50903.375	10728	1/2	1/2	5/8	6.0	0.090	3-3/8	$135.80
GMNR12R50904.125	10729	1/2	1/2	5/8	6.0	0.090	4-1/8	$143.23

PATENT NO. 7,367,754

5 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 181

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Length of Relief	LIST PRICE
GMNR12R51201.500	10730	1/2	1/2	5/8	4.0	0.120	1-1/2	$96.94
GMNR12R51202.250	10731	1/2	1/2	5/8	4.0	0.120	2-1/4	$100.77
GMNR12R51203.375	10732	1/2	1/2	5/8	6.0	0.120	3-3/8	$135.80
GMNR12R51204.125	10733	1/2	1/2	5/8	6.0	0.120	4-1/8	$143.23
GMNR58R50301.625	10864	5/8	5/8	3/4	4.0	0.030	1-5/8	$163.84
GMNR58R50302.375	10865	5/8	5/8	3/4	6.0	0.030	2-3/8	$184.41
GMNR58R50303.375	10866	5/8	5/8	3/4	6.0	0.030	3-3/8	$204.31
GMNR58R50304.125	10867	5/8	5/8	3/4	6.0	0.030	4-1/8	$210.27
GMNR58R50601.625	10868	5/8	5/8	3/4	4.0	0.060	1-5/8	$163.84
GMNR58R50602.375	10869	5/8	5/8	3/4	6.0	0.060	2-3/8	$184.41
GMNR58R50603.375	10870	5/8	5/8	3/4	6.0	0.060	3-3/8	$204.31
GMNR58R50604.125	10871	5/8	5/8	3/4	6.0	0.060	4-1/8	$210.27
GMNR58R50901.625	10872	5/8	5/8	3/4	4.0	0.090	1-5/8	$163.84
GMNR58R50902.375	10873	5/8	5/8	3/4	6.0	0.090	2-3/8	$184.41
GMNR58R50903.375	10874	5/8	5/8	3/4	6.0	0.090	3-3/8	$204.31
GMNR58R50904.125	10875	5/8	5/8	3/4	6.0	0.090	4-1/8	$210.27
GMNR58R51201.625	10876	5/8	5/8	3/4	4.0	0.120	1-5/8	$163.84
GMNR58R51202.375	10877	5/8	5/8	3/4	6.0	0.120	2-3/8	$184.41
GMNR58R51203.375	10878	5/8	5/8	3/4	6.0	0.120	3-3/8	$204.31
GMNR58R51204.125	10879	5/8	5/8	3/4	6.0	0.120	4-1/8	$210.27
GMNR34R50302.500	10782	3/4	3/4	1	6.0	0.030	2-1/2	$267.25
GMNR34R50303.375	10783	3/4	3/4	1	6.0	0.030	3-3/8	$274.55
GMNR34R50304.125	10784	3/4	3/4	1	6.0	0.030	4-1/8	$281.92
GMNR34R50602.500	10785	3/4	3/4	1	6.0	0.060	2-1/2	$267.25
GMNR34R50603.375	10786	3/4	3/4	1	6.0	0.060	3-3/8	$274.55
GMNR34R50604.125	10787	3/4	3/4	1	6.0	0.060	4-1/8	$281.92
GMNR34R50902.500	10788	3/4	3/4	1	6.0	0.090	2-1/2	$267.25
GMNR34R50903.375	10789	3/4	3/4	1	6.0	0.090	3-3/8	$274.55
GMNR34R50904.125	10790	3/4	3/4	1	6.0	0.090	4-1/8	$281.92
GMNR34R51202.500	10791	3/4	3/4	1	6.0	0.120	2-1/2	$267.25
GMNR34R51203.375	10792	3/4	3/4	1	6.0	0.120	3-3/8	$274.55
GMNR34R51204.125	10793	3/4	3/4	1	6.0	0.120	4-1/8	$281.92
GMNR34R51902.500	10794	3/4	3/4	1	6.0	0.190	2-1/2	$267.25
GMNR34R51903.375	10795	3/4	3/4	1	6.0	0.190	3-3/8	$274.55
GMNR34R51904.125	10796	3/4	3/4	1	6.0	0.190	4-1/8	$281.92
GMNR34R52502.500	10797	3/4	3/4	1	6.0	0.250	2-1/2	$267.25
GMNR34R52503.375	10798	3/4	3/4	1	6.0	0.250	3-3/8	$274.55
GMNR34R52504.125	10799	3/4	3/4	1	6.0	0.250	4-1/8	$281.92
GMNR10R50302.625	10644	1	1	1-1/8	6.0	0.030	2-5/8	$394.33
GMNR10R50303.250	10645	1	1	1-1/8	6.0	0.030	3-1/4	$407.32
GMNR10R50304.250	10646	1	1	1-1/8	7.0	0.030	4-1/4	$458.76

PATENT NO. 7,367,754

Continued on next page

HIGH PERFORMANCE – FERROUS

5 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 181

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Length of Relief	LIST PRICE
GMNR10R50602.625	10647	1	1	1-1/8	6.0	0.060	2-5/8	$394.33
GMNR10R50603.250	10648	1	1	1-1/8	6.0	0.060	3-1/4	$407.32
GMNR10R50604.250	10649	1	1	1-1/8	7.0	0.060	4-1/4	$458.76
GMNR10R50902.625	10650	1	1	1-1/8	6.0	0.090	2-5/8	$394.33
GMNR10R50903.250	10651	1	1	1-1/8	6.0	0.090	3-1/4	$407.32
GMNR10R50904.250	10652	1	1	1-1/8	7.0	0.090	4-1/4	$458.76
GMNR10R51202.625	10653	1	1	1-1/8	6.0	0.120	2-5/8	$394.33
GMNR10R51203.250	10654	1	1	1-1/8	6.0	0.120	3-1/4	$407.32
GMNR10R51204.250	10655	1	1	1-1/8	7.0	0.120	4-1/4	$458.76
GMNR10R51902.625	10656	1	1	1-1/8	6.0	0.190	2-5/8	$394.33
GMNR10R51903.250	10657	1	1	1-1/8	6.0	0.190	3-1/4	$407.32
GMNR10R51904.250	10658	1	1	1-1/8	7.0	0.190	4-1/4	$458.76
GMNR10R52502.625	10659	1	1	1-1/8	6.0	0.250	2-5/8	$394.33
GMNR10R52503.250	10660	1	1	1-1/8	6.0	0.250	3-1/4	$407.32
GMNR10R52504.250	10661	1	1	1-1/8	7.0	0.250	4-1/4	$458.76
GMNR1250R50602.250	10666	1-1/4	1-1/4	1-1/2	5.0	0.060	2-1/4	$630.63
GMNR1250R50602.625	10667	1-1/4	1-1/4	1-1/2	6.0	0.060	2-5/8	$655.48
GMNR1250R50603.375	10668	1-1/4	1-1/4	1-1/2	6.0	0.060	3-3/8	$675.06
GMNR1250R50604.125	10669	1-1/4	1-1/4	1-1/2	6.0	0.060	4-1/8	$771.50
GMNR1250R50902.250	10670	1-1/4	1-1/4	1-1/2	5.0	0.090	2-1/4	$622.71
GMNR1250R50902.625	10671	1-1/4	1-1/4	1-1/2	6.0	0.090	2-5/8	$655.48
GMNR1250R50903.375	10672	1-1/4	1-1/4	1-1/2	6.0	0.090	3-3/8	$675.06
GMNR1250R50904.125	10673	1-1/4	1-1/4	1-1/2	6.0	0.090	4-1/8	$771.50
GMNR1250R51202.250	10674	1-1/4	1-1/4	1-1/2	5.0	0.120	2-1/4	$622.71
GMNR1250R51202.625	10675	1-1/4	1-1/4	1-1/2	6.0	0.120	2-5/8	$655.48
GMNR1250R51203.375	10676	1-1/4	1-1/4	1-1/2	6.0	0.120	3-3/8	$675.06
GMNR1250R51204.125	10677	1-1/4	1-1/4	1-1/2	6.0	0.120	4-1/8	$771.50
GMNR1250R51902.250	10678	1-1/4	1-1/4	1-1/2	5.0	0.190	2-1/4	$622.71
GMNR1250R51902.625	10679	1-1/4	1-1/4	1-1/2	6.0	0.190	2-5/8	$655.48
GMNR1250R51903.375	10680	1-1/4	1-1/4	1-1/2	6.0	0.190	3-3/8	$675.06
GMNR1250R51904.125	10681	1-1/4	1-1/4	1-1/2	6.0	0.190	4-1/8	$771.50
GMNR1250R52502.250	10682	1-1/4	1-1/4	1-1/2	5.0	0.250	2-1/4	$622.71
GMNR1250R52502.625	10683	1-1/4	1-1/4	1-1/2	6.0	0.250	2-5/8	$655.48
GMNR1250R52503.375	10684	1-1/4	1-1/4	1-1/2	6.0	0.250	3-3/8	$675.06
GMNR1250R52504.125	10685	1-1/4	1-1/4	1-1/2	6.0	0.250	4-1/8	$771.50

PATENT NO. 7,367,754

SUPER BITCHIN' PERFORMANCE – FERROUS

5 FLUTE CHIMPBREAKERS (INCH) SQUARE

5 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.
THE BEST chip control known to man or ape.

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

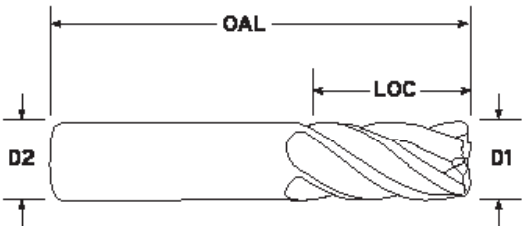
SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 182

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHTCB38F5	30688	3/8	3/8	7/8	2-1/2	$52.17
GMHTCB38FH5	30689	3/8	3/8	1	2-1/2	$52.51
GMHTCB38FL5	30690	3/8	3/8	1-1/4	3	$56.56
GMHTCB12FH5	30607	1/2	1/2	1	3	$82.92
GMHTCB12F5	30606	1/2	1/2	1-1/4	3	$82.92
GMHTCB12FLH5	30608	1/2	1/2	1-5/8	4	$99.06
GMHTCB12FXL5	30610	1/2	1/2	2	4	$102.70
GMHTCB58F5	30720	5/8	5/8	1-1/4	3-1/2	$143.41
GMHTCB58FHL5	30721	5/8	5/8	1-5/8	4	$162.29
GMHTCB58FL5	30722	5/8	5/8	2	4	$181.16
GMHTCB34F5	30660	3/4	3/4	1-1/2	4	$204.09
GMHTCB34FHL5	30661	3/4	3/4	1-5/8	4	$229.91
GMHTCB34FLH5	30662	3/4	3/4	2-1/4	5	$278.13

PATENT NO. 7,153,067

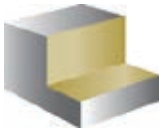


MATERIALS

ray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, 03, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High emperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

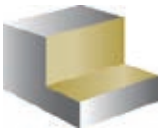
TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



POCKETING

HIGH-VELOCITY



SUPER BITCHIN' PERFORMANCE – FERROUS

5 FLUTE CHIMPBREAKERS (INCH) RADIUS

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END **GMS² COATED**

SPEEDS & FEEDS CHART PAGE 182

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHTCB38R5015	30692	3/8	3/8	7/8	2-1/2	0.015	$54.27
GMHTCB38R5030	30693	3/8	3/8	7/8	2-1/2	0.030	$54.27
GMHTCB38R5060	30694	3/8	3/8	7/8	2-1/2	0.060	$54.27
GMHTCB38R5090	30695	3/8	3/8	7/8	2-1/2	0.090	$54.27
GMHTCB38RH5015	30696	3/8	3/8	1	2-1/2	0.015	$54.61
GMHTCB38RH5030	30697	3/8	3/8	1	2-1/2	0.030	$54.61
GMHTCB38RH5060	30698	3/8	3/8	1	2-1/2	0.060	$54.61
GMHTCB38RH5090	30699	3/8	3/8	1	2-1/2	0.090	$54.61
GMHTCB38RL5015	30700	3/8	3/8	1-1/4	3	0.015	$68.45
GMHTCB38RL5030	30701	3/8	3/8	1-1/4	3	0.030	$68.45
GMHTCB38RL5060	30702	3/8	3/8	1-1/4	3	0.060	$68.45
GMHTCB38RL5090	30703	3/8	3/8	1-1/4	3	0.090	$68.45
GMHTCB12RH5015	30616	1/2	1/2	1	3	0.015	$86.36
GMHTCB12RH5030	30617	1/2	1/2	1	3	0.030	$86.36
GMHTCB12RH5060	30618	1/2	1/2	1	3	0.060	$86.36
GMHTCB12RH5090	30619	1/2	1/2	1	3	0.090	$86.36
GMHTCB12RH5120	30620	1/2	1/2	1	3	0.120	$86.36
GMHTCB12R5015	30611	1/2	1/2	1-1/4	3	0.015	$86.36
GMHTCB12R5030	30612	1/2	1/2	1-1/4	3	0.030	$86.36
GMHTCB12R5060	30613	1/2	1/2	1-1/4	3	0.060	$86.36
GMHTCB12R5090	30614	1/2	1/2	1-1/4	3	0.090	$86.36
GMHTCB12R5120	30615	1/2	1/2	1-1/4	3	0.120	$86.36
GMHTCB12RLH5015	30621	1/2	1/2	1-5/8	4	0.015	$103.13
GMHTCB12RLH5030	30622	1/2	1/2	1-5/8	4	0.030	$103.13
GMHTCB12RLH5060	30623	1/2	1/2	1-5/8	4	0.060	$103.13
GMHTCB12RLH5090	30624	1/2	1/2	1-5/8	4	0.090	$103.13
GMHTCB12RLH5120	30625	1/2	1/2	1-5/8	4	0.120	$103.13
GMHTCB12RXL5015	30631	1/2	1/2	2	4	0.015	$111.95
GMHTCB12RXL5030	30632	1/2	1/2	2	4	0.030	$111.95
GMHTCB12RXL5060	30633	1/2	1/2	2	4	0.060	$111.95
GMHTCB12RXL5090	30634	1/2	1/2	2	4	0.090	$111.95
GMHTCB12RXL5120	30635	1/2	1/2	2	4	0.120	$111.95
GMHTCB58R5030	30723	5/8	5/8	1-1/4	3-1/2	0.030	$149.85
GMHTCB58R5060	30724	5/8	5/8	1-1/4	3-1/2	0.060	$149.85
GMHTCB58R5090	30725	5/8	5/8	1-1/4	3-1/2	0.090	$149.85
GMHTCB58R5120	30726	5/8	5/8	1-1/4	3-1/2	0.120	$149.85
GMHTCB58RHL5030	30727	5/8	5/8	1-5/8	4	0.030	$169.61
GMHTCB58RHL5060	30728	5/8	5/8	1-5/8	4	0.060	$169.61
GMHTCB58RHL5090	30729	5/8	5/8	1-5/8	4	0.090	$169.61
GMHTCB58RHL5120	30730	5/8	5/8	1-5/8	4	0.120	$169.61

PATENT NO. 7,153,067

SUPER BITCHIN' PERFORMANCE – FERROUS

5 FLUTE CHIMPBREAKERS (INCH) RADIUS

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END **GMS² COATED**

SPEEDS & FEEDS CHART PAGE 182							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHTCB58RL5030	30731	5/8	5/8	2	4	0.030	$189.38
GMHTCB58RL5060	30732	5/8	5/8	2	4	0.060	$189.38
GMHTCB58RL5090	30733	5/8	5/8	2	4	0.090	$189.38
GMHTCB58RL5120	30734	5/8	5/8	2	4	0.120	$189.38
GMHTCB34R5030	30664	3/4	3/4	1-1/2	4	0.030	$213.46
GMHTCB34R5060	30665	3/4	3/4	1-1/2	4	0.060	$213.46
GMHTCB34R5090	30666	3/4	3/4	1-1/2	4	0.090	$213.46
GMHTCB34R5120	30667	3/4	3/4	1-1/2	4	0.120	$213.46
GMHTCB34RHL5030	30670	3/4	3/4	1-5/8	4	0.030	$240.49
GMHTCB34RHL5060	30671	3/4	3/4	1-5/8	4	0.060	$240.49
GMHTCB34RHL5090	30672	3/4	3/4	1-5/8	4	0.090	$240.49
GMHTCB34RHL5120	30673	3/4	3/4	1-5/8	4	0.120	$240.49
GMHTCB34RLH5030	30676	3/4	3/4	2-1/4	5	0.030	$290.88
GMHTCB34RLH5060	30677	3/4	3/4	2-1/4	5	0.060	$290.88
GMHTCB34RLH5090	30678	3/4	3/4	2-1/4	5	0.090	$290.88
GMHTCB34RLH5120	30679	3/4	3/4	2-1/4	5	0.120	$290.88

PATENT NO. 7,153,067

SUPER BITCHIN' PERFORMANCE – FERROUS

5 FLUTE CHIMPBREAKERS (METRIC) SQUARE

5 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.
THE BEST chip control known to man or ape.

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

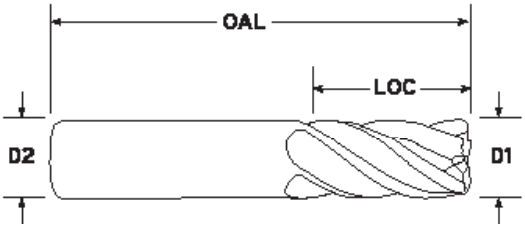
SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 182

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHTCB1000MMF5	30537	10mm	10mm	22mm	70mm	$61.30
GMHTCB1200MMF5	30576	12mm	12mm	32mm	75mm	$78.41
GMHTCB1600MMF5	30648	16mm	16mm	32mm	89mm	$157.21
GMHTCB2000MMF5	30653	20mm	20mm	38mm	100mm	$241.25

PATENT NO. 7,153,067

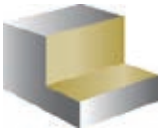


IATERIALS

ray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, 03, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High emperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

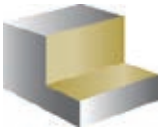
TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



POCKETING

HIGH-VELOCITY



5 FLUTE CHIMPBREAKERS (METRIC) RADIUS

Based on the original 5 flute Gorilla Mill, the "Phenom" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 182

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHTCB1000MMR5030	30538	**10mm**	10mm	22mm	70mm	.30mm	$64.36
GMHTCB1000MMR5050	30539	**10mm**	10mm	22mm	70mm	.50mm	$64.36
GMHTCB1000MMR5100	30540	**10mm**	10mm	22mm	70mm	1.0mm	$64.36
GMHTCB1200MMR5030	30577	**12mm**	12mm	32mm	75mm	.30mm	$81.88
GMHTCB1200MMR5050	30578	**12mm**	12mm	32mm	75mm	.50mm	$81.88
GMHTCB1200MMR5100	30579	**12mm**	12mm	32mm	75mm	1.0mm	$81.88
GMHTCB1200MMR5150	30580	**12mm**	12mm	32mm	75mm	1.5mm	$81.88
GMHTCB1200MMR5200	30581	**12mm**	12mm	32mm	75mm	2.0mm	$81.88
GMHTCB1600MMR5030	30649	**16mm**	16mm	32mm	89mm	.30mm	$165.06
GMHTCB1600MMR5050	30650	**16mm**	16mm	32mm	89mm	.50mm	$165.06
GMHTCB1600MMR5100	30651	**16mm**	16mm	32mm	89mm	1.0mm	$165.06
GMHTCB1600MMR5200	30652	**16mm**	16mm	32mm	89mm	2.0mm	$165.06
GMHTCB2000MMR5050	30654	**20mm**	20mm	38mm	100mm	.50mm	$251.51
GMHTCB2000MMR5100	30655	**20mm**	20mm	38mm	100mm	1.0mm	$251.51
GMHTCB2000MMR5150	30656	**20mm**	20mm	38mm	100mm	1.5mm	$251.51

PATENT NO. 7,153,067

HP

HIGH PERFORMANCE – FERROUS

5 FLUTE ROUGHERS (INCH) CHAMFER

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for extremely aggressive machining applications in all materials including: stainless, Inconel, titanium, tool steels, and alloy and low carbon steels. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

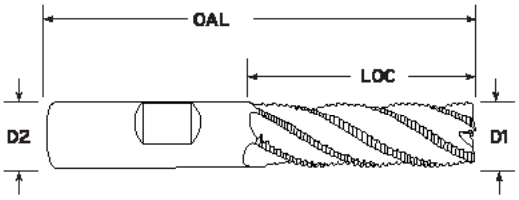
ROUGHERS

GMS² COATED

SPEEDS & FEEDS CHART PAGE 183

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK STYLE	LIST PRICE
GMKD38CS5	50080	**3/8**	3/8	9/16	2		$84.52
GMKD38C5	50078	**3/8**	3/8	7/8	2-1/2		$88.00
GMKD12CS5	50058	**1/2**	1/2	5/8	2-1/2	WELDON FLAT	$107.68
GMKD12CH5	50056	**1/2**	1/2	1	3	WELDON FLAT	$114.63
GMKD12C5	50054	**1/2**	1/2	1-1/4	3	WELDON FLAT	$114.63
GMKD58CS5	50086	**5/8**	5/8	7/8	3-1/2	WELDON FLAT	$187.57
GMKD58C5	50084	**5/8**	5/8	1-1/4	3-1/2	WELDON FLAT	$202.04
GMKD34CS5	50076	**3/4**	3/4	1	4	WELDON FLAT	$207.20
GMKD34C5	50074	**3/4**	3/4	1-5/8	4	WELDON FLAT	$238.20
GMKD10CS5	50046	**1**	1	1	4	WELDON FLAT	$310.21
GMKD10C5	50044	**1**	1	1-3/4	4	WELDON FLAT	$330.24

PATENT NO. 7,153,067

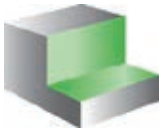


MATERIALS

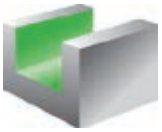
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

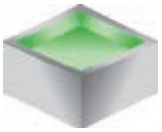
PROFILING



FULL SLOTTING



POCKETING



HIGH PERFORMANCE – FERROUS

5 FLUTE ROUGHERS (METRIC) CHAMFER

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for extremely aggressive machining applications in all materials including: stainless, Inconel, titanium, tool steels, and alloy and low carbon steels. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

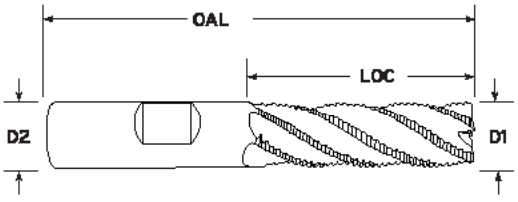
ROUGHERS

GMS² COATED

SPEEDS & FEEDS CHART PAGE 183

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK STYLE	LIST PRICE
GMKD0800MMCS5	50036	8mm	8mm	12mm	50mm	–	$78.73
GMKD0800MMC5	50032	8mm	8mm	22mm	65mm	–	$82.80
GMKD0800MMCL5	50034	8mm	8mm	40mm	100mm	–	$121.22
GMKD1000MMCS5	50042	10mm	10mm	16mm	50mm		$89.65
GMKD1000MMC5	50038	10mm	10mm	22mm	70mm		$93.33
GMKD1000MMCL5	50040	10mm	10mm	40mm	100mm		$124.86
GMKD1200MMCS5	50052	12mm	12mm	19mm	63mm	WELDON FLAT	$103.68
GMKD1200MMC5	50048	12mm	12mm	32mm	75mm	WELDON FLAT	$110.33
GMKD1200MMCL5	50050	12mm	12mm	50mm	100mm	WELDON FLAT	$157.29
GMKD1600MMCS5	50064	16mm	16mm	19mm	75mm	WELDON FLAT	$179.09
GMKD1600MMC5	50062	16mm	16mm	32mm	89mm	WELDON FLAT	$202.60
GMKD2000MMCS5	50068	20mm	20mm	22mm	75mm	WELDON FLAT	$212.78
GMKD2000MMC5	50066	20mm	20mm	38mm	100mm	WELDON FLAT	$244.31
GMKD2500MMCS5	50072	25mm	25mm	25mm	100mm	WELDON FLAT	$303.08
GMKD2500MMC5	50070	25mm	25mm	38mm	100mm	WELDON FLAT	$323.04

PATENT NO. 7,153,067

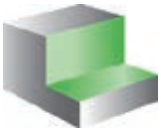


MATERIALS

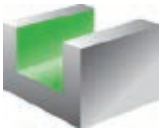
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



FULL SLOTTING



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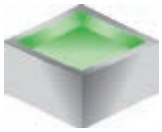


SB

SUPER BITCHIN' PERFORMANCE – FERROUS
6 FLUTE (INCH) SQUARE

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

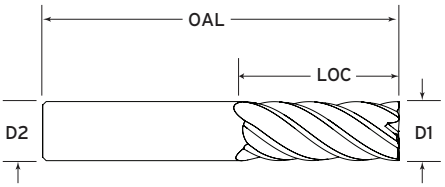
Available in special diameters, lengths and completely resharpenable.

SQUARE

GMS² COATED

SPEEDS & FEEDS CHART PAGE 184

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHT14FS6	30928	1/4	1/4	1/2	2	$29.27
GMHT14F6	30932	1/4	1/4	3/4	2 1/2	$31.67
GMHT14FL6	30936	1/4	1/4	1 1/4	3	$44.38
GMHT516FS6	30940	5/16	5/16	1/2	2	$41.46
GMHT516FH6	30944	5/16	5/16	1	2 1/2	$43.65
GMHT38FS6	30948	3/8	3/8	5/8	2	$45.83
GMHT38FH6	30953	3/8	3/8	1	2 1/2	$46.77
GMHT38FL6	30958	3/8	3/8	1 1/4	3	$52.50
GMHT38FLH6	31230	3/8	3/8	1 1/2	3 1/2	$56.25
GMHT12FS6	30963	1/2	1/2	5/8	2-1/2	$67.92
GMHT12FH6	30969	1/2	1/2	1	3	$72.81
GMHT12F6	30975	1/2	1/2	1-1/4	3	$75.42
GMHT12FLH6	30981	1/2	1/2	1-5/8	4	$95.63
GMHT12FXL6	30987	1/2	1/2	2	4	$96.04
GMHT58FS6	30993	5/8	5/8	3/4	3 1/2	$139.17
GMHT58F6	30998	5/8	5/8	1 1/4	3 1/2	$146.46
GMHT58FHL6	31003	5/8	5/8	1 5/8	4	$166.35
GMHT58FL6	31008	5/8	5/8	2	4	$178.23
GMHT34FS6	31013	3/4	3/4	1	4	$196.35
GMHT34F6	31020	3/4	3/4	1-1/2	4	$202.32
GMHT34FHL6	31027	3/4	3/4	1-5/8	4	$231.15
GMHT34FLH6	31034	3/4	3/4	2-1/4	5	$265.00
GMHT10F6	31041	1	1	1-1/2	4	$302.82
GMHT10FLH6	31048	1	1	2-1/4	5	$446.34
GMHT10FXLH6	31055	1	1	2-5/8	5	$468.44
GMHT10FXL6	31062	1	1	3-1/4	6	$502.40
GMHT1250F6	31069	1-1/4	1-1/4	2	4-1/2	$529.06
GMHT1250FL6	31075	1-1/4	1-1/4	2-5/8	5-1/2	$666.74

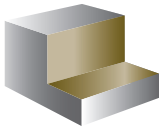


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



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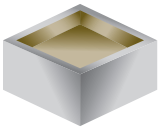
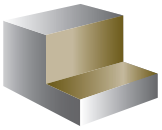


HIGH-VELOCITY



6 FLUTE (INCH) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 184

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	RADIUS	LIST PRICE
GMHT14RS6015	30929	1/4	1/4	1/2	2	0.015	$32.92
GMHT14RS6030	30930	1/4	1/4	1/2	2	0.030	$32.92
GMHT14RS6060	30931	1/4	1/4	1/2	2	0.060	$32.92
GMHT14R6015	30933	1/4	1/4	3/4	2-1/2	0.015	$36.46
GMHT14R6030	30934	1/4	1/4	3/4	2-1/2	0.030	$36.46
GMHT14R6060	30935	1/4	1/4	3/4	2-1/2	0.060	$36.46
GMHT14RL6015	30937	1/4	1/4	1-1/4	3	0.015	$52.92
GMHT14RL6030	30938	1/4	1/4	1-1/4	3	0.030	$52.92
GMHT14RL6060	30939	1/4	1/4	1-1/4	3	0.060	$52.92
GMHT516RS6015	30941	5/16	5/16	1/2	2	0.015	$44.30
GMHT516RS6030	30942	5/16	5/16	1/2	2	0.030	$44.30
GMHT516RS6060	30943	5/16	5/16	1/2	2	0.060	$44.30
GMHT516RH6015	30945	5/16	5/16	1	2-1/2	0.015	$52.50
GMHT516RH6030	30946	5/16	5/16	1	2-1/2	0.030	$52.50
GMHT516RH6060	30947	5/16	5/16	1	2-1/2	0.060	$52.50
GMHT38RS6015	30949	3/8	3/8	5/8	2	0.015	$50.21
GMHT38RS6030	30950	3/8	3/8	5/8	2	0.030	$50.21
GMHT38RS6060	30951	3/8	3/8	5/8	2	0.060	$50.21
GMHT38RS6090	30952	3/8	3/8	5/8	2	0.090	$50.21
GMHT38RH6015	30954	3/8	3/8	1	2-1/2	0.015	$52.81
GMHT38RH6030	30955	3/8	3/8	1	2-1/2	0.030	$52.81
GMHT38RH6060	30956	3/8	3/8	1	2-1/2	0.060	$52.81
GMHT38RH6090	30957	3/8	3/8	1	2-1/2	0.090	$52.81
GMHT38RL6015	30959	3/8	3/8	1-1/4	3	0.015	$62.81
GMHT38RL6030	30960	3/8	3/8	1-1/4	3	0.030	$62.81
GMHT38RL6060	30961	3/8	3/8	1-1/4	3	0.060	$62.81
GMHT38RL6090	30962	3/8	3/8	1-1/4	3	0.090	$62.81
GMHT38RLH6015	31231	3/8	3/8	1-1/2	3-1/2	0.015	$67.19
GMHT38RLH6030	31232	3/8	3/8	1-1/2	3-1/2	0.030	$67.19
GMHT38RLH6060	31233	3/8	3/8	1-1/2	3-1/2	0.060	$67.19
GMHT38RLH6090	31234	3/8	3/8	1-1/2	3-1/2	0.090	$67.19
GMHT12RS6015	30964	1/2	1/2	5/8	2 1/2	0.015	$77.40
GMHT12RS6030	30965	1/2	1/2	5/8	2-1/2	0.030	$77.40
GMHT12RS6060	30966	1/2	1/2	5/8	2-1/2	0.060	$77.40
GMHT12RS6090	30967	1/2	1/2	5/8	2-1/2	0.090	$77.40
GMHT12RS6120	30968	1/2	1/2	5/8	2-1/2	0.120	$77.40
GMHT12RH6015	30970	1/2	1/2	1	3	0.015	$81.77
GMHT12RH6030	30971	1/2	1/2	1	3	0.030	$81.77
GMHT12RH6060	30972	1/2	1/2	1	3	0.060	$81.77
GMHT12RH6090	30973	1/2	1/2	1	3	0.090	$81.77
GMHT12RH6120	30974	1/2	1/2	1	3	0.120	$81.77

Continued on next page

RADIUS END **GMS² COATED**

SPEEDS & FEEDS CHART PAGE 184

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	RADIUS	LIST PRICE
GMHT12R6015	30976	1/2	1/2	1 1/4	3	0.015	$84.48
GMHT12R6030	30977	1/2	1/2	1-1/4	3	0.030	$84.48
GMHT12R6060	30978	1/2	1/2	1-1/4	3	0.060	$84.48
GMHT12R6090	30979	1/2	1/2	1-1/4	3	0.090	$84.48
GMHT12R6120	30980	1/2	1/2	1-1/4	3	0.120	$84.48
GMHT12RLH6015	30982	1/2	1/2	1 5/8	4	0.015	$103.85
GMHT12RLH6030	30983	1/2	1/2	1-5/8	4	0.030	$103.85
GMHT12RLH6060	30984	1/2	1/2	1-5/8	4	0.060	$103.85
GMHT12RLH6090	30985	1/2	1/2	1-5/8	4	0.090	$103.85
GMHT12RLH6120	30986	1/2	1/2	1-5/8	4	0.120	$103.85
GMHT12RXL6015	30988	1/2	1/2	2	4	0.015	$107.92
GMHT12RXL6030	30989	1/2	1/2	2	4	0.030	$107.92
GMHT12RXL6060	30990	1/2	1/2	2	4	0.060	$107.92
GMHT12RXL6090	30991	1/2	1/2	2	4	0.090	$107.92
GMHT12RXL6120	30992	1/2	1/2	2	4	0.120	$107.92
GMHT58RS6030	30994	5/8	5/8	3/4	3-1/2	0.030	$154.27
GMHT58RS6060	30995	5/8	5/8	3/4	3-1/2	0.060	$154.27
GMHT58RS6090	30996	5/8	5/8	3/4	3-1/2	0.090	$154.27
GMHT58RS6120	30997	5/8	5/8	3/4	3-1/2	0.120	$154.27
GMHT58R6030	30999	5/8	5/8	1-1/4	3-1/2	0.030	$161.56
GMHT58R6060	31000	5/8	5/8	1-1/4	3-1/2	0.060	$161.56
GMHT58R6090	31001	5/8	5/8	1-1/4	3-1/2	0.090	$161.56
GMHT58R6120	31002	5/8	5/8	1-1/4	3-1/2	0.120	$161.56
GMHT58RHL6030	31004	5/8	5/8	1-5/8	4	0.030	$181.35
GMHT58RHL6060	31005	5/8	5/8	1-5/8	4	0.060	$181.35
GMHT58RHL6090	31006	5/8	5/8	1-5/8	4	0.090	$181.35
GMHT58RHL6120	31007	5/8	5/8	1-5/8	4	0.120	$181.35
GMHT58RL6030	31009	5/8	5/8	2	4	0.030	$193.33
GMHT58RL6060	31010	5/8	5/8	2	4	0.060	$193.33
GMHT58RL6090	31011	5/8	5/8	2	4	0.090	$193.33
GMHT58RL6120	31012	5/8	5/8	2	4	0.120	$193.33
GMHT34RS6030	31014	3/4	3/4	1	4	0.030	$205.79
GMHT34RS6060	31015	3/4	3/4	1	4	0.060	$205.79
GMHT34RS6090	31016	3/4	3/4	1	4	0.090	$205.79
GMHT34RS6120	31017	3/4	3/4	1	4	0.120	$205.79
GMHT34RS6190	31018	3/4	3/4	1	4	0.190	$205.79
GMHT34RS6250	31019	3/4	3/4	1	4	0.250	$205.79
GMHT34R6030	31021	3/4	3/4	1-1/2	4	0.030	$208.93
GMHT34R6060	31022	3/4	3/4	1 1/2	4	0.060	$208.93
GMHT34R6090	31023	3/4	3/4	1-1/2	4	0.090	$208.93
GMHT34R6120	31024	3/4	3/4	1-1/2	4	0.120	$208.93
GMHT34R6190	31025	3/4	3/4	1-1/2	4	0.190	$208.93
GMHT34R6250	31026	3/4	3/4	1-1/2	4	0.250	$208.93

6 FLUTE (INCH) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 184

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	RADIUS	LIST PRICE
GMHT34RHL6030	31028	3/4	3/4	1-5/8	4	0.030	$248.65
GMHT34RHL6060	31029	3/4	3/4	1 5/8	4	0.060	$248.65
GMHT34RHL6090	31030	3/4	3/4	1-5/8	4	0.090	$248.65
GMHT34RHL6120	31031	3/4	3/4	1-5/8	4	0.120	$248.65
GMHT34RHL6190	31032	3/4	3/4	1-5/8	4	0.190	$248.65
GMHT34RHL6250	31033	3/4	3/4	1-5/8	4	0.250	$248.65
GMHT34RLH6030	31035	3/4	3/4	2-1/4	5	0.030	$282.65
GMHT34RLH6060	31036	3/4	3/4	2 1/4	5	0.060	$282.65
GMHT34RLH6090	31037	3/4	3/4	2-1/4	5	0.090	$282.65
GMHT34RLH6120	31038	3/4	3/4	2-1/4	5	0.120	$282.65
GMHT34RLH6190	31039	3/4	3/4	2-1/4	5	0.190	$282.65
GMHT34RLH6250	31040	3/4	3/4	2-1/4	5	0.250	$282.65
GMHT10R6030	31042	1	1	1-1/2	4	0.030	$318.45
GMHT10R6060	31043	1	1	1 1/2	4	0.060	$318.45
GMHT10R6090	31044	1	1	1-1/2	4	0.090	$318.45
GMHT10R6120	31045	1	1	1-1/2	4	0.120	$318.45
GMHT10R6190	31046	1	1	1-1/2	4	0.190	$318.45
GMHT10R6250	31047	1	1	1-1/2	4	0.250	$318.45
GMHT10RLH6030	31049	1	1	2-1/4	5	0.030	$455.04
GMHT10RLH6060	31050	1	1	2 1/4	5	0.060	$455.04
GMHT10RLH6090	31051	1	1	2-1/4	5	0.090	$455.04
GMHT10RLH6120	31052	1	1	2-1/4	5	0.120	$455.04
GMHT10RLH6190	31053	1	1	2-1/4	5	0.190	$455.04
GMHT10RLH6250	31054	1	1	2-1/4	5	0.250	$455.04
GMHT10RXLH6030	31056	1	1	2-5/8	5	0.030	$494.48
GMHT10RXLH6060	31057	1	1	2 5/8	5	0.060	$494.48
GMHT10RXLH6090	31058	1	1	2-5/8	5	0.090	$494.48
GMHT10RXLH6120	31059	1	1	2-5/8	5	0.120	$494.48
GMHT10RXLH6190	31060	1	1	2-5/8	5	0.190	$494.48
GMHT10RXLH6250	31061	1	1	2-5/8	5	0.250	$494.48
GMHT10RXL6030	31063	1	1	3-1/4	6	0.030	$528.44
GMHT10RXL6060	31064	1	1	3 1/4	6	0.060	$528.44
GMHT10RXL6090	31065	1	1	3-1/4	6	0.090	$528.44
GMHT10RXL6120	31066	1	1	3-1/4	6	0.120	$528.44
GMHT10RXL6190	31067	1	1	3-1/4	6	0.190	$528.44
GMHT10RXL6250	31068	1	1	3-1/4	6	0.250	$528.44
GMHT1250R6060	31070	1-1/4	1-1/4	2	4 1/2	0.060	$556.57
GMHT1250R6090	31071	1-1/4	1-1/4	2	4-1/2	0.090	$556.57
GMHT1250R6120	31072	1-1/4	1-1/4	2	4-1/2	0.120	$556.57
GMHT1250R6190	31073	1-1/4	1-1/4	2	4-1/2	0.190	$556.57
GMHT1250R6250	31074	1-1/4	1-1/4	2	4-1/2	0.250	$556.57
GMHT1250RL6060	31076	1-1/4	1-1/4	2-5/8	5-1/2	0.060	$701.83
GMHT1250RL6090	31077	1-1/4	1-1/4	2-5/8	5-1/2	0.090	$701.83
GMHT1250RL6120	31078	1-1/4	1-1/4	2-5/8	5-1/2	0.120	$701.83
GMHT1250RL6190	31079	1-1/4	1-1/4	2-5/8	5-1/2	0.190	$701.83
GMHT1250RL6250	31080	1-1/4	1-1/4	2-5/8	5-1/2	0.250	$701.83

SB

SUPER BITCHIN' PERFORMANCE – FERROUS
6 FLUTE (METRIC) SQUARE

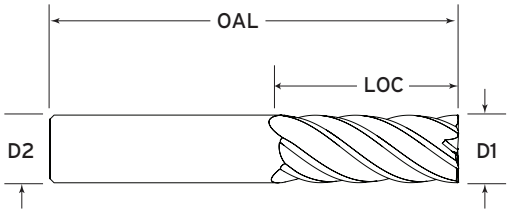
Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

SQUARE

GMS² COATED

SPEEDS & FEEDS CHART PAGE 185						
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHT0600MMFS6	31081	6mm	6mm	12mm	50mm	$33.51
GMHT0600MMF6	31083	6mm	6mm	19mm	65mm	$38.02
GMHT0800MMFS6	31086	8mm	8mm	12mm	50mm	$40.57
GMHT0800MMF6	31088	8mm	8mm	22mm	65mm	$43.46
GMHT1000MMF6	31094	10mm	10mm	22mm	70mm	$58.03
GMHT1200MMFS6	31098	12mm	12mm	19mm	63mm	$77.35
GMHT1200MMF6	31101	12mm	12mm	32mm	75mm	$87.25
GMHT1600MMF6	31109	16mm	16mm	32mm	89mm	$143.86
GMHT2000MMF6	31115	20mm	20mm	38mm	100mm	$232.98
GMHT2500MMF6	31119	25mm	25mm	38mm	100mm	$350.25

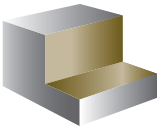


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



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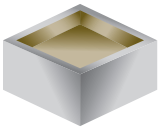
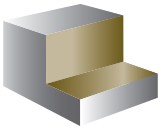


HIGH-VELOCITY



6 FLUTE (METRIC) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 185

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	RADIUS	LIST PRICE
GMHT0600MMRS6030	31082	6mm	6mm	12mm	50mm	0.30mm	$39.06
GMHT0600MMR6030	31084	6mm	6mm	19mm	65mm	0.30mm	$41.56
GMHT0600MMR6050	31085	6mm	6mm	19mm	65mm	0.50mm	$41.56
GMHT0800MMRS6050	31087	8mm	8mm	12mm	50mm	0.50mm	$45.92
GMHT0800MMR6030	31089	8mm	8mm	22mm	65mm	0.30mm	$50.39
GMHT0800MMR6050	31090	8mm	8mm	22mm	65mm	0.50mm	$50.39
GMHT0800MMR6100	31091	8mm	8mm	22mm	65mm	1.00mm	$50.39
GMHT0800MMR6150	31092	8mm	8mm	22mm	65mm	1.50mm	$50.39
GMHT1000MMRS6050	31093	10mm	10mm	16mm	50mm	0.50mm	$58.96
GMHT1000MMR6030	31095	10mm	10mm	22mm	70mm	0.30mm	$60.93
GMHT1000MMR6050	31096	10mm	10mm	22mm	70mm	0.50mm	$60.93
GMHT1000MMR6100	31097	10mm	10mm	22mm	70mm	1.00mm	$60.93
GMHT1200MMRS6030	31099	12mm	12mm	19mm	63mm	0.30mm	$81.86
GMHT1200MMRS6050	31100	12mm	12mm	19mm	63mm	0.50mm	$81.86
GMHT1200MMR6030	31102	12mm	12mm	32mm	75mm	0.30mm	$95.95
GMHT1200MMR6050	31103	12mm	12mm	32mm	75mm	0.50mm	$95.95
GMHT1200MMR6100	31104	12mm	12mm	32mm	75mm	1.00mm	$95.95
GMHT1200MMR6150	31105	12mm	12mm	32mm	75mm	1.50mm	$95.95
GMHT1200MMR6200	31106	12mm	12mm	32mm	75mm	2.00mm	$95.95
GMHT1600MMRS6030	31107	16mm	16mm	19mm	75mm	0.30mm	$142.16
GMHT1600MMRS6050	31108	16mm	16mm	19mm	75mm	0.50mm	$142.16
GMHT1600MMR6030	31110	16mm	16mm	32mm	89mm	0.30mm	$152.15
GMHT1600MMR6050	31111	16mm	16mm	32mm	89mm	0.50mm	$152.15
GMHT1600MMR6100	31112	16mm	16mm	32mm	89mm	1.00mm	$152.15
GMHT1600MMR6200	31113	16mm	16mm	32mm	89mm	2.00mm	$152.15
GMHT2000MMRS6100	31114	20mm	20mm	22mm	75mm	1.00mm	$231.97
GMHT2000MMR6050	31116	20mm	20mm	38mm	100mm	0.50mm	$245.79
GMHT2000MMR6100	31117	20mm	20mm	38mm	100mm	1.00mm	$245.79
GMHT2000MMR6150	31118	20mm	20mm	38mm	100mm	1.50mm	$245.79
GMHT2500MMR6100	31120	25mm	25mm	38mm	100mm	1.00mm	$368.35
GMHT2500MMR6150	31235	25mm	25mm	38mm	100mm	1.50mm	$368.35

SUPER BITCHIN' PERFORMANCE – FERROUS
6 FLUTE CHIMPBREAKERS (INCH) SQUARE

6 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate availab...

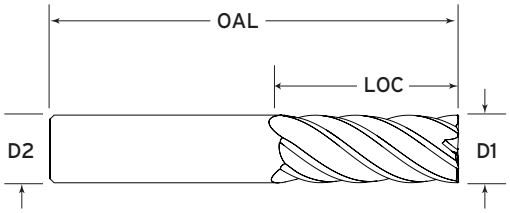
Available in special diameters, lengths and completely resharpenable.
THE BEST chip control known to man or ape.

SQUARE

GMS² COATED

SPEEDS & FEEDS CHART PAGE 186

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHTCB38FS6	31121	3/8	3/8	5/8	2	$50.42
GMHTCB38FH6	31126	3/8	3/8	1	2-1/2	$51.45
GMHTCB38FL6	31131	3/8	3/8	1-1/4	3	$57.75
GMHTCB12FS6	31136	1/2	1/2	5/8	2-1/2	$74.71
GMHTCB12FH6	31142	1/2	1/2	1	3	$80.09
GMHTCB12F6	31148	1/2	1/2	1-1/4	3	$82.96
GMHTCB12FLH6	31154	1/2	1/2	1-5/8	4	$105.19
GMHTCB12FXL6	31160	1/2	1/2	2	4	$105.65
GMHTCB58FS6	31166	5/8	5/8	3/4	3-1/2	$146.13
GMHTCB58F6	31171	5/8	5/8	1-1/4	3-1/2	$153.78
GMHTCB58FHL6	31176	5/8	5/8	1-5/8	4	$174.68
GMHTCB58FL6	31181	5/8	5/8	2	4	$187.15
GMHTCB34FS6	31186	3/4	3/4	1	4	$206.18
GMHTCB34F6	31191	3/4	3/4	1-1/2	4	$212.44
GMHTCB34FHL6	31196	3/4	3/4	1-5/8	4	$242.71
GMHTCB34FLH6	31201	3/4	3/4	2-1/4	5	$278.25

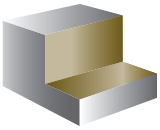


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



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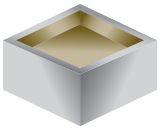
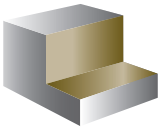


HIGH-VELOCITY



6 FLUTE CHIMPBREAKERS (INCH) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 186

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	RADIUS	LIST PRICE
GMHTCB38RS6015	31122	3/8	3/8	5/8	2	0.015	$55.23
GMHTCB38RS6030	31123	3/8	3/8	5/8	2	0.030	$55.23
GMHTCB38RS6060	31124	3/8	3/8	5/8	2	0.060	$55.23
GMHTCB38RS6090	31125	3/8	3/8	5/8	2	0.090	$55.23
GMHTCB38RH6015	31127	3/8	3/8	1	2-1/2	0.015	$58.09
GMHTCB38RH6030	31128	3/8	3/8	1	2-1/2	0.030	$58.09
GMHTCB38RH6060	31129	3/8	3/8	1	2-1/2	0.060	$58.09
GMHTCB38RH6090	31130	3/8	3/8	1	2-1/2	0.090	$58.09
GMHTCB38RL6015	31132	3/8	3/8	1-1/4	3	0.015	$69.09
GMHTCB38RL6030	31133	3/8	3/8	1-1/4	3	0.030	$69.09
GMHTCB38RL6060	31134	3/8	3/8	1-1/4	3	0.060	$69.09
GMHTCB38RL6090	31135	3/8	3/8	1-1/4	3	0.090	$69.09
GMHTCB12RS6015	31137	1/2	1/2	5/8	2-1/2	0.015	$85.14
GMHTCB12RS6030	31138	1/2	1/2	5/8	2-1/2	0.030	$85.14
GMHTCB12RS6060	31139	1/2	1/2	5/8	2-1/2	0.060	$85.14
GMHTCB12RS6090	31140	1/2	1/2	5/8	2-1/2	0.090	$85.14
GMHTCB12RS6120	31141	1/2	1/2	5/8	2-1/2	0.120	$85.14
GMHTCB12RH6015	31143	1/2	1/2	1	3	0.015	$89.95
GMHTCB12RH6030	31144	1/2	1/2	1	3	0.030	$89.95
GMHTCB12RH6060	31145	1/2	1/2	1	3	0.060	$89.95
GMHTCB12RH6090	31146	1/2	1/2	1	3	0.090	$89.95
GMHTCB12RH6120	31147	1/2	1/2	1	3	0.120	$89.95
GMHTCB12R6015	31149	1/2	1/2	1-1/4	3	0.015	$92.93
GMHTCB12R6030	31150	1/2	1/2	1-1/4	3	0.030	$92.93
GMHTCB12R6060	31151	1/2	1/2	1-1/4	3	0.060	$92.93
GMHTCB12R6090	31152	1/2	1/2	1-1/4	3	0.090	$92.93
GMHTCB12R6120	31153	1/2	1/2	1-1/4	3	0.120	$92.93
GMHTCB12RLH6015	31155	1/2	1/2	1-5/8	4	0.015	$114.24
GMHTCB12RLH6030	31156	1/2	1/2	1-5/8	4	0.030	$114.24
GMHTCB12RLH6060	31157	1/2	1/2	1-5/8	4	0.060	$114.24
GMHTCB12RLH6090	31158	1/2	1/2	1-5/8	4	0.090	$114.24
GMHTCB12RLH6120	31159	1/2	1/2	1-5/8	4	0.120	$114.24
GMHTCB12RXL6015	31161	1/2	1/2	2	4	0.015	$118.71
GMHTCB12RXL6030	31162	1/2	1/2	2	4	0.030	$118.71
GMHTCB12RXL6060	31163	1/2	1/2	2	4	0.060	$118.71
GMHTCB12RXL6090	31164	1/2	1/2	2	4	0.090	$118.71
GMHTCB12RXL6120	31165	1/2	1/2	2	4	0.120	$118.71
GMHTCB58RS6030	31167	5/8	5/8	3/4	3-1/2	0.030	$161.99
GMHTCB58RS6060	31168	5/8	5/8	3/4	3-1/2	0.060	$161.99
GMHTCB58RS6090	31169	5/8	5/8	3/4	3-1/2	0.090	$161.99
GMHTCB58RS6120	31170	5/8	5/8	3/4	3-1/2	0.120	$161.99
GMHTCB58R6030	31172	5/8	5/8	1-1/4	3-1/2	0.030	$169.65

Continued on next page

6 FLUTE CHIMPBREAKERS (INCH) RADIUS

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 186

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	RADIUS	LIST PRICE
GMHTCB58R6060	31173	5/8	5/8	1-1/4	3-1/2	0.060	$169.65
GMHTCB58R6090	31174	5/8	5/8	1-1/4	3-1/2	0.090	$169.65
GMHTCB58R6120	31175	5/8	5/8	1-1/4	3-1/2	0.120	$169.65
GMHTCB58RHL6030	31177	5/8	5/8	1-5/8	4	0.030	$190.43
GMHTCB58RHL6060	31178	5/8	5/8	1-5/8	4	0.060	$190.43
GMHTCB58RHL6090	31179	5/8	5/8	1-5/8	4	0.090	$190.43
GMHTCB58RHL6120	31180	5/8	5/8	1-5/8	4	0.120	$190.43
GMHTCB58RL6030	31182	5/8	5/8	2	4	0.030	$203.00
GMHTCB58RL6060	31183	5/8	5/8	2	4	0.060	$203.00
GMHTCB58RL6090	31184	5/8	5/8	2	4	0.090	$203.00
GMHTCB58RL6120	31185	5/8	5/8	2	4	0.120	$203.00
GMHTCB34RS6030	31187	3/4	3/4	1	4	0.030	$216.08
GMHTCB34RS6060	31188	3/4	3/4	1	4	0.060	$216.08
GMHTCB34RS6090	31189	3/4	3/4	1	4	0.090	$216.08
GMHTCB34RS6120	31190	3/4	3/4	1	4	0.120	$216.08
GMHTCB34R6030	31192	3/4	3/4	1-1/2	4	0.030	$219.38
GMHTCB34R6060	31193	3/4	3/4	1-1/2	4	0.060	$219.38
GMHTCB34R6090	31194	3/4	3/4	1-1/2	4	0.090	$219.38
GMHTCB34R6120	31195	3/4	3/4	1-1/2	4	0.120	$219.38
GMHTCB34RHL6030	31197	3/4	3/4	1-5/8	4	0.030	$261.08
GMHTCB34RHL6060	31198	3/4	3/4	1-5/8	4	0.060	$261.08
GMHTCB34RHL6090	31199	3/4	3/4	1-5/8	4	0.090	$261.08
GMHTCB34RHL6120	31200	3/4	3/4	1-5/8	4	0.120	$261.08
GMHTCB34RLH6030	31202	3/4	3/4	2-1/4	5	0.030	$270.18
GMHTCB34RLH6060	31203	3/4	3/4	2-1/4	5	0.060	$270.18
GMHTCB34RLH6090	31204	3/4	3/4	2-1/4	5	0.090	$270.18
GMHTCB34RLH6120	31205	3/4	3/4	2-1/4	5	0.120	$270.18

SUPER BITCHIN' PERFORMANCE – FERROUS
6 FLUTE CHIMPBREAKERS (METRIC) SQUARE & RADIUS

6 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable. THE BEST chip control known to man or ape.

SQUARE END

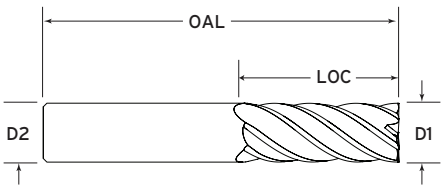
GMS² COATED

SPEEDS & FEEDS CHART PAGE 186						
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHTCB1000MMF6	31206	10mm	10mm	22mm	70mm	$62.73
GMHTCB1200MMF6	31210	12mm	12mm	32mm	75mm	$82.63
GMHTCB1600MMF6	31216	16mm	16mm	32mm	89mm	$158.26
GMHTCB2000MMF6	31221	20mm	20mm	38mm	100mm	$249.94

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 186							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	RADIUS	LIST PRICE
GMHTCB1000MMR6030	31207	10mm	10mm	22mm	70mm	0.30mm	$65.75
GMHTCB1000MMR6050	31208	10mm	10mm	22mm	70mm	0.50mm	$65.75
GMHTCB1000MMR6100	31209	10mm	10mm	22mm	70mm	1.00mm	$65.75
GMHTCB1200MMR6030	31211	12mm	12mm	32mm	75mm	0.30mm	$86.58
GMHTCB1200MMR6050	31212	12mm	12mm	32mm	75mm	0.50mm	$86.58
GMHTCB1200MMR6100	31213	12mm	12mm	32mm	75mm	1.00mm	$86.58
GMHTCB1200MMR6150	31214	12mm	12mm	32mm	75mm	1.50mm	$86.58
GMHTCB1200MMR6200	31215	12mm	12mm	32mm	75mm	2.00mm	$86.58
GMHTCB1600MMR6030	31217	16mm	16mm	32mm	89mm	0.30mm	$167.36
GMHTCB1600MMR6050	31218	16mm	16mm	32mm	89mm	0.50mm	$167.36
GMHTCB1600MMR6100	31219	16mm	16mm	32mm	89mm	1.00mm	$167.36
GMHTCB1600MMR6200	31220	16mm	16mm	32mm	89mm	2.00mm	$167.36
GMHTCB2000MMR6050	31222	20mm	20mm	38mm	100mm	0.50mm	$262.82
GMHTCB2000MMR6100	31223	20mm	20mm	38mm	100mm	1.00mm	$262.82
GMHTCB2000MMR6150	31224	20mm	20mm	38mm	100mm	1.50mm	$262.82

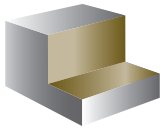


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



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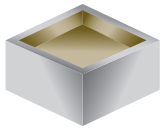
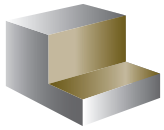


HIGH-VELOCITY



SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE (INCH) SQUARE

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

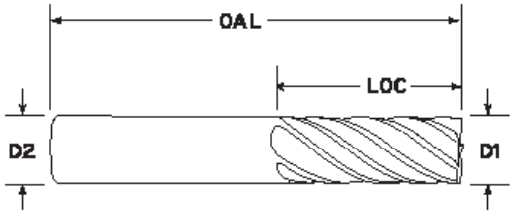
Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 187

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHT14FS7	30261	1/4	1/4	1/2	2	$25.88
GMHT14F7	30257	1/4	1/4	3/4	2-1/2	$27.52
GMHT14FL7	30259	1/4	1/4	1-1/4	3	$42.29
GMHT516FS7	30427	5/16	5/16	1/2	2	$32.96
GMHT516F7	30423	5/16	5/16	7/8	2-1/2	$38.69
GMHT516FH7	30425	5/16	5/16	1	2-1/2	$41.04
GMHT38FS7	30384	3/8	3/8	5/8	2	$43.51
GMHT38F7	30378	3/8	3/8	7/8	2-1/2	$46.16
GMHT38FH7	30380	3/8	3/8	1	2-1/2	$49.10
GMHT38FL7	30382	3/8	3/8	1-1/4	3	$54.46
GMHT716FS7	30495	7/16	7/16	5/8	2-1/2	$56.84
GMHT716F7	30491	7/16	7/16	1	2-1/2	$59.91
GMHT716FL7	30493	7/16	7/16	1-1/2	3-1/2	$74.31
GMHT12FS7	30197	1/2	1/2	5/8	2-1/2	$70.17
GMHT12FH7	30193	1/2	1/2	1	3	$73.65
GMHT12F7	30191	1/2	1/2	1-1/4	3	$76.38
GMHT12FLH7	30195	1/2	1/2	1-5/8	4	$94.16
GMHT12FXL7	30200	1/2	1/2	2	4	$97.21
GMHT58FS7	30457	5/8	5/8	3/4	3-1/2	$127.40
GMHT58F7	30451	5/8	5/8	1-1/4	3-1/2	$133.02
GMHT58FHL7	30453	5/8	5/8	1-5/8	4	$152.47
GMHT58FL7	30455	5/8	5/8	2	4	$159.86
GMHT34FS7	30321	3/4	3/4	1	4	$189.68
GMHT34F7	30315	3/4	3/4	1-1/2	4	$200.90

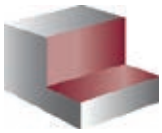


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



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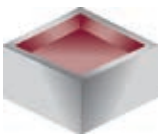
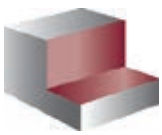


HIGH-VELOCITY



7 FLUTE (INCH) SQUARE & RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 187

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHT34FHL7	30317	3/4	3/4	1-5/8	4	$214.54
GMHT34FLH7	30319	3/4	3/4	2-1/4	5	$238.67
GMHT10FS7	30052	1	1	1	4	$280.77
GMHT10F7	30048	1	1	1-1/2	4	$296.14
GMHT10FLH7	30050	1	1	2-1/4	5	$372.02
GMHT10FXLH7	30057	1	1	2-5/8	5	$428.54
GMHT10FXL7	30055	1	1	3-1/4	6	$452.23
GMHT1250F7	30143	1-1/4	1-1/4	2	4-1/2	$544.20
GMHT1250FL7	30145	1-1/4	1-1/4	2-5/8	5 1/2	$544.20
GMHT1250FXL7	30149	1-1/4	1-1/4	3-1/4	6	$801.91
GMHT1250FSL7	30147	1-1/4	1-1/4	4	7	$832.85

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 187

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHT14RS7015	30278	1/4	1/4	1/2	2	0.015	$32.07
GMHT14RS7030	30279	1/4	1/4	1/2	2	0.030	$32.07
GMHT14RS7060	30280	1/4	1/4	1/2	2	0.060	$32.07
GMHT14R7015	30266	1/4	1/4	3/4	2-1/2	0.015	$34.57
GMHT14R7030	30267	1/4	1/4	3/4	2-1/2	0.030	$34.57
GMHT14R7060	30268	1/4	1/4	3/4	2-1/2	0.060	$34.57
GMHT14RL7015	30272	1/4	1/4	1-1/4	3	0.015	$48.98
GMHT14RL7030	30273	1/4	1/4	1-1/4	3	0.030	$48.98
GMHT14RL7060	30274	1/4	1/4	1-1/4	3	0.060	$48.98
GMHT516RS7015	30444	5/16	5/16	1/2	2	0.015	$42.07
GMHT516RS7030	30445	5/16	5/16	1/2	2	0.030	$42.07
GMHT516RS7060	30446	5/16	5/16	1/2	2	0.060	$42.07
GMHT516R7015	30432	5/16	5/16	7/8	2-1/2	0.015	$44.13
GMHT516R7030	30433	5/16	5/16	7/8	2-1/2	0.030	$44.13
GMHT516R7060	30434	5/16	5/16	7/8	2-1/2	0.060	$44.13
GMHT516RH7015	30438	5/16	5/16	1	2-1/2	0.015	$45.17
GMHT516RH7030	30439	5/16	5/16	1	2-1/2	0.030	$45.17
GMHT516RH7060	30440	5/16	5/16	1	2-1/2	0.060	$45.17

Continued on next page

SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE (INCH) RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 187

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHT38RS7015	30414	3/8	3/8	5/8	2	0.015	$51.22
GMHT38RS7030	30415	3/8	3/8	5/8	2	0.030	$51.22
GMHT38RS7060	30416	3/8	3/8	5/8	2	0.060	$51.22
GMHT38RS7090	30417	3/8	3/8	5/8	2	0.090	$51.22
GMHT38R7015	30390	3/8	3/8	7/8	2-1/2	0.015	$53.68
GMHT38R7030	30391	3/8	3/8	7/8	2-1/2	0.030	$53.68
GMHT38R7060	30392	3/8	3/8	7/8	2-1/2	0.060	$53.68
GMHT38R7090	30393	3/8	3/8	7/8	2-1/2	0.090	$53.68
GMHT38RH7015	30398	3/8	3/8	1	2-1/2	0.015	$56.85
GMHT38RH7030	30399	3/8	3/8	1	2-1/2	0.030	$56.85
GMHT38RH7060	30400	3/8	3/8	1	2-1/2	0.060	$56.85
GMHT38RH7090	30401	3/8	3/8	1	2-1/2	0.090	$56.85
GMHT38RL7015	30406	3/8	3/8	1-1/4	3	0.015	$61.56
GMHT38RL7030	30407	3/8	3/8	1-1/4	3	0.030	$61.56
GMHT38RL7060	30408	3/8	3/8	1-1/4	3	0.060	$61.56
GMHT38RL7090	30409	3/8	3/8	1-1/4	3	0.090	$61.56
GMHT716RS7015	30516	7/16	7/16	5/8	2-1/2	0.015	$65.85
GMHT716RS7030	30517	7/16	7/16	5/8	2-1/2	0.030	$65.85
GMHT716RS7060	30518	7/16	7/16	5/8	2-1/2	0.060	$65.85
GMHT716RS7090	30519	7/16	7/16	5/8	2-1/2	0.090	$65.85
GMHT716R7015	30500	7/16	7/16	1	2-1/2	0.015	$69.24
GMHT716R7030	30501	7/16	7/16	1	2-1/2	0.030	$69.24
GMHT716R7060	30502	7/16	7/16	1	2-1/2	0.060	$69.24
GMHT716R7090	30503	7/16	7/16	1	2-1/2	0.090	$69.24
GMHT716RL7015	30508	7/16	7/16	1-1/2	3-1/2	0.015	$81.16
GMHT716RL7030	30509	7/16	7/16	1-1/2	3-1/2	0.030	$81.16
GMHT716RL7060	30510	7/16	7/16	1-1/2	3-1/2	0.060	$81.16
GMHT716RL7090	30511	7/16	7/16	1-1/2	3-1/2	0.090	$81.16
GMHT12RS7015	30236	1/2	1/2	5/8	2-1/2	0.015	$80.48
GMHT12RS7030	30237	1/2	1/2	5/8	2-1/2	0.030	$80.48
GMHT12RS7060	30238	1/2	1/2	5/8	2-1/2	0.060	$80.48
GMHT12RS7090	30239	1/2	1/2	5/8	2-1/2	0.090	$80.48
GMHT12RS7120	30240	1/2	1/2	5/8	2-1/2	0.120	$80.48
GMHT12RH7015	30216	1/2	1/2	1	3	0.015	$84.79
GMHT12RH7030	30217	1/2	1/2	1	3	0.030	$84.79
GMHT12RH7060	30218	1/2	1/2	1	3	0.060	$84.79
GMHT12RH7090	30219	1/2	1/2	1	3	0.090	$84.79
GMHT12RH7120	30220	1/2	1/2	1	3	0.120	$84.79
GMHT12R7015	30206	1/2	1/2	1-1/4	3	0.015	$84.79
GMHT12R7030	30207	1/2	1/2	1-1/4	3	0.030	$84.79

SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE (INCH) RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END **GMS² COATED**

SPEEDS & FEEDS CHART PAGE 187

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHT12R7060	30208	1/2	1/2	1-1/4	3	0.060	$84.79
GMHT12R7090	30209	1/2	1/2	1-1/4	3	0.090	$84.79
GMHT12R7120	30210	1/2	1/2	1-1/4	3	0.120	$84.79
GMHT12RLH7015	30226	1/2	1/2	1-5/8	4	0.015	$100.74
GMHT12RLH7030	30227	1/2	1/2	1-5/8	4	0.030	$100.74
GMHT12RLH7060	30228	1/2	1/2	1-5/8	4	0.060	$100.74
GMHT12RLH7090	30229	1/2	1/2	1-5/8	4	0.090	$100.74
GMHT12RLH7120	30230	1/2	1/2	1-5/8	4	0.120	$100.74
GMHT12RXL7015	30251	1/2	1/2	2	4	0.015	$106.23
GMHT12RXL7030	30252	1/2	1/2	2	4	0.030	$106.23
GMHT12RXL7060	30253	1/2	1/2	2	4	0.060	$106.23
GMHT12RXL7090	30254	1/2	1/2	2	4	0.090	$106.23
GMHT12RXL7120	30255	1/2	1/2	2	4	0.120	$106.23
GMHT58RS7030	30486	5/8	5/8	3/4	3-1/2	0.030	$134.09
GMHT58RS7060	30487	5/8	5/8	3/4	3-1/2	0.060	$134.09
GMHT58RS7090	30488	5/8	5/8	3/4	3-1/2	0.090	$134.09
GMHT58RS7120	30489	5/8	5/8	3/4	3-1/2	0.120	$134.09
GMHT58R7030	30462	5/8	5/8	1-1/4	3-1/2	0.030	$141.35
GMHT58R7060	30463	5/8	5/8	1-1/4	3-1/2	0.060	$141.35
GMHT58R7090	30464	5/8	5/8	1-1/4	3-1/2	0.090	$141.35
GMHT58R7120	30465	5/8	5/8	1-1/4	3-1/2	0.120	$141.35
GMHT58RHL7030	30470	5/8	5/8	1-5/8	4	0.030	$159.54
GMHT58RHL7060	30471	5/8	5/8	1-5/8	4	0.060	$159.54
GMHT58RHL7090	30472	5/8	5/8	1-5/8	4	0.090	$159.54
GMHT58RHL7120	30473	5/8	5/8	1-5/8	4	0.120	$159.54
GMHT58RL7030	30478	5/8	5/8	2	4	0.030	$168.15
GMHT58RL7060	30479	5/8	5/8	2	4	0.060	$168.15
GMHT58RL7090	30480	5/8	5/8	2	4	0.090	$168.15
GMHT58RL7120	30481	5/8	5/8	2	4	0.120	$168.15
GMHT34RS7030	30365	3/4	3/4	1	4	0.030	$196.63
GMHT34RS7060	30366	3/4	3/4	1	4	0.060	$196.63
GMHT34RS7090	30367	3/4	3/4	1	4	0.090	$196.63
GMHT34RS7120	30368	3/4	3/4	1	4	0.120	$196.63
GMHT34RS7190	30369	3/4	3/4	1	4	0.190	$196.63
GMHT34RS7250	30370	3/4	3/4	1	4	0.250	$196.63
GMHT34R7030	30329	3/4	3/4	1-1/2	4	0.030	$212.64
GMHT34R7060	30330	3/4	3/4	1-1/2	4	0.060	$212.64
GMHT34R7090	30331	3/4	3/4	1-1/2	4	0.090	$212.64
GMHT34R7120	30332	3/4	3/4	1-1/2	4	0.120	$212.64
GMHT34R7190	30333	3/4	3/4	1-1/2	4	0.190	$212.64

Continued on next page

SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE (INCH) RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END **GMS² COATED**

SPEEDS & FEEDS CHART PAGE 187

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHT34R7250	30334	3/4	3/4	1-1/2	4	0.250	$212.64
GMHT34RHL7030	30341	3/4	3/4	1-5/8	4	0.030	$225.83
GMHT34RHL7060	30342	3/4	3/4	1-5/8	4	0.060	$225.83
GMHT34RHL7090	30343	3/4	3/4	1-5/8	4	0.090	$225.83
GMHT34RHL7120	30344	3/4	3/4	1-5/8	4	0.120	$225.83
GMHT34RHL7190	30345	3/4	3/4	1-5/8	4	0.190	$225.83
GMHT34RHL7250	30346	3/4	3/4	1-5/8	4	0.250	$225.83
GMHT34RLH7030	30353	3/4	3/4	2-1/4	5	0.030	$249.93
GMHT34RLH7060	30354	3/4	3/4	2-1/4	5	0.060	$249.93
GMHT34RLH7090	30355	3/4	3/4	2-1/4	5	0.090	$249.93
GMHT34RLH7120	30356	3/4	3/4	2-1/4	5	0.120	$249.93
GMHT34RLH7190	30357	3/4	3/4	2-1/4	5	0.190	$249.93
GMHT34RLH7250	30358	3/4	3/4	2-1/4	5	0.250	$249.93
GMHT10RS7030	30088	1	1	1	4	0.030	$295.52
GMHT10RS7060	30089	1	1	1	4	0.060	$295.52
GMHT10RS7090	30090	1	1	1	4	0.090	$295.52
GMHT10RS7120	30091	1	1	1	4	0.120	$295.52
GMHT10RS7190	30092	1	1	1	4	0.190	$295.52
GMHT10RS7250	30093	1	1	1	4	0.250	$295.52
GMHT10R7030	30064	1	1	1-1/2	4	0.030	$312.46
GMHT10R7060	30065	1	1	1-1/2	4	0.060	$312.46
GMHT10R7090	30066	1	1	1-1/2	4	0.090	$312.46
GMHT10R7120	30067	1	1	1-1/2	4	0.120	$312.46
GMHT10R7190	30068	1	1	1-1/2	4	0.190	$312.46
GMHT10R7250	30069	1	1	1-1/2	4	0.250	$312.46
GMHT10RLH7030	30076	1	1	2-1/4	5	0.030	$336.48
GMHT10RLH7060	30077	1	1	2-1/4	5	0.060	$336.48
GMHT10RLH7090	30078	1	1	2-1/4	5	0.090	$336.48
GMHT10RLH7120	30079	1	1	2-1/4	5	0.120	$336.48
GMHT10RLH7190	30080	1	1	2-1/4	5	0.190	$336.48
GMHT10RLH7250	30081	1	1	2-1/4	5	0.250	$336.48
GMHT10RXLH7030	30118	1	1	2-5/8	5	0.030	$362.42
GMHT10RXLH7060	30119	1	1	2-5/8	5	0.060	$362.42
GMHT10RXLH7090	30120	1	1	2-5/8	5	0.090	$362.42
GMHT10RXLH7120	30121	1	1	2-5/8	5	0.120	$362.42
GMHT10RXLH7190	30122	1	1	2-5/8	5	0.190	$362.42
GMHT10RXLH7250	30123	1	1	2-5/8	5	0.250	$362.42
GMHT10RXL7030	30106	1	1	3-1/4	6	0.030	$388.35
GMHT10RXL7060	30107	1	1	3-1/4	6	0.060	$388.35
GMHT10RXL7090	30108	1	1	3-1/4	6	0.090	$388.35

SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE (INCH) RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 187

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHT10RXL7120	30109	1	1	3-1/4	6	0.120	$388.35
GMHT10RXL7190	30110	1	1	3-1/4	6	0.190	$388.35
GMHT10RXL7250	30111	1	1	3-1/4	6	0.250	$388.35
GMHT1250R7060	30155	1-1/4	1-1/4	2	4-1/2	0.060	$475.86
GMHT1250R7090	30156	1-1/4	1-1/4	2	4-1/2	0.090	$475.86
GMHT1250R7120	30157	1-1/4	1-1/4	2	4-1/2	0.120	$475.86
GMHT1250R7190	30158	1-1/4	1-1/4	2	4-1/2	0.190	$475.86
GMHT1250R7250	30159	1-1/4	1-1/4	2	4-1/2	0.250	$475.86
GMHT1250RL7060	30165	1-1/4	1-1/4	2-5/8	5-1/2	0.060	$544.20
GMHT1250RL7090	30166	1-1/4	1-1/4	2-5/8	5-1/2	0.090	$544.20
GMHT1250RL7120	30167	1-1/4	1-1/4	2-5/8	5-1/2	0.120	$544.20
GMHT1250RL7190	30168	1-1/4	1-1/4	2-5/8	5-1/2	0.190	$544.20
GMHT1250RL7250	30169	1-1/4	1-1/4	2-5/8	5-1/2	0.250	$544.20
GMHT1250RXL7060	30185	1-1/4	1-1/4	3-1/4	6	0.060	$815.29
GMHT1250RXL7090	30186	1-1/4	1-1/4	3-1/4	6	0.090	$815.29
GMHT1250RXL7120	30187	1-1/4	1-1/4	3-1/4	6	0.120	$815.29
GMHT1250RXL7190	30188	1-1/4	1-1/4	3-1/4	6	0.190	$815.29
GMHT1250RXL7250	30189	1-1/4	1-1/4	3-1/4	6	0.250	$815.29
GMHT1250RSL7060	30175	1-1/4	1-1/4	4	7	0.060	$840.21
GMHT1250RSL7090	30176	1-1/4	1-1/4	4	7	0.090	$840.21
GMHT1250RSL7120	30177	1-1/4	1-1/4	4	7	0.120	$840.21
GMHT1250RSL7190	30178	1-1/4	1-1/4	4	7	0.190	$840.21
GMHT1250RSL7250	30179	1-1/4	1-1/4	4	7	0.250	$840.21

SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE (METRIC) SQUARE

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

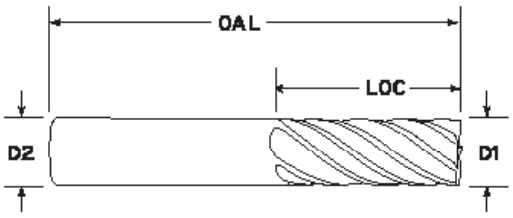
Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 188

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHT0600MMFS7	30016	6mm	6mm	12mm	50.0mm	$34.72
GMHT0600MMF7	30014	6mm	6mm	19mm	65.0mm	$41.94
GMHT0800MMFS7	30026	8mm	8mm	12mm	50.0mm	$39.06
GMHT0800MMF7	30024	8mm	8mm	22mm	65.0mm	$43.15
GMHT1000MMF7	30038	10mm	10mm	22mm	70.0mm	$60.34
GMHT1200MMFS7	30127	12mm	12mm	19mm	63.0mm	$77.93
GMHT1200MMF7	30125	12mm	12mm	32mm	75.0mm	$88.66
GMHT1600MMF7	30285	16mm	16mm	32mm	89.0mm	$144.82
GMHT2000MMF7	30299	20mm	20mm	38mm	100.0mm	$235.11
GMHT2500MMF7	30309	25mm	25mm	38mm	100.0mm	$351.23

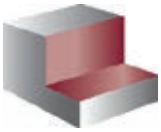


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

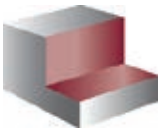
TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



POCKETING

HIGH-VELOCITY



7 FLUTE (METRIC) RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END **GMS² COATED**

SPEEDS & FEEDS CHART PAGE 188

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHT0600MMRS7030	30022	6mm	6mm	12mm	50mm	0.30mm	$40.63
GMHT0600MMR7030	30019	6mm	6mm	19mm	65mm	0.30mm	$44.06
GMHT0600MMR7050	30020	6mm	6mm	19mm	65mm	0.50mm	$44.06
GMHT0800MMRS7050	30036	8mm	8mm	12mm	50mm	0.50mm	$48.22
GMHT0800MMR7030	30031	8mm	8mm	22mm	65mm	0.30mm	$54.31
GMHT0800MMR7050	30032	8mm	8mm	22mm	65mm	0.50mm	$54.31
GMHT0800MMR7100	30033	8mm	8mm	22mm	65mm	1.00mm	$54.31
GMHT0800MMR7150	30034	8mm	8mm	22mm	65mm	1.50mm	$54.31
GMHT1000MMRS7050	30046	10mm	10mm	16mm	50mm	0.50mm	$59.69
GMHT1000MMR7030	30042	10mm	10mm	22mm	70mm	0.30mm	$63.33
GMHT1000MMR7050	30043	10mm	10mm	22mm	70mm	0.50mm	$63.33
GMHT1000MMR7100	30044	10mm	10mm	22mm	70mm	1.00mm	$63.33
GMHT1200MMRS7030	30140	12mm	12mm	19mm	63mm	0.30mm	$83.13
GMHT1200MMRS7050	30141	12mm	12mm	19mm	63mm	0.50mm	$83.13
GMHT1200MMR7030	30133	12mm	12mm	32mm	75mm	0.30mm	$101.77
GMHT1200MMR7050	30134	12mm	12mm	32mm	75mm	0.50mm	$101.77
GMHT1200MMR7100	30135	12mm	12mm	32mm	75mm	1.00mm	$101.77
GMHT1200MMR7150	30136	12mm	12mm	32mm	75mm	1.50mm	$101.77
GMHT1200MMR7200	30137	12mm	12mm	32mm	75mm	2.00mm	$101.77
GMHT1600MMRS7030	30296	16mm	16mm	19mm	75mm	0.30mm	$147.54
GMHT1600MMRS7050	30297	16mm	16mm	19mm	75mm	0.50mm	$147.54
GMHT1600MMR7030	30290	16mm	16mm	32mm	89mm	0.30mm	$154.23
GMHT1600MMR7050	30291	16mm	16mm	32mm	89mm	0.50mm	$154.23
GMHT1600MMR7100	30292	16mm	16mm	32mm	89mm	1.00mm	$154.23
GMHT1600MMR7200	30293	16mm	16mm	32mm	89mm	2.00mm	$154.23
GMHT2000MMRS7100	30307	20mm	20mm	22mm	75mm	1.00mm	$240.93
GMHT2000MMR7050	30303	20mm	20mm	38mm	100mm	0.50mm	$249.21
GMHT2000MMR7100	30304	20mm	20mm	38mm	100mm	1.00mm	$249.21
GMHT2000MMR7150	30305	20mm	20mm	38mm	100mm	1.50mm	$249.21
GMHT2500MMR7100	30312	25mm	25mm	38mm	100mm	1.00mm	$369.97
GMHT2500MMR7150	30313	25mm	25mm	38mm	100mm	1.50mm	$369.97

SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE CHIMPBREAKERS (INCH) SQUARE

7 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.
THE BEST chip control known to man or ape.

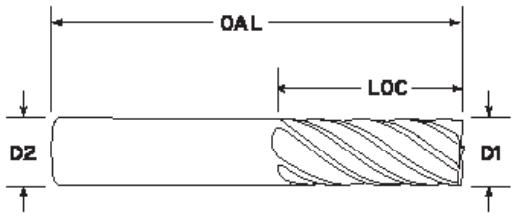
Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 189

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHTCB38F7	30880	3/8	3/8	7/8	2-1/2	$49.85
GMHTCB38FH7	30881	3/8	3/8	1	2-1/2	$53.03
GMHTCB38FL7	30882	3/8	3/8	1-1/4	3	$58.80
GMHTCB12FH7	30816	1/2	1/2	1	3	$79.54
GMHTCB12F7	30815	1/2	1/2	1-1/4	3	$82.48
GMHTCB12FLH7	30817	1/2	1/2	1-5/8	4	$101.69
GMHTCB12FXL7	30818	1/2	1/2	2	4	$126.01
GMHTCB58F7	30903	5/8	5/8	1-1/4	3-1/2	$143.67
GMHTCB58FHL7	30904	5/8	5/8	1-5/8	4	$164.67
GMHTCB58FL7	30905	5/8	5/8	2	4	$172.66
GMHTCB34F7	30859	3/4	3/4	1-1/2	4	$209.76
GMHTCB34FHL7	30860	3/4	3/4	1-5/8	4	$231.70
GMHTCB34FLH7	30861	3/4	3/4	2-1/4	5	$257.77

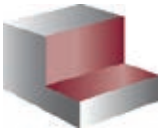


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

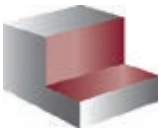
TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



POCKETING

HIGH-VELOCITY



SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE CHIMPBREAKERS (INCH) RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END **GMS² COATED**

SPEEDS & FEEDS CHART PAGE 189

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHTCB38R7015	30883	3/8	3/8	7/8	2-1/2	0.015	$55.52
GMHTCB38R7030	30884	3/8	3/8	7/8	2-1/2	0.030	$55.52
GMHTCB38R7060	30885	3/8	3/8	7/8	2-1/2	0.060	$55.52
GMHTCB38R7090	30886	3/8	3/8	7/8	2-1/2	0.090	$55.52
GMHTCB38RH7015	30887	3/8	3/8	1	2-1/2	0.015	$58.78
GMHTCB38RH7030	30888	3/8	3/8	1	2-1/2	0.030	$58.78
GMHTCB38RH7060	30889	3/8	3/8	1	2-1/2	0.060	$58.78
GMHTCB38RH7090	30890	3/8	3/8	1	2-1/2	0.090	$58.78
GMHTCB38RL7015	30891	3/8	3/8	1-1/4	3	0.015	$64.03
GMHTCB38RL7030	30892	3/8	3/8	1-1/4	3	0.030	$64.03
GMHTCB38RL7060	30893	3/8	3/8	1-1/4	3	0.060	$64.03
GMHTCB38RL7090	30894	3/8	3/8	1-1/4	3	0.090	$64.03
GMHTCB12RH7015	30824	1/2	1/2	1	3	0.015	$92.14
GMHTCB12RH7030	30825	1/2	1/2	1	3	0.030	$92.14
GMHTCB12RH7060	30826	1/2	1/2	1	3	0.060	$92.14
GMHTCB12RH7090	30827	1/2	1/2	1	3	0.090	$92.14
GMHTCB12RH7120	30828	1/2	1/2	1	3	0.120	$92.14
GMHTCB12R7015	30819	1/2	1/2	1-1/4	3	0.015	$92.14
GMHTCB12R7030	30820	1/2	1/2	1-1/4	3	0.030	$92.14
GMHTCB12R7060	30821	1/2	1/2	1-1/4	3	0.060	$92.14
GMHTCB12R7090	30822	1/2	1/2	1-1/4	3	0.090	$92.14
GMHTCB12R7120	30823	1/2	1/2	1-1/4	3	0.120	$92.14
GMHTCB12RLH7015	30829	1/2	1/2	1-5/8	4	0.015	$109.13
GMHTCB12RLH7030	30830	1/2	1/2	1-5/8	4	0.030	$109.13
GMHTCB12RLH7060	30831	1/2	1/2	1-5/8	4	0.060	$109.13
GMHTCB12RLH7090	30832	1/2	1/2	1-5/8	4	0.090	$109.13
GMHTCB12RLH7120	30833	1/2	1/2	1-5/8	4	0.120	$109.13
GMHTCB12RXL7015	30834	1/2	1/2	2	4	0.015	$115.07
GMHTCB12RXL7030	30835	1/2	1/2	2	4	0.030	$115.07
GMHTCB12RXL7060	30836	1/2	1/2	2	4	0.060	$115.07
GMHTCB12RXL7090	30837	1/2	1/2	2	4	0.090	$115.07
GMHTCB12RXL7120	30838	1/2	1/2	2	4	0.120	$115.07
GMHTCB58R7030	30906	5/8	5/8	1-1/4	3-1/2	0.030	$152.67
GMHTCB58R7060	30907	5/8	5/8	1-1/4	3-1/2	0.060	$152.67
GMHTCB58R7090	30908	5/8	5/8	1-1/4	3-1/2	0.090	$152.67
GMHTCB58R7120	30909	5/8	5/8	1-1/4	3-1/2	0.120	$152.67
GMHTCB58RHL7030	30910	5/8	5/8	1-5/8	4	0.030	$172.30
GMHTCB58RHL7060	30911	5/8	5/8	1-5/8	4	0.060	$172.30
GMHTCB58RHL7090	30912	5/8	5/8	1-5/8	4	0.090	$172.30
GMHTCB58RHL7120	30913	5/8	5/8	1-5/8	4	0.120	$172.30

Continued on next page

SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE CHIMPBREAKERS (INCH) RADIUS

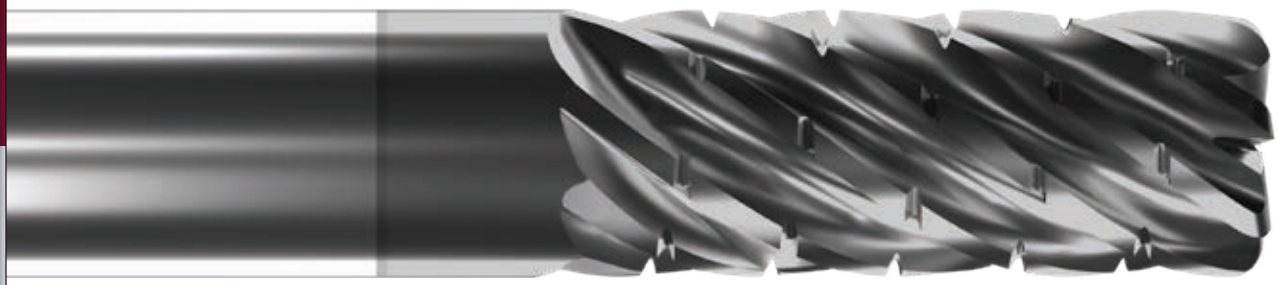
Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 189

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHTCB58RL7030	30914	**5/8**	5/8	2	4	0.030	$181.59
GMHTCB58RL7060	30915	**5/8**	5/8	2	4	0.060	$181.59
GMHTCB58RL7090	30916	**5/8**	5/8	2	4	0.090	$181.59
GMHTCB58RL7120	30917	**5/8**	5/8	2	4	0.120	$181.59
GMHTCB34R7030	30862	**3/4**	3/4	1-1/2	4	0.030	$233.06
GMHTCB34R7060	30863	**3/4**	3/4	1-1/2	4	0.060	$233.06
GMHTCB34R7090	30864	**3/4**	3/4	1-1/2	4	0.090	$233.06
GMHTCB34R7120	30865	**3/4**	3/4	1-1/2	4	0.120	$233.06
GMHTCB34RHL7030	30868	**3/4**	3/4	1-5/8	4	0.030	$243.90
GMHTCB34RHL7060	30869	**3/4**	3/4	1-5/8	4	0.060	$243.90
GMHTCB34RHL7090	30870	**3/4**	3/4	1-5/8	4	0.090	$243.90
GMHTCB34RHL7120	30871	**3/4**	3/4	1-5/8	4	0.120	$243.90
GMHTCB34RLH7030	30874	**3/4**	3/4	2-1/4	5	0.030	$269.92
GMHTCB34RLH7060	30875	**3/4**	3/4	2-1/4	5	0.060	$269.92
GMHTCB34RLH7090	30876	**3/4**	3/4	2-1/4	5	0.090	$269.92
GMHTCB34RLH7120	30877	**3/4**	3/4	2-1/4	5	0.120	$269.92



SUPER BITCHIN' PERFORMANCE – FERROUS
7 FLUTE CHIMPBREAKERS (METRIC) SQUARE

7 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for aggressive machining applications in all materials. Should be run at specific parameters. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.
THE BEST chip control known to man or ape.

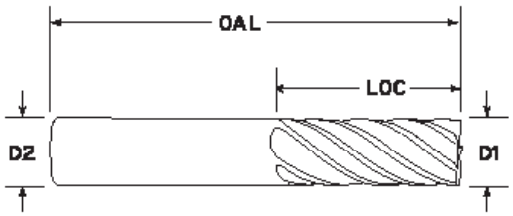
Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

SQUARE END

GMS² COATED

SPEEDS & FEEDS CHART PAGE 189

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMHTCB1000MMF7	30753	10mm	10mm	22mm	70mm	$64.16
GMHTCB1200MMF7	30785	12mm	12mm	32mm	75mm	$86.84
GMHTCB1600MMF7	30847	16mm	16mm	32mm	89mm	$159.30
GMHTCB2000MMF7	30852	20mm	20mm	38mm	100mm	$258.63

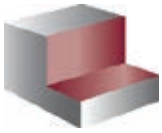


MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

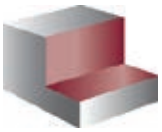
TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



POCKETING

HIGH-VELOCITY



SUPER BITCHIN' PERFORMANCE – FERROUS

7 FLUTE CHIMPBREAKERS (METRIC) RADIUS

Based on the original 5 flute Gorilla Mill, the "Baboon" for High Temp Alloys features geometric enhancements that make it uniquely suited for difficult to machine materials.

RADIUS END

GMS² COATED

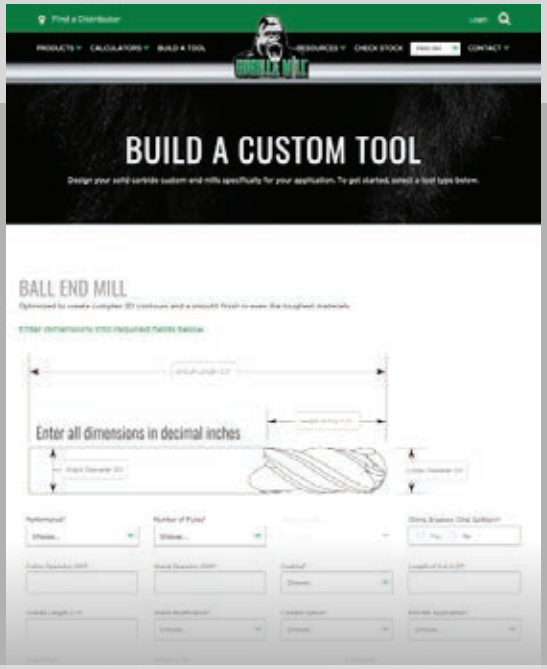
SPEEDS & FEEDS CHART PAGE 189

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMHTCB1000MMR7030	30754	**10mm**	10mm	22mm	70mm	0.30mm	$67.13
GMHTCB1000MMR7050	30755	**10mm**	10mm	22mm	70mm	0.50mm	$67.13
GMHTCB1000MMR7100	30756	**10mm**	10mm	22mm	70mm	1.00mm	$67.13
GMHTCB1200MMR7030	30786	**12mm**	12mm	32mm	75mm	0.30mm	$91.29
GMHTCB1200MMR7050	30787	**12mm**	12mm	32mm	75mm	0.50mm	$91.29
GMHTCB1200MMR7100	30788	**12mm**	12mm	32mm	75mm	1.00mm	$91.29
GMHTCB1200MMR7150	30789	**12mm**	12mm	32mm	75mm	1.50mm	$91.29
GMHTCB1200MMR7200	30790	**12mm**	12mm	32mm	75mm	2.00mm	$91.29
GMHTCB1600MMR7030	30848	**16mm**	16mm	32mm	89mm	0.30mm	$169.66
GMHTCB1600MMR7050	30849	**16mm**	16mm	32mm	89mm	0.50mm	$169.66
GMHTCB1600MMR7100	30850	**16mm**	16mm	32mm	89mm	1.00mm	$169.66
GMHTCB1600MMR7200	30851	**16mm**	16mm	32mm	89mm	2.00mm	$169.66
GMHTCB2000MMR7050	30853	**20mm**	20mm	38mm	100mm	0.50mm	$274.13
GMHTCB2000MMR7100	30854	**20mm**	20mm	38mm	100mm	1.00mm	$274.13
GMHTCB2000MMR7150	30855	**20mm**	20mm	38mm	100mm	1.50mm	$274.13

EASY TOOLS

BUILD A TOOL

Now you can easily design your custom solid carbide end mill specifically for your needs with our "Build a Tool" application. This eliminates the guesswork and also enables us to more quickly respond to you with an accurate estimate, saving us all time.

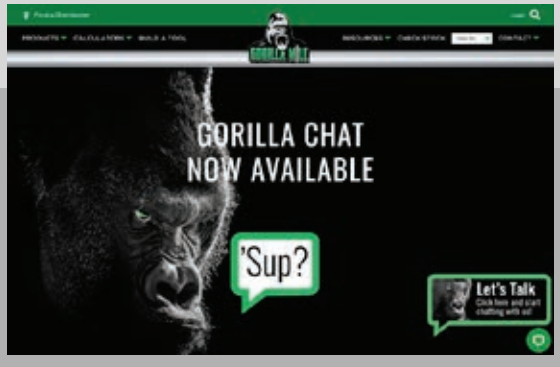


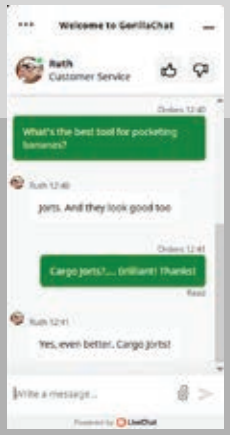
SPEEDS AND FEEDS CALCULATORS

RPM, IPM, SFM and Chimp Loads are calculated at the blink of an eye. A wide variety of machining materials with no cumbersome long-winded questionnaire asking if all the planets are aligned or if your coolant stinks. Five simple questions to answer and you too can be a "Rock Star" on the shop floor. Share your findings with friends, co-workers and family – if you want. Or, don't share with anyone and just tell folks it's all in your noodle upstairs!

GORILLA CHAT

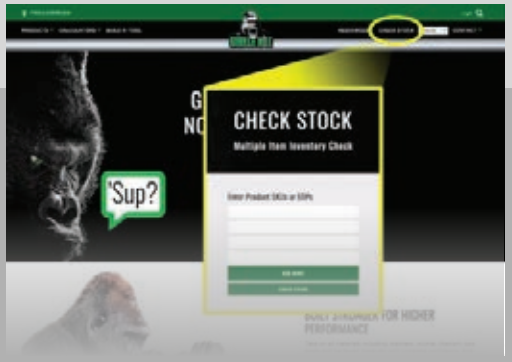
Now we can connect with you, our customers, in real time, providing a faster more convenient way to help. Easily speak to a customer service representative, or a technical service expert right from our website.





CHECK STOCK

You don't have to be "lucky"…or guess anymore. Use our new "Check Inventory" function on our website so that you can KNOW when you order from Gorilla Mill, every time!

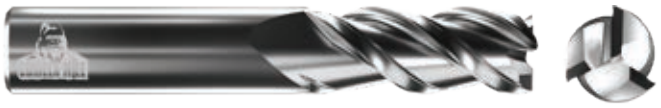


WEAPONS OF MASS PRODUCTION®

HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (INCH) SQUARE

Variable flute. Engineered to repel aluminum. For roughing and finishing of non-ferrous materials, aluminum, copper, brass, plastic, etc. High velocity, high material removal rate. Center cutting. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

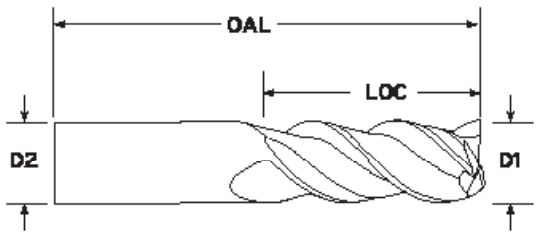
Available in special diameters, lengths and completely resharpenable.



SQUARE END

SPEEDS & FEEDS CHART PAGE 190

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
GMA18FS3	21013	1/8	1/8	1/4	1-1/2	UNCOATED	$22.19
GMA18FS3ZrN	21014	1/8	1/8	1/4	1-1/2	ZrN	$27.03
GMA18FSH3	21015	1/8	1/8	3/8	2	UNCOATED	$23.13
GMA18FSH3ZrN	21016	1/8	1/8	3/8	2	ZrN	$27.19
GMA18F3	20116	1/8	1/8	1/2	1-1/2	UNCOATED	$23.35
GMA18F3ZrN	20425	1/8	1/8	1/2	1-1/2	ZrN	$27.40
GMA316FS3	21017	3/16	3/16	3/8	2	UNCOATED	$23.44
GMA316FS3ZrN	21018	3/16	3/16	3/8	2	ZrN	$27.34
GMA316F3	20129	3/16	3/16	5/8	2	UNCOATED	$24.17
GMA316F3ZrN	20435	3/16	3/16	5/8	2	ZrN	$27.81
GMA14FS3	21019	1/4	1/4	3/8	2	UNCOATED	$23.96
GMA14FS3ZrN	21020	1/4	1/4	3/8	2	ZrN	$30.63
GMA14FSH3	21021	1/4	1/4	1/2	2	UNCOATED	$24.22
GMA14FSH3ZrN	21022	1/4	1/4	1/2	2	ZrN	$31.15
GMA14F3	20096	1/4	1/4	3/4	2-1/2	UNCOATED	$24.38
GMA14F3ZrN	20409	1/4	1/4	3/4	2-1/2	ZrN	$33.96
GMA14FL3	20097	1/4	1/4	1-1/2	4	UNCOATED	$35.21
GMA14FL3ZrN	20410	1/4	1/4	1-1/2	4	ZrN	$44.79
GMA516FS3	21023	5/16	5/16	7/16	2	UNCOATED	$28.23
GMA516FS3ZrN	21024	5/16	5/16	7/16	2	ZrN	$37.81
GMA516F3	20181	5/16	5/16	7/8	2-1/2	UNCOATED	$29.90
GMA516F3ZrN	20475	5/16	5/16	7/8	2-1/2	ZrN	$39.48
GMA516FL3	20182	5/16	5/16	1-1/2	4	UNCOATED	$44.82
GMA516FL3ZrN	20476	5/16	5/16	1-1/2	4	ZrN	$49.80

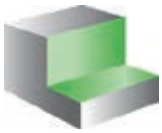


MATERIALS

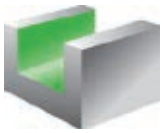
Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Cast Aluminum (6% Silcon & >), Brass, Bronze

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

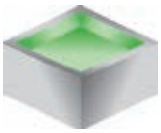
PROFILING



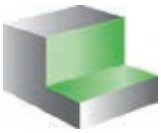
FULL SLOTTING



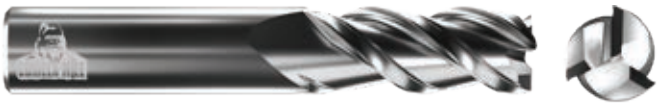
POCKETING



HIGH-VELOCITY



3 FLUTE (INCH) SQUARE



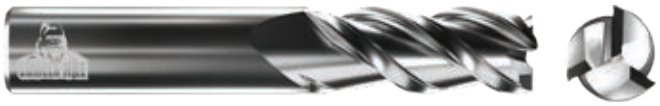
SQUARE END

SPEEDS & FEEDS CHART PAGE 190

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
GMA38FS3	21025	3/8	3/8	1/2	2	UNCOATED	$31.46
GMA38FS3ZrN	21026	3/8	3/8	1/2	2	ZrN	$40.63
GMA38F3	20164	3/8	3/8	7/8	2-1/2	UNCOATED	$32.08
GMA38F3ZrN	20462	3/8	3/8	7/8	2-1/2	ZrN	$43.96
GMA38FHL3	20165	3/8	3/8	1	2-1/2	UNCOATED	$32.60
GMA38FHL3ZrN	20463	3/8	3/8	1	2-1/2	ZrN	$44.48
GMA38FXL3	20166	3/8	3/8	2	4	UNCOATED	$55.51
GMA38FXL3ZrN	20464	3/8	3/8	2	4	ZrN	$72.50
GMA716FS3	21027	7/16	7/16	1/2	2-1/2	UNCOATED	$38.65
GMA716FS3ZrN	21028	7/16	7/16	1/2	2-1/2	ZrN	$51.04
GMA716F3	20218	7/16	7/16	1	2-1/2	UNCOATED	$43.50
GMA716F3ZrN	20504	7/16	7/16	1	2-1/2	ZrN	$54.92
GMA12FS3	21029	1/2	1/2	5/8	2-1/2	UNCOATED	$45.83
GMA12FS3ZrN	21030	1/2	1/2	5/8	2-1/2	ZrN	$60.42
GMA12FH3	20066	1/2	1/2	1	3	UNCOATED	$49.85
GMA12FH3ZrN	20385	1/2	1/2	1	3	ZrN	$61.01
GMA12F3	20065	1/2	1/2	1-1/4	3	UNCOATED	$49.85
GMA12F3ZrN	20384	1/2	1/2	1-1/4	3	ZrN	$61.01
GMA12FL3	20067	1/2	1/2	1-1/2	4	UNCOATED	$68.01
GMA12FL3ZrN	20386	1/2	1/2	1-1/2	4	ZrN	$81.67
GMA12FXL3	20068	1/2	1/2	2	4	UNCOATED	$80.32
GMA12FXL3ZrN	20387	1/2	1/2	2	4	ZrN	$96.39
GMA58FS3	21031	5/8	5/8	3/4	3	UNCOATED	$98.23
GMA58FS3ZrN	21032	5/8	5/8	3/4	3	ZrN	$116.98
GMA58F3	20194	5/8	5/8	1-1/4	3-1/2	UNCOATED	$101.59
GMA58F3ZrN	20484	5/8	5/8	1-1/4	3-1/2	ZrN	$121.91
GMA58FHL3	20195	5/8	5/8	1-5/8	4	UNCOATED	$111.05
GMA58FHL3ZrN	20485	5/8	5/8	1-5/8	4	ZrN	$133.26
GMA58FL3	20196	5/8	5/8	2	4	UNCOATED	$113.41
GMA58FL3ZrN	20486	5/8	5/8	2	4	ZrN	$136.16
GMA34FS3	21033	3/4	3/4	1	3	UNCOATED	$144.27
GMA34FS3ZrN	21034	3/4	3/4	1	3	ZrN	$166.46
GMA34F3	20134	3/4	3/4	1-1/2	4	UNCOATED	$149.93
GMA34F3ZrN	20437	3/4	3/4	1-1/2	4	ZrN	$179.91
GMA34FHL3	20135	3/4	3/4	1-5/8	4	UNCOATED	$163.69
GMA34FHL3ZrN	20438	3/4	3/4	1-5/8	4	ZrN	$196.43
GMA34FL3	20136	3/4	3/4	2	4	UNCOATED	$185.46
GMA34FL3ZrN	20439	3/4	3/4	2	4	ZrN	$224.03
GMA34FLH3	20137	3/4	3/4	2-1/4	5	UNCOATED	$207.23
GMA34FLH3ZrN	20440	3/4	3/4	2-1/4	5	ZrN	$248.66

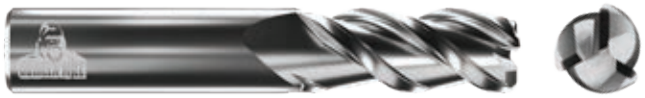
Continued on next page

HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (INCH) SQUARE & RADIUS




SQUARE END

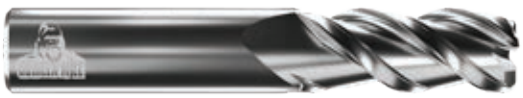
SPEEDS & FEEDS CHART PAGE 190							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
GMA10FS3	21035	1	1	1-1/4	4	UNCOATED	$241.98
GMA10FS3ZrN	21036	1	1	1-1/4	4	ZrN	$271.04
GMA10F3	20032	1	1	1-1/2	4	UNCOATED	$256.89
GMA10F3ZrN	20356	1	1	1-1/2	4	ZrN	$282.64
GMA10FL3	20033	1	1	2	4	UNCOATED	$306.70
GMA10FL3ZrN	20357	1	1	2	4	ZrN	$337.53
GMA10FXL3	20034	1	1	2-1/2	5	UNCOATED	$368.97
GMA10FXL3ZrN	20358	1	1	2-1/2	5	ZrN	$405.88




RADIUS END

SPEEDS & FEEDS CHART PAGE 190								
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA18RS3015	21037	1/8	1/8	1/4	1-1/2	0.015	UNCOATED	$23.35
GMA18RS3015ZrN	21038	1/8	1/8	1/4	1-1/2	0.015	ZrN	$28.46
GMA18RS3030	21039	1/8	1/8	1/4	1-1/2	0.030	UNCOATED	$23.35
GMA18RS3030ZrN	21040	1/8	1/8	1/4	1-1/2	0.030	ZrN	$28.46
GMA18RSH3015	21041	1/8	1/8	3/8	2	0.015	UNCOATED	$24.34
GMA18RSH3015ZrN	21042	1/8	1/8	3/8	2	0.015	ZrN	$28.61
GMA18RSH3030	21043	1/8	1/8	3/8	2	0.030	UNCOATED	$24.34
GMA18RSH3030ZrN	21044	1/8	1/8	3/8	2	0.030	ZrN	$28.61
GMA316RS3015	21045	3/16	3/16	3/8	2	0.015	UNCOATED	$24.67
GMA316RS3015ZrN	21046	3/16	3/16	3/8	2	0.015	ZrN	$28.78
GMA316RS3030	21047	3/16	3/16	3/8	2	0.030	UNCOATED	$24.67
GMA316RS3030ZrN	21048	3/16	3/16	3/8	2	0.030	ZrN	$28.78
GMA14RS3015	21049	1/4	1/4	3/8	2	0.015	UNCOATED	$27.08
GMA14RS3015ZrN	21050	1/4	1/4	3/8	2	0.015	ZrN	$35.00
GMA14RS3030	21051	1/4	1/4	3/8	2	0.030	UNCOATED	$27.08
GMA14RS3030ZrN	21052	1/4	1/4	3/8	2	0.030	ZrN	$35.00
GMA14RS3060	21053	1/4	1/4	3/8	2	0.060	UNCOATED	$27.08
GMA14RS3060ZrN	21054	1/4	1/4	3/8	2	0.060	ZrN	$35.00
GMA14RSH3015	21055	1/4	1/4	1/2	2	0.015	UNCOATED	$27.34
GMA14RSH3015ZrN	21056	1/4	1/4	1/2	2	0.015	ZrN	$35.52
GMA14RSH3030	21057	1/4	1/4	1/2	2	0.030	UNCOATED	$27.34
GMA14RSH3030ZrN	21058	1/4	1/4	1/2	2	0.030	ZrN	$35.52
GMA14RSH3060	21059	1/4	1/4	1/2	2	0.060	UNCOATED	$27.34
GMA14RSH3060ZrN	21060	1/4	1/4	1/2	2	0.060	ZrN	$35.52

3 FLUTE (INCH) RADIUS




RADIUS END

SPEEDS & FEEDS CHART PAGE 190								
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA14R3015	20101	1/4	1/4	3/4	2-1/2	0.015	UNCOATED	$28.13
GMA14R3015ZrN	20411	1/4	1/4	3/4	2-1/2	0.015	ZrN	$38.23
GMA14R3030	20102	1/4	1/4	3/4	2-1/2	0.030	UNCOATED	$28.13
GMA14R3030ZrN	20412	1/4	1/4	3/4	2-1/2	0.030	ZrN	$38.23
GMA14R3060	20103	1/4	1/4	3/4	2-1/2	0.060	UNCOATED	$28.13
GMA14R3060ZrN	20413	1/4	1/4	3/4	2-1/2	0.060	ZrN	$38.23
GMA14RL3015	20104	1/4	1/4	1-1/2	4	0.015	UNCOATED	$36.98
GMA14RL3015ZrN	20414	1/4	1/4	1-1/2	4	0.015	ZrN	$47.08
GMA14RL3030	20105	1/4	1/4	1-1/2	4	0.030	UNCOATED	$36.98
GMA14RL3030ZrN	20415	1/4	1/4	1-1/2	4	0.030	ZrN	$47.08
GMA14RL3060	20106	1/4	1/4	1-1/2	4	0.060	UNCOATED	$36.98
GMA14RL3060ZrN	20416	1/4	1/4	1-1/2	4	0.060	ZrN	$47.08
GMA516RS3015	21061	5/16	5/16	7/16	2	0.015	UNCOATED	$31.59
GMA516RS3015ZrN	21062	5/16	5/16	7/16	2	0.015	ZrN	$42.45
GMA516RS3030	21063	5/16	5/16	7/16	2	0.030	UNCOATED	$31.59
GMA516RS3030ZrN	21064	5/16	5/16	7/16	2	0.030	ZrN	$42.45
GMA516RS3060	21065	5/16	5/16	7/16	2	0.060	UNCOATED	$31.59
GMA516RS3060ZrN	21066	5/16	5/16	7/16	2	0.060	ZrN	$42.45
GMA516R3015	20186	5/16	5/16	7/8	2-1/2	0.015	UNCOATED	$32.29
GMA516R3015ZrN	20477	5/16	5/16	7/8	2-1/2	0.015	ZrN	$43.70
GMA516R3030	20187	5/16	5/16	7/8	2-1/2	0.030	UNCOATED	$32.29
GMA516R3030ZrN	20478	5/16	5/16	7/8	2-1/2	0.030	ZrN	$43.70
GMA516R3060	20188	5/16	5/16	7/8	2-1/2	0.060	UNCOATED	$32.29
GMA516R3060ZrN	20479	5/16	5/16	7/8	2-1/2	0.060	ZrN	$43.70
GMA516RL3015	20189	5/16	5/16	1-1/2	4	0.015	UNCOATED	$36.98
GMA516RL3015ZrN	20480	5/16	5/16	1-1/2	4	0.015	ZrN	$49.17
GMA516RL3030	20190	5/16	5/16	1-1/2	4	0.030	UNCOATED	$36.98
GMA516RL3030ZrN	20481	5/16	5/16	1-1/2	4	0.030	ZrN	$49.17
GMA516RL3060	20191	5/16	5/16	1-1/2	4	0.060	UNCOATED	$36.98
GMA516RL3060ZrN	20482	5/16	5/16	1-1/2	4	0.060	ZrN	$49.17
GMA38RS3015	21067	3/8	3/8	1/2	2	0.015	UNCOATED	$35.68
GMA38RS3015ZrN	21068	3/8	3/8	1/2	2	0.015	ZrN	$45.83
GMA38RS3030	21069	3/8	3/8	1/2	2	0.030	UNCOATED	$35.68
GMA38RS3030ZrN	21070	3/8	3/8	1/2	2	0.030	ZrN	$45.83
GMA38RS3060	21071	3/8	3/8	1/2	2	0.060	UNCOATED	$35.68
GMA38RS3060ZrN	21072	3/8	3/8	1/2	2	0.060	ZrN	$45.83
GMA38R3015	20170	3/8	3/8	7/8	2-1/2	0.015	UNCOATED	$36.46
GMA38R3015ZrN	20465	3/8	3/8	7/8	2-1/2	0.015	ZrN	$49.17
GMA38R3030	20171	3/8	3/8	7/8	2-1/2	0.030	UNCOATED	$36.46
GMA38R3030ZrN	20466	3/8	3/8	7/8	2-1/2	0.030	ZrN	$49.17

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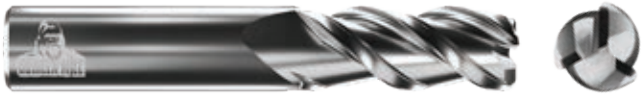
HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (INCH) RADIUS




RADIUS END

SPEEDS & FEEDS CHART PAGE 190								
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA38R3060	20172	3/8	3/8	7/8	2-1/2	0.060	UNCOATED	$36.46
GMA38R3060ZrN	20467	3/8	3/8	7/8	2-1/2	0.060	ZrN	$49.17
GMA38RHL3015	20173	3/8	3/8	1	2-1/2	0.015	UNCOATED	$36.98
GMA38RHL3015ZrN	20468	3/8	3/8	1	2-1/2	0.015	ZrN	$49.69
GMA38RHL3030	20174	3/8	3/8	1	2-1/2	0.030	UNCOATED	$36.98
GMA38RHL3030ZrN	20469	3/8	3/8	1	2-1/2	0.030	ZrN	$49.69
GMA38RHL3060	20175	3/8	3/8	1	2-1/2	0.060	UNCOATED	$36.98
GMA38RHL3060ZrN	20470	3/8	3/8	1	2-1/2	0.060	ZrN	$49.69
GMA38RXL3015	20176	3/8	3/8	2	4	0.015	UNCOATED	$60.31
GMA38RXL3015ZrN	20471	3/8	3/8	2	4	0.015	ZrN	$76.67
GMA38RXL3030	20177	3/8	3/8	2	4	0.030	UNCOATED	$60.31
GMA38RXL3030ZrN	20472	3/8	3/8	2	4	0.030	ZrN	$76.67
GMA38RXL3060	20178	3/8	3/8	2	4	0.060	UNCOATED	$60.31
GMA38RXL3060ZrN	20473	3/8	3/8	2	4	0.060	ZrN	$76.67
GMA716RS3015	21073	7/16	7/16	1/2	2-1/2	0.015	UNCOATED	$47.40
GMA716RS3015ZrN	21074	7/16	7/16	1/2	2-1/2	0.015	ZrN	$60.31
GMA716RS3030	21075	7/16	7/16	1/2	2-1/2	0.030	UNCOATED	$47.40
GMA716RS3030ZrN	21076	7/16	7/16	1/2	2-1/2	0.030	ZrN	$60.31
GMA716RS3060	21077	7/16	7/16	1/2	2-1/2	0.060	UNCOATED	$47.40
GMA716RS3060ZrN	21078	7/16	7/16	1/2	2-1/2	0.060	ZrN	$60.31
GMA716RS3090	21079	7/16	7/16	1/2	2-1/2	0.090	UNCOATED	$47.40
GMA716RS3090ZrN	21080	7/16	7/16	1/2	2-1/2	0.090	ZrN	$60.31
GMA716R3015	20222	7/16	7/16	1	2-1/2	0.015	UNCOATED	$48.70
GMA716R3015ZrN	20505	7/16	7/16	1	2-1/2	0.015	ZrN	$61.48
GMA716R3030	20223	7/16	7/16	1	2-1/2	0.030	UNCOATED	$48.70
GMA716R3030ZrN	20506	7/16	7/16	1	2-1/2	0.030	ZrN	$61.48
GMA716R3060	20224	7/16	7/16	1	2-1/2	0.060	UNCOATED	$48.70
GMA716R3060ZrN	20507	7/16	7/16	1	2-1/2	0.060	ZrN	$61.48
GMA716R3090	20225	7/16	7/16	1	2-1/2	0.090	UNCOATED	$48.70
GMA716R3090ZrN	20508	7/16	7/16	1	2-1/2	0.090	ZrN	$61.48
GMA12RS3015	21081	1/2	1/2	5/8	2-1/2	0.015	UNCOATED	$50.42
GMA12RS3015ZrN	21082	1/2	1/2	5/8	2-1/2	0.015	ZrN	$67.60
GMA12RS3030	21083	1/2	1/2	5/8	2-1/2	0.030	UNCOATED	$50.42
GMA12RS3030ZrN	21084	1/2	1/2	5/8	2-1/2	0.030	ZrN	$67.60
GMA12RS3060	21085	1/2	1/2	5/8	2-1/2	0.060	UNCOATED	$50.42
GMA12RS3060ZrN	21086	1/2	1/2	5/8	2-1/2	0.060	ZrN	$67.60
GMA12RS3090	21087	1/2	1/2	5/8	2-1/2	0.090	UNCOATED	$50.42
GMA12RS3090ZrN	21088	1/2	1/2	5/8	2-1/2	0.090	ZrN	$67.60
GMA12RS3120	21089	1/2	1/2	5/8	2-1/2	0.120	UNCOATED	$50.42
GMA12RS3120ZrN	21090	1/2	1/2	5/8	2-1/2	0.120	ZrN	$67.60
GMA12RH3015	20079	1/2	1/2	1	3	0.015	UNCOATED	$54.83
GMA12RH3015ZrN	20393	1/2	1/2	1	3	0.015	ZrN	$68.33

3 FLUTE (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 190

SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA12RH3030	20080	1/2	1/2	1	3	0.030	UNCOATED	$54.83
GMA12RH3030ZrN	20394	1/2	1/2	1	3	0.030	ZrN	$68.33
GMA12RH3060	20081	1/2	1/2	1	3	0.060	UNCOATED	$54.83
GMA12RH3060ZrN	20395	1/2	1/2	1	3	0.060	ZrN	$68.33
GMA12RH3090	20082	1/2	1/2	1	3	0.090	UNCOATED	$54.83
GMA12RH3090ZrN	20396	1/2	1/2	1	3	0.090	ZrN	$68.33
GMA12RH3120	20083	1/2	1/2	1	3	0.120	UNCOATED	$54.83
GMA12RH3120ZrN	20397	1/2	1/2	1	3	0.120	ZrN	$68.33
GMA12R3015	20074	1/2	1/2	1-1/4	3	0.015	UNCOATED	$60.41
GMA12R3015ZrN	20388	1/2	1/2	1-1/4	3	0.015	ZrN	$73.78
GMA12R3030	20075	1/2	1/2	1-1/4	3	0.030	UNCOATED	$60.41
GMA12R3030ZrN	20389	1/2	1/2	1-1/4	3	0.030	ZrN	$73.78
GMA12R3060	20076	1/2	1/2	1-1/4	3	0.060	UNCOATED	$60.41
GMA12R3060ZrN	20390	1/2	1/2	1-1/4	3	0.060	ZrN	$73.78
GMA12R3090	20077	1/2	1/2	1-1/4	3	0.090	UNCOATED	$60.41
GMA12R3090ZrN	20391	1/2	1/2	1-1/4	3	0.090	ZrN	$73.78
GMA12R3120	20078	1/2	1/2	1-1/4	3	0.120	UNCOATED	$60.41
GMA12R3120ZrN	20392	1/2	1/2	1-1/4	3	0.120	ZrN	$73.78
GMA12RL3015	20084	1/2	1/2	1-1/2	4	0.015	UNCOATED	$74.80
GMA12RL3015ZrN	20398	1/2	1/2	1-1/2	4	0.015	ZrN	$91.47
GMA12RL3030	20085	1/2	1/2	1-1/2	4	0.030	UNCOATED	$74.80
GMA12RL3030ZrN	20399	1/2	1/2	1-1/2	4	0.030	ZrN	$91.47
GMA12RL3060	20086	1/2	1/2	1-1/2	4	0.060	UNCOATED	$74.80
GMA12RL3060ZrN	20400	1/2	1/2	1-1/2	4	0.060	ZrN	$91.47
GMA12RL3090	20087	1/2	1/2	1-1/2	4	0.090	UNCOATED	$74.80
GMA12RL3090ZrN	20401	1/2	1/2	1-1/2	4	0.090	ZrN	$91.47
GMA12RL3120	20088	1/2	1/2	1-1/2	4	0.120	UNCOATED	$74.80
GMA12RL3120ZrN	20402	1/2	1/2	1-1/2	4	0.120	ZrN	$91.47
GMA12RXL3015	20089	1/2	1/2	2	4	0.015	UNCOATED	$86.45
GMA12RXL3015ZrN	20403	1/2	1/2	2	4	0.015	ZrN	$103.72
GMA12RXL3030	20090	1/2	1/2	2	4	0.030	UNCOATED	$86.45
GMA12RXL3030ZrN	20404	1/2	1/2	2	4	0.030	ZrN	$103.72
GMA12RXL3060	20091	1/2	1/2	2	4	0.060	UNCOATED	$86.45
GMA12RXL3060ZrN	20405	1/2	1/2	2	4	0.060	ZrN	$103.72
GMA12RXL3090	20092	1/2	1/2	2	4	0.090	UNCOATED	$86.45
GMA12RXL3090ZrN	20406	1/2	1/2	2	4	0.090	ZrN	$103.72
GMA12RXL3120	20093	1/2	1/2	2	4	0.120	UNCOATED	$86.45
GMA12RXL3120ZrN	20407	1/2	1/2	2	4	0.120	ZrN	$103.72
GMA58RS3015	21091	5/8	5/8	3/4	3	0.015	UNCOATED	$103.44

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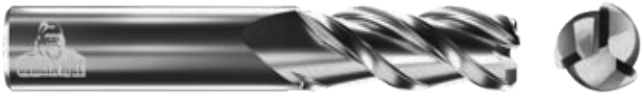
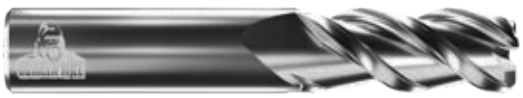
HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (INCH) RADIUS




RADIUS END

SPEEDS & FEEDS CHART PAGE 190								
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA58RS3015ZrN	21092	5/8	5/8	3/4	3	0.015	ZrN	$122.19
GMA58RS3030	21093	5/8	5/8	3/4	3	0.030	UNCOATED	$103.44
GMA58RS3030ZrN	21094	5/8	5/8	3/4	3	0.030	ZrN	$122.19
GMA58RS3060	21095	5/8	5/8	3/4	3	0.060	UNCOATED	$103.44
GMA58RS3060ZrN	21096	5/8	5/8	3/4	3	0.060	ZrN	$122.19
GMA58RS3090	21097	5/8	5/8	3/4	3	0.090	UNCOATED	$103.44
GMA58RS3090ZrN	21098	5/8	5/8	3/4	3	0.090	ZrN	$122.19
GMA58RS3120	21099	5/8	5/8	3/4	3	0.120	UNCOATED	$103.44
GMA58RS3120ZrN	21100	5/8	5/8	3/4	3	0.120	ZrN	$122.19
GMA58R3015	20201	5/8	5/8	1-1/4	3-1/2	0.015	UNCOATED	$109.52
GMA58R3015ZrN	20487	5/8	5/8	1-1/4	3-1/2	0.015	ZrN	$131.43
GMA58R3030	20202	5/8	5/8	1-1/4	3-1/2	0.030	UNCOATED	$109.52
GMA58R3030ZrN	20488	5/8	5/8	1-1/4	3-1/2	0.030	ZrN	$131.43
GMA58R3060	20203	5/8	5/8	1-1/4	3-1/2	0.060	UNCOATED	$109.52
GMA58R3060ZrN	20489	5/8	5/8	1-1/4	3-1/2	0.060	ZrN	$131.43
GMA58R3090	20204	5/8	5/8	1-1/4	3-1/2	0.090	UNCOATED	$109.52
GMA58R3090ZrN	20491	5/8	5/8	1-1/4	3-1/2	0.090	ZrN	$131.43
GMA58R3120	20205	5/8	5/8	1-1/4	3-1/2	0.120	UNCOATED	$109.52
GMA58R3120ZrN	20492	5/8	5/8	1-1/4	3-1/2	0.120	ZrN	$131.43
GMA58RHL3030	20207	5/8	5/8	1-5/8	4	0.030	UNCOATED	$116.89
GMA58RHL3030ZrN	20494	5/8	5/8	1-5/8	4	0.030	ZrN	$139.18
GMA58RHL3060	20208	5/8	5/8	1-5/8	4	0.060	UNCOATED	$116.89
GMA58RHL3060ZrN	20495	5/8	5/8	1-5/8	4	0.060	ZrN	$139.18
GMA58RHL3090	20209	5/8	5/8	1-5/8	4	0.090	UNCOATED	$116.89
GMA58RHL3090ZrN	20496	5/8	5/8	1-5/8	4	0.090	ZrN	$139.18
GMA58RHL3120	20210	5/8	5/8	1-5/8	4	0.120	UNCOATED	$116.89
GMA58RHL3120ZrN	20497	5/8	5/8	1-5/8	4	0.120	ZrN	$139.18
GMA58RHL3015	20206	5/8	5/8	1-5/8	4	0.015	UNCOATED	$116.89
GMA58RHL3015ZrN	20493	5/8	5/8	1-5/8	4	0.015	ZrN	$139.18
GMA58RL3015	20211	5/8	5/8	2	4	0.015	UNCOATED	$117.71
GMA58RL3015ZrN	20498	5/8	5/8	2	4	0.015	ZrN	$141.25
GMA58RL3030	20212	5/8	5/8	2	4	0.030	UNCOATED	$117.71
GMA58RL3030ZrN	20499	5/8	5/8	2	4	0.030	ZrN	$141.25
GMA58RL3060	20213	5/8	5/8	2	4	0.060	UNCOATED	$117.71
GMA58RL3060ZrN	20500	5/8	5/8	2	4	0.060	ZrN	$141.25
GMA58RL3090	20214	5/8	5/8	2	4	0.090	UNCOATED	$117.71
GMA58RL3090ZrN	20501	5/8	5/8	2	4	0.090	ZrN	$141.25
GMA58RL3120	20215	5/8	5/8	2	4	0.120	UNCOATED	$117.71
GMA58RL3120ZrN	20502	5/8	5/8	2	4	0.120	ZrN	$141.25
GMA34RS3015	21101	3/4	3/4	1	3	0.015	UNCOATED	$150.83

3 FLUTE (INCH) RADIUS




RADIUS END

SPEEDS & FEEDS CHART PAGE 190

SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA34RS3015ZrN	21102	3/4	3/4	1	3	0.015	ZrN	$175.31
GMA34RS3030	21103	3/4	3/4	1	3	0.030	UNCOATED	$150.83
GMA34RS3030ZrN	21104	3/4	3/4	1	3	0.030	ZrN	$175.31
GMA34RS3060	21105	3/4	3/4	1	3	0.060	UNCOATED	$150.83
GMA34RS3060ZrN	21106	3/4	3/4	1	3	0.060	ZrN	$175.31
GMA34RS3090	21107	3/4	3/4	1	3	0.090	UNCOATED	$150.83
GMA34RS3090ZrN	21108	3/4	3/4	1	3	0.090	ZrN	$175.31
GMA34RS3120	21109	3/4	3/4	1	3	0.120	UNCOATED	$150.83
GMA34RS3120ZrN	21110	3/4	3/4	1	3	0.120	ZrN	$175.31
GMA34R3015	20142	3/4	3/4	1-1/2	4	0.015	UNCOATED	$157.41
GMA34R3015ZrN	20441	3/4	3/4	1-1/2	4	0.015	ZrN	$188.89
GMA34R3030	20143	3/4	3/4	1-1/2	4	0.030	UNCOATED	$157.41
GMA34R3030ZrN	20442	3/4	3/4	1-1/2	4	0.030	ZrN	$188.89
GMA34R3060	20144	3/4	3/4	1-1/2	4	0.060	UNCOATED	$157.41
GMA34R3060ZrN	20443	3/4	3/4	1-1/2	4	0.060	ZrN	$188.89
GMA34R3090	20145	3/4	3/4	1-1/2	4	0.090	UNCOATED	$157.41
GMA34R3090ZrN	20444	3/4	3/4	1-1/2	4	0.090	ZrN	$188.89
GMA34R3120	20146	3/4	3/4	1-1/2	4	0.120	UNCOATED	$157.41
GMA34R3120ZrN	20445	3/4	3/4	1-1/2	4	0.120	ZrN	$188.89
GMA34RHL3015	20147	3/4	3/4	1-5/8	4	0.015	UNCOATED	$170.24
GMA34RHL3015ZrN	20446	3/4	3/4	1-5/8	4	0.015	ZrN	$198.90
GMA34RHL3030	20148	3/4	3/4	1-5/8	4	0.030	UNCOATED	$170.24
GMA34RHL3030ZrN	20447	3/4	3/4	1-5/8	4	0.030	ZrN	$198.90
GMA34RHL3060	20149	3/4	3/4	1-5/8	4	0.060	UNCOATED	$170.24
GMA34RHL3060ZrN	20448	3/4	3/4	1-5/8	4	0.060	ZrN	$198.90
GMA34RHL3090	20150	3/4	3/4	1-5/8	4	0.090	UNCOATED	$170.24
GMA34RHL3090ZrN	20449	3/4	3/4	1-5/8	4	0.090	ZrN	$198.90
GMA34RHL3120	20151	3/4	3/4	1-5/8	4	0.120	UNCOATED	$170.24
GMA34RHL3120ZrN	20450	3/4	3/4	1-5/8	4	0.120	ZrN	$198.90
GMA34RL3015	20152	3/4	3/4	2	4	0.015	UNCOATED	$192.88
GMA34RL3015ZrN	20451	3/4	3/4	2	4	0.015	ZrN	$232.99
GMA34RL3030	20153	3/4	3/4	2	4	0.030	UNCOATED	$192.88
GMA34RL3030ZrN	20452	3/4	3/4	2	4	0.030	ZrN	$232.99
GMA34RL3060	20154	3/4	3/4	2	4	0.060	UNCOATED	$192.88
GMA34RL3060ZrN	20453	3/4	3/4	2	4	0.060	ZrN	$232.99
GMA34RL3090	20155	3/4	3/4	2	4	0.090	UNCOATED	$192.88
GMA34RL3090ZrN	20454	3/4	3/4	2	4	0.090	ZrN	$232.99
GMA34RL3120	20156	3/4	3/4	2	4	0.120	UNCOATED	$192.88
GMA34RL3120ZrN	20455	3/4	3/4	2	4	0.120	ZrN	$232.99
GMA34RLH3015	20157	3/4	3/4	2-1/4	5	0.015	UNCOATED	$217.96

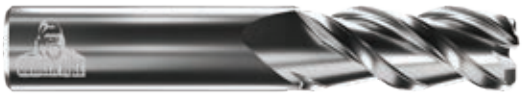
Continued on next page

HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 190								
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA34RLH3015ZrN	20456	3/4	3/4	2-1/4	5	0.015	ZrN	$258.89
GMA34RLH3030	20158	3/4	3/4	2-1/4	5	0.030	UNCOATED	$217.96
GMA34RLH3030ZrN	20457	3/4	3/4	2-1/4	5	0.030	ZrN	$258.89
GMA34RLH3060	20159	3/4	3/4	2-1/4	5	0.060	UNCOATED	$217.96
GMA34RLH3060ZrN	20458	3/4	3/4	2-1/4	5	0.060	ZrN	$258.89
GMA34RLH3090	20160	3/4	3/4	2-1/4	5	0.090	UNCOATED	$217.96
GMA34RLH3090ZrN	20459	3/4	3/4	2-1/4	5	0.090	ZrN	$258.89
GMA34RLH3120	20161	3/4	3/4	2-1/4	5	0.120	UNCOATED	$217.96
GMA34RLH3120ZrN	20460	3/4	3/4	2-1/4	5	0.120	ZrN	$258.89
GMA10RS3015	21111	1	1	1-1/4	4	0.015	UNCOATED	$247.71
GMA10RS3015ZrN	21112	1	1	1-1/4	4	0.015	ZrN	$273.85
GMA10RS3030	21113	1	1	1-1/4	4	0.030	UNCOATED	$247.71
GMA10RS3030ZrN	21114	1	1	1-1/4	4	0.030	ZrN	$273.85
GMA10RS3060	21115	1	1	1-1/4	4	0.060	UNCOATED	$247.71
GMA10RS3060ZrN	21116	1	1	1-1/4	4	0.060	ZrN	$273.85
GMA10RS3090	21117	1	1	1-1/4	4	0.090	UNCOATED	$247.71
GMA10RS3090ZrN	21118	1	1	1-1/4	4	0.090	ZrN	$273.85
GMA10RS3120	21119	1	1	1-1/4	4	0.120	UNCOATED	$247.71
GMA10RS3120ZrN	21120	1	1	1-1/4	4	0.120	ZrN	$273.85
GMA10R3015	20039	1	1	1-1/2	4	0.015	UNCOATED	$269.73
GMA10R3015ZrN	20359	1	1	1-1/2	4	0.015	ZrN	$291.10
GMA10R3030	20040	1	1	1-1/2	4	0.030	UNCOATED	$269.73
GMA10R3030ZrN	20360	1	1	1-1/2	4	0.030	ZrN	$291.10
GMA10R3060	20041	1	1	1-1/2	4	0.060	UNCOATED	$269.73
GMA10R3060ZrN	20361	1	1	1-1/2	4	0.060	ZrN	$291.10
GMA10R3090	20042	1	1	1-1/2	4	0.090	UNCOATED	$269.73
GMA10R3090ZrN	20362	1	1	1-1/2	4	0.090	ZrN	$291.10
GMA10R3120	20043	1	1	1-1/2	4	0.120	UNCOATED	$269.73
GMA10R3120ZrN	20363	1	1	1-1/2	4	0.120	ZrN	$291.10
GMA10RL3015	20044	1	1	2	4	0.015	UNCOATED	$308.85
GMA10RL3015ZrN	20364	1	1	2	4	0.015	ZrN	$340.04
GMA10RL3030	20045	1	1	2	4	0.030	UNCOATED	$308.85
GMA10RL3030ZrN	20365	1	1	2	4	0.030	ZrN	$340.04
GMA10RL3060	20046	1	1	2	4	0.060	UNCOATED	$308.85
GMA10RL3060ZrN	20366	1	1	2	4	0.060	ZrN	$340.04
GMA10RL3090	20047	1	1	2	4	0.090	UNCOATED	$308.85
GMA10RL3090ZrN	20367	1	1	2	4	0.090	ZrN	$340.04
GMA10RL3120	20048	1	1	2	4	0.120	UNCOATED	$308.85
GMA10RL3120ZrN	20368	1	1	2	4	0.120	ZrN	$340.04
GMA10RXL3015	20049	1	1	2-1/2	5	0.015	UNCOATED	$380.04

3 FLUTE (INCH) RADIUS



RADIUS END

SPEEDS & FEEDS CHART PAGE 190								
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	CORNER RADIUS	COATING	LISTPRICE
GMA10RXL3015ZrN	20369	1	1	2-1/2	5	0.015	ZrN	$418.03
GMA10RXL3030	20050	1	1	2-1/2	5	0.030	UNCOATED	$380.04
GMA10RXL3030ZrN	20370	1	1	2-1/2	5	0.030	ZrN	$418.03
GMA10RXL3060	20051	1	1	2-1/2	5	0.060	UNCOATED	$380.04
GMA10RXL3060ZrN	20371	1	1	2-1/2	5	0.060	ZrN	$418.03
GMA10RXL3090	20052	1	1	2-1/2	5	0.090	UNCOATED	$380.04
GMA10RXL3090ZrN	20372	1	1	2-1/2	5	0.090	ZrN	$418.03
GMA10RXL3120	20053	1	1	2-1/2	5	0.120	UNCOATED	$380.04
GMA10RXL3120ZrN	20373	1	1	2-1/2	5	0.120	ZrN	$418.03

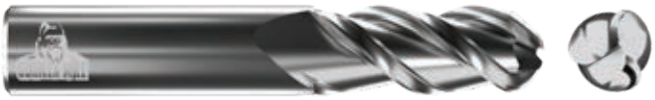
HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (INCH) BALLNOSE

BALLNOSE END

SPEEDS & FEEDS CHART PAGE 191

SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LISTPRICE
GMA18BS3	20945	1/8	1/8	1/4	1-1/2	UNCOATED	$23.35
GMA18BS3ZrN	20946	1/8	1/8	1/4	1-1/2	ZrN	$26.63
GMA18B3	20114	1/8	1/8	1/2	1-1/2	UNCOATED	$24.58
GMA18B3ZrN	20424	1/8	1/8	1/2	1-1/2	ZrN	$28.02
GMA18BL3	20947	1/8	1/8	1/2	2-1/2	UNCOATED	$25.81
GMA18BL3ZrN	20948	1/8	1/8	1/2	2-1/2	ZrN	$29.43
GMA18BXL3	20949	1/8	1/8	5/8	2-1/2	UNCOATED	$27.10
GMA18BXL3ZrN	20950	1/8	1/8	5/8	2-1/2	ZrN	$30.90
GMA18BSL3	20951	1/8	1/8	3/4	2-1/2	UNCOATED	$28.46
GMA18BSL3ZrN	20952	1/8	1/8	3/4	2-1/2	ZrN	$32.44
GMA316BS3	20953	3/16	3/16	3/8	2	UNCOATED	$28.21
GMA316BS3ZrN	20954	3/16	3/16	3/8	2	ZrN	$33.16
GMA316B3	20127	3/16	3/16	5/8	2	UNCOATED	$29.69
GMA316B3ZrN	20434	3/16	3/16	5/8	2	ZrN	$34.90
GMA316BL3	20955	3/16	3/16	3/4	2-1/2	UNCOATED	$31.18
GMA316BL3ZrN	20956	3/16	3/16	3/4	2-1/2	ZrN	$36.65
GMA316BXL3	20957	3/16	3/16	1	3	UNCOATED	$32.74
GMA316BXL3ZrN	20958	3/16	3/16	1	3	ZrN	$38.48
GMA316BSL3	20959	3/16	3/16	1-3/8	3	UNCOATED	$34.38
GMA316BSL3ZrN	20960	3/16	3/16	1-3/8	3	ZrN	$40.41
GMA14BS3	20961	1/4	1/4	3/8	2	UNCOATED	$31.30
GMA14BS3ZrN	20962	1/4	1/4	3/8	2	ZrN	$40.05
GMA14BSH3	20963	1/4	1/4	1/2	2	UNCOATED	$32.96
GMA14BSH3ZrN	20964	1/4	1/4	1/2	2	ZrN	$42.16
GMA14B3	20094	1/4	1/4	3/4	2-1/2	UNCOATED	$34.69
GMA14B3ZrN	20408	1/4	1/4	3/4	2-1/2	ZrN	$44.38
GMA14BL3	20965	1/4	1/4	1	3	UNCOATED	$36.51
GMA14BL3ZrN	20966	1/4	1/4	1	3	ZrN	$46.71
GMA14BXL3	20967	1/4	1/4	1-1/4	3	UNCOATED	$38.44
GMA14BXL3ZrN	20968	1/4	1/4	1-1/4	3	ZrN	$49.17
GMA14BSL3	20969	1/4	1/4	1-1/2	3	UNCOATED	$40.46
GMA14BSL3ZrN	20970	1/4	1/4	1-1/2	3	ZrN	$51.76
GMA516BS3	20971	5/16	5/16	7/16	2	UNCOATED	$38.99
GMA516BS3ZrN	20972	5/16	5/16	7/16	2	ZrN	$48.89
GMA516B3	20179	5/16	5/16	7/8	2-1/2	UNCOATED	$41.04
GMA516B3ZrN	20474	5/16	5/16	7/8	2-1/2	ZrN	$51.46
GMA516BL3	20973	5/16	5/16	1	3	UNCOATED	$43.20
GMA516BL3ZrN	20974	5/16	5/16	1	3	ZrN	$54.17
GMA38BS3	20975	3/8	3/8	1/2	2	UNCOATED	$41.36
GMA38BS3ZrN	20976	3/8	3/8	1/2	2	ZrN	$53.04
GMA38B3	20162	3/8	3/8	7/8	2-1/2	UNCOATED	$43.54
GMA38B3ZrN	20461	3/8	3/8	7/8	2-1/2	ZrN	$55.83

3 FLUTE (INCH) BALLNOSE



BALLNOSE END

SPEEDS & FEEDS CHART PAGE 191

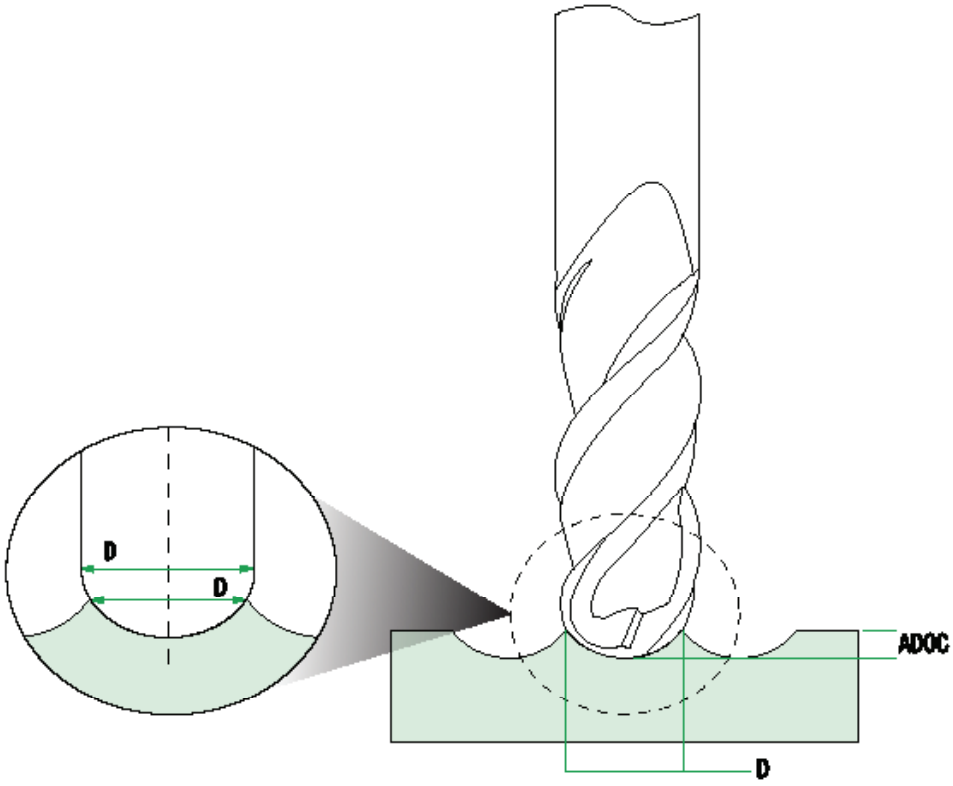
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LISTPRICE
GMA38BHL3	20977	3/8	3/8	1	2-1/2	UNCOATED	$45.83
GMA38BHL3ZrN	20978	3/8	3/8	1	2-1/2	ZrN	$58.77
GMA38BL3	20979	3/8	3/8	1-1/4	3	UNCOATED	$48.25
GMA38BL3ZrN	20980	3/8	3/8	1-1/4	3	ZrN	$61.86
GMA38BLH3	20981	3/8	3/8	1-1/2	3-1/2	UNCOATED	$68.06
GMA38BLH3ZrN	20982	3/8	3/8	1-1/2	3-1/2	ZrN	$80.85
GMA38BXL3	20983	3/8	3/8	2	4	UNCOATED	$71.65
GMA38BXL3ZrN	20984	3/8	3/8	2	4	ZrN	$85.10
GMA716B3	20216	7/16	7/16	1	2-1/2	UNCOATED	$55.00
GMA716B3ZrN	20503	7/16	7/16	1	2-1/2	ZrN	$68.50
GMA12BS3	20985	1/2	1/2	5/8	2-1/2	UNCOATED	$59.97
GMA12BS3ZrN	20986	1/2	1/2	5/8	2-1/2	ZrN	$73.25
GMA12BH3	20987	1/2	1/2	1	3	UNCOATED	$63.13
GMA12BH3ZrN	20988	1/2	1/2	1	3	ZrN	$77.10
GMA12B3	20063	1/2	1/2	1-1/4	3	UNCOATED	$66.45
GMA12B3ZrN	20383	1/2	1/2	1-1/4	3	ZrN	$81.16
GMA12BL3	20989	1/2	1/2	1-5/8	4	UNCOATED	$83.63
GMA12BL3ZrN	20990	1/2	1/2	1-5/8	4	ZrN	$95.63
GMA12BXL3	20991	1/2	1/2	2	4	UNCOATED	$90.45
GMA12BXL3ZrN	20992	1/2	1/2	2	4	ZrN	$108.75
GMA12BSL3	20993	1/2	1/2	2-1/2	5	UNCOATED	$97.97
GMA12BSL3ZrN	20994	1/2	1/2	2-1/2	5	ZrN	$114.47
GMA58BS3	20995	5/8	5/8	3/4	3	UNCOATED	$114.45
GMA58BS3ZrN	20996	5/8	5/8	3/4	3	ZrN	$137.34
GMA58B3	20192	5/8	5/8	1-1/4	3-1/2	UNCOATED	$120.48
GMA58B3ZrN	20483	5/8	5/8	1-1/4	3-1/2	ZrN	$144.57
GMA58BL3	20997	5/8	5/8	1-5/8	4	UNCOATED	$126.81
GMA58BL3ZrN	20998	5/8	5/8	1-5/8	4	ZrN	$152.18
GMA34BS3	20999	3/4	3/4	1	3	UNCOATED	$164.50
GMA34BS3ZrN	21000	3/4	3/4	1	3	ZrN	$197.38
GMA34B3	20132	3/4	3/4	1-1/2	4	UNCOATED	$173.16
GMA34B3ZrN	20436	3/4	3/4	1-1/2	4	ZrN	$207.77
GMA34BL3	21001	3/4	3/4	1-5/8	4	UNCOATED	$192.40
GMA34BL3ZrN	21002	3/4	3/4	1-5/8	4	ZrN	$230.85
GMA34BLH3	21003	3/4	3/4	2-1/4	5	UNCOATED	$218.10
GMA34BLH3ZrN	21004	3/4	3/4	2-1/4	5	ZrN	$254.48
GMA34BSL3	21005	3/4	3/4	2-3/4	5	UNCOATED	$229.58
GMA34BSL3ZrN	21006	3/4	3/4	2-3/4	5	ZrN	$267.88

Continued on next page

HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (INCH) BALLNOSE

BALLNOSE END

SPEEDS & FEEDS CHART PAGE 191							
SKU	EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LISTPRICE
GMA10BS3	21007	1	1	1-1/4	4	UNCOATED	$281.88
GMA10BS3ZrN	21008	1	1	1-1/4	4	ZrN	$304.20
GMA10B3	20030	1	1	1-1/2	4	UNCOATED	$296.71
GMA10B3ZrN	20355	1	1	1-1/2	4	ZrN	$320.21
GMA10BL3	21009	1	1	2	5	UNCOATED	$329.68
GMA10BL3ZrN	21010	1	1	2	5	ZrN	$355.79
GMA10BXL3	21011	1	1	3-1/4	6	UNCOATED	$366.31
GMA10BXL3ZrN	21012	1	1	3-1/4	6	ZrN	$395.32



HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (METRIC) SQUARE

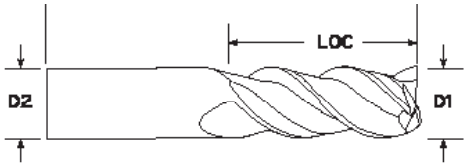
Variable flute. Engineered to repel aluminum. For roughing and finishing of non-ferrous materials, aluminum, copper, brass, plastic, etc. High velocity, high material removal rate. Center cutting. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

SQUARE END

SPEEDS & FEEDS CHART PAGE 190

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
GMA0300MMFS3	20001	3mm	3mm	8mm	38mm	UNCOATED	$22.19
GMA0300MMFS3ZrN	20326	3mm	3mm	8mm	38mm	ZrN	$26.03
GMA0300MMF3	20000	3mm	3mm	12mm	38mm	UNCOATED	$23.35
GMA0300MMF3ZRN	20325	3mm	3mm	12mm	38mm	ZrN	$27.40
GMA0400MMF3	20005	4mm	6mm	12mm	50mm	UNCOATED	$28.13
GMA0400MMF3ZrN	20330	4mm	6mm	12mm	50mm	ZrN	$33.96
GMA0500MMF3	20009	5mm	6mm	15mm	65mm	UNCOATED	$28.13
GMA0500MMF3ZrN	20334	5mm	6mm	15mm	65mm	ZrN	$33.96
GMA0600MMFS3	20014	6mm	6mm	12mm	50mm	UNCOATED	$24.38
GMA0600MMFS3ZrN	20339	6mm	6mm	12mm	50mm	ZrN	$30.63
GMA0600MMF3	20013	6mm	6mm	19mm	65mm	UNCOATED	$26.28
GMA0600MMF3ZrN	20338	6mm	6mm	19mm	65mm	ZrN	$33.96
GMA0800MMFS3	20019	8mm	8mm	12mm	50mm	UNCOATED	$28.41
GMA0800MMFS3ZrN	20344	8mm	8mm	12mm	50mm	ZrN	$31.15
GMA0800MMF3	20018	8mm	8mm	22mm	65mm	UNCOATED	$29.90
GMA0800MMF3ZrN	20343	8mm	8mm	22mm	65mm	ZrN	$39.48
GMA1000MMF3	20025	10mm	10mm	22mm	70mm	UNCOATED	$39.97
GMA1000MMF3ZrN	20350	10mm	10mm	22mm	70mm	ZrN	$43.96
GMA1200MMFS3	20055	12mm	12mm	19mm	63mm	UNCOATED	$45.83
GMA1200MMFS3ZrN	20375	12mm	12mm	19mm	63mm	ZrN	$61.46
GMA1200MMF3	20054	12mm	12mm	32mm	75mm	UNCOATED	$54.91
GMA1200MMF3ZrN	20374	12mm	12mm	32mm	75mm	ZrN	$65.88
GMA1600MMF3	20107	16mm	16mm	32mm	89mm	UNCOATED	$101.59
GMA1600MMF3ZrN	20417	16mm	16mm	32mm	89mm	ZrN	$121.91
GMA2000MMF3	20119	20mm	20mm	38mm	100mm	UNCOATED	$149.93
GMA2000MMF3ZrN	20426	20mm	20mm	38mm	100mm	ZrN	$179.91
GMA2500MMF3	20124	25mm	25mm	38mm	100mm	UNCOATED	$256.89
GMA2500MMF3ZrN	20431	25mm	25mm	38mm	100mm	ZrN	$282.64

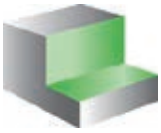


MATERIALS

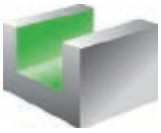
Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Cast Aluminum (6% Silcon & >), Brass, Bronze

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

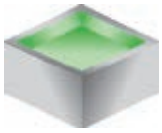
PROFILING



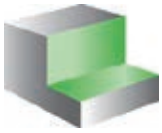
FULL SLOTTING



POCKETING



HIGH-VELOCITY

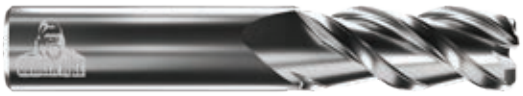


HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (METRIC) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 190								
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
GMA0300MMRS3020	20004	3mm	3mm	8mm	38mm	0.20mm	UNCOATED	$28.13
GMA0300MMRS3020ZrN	20329	3mm	3mm	8mm	38mm	0.20mm	ZrN	$27.60
GMA0300MMR3020	20002	3mm	3mm	12mm	38mm	0.20mm	UNCOATED	$25.73
GMA0300MMR3020ZrN	20327	3mm	3mm	12mm	38mm	0.20mm	ZrN	$30.00
GMA0300MMR3050	20003	3mm	3mm	12mm	38mm	0.50mm	UNCOATED	$25.73
GMA0300MMR3050ZrN	20328	3mm	3mm	12mm	38mm	0.50mm	ZrN	$30.00
GMA0400MMRS3030	20008	4mm	6mm	8mm	50mm	0.30mm	UNCOATED	$33.01
GMA0400MMRS3030ZrN	20333	4mm	6mm	8mm	50mm	0.30mm	ZrN	$36.32
GMA0400MMR3030	20006	4mm	6mm	12mm	50mm	0.30mm	UNCOATED	$34.75
GMA0400MMR3030ZrN	20331	4mm	6mm	12mm	50mm	0.30mm	ZrN	$38.23
GMA0400MMR3050	20007	4mm	6mm	12mm	50mm	0.50mm	UNCOATED	$34.75
GMA0400MMR3050ZrN	20332	4mm	6mm	12mm	50mm	0.50mm	ZrN	$38.23
GMA0500MMRS3030	20012	5mm	6mm	10mm	50mm	0.30mm	UNCOATED	$33.01
GMA0500MMRS3030ZrN	20337	5mm	6mm	10mm	50mm	0.30mm	ZrN	$34.75
GMA0500MMR3030	20010	5mm	6mm	15mm	65mm	0.30mm	UNCOATED	$34.75
GMA0500MMR3030ZrN	20335	5mm	6mm	15mm	65mm	0.30mm	ZrN	$38.23
GMA0500MMR3050	20011	5mm	6mm	15mm	65mm	0.50mm	UNCOATED	$34.75
GMA0500MMR3050ZrN	20336	5mm	6mm	15mm	65mm	0.50mm	ZrN	$38.23
GMA0600MMRS3030	20017	6mm	6mm	12mm	50mm	0.30mm	UNCOATED	$26.73
GMA0600MMRS3030ZrN	20342	6mm	6mm	12mm	50mm	0.30mm	ZrN	$31.47
GMA0600MMR3030	20015	6mm	6mm	19mm	65mm	0.30mm	UNCOATED	$28.13
GMA0600MMR3030ZrN	20340	6mm	6mm	19mm	65mm	0.30mm	ZrN	$35.34
GMA0600MMR3050	20016	6mm	6mm	19mm	65mm	0.50mm	UNCOATED	$28.13
GMA0600MMR3050ZrN	20341	6mm	6mm	19mm	65mm	0.50mm	ZrN	$35.34
GMA0800MMRS3050	20024	8mm	8mm	12mm	50mm	0.50mm	UNCOATED	$32.29
GMA0800MMRS3050ZrN	20349	8mm	8mm	12mm	50mm	0.50mm	ZrN	$35.90
GMA0800MMR3030	20020	8mm	8mm	22mm	65mm	0.30mm	UNCOATED	$32.29
GMA0800MMR3030ZrN	20345	8mm	8mm	22mm	65mm	0.30mm	ZrN	$35.90
GMA0800MMR3050	20021	8mm	8mm	22mm	65mm	0.50mm	UNCOATED	$32.29
GMA0800MMR3050ZrN	20346	8mm	8mm	22mm	65mm	0.50mm	ZrN	$35.90
GMA0800MMR3100	20022	8mm	8mm	22mm	65mm	1.00mm	UNCOATED	$32.29
GMA0800MMR3100ZrN	20347	8mm	8mm	22mm	65mm	1.00mm	ZrN	$35.90
GMA0800MMR3150	20023	8mm	8mm	22mm	65mm	1.50mm	UNCOATED	$32.29
GMA0800MMR3150ZrN	20348	8mm	8mm	22mm	65mm	1.50mm	ZrN	$35.90
GMA1000MMRS3050	20029	10mm	10mm	16mm	50mm	0.50mm	UNCOATED	$39.97
GMA1000MMRS3050ZrN	20354	10mm	10mm	16mm	50mm	0.50mm	ZrN	$46.04
GMA1000MMR3030	20026	10mm	10mm	22mm	70mm	0.30mm	UNCOATED	$42.07
GMA1000MMR3030ZrN	20351	10mm	10mm	22mm	70mm	0.30mm	ZrN	$49.17
GMA1000MMR3050	20027	10mm	10mm	22mm	70mm	0.50mm	UNCOATED	$42.07
GMA1000MMR3050ZrN	20352	10mm	10mm	22mm	70mm	0.50mm	ZrN	$49.17
GMA1000MMR3100	20028	10mm	10mm	22mm	70mm	1.00mm	UNCOATED	$42.07
GMA1000MMR3100ZrN	20353	10mm	10mm	22mm	70mm	1.00mm	ZrN	$49.17

HIGH PERFORMANCE – NON-FERROUS
3 FLUTE (METRIC) RADIUS




RADIUS END

SPEEDS & FEEDS CHART PAGE 190

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
GMA1200MMRS3030	20061	12mm	12mm	19mm	63mm	0.30mm	UNCOATED	$51.04
GMA1200MMRS3030ZrN	20381	12mm	12mm	19mm	63mm	0.30mm	ZrN	$66.77
GMA1200MMRS3050	20062	12mm	12mm	19mm	63mm	0.50mm	UNCOATED	$51.04
GMA1200MMRS3050ZrN	20382	12mm	12mm	19mm	63mm	0.50mm	ZrN	$66.77
GMA1200MMR3030	20056	12mm	12mm	32mm	75mm	0.30mm	UNCOATED	$60.41
GMA1200MMR3030ZrN	20376	12mm	12mm	32mm	75mm	0.30mm	ZrN	$73.78
GMA1200MMR3050	20057	12mm	12mm	32mm	75mm	0.50mm	UNCOATED	$60.41
GMA1200MMR3050ZrN	20377	12mm	12mm	32mm	75mm	0.50mm	ZrN	$73.78
GMA1200MMR3100	20058	12mm	12mm	32mm	75mm	1.00mm	UNCOATED	$60.41
GMA1200MMR3100ZrN	20378	12mm	12mm	32mm	75mm	1.00mm	ZrN	$73.78
GMA1200MMR3150	20059	12mm	12mm	32mm	75mm	1.50mm	UNCOATED	$60.41
GMA1200MMR3150ZrN	20379	12mm	12mm	32mm	75mm	1.50mm	ZrN	$73.78
GMA1200MMR3200	20060	12mm	12mm	32mm	75mm	2.00mm	UNCOATED	$60.41
GMA1200MMR3200ZrN	20380	12mm	12mm	32mm	75mm	2.00mm	ZrN	$73.78
GMA1600MMRS3030	20112	16mm	16mm	19mm	75mm	0.30mm	UNCOATED	$103.44
GMA1600MMRS3030ZrN	20422	16mm	16mm	19mm	75mm	0.30mm	ZrN	$122.19
GMA1600MMRS3050	20113	16mm	16mm	19mm	75mm	0.50mm	UNCOATED	$103.44
GMA1600MMRS3050ZrN	20423	16mm	16mm	19mm	75mm	0.50mm	ZrN	$122.19
GMA1600MMR3030	20108	16mm	16mm	32mm	89mm	0.30mm	UNCOATED	$109.52
GMA1600MMR3030ZrN	20418	16mm	16mm	32mm	89mm	0.30mm	ZrN	$131.43
GMA1600MMR3050	20109	16mm	16mm	32mm	89mm	0.50mm	UNCOATED	$109.52
GMA1600MMR3050ZrN	20419	16mm	16mm	32mm	89mm	0.50mm	ZrN	$131.43
GMA1600MMR3100	20110	16mm	16mm	32mm	89mm	1.00mm	UNCOATED	$109.52
GMA1600MMR3100ZrN	20420	16mm	16mm	32mm	89mm	1.00mm	ZrN	$131.43
GMA1600MMR3200	20111	16mm	16mm	32mm	89mm	2.00mm	UNCOATED	$109.52
GMA1600MMR3200ZrN	20421	16mm	16mm	32mm	89mm	2.00mm	ZrN	$131.43
GMA2000MMRS3100	20123	20mm	20mm	22mm	75mm	1.00mm	UNCOATED	$151.77
GMA2000MMRS3100ZrN	20430	20mm	20mm	22mm	75mm	1.00mm	ZrN	$175.31
GMA2000MMR3050	20120	20mm	20mm	38mm	100mm	0.50mm	UNCOATED	$157.41
GMA2000MMR3050ZrN	20427	20mm	20mm	38mm	100mm	0.50mm	ZrN	$188.89
GMA2000MMR3100	20121	20mm	20mm	38mm	100mm	1.00mm	UNCOATED	$157.41
GMA2000MMR3100ZrN	20428	20mm	20mm	38mm	100mm	1.00mm	ZrN	$188.89
GMA2000MMR3150	20122	20mm	20mm	38mm	100mm	1.50mm	UNCOATED	$157.41
GMA2000MMR3150ZrN	20429	20mm	20mm	38mm	100mm	1.50mm	ZrN	$188.89
GMA2500MMR3100	20125	25mm	25mm	38mm	100mm	1.00mm	UNCOATED	$269.73
GMA2500MMR3100ZrN	20432	25mm	25mm	38mm	100mm	1.00mm	ZrN	$291.10
GMA2500MMR3150	20126	25mm	25mm	38mm	100mm	1.50mm	UNCOATED	$269.73
GMA2500MMR3150ZrN	20433	25mm	25mm	38mm	100mm	1.50mm	ZrN	$291.10

HIGH PERFORMANCE – NON-FERROUS

3 FLUTE NECK RELIEVED (INCH) SQUARE

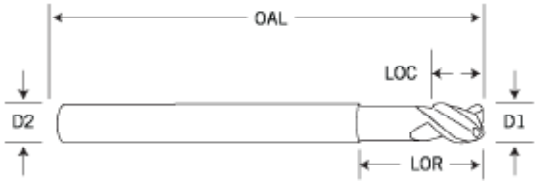
Variable flute. Engineered to repel aluminum. For roughing and finishing of non-ferrous materials. Extended neck provides clearance for deep pocketing, slotting or profiling. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Center cutting. 2 flute also available.

Available in special diameters, lengths and completely resharpenable.

SQUARE END

SPEEDS & FEEDS CHART PAGE 192

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LOR Lenth of Relief	COATING	LIST PRICE
GMANR14F30.750	20264	1/4	1/4	3/8	2-1/2	3/4	UNCOATED	$38.22
GMANR14F30.750ZrN	20547	1/4	1/4	3/8	2-1/2	3/4	ZrN	$38.22
GMANR14F31.125	20265	1/4	1/4	3/8	3	1-1/8	UNCOATED	$42.74
GMANR14F31.125ZrN	20548	1/4	1/4	3/8	3	1-1/8	ZrN	$42.74
GMANR38F31.125	20300	3/8	3/8	1/2	3	1-1/8	UNCOATED	$61.22
GMANR38F31.125ZrN	20583	3/8	3/8	1/2	3	1-1/8	ZrN	$61.22
GMANR38F32.125	20301	3/8	3/8	1/2	4	2-1/8	UNCOATED	$61.71
GMANR38F32.125ZrN	20584	3/8	3/8	1/2	4	2-1/8	ZrN	$61.71
GMANR12F31.500	20240	1/2	1/2	9/16	5	1-1/2	UNCOATED	$95.95
GMANR12F31.500ZrN	20523	1/2	1/2	9/16	5	1-1/2	ZrN	$95.95
GMANR12F32.250	20241	1/2	1/2	9/16	5	2-1/4	UNCOATED	$95.95
GMANR12F32.250ZrN	20524	1/2	1/2	9/16	5	2-1/4	ZrN	$95.95
GMANR12F33.250	20242	1/2	1/2	9/16	6	3-1/4	UNCOATED	$132.08
GMANR12F33.250ZrN	20525	1/2	1/2	9/16	6	3-1/4	ZrN	$132.08
GMANR12F34.250	20243	1/2	1/2	9/16	6	4-1/4	UNCOATED	$136.05
GMANR12F34.250ZrN	20526	1/2	1/2	9/16	6	4-1/4	ZrN	$136.05

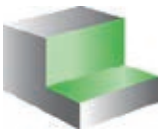


MATERIALS

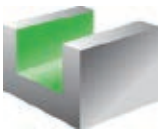
Aircraft Aluminum, (2000, 5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Cast Aluminum (6% Silcon & >), Brass, Bronze

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

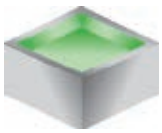
PROFILING



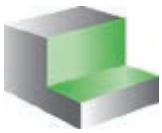
FULL SLOTTING



POCKETING



HIGH-VELOCITY



HIGH PERFORMANCE – NON-FERROUS

3 FLUTE NECK RELIEVED (INCH) SQUARE & RADIUS

SQUARE END

SPEEDS & FEEDS CHART PAGE 192								
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LOR Lenth of Relief	COATING	LIST PRICE
GMANR58F31.625	20310	5/8	5/8	3/4	4	1-5/8	UNCOATED	$156.85
GMANR58F31.625ZrN	20593	5/8	5/8	3/4	4	1-5/8	ZrN	$156.85
GMANR58F32.375	20311	5/8	5/8	3/4	4	2-3/8	UNCOATED	$180.38
GMANR58F32.375ZrN	20594	5/8	5/8	3/4	4	2-3/8	ZrN	$180.38
GMANR58F33.375	20312	5/8	5/8	3/4	6	3-3/8	UNCOATED	$197.35
GMANR58F33.375ZrN	20595	5/8	5/8	3/4	6	3-3/8	ZrN	$197.35
GMANR34F31.500	20272	3/4	3/4	1	6	1-1/2	UNCOATED	$240.77
GMANR34F31.500ZrN	20555	3/4	3/4	1	6	1-1/2	ZrN	$240.77
GMANR34F32.250	20273	3/4	3/4	1	6	2-1/4	UNCOATED	$240.77
GMANR34F32.250ZrN	20556	3/4	3/4	1	6	2-1/4	ZrN	$240.77
GMANR34F33.250	20274	3/4	3/4	1	6	3-1/4	UNCOATED	$261.89
GMANR34F33.250ZrN	20557	3/4	3/4	1	6	3-1/4	ZrN	$261.89
GMANR34F34.250	20275	3/4	3/4	1	7	4-1/4	UNCOATED	$273.46
GMANR34F34.250ZrN	20558	3/4	3/4	1	7	4-1/4	ZrN	$273.46
GMANR10F33.250	20226	1	1	1-1/8	6	3-1/4	UNCOATED	$388.01
GMANR10F33.250ZrN	20509	1	1	1-1/8	6	3-1/4	ZrN	$388.01
GMANR10F34.250	20227	1	1	1-1/8	7	4-1/4	UNCOATED	$442.11
GMANR10F34.250ZrN	20510	1	1	1-1/8	7	4-1/4	ZrN	$442.11

RADIUS END

SPEEDS & FEEDS CHART PAGE 192									
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Lenth of Relief	COATING	LIST PRICE
GMANR14R30150.750	20266	1/4	1/4	3/8	2-1/2	0.015	3/4	UNCOATED	$43.38
GMANR14R30150.750ZrN	20549	1/4	1/4	3/8	2-1/2	0.015	3/4	ZrN	$43.38
GMANR14R30300.750	20268	1/4	1/4	3/8	2-1/2	0.030	3/4	UNCOATED	$43.38
GMANR14R30300.750ZrN	20551	1/4	1/4	3/8	2-1/2	0.030	3/4	ZrN	$43.38
GMANR14R30600.750	20270	1/4	1/4	3/8	2-1/2	0.060	3/4	UNCOATED	$43.38
GMANR14R30600.750ZrN	20553	1/4	1/4	3/8	2-1/2	0.060	3/4	ZrN	$43.38
GMANR14R30151.125	20267	1/4	1/4	3/8	3	0.015	1-1/8	UNCOATED	$48.29
GMANR14R30151.125ZrN	20550	1/4	1/4	3/8	3	0.015	1-1/8	ZrN	$48.29
GMANR14R30301.125	20269	1/4	1/4	3/8	3	0.030	1-1/8	UNCOATED	$48.29
GMANR14R30301.125ZrN	20552	1/4	1/4	3/8	3	0.030	1-1/8	ZrN	$48.29
GMANR14R30601.125	20271	1/4	1/4	3/8	3	0.060	1-1/8	UNCOATED	$48.29
GMANR14R30601.125ZrN	20554	1/4	1/4	3/8	3	0.060	1-1/8	ZrN	$48.29

Continued on next page

HIGH PERFORMANCE – NON-FERROUS

3 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 192									
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Lenth of Relief	COATING	LIST PRICE
GMANR38R30151.125	20302	3/8	3/8	1/2	3	0.015	1-1/8	UNCOATED	$63.67
GMANR38R30151.125ZrN	20585	3/8	3/8	1/2	3	0.015	1-1/8	ZrN	$63.67
GMANR38R30301.125	20304	3/8	3/8	1/2	3	0.030	1-1/8	UNCOATED	$63.67
GMANR38R30301.125ZrN	20587	3/8	3/8	1/2	3	0.030	1-1/8	ZrN	$63.67
GMANR38R30601.125	20306	3/8	3/8	1/2	3	0.060	1-1/8	UNCOATED	$63.67
GMANR38R30601.125ZrN	20589	3/8	3/8	1/2	3	0.060	1-1/8	ZrN	$63.67
GMANR38R30901.125	20308	3/8	3/8	1/2	3	0.090	1-1/8	UNCOATED	$63.67
GMANR38R30901.125ZrN	20591	3/8	3/8	1/2	3	0.090	1-1/8	ZrN	$63.67
GMANR38R30152.125	20303	3/8	3/8	1/2	4	0.015	2-1/8	UNCOATED	$64.38
GMANR38R30152.125ZrN	20586	3/8	3/8	1/2	4	0.015	2-1/8	ZrN	$64.38
GMANR38R30302.125	20305	3/8	3/8	1/2	4	0.030	2-1/8	UNCOATED	$64.38
GMANR38R30302.125ZrN	20588	3/8	3/8	1/2	4	0.030	2-1/8	ZrN	$64.38
GMANR38R30602.125	20307	3/8	3/8	1/2	4	0.060	2-1/8	UNCOATED	$64.38
GMANR38R30602.125ZrN	20590	3/8	3/8	1/2	4	0.060	2-1/8	ZrN	$64.38
GMANR38R30902.125	20309	3/8	3/8	1/2	4	0.090	2-1/8	UNCOATED	$64.38
GMANR38R30902.125ZrN	20592	3/8	3/8	1/2	4	0.090	2-1/8	ZrN	$64.38
GMANR12R30151.500	20244	1/2	1/2	9/16	5	0.015	1-1/2	UNCOATED	$96.94
GMANR12R30151.500ZrN	20527	1/2	1/2	9/16	5	0.015	1-1/2	ZrN	$96.94
GMANR12R30152.250	20245	1/2	1/2	9/16	5	0.015	2-1/4	UNCOATED	$100.77
GMANR12R30152.250ZrN	20528	1/2	1/2	9/16	5	0.015	2-1/4	ZrN	$100.77
GMANR12R30301.500	20248	1/2	1/2	9/16	5	0.030	1-1/2	UNCOATED	$96.94
GMANR12R30301.500ZrN	20531	1/2	1/2	9/16	5	0.030	1-1/2	ZrN	$96.94
GMANR12R30302.250	20249	1/2	1/2	9/16	5	0.030	2-1/4	UNCOATED	$100.77
GMANR12R30302.250ZrN	20532	1/2	1/2	9/16	5	0.030	2-1/4	ZrN	$100.77
GMANR12R30601.500	20252	1/2	1/2	9/16	5	0.060	1-1/2	UNCOATED	$96.94
GMANR12R30601.500ZrN	20535	1/2	1/2	9/16	5	0.060	1-1/2	ZrN	$96.94
GMANR12R30602.250	20253	1/2	1/2	9/16	5	0.060	2-1/4	UNCOATED	$100.77
GMANR12R30602.250ZrN	20536	1/2	1/2	9/16	5	0.060	2-1/4	ZrN	$100.77
GMANR12R30901.500	20256	1/2	1/2	9/16	5	0.090	1-1/2	UNCOATED	$96.94
GMANR12R30901.500ZrN	20539	1/2	1/2	9/16	5	0.090	1-1/2	ZrN	$96.94
GMANR12R30902.250	20257	1/2	1/2	9/16	5	0.090	2-1/4	UNCOATED	$100.77
GMANR12R30902.250ZrN	20540	1/2	1/2	9/16	5	0.090	2-1/4	ZrN	$100.77
GMANR12R31201.500	20260	1/2	1/2	9/16	5	0.120	1-1/2	UNCOATED	$96.94
GMANR12R31201.500ZrN	20543	1/2	1/2	9/16	5	0.120	1-1/2	ZrN	$96.94
GMANR12R31202.250	20261	1/2	1/2	9/16	5	0.120	2-1/4	UNCOATED	$100.77
GMANR12R31202.250ZrN	20544	1/2	1/2	9/16	5	0.120	2-1/4	ZrN	$100.77

3 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 192

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Lenth of Relief	COATING	LIST PRICE
GMANR12R30153.250	20246	1/2	1/2	9/16	6	0.015	3-1/4	UNCOATED	$135.80
GMANR12R30153.250ZrN	20529	1/2	1/2	9/16	6	0.015	3-1/4	ZrN	$135.80
GMANR12R30154.250	20247	1/2	1/2	9/16	6	0.015	4-1/4	UNCOATED	$143.23
GMANR12R30154.250ZrN	20530	1/2	1/2	9/16	6	0.015	4-1/4	ZrN	$143.23
GMANR12R30303.250	20250	1/2	1/2	9/16	6	0.030	3-1/4	UNCOATED	$135.80
GMANR12R30303.250ZrN	20533	1/2	1/2	9/16	6	0.030	3-1/4	ZrN	$135.80
GMANR12R30304.250	20251	1/2	1/2	9/16	6	0.030	4-1/4	UNCOATED	$143.23
GMANR12R30304.250ZrN	20534	1/2	1/2	9/16	6	0.030	4-1/4	ZrN	$143.23
GMANR12R30603.250	20254	1/2	1/2	9/16	6	0.060	3-1/4	UNCOATED	$135.80
GMANR12R30603.250ZrN	20537	1/2	1/2	9/16	6	0.060	3-1/4	ZrN	$135.80
GMANR12R30604.250	20255	1/2	1/2	9/16	6	0.060	4-1/4	UNCOATED	$143.23
GMANR12R30604.250ZrN	20538	1/2	1/2	9/16	6	0.060	4-1/4	ZrN	$143.23
GMANR12R30903.250	20258	1/2	1/2	9/16	6	0.090	3-1/4	UNCOATED	$135.80
GMANR12R30903.250ZrN	20541	1/2	1/2	9/16	6	0.090	3-1/4	ZrN	$135.80
GMANR12R30904.250	20259	1/2	1/2	9/16	6	0.090	4-1/4	UNCOATED	$143.23
GMANR12R30904.250ZrN	20542	1/2	1/2	9/16	6	0.090	4-1/4	ZrN	$143.23
GMANR12R31203.250	20262	1/2	1/2	9/16	6	0.120	3-1/4	UNCOATED	$135.80
GMANR12R31203.250ZrN	20545	1/2	1/2	9/16	6	0.120	3-1/4	ZrN	$135.80
GMANR12R31204.250	20263	1/2	1/2	9/16	6	0.120	4-1/4	UNCOATED	$143.23
GMANR12R31204.250ZrN	20546	1/2	1/2	9/16	6	0.120	4-1/4	ZrN	$143.23
GMANR58R30301.625	20313	5/8	5/8	3/4	4	0.030	1-5/8	UNCOATED	$163.84
GMANR58R30301.625ZrN	20596	5/8	5/8	3/4	4	0.030	1-5/8	ZrN	$163.84
GMANR58R30302.375	20314	5/8	5/8	3/4	4	0.030	2-3/8	UNCOATED	$184.41
GMANR58R30302.375ZrN	20597	5/8	5/8	3/4	4	0.030	2-3/8	ZrN	$184.41
GMANR58R30601.625	20316	5/8	5/8	3/4	4	0.060	1-5/8	UNCOATED	$163.84
GMANR58R30601.625ZrN	20599	5/8	5/8	3/4	4	0.060	1-5/8	ZrN	$163.84
GMANR58R30602.375	20317	5/8	5/8	3/4	4	0.060	2-3/8	UNCOATED	$184.41
GMANR58R30602.375ZrN	20600	5/8	5/8	3/4	4	0.060	2-3/8	ZrN	$184.41
GMANR58R30901.625	20319	5/8	5/8	3/4	4	0.090	1-5/8	UNCOATED	$163.84
GMANR58R30901.625ZrN	20602	5/8	5/8	3/4	4	0.090	1-5/8	ZrN	$163.84
GMANR58R30902.375	20320	5/8	5/8	3/4	4	0.090	2-3/8	UNCOATED	$184.41
GMANR58R30902.375ZrN	20603	5/8	5/8	3/4	4	0.090	2-3/8	ZrN	$184.41
GMANR58R31201.625	20322	5/8	5/8	3/4	4	0.120	1-5/8	UNCOATED	$163.84
GMANR58R31201.625ZrN	20605	5/8	5/8	3/4	4	0.120	1-5/8	ZrN	$163.84
GMANR58R31202.375	20323	5/8	5/8	3/4	4	0.120	2-3/8	UNCOATED	$184.41
GMANR58R31202.375ZrN	20606	5/8	5/8	3/4	4	0.120	2-3/8	ZrN	$184.41
GMANR58R30303.375	20315	5/8	5/8	3/4	6	0.030	3-3/8	UNCOATED	$204.31

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HIGH PERFORMANCE – NON-FERROUS

3 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 192									
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Lenth of Relief	COATING	LIST PRICE
GMANR58R30303.375ZrN	20598	5/8	5/8	3/4	6	0.030	3-3/8	ZrN	$204.31
GMANR58R30603.375	20318	5/8	5/8	3/4	6	0.060	3-3/8	UNCOATED	$204.31
GMANR58R30603.375ZrN	20601	5/8	5/8	3/4	6	0.060	3-3/8	ZrN	$204.31
GMANR58R30903.375	20321	5/8	5/8	3/4	6	0.090	3-3/8	UNCOATED	$204.31
GMANR58R30903.375ZrN	20604	5/8	5/8	3/4	6	0.090	3-3/8	ZrN	$204.31
GMANR58R31203.375	20324	5/8	5/8	3/4	6	0.120	3-3/8	UNCOATED	$204.31
GMANR58R31203.375ZrN	20607	5/8	5/8	3/4	6	0.120	3-3/8	ZrN	$204.31
GMANR34R30301.500	20276	3/4	3/4	1	6	0.030	1-1/2	UNCOATED	$253.45
GMANR34R30301.500ZrN	20559	3/4	3/4	1	6	0.030	1-1/2	ZrN	$253.45
GMANR34R30302.250	20277	3/4	3/4	1	6	0.030	2-1/4	UNCOATED	$253.45
GMANR34R30302.250ZrN	20560	3/4	3/4	1	6	0.030	2-1/4	ZrN	$253.45
GMANR34R30303.250	20278	3/4	3/4	1	6	0.030	3-1/4	UNCOATED	$274.57
GMANR34R30303.250ZrN	20561	3/4	3/4	1	6	0.030	3-1/4	ZrN	$274.57
GMANR34R30601.500	20280	3/4	3/4	1	6	0.060	1-1/2	UNCOATED	$253.45
GMANR34R30601.500ZrN	20563	3/4	3/4	1	6	0.060	1-1/2	ZrN	$253.45
GMANR34R30602.250	20281	3/4	3/4	1	6	0.060	2-1/4	UNCOATED	$253.45
GMANR34R30602.250ZrN	20564	3/4	3/4	1	6	0.060	2-1/4	ZrN	$253.45
GMANR34R30603.250	20282	3/4	3/4	1	6	0.060	3-1/4	UNCOATED	$274.57
GMANR34R30603.250ZrN	20565	3/4	3/4	1	6	0.060	3-1/4	ZrN	$274.57
GMANR34R30901.500	20284	3/4	3/4	1	6	0.090	1-1/2	UNCOATED	$253.45
GMANR34R30901.500ZrN	20567	3/4	3/4	1	6	0.090	1-1/2	ZrN	$253.45
GMANR34R30902.250	20285	3/4	3/4	1	6	0.090	2-1/4	UNCOATED	$253.45
GMANR34R30902.250ZrN	20568	3/4	3/4	1	6	0.090	2-1/4	ZrN	$253.45
GMANR34R30903.250	20286	3/4	3/4	1	6	0.090	3-1/4	UNCOATED	$274.57
GMANR34R30903.250ZrN	20569	3/4	3/4	1	6	0.090	3-1/4	ZrN	$274.57
GMANR34R31201.500	20288	3/4	3/4	1	6	0.120	1-1/2	UNCOATED	$253.45
GMANR34R31201.500ZrN	20571	3/4	3/4	1	6	0.120	1-1/2	ZrN	$253.45
GMANR34R31202.250	20289	3/4	3/4	1	6	0.120	2-1/4	UNCOATED	$253.45
GMANR34R31202.250ZrN	20572	3/4	3/4	1	6	0.120	2-1/4	ZrN	$253.45
GMANR34R31203.250	20290	3/4	3/4	1	6	0.120	3-1/4	UNCOATED	$274.57
GMANR34R31203.250ZrN	20573	3/4	3/4	1	6	0.120	3-1/4	ZrN	$274.57
GMANR34R31901.500	20292	3/4	3/4	1	6	0.190	1-1/2	UNCOATED	$253.45
GMANR34R31901.500ZrN	20575	3/4	3/4	1	6	0.190	1-1/2	ZrN	$253.45
GMANR34R31902.250	20293	3/4	3/4	1	6	0.190	2-1/4	UNCOATED	$253.45
GMANR34R31902.250ZrN	20576	3/4	3/4	1	6	0.190	2-1/4	ZrN	$253.45
GMANR34R31903.250	20294	3/4	3/4	1	6	0.190	3-1/4	UNCOATED	$274.57
GMANR34R31903.250ZrN	20577	3/4	3/4	1	6	0.190	3-1/4	ZrN	$274.57

3 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 192

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Lenth of Relief	COATING	LIST PRICE
GMANR34R32501.500	20296	3/4	3/4	1	6	0.250	1-1/2	UNCOATED	$253.45
GMANR34R32501.500ZrN	20579	3/4	3/4	1	6	0.250	1-1/2	ZrN	$253.45
GMANR34R32502.250	20297	3/4	3/4	1	6	0.250	2-1/4	UNCOATED	$253.45
GMANR34R32502.250ZrN	20580	3/4	3/4	1	6	0.250	2-1/4	ZrN	$253.45
GMANR34R32503.250	20298	3/4	3/4	1	6	0.250	3-1/4	UNCOATED	$274.57
GMANR34R32503.250ZrN	20581	3/4	3/4	1	6	0.250	3-1/4	ZrN	$274.57
GMANR34R30304.250	20279	3/4	3/4	1	7	0.030	4-1/4	UNCOATED	$281.92
GMANR34R30304.250ZrN	20562	3/4	3/4	1	7	0.030	4-1/4	ZrN	$281.92
GMANR34R30604.250	20283	3/4	3/4	1	7	0.060	4-1/4	UNCOATED	$281.92
GMANR34R30604.250ZrN	20566	3/4	3/4	1	7	0.060	4-1/4	ZrN	$281.92
GMANR34R30904.250	20287	3/4	3/4	1	7	0.090	4-1/4	UNCOATED	$281.92
GMANR34R30904.250ZrN	20570	3/4	3/4	1	7	0.090	4-1/4	ZrN	$281.92
GMANR34R31204.250	20291	3/4	3/4	1	7	0.120	4-1/4	UNCOATED	$281.92
GMANR34R31204.250ZrN	20574	3/4	3/4	1	7	0.120	4-1/4	ZrN	$281.92
GMANR34R31904.250	20295	3/4	3/4	1	7	0.190	4-1/4	UNCOATED	$281.92
GMANR34R31904.250ZrN	20578	3/4	3/4	1	7	0.190	4-1/4	ZrN	$281.92
GMANR34R32504.250	20299	3/4	3/4	1	7	0.250	4-1/4	UNCOATED	$281.92
GMANR34R32504.250ZrN	20582	3/4	3/4	1	7	0.250	4-1/4	ZrN	$281.92
GMANR10R30303.250	20228	1	1	1-1/8	6	0.030	3-1/4	UNCOATED	$407.32
GMANR10R30303.250ZrN	20511	1	1	1-1/8	6	0.030	3-1/4	ZrN	$407.32
GMANR10R30603.250	20230	1	1	1-1/8	6	0.060	3-1/4	UNCOATED	$407.32
GMANR10R30603.250ZrN	20513	1	1	1-1/8	6	0.060	3-1/4	ZrN	$407.32
GMANR10R30903.250	20232	1	1	1-1/8	6	0.090	3-1/4	UNCOATED	$407.32
GMANR10R30903.250ZrN	20515	1	1	1-1/8	6	0.090	3-1/4	ZrN	$407.32
GMANR10R31203.250	20234	1	1	1-1/8	6	0.120	3-1/4	UNCOATED	$407.32
GMANR10R31203.250ZrN	20517	1	1	1-1/8	6	0.120	3-1/4	ZrN	$407.32
GMANR10R31903.250	20236	1	1	1-1/8	6	0.190	3-1/4	UNCOATED	$407.32
GMANR10R31903.250ZrN	20519	1	1	1-1/8	6	0.190	3-1/4	ZrN	$407.32
GMANR10R32503.250	20238	1	1	1-1/8	6	0.250	3-1/4	UNCOATED	$407.32
GMANR10R32503.250ZrN	20521	1	1	1-1/8	6	0.250	3-1/4	ZrN	$407.32
GMANR10R30304.250	20229	1	1	1-1/8	7	0.030	4-1/4	UNCOATED	$458.76
GMANR10R30304.250ZrN	20512	1	1	1-1/8	7	0.030	4-1/4	ZrN	$458.76
GMANR10R30604.250	20231	1	1	1-1/8	7	0.060	4-1/4	UNCOATED	$458.76
GMANR10R30604.250ZrN	20514	1	1	1-1/8	7	0.060	4-1/4	ZrN	$458.76
GMANR10R30904.250	20233	1	1	1-1/8	7	0.090	4-1/4	UNCOATED	$458.76
GMANR10R30904.250ZrN	20516	1	1	1-1/8	7	0.090	4-1/4	ZrN	$458.76
GMANR10R31204.250	20235	1	1	1-1/8	7	0.120	4-1/4	UNCOATED	$458.76

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HIGH PERFORMANCE – NON-FERROUS

3 FLUTE NECK RELIEVED (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 192									
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LOR Lenth of Relief	COATING	LIST PRICE
GMANR10R31204.250ZrN	20518	1	1	1-1/8	7	0.120	4-1/4	ZrN	$458.76
GMANR10R31904.250	20237	1	1	1-1/8	7	0.190	4-1/4	UNCOATED	$458.76
GMANR10R31904.250ZrN	20520	1	1	1-1/8	7	0.190	4-1/4	ZrN	$458.76
GMANR10R32504.250	20239	1	1	1-1/8	7	0.250	4-1/4	UNCOATED	$458.76
GMANR10R32504.250ZrN	20522	1	1	1-1/8	7	0.250	4-1/4	ZrN	$458.76

HIGH PERFORMANCE – NON-FERROUS

3 FLUTE CHIMPBREAKER (INCH) SQUARE

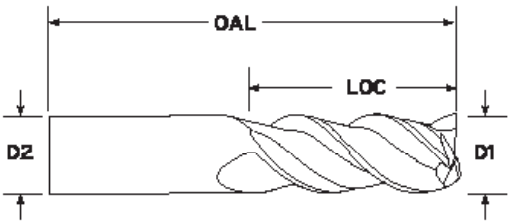
3 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute, variable index and engineered to repel aluminum. For roughing and finishing of non-ferrous materials, aluminum, copper, brass, plastic, etc. High velocity, high material removal rate. Center cutting. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable. THE BEST chip control known to man or ape.

SQUARE END

SPEEDS & FEEDS CHART PAGE 193

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
GMACB38F3	20853	3/8	3/8	7/8	2-1/2	UNCOATED	$35.65
GMACB38F3ZrN	20854	3/8	3/8	7/8	2-1/2	ZrN	$50.18
GMACB38FHL3	20855	3/8	3/8	1	2-1/2	UNCOATED	$35.65
GMACB38FHL3ZrN	20856	3/8	3/8	1	2-1/2	ZrN	$58.68
GMACB12FH3	20705	1/2	1/2	1	3	UNCOATED	$57.09
GMACB12FH3ZrN	20706	1/2	1/2	1	3	ZrN	$68.33
GMACB12F3	20703	1/2	1/2	1-1/4	3	UNCOATED	$57.09
GMACB12F3ZrN	20704	1/2	1/2	1-1/4	3	ZrN	$68.33
GMACB12FL3	20707	1/2	1/2	1-1/2	4	UNCOATED	$70.31
GMACB12FL3ZrN	20708	1/2	1/2	1-1/2	4	ZrN	$87.19
GMACB58F3	20897	5/8	5/8	1-1/4	3-1/2	UNCOATED	$105.99
GMACB58F3ZrN	20898	5/8	5/8	1-1/4	3-1/2	ZrN	$127.19
GMACB58FHL3	20899	5/8	5/8	1-5/8	4	UNCOATED	$113.11
GMACB58FHL3ZrN	20900	5/8	5/8	1-5/8	4	ZrN	$134.69
GMACB58FL3	20901	5/8	5/8	2	4	UNCOATED	$117.71
GMACB58FL3ZrN	20902	5/8	5/8	2	4	ZrN	$141.25
GMACB34F3	20803	3/4	3/4	1-1/2	4	UNCOATED	$157.41
GMACB34F3ZrN	20804	3/4	3/4	1-1/2	4	ZrN	$184.91
GMACB34FL3	20807	3/4	3/4	2	4	UNCOATED	$192.88
GMACB34FL3ZrN	20808	3/4	3/4	2	4	ZrN	$232.99
GMACB34FLH3	20809	3/4	3/4	2-1/4	5	UNCOATED	$217.96
GMACB34FLH3ZrN	20810	3/4	3/4	2-1/4	5	ZrN	$258.89

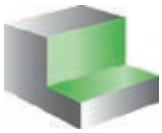


MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



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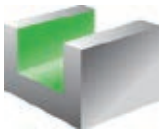

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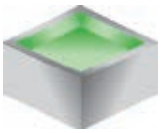
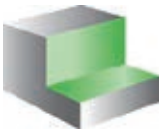


HIGH-VELOCITY



HIGH PERFORMANCE – NON-FERROUS

3 FLUTE CHIMPBREAKER (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 193

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
GMACB38R3015	20859	3/8	3/8	7/8	2-1/2	0.015	UNCOATED	$39.58
GMACB38R3015ZrN	20860	3/8	3/8	7/8	2-1/2	0.015	ZrN	$52.81
GMACB38R3030	20861	3/8	3/8	7/8	2-1/2	0.030	UNCOATED	$39.58
GMACB38R3030ZrN	20862	3/8	3/8	7/8	2-1/2	0.030	ZrN	$52.81
GMACB38R3060	20863	3/8	3/8	7/8	2-1/2	0.060	UNCOATED	$39.58
GMACB38R3060ZrN	20864	3/8	3/8	7/8	2-1/2	0.060	ZrN	$52.81
GMACB38RHL3015	20865	3/8	3/8	1	2-1/2	0.015	UNCOATED	$41.08
GMACB38RHL3015ZrN	20866	3/8	3/8	1	2-1/2	0.015	ZrN	$65.20
GMACB38RHL3030	20867	3/8	3/8	1	2-1/2	0.030	UNCOATED	$41.08
GMACB38RHL3030ZrN	20868	3/8	3/8	1	2-1/2	0.030	ZrN	$65.20
GMACB38RHL3060	20869	3/8	3/8	1	2-1/2	0.060	UNCOATED	$41.08
GMACB38RHL3060ZrN	20870	3/8	3/8	1	2-1/2	0.060	ZrN	$65.20
GMACB12RH3015	20721	1/2	1/2	1	3	0.015	UNCOATED	$60.93
GMACB12RH3015ZrN	20722	1/2	1/2	1	3	0.015	ZrN	$75.93
GMACB12RH3030	20723	1/2	1/2	1	3	0.030	UNCOATED	$60.93
GMACB12RH3030ZrN	20724	1/2	1/2	1	3	0.030	ZrN	$75.93
GMACB12RH3060	20725	1/2	1/2	1	3	0.060	UNCOATED	$60.93
GMACB12RH3060ZrN	20726	1/2	1/2	1	3	0.060	ZrN	$75.93
GMACB12RH3090	20727	1/2	1/2	1	3	0.090	UNCOATED	$60.93
GMACB12RH3090ZrN	20728	1/2	1/2	1	3	0.090	ZrN	$75.93
GMACB12RH3120	20729	1/2	1/2	1	3	0.120	UNCOATED	$60.93
GMACB12RH3120ZrN	20730	1/2	1/2	1	3	0.120	ZrN	$75.93
GMACB12R3015	20711	1/2	1/2	1-1/4	3	0.015	UNCOATED	$66.14
GMACB12R3015ZRN	20712	1/2	1/2	1-1/4	3	0.015	ZrN	$75.93
GMACB12R3030	20713	1/2	1/2	1-1/4	3	0.030	UNCOATED	$66.14
GMACB12R3030ZrN	20714	1/2	1/2	1-1/4	3	0.030	ZrN	$75.93
GMACB12R3060	20715	1/2	1/2	1-1/4	3	0.060	UNCOATED	$66.14
GMACB12R3060ZrN	20716	1/2	1/2	1-1/4	3	0.060	ZrN	$75.93
GMACB12R3090	20717	1/2	1/2	1-1/4	3	0.090	UNCOATED	$66.14
GMACB12R3090ZrN	20718	1/2	1/2	1-1/4	3	0.090	ZrN	$75.93
GMACB12R3120	20719	1/2	1/2	1-1/4	3	0.120	UNCOATED	$66.14
GMACB12R3120ZrN	20720	1/2	1/2	1-1/4	3	0.120	ZrN	$75.93
GMACB12RL3015	20731	1/2	1/2	1-1/2	4	0.015	UNCOATED	$78.13
GMACB12RL3015ZrN	20732	1/2	1/2	1-1/2	4	0.015	ZrN	$96.88
GMACB12RL3030	20733	1/2	1/2	1-1/2	4	0.030	UNCOATED	$78.13
GMACB12RL3030ZrN	20734	1/2	1/2	1-1/2	4	0.030	ZrN	$96.88

3 FLUTE CHIMPBREAKER (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 193

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
GMACB12RL3060	20735	1/2	1/2	1-1/2	4	0.060	UNCOATED	$78.13
GMACB12RL3060ZrN	20736	1/2	1/2	1-1/2	4	0.060	ZrN	$96.88
GMACB12RL3090	20737	1/2	1/2	1-1/2	4	0.090	UNCOATED	$78.13
GMACB12RL3090ZrN	20738	1/2	1/2	1-1/2	4	0.090	ZrN	$96.88
GMACB12RL3120	20739	1/2	1/2	1-1/2	4	0.120	UNCOATED	$78.13
GMACB12RL3120ZrN	20740	1/2	1/2	1-1/2	4	0.120	ZrN	$96.88
GMACB58R3015	20903	5/8	5/8	1-1/4	3-1/2	0.015	UNCOATED	$117.76
GMACB58R3015ZrN	20904	5/8	5/8	1-1/4	3-1/2	0.015	ZrN	$141.32
GMACB58R3030	20905	5/8	5/8	1-1/4	3-1/2	0.030	UNCOATED	$117.76
GMACB58R3030ZrN	20906	5/8	5/8	1-1/4	3-1/2	0.030	ZrN	$141.32
GMACB58R3060	20907	5/8	5/8	1-1/4	3-1/2	0.060	UNCOATED	$117.76
GMACB58R3060ZrN	20908	5/8	5/8	1-1/4	3-1/2	0.060	ZrN	$141.32
GMACB58R3090	20909	5/8	5/8	1-1/4	3-1/2	0.090	UNCOATED	$117.76
GMACB58R3090ZrN	20910	5/8	5/8	1-1/4	3-1/2	0.090	ZrN	$141.32
GMACB58R3120	20911	5/8	5/8	1-1/4	3-1/2	0.120	UNCOATED	$117.76
GMACB58R3120ZrN	20912	5/8	5/8	1-1/4	3-1/2	0.120	ZrN	$141.32
GMACB58RHL3015	20913	5/8	5/8	1-5/8	4	0.015	UNCOATED	$125.69
GMACB58RHL3015ZrN	20914	5/8	5/8	1-5/8	4	0.015	ZrN	$149.66
GMACB58RHL3030	20915	5/8	5/8	1-5/8	4	0.030	UNCOATED	$125.69
GMACB58RHL3030ZrN	20916	5/8	5/8	1-5/8	4	0.030	ZrN	$149.66
GMACB58RHL3060	20917	5/8	5/8	1-5/8	4	0.060	UNCOATED	$125.69
GMACB58RHL3060ZrN	20918	5/8	5/8	1-5/8	4	0.060	ZrN	$149.66
GMACB58RHL3090	20919	5/8	5/8	1-5/8	4	0.090	UNCOATED	$125.69
GMACB58RHL3090ZrN	20920	5/8	5/8	1-5/8	4	0.090	ZrN	$149.66
GMACB58RHL3120	20921	5/8	5/8	1-5/8	4	0.120	UNCOATED	$125.69
GMACB58RHL3120ZrN	20922	5/8	5/8	1-5/8	4	0.120	ZrN	$149.66
GMACB58RL3015	20923	5/8	5/8	2	4	0.015	UNCOATED	$126.57
GMACB58RL3015ZrN	20924	5/8	5/8	2	4	0.015	ZrN	$151.89
GMACB58RL3030	20925	5/8	5/8	2	4	0.030	UNCOATED	$126.57
GMACB58RL3030ZrN	20926	5/8	5/8	2	4	0.030	ZrN	$151.89
GMACB58RL3060	20927	5/8	5/8	2	4	0.060	UNCOATED	$126.57
GMACB58RL3060ZrN	20928	5/8	5/8	2	4	0.060	ZrN	$151.89
GMACB58RL3090	20929	5/8	5/8	2	4	0.090	UNCOATED	$126.57
GMACB58RL3090ZrN	20930	5/8	5/8	2	4	0.090	ZrN	$151.89
GMACB58RL3120	20931	5/8	5/8	2	4	0.120	UNCOATED	$126.57
GMACB58RL3120ZrN	20932	5/8	5/8	2	4	0.120	ZrN	$151.89

Continued on next page

HIGH PERFORMANCE – NON-FERROUS

3 FLUTE CHIMPBREAKER (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 193

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
GMACB34R3015	20811	3/4	3/4	1-1/2	4	0.015	UNCOATED	$165.69
GMACB34R3015ZrN	20812	3/4	3/4	1-1/2	4	0.015	ZrN	$198.82
GMACB34R3030	20813	3/4	3/4	1-1/2	4	0.030	UNCOATED	$165.69
GMACB34R3030ZrN	20814	3/4	3/4	1-1/2	4	0.030	ZrN	$198.82
GMACB34R3060	20815	3/4	3/4	1-1/2	4	0.060	UNCOATED	$165.69
GMACB34R3060ZrN	20816	3/4	3/4	1-1/2	4	0.060	ZrN	$198.82
GMACB34R3090	20817	3/4	3/4	1-1/2	4	0.090	UNCOATED	$165.69
GMACB34R3090ZrN	20818	3/4	3/4	1-1/2	4	0.090	ZrN	$198.82
GMACB34R3120	20819	3/4	3/4	1-1/2	4	0.120	UNCOATED	$165.69
GMACB34R3120ZrN	20820	3/4	3/4	1-1/2	4	0.120	ZrN	$198.82
GMACB34RL3015	20831	3/4	3/4	2	4	0.015	UNCOATED	$203.02
GMACB34RL3015ZrN	20832	3/4	3/4	2	4	0.015	ZrN	$245.25
GMACB34RL3030	20833	3/4	3/4	2	4	0.030	UNCOATED	$203.02
GMACB34RL3030ZrN	20834	3/4	3/4	2	4	0.030	ZrN	$245.25
GMACB34RL3060	20835	3/4	3/4	2	4	0.060	UNCOATED	$203.02
GMACB34RL3060ZrN	20836	3/4	3/4	2	4	0.060	ZrN	$245.25
GMACB34RL3090	20837	3/4	3/4	2	4	0.090	UNCOATED	$203.02
GMACB34RL3090ZrN	20838	3/4	3/4	2	4	0.090	ZrN	$245.25
GMACB34RL3120	20839	3/4	3/4	2	4	0.120	UNCOATED	$203.02
GMACB34RL3120ZrN	20840	3/4	3/4	2	4	0.120	ZrN	$245.25
GMACB34RLH3015	20841	3/4	3/4	2-1/4	5	0.015	UNCOATED	$229.43
GMACB34RLH3015ZrN	20842	3/4	3/4	2-1/4	5	0.015	ZrN	$272.51
GMACB34RLH3030	20843	3/4	3/4	2-1/4	5	0.030	UNCOATED	$229.43
GMACB34RLH3030ZrN	20844	3/4	3/4	2-1/4	5	0.030	ZrN	$272.51
GMACB34RLH3060	20845	3/4	3/4	2-1/4	5	0.060	UNCOATED	$229.43
GMACB34RLH3060ZrN	20846	3/4	3/4	2-1/4	5	0.060	ZrN	$272.51
GMACB34RLH3090	20847	3/4	3/4	2-1/4	5	0.090	UNCOATED	$229.43
GMACB34RLH3090ZrN	20848	3/4	3/4	2-1/4	5	0.090	ZrN	$272.51
GMACB34RLH3120	20849	3/4	3/4	2-1/4	5	0.120	UNCOATED	$229.43
GMACB34RLH3120ZrN	20850	3/4	3/4	2-1/4	5	0.120	ZrN	$272.51

HIGH PERFORMANCE – NON-FERROUS

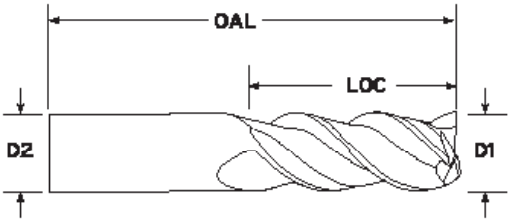
3 FLUTE CHIMPBREAKER (METRIC) SQUARE

3 Flute Chimpbreakers evacuates chips in the toughest applications while decreasing tool pressure. Variable flute, variable index and engineered to repel aluminum. For roughing and finishing of non-ferrous materials, aluminum, copper, brass, plastic, etc. High velocity, high material removal rate. Center cutting. See "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable. THE BEST chip control known to man or ape.

SQUARE END

SPEEDS & FEEDS CHART PAGE 193							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
GMACB1000MMF3	20641	**10mm**	10mm	22mm	70mm	UNCOATED	$41.76
GMACB1000MMF3ZrN	20642	**10mm**	10mm	22mm	70mm	ZrN	$52.81
GMACB1200MMF3	20687	**12mm**	12mm	32mm	75mm	UNCOATED	$57.09
GMACB1200MMF3ZrN	20688	**12mm**	12mm	32mm	75mm	ZrN	$68.33
GMACB1600MMF3	20769	**16mm**	16mm	32mm	89mm	UNCOATED	$105.99
GMACB1600MMF3ZrN	20770	**16mm**	16mm	32mm	88mm	ZrN	$127.19
GMACB2000MMF3	20783	**20mm**	20mm	38mm	100mm	UNCOATED	$172.04
GMACB2000MMF3ZrN	20784	**20mm**	20mm	38mm	100mm	ZrN	$212.16

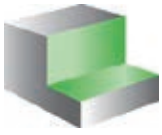


MATERIALS

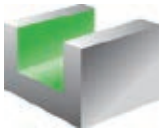
Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING



FULL SLOTTING



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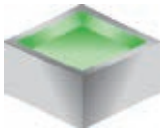
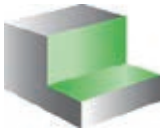


HIGH-VELOCITY



HIGH PERFORMANCE – NON-FERROUS

3 FLUTE CHIMPBREAKER (METRIC) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 193

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
GMACB1000MMR3030	20643	10mm	10mm	22mm	70mm	0.30mm	UNCOATED	$43.95
GMACB1000MMR3030ZrN	20644	10mm	10mm	22mm	70mm	0.30mm	ZrN	$55.60
GMACB1000MMR3050	20645	10mm	10mm	22mm	70mm	0.50mm	UNCOATED	$43.95
GMACB1000MMR3050ZrN	20646	10mm	10mm	22mm	70mm	0.50mm	ZrN	$55.60
GMACB1000MMR3100	20647	10mm	10mm	22mm	70mm	1.0mm	UNCOATED	$43.95
GMACB1000MMR3100ZrN	20648	10mm	10mm	22mm	70mm	1.0mm	ZrN	$55.60
GMACB1200MMR3030	20691	12mm	12mm	32mm	75mm	0.30mm	UNCOATED	$60.93
GMACB1200MMR3030ZrN	20692	12mm	12mm	32mm	75mm	0.30mm	ZrN	$75.93
GMACB1200MMR3050	20693	12mm	12mm	32mm	75mm	0.50mm	UNCOATED	$60.93
GMACB1200MMR3050ZrN	20694	12mm	12mm	32mm	75mm	0.50mm	ZrN	$75.93
GMACB1200MMR3100	20695	12mm	12mm	32mm	75mm	1.0mm	UNCOATED	$60.93
GMACB1200MMR3100ZrN	20696	12mm	12mm	32mm	75mm	1.0mm	ZrN	$75.93
GMACB1200MMR3150	20697	12mm	12mm	32mm	75mm	1.5mm	UNCOATED	$60.93
GMACB1200MMR3150ZrN	20698	12mm	12mm	32mm	75mm	1.5mm	ZrN	$75.93
GMACB1200MMR3200	20699	12mm	12mm	32mm	75mm	2.0mm	UNCOATED	$60.93
GMACB1200MMR3200ZrN	20700	12mm	12mm	32mm	75mm	2.0mm	ZrN	$75.93
GMACB1600MMR3030	20771	16mm	16mm	32mm	89mm	0.30mm	UNCOATED	$117.76
GMACB1600MMR3030ZrN	20772	16mm	16mm	32mm	89mm	0.30mm	ZrN	$141.32
GMACB1600MMR3050	20773	16mm	16mm	32mm	89mm	0.50mm	UNCOATED	$117.76
GMACB1600MMR3050ZrN	20774	16mm	16mm	32mm	89mm	0.50mm	ZrN	$141.32
GMACB1600MMR3100	20775	16mm	16mm	32mm	89mm	1.0mm	UNCOATED	$117.76
GMACB1600MMR3100ZrN	20776	16mm	16mm	32mm	89mm	1.0mm	ZrN	$141.32
GMACB1600MMR3200	20777	16mm	16mm	32mm	89mm	2.0mm	UNCOATED	$117.76
GMACB1600MMR3200ZrN	20778	16mm	16mm	32mm	89mm	2.0mm	ZrN	$141.32
GMACB2000MMR3050	20785	20mm	20mm	38mm	100mm	0.50mm	UNCOATED	$177.15
GMACB2000MMR3050ZrN	20786	20mm	20mm	38mm	100mm	0.50mm	ZrN	$217.57
GMACB2000MMR3100	20787	20mm	20mm	38mm	100mm	1.0mm	UNCOATED	$177.15
GMACB2000MMR3100ZrN	20788	20mm	20mm	38mm	100mm	1.0mm	ZrN	$217.57
GMACB2000MMR3150	20789	20mm	20mm	38mm	100mm	1.5mm	UNCOATED	$177.15
GMACB2000MMR3150ZrN	20790	20mm	20mm	38mm	100mm	1.5mm	ZrN	$217.57

HIGH PERFORMANCE – NON-FERROUS
3 FLUTE ROUGHERS (INCH) CHAMFER

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for extremely aggressive machining aluminum and non-ferrous applications in all materials including aluminum, copper, brass, plastic, etc. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart below. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

ROUGHERS

SPEEDS & FEEDS CHART PAGE 194								
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK STYLE	COATING	LIST PRICE
GMAKD38CS3	50026	3/8	3/8	9/16	2		UNCOATED	$84.52
GMAKD38CS3ZrN	50113	3/8	3/8	9/16	2		ZrN	$84.52
GMAKD38C3	50025	3/8	3/8	7/8	2-1/2		UNCOATED	$88.00
GMAKD38C3ZrN	50112	3/8	3/8	7/8	2-1/2		ZrN	$88.00
GMAKD12CS3	50015	1/2	1/2	5/8	2-1/2	WELDON FLAT	UNCOATED	$107.68
GMAKD12CS3ZrN	50102	1/2	1/2	5/8	2-1/2	WELDON FLAT	ZrN	$107.68
GMAKD12CH3	50014	1/2	1/2	1	3	WELDON FLAT	UNCOATED	$114.63
GMAKD12CH3ZrN	50101	1/2	1/2	1	3	WELDON FLAT	ZrN	$114.63
GMAKD12C3	50013	1/2	1/2	1-1/4	3	WELDON FLAT	UNCOATED	$114.63
GMAKD12C3ZrN	50100	1/2	1/2	1-1/4	3	WELDON FLAT	ZrN	$114.63
GMAKD58CS3	50028	5/8	5/8	7/8	3-1/2	WELDON FLAT	UNCOATED	$187.57
GMAKD58CS3ZrN	50115	5/8	5/8	7/8	3-1/2	WELDON FLAT	ZrN	$187.57
GMAKD58C3	50027	5/8	5/8	1-1/4	3-1/2	WELDON FLAT	UNCOATED	$202.04
GMAKD58C3ZrN	50114	5/8	5/8	1-1/4	3-1/2	WELDON FLAT	ZrN	$202.04

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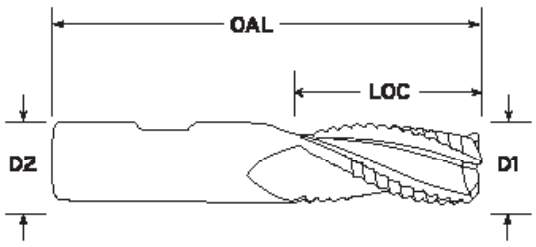
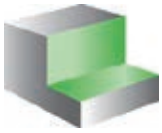


MATERIALS

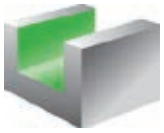
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018,8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



FULL SLOTTING



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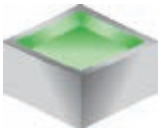
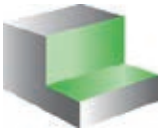


HIGH-VELOCITY



HIGH PERFORMANCE – NON-FERROUS
3 FLUTE ROUGHERS (INCH) CHAMFER

ROUGHERS

SPEEDS & FEEDS CHART PAGE 194								
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK STYLE	COATING	LIST PRICE
GMAKD34CS3	50024	3/4	3/4	1	4	WELDON FLAT	UNCOATED	$207.20
GMAKD34CS3ZrN	50111	3/4	3/4	1	4	WELDON FLAT	ZrN	$207.20
GMAKD34C3	50022	3/4	3/4	1-5/8	4	WELDON FLAT	UNCOATED	$238.20
GMAKD34C3ZrN	50109	3/4	3/4	1-5/8	4	WELDON FLAT	ZrN	$238.20
GMAKD34CLH3	50023	3/4	3/4	2-1/4	5	WELDON FLAT	UNCOATED	$324.89
GMAKD34CLH3ZrN	50110	3/4	3/4	2-1/4	5	WELDON FLAT	ZrN	$324.89
GMAKD10CS3	50009	1	1	1	4	WELDON FLAT	UNCOATED	$310.21
GMAKD10CS3ZrN	50096	1	1	1	4	WELDON FLAT	ZrN	$310.21
GMAKD10C3	50008	1	1	1-3/4	4	WELDON FLAT	UNCOATED	$330.24
GMAKD10C3ZrN	50095	1	1	1-3/4	4	WELDON FLAT	ZrN	$330.24

HIGH PERFORMANCE – NON-FERROUS
3 FLUTE ROUGHERS (METRIC) CHAMFER

Variable flute and index design which reduces chatter and vibration. Radius corners for stronger edges and part radius. Recommended for extremely aggressive machining aluminum and non-ferrous applications in all materials including aluminum, copper, brass, plastic, etc. Should be run at specific parameters. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart below. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths and completely resharpenable.

ROUGHERS

SPEEDS & FEEDS CHART PAGE 194

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK STYLE	COATING	LIST PRICE
GMAKD0600MMCS3	50001	6mm	6mm	12mm	50mm	–	UNCOATED	$72.94
GMAKD0600MMCS3ZrN	50088	6mm	6mm	12mm	50mm	–	ZrN	$72.94
GMAKD0600MMC3	50000	6mm	6mm	19mm	65mm	–	UNCOATED	$77.57
GMAKD0600MMC3ZrN	50087	6mm	6mm	19mm	65mm	–	ZrN	$77.57
GMAKD0800MMCS3	50004	8mm	8mm	12mm	50mm	–	UNCOATED	$78.73
GMAKD0800MMCS3ZrN	50091	8mm	8mm	12mm	50mm	–	ZrN	$78.73
GMAKD0800MMC3	50002	8mm	8mm	22mm	65mm	–	UNCOATED	$82.80
GMAKD0800MMC3ZrN	50089	8mm	8mm	22mm	65mm	–	ZrN	$82.80
GMAKD0800MMCL3	50003	8mm	8mm	40mm	100mm	–	UNCOATED	$121.22
GMAKD0800MMCL3ZrN	50090	8mm	8mm	40mm	100mm	–	ZrN	$121.22
GMAKD1000MMCS3	50007	10mm	10mm	16mm	50mm		UNCOATED	$89.65
GMAKD1000MMCS3ZrN	50094	10mm	10mm	16mm	50mm		ZrN	$89.65
GMAKD1000MMC3	50005	10mm	10mm	22mm	70mm		UNCOATED	$93.33
GMAKD1000MMC3ZrN	50092	10mm	10mm	22mm	70mm		ZrN	$93.33
GMAKD1000MMCL3	50006	10mm	10mm	40mm	100mm		UNCOATED	$124.86
GMAKD1000MMCL3ZrN	50093	10mm	10mm	40mm	100mm		ZrN	$124.86
GMAKD1200MMCS3	50012	12mm	12mm	19mm	63mm	WELDON FLAT	UNCOATED	$103.68
GMAKD1200MMCS3ZrN	50099	12mm	12mm	19mm	63mm	WELDON FLAT	ZrN	$103.68
GMAKD1200MMC3	50010	12mm	12mm	32mm	75mm	WELDON FLAT	UNCOATED	$110.33
GMAKD1200MMC3ZrN	50097	12mm	12mm	32mm	75mm	WELDON FLAT	ZrN	$110.33
GMAKD1200MMCL3	50011	12mm	12mm	50mm	100mm	WELDON FLAT	UNCOATED	$157.29
GMAKD1200MMCL3ZrN	50098	12mm	12mm	50mm	100mm	WELDON FLAT	ZrN	$157.29

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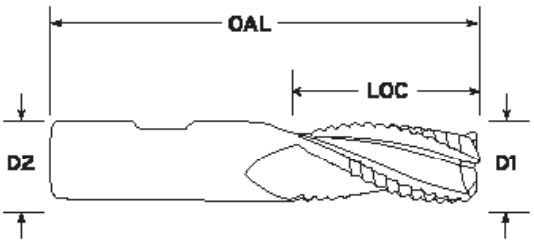
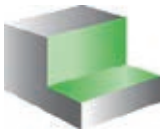


MATERIALS

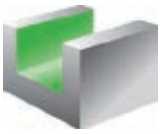
Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018,8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

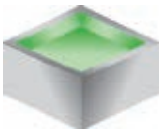
PROFILING



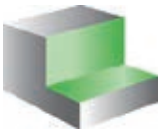
FULL SLOTTING



POCKETING



HIGH-VELOCITY

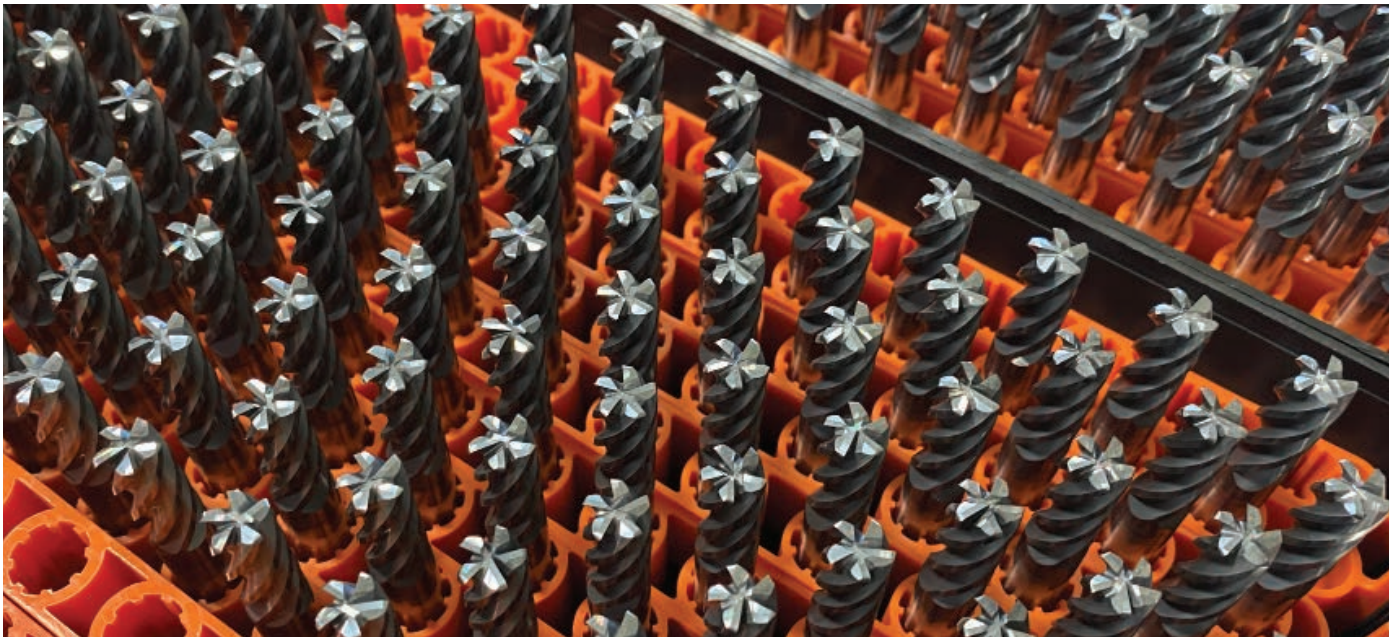


HIGH PERFORMANCE – NON-FERROUS
3 FLUTE ROUGHERS (METRIC) CHAMFER


ROUGHERS

SPEEDS & FEEDS CHART PAGE 194

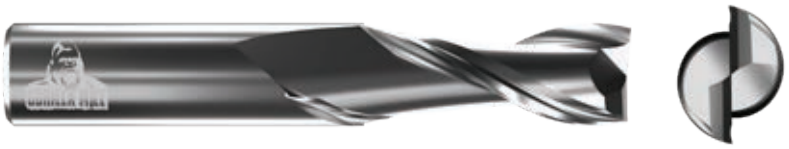
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK STYLE	COATING	LIST PRICE
GMAKD1600MMCS3	50017	16mm	16mm	19mm	75mm	WELDON FLAT	UNCOATED	$179.09
GMAKD1600MMCS3ZrN	50104	16mm	16mm	19mm	75mm	WELDON FLAT	ZrN	$179.09
GMAKD1600MMC3	50016	16mm	16mm	32mm	89mm	WELDON FLAT	UNCOATED	$202.60
GMAKD1600MMC3ZrN	50103	16mm	16mm	32mm	88mm	WELDON FLAT	ZrN	$202.60
GMAKD2000MMCS3	50019	20mm	20mm	22mm	75mm	WELDON FLAT	UNCOATED	$212.78
GMAKD2000MMCS3ZrN	50106	20mm	20mm	22mm	75mm	WELDON FLAT	ZrN	$212.78
GMAKD2000MMC3	50018	20mm	20mm	38mm	100mm	WELDON FLAT	UNCOATED	$244.31
GMAKD2000MMC3ZrN	50105	20mm	20mm	38mm	100mm	WELDON FLAT	ZrN	$244.31
GMAKD2500MMCS3	50021	25mm	25mm	25mm	100mm	WELDON FLAT	UNCOATED	$303.08
GMAKD2500MMCS3ZrN	50108	25mm	25mm	25mm	100mm	WELDON FLAT	ZrN	$303.08
GMAKD2500MMC3	50020	25mm	25mm	38mm	100mm	WELDON FLAT	UNCOATED	$323.04
GMAKD2500MMC3ZrN	50107	25mm	25mm	38mm	100mm	WELDON FLAT	ZrN	$323.04



HIGH PERFORMANCE – NON-FERROUS
2 FLUTE (INCH) SQUARE

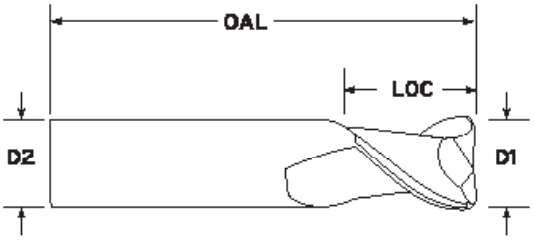
Engineered to repel aluminum. For roughing and finishing of non-ferrous materials, aluminum, copper, brass, plastic, etc. High velocity, high material removal rate. Center cutting. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available.

Available in special diameters, lengths, ZrN coating and completely resharpenable.



SQUARE END

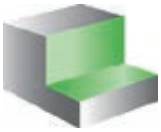
SPEEDS & FEEDS CHART PAGE 195						
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	LIST PRICE
GMA18F2	20115	1/8	1/8	1/2	2-1/2	$28.35
GMA316F2	20128	3/16	3/16	5/8	3	$29.09
GMA14F2	20095	1/4	1/4	3/4	3	$31.28
GMA516F2	20180	5/16	5/16	7/8	3	$41.51
GMA38F2	20163	3/8	3/8	7/8	3	$44.24
GMA716F2	20217	7/16	7/16	1	3	$59.09
GMA12F2	20064	1/2	1/2	1-1/4	3-1/2	$69.51
GMA58F2	20193	5/8	5/8	1-1/4	3-1/2	$123.40
GMA34F2	20133	3/4	3/4	1-1/2	4	$181.00
GMA10F2	20031	1	1	1-1/2	4	$284.85



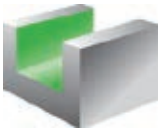
MATERIALS
Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Cast Aluminum (6% Silcon & >), Brass, Bronze

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING



FULL SLOTTING



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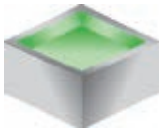
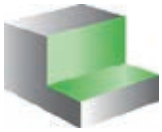


HIGH-VELOCITY



HIGH PERFORMANCE – NON-FERROUS
2 FLUTE (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 195							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	LIST PRICE
GMA18R2015	20117	1/8	1/8	1/2	2-1/2	0.015	$29.90
GMA18R2030	20118	1/8	1/8	1/2	2-1/2	0.030	$29.90
GMA316R2015	20130	3/16	3/16	5/8	3	0.015	$32.33
GMA316R2030	20131	3/16	3/16	5/8	3	0.030	$32.33
GMA14R2015	20098	1/4	1/4	3/4	3	0.015	$34.75
GMA14R2030	20099	1/4	1/4	3/4	3	0.030	$34.75
GMA14R2060	20100	1/4	1/4	3/4	3	0.060	$34.75
GMA516R2015	20183	5/16	5/16	7/8	3	0.015	$46.10
GMA516R2030	20184	5/16	5/16	7/8	3	0.030	$46.10
GMA516R2060	20185	5/16	5/16	7/8	3	0.060	$46.10
GMA38R2015	20167	3/8	3/8	7/8	3	0.015	$49.14
GMA38R2030	20168	3/8	3/8	7/8	3	0.030	$49.14
GMA38R2060	20169	3/8	3/8	7/8	3	0.060	$49.14
GMA716R2015	20219	7/16	7/16	1	3	0.015	$70.22
GMA716R2030	20220	7/16	7/16	1	3	0.030	$70.24
GMA716R2060	20221	7/16	7/16	1	3	0.060	$70.24
GMA12R2015	20069	1/2	1/2	1-1/4	3-1/2	0.015	$77.27
GMA12R2030	20070	1/2	1/2	1-1/4	3-1/2	0.030	$77.27
GMA12R2060	20071	1/2	1/2	1-1/4	3-1/2	0.060	$77.27
GMA12R2090	20072	1/2	1/2	1-1/4	3-1/2	0.090	$77.27
GMA12R2120	20073	1/2	1/2	1-1/4	3-1/2	0.120	$77.27
GMA58R2030	20197	5/8	5/8	1-1/4	3-1/2	0.030	$129.83
GMA58R2060	20198	5/8	5/8	1-1/4	3-1/2	0.060	$129.83
GMA58R2090	20199	5/8	5/8	1-1/4	3-1/2	0.090	$129.83
GMA58R2120	20200	5/8	5/8	1-1/4	3-1/2	0.120	$129.83
GMA34R2030	20138	3/4	3/4	1-1/2	4	0.030	$190.34
GMA34R2060	20139	3/4	3/4	1-1/2	4	0.060	$190.34
GMA34R2090	20140	3/4	3/4	1-1/2	4	0.090	$190.34
GMA34R2120	20141	3/4	3/4	1-1/2	4	0.120	$190.34
GMA10R2030	20035	1	1	1-1/2	4	0.030	$299.85
GMA10R2060	20036	1	1	1-1/2	4	0.060	$299.85
GMA10R2090	20037	1	1	1-1/2	4	0.090	$299.85
GMA10R2120	20038	1	1	1-1/2	4	0.120	$299.85

DIE MOLD
2 FLUTE (INCH & METRIC) BALLNOSE

Recommended for aggressive machining applications in die, mold and tool steels, (H-13, P-20, A7, D2, etc.). Should be run at specific parameters. Produced with the highest Transverse Rupture Strength (TRS) nano-grain carbide substrate available. See "Speeds and Feeds" calculator at gorillamill.com or refer to "Speeds and Feeds" chart at the back of the catalog.

Available in special diameters, lengths and completely resharpenable.

2 FLUTE (INCH)

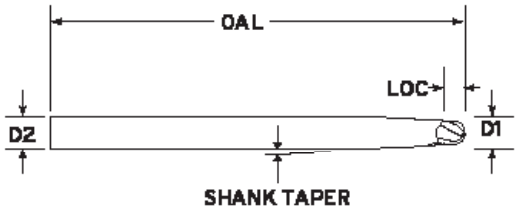
GMS² COATED

SPEEDS & FEEDS CHART PAGE 196							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK TAPER	LIST PRICE
DMC132B2TS3	60011	1/32	1/4	1/32	3	3°	$49.42
DMC116B2TS3	60008	1/16	1/4	1/16	3	3°	$49.42
DMC18B2TS3	60013	1/8	1/4	1/8	3	3°	$49.42
DMC316B2TS3	60014	3/16	1/4	3/16	3	3°	$48.71
DMC14B2	60012	1/4	1/4	1/4	3	—	$47.68
DMC516B2	60016	5/16	5/16	5/16	4	—	$58.36
DMC38B2	60015	3/8	3/8	3/8	4	—	$64.61
DMC12B2	60010	1/2	1/2	1/2	4	—	$94.26

2 FLUTE (METRIC)

GMS² COATED

SPEEDS & FEEDS CHART PAGE 197							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	SHANK TAPER	LIST PRICE
DMC0100MMB2TS3	60000	1mm	6mm	1mm	76mm	3°	$49.42
DMC0200MMB2TS3	60001	2mm	6mm	2mm	76mm	3°	$49.42
DMC0300MMB2TS3	60002	3mm	6mm	3mm	76mm	3°	$49.42
DMC0400MMB2TS3	60003	4mm	6mm	4mm	76mm	3°	$48.71
DMC0500MMB2TS3	60004	5mm	6mm	5mm	76mm	3°	$48.71
DMC0600MMB2	60005	6mm	6mm	6mm	76mm	—	$47.68
DMC0800MMB2	60006	8mm	8mm	8mm	100mm	—	$58.36
DMC1000MMB2	60007	10mm	10mm	10mm	100mm	—	$69.91
DMC1200MMB2	60009	12mm	12mm	12mm	100mm	—	$84.61



MATERIALS

Gray Cast Iron, Ductile Iron, Soft Steels, (A36,1018, 8620,1045), Alloy Steels, (4340, 4140), 4140 Pre-Hard (38 to 42 Rc), Tool Steels (A2,D2,S7), Die Steels, (H13,P20), Stainless Steel, (303, 304, 316), Difficult Stainless Steel, (400 & PH Series), Stainless Steel (13-8), High Temperature Alloys, Titanium (6AL4V), Inconel 718, Inconel 625

TOLERANCES	TOLERANCES
Cut Dia +.000/-.001	Cut Dia +.000/-.050mm
Shank Dia -.0001/-.0005	Shank Dia -.0025/-.0127mm
LOC +.025/+.050	LOC +.635/+1.270mm
OAL +/-.050	OAL +/-1.270mm

PROFILING

POCKETING

HIGH-VELOCITY

STANDARD PERFORMANCE
2 & 4 FLUTE (INCH) SQUARE

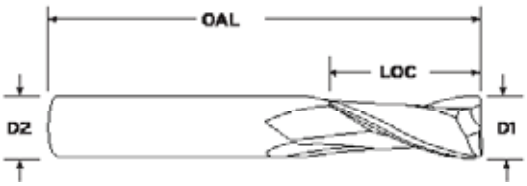
Extremely versatile in various materials, center cutting, solid sub-micron carbide. See “Speeds and Feeds” calculator at gorillamill.com or refer to ”Speeds and Feeds” chart at the back of the catalog.

Available in special diameters, lengths and completely resharpenable.

SQUARE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM164F2	70672	CEM164F4	70675	1/64	1/8	1/32	1-1/2	UNCOATED	$13.78
CEM164F2TiALN	70673	CEM164F4TiALN	70676	1/64	1/8	1/32	1-1/2	TiALN	$18.46
CEM164F2TiCN	70674	CEM164F4TiCN	70677	1/64	1/8	1/32	1-1/2	TiCN	$18.46
CEM132F2	70510	CEM132F4	70513	1/32	1/8	5/64	1-1/2	UNCOATED	$9.23
CEM132F2TiALN	70511	CEM132F4TiALN	70514	1/32	1/8	5/64	1-1/2	TiALN	$12.48
CEM132F2TiCN	70512	CEM132F4TiCN	70515	1/32	1/8	5/64	1-1/2	TiCN	$12.48
CEM364F2	71104	CEM364F4	71107	3/64	1/8	7/64	1-1/2	UNCOATED	$7.89
CEM364F2TiALN	71105	CEM364F4TiALN	71108	3/64	1/8	7/64	1-1/2	TiALN	$10.63
CEM364F2TiCN	71106	CEM364F4TiCN	71109	3/64	1/8	7/64	1-1/2	TiCN	$10.63
CEM116F2	70318	CEM116F4	70324	1/16	1/8	3/16	1-1/2	UNCOATED	$7.88
CEM116F2TiALN	70319	CEM116F4TiALN	70325	1/16	1/8	3/16	1-1/2	TiALN	$9.04
CEM116F2TiCN	70320	CEM116F4TiCN	70326	1/16	1/8	3/16	1-1/2	TiCN	$9.04
CEM564F2	71293	CEM564F4	71296	5/64	1/8	3/16	1-1/2	UNCOATED	$8.13
CEM564F2TiALN	71294	CEM564F4TiALN	71297	5/64	1/8	3/16	1-1/2	TiALN	$10.96
CEM564F2TiCN	71295	CEM564F4TiCN	71298	5/64	1/8	3/16	1-1/2	TiCN	$10.96
CEM332F2	70960	CEM332F4	70966	3/32	1/8	3/8	1-1/2	UNCOATED	$7.16
CEM332F2TiALN	70961	CEM332F4TiALN	70967	3/32	1/8	3/8	1-1/2	TiALN	$9.04
CEM332F2TiCN	70962	CEM332F4TiCN	70968	3/32	1/8	3/8	1-1/2	TiCN	$9.04
CEM764F2	71422	CEM764F4	71425	7/64	1/8	3/8	1-1/2	UNCOATED	$7.46
CEM764F2TiALN	71423	CEM764F4TiALN	71426	7/64	1/8	3/8	1-1/2	TiALN	$10.06
CEM764F2TiCN	71424	CEM764F4TiCN	71427	7/64	1/8	3/8	1-1/2	TiCN	$10.06
CEM18F2	70708	CEM18F4	70714	1/8	1/8	1/2	1-1/2	UNCOATED	$6.86
CEM18F2TiALN	70709	CEM18F4TiALN	70715	1/8	1/8	1/2	1-1/2	TiALN	$8.40
CEM18F2TiCN	70710	CEM18F4TiCN	70716	1/8	1/8	1/2	1-1/2	TiCN	$8.40
CEM18FL2	70717	CEM18FL4	70720	1/8	1/8	3/4	2-1/2	UNCOATED	$11.07
CEM18FL2TiALN	70718	CEM18FL4TiALN	70721	1/8	1/8	3/4	2-1/2	TiALN	$14.25
CEM18FL2TiCN	70719	CEM18FL4TiCN	70722	1/8	1/8	3/4	2-1/2	TiCN	$14.25



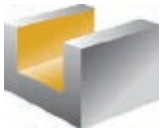
MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING

FULL SLOTTING



POCKETING

HIGH-VELOCITY

2 & 4 FLUTE (INCH) SQUARE

SQUARE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM18FXL2	70723	CEM18FXL4	70726	1/8	1/8	1	3	UNCOATED	$12.39
CEM18FXL2TiALN	70724	CEM18FXL4TiALN	70727	1/8	1/8	1	3	TiALN	$16.72
CEM18FXL2TiCN	70725	CEM18FXL4TiCN	70728	1/8	1/8	1	3	TiCN	$16.72
CEM964F2	71464	CEM964F4	71467	9/64	3/16	1/2	2	UNCOATED	$10.05
CEM964F2TiALN	71465	CEM964F4TiALN	71468	9/64	3/16	1/2	2	TiALN	$13.56
CEM964F2TiCN	71466	CEM964F4TiCN	71469	9/64	3/16	1/2	2	TiCN	$13.56
CEM532F2	71278	CEM532F4	71284	5/32	3/16	1/2	2	UNCOATED	$10.10
CEM532F2TiALN	71279	CEM532F4TiALN	71285	5/32	3/16	1/2	2	TiALN	$11.72
CEM532F2TiCN	71280	CEM532F4TiCN	71286	5/32	3/16	1/2	2	TiCN	$11.72
CEM1164F2	70306	CEM1164F4	70309	11/64	3/16	5/8	2	UNCOATED	$9.60
CEM1164F2TiALN	70307	CEM1164F4TiALN	70310	11/64	3/16	5/8	2	TiALN	$12.98
CEM1164F2TiCN	70308	CEM1164F4TiCN	70311	11/64	3/16	5/8	2	TiCN	$12.98
CEM316F2	70909	CEM316F4	70915	3/16	3/16	5/8	2	UNCOATED	$9.34
CEM316F2TiALN	70910	CEM316F4TiALN	70916	3/16	3/16	5/8	2	TiALN	$11.72
CEM316F2TiCN	70911	CEM316F4TiCN	70917	3/16	3/16	5/8	2	TiCN	$11.72
CEM316FL2	70918	CEM316FL4	70921	3/16	3/16	1-1/8	3	UNCOATED	$13.47
CEM316FL2TiALN	70919	CEM316FL4TiALN	70922	3/16	3/16	1-1/8	3	TiALN	$17.30
CEM316FL2TiCN	70920	CEM316FL4TiCN	70923	3/16	3/16	1-1/8	3	TiCN	$17.30
CEM316FXL2	70924	CEM316FXL4	70927	3/16	3/16	1-1/8	4	UNCOATED	$16.45
CEM316FXL2TiALN	70925	CEM316FXL4TiALN	70928	3/16	3/16	1-1/8	4	TiALN	$18.78
CEM316FXL2TiCN	70926	CEM316FXL4TiCN	70929	3/16	3/16	1-1/8	4	TiCN	$18.78
CEM1364F2	70522	CEM1364F4	70525	13/64	1/4	5/8	2-1/2	UNCOATED	$13.65
CEM1364F2TiALN	70523	CEM1364F4TiALN	70526	13/64	1/4	5/8	2-1/2	TiALN	$17.89
CEM1364F2TiCN	70524	CEM1364F4TiCN	70527	13/64	1/4	5/8	2-1/2	TiCN	$17.89
CEM732F2	71407	CEM732F4	71413	7/32	1/4	5/8	2-1/2	UNCOATED	$13.94
CEM732F2TiALN	71408	CEM732F4TiALN	71414	7/32	1/4	5/8	2-1/2	TiALN	$16.19
CEM732F2TiCN	71409	CEM732F4TiCN	71415	7/32	1/4	5/8	2-1/2	TiCN	$16.19
CEM1564F2	70615	CEM1564F4	70618	15/64	1/4	3/4	2-1/2	UNCOATED	$15.74
CEM1564F2TiALN	70616	CEM1564F4TiALN	70619	15/64	1/4	3/4	2-1/2	TiALN	$20.29
CEM1564F2TiCN	70617	CEM1564F4TiCN	70620	15/64	1/4	3/4	2-1/2	TiCN	$20.29
CEM14F2	70552	CEM14F4	70558	1/4	1/4	3/4	2-1/2	UNCOATED	$11.54
CEM14F2TiALN	70553	CEM14F4TiALN	70559	1/4	1/4	3/4	2-1/2	TiALN	$16.19
CEM14F2TiCN	70554	CEM14F4TiCN	70560	1/4	1/4	3/4	2-1/2	TiCN	$16.19
CEM14FL2	70561	CEM14FL4	70564	1/4	1/4	1-1/8	3	UNCOATED	$18.61
CEM14FL2TiALN	70562	CEM14FL4TiALN	70565	1/4	1/4	1-1/8	3	TiALN	$24.00
CEM14FL2TiCN	70563	CEM14FL4TiCN	70566	1/4	1/4	1-1/8	3	TiCN	$24.00
CEM14FXL2	70567	CEM14FXL4	70570	1/4	1/4	1-1/2	4	UNCOATED	$20.17
CEM14FXL2TiALN	70568	CEM14FXL4TiALN	70571	1/4	1/4	1-1/2	4	TiALN	$25.29
CEM14FXL2TiCN	70569	CEM14FXL4TiCN	70572	1/4	1/4	1-1/2	4	TiCN	$25.29

Continued on next page

STANDARD PERFORMANCE
2 & 4 FLUTE (INCH) SQUARE

SQUARE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM14FXXL2	70573	CEM14FXXL4	70576	1/4	1/4	1-1/2	6	UNCOATED	$25.73
CEM14FXXL2TiALN	70574	CEM14FXXL4TiALN	70577	1/4	1/4	1-1/2	6	TiALN	$33.09
CEM14FXXL2TiCN	70575	CEM14FXXL4TiCN	70578	1/4	1/4	1-1/2	6	TiCN	$33.09
CEM1764F2	70684	CEM1764F4	70687	17/64	5/16	3/4	2-1/2	UNCOATED	$20.81
CEM1764F2TiALN	70685	CEM1764F4TiALN	70688	17/64	5/16	3/4	2-1/2	TiALN	$26.74
CEM1764F2TiCN	70686	CEM1764F4TiCN	70689	17/64	5/16	3/4	2-1/2	TiCN	$26.74
CEM932F2	71449	CEM932F4	71455	9/32	5/16	3/4	2-1/2	UNCOATED	$20.81
CEM932F2TiALN	71450	CEM932F4TiALN	71456	9/32	5/16	3/4	2-1/2	TiALN	$26.74
CEM932F2TiCN	71451	CEM932F4TiCN	71457	9/32	5/16	3/4	2-1/2	TiCN	$26.74
CEM1964F2	70759	CEM1964F4	70762	19/64	5/16	7/8	2-1/2	UNCOATED	$20.81
CEM1964F2TiALN	70760	CEM1964F4TiALN	70763	19/64	5/16	7/8	2-1/2	TiALN	$26.74
CEM1964F2TiCN	70761	CEM1964F4TiCN	70764	19/64	5/16	7/8	2-1/2	TiCN	$26.74
CEM516F2	71221	CEM516F4	71227	5/16	5/16	7/8	2-1/2	UNCOATED	$15.02
CEM516F2TiALN	71222	CEM516F4TiALN	71228	5/16	5/16	7/8	2-1/2	TiALN	$19.38
CEM516F2TiCN	71223	CEM516F4TiCN	71229	5/16	5/16	7/8	2-1/2	TiCN	$19.38
CEM516FL2	71230	CEM516FL4	71233	5/16	5/16	1-1/8	3	UNCOATED	$21.01
CEM516FL2TiALN	71231	CEM516FL4TiALN	71234	5/16	5/16	1-1/8	3	TiALN	$28.35
CEM516FL2TiCN	71232	CEM516FL4TiCN	71235	5/16	5/16	1-1/8	3	TiCN	$28.35
CEM516FXL2	71236	CEM516FXL4	71239	5/16	5/16	1-5/8	4	UNCOATED	$25.97
CEM516FXL2TiALN	71237	CEM516FXL4TiALN	71240	5/16	5/16	1-5/8	4	TiALN	$33.51
CEM516FXL2TiCN	71238	CEM516FXL4TiCN	71241	5/16	5/16	1-5/8	4	TiCN	$33.51
CEM2164F2	70804	CEM2164F4	70807	21/64	3/8	7/8	2-1/2	UNCOATED	$23.34
CEM2164F2TiALN	70805	CEM2164F4TiALN	70808	21/64	3/8	7/8	2-1/2	TiALN	$30.01
CEM2164F2TiCN	70806	CEM2164F4TiCN	70809	21/64	3/8	7/8	2-1/2	TiCN	$30.01
CEM2364F2	70816	CEM2364F4	70819	23/64	3/8	7/8	2-1/2	UNCOATED	$23.34
CEM2364F2TiALN	70817	CEM2364F4TiALN	70820	23/64	3/8	7/8	2-1/2	TiALN	$30.01
CEM2364F2TiCN	70818	CEM2364F4TiCN	70821	23/64	3/8	7/8	2-1/2	TiCN	$30.01
CEM38F2	71140	CEM38F4	71146	3/8	3/8	7/8	2-1/2	UNCOATED	$17.92
CEM38F2TiALN	71141	CEM38F4TiALN	71147	3/8	3/8	7/8	2-1/2	TiALN	$22.16
CEM38F2TiCN	71142	CEM38F4TiCN	71148	3/8	3/8	7/8	2-1/2	TiCN	$22.16
CEM38FL2	71149	CEM38FL4	71152	3/8	3/8	1-1/8	3	UNCOATED	$24.10
CEM38FL2TiALN	71150	CEM38FL4TiALN	71153	3/8	3/8	1-1/8	3	TiALN	$32.54
CEM38FL2TiCN	71151	CEM38FL4TiCN	71154	3/8	3/8	1-1/8	3	TiCN	$32.54
CEM38FXXL2	71167	CEM38FXXL4	71170	3/8	3/8	1-1/2	6	UNCOATED	$44.65
CEM38FXXL2TiALN	71168	CEM38FXXL4TiALN	71171	3/8	3/8	1-1/2	6	TiALN	$57.55
CEM38FXXL2TiCN	71169	CEM38FXXL4TiCN	71172	3/8	3/8	1-1/2	6	TiCN	$57.55
CEM38FXL2	71161	CEM38FXL4	71164	3/8	3/8	2	4	UNCOATED	$29.48
CEM38FXL2TiALN	71162	CEM38FXL4TiALN	71165	3/8	3/8	2	4	TiALN	$37.77
CEM38FXL2TiCN	71163	CEM38FXL4TiCN	71166	3/8	3/8	2	4	TiCN	$37.77

2 & 4 FLUTE (INCH) SQUARE

SQUARE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM38FSL2	71155	CEM38FSL4	71158	3/8	3/8	3	6	UNCOATED	$50.74
CEM38FSL2TiALN	71156	CEM38FSL4TiALN	71159	3/8	3/8	3	6	TiALN	$63.43
CEM38FSL2TiCN	71157	CEM38FSL4TiCN	71160	3/8	3/8	3	6	TiCN	$63.43
CEM2564F2	70849	CEM2564F4	70852	25/64	7/16	1	2-1/2	UNCOATED	$30.55
CEM2564F2TiALN	70850	CEM2564F4TiALN	70853	25/64	7/16	1	2-1/2	TiALN	$39.44
CEM2564F2TiCN	70851	CEM2564F4TiCN	70854	25/64	7/16	1	2-1/2	TiCN	$39.44
CEM2764F2	70861	CEM2764F4	70864	27/64	7/16	1	2-1/2	UNCOATED	$31.54
CEM2764F2TiALN	70862	CEM2764F4TiALN	70865	27/64	7/16	1	2-1/2	TiALN	$40.74
CEM2764F2TiCN	70863	CEM2764F4TiCN	70866	27/64	7/16	1	2-1/2	TiCN	$40.74
CEM716F2	71392	CEM716F4	71398	7/16	7/16	1	2-1/2	UNCOATED	$27.50
CEM716F2TiALN	71393	CEM716F4TiALN	71399	7/16	7/16	1	2-1/2	TiALN	$33.85
CEM716F2TiCN	71394	CEM716F4TiCN	71400	7/16	7/16	1	2-1/2	TiCN	$33.85
CEM2964F2	70873	CEM2964F4	70876	29/64	1/2	1	3	UNCOATED	$45.41
CEM2964F2TiALN	70874	CEM2964F4TiALN	70877	29/64	1/2	1	3	TiALN	$58.11
CEM2964F2TiCN	70875	CEM2964F4TiCN	70878	29/64	1/2	1	3	TiCN	$58.11
CEM3164F2	70885	CEM3164F4	70888	31/64	1/2	1	3	UNCOATED	$45.41
CEM3164F2TiALN	70886	CEM3164F4TiALN	70889	31/64	1/2	1	3	TiALN	$58.11
CEM3164F2TiCN	70887	CEM3164F4TiCN	70890	31/64	1/2	1	3	TiCN	$58.11
CEM12F2	70429	CEM12F4	70435	1/2	1/2	1	3	UNCOATED	$33.02
CEM12F2TiALN	70430	CEM12F4TiALN	70436	1/2	1/2	1	3	TiALN	$41.20
CEM12F2TiCN	70431	CEM12F4TiCN	70437	1/2	1/2	1	3	TiCN	$41.20
CEM12FH2	71476	CEM12FH4	71482	1/2	1/2	1-1/4	3	UNCOATED	$33.02
CEM12FH2TiALN	71477	CEM12FH4TiALN	71483	1/2	1/2	1-1/4	3	TiALN	$41.21
CEM12FH2TiCN	71478	CEM12FH4TiCN	71484	1/2	1/2	1-1/4	3	TiCN	$41.21
CEM12FL2	70438	CEM12FL4	70441	1/2	1/2	1-1/2	4	UNCOATED	$38.29
CEM12FL2TiALN	70439	CEM12FL4TiALN	70442	1/2	1/2	1-1/2	4	TiALN	$47.88
CEM12FL2TiCN	70440	CEM12FL4TiCN	70443	1/2	1/2	1-1/2	4	TiCN	$47.88
CEM12FXXL2	70456	CEM12FXXL4	70459	1/2	1/2	1-1/2	6	UNCOATED	$67.95
CEM12FXXL2TiALN	70457	CEM12FXXL4TiALN	70460	1/2	1/2	1-1/2	6	TiALN	$84.33
CEM12FXXL2TiCN	70458	CEM12FXXL4TiCN	70461	1/2	1/2	1-1/2	6	TiCN	$84.33
CEM12FXL2	70450	CEM12FXL4	70453	1/2	1/2	2	4	UNCOATED	$43.56
CEM12FXL2TiALN	70451	CEM12FXL4TiALN	70454	1/2	1/2	2	4	TiALN	$55.90
CEM12FXL2TiCN	70452	CEM12FXL4TiCN	70455	1/2	1/2	2	4	TiCN	$55.90
CEM12FSL2	70444	CEM12FSL4	70447	1/2	1/2	3	6	UNCOATED	$71.33
CEM12FSL2TiALN	70445	CEM12FSL4TiALN	70448	1/2	1/2	3	6	TiALN	$87.71
CEM12FSL2TiCN	70446	CEM12FSL4TiCN	70449	1/2	1/2	3	6	TiCN	$87.71
CEM3364F2	70993	CEM3364F4	70996	33/64	9/16	1-1/8	3-1/2	UNCOATED	$73.83
CEM3364F2TiALN	70994	CEM3364F4TiALN	70997	33/64	9/16	1-1/8	3-1/2	TiALN	$77.72
CEM3364F2TiCN	70995	CEM3364F4TiCN	70998	33/64	9/16	1-1/8	3-1/2	TiCN	$77.72

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2 & 4 FLUTE (INCH) SQUARE

SQUARE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM3564F2	71092	CEM3564F4	71095	35/64	9/16	1-1/8	3-1/2	UNCOATED	$62.41
CEM3564F2TiALN	71093	CEM3564F4TiALN	71096	35/64	9/16	1-1/8	3-1/2	TiALN	$77.04
CEM3564F2TiCN	71094	CEM3564F4TiCN	71097	35/64	9/16	1-1/8	3-1/2	TiCN	$77.04
CEM916F2	71434	CEM916F4	71440	9/16	9/16	1-1/4	3-1/2	UNCOATED	$62.41
CEM916F2TiALN	71435	CEM916F4TiALN	71441	9/16	9/16	1-1/4	3-1/2	TiALN	$82.41
CEM916F2TiCN	71436	CEM916F4TiCN	71442	9/16	9/16	1-1/4	3-1/2	TiCN	$82.41
CEM58F2	71323	CEM58F4	71329	5/8	5/8	1-1/4	3-1/2	UNCOATED	$63.13
CEM58F2TiALN	71324	CEM58F4TiALN	71330	5/8	5/8	1-1/4	3-1/2	TiALN	$80.48
CEM58F2TiCN	71325	CEM58F4TiCN	71331	5/8	5/8	1-1/4	3-1/2	TiCN	$80.48
CEM58FXL2	71338	CEM58FXL4	71341	5/8	5/8	2	6	UNCOATED	$101.21
CEM58FXL2TiALN	71339	CEM58FXL4TiALN	71342	5/8	5/8	2	6	TiALN	$106.53
CEM58FXL2TiCN	71340	CEM58FXL4TiCN	71343	5/8	5/8	2	6	TiCN	$106.53
CEM58FL2	71332	CEM58FL4	71335	5/8	5/8	2-1/4	5	UNCOATED	$97.35
CEM58FL2TiALN	71333	CEM58FL4TiALN	71336	5/8	5/8	2-1/4	5	TiALN	$120.48
CEM58FL2TiCN	71334	CEM58FL4TiCN	71337	5/8	5/8	2-1/4	5	TiCN	$120.48
CEM58FXXL2	71344	CEM58FXXL4	71347	5/8	5/8	3	6	UNCOATED	$105.06
CEM58FXXL2TiALN	71345	CEM58FXXL4TiALN	71348	5/8	5/8	3	6	TiALN	$116.73
CEM58FXXL2TiCN	71346	CEM58FXXL4TiCN	71349	5/8	5/8	3	6	TiCN	$116.73
CEM34F2	71017	CEM34F4	71023	3/4	3/4	1-1/2	4	UNCOATED	$88.67
CEM34F2TiALN	71018	CEM34F4TiALN	71024	3/4	3/4	1-1/2	4	TiALN	$114.21
CEM34F2TiCN	71019	CEM34F4TiCN	71025	3/4	3/4	1-1/2	4	TiCN	$114.21
CEM34FXL2	71032	CEM34FXL4	71035	3/4	3/4	2	6	UNCOATED	$122.74
CEM34FXL2TiALN	71033	CEM34FXL4TiALN	71036	3/4	3/4	2	6	TiALN	$153.44
CEM34FXL2TiCN	71034	CEM34FXL4TiCN	71037	3/4	3/4	2	6	TiCN	$153.44
CEM34FXXL2	71038	CEM34FXXL4	71041	3/4	3/4	3	6	UNCOATED	$156.13
CEM34FXXL2TiALN	71039	CEM34FXXL4TiALN	71042	3/4	3/4	3	6	TiALN	$183.33
CEM34FXXL2TiCN	71040	CEM34FXXL4TiCN	71043	3/4	3/4	3	6	TiCN	$183.33
CEM34FSL2	71026	CEM34FSL4	71029	3/4	3/4	4	7	UNCOATED	$267.94
CEM34FSL2TiALN	71027	CEM34FSL4TiALN	71030	3/4	3/4	4	7	TiALN	$303.75
CEM34FSL2TiCN	71028	CEM34FSL4TiCN	71031	3/4	3/4	4	7	TiCN	$303.75
CEM10F2	70231	CEM10F4	70237	1	1	1-1/2	4	UNCOATED	$149.27
CEM10F2TiALN	70232	CEM10F4TiALN	70238	1	1	1-1/2	4	TiALN	$190.94
CEM10F2TiCN	70233	CEM10F4TiCN	70239	1	1	1-1/2	4	TiCN	$190.94
CEM10FXL2	70246	CEM10FXL4	70249	1	1	2	6	UNCOATED	$207.17
CEM10FXL2TiALN	70247	CEM10FXL4TiALN	70250	1	1	2	6	TiALN	$255.75
CEM10FXL2TiCN	70248	CEM10FXL4TiCN	70251	1	1	2	6	TiCN	$255.75
CEM10FXXL2	70252	CEM10FXXL4	70255	1	1	3	6	UNCOATED	$265.05
CEM10FXXL2TiALN	70253	CEM10FXXL4TiALN	70256	1	1	3	6	TiALN	$325.71
CEM10FXXL2TiCN	70254	CEM10FXXL4TiCN	70257	1	1	3	6	TiCN	$325.71
CEM10FSL2	70240	CEM10FSL4	70243	1	1	4	7	UNCOATED	$347.45
CEM10FSL2TiALN	70241	CEM10FSL4TiALN	70244	1	1	4	7	TiALN	$426.48
CEM10FSL2TiCN	70242	CEM10FSL4TiCN	70245	1	1	4	7	TiCN	$426.48

2 & 4 FLUTE (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM116R2010	70327	CEM116R4010	70333	1/16	1/8	3/16	1-1/2	0.010	UNCOATED	$13.38
CEM116R2010TiALN	70328	CEM116R4010TiALN	70334	1/16	1/8	3/16	1-1/2	0.010	TiALN	$15.46
CEM116R2010TiCN	70329	CEM116R4010TiCN	70335	1/16	1/8	3/16	1-1/2	0.010	TiCN	$15.46
CEM116R2015	70330	CEM116R4015	70336	1/16	1/8	3/16	1-1/2	0.015	UNCOATED	$13.38
CEM116R2015TiALN	70331	CEM116R4015TiALN	70337	1/16	1/8	3/16	1-1/2	0.015	TiALN	$15.46
CEM116R2015TiCN	70332	CEM116R4015TiCN	70338	1/16	1/8	3/16	1-1/2	0.015	TiCN	$15.46
CEM332R2010	70969	CEM332R4010	70978	3/32	1/8	3/8	1-1/2	0.010	UNCOATED	$8.95
CEM332R2010TiALN	70970	CEM332R4010TiALN	70979	3/32	1/8	3/8	1-1/2	0.010	TiALN	$11.29
CEM332R2010TiCN	70971	CEM332R4010TiCN	70980	3/32	1/8	3/8	1-1/2	0.010	TiCN	$11.29
CEM332R2015	70972	CEM332R4015	70981	3/32	1/8	3/8	1-1/2	0.015	UNCOATED	$8.95
CEM332R2015TiALN	70973	CEM332R4015TiALN	70982	3/32	1/8	3/8	1-1/2	0.015	TiALN	$11.29
CEM332R2015TiCN	70974	CEM332R4015TiCN	70983	3/32	1/8	3/8	1-1/2	0.015	TiCN	$11.29
CEM332R2020	70975	CEM332R4020	70984	3/32	1/8	3/8	1-1/2	0.020	UNCOATED	$8.95
CEM332R2020TiALN	70976	CEM332R4020TiALN	70985	3/32	1/8	3/8	1-1/2	0.020	TiALN	$11.29
CEM332R2020TiCN	70977	CEM332R4020TiCN	70986	3/32	1/8	3/8	1-1/2	0.020	TiCN	$11.29
CEM18R2010	70729	CEM18R4010	70741	1/8	1/8	1/2	1-1/2	0.010	UNCOATED	$11.59
CEM18R2010TiALN	70730	CEM18R4010TiALN	70742	1/8	1/8	1/2	1-1/2	0.010	TiALN	$15.88
CEM18R2010TiCN	70731	CEM18R4010TiCN	70743	1/8	1/8	1/2	1-1/2	0.010	TiCN	$15.88
CEM18R2015	70732	CEM18R4015	70744	1/8	1/8	1/2	1-1/2	0.015	UNCOATED	$11.59
CEM18R2015TiALN	70733	CEM18R4015TiALN	70745	1/8	1/8	1/2	1-1/2	0.015	TiALN	$15.88
CEM18R2015TiCN	70734	CEM18R4015TiCN	70746	1/8	1/8	1/2	1-1/2	0.015	TiCN	$15.88
CEM18R2020	70735	CEM18R4020	70747	1/8	1/8	1/2	1-1/2	0.020	UNCOATED	$11.59
CEM18R2020TiALN	70736	CEM18R4020TiALN	70748	1/8	1/8	1/2	1-1/2	0.020	TiALN	$15.88
CEM18R2020TiCN	70737	CEM18R4020TiCN	70749	1/8	1/8	1/2	1-1/2	0.020	TiCN	$15.88
CEM18R2030	70738	CEM18R4030	70750	1/8	1/8	1/2	1-1/2	0.030	UNCOATED	$11.59
CEM18R2030TiALN	70739	CEM18R4030TiALN	70751	1/8	1/8	1/2	1-1/2	0.030	TiALN	$15.88
CEM18R2030TiCN	70740	CEM18R4030TiCN	70752	1/8	1/8	1/2	1-1/2	0.030	TiCN	$15.88
CEM316R2010	70930	CEM316R4010	70942	3/16	3/16	5/8	2	0.010	UNCOATED	$15.91
CEM316R2010TiALN	70931	CEM316R4010TiALN	70943	3/16	3/16	5/8	2	0.010	TiALN	$18.68
CEM316R2010TiCN	70932	CEM316R4010TiCN	70944	3/16	3/16	5/8	2	0.010	TiCN	$18.68
CEM316R2015	70933	CEM316R4015	70945	3/16	3/16	5/8	2	0.015	UNCOATED	$15.91
CEM316R2015TiALN	70934	CEM316R4015TiALN	70946	3/16	3/16	5/8	2	0.015	TiALN	$18.68
CEM316R2015TiCN	70935	CEM316R4015TiCN	70947	3/16	3/16	5/8	2	0.015	TiCN	$18.68
CEM316R2020	70936	CEM316R4020	70948	3/16	3/16	5/8	2	0.020	UNCOATED	$15.91
CEM316R2020TiALN	70937	CEM316R4020TiALN	70949	3/16	3/16	5/8	2	0.020	TiALN	$18.68
CEM316R2020TiCN	70938	CEM316R4020TiCN	70950	3/16	3/16	5/8	2	0.020	TiCN	$18.68
CEM316R2030	70939	CEM316R4030	70951	3/16	3/16	5/8	2	0.030	UNCOATED	$15.91
CEM316R2030TiALN	70940	CEM316R4030TiALN	70952	3/16	3/16	5/8	2	0.030	TiALN	$18.68
CEM316R2030TiCN	70941	CEM316R4030TiCN	70953	3/16	3/16	5/8	2	0.030	TiCN	$18.68

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2 & 4 FLUTE (INCH) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM14R2015	70579	CEM14R4015	70594	1/4	1/4	3/4	2-1/2	0.015	UNCOATED	$15.14
CEM14R2015TiALN	70580	CEM14R4015TiALN	70595	1/4	1/4	3/4	2-1/2	0.015	TiALN	$21.83
CEM14R2015TiCN	70581	CEM14R4015TiCN	70596	1/4	1/4	3/4	2-1/2	0.015	TiCN	$21.83
CEM14R2020	70582	CEM14R4020	70597	1/4	1/4	3/4	2-1/2	0.020	UNCOATED	$15.14
CEM14R2020TiALN	70583	CEM14R4020TiALN	70598	1/4	1/4	3/4	2-1/2	0.020	TiALN	$21.83
CEM14R2020TiCN	70584	CEM14R4020TiCN	70599	1/4	1/4	3/4	2-1/2	0.020	TiCN	$21.83
CEM14R2030	70585	CEM14R4030	70600	1/4	1/4	3/4	2-1/2	0.030	UNCOATED	$15.14
CEM14R2030TiALN	70586	CEM14R4030TiALN	70601	1/4	1/4	3/4	2-1/2	0.030	TiALN	$21.83
CEM14R2030TiCN	70587	CEM14R4030TiCN	70602	1/4	1/4	3/4	2-1/2	0.030	TiCN	$21.83
CEM14R2045	70588	CEM14R4045	70603	1/4	1/4	3/4	2-1/2	0.045	UNCOATED	$15.14
CEM14R2045TiALN	70589	CEM14R4045TiALN	70604	1/4	1/4	3/4	2-1/2	0.045	TiALN	$21.83
CEM14R2045TiCN	70590	CEM14R4045TiCN	70605	1/4	1/4	3/4	2-1/2	0.045	TiCN	$21.83
CEM14R2060	70591	CEM14R4060	70606	1/4	1/4	3/4	2-1/2	0.060	UNCOATED	$15.14
CEM14R2060TiALN	70592	CEM14R4060TiALN	70607	1/4	1/4	3/4	2-1/2	0.060	TiALN	$21.83
CEM14R2060TiCN	70593	CEM14R4060TiCN	70608	1/4	1/4	3/4	2-1/2	0.060	TiCN	$21.83
CEM516R2015	71242	CEM516R4015	71257	5/16	5/16	7/8	2-1/2	0.015	UNCOATED	$23.45
CEM516R2015TiALN	71243	CEM516R4015TiALN	71258	5/16	5/16	7/8	2-1/2	0.015	TiALN	$29.27
CEM516R2015TiCN	71244	CEM516R4015TiCN	71259	5/16	5/16	7/8	2-1/2	0.015	TiCN	$29.27
CEM516R2020	71245	CEM516R4020	71260	5/16	5/16	7/8	2-1/2	0.020	UNCOATED	$23.45
CEM516R2020TiALN	71246	CEM516R4020TiALN	71261	5/16	5/16	7/8	2-1/2	0.020	TiALN	$29.27
CEM516R2020TiCN	71247	CEM516R4020TiCN	71262	5/16	5/16	7/8	2-1/2	0.020	TiCN	$29.27
CEM516R2030	71248	CEM516R4030	71263	5/16	5/16	7/8	2-1/2	0.030	UNCOATED	$23.45
CEM516R2030TiALN	71249	CEM516R4030TiALN	71264	5/16	5/16	7/8	2-1/2	0.030	TiALN	$29.27
CEM516R2030TiCN	71250	CEM516R4030TiCN	71265	5/16	5/16	7/8	2-1/2	0.030	TiCN	$29.27
CEM516R2045	71251	CEM516R4045	71266	5/16	5/16	7/8	2-1/2	0.045	UNCOATED	$23.45
CEM516R2045TiALN	71252	CEM516R4045TiALN	71267	5/16	5/16	7/8	2-1/2	0.045	TiALN	$29.27
CEM516R2045TiCN	71253	CEM516R4045TiCN	71268	5/16	5/16	7/8	2-1/2	0.045	TiCN	$29.27
CEM516R2060	71254	CEM516R4060	71269	5/16	5/16	7/8	2-1/2	0.060	UNCOATED	$23.45
CEM516R2060TiALN	71255	CEM516R4060TiALN	71270	5/16	5/16	7/8	2-1/2	0.060	TiALN	$29.27
CEM516R2060TiCN	71256	CEM516R4060TiCN	71271	5/16	5/16	7/8	2-1/2	0.060	TiCN	$29.27
CEM38R2015	71173	CEM38R4015	71188	3/8	3/8	7/8	2-1/2	0.015	UNCOATED	$29.39
CEM38R2015TiALN	71174	CEM38R4015TiALN	71189	3/8	3/8	7/8	2-1/2	0.015	TiALN	$36.74
CEM38R2015TiCN	71175	CEM38R4015TiCN	71190	3/8	3/8	7/8	2-1/2	0.015	TiCN	$36.74
CEM38R2020	71176	CEM38R4020	71191	3/8	3/8	7/8	2-1/2	0.020	UNCOATED	$29.39
CEM38R2020TiALN	71177	CEM38R4020TiALN	71192	3/8	3/8	7/8	2-1/2	0.020	TiALN	$36.74
CEM38R2020TiCN	71178	CEM38R4020TiCN	71193	3/8	3/8	7/8	2-1/2	0.020	TiCN	$36.74
CEM38R2030	71179	CEM38R4030	71194	3/8	3/8	7/8	2-1/2	0.030	UNCOATED	$29.39
CEM38R2030TiALN	71180	CEM38R4030TiALN	71195	3/8	3/8	7/8	2-1/2	0.030	TiALN	$36.74
CEM38R2030TiCN	71181	CEM38R4030TiCN	71196	3/8	3/8	7/8	2-1/2	0.030	TiCN	$36.74

2 & 4 FLUTE (INCH) RADIUS

RADIUS END

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2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM38R2045	71182	CEM38R4045	71197	3/8	3/8	7/8	2-1/2	0.045	UNCOATED	$29.39
CEM38R2045TiALN	71183	CEM38R4045TiALN	71198	3/8	3/8	7/8	2-1/2	0.045	TiALN	$36.74
CEM38R2045TiCN	71184	CEM38R4045TiCN	71199	3/8	3/8	7/8	2-1/2	0.045	TiCN	$36.74
CEM38R2060	71185	CEM38R4060	71200	3/8	3/8	7/8	2-1/2	0.060	UNCOATED	$29.39
CEM38R2060TiALN	71186	CEM38R4060TiALN	71201	3/8	3/8	7/8	2-1/2	0.060	TiALN	$36.74
CEM38R2060TiCN	71187	CEM38R4060TiCN	71202	3/8	3/8	7/8	2-1/2	0.060	TiCN	$36.74
CEM12R2015	70462	CEM12R4015	70483	1/2	1/2	1	3	0.015	UNCOATED	$40.82
CEM12R2015TiALN	70463	CEM12R4015TiALN	70484	1/2	1/2	1	3	0.015	TiALN	$50.39
CEM12R2015TiCN	70464	CEM12R4015TiCN	70485	1/2	1/2	1	3	0.015	TiCN	$50.39
CEM12R2020	70465	CEM12R4020	70486	1/2	1/2	1	3	0.020	UNCOATED	$40.82
CEM12R2020TiALN	70466	CEM12R4020TiALN	70487	1/2	1/2	1	3	0.020	TiALN	$50.39
CEM12R2020TiCN	70467	CEM12R4020TiCN	70488	1/2	1/2	1	3	0.020	TiCN	$50.39
CEM12R2030	70468	CEM12R4030	70489	1/2	1/2	1	3	0.030	UNCOATED	$40.82
CEM12R2030TiALN	70469	CEM12R4030TiALN	70490	1/2	1/2	1	3	0.030	TiALN	$50.39
CEM12R2030TiCN	70470	CEM12R4030TiCN	70491	1/2	1/2	1	3	0.030	TiCN	$50.39
CEM12R2045	70471	CEM12R4045	70492	1/2	1/2	1	3	0.045	UNCOATED	$40.82
CEM12R2045TiALN	70472	CEM12R4045TiALN	70493	1/2	1/2	1	3	0.045	TiALN	$50.39
CEM12R2045TiCN	70473	CEM12R4045TiCN	70494	1/2	1/2	1	3	0.045	TiCN	$50.39
CEM12R2060	70474	CEM12R4060	70495	1/2	1/2	1	3	0.060	UNCOATED	$40.82
CEM12R2060TiALN	70475	CEM12R4060TiALN	70496	1/2	1/2	1	3	0.060	TiALN	$50.39
CEM12R2060TiCN	70476	CEM12R4060TiCN	70497	1/2	1/2	1	3	0.060	TiCN	$50.39
CEM12R2090	70477	CEM12R4090	70498	1/2	1/2	1	3	0.090	UNCOATED	$40.82
CEM12R2090TiALN	70478	CEM12R4090TiALN	70499	1/2	1/2	1	3	0.090	TiALN	$50.39
CEM12R2090TiCN	70479	CEM12R4090TiCN	70500	1/2	1/2	1	3	0.090	TiCN	$50.39
CEM12R2125	70480	CEM12R4125	70501	1/2	1/2	1	3	0.125	UNCOATED	$40.82
CEM12R2125TiALN	70481	CEM12R4125TiALN	70502	1/2	1/2	1	3	0.125	TiALN	$50.39
CEM12R2125TiCN	70482	CEM12R4125TiCN	70503	1/2	1/2	1	3	0.125	TiCN	$50.39
CEM12RH2015	71485	CEM12RH4015	71506	1/2	1/2	1-1/4	3	0.015	UNCOATED	$40.82
CEM12RH2015TiALN	71486	CEM12RH4015TiALN	71507	1/2	1/2	1-1/4	3	0.015	TiALN	$50.39
CEM12RH2015TiCN	71487	CEM12RH4015TiCN	71508	1/2	1/2	1-1/4	3	0.015	TiCN	$50.39
CEM12RH2020	71488	CEM12RH4020	71509	1/2	1/2	1-1/4	3	0.020	UNCOATED	$40.82
CEM12RH2020TiALN	71489	CEM12RH4020TiALN	71510	1/2	1/2	1-1/4	3	0.020	TiALN	$50.39
CEM12RH2020TiCN	71490	CEM12RH4020TiCN	71511	1/2	1/2	1-1/4	3	0.020	TiCN	$50.39
CEM12RH2030	71491	CEM12RH4030	71512	1/2	1/2	1-1/4	3	0.030	UNCOATED	$40.82
CEM12RH2030TiALN	71492	CEM12RH4030TiALN	71513	1/2	1/2	1-1/4	3	0.030	TiALN	$50.39
CEM12RH2030TiCN	71493	CEM12RH4030TiCN	71514	1/2	1/2	1-1/4	3	0.030	TiCN	$50.39
CEM12RH2045	71494	CEM12RH4045	71515	1/2	1/2	1-1/4	3	0.045	UNCOATED	$40.82
CEM12RH2045TiALN	71495	CEM12RH4045TiALN	71516	1/2	1/2	1-1/4	3	0.045	TiALN	$50.39
CEM12RH2045TiCN	71496	CEM12RH4045TiCN	71517	1/2	1/2	1-1/4	3	0.045	TiCN	$50.39

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2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM12RH2060	71497	CEM12RH4060	71518	1/2	1/2	1-1/4	3	0.060	UNCOATED	$40.82
CEM12RH2060TiALN	71498	CEM12RH4060TiALN	71519	1/2	1/2	1-1/4	3	0.060	TiALN	$50.39
CEM12RH2060TiCN	71499	CEM12RH4060TiCN	71520	1/2	1/2	1-1/4	3	0.060	TiCN	$50.39
CEM12RH2090	71500	CEM12RH4090	71521	1/2	1/2	1-1/4	3	0.090	UNCOATED	$40.82
CEM12RH2090TiALN	71501	CEM12RH4090TiALN	71522	1/2	1/2	1-1/4	3	0.090	TiALN	$50.39
CEM12RH2090TiCN	71502	CEM12RH4090TiCN	71523	1/2	1/2	1-1/4	3	0.090	TiCN	$50.39
CEM12RH2125	71503	CEM12RH4125	71524	1/2	1/2	1-1/4	3	0.125	UNCOATED	$40.82
CEM12RH2125TiALN	71504	CEM12RH4125TiALN	71525	1/2	1/2	1-1/4	3	0.125	TiALN	$50.39
CEM12RH2125TiCN	71505	CEM12RH4125TiCN	71526	1/2	1/2	1-1/4	3	0.125	TiCN	$50.39
CEM58R2015	71350	CEM58R4015	71368	5/8	5/8	1-1/4	3-1/2	0.015	UNCOATED	$81.26
CEM58R2015TiALN	71351	CEM58R4015TiALN	71369	5/8	5/8	1-1/4	3-1/2	0.015	TiALN	$90.30
CEM58R2015TiCN	71352	CEM58R4015TiCN	71370	5/8	5/8	1-1/4	3-1/2	0.015	TiCN	$90.30
CEM58R2020	71353	CEM58R4020	71371	5/8	5/8	1-1/4	3-1/2	0.020	UNCOATED	$81.26
CEM58R2020TiALN	71354	CEM58R4020TiALN	71372	5/8	5/8	1-1/4	3-1/2	0.020	TiALN	$90.30
CEM58R2020TiCN	71355	CEM58R4020TiCN	71373	5/8	5/8	1-1/4	3-1/2	0.020	TiCN	$90.30
CEM58R2030	71356	CEM58R4030	71374	5/8	5/8	1-1/4	3-1/2	0.030	UNCOATED	$81.26
CEM58R2030TiALN	71357	CEM58R4030TiALN	71375	5/8	5/8	1-1/4	3-1/2	0.030	TiALN	$90.30
CEM58R2030TiCN	71358	CEM58R4030TiCN	71376	5/8	5/8	1-1/4	3-1/2	0.030	TiCN	$90.30
CEM58R2045	71359	CEM58R4045	71377	5/8	5/8	1-1/4	3-1/2	0.045	UNCOATED	$81.26
CEM58R2045TiALN	71360	CEM58R4045TiALN	71378	5/8	5/8	1-1/4	3-1/2	0.045	TiALN	$90.30
CEM58R2045TiCN	71361	CEM58R4045TiCN	71379	5/8	5/8	1-1/4	3-1/2	0.045	TiCN	$90.30
CEM58R2060	71362	CEM58R4060	71380	5/8	5/8	1-1/4	3-1/2	0.060	UNCOATED	$81.26
CEM58R2060TiALN	71363	CEM58R4060TiALN	71381	5/8	5/8	1-1/4	3-1/2	0.060	TiALN	$90.30
CEM58R2060TiCN	71364	CEM58R4060TiCN	71382	5/8	5/8	1-1/4	3-1/2	0.060	TiCN	$90.30
CEM58R2090	71365	CEM58R4090	71383	5/8	5/8	1-1/4	3-1/2	0.090	UNCOATED	$81.26
CEM58R2090TiALN	71366	CEM58R4090TiALN	71384	5/8	5/8	1-1/4	3-1/2	0.090	TiALN	$90.30
CEM58R2090TiCN	71367	CEM58R4090TiCN	71385	5/8	5/8	1-1/4	3-1/2	0.090	TiCN	$90.30
CEM34R2015	71044	CEM34R4015	71065	3/4	3/4	1-1/2	4	0.015	UNCOATED	$111.52
CEM34R2015TiALN	71045	CEM34R4015TiALN	71066	3/4	3/4	1-1/2	4	0.015	TiALN	$123.92
CEM34R2015TiCN	71046	CEM34R4015TiCN	71067	3/4	3/4	1-1/2	4	0.015	TiCN	$123.92
CEM34R2020	71047	CEM34R4020	71068	3/4	3/4	1-1/2	4	0.020	UNCOATED	$111.52
CEM34R2020TiALN	71048	CEM34R4020TiALN	71069	3/4	3/4	1-1/2	4	0.020	TiALN	$123.92
CEM34R2020TiCN	71049	CEM34R4020TiCN	71070	3/4	3/4	1-1/2	4	0.020	TiCN	$123.92
CEM34R2030	71050	CEM34R4030	71071	3/4	3/4	1-1/2	4	0.030	UNCOATED	$111.52
CEM34R2030TiALN	71051	CEM34R4030TiALN	71072	3/4	3/4	1-1/2	4	0.030	TiALN	$123.92
CEM34R2030TiCN	71052	CEM34R4030TiCN	71073	3/4	3/4	1-1/2	4	0.030	TiCN	$123.92
CEM34R2045	71053	CEM34R4045	71074	3/4	3/4	1-1/2	4	0.045	UNCOATED	$111.52
CEM34R2045TiALN	71054	CEM34R4045TiALN	71075	3/4	3/4	1-1/2	4	0.045	TiALN	$123.92
CEM34R2045TiCN	71055	CEM34R4045TiCN	71076	3/4	3/4	1-1/2	4	0.045	TiCN	$123.92

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2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM34R2060	71056	**CEM34R4060**	71077	**3/4**	3/4	1-1/2	4	0.060	UNCOATED	$111.52
CEM34R2060TiALN	71057	**CEM34R4060TiALN**	71078	**3/4**	3/4	1-1/2	4	0.060	TiALN	$123.92
CEM34R2060TiCN	71058	**CEM34R4060TiCN**	71079	**3/4**	3/4	1-1/2	4	0.060	TiCN	$123.92
CEM34R2090	71059	**CEM34R4090**	71080	**3/4**	3/4	1-1/2	4	0.090	UNCOATED	$111.52
CEM34R2090TiALN	71060	**CEM34R4090TiALN**	71081	**3/4**	3/4	1-1/2	4	0.090	TiALN	$123.92
CEM34R2090TiCN	71061	**CEM34R4090TiCN**	71082	**3/4**	3/4	1-1/2	4	0.090	TiCN	$123.92
CEM34R2125	71062	**CEM34R4125**	71083	**3/4**	3/4	1-1/2	4	0.125	UNCOATED	$111.52
CEM34R2125TiALN	71063	**CEM34R4125TiALN**	71084	**3/4**	3/4	1-1/2	4	0.125	TiALN	$123.92
CEM34R2125TiCN	71064	**CEM34R4125TiCN**	71085	**3/4**	3/4	1-1/2	4	0.125	TiCN	$123.92
CEM10R2015	70258	**CEM10R4015**	70279	**1**	1	1-1/2	4	0.015	UNCOATED	$215.77
CEM10R2015TiALN	70259	**CEM10R4015TiALN**	70280	**1**	1	1-1/2	4	0.015	TiALN	$240.17
CEM10R2015TiCN	70260	**CEM10R4015TiCN**	70281	**1**	1	1-1/2	4	0.015	TiCN	$240.17
CEM10R2020	70261	**CEM10R4020**	70282	**1**	1	1-1/2	4	0.020	UNCOATED	$215.77
CEM10R2020TiALN	70262	**CEM10R4020TiALN**	70283	**1**	1	1-1/2	4	0.020	TiALN	$240.17
CEM10R2020TiCN	70263	**CEM10R4020TiCN**	70284	**1**	1	1-1/2	4	0.020	TiCN	$240.17
CEM10R2030	70264	**CEM10R4030**	70285	**1**	1	1-1/2	4	0.030	UNCOATED	$215.77
CEM10R2030TiALN	70265	**CEM10R4030TiALN**	70286	**1**	1	1-1/2	4	0.030	TiALN	$240.17
CEM10R2030TiCN	70266	**CEM10R4030TiCN**	70287	**1**	1	1-1/2	4	0.030	TiCN	$240.17
CEM10R2045	70267	**CEM10R4045**	70288	**1**	1	1-1/2	4	0.045	UNCOATED	$215.77
CEM10R2045TiALN	70268	**CEM10R4045TiALN**	70289	**1**	1	1-1/2	4	0.045	TiALN	$240.17
CEM10R2045TiCN	70269	**CEM10R4045TiCN**	70290	**1**	1	1-1/2	4	0.045	TiCN	$240.17
CEM10R2060	70270	**CEM10R4060**	70291	**1**	1	1-1/2	4	0.060	UNCOATED	$215.77
CEM10R2060TiALN	70271	**CEM10R4060TiALN**	70292	**1**	1	1-1/2	4	0.060	TiALN	$240.17
CEM10R2060TiCN	70272	**CEM10R4060TiCN**	70293	**1**	1	1-1/2	4	0.060	TiCN	$240.17
CEM10R2090	70273	**CEM10R4090**	70294	**1**	1	1-1/2	4	0.090	UNCOATED	$215.77
CEM10R2090TiALN	70274	**CEM10R4090TiALN**	70295	**1**	1	1-1/2	4	0.090	TiALN	$240.17
CEM10R2090TiCN	70275	**CEM10R4090TiCN**	70296	**1**	1	1-1/2	4	0.090	TiCN	$240.17
CEM10R2125	70276	**CEM10R4125**	70297	**1**	1	1-1/2	4	0.125	UNCOATED	$215.77
CEM10R2125TiALN	70277	**CEM10R4125TiALN**	70298	**1**	1	1-1/2	4	0.125	TiALN	$240.17
CEM10R2125TiCN	70278	**CEM10R4125TiCN**	70299	1	1	1-1/2	4	0.125	TiCN	$240.17

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2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LIST PRICE
CEM164B2	70666	CEM164B4	70669	1/64	1/8	1/32	1-1/2	UNCOATED	$15.44
CEM164B2TiALN	70667	CEM164B4TiALN	70670	1/64	1/8	1/32	1-1/2	TiALN	$20.68
CEM164B2TiCN	70668	CEM164B4TiCN	70671	1/64	1/8	1/32	1-1/2	TiCN	$20.68
CEM132B2	70504	CEM132B4	70507	1/32	1/8	5/64	1-1/2	UNCOATED	$9.88
CEM132B2TiALN	70505	CEM132B4TiALN	70508	1/32	1/8	5/64	1-1/2	TiALN	$12.83
CEM132B2TiCN	70506	CEM132B4TiCN	70509	1/32	1/8	5/64	1-1/2	TiCN	$12.83
CEM364B2	71098	CEM364B4	71101	3/64	1/8	7/64	1-1/2	UNCOATED	$9.88
CEM364B2TiALN	71099	CEM364B4TiALN	71102	3/64	1/8	7/64	1-1/2	TiALN	$12.83
CEM364B2TiCN	71100	CEM364B4TiCN	71103	3/64	1/8	7/64	1-1/2	TiCN	$12.83
CEM116B2	70312	CEM116B4	70315	1/16	1/8	3/16	1-1/2	UNCOATED	$9.16
CEM116B2TiALN	70313	CEM116B4TiALN	70316	1/16	1/8	3/16	1-1/2	TiALN	$12.35
CEM116B2TiCN	70314	CEM116B4TiCN	70317	1/16	1/8	3/16	1-1/2	TiCN	$12.35
CEM564B2	71287	CEM564B4	71290	5/64	1/8	3/16	1-1/2	UNCOATED	$9.16
CEM564B2TiALN	71288	CEM564B4TiALN	71291	5/64	1/8	3/16	1-1/2	TiALN	$12.35
CEM564B2TiCN	71289	CEM564B4TiCN	71292	5/64	1/8	3/16	1-1/2	TiCN	$12.35
CEM332B2	70954	CEM332B4	70957	3/32	1/8	3/8	1-1/2	UNCOATED	$9.60
CEM332B2TiALN	70955	CEM332B4TiALN	70958	3/32	1/8	3/8	1-1/2	TiALN	$12.98
CEM332B2TiCN	70956	CEM332B4TiCN	70959	3/32	1/8	3/8	1-1/2	TiCN	$12.98
CEM764B2	71416	CEM764B4	71419	7/64	1/8	3/8	1-1/2	UNCOATED	$9.60
CEM764B2TiALN	71417	CEM764B4TiALN	71420	7/64	1/8	3/8	1-1/2	TiALN	$12.98
CEM764B2TiCN	71418	CEM764B4TiCN	71421	7/64	1/8	3/8	1-1/2	TiCN	$12.98
CEM18B2	70690	CEM18B4	70693	1/8	1/8	1/2	1-1/2	UNCOATED	$8.80
CEM18B2TiALN	70691	CEM18B4TiALN	70694	1/8	1/8	1/2	1-1/2	TiALN	$11.90
CEM18B2TiCN	70692	CEM18B4TiCN	70695	1/8	1/8	1/2	1-1/2	TiCN	$11.90
CEM18BL2	70696	CEM18BL4	70699	1/8	1/8	3/4	2-1/2	UNCOATED	$13.18
CEM18BL2TiALN	70697	CEM18BL4TiALN	70700	1/8	1/8	3/4	2-1/2	TiALN	$16.95
CEM18BL2TiCN	70698	CEM18BL4TiCN	70701	1/8	1/8	3/4	2-1/2	TiCN	$16.95
CEM18BXL2	70702	CEM18BXL4	70705	1/8	1/8	1	3	UNCOATED	$14.75
CEM18BXL2TiALN	70703	CEM18BXL4TiALN	70706	1/8	1/8	1	3	TiALN	$19.91
CEM18BXL2TiCN	70704	CEM18BXL4TiCN	70707	1/8	1/8	1	3	TiCN	$19.91
CEM964B2	71458	CEM964B4	71461	9/64	3/16	1/2	2	UNCOATED	$12.91
CEM964B2TiALN	71459	CEM964B4TiALN	71462	9/64	3/16	1/2	2	TiALN	$17.44
CEM964B2TiCN	71460	CEM964B4TiCN	71463	9/64	3/16	1/2	2	TiCN	$17.44
CEM532B2	71272	CEM532B4	71275	5/32	3/16	1/2	2	UNCOATED	$12.91
CEM532B2TiALN	71273	CEM532B4TiALN	71276	5/32	3/16	1/2	2	TiALN	$17.44
CEM532B2TiCN	71274	CEM532B4TiCN	71277	5/32	3/16	1/2	2	TiCN	$17.44
CEM1164B2	70300	CEM1164B4	70303	11/64	3/16	5/8	2	UNCOATED	$12.91
CEM1164B2TiALN	70301	CEM1164B4TiALN	70304	11/64	3/16	5/8	2	TiALN	$17.44
CEM1164B2TiCN	70302	CEM1164B4TiCN	70305	11/64	3/16	5/8	2	TiCN	$17.44

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2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LIST PRICE
CEM316B2	70891	CEM316B4	70894	3/16	3/16	5/8	2	UNCOATED	$11.60
CEM316B2TiALN	70892	CEM316B4TiALN	70895	3/16	3/16	5/8	2	TiALN	$15.67
CEM316B2TiCN	70893	CEM316B4TiCN	70896	3/16	3/16	5/8	2	TiCN	$15.67
CEM316BL2	70897	CEM316BL4	70900	3/16	3/16	1-1/8	3	UNCOATED	$17.77
CEM316BL2TiALN	70898	CEM316BL4TiALN	70901	3/16	3/16	1-1/8	3	TiALN	$20.77
CEM316BL2TiCN	70899	CEM316BL4TiCN	70902	3/16	3/16	1-1/8	3	TiCN	$20.77
CEM316BXL2	70903	CEM316BXL4	70906	3/16	3/16	1-1/8	4	UNCOATED	$20.74
CEM316BXL2TiALN	70904	CEM316BXL4TiALN	70907	3/16	3/16	1-1/8	4	TiALN	$23.75
CEM316BXL2TiCN	70905	CEM316BXL4TiCN	70908	3/16	3/16	1-1/8	4	TiCN	$23.75
CEM1364B2	70516	CEM1364B4	70519	13/64	1/4	5/8	2-1/2	UNCOATED	$16.89
CEM1364B2TiALN	70517	CEM1364B4TiALN	70520	13/64	1/4	5/8	2-1/2	TiALN	$21.32
CEM1364B2TiCN	70518	CEM1364B4TiCN	70521	13/64	1/4	5/8	2-1/2	TiCN	$21.32
CEM732B2	71401	CEM732B4	71404	7/32	1/4	5/8	2-1/2	UNCOATED	$16.89
CEM732B2TiALN	71402	CEM732B4TiALN	71405	7/32	1/4	5/8	2-1/2	TiALN	$21.32
CEM732B2TiCN	71403	CEM732B4TiCN	71406	7/32	1/4	5/8	2-1/2	TiCN	$21.32
CEM1564B2	70609	CEM1564B4	70612	15/64	1/4	3/4	2-1/2	UNCOATED	$16.89
CEM1564B2TiALN	70610	CEM1564B4TiALN	70613	15/64	1/4	3/4	2-1/2	TiALN	$21.32
CEM1564B2TiCN	70611	CEM1564B4TiCN	70614	15/64	1/4	3/4	2-1/2	TiCN	$21.32
CEM14B2	70528	CEM14B4	70531	1/4	1/4	3/4	2-1/2	UNCOATED	$16.32
CEM14B2TiALN	70529	CEM14B4TiALN	70532	1/4	1/4	3/4	2-1/2	TiALN	$20.31
CEM14B2TiCN	70530	CEM14B4TiCN	70533	1/4	1/4	3/4	2-1/2	TiCN	$20.31
CEM14BL2	70534	CEM14BL4	70537	1/4	1/4	1-1/8	3	UNCOATED	$21.32
CEM14BL2TiALN	70535	CEM14BL4TiALN	70538	1/4	1/4	1-1/8	3	TiALN	$27.45
CEM14BL2TiCN	70536	CEM14BL4TiCN	70539	1/4	1/4	1-1/8	3	TiCN	$27.45
CEM14BXL2	70540	CEM14BXL4	70543	1/4	1/4	1-1/2	4	UNCOATED	$25.92
CEM14BXL2TiALN	70541	CEM14BXL4TiALN	70544	1/4	1/4	1-1/2	4	TiALN	$28.84
CEM14BXL2TiCN	70542	CEM14BXL4TiCN	70545	1/4	1/4	1-1/2	4	TiCN	$28.84
CEM14BXXL2	70546	CEM14BXXL4	70549	1/4	1/4	1-1/2	6	UNCOATED	$30.47
CEM14BXXL2TiALN	70547	CEM14BXXL4TiALN	70550	1/4	1/4	1-1/2	6	TiALN	$35.86
CEM14BXXL2TiCN	70548	CEM14BXXL4TiCN	70551	1/4	1/4	1-1/2	6	TiCN	$35.86
CEM1764B2	70678	CEM1764B4	70681	17/64	5/16	3/4	2-1/2	UNCOATED	$21.32
CEM1764B2TiALN	70679	CEM1764B4TiALN	70682	17/64	5/16	3/4	2-1/2	TiALN	$27.43
CEM1764B2TiCN	70680	CEM1764B4TiCN	70683	17/64	5/16	3/4	2-1/2	TiCN	$27.43
CEM932B2	71443	CEM932B4	71446	9/32	5/16	3/4	2-1/2	UNCOATED	$21.35
CEM932B2TiALN	71444	CEM932B4TiALN	71447	9/32	5/16	3/4	2-1/2	TiALN	$27.46
CEM932B2TiCN	71445	CEM932B4TiCN	71448	9/32	5/16	3/4	2-1/2	TiCN	$27.46
CEM1964B2	70753	CEM1964B4	70756	19/64	5/16	7/8	2-1/2	UNCOATED	$23.21
CEM1964B2TiALN	70754	CEM1964B4TiALN	70757	19/64	5/16	7/8	2-1/2	TiALN	$30.46
CEM1964B2TiCN	70755	CEM1964B4TiCN	70758	19/64	5/16	7/8	2-1/2	TiCN	$30.46

Continued on next page

STANDARD PERFORMANCE
2 & 4 FLUTE (INCH) BALLNOSE

BALLNOSE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LIST PRICE
CEM516B2	71203	CEM516B4	71206	5/16	5/16	7/8	2-1/2	UNCOATED	$19.65
CEM516B2TiALN	71204	CEM516B4TiALN	71207	5/16	5/16	7/8	2-1/2	TiALN	$25.27
CEM516B2TiCN	71205	CEM516B4TiCN	71208	5/16	5/16	7/8	2-1/2	TiCN	$25.27
CEM516BL2	71209	CEM516BL4	71212	5/16	5/16	1-1/8	3	UNCOATED	$25.07
CEM516BL2TiALN	71210	CEM516BL4TiALN	71213	5/16	5/16	1-1/8	3	TiALN	$33.84
CEM516BL2TiCN	71211	CEM516BL4TiCN	71214	5/16	5/16	1-1/8	3	TiCN	$33.84
CEM516BXL2	71215	CEM516BXL4	71218	5/16	5/16	1-5/8	4	UNCOATED	$31.33
CEM516BXL2TiALN	71216	CEM516BXL4TiALN	71219	5/16	5/16	1-5/8	4	TiALN	$40.45
CEM516BXL2TiCN	71217	CEM516BXL4TiCN	71220	5/16	5/16	1-5/8	4	TiCN	$40.45
CEM2164B2	70798	CEM2164B4	70801	21/64	3/8	7/8	2-1/2	UNCOATED	$27.00
CEM2164B2TiALN	70799	CEM2164B4TiALN	70802	21/64	3/8	7/8	2-1/2	TiALN	$36.44
CEM2164B2TiCN	70800	CEM2164B4TiCN	70803	21/64	3/8	7/8	2-1/2	TiCN	$36.44
CEM2364B2	70810	CEM2364B4	70813	23/64	3/8	7/8	2-1/2	UNCOATED	$27.00
CEM2364B2TiALN	70811	CEM2364B4TiALN	70814	23/64	3/8	7/8	2-1/2	TiALN	$36.44
CEM2364B2TiCN	70812	CEM2364B4TiCN	70815	23/64	3/8	7/8	2-1/2	TiCN	$36.44
CEM38B2	71110	CEM38B4	71113	3/8	3/8	7/8	2-1/2	UNCOATED	$21.03
CEM38B2TiALN	71111	CEM38B4TiALN	71114	3/8	3/8	7/8	2-1/2	TiALN	$29.72
CEM38B2TiCN	71112	CEM38B4TiCN	71115	3/8	3/8	7/8	2-1/2	TiCN	$29.72
CEM38BL2	71116	CEM38BL4	71119	3/8	3/8	1-1/8	3	UNCOATED	$28.94
CEM38BL2TiALN	71117	CEM38BL4TiALN	71120	3/8	3/8	1-1/8	3	TiALN	$39.08
CEM38BL2TiCN	71118	CEM38BL4TiCN	71121	3/8	3/8	1-1/8	3	TiCN	$39.08
CEM38BXXL2	71134	CEM38BXXL4	71137	3/8	3/8	1-1/2	6	UNCOATED	$47.52
CEM38BXXL2TiALN	71135	CEM38BXXL4TiALN	71138	3/8	3/8	1-1/2	6	TiALN	$59.28
CEM38BXXL2TiCN	71136	CEM38BXXL4TiCN	71139	3/8	3/8	1-1/2	6	TiCN	$59.28
CEM38BXL2	71128	CEM38BXL4	71131	3/8	3/8	2	4	UNCOATED	$33.72
CEM38BXL2TiALN	71129	CEM38BXL4TiALN	71132	3/8	3/8	2	4	TiALN	$43.10
CEM38BXL2TiCN	71130	CEM38BXL4TiCN	71133	3/8	3/8	2	4	TiCN	$43.10
CEM38BSL2	71122	CEM38BSL4	71125	3/8	3/8	3	6	UNCOATED	$56.83
CEM38BSL2TiALN	71123	CEM38BSL4TiALN	71126	3/8	3/8	3	6	TiALN	$71.04
CEM38BSL2TiCN	71124	CEM38BSL4TiCN	71127	3/8	3/8	3	6	TiCN	$71.04
CEM2564B2	70843	CEM2564B4	70846	25/64	7/16	1	2-1/2	UNCOATED	$36.56
CEM2564B2TiALN	70844	CEM2564B4TiALN	70847	25/64	7/16	1	2-1/2	TiALN	$47.11
CEM2564B2TiCN	70845	CEM2564B4TiCN	70848	25/64	7/16	1	2-1/2	TiCN	$47.11
CEM2764B2	70855	CEM2764B4	70858	27/64	7/16	1	2-1/2	UNCOATED	$36.56
CEM2764B2TiALN	70856	CEM2764B4TiALN	70859	27/64	7/16	1	2-1/2	TiALN	$47.11
CEM2764B2TiCN	70857	CEM2764B4TiCN	70860	27/64	7/16	1	2-1/2	TiCN	$47.11
CEM716B2	71386	CEM716B4	71389	7/16	7/16	1	2-1/2	UNCOATED	$31.11
CEM716B2TiALN	71387	CEM716B4TiALN	71390	7/16	7/16	1	2-1/2	TiALN	$40.11
CEM716B2TiCN	71388	CEM716B4TiCN	71391	7/16	7/16	1	2-1/2	TiCN	$40.11

2 & 4 FLUTE (INCH) BALLNOSE

BALLNOSE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LIST PRICE
CEM2964B2	70867	CEM2964B4	70870	29/64	1/2	1	3	UNCOATED	$48.20
CEM2964B2TiALN	70868	CEM2964B4TiALN	70871	29/64	1/2	1	3	TiALN	$62.16
CEM2964B2TiCN	70869	CEM2964B4TiCN	70872	29/64	1/2	1	3	TiCN	$62.16
CEM3164B2	70879	CEM3164B4	70882	31/64	1/2	1	3	UNCOATED	$48.20
CEM3164B2TiALN	70880	CEM3164B4TiALN	70883	31/64	1/2	1	3	TiALN	$62.16
CEM3164B2TiCN	70881	CEM3164B4TiCN	70884	31/64	1/2	1	3	TiCN	$62.16
CEM12B2	70399	CEM12B4	70402	1/2	1/2	1	3	UNCOATED	$42.68
CEM12B2TiALN	70400	CEM12B4TiALN	70403	1/2	1/2	1	3	TiALN	$55.00
CEM12B2TiCN	70401	CEM12B4TiCN	70404	1/2	1/2	1	3	TiCN	$55.00
CEM12BH2	71470	CEM12BH4	71473	1/2	1/2	1-1/4	3	UNCOATED	$42.68
CEM12BH2TiALN	71471	CEM12BH4TiALN	71474	1/2	1/2	1-1/4	3	TiALN	$55.00
CEM12BH2TiCN	71472	CEM12BH4TiCN	71475	1/2	1/2	1-1/4	3	TiCN	$55.00
CEM12BL2	70405	CEM12BL4	70408	1/2	1/2	1-1/2	4	UNCOATED	$49.64
CEM12BL2TiALN	70406	CEM12BL4TiALN	70409	1/2	1/2	1-1/2	4	TiALN	$63.13
CEM12BL2TiCN	70407	CEM12BL4TiCN	70410	1/2	1/2	1-1/2	4	TiCN	$63.13
CEM12BXXL2	70423	CEM12BXXL4	70426	1/2	1/2	1-1/2	6	UNCOATED	$75.67
CEM12BXXL2TiALN	70424	CEM12BXXL4TiALN	70427	1/2	1/2	1-1/2	6	TiALN	$96.86
CEM12BXXL2TiCN	70425	CEM12BXXL4TiCN	70428	1/2	1/2	1-1/2	6	TiCN	$96.86
CEM12BXL2	70417	CEM12BXL4	70420	1/2	1/2	2	4	UNCOATED	$50.13
CEM12BXL2TiALN	70418	CEM12BXL4TiALN	70421	1/2	1/2	2	4	TiALN	$63.61
CEM12BXL2TiCN	70419	CEM12BXL4TiCN	70422	1/2	1/2	2	4	TiCN	$63.61
CEM12BSL2	70411	CEM12BSL4	70414	1/2	1/2	3	6	UNCOATED	$76.13
CEM12BSL2TiALN	70412	CEM12BSL4TiALN	70415	1/2	1/2	3	6	TiALN	$97.35
CEM12BSL2TiCN	70413	CEM12BSL4TiCN	70416	1/2	1/2	3	6	TiCN	$97.35
CEM3364B2	70987	CEM3364B4	70990	33/64	9/16	1-1/8	3-1/2	UNCOATED	$77.20
CEM3364B2TiALN	70988	CEM3364B4TiALN	70991	33/64	9/16	1-1/8	3-1/2	TiALN	$81.26
CEM3364B2TiCN	70989	CEM3364B4TiCN	70992	33/64	9/16	1-1/8	3-1/2	TiCN	$81.26
CEM3564B2	71086	CEM3564B4	71089	35/64	9/16	1-1/8	3-1/2	UNCOATED	$62.41
CEM3564B2TiALN	71087	CEM3564B4TiALN	71090	35/64	9/16	1-1/8	3-1/2	TiALN	$77.04
CEM3564B2TiCN	71088	CEM3564B4TiCN	71091	35/64	9/16	1-1/8	3-1/2	TiCN	$77.04
CEM916B2	71428	CEM916B4	71431	9/16	9/16	1-1/4	3-1/2	UNCOATED	$65.05
CEM916B2TiALN	71429	CEM916B4TiALN	71432	9/16	9/16	1-1/4	3-1/2	TiALN	$80.05
CEM916B2TiCN	71430	CEM916B4TiCN	71433	9/16	9/16	1-1/4	3-1/2	TiCN	$80.05
CEM58B2	71299	CEM58B4	71302	5/8	5/8	1-1/4	3-1/2	UNCOATED	$69.02
CEM58B2TiALN	71300	CEM58B4TiALN	71303	5/8	5/8	1-1/4	3-1/2	TiALN	$88.96
CEM58B2TiCN	71301	CEM58B4TiCN	71304	5/8	5/8	1-1/4	3-1/2	TiCN	$88.96
CEM58BXL2	71311	CEM58BXL4	71314	5/8	5/8	2	6	UNCOATED	$120.00
CEM58BXL2TiALN	71312	CEM58BXL4TiALN	71315	5/8	5/8	2	6	TiALN	$147.46
CEM58BXL2TiCN	71313	CEM58BXL4TiCN	71316	5/8	5/8	2	6	TiCN	$147.46

Continued on next page

STANDARD PERFORMANCE
2 & 4 FLUTE (INCH) BALLNOSE

BALLNOSE END

SPEEDS & FEEDS CHART PAGE 198 & 204

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 CuttingDia.	D2 ShankDia.	LOC	OAL	COATING	LIST PRICE
CEM58BL2	71305	CEM58BL4	71308	5/8	5/8	2-1/4	5	UNCOATED	$114.21
CEM58BL2TiALN	71306	CEM58BL4TiALN	71309	5/8	5/8	2-1/4	5	TiALN	$145.05
CEM58BL2TiCN	71307	CEM58BL4TiCN	71310	5/8	5/8	2-1/4	5	TiCN	$145.05
CEM58BXXL2	71317	CEM58BXXL4	71320	5/8	5/8	3	6	UNCOATED	$120.76
CEM58BXXL2TiALN	71318	CEM58BXXL4TiALN	71321	5/8	5/8	3	6	TiALN	$145.34
CEM58BXXL2TiCN	71319	CEM58BXXL4TiCN	71322	5/8	5/8	3	6	TiCN	$145.34
CEM34B2	70999	CEM34B4	71002	3/4	3/4	1-1/2	4	UNCOATED	$101.69
CEM34B2TiALN	71000	CEM34B4TiALN	71003	3/4	3/4	1-1/2	4	TiALN	$132.51
CEM34B2TiCN	71001	CEM34B4TiCN	71004	3/4	3/4	1-1/2	4	TiCN	$132.51
CEM34BXL2	71005	CEM34BXL4	71008	3/4	3/4	2	6	UNCOATED	$149.26
CEM34BXL2TiALN	71006	CEM34BXL4TiALN	71009	3/4	3/4	2	6	TiALN	$157.10
CEM34BXL2TiCN	71007	CEM34BXL4TiCN	71010	3/4	3/4	2	6	TiCN	$157.10
CEM34BXXL2	71011	CEM34BXXL4	71014	3/4	3/4	3	6	UNCOATED	$170.16
CEM34BXXL2TiALN	71012	CEM34BXXL4TiALN	71015	3/4	3/4	3	6	TiALN	$229.71
CEM34BXXL2TiCN	71013	CEM34BXXL4TiCN	71016	3/4	3/4	3	6	TiCN	$229.71
CEM10B2	70207	CEM10B4	70210	1	1	1-1/2	4	UNCOATED	$181.63
CEM10B2TiALN	70208	CEM10B4TiALN	70211	1	1	1-1/2	4	TiALN	$234.04
CEM10B2TiCN	70209	CEM10B4TiCN	70212	1	1	1-1/2	4	TiCN	$234.04
CEM10BXL2	70219	CEM10BXL4	70222	1	1	2	6	UNCOATED	$242.60
CEM10BXL2TiALN	70220	CEM10BXL4TiALN	70223	1	1	2	6	TiALN	$299.48
CEM10BXL2TiCN	70221	CEM10BXL4TiCN	70224	1	1	2	6	TiCN	$299.48
CEM10BXXL2	70225	CEM10BXXL4	70228	1	1	3	6	UNCOATED	$303.58
CEM10BXXL2TiALN	70226	CEM10BXXL4TiALN	70229	1	1	3	6	TiALN	$390.85
CEM10BXXL2TiCN	70227	CEM10BXXL4TiCN	70230	1	1	3	6	TiCN	$390.85
CEM10BSL2	70213	CEM10BSL4	70216	1	1	4	7	UNCOATED	$367.20
CEM10BSL2TiALN	70214	CEM10BSL4TiALN	70217	1	1	4	7	TiALN	$437.32
CEM10BSL2TiCN	70215	CEM10BSL4TiCN	70218	1	1	4	7	TiCN	$437.32

STANDARD PERFORMANCE
2 & 4 FLUTE (METRIC) SQUARE

Extremely versatile in various materials, center cutting, solid sub-micron carbide. See “Speeds and Feeds” calculator at gorillamill.com or refer to ”Speeds and Feeds” chart at the back of the catalog.

Available in special diameters, lengths and completely resharpenable.

SQUARE END

SPEEDS & FEEDS CHART PAGE 199-200, 204-205

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM0300MMFS2	70009	CEM0300MMFS4	70015	3mm	3mm	8mm	38mm	UNCOATED	$6.86
CEM0300MMFS2TiALN	70010	CEM0300MMFS4TiALN	70016	3mm	3mm	8mm	38mm	TiALN	$8.40
CEM0300MMFS2TiCN	70011	CEM0300MMFS4TiCN	70017	3mm	3mm	8mm	38mm	TiCN	$8.40
CEM0300MMF2	70000	CEM0300MMF4	70006	3mm	3mm	12mm	38mm	UNCOATED	$6.86
CEM0300MMF2TiALN	70001	CEM0300MMF4TiALN	70007	3mm	3mm	12mm	38mm	TiALN	$8.40
CEM0300MMF2TiCN	70002	CEM0300MMF4TiCN	70008	3mm	3mm	12mm	38mm	TiCN	$8.40
CEM0400MMF2	70036	CEM0400MMF4	70042	4mm	6mm	12mm	50mm	UNCOATED	$11.73
CEM0400MMF2TiALN	70037	CEM0400MMF4TiALN	70043	4mm	6mm	12mm	50mm	TiALN	$17.44
CEM0400MMF2TiCN	70038	CEM0400MMF4TiCN	70044	4mm	6mm	12mm	50mm	TiCN	$17.44
CEM0500MMF2	70063	CEM0500MMF4	70069	5mm	6mm	15mm	65mm	UNCOATED	$13.93
CEM0500MMF2TiALN	70064	CEM0500MMF4TiALN	70070	5mm	6mm	15mm	65mm	TiALN	$19.18
CEM0500MMF2TiCN	70065	CEM0500MMF4TiCN	70071	5mm	6mm	15mm	65mm	TiCN	$19.18
CEM0600MMFS2	70099	CEM0600MMFS4	70105	6mm	6mm	12mm	50mm	UNCOATED	$13.03
CEM0600MMFS2TiALN	70100	CEM0600MMFS4TiALN	70106	6mm	6mm	12mm	50mm	TiALN	$18.23
CEM0600MMFS2TiCN	70101	CEM0600MMFS4TiCN	70107	6mm	6mm	12mm	50mm	TiCN	$18.23
CEM0600MMF2	70090	CEM0600MMF4	70096	6mm	6mm	19mm	65mm	UNCOATED	$13.93
CEM0600MMF2TiALN	70091	CEM0600MMF4TiALN	70097	6mm	6mm	19mm	65mm	TiALN	$19.18
CEM0600MMF2TiCN	70092	CEM0600MMF4TiCN	70098	6mm	6mm	19mm	65mm	TiCN	$19.18
CEM0800MMFS2	70135	CEM0800MMFS4	70141	8mm	8mm	12mm	50mm	UNCOATED	$14.28
CEM0800MMFS2TiALN	70136	CEM0800MMFS4TiALN	70142	8mm	8mm	12mm	50mm	TiALN	$18.41
CEM0800MMFS2TiCN	70137	CEM0800MMFS4TiCN	70143	8mm	8mm	12mm	50mm	TiCN	$18.41
CEM0800MMF2	70126	CEM0800MMF4	70132	8mm	8mm	22mm	65mm	UNCOATED	$15.03
CEM0800MMF2TiALN	70127	CEM0800MMF4TiALN	70133	8mm	8mm	22mm	65mm	TiALN	$19.38
CEM0800MMF2TiCN	70128	CEM0800MMF4TiCN	70134	8mm	8mm	22mm	65mm	TiCN	$19.38

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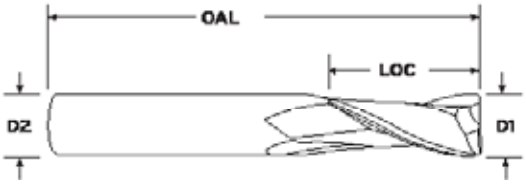


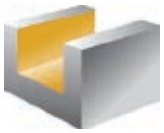
MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING

FULL SLOTTING



POCKETING

HIGH-VELOCITY

STANDARD PERFORMANCE
2 & 4 FLUTE (METRIC) SQUARE & RADIUS




SQUARE END

SPEEDS & FEEDS CHART PAGE 199-200, 204-205									
2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM1000MMF2	70174	CEM1000MMF4	70180	**10mm**	10mm	22mm	70mm	UNCOATED	$18.75
CEM1000MMF2TiALN	70175	CEM1000MMF4TiALN	70181	**10mm**	10mm	22mm	70mm	TiALN	$22.16
CEM1000MMF2TiCN	70176	CEM1000MMF4TiCN	70182	**10mm**	10mm	22mm	70mm	TiCN	$22.16
CEM1200MMFS2	70348	CEM1200MMFS4	70354	**12mm**	12mm	19mm	63mm	UNCOATED	$31.41
CEM1200MMFS2TiALN	70349	CEM1200MMFS4TiALN	70355	**12mm**	12mm	19mm	63mm	TiALN	$39.14
CEM1200MMFS2TiCN	70350	CEM1200MMFS4TiCN	70356	**12mm**	12mm	19mm	63mm	TiCN	$39.14
CEM1200MMF2	70339	CEM1200MMF4	70345	**12mm**	12mm	32mm	75mm	UNCOATED	$33.02
CEM1200MMF2TiALN	70340	CEM1200MMF4TiALN	70346	**12mm**	12mm	32mm	75mm	TiALN	$41.20
CEM1200MMF2TiCN	70341	CEM1200MMF4TiCN	70347	**12mm**	12mm	32mm	75mm	TiCN	$41.20
CEM1600MMF2	70621	CEM1600MMF4	70627	**16mm**	16mm	32mm	89mm	UNCOATED	$63.13
CEM1600MMF2TiALN	70622	CEM1600MMF4TiALN	70628	**16mm**	16mm	32mm	89mm	TiALN	$80.49
CEM1600MMF2TiCN	70623	CEM1600MMF4TiCN	70629	**16mm**	16mm	32mm	89mm	TiCN	$80.49
CEM2000MMF2	70765	CEM2000MMF4	70771	**20mm**	20mm	38mm	100mm	UNCOATED	$93.01
CEM2000MMF2TiALN	70766	CEM2000MMF4TiALN	70772	**20mm**	20mm	38mm	100mm	TiALN	$117.19
CEM2000MMF2TiCN	70767	CEM2000MMF4TiCN	70773	**20mm**	20mm	38mm	100mm	TiCN	$117.19
CEM2500MMF2	70822	CEM2500MMF4	70828	**25mm**	25mm	38mm	100mm	UNCOATED	$149.27
CEM2500MMF2TiALN	70823	CEM2500MMF4TiALN	70829	**25mm**	25mm	38mm	100mm	TiALN	$190.94
CEM2500MMF2TiCN	70824	CEM2500MMF4TiCN	70830	**25mm**	25mm	38mm	100mm	TiCN	$190.94




RADIUS END

SPEEDS & FEEDS CHART PAGE 199-200, 204-205										
2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM0300MMRS2020	70030	CEM0300MMRS4020	70033	**3mm**	3mm	8mm	38mm	0.20mm	UNCOATED	$11.59
CEM0300MMRS2020TiALN	70031	CEM0300MMRS4020TiALN	70034	**3mm**	3mm	8mm	38mm	0.20mm	TiALN	$15.88
CEM0300MMRS2020TiCN	70032	CEM0300MMRS4020TiCN	70035	**3mm**	3mm	8mm	38mm	0.20mm	TiCN	$15.88
CEM0300MMR2020	70018	CEM0300MMR4020	70024	**3mm**	3mm	12mm	38mm	0.20mm	UNCOATED	$11.59
CEM0300MMR2020TiALN	70019	CEM0300MMR4020TiALN	70025	**3mm**	3mm	12mm	38mm	0.20mm	TiALN	$15.88
CEM0300MMR2020TiCN	70020	CEM0300MMR4020TiCN	70026	**3mm**	3mm	12mm	38mm	0.20mm	TiCN	$15.88
CEM0300MMR2050	70021	CEM0300MMR4050	70027	**3mm**	3mm	12mm	38mm	0.50mm	UNCOATED	$11.59
CEM0300MMR2050TiALN	70022	CEM0300MMR4050TiALN	70028	**3mm**	3mm	12mm	38mm	0.50mm	TiALN	$15.88
CEM0300MMR2050TiCN	70023	CEM0300MMR4050TiCN	70029	**3mm**	3mm	12mm	38mm	0.50mm	TiCN	$15.88
CEM0400MMRS2030	70057	CEM0400MMRS4030	70060	**4mm**	6mm	8mm	50mm	0.30mm	UNCOATED	$12.91
CEM0400MMRS2030TiALN	70058	CEM0400MMRS4030TiALN	70061	**4mm**	6mm	8mm	50mm	0.30mm	TiALN	$17.85
CEM0400MMRS2030TiCN	70059	CEM0400MMRS4030TiCN	70062	**4mm**	6mm	8mm	50mm	0.30mm	TiCN	$17.85
CEM0400MMR2030	70045	CEM0400MMR4030	70051	**4mm**	6mm	12mm	50mm	0.30mm	UNCOATED	$12.91
CEM0400MMR2030TiALN	70046	CEM0400MMR4030TiALN	70052	**4mm**	6mm	12mm	50mm	0.30mm	TiALN	$17.85
CEM0400MMR2030TiCN	70047	CEM0400MMR4030TiCN	70053	**4mm**	6mm	12mm	50mm	0.30mm	TiCN	$17.85

2 & 4 FLUTE (METRIC) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 199-200, 204-205

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM0400MMR2050	70048	CEM0400MMR4050	70054	4mm	6mm	12mm	50mm	0.50mm	UNCOATED	$12.91
CEM0400MMR2050TiALN	70049	CEM0400MMR4050TiALN	70055	4mm	6mm	12mm	50mm	0.50mm	TiALN	$17.85
CEM0400MMR2050TiCN	70050	CEM0400MMR4050TiCN	70056	4mm	6mm	12mm	50mm	0.50mm	TiCN	$17.85
CEM0500MMRS2030	70084	CEM0500MMRS4030	70087	5mm	6mm	10mm	50mm	0.30mm	UNCOATED	$15.14
CEM0500MMRS2030TiALN	70085	CEM0500MMRS4030TiALN	70088	5mm	6mm	10mm	50mm	0.30mm	TiALN	$21.83
CEM0500MMRS2030TiCN	70086	CEM0500MMRS4030TiCN	70089	5mm	6mm	10mm	50mm	0.30mm	TiCN	$21.83
CEM0500MMR2030	70072	CEM0500MMR4030	70078	5mm	6mm	15mm	65mm	0.30mm	UNCOATED	$15.14
CEM0500MMR2030TiALN	70073	CEM0500MMR4030TiALN	70079	5mm	6mm	15mm	65mm	0.30mm	TiALN	$21.83
CEM0500MMR2030TiCN	70074	CEM0500MMR4030TiCN	70080	5mm	6mm	15mm	65mm	0.30mm	TiCN	$21.83
CEM0500MMR2050	70075	CEM0500MMR4050	70081	5mm	6mm	15mm	65mm	0.50mm	UNCOATED	$15.14
CEM0500MMR2050TiALN	70076	CEM0500MMR4050TiALN	70082	5mm	6mm	15mm	65mm	0.50mm	TiALN	$21.83
CEM0500MMR2050TiCN	70077	CEM0500MMR4050TiCN	70083	5mm	6mm	15mm	65mm	0.50mm	TiCN	$21.83
CEM0600MMRS2030	70120	CEM0600MMRS4030	70123	6mm	6mm	12mm	50mm	0.30mm	UNCOATED	$14.39
CEM0600MMRS2030TiALN	70121	CEM0600MMRS4030TiALN	70124	6mm	6mm	12mm	50mm	0.30mm	TiALN	$20.74
CEM0600MMRS2030TiCN	70122	CEM0600MMRS4030TiCN	70125	6mm	6mm	12mm	50mm	0.30mm	TiCN	$20.74
CEM0600MMR2030	70108	CEM0600MMR4030	70114	6mm	6mm	19mm	65mm	0.30mm	UNCOATED	$14.39
CEM0600MMR2030TiALN	70109	CEM0600MMR4030TiALN	70115	6mm	6mm	19mm	65mm	0.30mm	TiALN	$20.74
CEM0600MMR2030TiCN	70110	CEM0600MMR4030TiCN	70116	6mm	6mm	19mm	65mm	0.30mm	TiCN	$20.74
CEM0600MMR2050	70111	CEM0600MMR4050	70117	6mm	6mm	19mm	65mm	0.50mm	UNCOATED	$14.39
CEM0600MMR2050TiALN	70112	CEM0600MMR4050TiALN	70118	6mm	6mm	19mm	65mm	0.50mm	TiALN	$20.74
CEM0600MMR2050TiCN	70113	CEM0600MMR4050TiCN	70119	6mm	6mm	19mm	65mm	0.50mm	TiCN	$20.74
CEM0800MMRS2050	70168	CEM0800MMRS4050	70171	8mm	8mm	12mm	50mm	0.50mm	UNCOATED	$20.09
CEM0800MMRS2050TiALN	70169	CEM0800MMRS4050TiALN	70172	8mm	8mm	12mm	50mm	0.50mm	TiALN	$29.27
CEM0800MMRS2050TiCN	70170	CEM0800MMRS4050TiCN	70173	8mm	8mm	12mm	50mm	0.50mm	TiCN	$29.27
CEM0800MMR2030	70144	CEM0800MMR4030	70156	8mm	8mm	22mm	65mm	0.30mm	UNCOATED	$20.09
CEM0800MMR2030TiALN	70145	CEM0800MMR4030TiALN	70157	8mm	8mm	22mm	65mm	0.30mm	TiALN	$29.27
CEM0800MMR2030TiCN	70146	CEM0800MMR4030TiCN	70158	8mm	8mm	22mm	65mm	0.30mm	TiCN	$29.27
CEM0800MMR2050	70147	CEM0800MMR4050	70159	8mm	8mm	22mm	65mm	0.50mm	UNCOATED	$20.09
CEM0800MMR2050TiALN	70148	CEM0800MMR4050TiALN	70160	8mm	8mm	22mm	65mm	0.50mm	TiALN	$29.27
CEM0800MMR2050TiCN	70149	CEM0800MMR4050TiCN	70161	8mm	8mm	22mm	65mm	0.50mm	TiCN	$29.27
CEM0800MMR2100	70150	CEM0800MMR4100	70162	8mm	8mm	22mm	65mm	1.0mm	UNCOATED	$20.09
CEM0800MMR2100TiALN	70151	CEM0800MMR4100TiALN	70163	8mm	8mm	22mm	65mm	1.0mm	TiALN	$29.27
CEM0800MMR2100TiCN	70152	CEM0800MMR4100TiCN	70164	8mm	8mm	22mm	65mm	1.0mm	TiCN	$29.27
CEM0800MMR2150	70153	CEM0800MMR4150	70165	8mm	8mm	22mm	65mm	1.5mm	UNCOATED	$20.09
CEM0800MMR2150TiALN	70154	CEM0800MMR4150TiALN	70166	8mm	8mm	22mm	65mm	1.5mm	TiALN	$29.27
CEM0800MMR2150TiCN	70155	CEM0800MMR4150TiCN	70167	8mm	8mm	22mm	65mm	1.5mm	TiCN	$29.27
CEM1000MMRS2050	70201	CEM1000MMRS4050	70204	10mm	10mm	16mm	50mm	0.50mm	UNCOATED	$25.58
CEM1000MMRS2050TiALN	70202	CEM1000MMRS4050TiALN	70205	10mm	10mm	16mm	50mm	0.50mm	TiALN	$36.74
CEM1000MMRS2050TiCN	70203	CEM1000MMRS4050TiCN	70206	10mm	10mm	16mm	50mm	0.50mm	TiCN	$36.74

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STANDARD PERFORMANCE
2 & 4 FLUTE (METRIC) RADIUS

RADIUS END

SPEEDS & FEEDS CHART PAGE 199-200, 204-205

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM1000MMR2030	70183	CEM1000MMR4030	70192	10mm	10mm	22mm	70mm	0.30mm	UNCOATED	$25.58
CEM1000MMR2030TiALN	70184	CEM1000MMR4030TiALN	70193	10mm	10mm	22mm	70mm	0.30mm	TiALN	$36.74
CEM1000MMR2030TiCN	70185	CEM1000MMR4030TiCN	70194	10mm	10mm	22mm	70mm	0.30mm	TiCN	$36.74
CEM1000MMR2050	70186	CEM1000MMR4050	70195	10mm	10mm	22mm	70mm	0.50mm	UNCOATED	$25.58
CEM1000MMR2050TiALN	70187	CEM1000MMR4050TiALN	70196	10mm	10mm	22mm	70mm	0.50mm	TiALN	$36.74
CEM1000MMR2050TiCN	70188	CEM1000MMR4050TiCN	70197	10mm	10mm	22mm	70mm	0.50mm	TiCN	$36.74
CEM1000MMR2100	70189	CEM1000MMR4100	70198	10mm	10mm	22mm	70mm	1.0mm	UNCOATED	$25.58
CEM1000MMR2100TiALN	70190	CEM1000MMR4100TiALN	70199	10mm	10mm	22mm	70mm	1.0mm	TiALN	$36.74
CEM1000MMR2100TiCN	70191	CEM1000MMR4100TiCN	70200	10mm	10mm	22mm	70mm	1.0mm	TiCN	$36.74
CEM1200MMRS2030	70387	CEM1200MMRS4030	70393	12mm	12mm	19mm	63mm	0.30mm	UNCOATED	$38.78
CEM1200MMRS2030TiALN	70388	CEM1200MMRS4030TiALN	70394	12mm	12mm	19mm	63mm	0.30mm	TiALN	$52.69
CEM1200MMRS2030TiCN	70389	CEM1200MMRS4030TiCN	70395	12mm	12mm	19mm	63mm	0.30mm	TiCN	$52.69
CEM1200MMRS2050	70390	CEM1200MMRS4050	70396	12mm	12mm	19mm	63mm	0.50mm	UNCOATED	$38.78
CEM1200MMRS2050TiALN	70391	CEM1200MMRS4050TiALN	70397	12mm	12mm	19mm	63mm	0.50mm	TiALN	$52.69
CEM1200MMRS2050TiCN	70392	CEM1200MMRS4050TiCN	70398	12mm	12mm	19mm	63mm	0.50mm	TiCN	$52.69
CEM1200MMR2030	70357	CEM1200MMR4030	70372	12mm	12mm	32mm	75mm	0.30mm	UNCOATED	$40.82
CEM1200MMR2030TiALN	70358	CEM1200MMR4030TiALN	70373	12mm	12mm	32mm	75mm	0.30mm	TiALN	$55.46
CEM1200MMR2030TiCN	70359	CEM1200MMR4030TiCN	70374	12mm	12mm	32mm	75mm	0.30mm	TiCN	$55.46
CEM1200MMR2050	70360	CEM1200MMR4050	70375	12mm	12mm	32mm	75mm	0.50mm	UNCOATED	$40.82
CEM1200MMR2050TiALN	70361	CEM1200MMR4050TiALN	70376	12mm	12mm	32mm	75mm	0.50mm	TiALN	$55.46
CEM1200MMR2050TiCN	70362	CEM1200MMR4050TiCN	70377	12mm	12mm	32mm	75mm	0.50mm	TiCN	$55.46
CEM1200MMR2100	70363	CEM1200MMR4100	70378	12mm	12mm	32mm	75mm	1.0mm	UNCOATED	$40.82
CEM1200MMR2100TiALN	70364	CEM1200MMR4100TiALN	70379	12mm	12mm	32mm	75mm	1.0mm	TiALN	$55.46
CEM1200MMR2100TiCN	70365	CEM1200MMR4100TiCN	70380	12mm	12mm	32mm	75mm	1.0mm	TiCN	$55.46
CEM1200MMR2150	70366	CEM1200MMR4150	70381	12mm	12mm	32mm	75mm	1.5mm	UNCOATED	$40.82
CEM1200MMR2150TiALN	70367	CEM1200MMR4150TiALN	70382	12mm	12mm	32mm	75mm	1.5mm	TiALN	$55.46
CEM1200MMR2150TiCN	70368	CEM1200MMR4150TiCN	70383	12mm	12mm	32mm	75mm	1.5mm	TiCN	$55.46
CEM1200MMR2200	70369	CEM1200MMR4200	70384	12mm	12mm	32mm	75mm	2.0mm	UNCOATED	$40.82
CEM1200MMR2200TiALN	70370	CEM1200MMR4200TiALN	70385	12mm	12mm	32mm	75mm	2.0mm	TiALN	$55.46
CEM1200MMR2200TiCN	70371	CEM1200MMR4200TiCN	70386	12mm	12mm	32mm	75mm	2.0mm	TiCN	$55.46
CEM1600MMRS2030	70654	CEM1600MMRS4030	70660	16mm	16mm	19mm	75mm	0.30mm	UNCOATED	$77.20
CEM1600MMRS2030TiALN	70655	CEM1600MMRS4030TiALN	70661	16mm	16mm	19mm	75mm	0.30mm	TiALN	$85.78
CEM1600MMRS2030TiCN	70656	CEM1600MMRS4030TiCN	70662	16mm	16mm	19mm	75mm	0.30mm	TiCN	$85.78
CEM1600MMRS2050	70657	CEM1600MMRS4050	70663	16mm	16mm	19mm	75mm	0.50mm	UNCOATED	$77.20
CEM1600MMRS2050TiALN	70658	CEM1600MMRS4050TiALN	70664	16mm	16mm	19mm	75mm	0.50mm	TiALN	$85.78
CEM1600MMRS2050TiCN	70659	CEM1600MMRS4050TiCN	70665	16mm	16mm	19mm	75mm	0.50mm	TiCN	$85.78
CEM1600MMR2030	70630	CEM1600MMR4030	70642	16mm	16mm	32mm	89mm	0.30mm	UNCOATED	$81.26
CEM1600MMR2030TiALN	70631	CEM1600MMR4030TiALN	70643	16mm	16mm	32mm	89mm	0.30mm	TiALN	$90.30
CEM1600MMR2030TiCN	70632	CEM1600MMR4030TiCN	70644	16mm	16mm	32mm	89mm	0.30mm	TiCN	$90.30

2 & 4 FLUTE (METRIC) RADIUS

RADIUS END

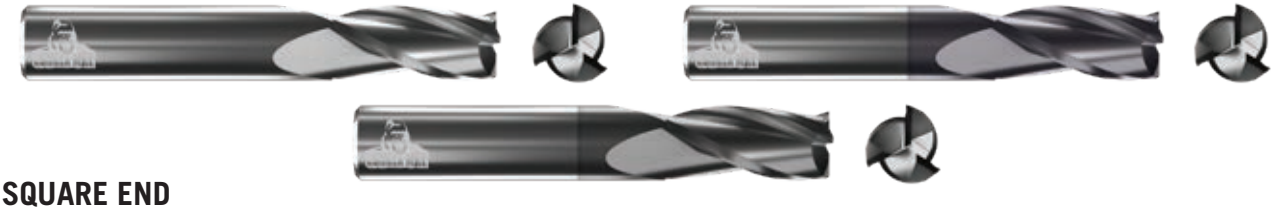
SPEEDS & FEEDS CHART PAGE 199-200, 204-205

2 FLUTE SKU	2 FLUTE EDP	4 FLUTE SKU	4 FLUTE EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	CORNER RADIUS	COATING	LIST PRICE
CEM1600MMR2050	70633	CEM1600MMR4050	70645	**16mm**	16mm	32mm	89mm	0.50mm	UNCOATED	$81.26
CEM1600MMR2050TiALN	70634	CEM1600MMR4050TiALN	70646	**16mm**	16mm	32mm	89mm	0.50mm	TiALN	$90.30
CEM1600MMR2050TiCN	70635	CEM1600MMR4050TiCN	70647	**16mm**	16mm	32mm	89mm	0.50mm	TiCN	$90.30
CEM1600MMR2100	70636	CEM1600MMR4100	70648	**16mm**	16mm	32mm	89mm	1.0mm	UNCOATED	$81.26
CEM1600MMR2100TiALN	70637	CEM1600MMR4100TiALN	70649	**16mm**	16mm	32mm	89mm	1.0mm	TiALN	$90.30
CEM1600MMR2100TiCN	70638	CEM1600MMR4100TiCN	70650	**16mm**	16mm	32mm	89mm	1.0mm	TiCN	$90.30
CEM1600MMR2200	70639	CEM1600MMR4200	70651	**16mm**	16mm	32mm	89mm	2.0mm	UNCOATED	$81.26
CEM1600MMR2200TiALN	70640	CEM1600MMR4200TiALN	70652	**16mm**	16mm	32mm	89mm	2.0mm	TiALN	$90.30
CEM1600MMR2200TiCN	70641	CEM1600MMR4200TiCN	70653	**16mm**	16mm	32mm	89mm	2.0mm	TiCN	$90.30
CEM2000MMRS2100	70792	CEM2000MMRS4100	70795	**20mm**	20mm	22mm	75mm	1.0mm	UNCOATED	$105.96
CEM2000MMRS2100TiALN	70793	CEM2000MMRS4100TiALN	70796	**20mm**	20mm	22mm	75mm	1.0mm	TiALN	$117.72
CEM2000MMRS2100TiCN	70794	CEM2000MMRS4100TiCN	70797	**20mm**	20mm	22mm	75mm	1.0mm	TiCN	$117.72
CEM2000MMR2050	70774	CEM2000MMR4050	70783	**20mm**	20mm	38mm	100mm	0.50mm	UNCOATED	$111.53
CEM2000MMR2050TiALN	70775	CEM2000MMR4050TiALN	70784	**20mm**	20mm	38mm	100mm	0.50mm	TiALN	$123.92
CEM2000MMR2050TiCN	70776	CEM2000MMR4050TiCN	70785	**20mm**	20mm	38mm	100mm	0.50mm	TiCN	$123.92
CEM2000MMR2100	70777	CEM2000MMR4100	70786	**20mm**	20mm	38mm	100mm	1.0mm	UNCOATED	$111.53
CEM2000MMR2100TiALN	70778	CEM2000MMR4100TiALN	70787	**20mm**	20mm	38mm	100mm	1.0mm	TiALN	$123.92
CEM2000MMR2100TiCN	70779	CEM2000MMR4100TiCN	70788	**20mm**	20mm	38mm	100mm	1.0mm	TiCN	$123.92
CEM2000MMR2150	70780	CEM2000MMR4150	70789	**20mm**	20mm	38mm	100mm	1.5mm	UNCOATED	$111.53
CEM2000MMR2150TiALN	70781	CEM2000MMR4150TiALN	70790	**20mm**	20mm	38mm	100mm	1.5mm	TiALN	$123.92
CEM2000MMR2150TiCN	70782	CEM2000MMR4150TiCN	70791	**20mm**	20mm	38mm	100mm	1.5mm	TiCN	$123.92
CEM2500MMR2100	70831	CEM2500MMR4100	70837	**25mm**	25mm	38mm	100mm	1.0mm	UNCOATED	$216.15
CEM2500MMR2100TiALN	70832	CEM2500MMR4100TiALN	70838	**25mm**	25mm	38mm	100mm	1.0mm	TiALN	$240.17
CEM2500MMR2100TiCN	70833	CEM2500MMR4100TiCN	70839	**25mm**	25mm	38mm	100mm	1.0mm	TiCN	$240.17
CEM2500MMR2150	70834	CEM2500MMR4150	70840	**25mm**	25mm	38mm	100mm	1.5mm	UNCOATED	$216.15
CEM2500MMR2150TiALN	70835	CEM2500MMR4150TiALN	70841	**25mm**	25mm	38mm	100mm	1.5mm	TiALN	$240.17
CEM2500MMR2150TiCN	70836	CEM2500MMR4150TiCN	70842	**25mm**	25mm	38mm	100mm	1.5mm	TiCN	$240.17

STANDARD PERFORMANCE
3 FLUTE (INCH) SQUARE

Extremely versatile in various materials, center cutting, solid sub-micron carbide. See “Speeds and Feeds” calculator at gorillamill.com or refer to ”Speeds and Feeds” chart at the back of the catalog.

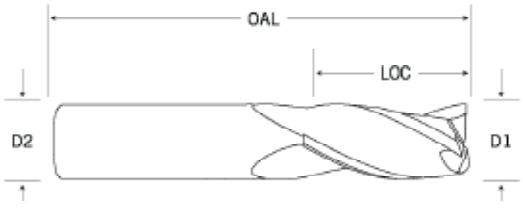
Available in special diameters, lengths and completely resharpenable.



SQUARE END

SPEEDS & FEEDS CHART PAGE 201

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM116F3	70321	1/16	1/8	3/16	1-1/2	UNCOATED	$7.88
CEM116F3TiALN	70322	1/16	1/8	3/16	1-1/2	TiALN	$9.04
CEM116F3TiCN	70323	1/16	1/8	3/16	1-1/2	TiCN	$9.04
CEM332F3	70963	3/32	1/8	3/8	1-1/2	UNCOATED	$7.16
CEM332F3TiALN	70964	3/32	1/8	3/8	1-1/2	TiALN	$9.04
CEM332F3TiCN	70965	3/32	1/8	3/8	1-1/2	TiCN	$9.04
CEM18F3	70711	1/8	1/8	1/2	1-1/2	UNCOATED	$6.86
CEM18F3TiALN	70712	1/8	1/8	1/2	1-1/2	TiALN	$8.40
CEM18F3TiCN	70713	1/8	1/8	1/2	1-1/2	TiCN	$8.40
CEM532F3	71281	5/32	3/16	1/2	2	UNCOATED	$10.10
CEM532F3TiALN	71282	5/32	3/16	1/2	2	TiALN	$11.72
CEM532F3TiCN	71283	5/32	3/16	1/2	2	TiCN	$11.72
CEM316F3	70912	3/16	3/16	5/8	2	UNCOATED	$9.34
CEM316F3TiALN	70913	3/16	3/16	5/8	2	TiALN	$11.72
CEM316F3TiCN	70914	3/16	3/16	5/8	2	TiCN	$11.72
CEM732F3	71410	7/32	1/4	5/8	2-1/2	UNCOATED	$13.94
CEM732F3TiALN	71411	7/32	1/4	5/8	2-1/2	TiALN	$16.19
CEM732F3TiCN	71412	7/32	1/4	5/8	2-1/2	TiCN	$16.19
CEM14F3	70555	1/4	1/4	3/4	2-1/2	UNCOATED	$11.54
CEM14F3TiALN	70556	1/4	1/4	3/4	2-1/2	TiALN	$16.19
CEM14F3TiCN	70557	1/4	1/4	3/4	2-1/2	TiCN	$16.19
CEM932F3	71452	9/32	5/16	3/4	2-1/2	UNCOATED	$20.81
CEM932F3TiALN	71453	9/32	5/16	3/4	2-1/2	TiALN	$26.74
CEM932F3TiCN	71454	9/32	5/16	3/4	2-1/2	TiCN	$26.74



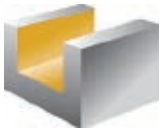
MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

PROFILING

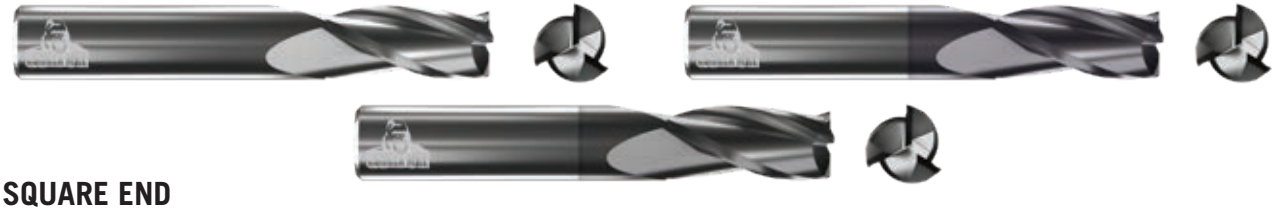
FULL SLOTTING



POCKETING

HIGH-VELOCITY

3 FLUTE (INCH) SQUARE



SQUARE END

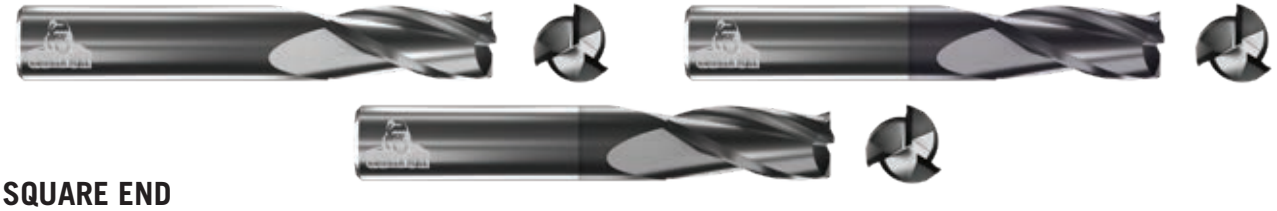
SPEEDS & FEEDS CHART PAGE 201

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM516F3	71224	5/16	5/16	7/8	2-1/2	UNCOATED	$15.02
CEM516F3TiALN	71225	5/16	5/16	7/8	2-1/2	TiALN	$19.38
CEM516F3TiCN	71226	5/16	5/16	7/8	2-1/2	TiCN	$19.38
CEM38F3	71143	3/8	3/8	7/8	2-1/2	UNCOATED	$17.92
CEM38F3TiALN	71144	3/8	3/8	7/8	2-1/2	TiALN	$22.16
CEM38F3TiCN	71145	3/8	3/8	7/8	2-1/2	TiCN	$22.16
CEM716F3	71395	7/16	7/16	1	2-1/2	UNCOATED	$27.50
CEM716F3TiALN	71396	7/16	7/16	1	2-1/2	TiALN	$33.85
CEM716F3TiCN	71397	7/16	7/16	1	2-1/2	TiCN	$33.85
CEM12F3	70432	1/2	1/2	1	3	UNCOATED	$33.02
CEM12F3TiALN	70433	1/2	1/2	1	3	TiALN	$41.20
CEM12F3TiCN	70434	1/2	1/2	1	3	TiCN	$41.20
CEM12FH3	71479	1/2	1/2	1-1/4	3	UNCOATED	$33.02
CEM12FH3TiALN	71480	1/2	1/2	1-1/4	3	TiALN	$41.20
CEM12FH3TiCN	71481	1/2	1/2	1-1/4	3	TiCN	$41.20
CEM916F3	71437	9/16	9/16	1-1/4	3-1/2	UNCOATED	$62.41
CEM916F3TiALN	71438	9/16	9/16	1-1/4	3-1/2	TiALN	$82.41
CEM916F3TiCN	71439	9/16	9/16	1-1/4	3-1/2	TiCN	$82.41
CEM58F3	71326	5/8	5/8	1-1/4	3-1/2	UNCOATED	$63.13
CEM58F3TiALN	71327	5/8	5/8	1-1/4	3-1/2	TiALN	$80.48
CEM58F3TiCN	71328	5/8	5/8	1-1/4	3-1/2	TiCN	$80.48
CEM34F3	71020	3/4	3/4	1-1/2	4	UNCOATED	$88.67
CEM34F3TiALN	71021	3/4	3/4	1-1/2	4	TiALN	$114.21
CEM34F3TiCN	71022	3/4	3/4	1-1/2	4	TiCN	$114.21
CEM10F3	70234	1	1	1-1/2	4	UNCOATED	$149.27
CEM10F3TiALN	70235	1	1	1-1/2	4	TiALN	$190.94
CEM10F3TiCN	70236	1	1	1-1/2	4	TiCN	$190.94

STANDARD PERFORMANCE
3 FLUTE (METRIC) SQUARE

Extremely versatile in various materials, center cutting, solid sub-micron carbide. See “Speeds and Feeds” calculator at gorillamill.com or refer to ”Speeds and Feeds” chart at the back of the catalog.

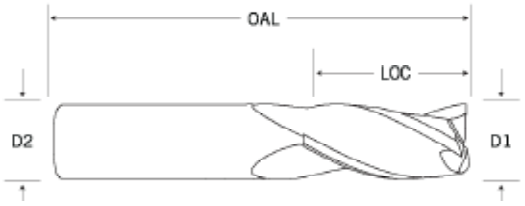
Available in special diameters, lengths and completely resharpenable.



SQUARE END

SPEEDS & FEEDS CHART PAGE 202-203

SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM0300MMF3	70003	3mm	3mm	12mm	38mm	UNCOATED	$6.86
CEM0300MMF3TiALN	70004	3mm	3mm	12mm	38mm	TiALN	$8.40
CEM0300MMF3TiCN	70005	3mm	3mm	12mm	38mm	TiCN	$8.40
CEM0300MMFS3	70012	3mm	3mm	8mm	38mm	UNCOATED	$6.86
CEM0300MMFS3TiALN	70013	3mm	3mm	8mm	38mm	TiALN	$8.40
CEM0300MMFS3TiCN	70014	3mm	3mm	8mm	38mm	TiCN	$8.40
CEM0400MMF3	70039	4mm	6mm	12mm	50mm	UNCOATED	$11.73
CEM0400MMF3TiALN	70040	4mm	6mm	12mm	50mm	TiALN	$17.44
CEM0400MMF3TiCN	70041	4mm	6mm	12mm	50mm	TiCN	$17.44
CEM0500MMF3	70066	5mm	6mm	15mm	65mm	UNCOATED	$13.93
CEM0500MMF3TiALN	70067	5mm	6mm	15mm	65mm	TiALN	$19.18
CEM0500MMF3TiCN	70068	5mm	6mm	15mm	65mm	TiCN	$19.18
CEM0600MMF3	70093	6mm	6mm	19mm	65mm	UNCOATED	$13.93
CEM0600MMF3TiALN	70094	6mm	6mm	19mm	65mm	TiALN	$19.18
CEM0600MMF3TiCN	70095	6mm	6mm	19mm	65mm	TiCN	$19.18
CEM0600MMFS3	70102	6mm	6mm	12mm	50mm	UNCOATED	$13.03
CEM0600MMFS3TiALN	70103	6mm	6mm	12mm	50mm	TiALN	$18.23
CEM0600MMFS3TiCN	70104	6mm	6mm	12mm	50mm	TiCN	$18.23
CEM0800MMF3	70129	8mm	8mm	22mm	65mm	UNCOATED	$15.03
CEM0800MMF3TiALN	70130	8mm	8mm	22mm	65mm	TiALN	$19.38
CEM0800MMF3TiCN	70131	8mm	8mm	22mm	65mm	TiCN	$19.38
CEM0800MMFS3	70138	8mm	8mm	12mm	50mm	UNCOATED	$14.28
CEM0800MMFS3TiALN	70139	8mm	8mm	12mm	50mm	TiALN	$18.41
CEM0800MMFS3TiCN	70140	8mm	8mm	12mm	50mm	TiCN	$18.41



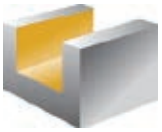
MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

TOLERANCES
Cut Dia +.000/-.050mm
Shank Dia -.0025/-.0127mm
LOC +.635/+1.270mm
OAL +/-1.270mm

PROFILING

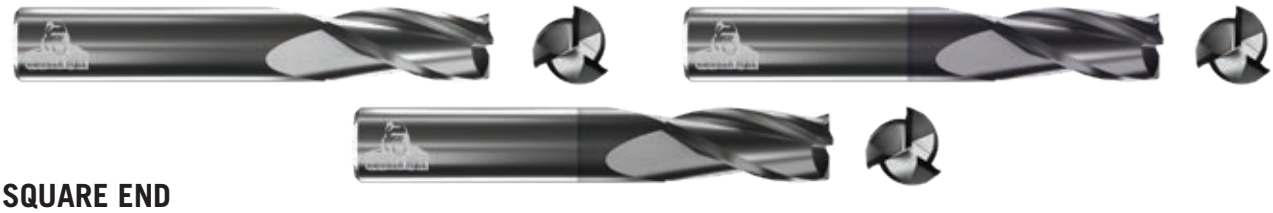
FULL SLOTTING



POCKETING

HIGH-VELOCITY

3 FLUTE (METRIC) SQUARE



SQUARE END

SPEEDS & FEEDS CHART PAGE 202-203							
SKU	EDP	D1 Cutting Dia.	D2 Shank Dia.	LOC	OAL	COATING	LIST PRICE
CEM1000MMF3	70177	10mm	10mm	22mm	70mm	UNCOATED	$18.75
CEM1000MMF3TiALN	70178	10mm	10mm	22mm	70mm	TiALN	$22.16
CEM1000MMF3TiCN	70179	10mm	10mm	22mm	70mm	TiCN	$22.16
CEM1200MMF3	70342	12mm	12mm	32mm	75mm	UNCOATED	$33.02
CEM1200MMF3TiALN	70343	12mm	12mm	32mm	75mm	TiALN	$41.20
CEM1200MMF3TiCN	70344	12mm	12mm	32mm	75mm	TiCN	$41.20
CEM1200MMFS3	70351	12mm	12mm	19mm	63mm	UNCOATED	$31.41
CEM1200MMFS3TiALN	70352	12mm	12mm	19mm	63mm	TiALN	$39.14
CEM1200MMFS3TiCN	70353	12mm	12mm	19mm	63mm	TiCN	$39.14
CEM1600MMF3	70624	16mm	16mm	32mm	89mm	UNCOATED	$63.13
CEM1600MMF3TiALN	70625	16mm	16mm	32mm	89mm	TiALN	$80.49
CEM1600MMF3TiCN	70626	16mm	16mm	32mm	89mm	TiCN	$80.49
CEM2000MMF3	70768	20mm	20mm	38mm	100mm	UNCOATED	$93.01
CEM2000MMF3TiALN	70769	20mm	20mm	38mm	100mm	TiALN	$117.19
CEM2000MMF3TiCN	70770	20mm	20mm	38mm	100mm	TiCN	$117.19
CEM2500MMF3	70825	25mm	25mm	38mm	100mm	UNCOATED	$149.27
CEM2500MMF3TiALN	70826	25mm	25mm	38mm	100mm	TiALN	$190.94
CEM2500MMF3TiCN	70827	25mm	25mm	38mm	100mm	TiCN	$190.94

HIGH PERFORMANCE
SOLID SHORT LENGTH DRILLS 3X

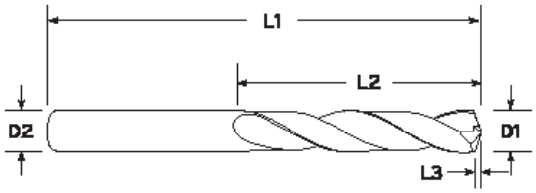
The Gorilla Drill is a general-purpose high performance and high penetration solid carbide drill capable of machining a vast range of work materials. Gorilla Drills are suitable for high efficiency precision machining. Up to 50% faster than standard carbide drills. Edge prepped for maximum tool life and SFM. 142˚ drill point.

Available in special diameters, lengths and completely resharpenable.

SOLID SHORT LENGTH DRILLS 3X — GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206

SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GD1200X3	80000	#31	0.1200	1/8	0.7500	2.2500	0.0190	$46.16
GD1250X3	80002	1/8	0.1250	1/8	0.7500	2.2500	0.0190	$46.16
GD1285X3	80004	#30	0.1285	5/32	0.8750	2.5000	0.0200	$48.99
GD1299X3	80006	3.30mm	0.1299	4mm	22mm	63mm	0.51mm	$48.99
GD1360X3	80007	#29	0.1360	5/32	0.8750	2.5000	0.0210	$48.99
GD1406X3	80009	9/64	0.1406	5/32	0.8750	2.5000	0.0220	$48.99
GD1496X3	80011	3.80mm	0.1496	4mm	22mm	63mm	0.59mm	$48.99
GD1562X3	80012	5/32	0.1562	5/32	0.8750	2.5000	0.0240	$48.99
GD1590X3	80014	#21	0.1590	3/16	1.0000	2.5000	0.0250	$51.38
GD1614X3	80016	4.10mm	0.1614	5mm	26mm	63mm	0.64mm	$53.63
GD1693X3	80017	4.30mm	0.1693	5mm	26mm	63mm	0.67mm	$53.63
GD1719X3	80018	11/64	0.1719	3/16	1.0000	2.5000	0.0270	$51.38
GD1732X3	80020	4.40mm	0.1732	5mm	26mm	63mm	0.68mm	$53.63
GD1875X3	80021	3/16	0.1875	3/16	1.0000	2.5000	0.0290	$51.38
GD1929X3	80023	4.90mm	0.1929	5mm	26mm	63mm	0.76mm	$53.63
GD1968X3	80024	5mm	0.1968	5mm	26mm	63mm	0.77mm	$53.63
GD2031X3	80026	13/64	0.2031	15/64	1.1250	3.0000	0.0310	$62.70
GD2087X3	80028	5.30mm	0.2087	6mm	30mm	76mm	0.82mm	$62.70
GD2165X3	80030	5.50mm	0.2165	6mm	30mm	76mm	0.85mm	$62.70
GD2187X3	80031	7/32	0.2187	15/64	1.1250	3.0000	0.0340	$62.70
GD2210X3	80033	#2	0.2210	15/64	1.1250	3.0000	0.0340	$62.70
GD2244X3	80035	5.70mm	0.2244	6mm	30mm	76mm	0.88mm	$62.70
GD2283X3	80036	5.80mm	0.2283	6mm	30mm	76mm	0.90mm	$62.70
GD2344X3	80037	15/64	0.2344	15/64	1.1250	3.0000	0.0360	$60.43
GD2362X3	80039	6mm	0.2362	6mm	30mm	76mm	0.93mm	$62.70
GD2441X3	80041	6.20mm	0.2441	8mm	35mm	82mm	0.96mm	$74.10
GD2500X3	80043	1/4	0.2500	1/4	1.2500	3.0000	0.0390	$67.59
GD2570X3	80045	F	0.2570	5/16	1.3750	3.2500	0.0400	$64.36
GD2656X3	80047	17/64	0.2656	5/16	1.3750	3.2500	0.0410	$80.01
GD2756X3	80049	7mm	0.2756	8mm	35mm	82mm	1.08mm	$74.10
GD2812X3	80051	9/32	0.2812	5/16	1.5000	3.2500	0.0440	$69.96
GD2969X3	80053	19/64	0.2969	5/16	1.5000	3.2500	0.0460	$69.96



MATERIALS

Low Carbon Steel, Alloy Steel (up to 35Rc), Alloy Steel (36-45Rc), Aluminum, Aircraft Aluminum, Austenetic Stainless Steel, High Temperature Alloys, Precipitation Hardened Stainless Steel, Titanium, Gray Cast Iron, Ductile Cast Iron

SOLID SHORT LENGTH DRILLS 3X

SOLID SHORT LENGTH DRILLS 3X

GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206

SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GD3125X3	80055	5/16	0.3125	5/16	1.5000	3.2500	0.0480	$69.96
GD3150X3	80057	8mm	0.3150	8mm	38mm	82mm	1.24mm	$74.10
GD3281X3	80059	21/64	0.3281	25/64	1.6870	3.5000	0.0510	$95.49
GD3346X3	80061	8.50mm	0.3346	10mm	43mm	89mm	1.32mm	$95.49
GD3438X3	80063	11/32	0.3438	25/64	1.6870	3.5000	0.0530	$95.49
GD3543X3	80065	9mm	0.3543	10mm	43mm	89mm	1.39mm	$95.49
GD3594X3	80067	23/64	0.3594	25/64	1.6870	3.5000	0.0560	$95.82
GD3642X3	80069	9.25mm	0.3642	10mm	43mm	89mm	1.43mm	$95.82
GD3750X3	80071	3/8	0.3750	25/64	1.6870	3.5000	0.0580	$95.82
GD3906X3	80074	25/64	0.3906	25/64	1.6870	3.5000	0.0610	$95.82
GD3937X3	80076	10mm	0.3937	10mm	43mm	89mm	1.55mm	$95.82
GD4062X3	80078	13/32	0.4062	15/32	2.0000	4.0000	0.0630	$132.23
GD4134X3	80080	10.50mm	0.4134	12mm	51mm	101mm	1.63mm	$132.23
GD4219X3	80082	27/64	0.4219	15/32	2.0000	4.0000	0.0650	$132.23
GD4331X3	80084	11mm	0.4331	12mm	51mm	101mm	1.70mm	$132.23
GD4375X3	80086	7/16	0.4375	15/32	2.0000	4.0000	0.0680	$132.23
GD4527X3	80088	11.50mm	0.4527	12mm	51mm	101mm	1.78mm	$138.73
GD4688X3	80090	15/32	0.4688	15/32	2.0000	4.0000	0.0730	$138.73
GD4724X3	80092	12mm	0.4724	12mm	51mm	101mm	1.86mm	$138.73
GD4844X3	80094	31/64	0.4844	1/2	2.0000	4.0000	0.0750	$170.21
GD5000X3	80096	1/2	0.5000	1/2	2.0000	4 .0000	0.0770	$170.21
GD5118X3	80098	13mm	0.5118	14mm	54mm	107mm	2.01mm	$177.36
GD5156X3	80100	33/64	0.5156	35/64	2.1250	4.2500	0.0800	$161.52
GD5312X3	80102	17/32	0.5312	35/64	2.1250	4.2500	0.0820	$161.52
GD5469X3	80104	35/64	0.5469	35/64	2.1250	4.2500	0.0850	$161.52
GD5625X3	80106	9/16	0.5625	5/8	2.3750	4.6250	0.0870	$226.76
GD5938X3	80108	19/32	0.5938	5/8	2.3750	4.6250	0.0920	$226.76
GD6250X3	80110	5/8	0.6250	5/8	2.3750	4.6250	0.0970	$226.76
GD6299X3	80112	16mm	0.6299	16mm	60mm	117mm	2.48mm	$230.07
GD6562X3	80114	21/32	0.6562	45/64	2.5000	4.8100	0.1020	$267.81
GD6875X3	80115	11/16	0.6875	45/64	2.5000	4.8100	0.1070	$267.81
GD7500X3	80116	3/4	0.7500	3/4	2.7500	5.2500	0.1160	$278.75
GD7874X3	80117	20mm	0.7874	20mm	70mm	133mm	3.10mm	$285.20

HIGH PERFORMANCE
SOLID REGULAR LENGTH DRILLS 5X

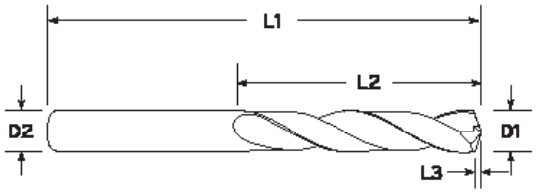
The Gorilla Drill is a general-purpose high performance and high penetration solid carbide drill capable of machining a vast range of work materials. Gorilla Drills are suitable for high efficiency precision machining. Up to 50% faster than standard carbide drills. Edge prepped for maximum tool life and SFM. 142° drill point.

Available in special diameters, lengths and completely resharpenable.

SOLID REGULAR LENGTH DRILLS 5X — GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206

SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GD1200X5	80001	#31	0.1200	1/8	1.1250	2.5000	0.0190	$50.49
GD1250X5	80003	1/8	0.1250	1/8	1.1250	2.5000	0.0190	$50.49
GD1285X5	80005	#30	0.1285	5/32	1.2600	2.7500	0.0200	$57.78
GD1360X5	80008	#29	0.1360	5/32	1.2600	2.7500	0.0210	$55.51
GD1406X5	80010	9/64	0.1406	5/32	1.2600	2.7500	0.0220	$55.51
GD1562X5	80013	5/32	0.1562	5/32	1.2600	2.7500	0.0240	$55.51
GD1590X5	80015	#21	0.1590	3/16	1.5000	3.1500	0.0250	$62.06
GD1719X5	80019	11/64	0.1719	3/16	1.5000	3.1500	0.0270	$62.19
GD1875X5	80022	3/16	0.1875	3/16	1.5000	3.1500	0.0290	$62.06
GD1968X5	80025	5mm	0.1968	5mm	38mm	80mm	0.77mm	$64.39
GD2031X5	80027	13/64	0.2031	15/64	1.5800	3.2300	0.0310	$68.72
GD2087X5	80029	5.30mm	0.2087	6mm	40mm	82mm	0.82mm	$68.72
GD2187X5	80032	7/32	0.2187	15/64	1.5800	3.2300	0.0340	$68.72
GD2210X5	80034	#2	0.2210	15/64	1.5800	3.2300	0.0340	$66.40
GD2344X5	80038	15/64	0.2344	15/64	1.5800	3.2300	0.0360	$66.40
GD2362X5	80040	6mm	0.2362	6mm	40mm	82mm	0.93mm	$68.72
GD2441X5	80042	6.20mm	0.2441	8mm	48mm	91mm	0.96mm	$78.20
GD2500X5	80044	1/4	0.2500	1/4	1.7400	3.2500	0.0390	$70.80
GD2570X5	80046	F	0.2570	5/16	1.8900	3.5800	0.0400	$78.71
GD2656X5	80048	17/64	0.2656	5/16	1.8900	3.5800	0.0410	$78.71
GD2756X5	80050	7.00mm	0.2756	8mm	48mm	91mm	1.08mm	$82.84
GD2812X5	80052	9/32	0.2812	5/16	1.8900	3.5800	0.0440	$86.63
GD2969X5	80054	19/64	0.2969	5/16	1.8900	3.5800	0.0460	$86.63
GD3125X5	80056	5/16	0.3125	5/16	1.8900	3.5800	0.0480	$86.63
GD3150X5	80058	8mm	0.3150	8mm	48mm	91mm	1.24mm	$90.77
GD3281X5	80060	21/64	0.3281	25/64	2.1700	4.0600	0.0510	$118.32
GD3346X5	80062	8.50mm	0.3346	10mm	55mm	103mm	1.32mm	$118.32
GD3438X5	80064	11/32	0.3438	25/64	2.1700	4.0600	0.0530	$118.32
GD3543X5	80066	9.00mm	0.3543	10mm	55mm	103mm	1.39mm	$118.32
GD3594X5	80068	23/64	0.3594	25/64	2.1700	4.0600	0.0560	$118.32
GD3642X5	80070	9.25mm	0.3642	10mm	55mm	103mm	1.43mm	$118.32
GD3750X5	80072	3/8	0.3750	25/64	2.1700	4.0600	0.0580	$118.32



MATERIALS

Low Carbon Steel, Alloy Steel (up to 35Rc), Alloy Steel (36-45Rc), Aluminum, Aircraft Aluminum, Austenetic Stainless Steel, High Temperature Alloys, Precipitation Hardened Stainless Steel, Titanium, Gray Cast Iron, Ductile Cast Iron

SOLID REGULAR LENGTH DRILLS 5X

SOLID REGULAR LENGTH DRILLS 5X

GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206

SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GD3780X5	80073	**9.60mm**	0.3780	10mm	55mm	103mm	1.49mm	$120.24
GD3906X5	80075	**25/64**	0.3906	25/64	2.1700	4.0600	0.0610	$120.24
GD3937X5	80077	**10mm**	0.3937	10mm	55mm	103mm	1.55mm	$120.24
GD4062X5	80079	**13/32**	0.4062	15/32	2.3600	4.7200	0.0630	$152.15
GD4134X5	80081	**10.50mm**	0.4134	12mm	60mm	120mm	1.63mm	$152.15
GD4219X5	80083	**27/64**	0.4219	15/32	2.3600	4.7200	0.0650	$152.15
GD4331X5	80085	**11mm**	0.4331	12mm	60mm	120mm	1.70mm	$152.15
GD4375X5	80087	**7/16**	0.4375	15/32	2.6000	4.7200	0.0680	$175.07
GD4527X5	80089	**11.50mm**	0.4527	12mm	66mm	120mm	1.78mm	$175.07
GD4688X5	80091	**15/32**	0.4688	15/32	2.6000	4.7200	0.0730	$175.07
GD4724X5	80093	**12mm**	0.4724	12mm	66mm	120mm	1.86mm	$175.07
GD4844X5	80095	**31/64**	0.4844	1/2	2.8300	4.7500	0.0750	$208.26
GD5000X5	80097	**1/2**	0.5000	1/2	2.8300	4.7500	0.0770	$208.26
GD5118X5	80099	**13mm**	0.5118	14mm	72mm	125mm	2.01mm	$211.63
GD5156X5	80101	**33/64**	0.5156	35/64	3.0300	5.2800	0.0800	$221.90
GD5312X5	80103	**17/32**	0.5312	35/64	3.0300	5.2800	0.0820	$221.90
GD5469X5	80105	**35/64**	0.5469	35/64	3.0300	5.2800	0.0850	$221.90
GD5625X5	80107	**9/16**	0.5625	5/8	3.1500	5.5100	0.0870	$259.19
GD5938X5	80109	**19/32**	0.5938	5/8	3.2300	5.7500	0.0920	$259.19
GD6250X5	80111	**5/8**	0.6250	5/8	3.2300	5.7500	0.0970	$259.19
GD6299X5	80113	**16mm**	0.6299	16mm	82mm	146mm	2.48mm	$264.77

HIGH PERFORMANCE
COOLANT REGULAR LENGTH DRILLS 5X

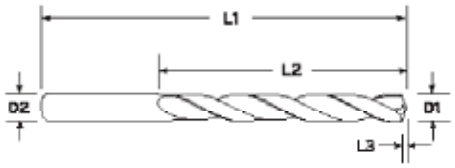
The Gorilla Drill is a general-purpose high performance and high penetration carbide drill capable of machining a vast range of work materials. Gorilla Drills are suitable for high efficiency precision machining. Minimum of 500 psi coolant recommended.Up to 70% faster than standard carbide drills. Edge prepped for maximum tool life and SFM. 142˚ drill point.

Available in special diameters, lengths and completely resharpenable.

COOLANT REGULAR LENGTH DRILLS 5X — GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206

SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GDC1200X5	80118	#31	0.1200	1/8	1.1250	3.0000	0.0200	$82.36
GDC1250X5	80120	1/8	0.1250	1/8	1.1250	3.0000	0.0190	$82.36
GDC1285X5	80122	#30	0.1285	5/32	1.2600	3.1500	0.0200	$82.46
GDC1360X5	80124	#29	0.1360	5/32	1.2600	3.1500	0.0210	$82.46
GDC1406X5	80126	9/64	0.1406	5/32	1.2600	3.1500	0.0220	$82.46
GDC1535X5	80128	3.90mm	0.1535	4mm	32mm	80mm	0.60mm	$82.46
GDC1562X5	80129	5/32	0.1562	5/32	1.2600	3.1500	0.0240	$82.46
GDC1590X5	80132	#21	0.1590	3/16	1.5000	3.2300	0.0250	$82.46
GDC1693X5	80134	4.30mm	0.1693	5mm	38mm	82mm	0.67mm	$84.78
GDC1719X5	80135	11/64	0.1719	3/16	1.5000	3.2300	0.0270	$82.46
GDC1875X5	80137	3/16	0.1875	3/16	1.5000	3.2300	0.0290	$83.72
GDC1968X5	80139	5mm	0.1968	5mm	38mm	81mm	0.77mm	$86.04
GDC2031X5	80141	13/64	0.2031	15/64	1.5800	3.2300	0.0310	$88.75
GDC2087X5	80143	5.30mm	0.2087	6mm	40mm	82mm	0.82mm	$88.74
GDC2187X5	80144	7/32	0.2187	15/64	1.5800	3.2300	0.0340	$88.74
GDC2210X5	80146	#2	0.2210	15/64	1.5800	3.2300	0.0340	$86.42
GDC2344X5	80148	15/64	0.2344	15/64	1.5800	3.2300	0.0360	$86.42
GDC2362X5	80150	6mm	0.2362	6mm	40mm	82mm	0.93mm	$88.74
GDC2441X5	80152	6.20mm	0.2441	8mm	48mm	91mm	0.96mm	$102.74
GDC2500X5	80154	1/4	0.2500	1/4	1.7400	3.3000	0.0390	$95.31
GDC2570X5	80156	F	0.2570	5/16	1.8900	3.5800	0.0400	$97.64
GDC2656X5	80158	17/64	0.2656	5/16	1.8900	3.5800	0.0410	$97.64
GDC2756X5	80160	7mm	0.2756	8mm	48mm	91mm	1.08mm	$101.78
GDC2812X5	80162	9/32	0.2812	5/16	1.8900	3.5800	0.0440	$111.05
GDC2969X5	80164	19/64	0.2969	5/16	1.8900	3.5800	0.0460	$111.05
GDC3125X5	80166	5/16	0.3125	5/16	1.8900	3.5800	0.0480	$111.05
GDC3150X5	80168	8mm	0.3150	8mm	48mm	91mm	1.24mm	$115.20
GDC3281X5	80170	21/64	0.3281	25/64	2.1700	4.0600	0.0510	$137.11
GDC3346X5	80172	8.50mm	0.3346	10mm	55mm	103mm	1.32mm	$134.96
GDC3438X5	80174	11/32	0.3438	25/64	2.1700	4.0600	0.0530	$137.11
GDC3543X5	80176	9mm	0.3543	10mm	55mm	103mm	1.39mm	$137.11
GDC3594X5	80178	23/64	0.3594	25/64	2.1700	4.0600	0.0560	$161.34



MATERIALS
Low Carbon Steel, Alloy Steel (up to 35Rc), Alloy Steel (36-45Rc), Aluminum, Aircraft Aluminum, Austenetic Stainless Steel, High Temperature Alloys, Precipitation Hardened Stainless Steel, Titanium, Gray Cast Iron, Ductile Cast Iron

COOLANT REGULAR LENGTH DRILLS 5X

COOLANT REGULAR LENGTH DRILLS 5X

GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206

SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GDC3642X5	80180	9.25mm	0.3642	10mm	55mm	103mm	1.43mm	$161.34
GDC3750X5	80182	3/8	0.3750	25/64	2.1700	4.0600	0.0580	$161.34
GDC3906X5	80184	25/64	0.3906	25/64	2.1700	4.0600	0.0610	$163.26
GDC3937X5	80186	10mm	0.3937	10mm	55mm	103mm	1.55mm	$163.26
GDC4062X5	80188	13/32	0.4062	15/32	2.3600	4.7200	0.0630	$200.06
GDC4134X5	80190	10.50mm	0.4134	12mm	60mm	120mm	1.63mm	$200.06
GDC4219X5	80192	27/64	0.4219	15/32	2.3600	4.7200	0.0650	$200.06
GDC4331X5	80194	11mm	0.4331	12mm	60mm	120mm	1.70mm	$200.06
GDC4375X5	80196	7/16	0.4375	15/32	2.6000	4.7200	0.0680	$218.44
GDC4527X5	80198	11.50mm	0.4527	12mm	66mm	120mm	1.78mm	$218.44
GDC4688X5	80200	15/32	0.4688	15/32	2.6000	4.7200	0.0730	$218.44
GDC4724X5	80202	12mm	0.4724	12mm	66mm	120mm	1.86mm	$218.82
GDC4844X5	80204	31/64	0.4844	1/2	2.8300	4.7500	0.0750	$251.42
GDC5000X5	80206	1/2	0.5000	1/2	2.8300	4.7500	0.0770	$251.42
GDC5118X5	80208	13mm	0.5118	14mm	72mm	126mm	2.01mm	$256.42
GDC5156X5	80209	33/64	0.5156	35/64	3.0300	5.2800	0.0800	$301.94
GDC5312X5	80210	17/32	0.5312	35/64	3.0300	5.2800	0.0820	$307.54
GDC5469X5	80211	35/64	0.5469	35/64	3.0300	5.2800	0.0850	$301.94
GDC5625X5	80212	9/16	0.5625	5/8	3.1500	5.5100	0.0870	$301.59
GDC5938X5	80213	19/32	0.5938	5/8	3.2300	5.7500	0.0920	$334.89
GDC6250X5	80214	5/8	0.6250	5/8	3.2300	5.7500	0.0970	$334.89
GDC6299X5	80215	16mm	0.6299	16mm	82mm	146mm	2.48mm	$340.48
GDC6562X5	80216	21/32	0.6562	45/64	3.5400	6.2200	0.1020	$387.32
GDC6875X5	80217	11/16	0.6875	45/64	3.7400	6.2200	0.1070	$424.53
GDC7500X5	80218	3/4	0.7500	3/4	3.9400	6.3000	0.1160	$476.01
GDC7874X5	80219	20mm	0.7874	20mm	100mm	160mm	3.10mm	$478.20

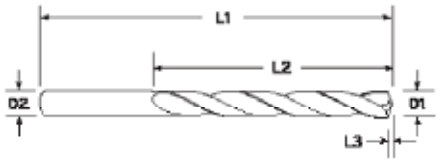
HIGH PERFORMANCE
COOLANT LONG LENGTH DRILLS 7X

The Gorilla Drill is a general-purpose high performance and high penetration carbide drill capable of machining a vast range of work materials. Gorilla Drills are suitable for high efficiency precision machining. Minimum of 500 psi coolant recommended.Up to 70% faster than standard carbide drills. Edge prepped for maximum tool life and SFM. 142˚ drill point.

Available in special diameters, lengths and completely resharpenable.

COOLANT LONG LENGTH DRILLS 7X — GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206								
SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GDC1200X7	80119	#31	0.1200	1/8	1.5000	3.5000	0.0190	$87.36
GDC1250X7	80121	1/8	0.1250	1/8	1.5000	3.5000	0.0190	$87.36
GDC1285X7	80123	#30	0.1285	5/32	1.7500	3.6250	0.0200	$92.28
GDC1360X7	80125	#29	0.1360	5/32	1.7500	3.6250	0.0210	$92.28
GDC1406X7	80127	9/64	0.1406	5/32	1.7500	3.6250	0.0220	$92.28
GDC1562X7	80130	5/32	0.1562	5/32	1.7500	3.6250	0.0270	$92.28
GDC1575X7	80131	4mm	0.1575	4mm	44mm	92mm	0.62mm	$92.28
GDC1590X7	80133	#21	0.1590	3/16	1.7500	3.9400	0.0250	$98.85
GDC1719X7	80136	11/64	0.1719	3/16	1.7500	3.9400	0.0270	$98.85
GDC1875X7	80138	3/16	0.1875	3/16	1.7500	3.9400	0.0290	$98.85
GDC1968X7	80140	5mm	0.1968	5mm	45mm	100mm	0.77mm	$101.15
GDC2031X7	80142	13/64	0.2031	15/64	2.0000	3.9400	0.0310	$107.51
GDC2187X7	80145	7/32	0.2187	15/64	2.0000	3.9400	0.0340	$107.51
GDC2210X7	80147	#2	0.2210	15/64	2.0000	3.9400	0.0340	$107.51
GDC2344X7	80149	15/64	0.2344	15/64	2.0000	3.9400	0.0360	$109.83
GDC2362X7	80151	6mm	0.2362	6mm	51mm	100mm	0.93mm	$107.51
GDC2441X7	80153	6.20mm	0.2441	8mm	60mm	109mm	0.96mm	$128.34
GDC2500X7	80155	1/4	0.2500	1/4	2.2500	4.3100	0.0390	$119.38
GDC2570X7	80157	F	0.2570	5/16	2.3750	4.3100	0.0400	$126.10
GDC2656X7	80159	17/64	0.2656	5/16	2.3750	4.3100	0.0410	$126.10
GDC2756X7	80161	7mm	0.2756	8mm	60mm	109mm	1.08mm	$132.07
GDC2812X7	80163	9/32	0.2812	5/16	2.7500	4.6250	0.0440	$140.04
GDC2969X7	80165	19/64	0.2969	5/16	2.7500	4.6250	0.0460	$140.04
GDC3125X7	80167	5/16	0.3125	5/16	2.7500	4.6250	0.0480	$140.04
GDC3150X7	80169	8mm	0.3150	8mm	70mm	118mm	1.24mm	$146.01
GDC3281X7	80171	21/64	0.3281	25/64	3.1500	5.0000	0.0510	$180.59
GDC3346X7	80173	8.50mm	0.3346	10mm	80mm	127mm	1.32mm	$180.59
GDC3438X7	80175	11/32	0.3438	25/64	3.1500	5.0000	0.0530	$180.59
GDC3543X7	80177	9mm	0.3543	10mm	80mm	127mm	1.39mm	$180.59
GDC3594X7	80179	23/64	0.3594	25/64	3.3400	5.3120	0.0560	$209.45
GDC3642X7	80181	9.25mm	0.3642	10mm	85mm	136mm	1.43mm	$209.45
GDC3750X7	80183	3/8	0.3750	25/64	3.3400	5.3120	0.0580	$209.45



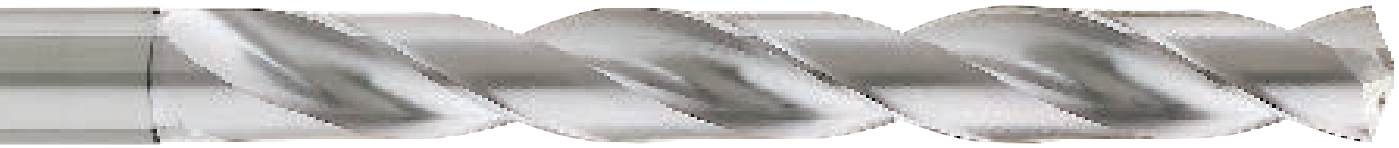
MATERIALS
Low Carbon Steel, Alloy Steel (up to 35Rc), Alloy Steel (36-45Rc), Aluminum, Aircraft Aluminum, Austenetic Stainless Steel, High Temperature Alloys, Precipitation Hardened Stainless Steel, Titanium, Gray Cast Iron, Ductile Cast Iron

COOLANT LONG LENGTH DRILLS 7X

COOLANT LONG LENGTH DRILLS 7X

GDX-59 COATED

SPEEDS & FEEDS CHART PAGE 206								
SKU	EDP	DIAMETER		SHANK	LOF	OAL	POINT LENGTH	LIST PRICE
		D1	DECIMAL SIZE	D2	L2	L1	L3	
GDC3906X7	80185	**25/64**	0.3906	25/64	3.3400	5.3120	0.0610	$209.77
GDC3937X7	80187	**10mm**	0.3937	10mm	85mm	136mm	1.55mm	$209.77
GDC4062X7	80189	**13/32**	0.4062	15/32	3.6250	5.8750	0.0630	$236.81
GDC4134X7	80191	**10.50mm**	0.4134	12mm	93mm	149mm	1.63mm	$236.81
GDC4219X7	80193	**27/64**	0.4219	15/32	3.6250	5.8750	0.0650	$236.81
GDC4331X7	80195	**11.0mm**	0.4331	12mm	93mm	149mm	1.70mm	$236.81
GDC4375X7	80197	**7/16**	0.4375	15/32	4 .0000	6.1000	0.0680	$278.20
GDC4527X7	80199	**11.5mm**	0.4527	12mm	102mm	155mm	1.78mm	$278.20
GDC4688X7	80201	**15/32**	0.4688	15/32	4 .0000	6.1000	0.0730	$278.20
GDC4724X7	80203	**12mm**	0.4724	12mm	102mm	155mm	1.86mm	$278.20
GDC4844X7	80205	**31/64**	0.4844	1/2	4.3120	6.2990	0.0750	$286.86
GDC5000X7	80207	**1/2**	0.5000	1/2	4.3120	6.2990	0.0770	$286.86

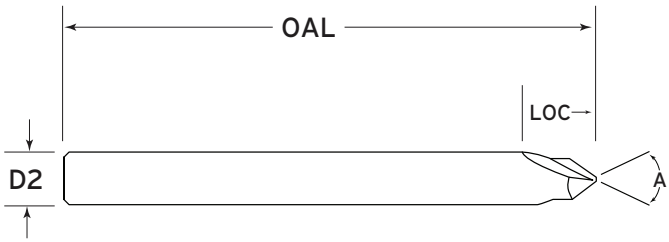


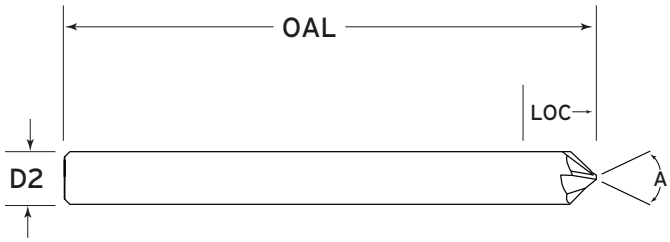
STANDARD PERFORMANCE
2 & 4 FLUTE CHAMFER MILLS (INCH)

Designed for improved finish and increased tool life, the Lemur general purpose chamfer cutters are a cost effective choice for countersinking and chimpfering. Available with 2 or 4 straight flutes, un-coated or GMX-35 coated, the Lemur general purpose chamfer line provides high quality results in standard chimpfering operations.
See "Speeds and Feeds" chart at the back of the catalog.

Available in special diameters, lengths and completely resharpenable.

SPEEDS & FEEDS CHART PAGE 207									
SKU	EDP	FLUTES	A Included Angle	D2 Shank Dia.	WEB THICKNESS	LOC	OAL	COATING	LIST PRICE
CM18C2060U	90165	2	60°	1/8	.015	.108	1 1/2	UNCOATED	$10.22
CM18C2082U	90163	2	82°	1/8	.015	.072	1 1/2	UNCOATED	$10.22
CM18C2090U	90161	2	90°	1/8	.015	.062	1 1/2	UNCOATED	$10.22
CM18C2120U	90201	2	120°	1/8	.015	.037	1 1/2	UNCOATED	$10.22
CM316C2060U	90173	2	60°	3/16	.018	.162	2	UNCOATED	$15.63
CM316C2082U	90171	2	82°	3/16	.018	.108	2	UNCOATED	$15.63
CM316C2090U	90169	2	90°	3/16	.018	.093	2	UNCOATED	$15.63
CM316C2120U	90167	2	120°	3/16	.018	.054	2	UNCOATED	$15.63
CM14C4060	90180	4	60°	1/4	.020	.216	2 1/2	GMX-35	$22.46
CM14C4082	90176	4	82°	1/4	.018	.143	2 1/2	GMX-35	$22.46
CM14C4090	90178	4	90°	1/4	.020	.125	2 1/2	GMX-35	$22.46
CM14C4120	90174	4	120°	1/4	.020	.072	2 1/2	GMX-35	$22.46
CM38C4060	90188	4	60°	3/8	.035	.324	2 1/2	GMX-35	$35.09
CM38C4082	90184	4	82°	3/8	.035	.215	2 1/2	GMX-35	$35.09
CM38C4090	90186	4	90°	3/8	.035	.187	2 1/2	GMX-35	$35.09
CM38C4120	90182	4	120°	3/8	.035	.108	2 1/2	GMX-35	$35.09



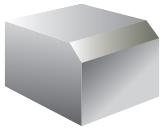


MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

CHAMFERING



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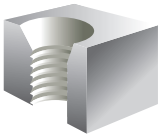
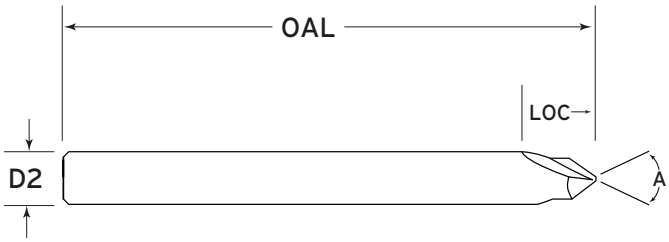
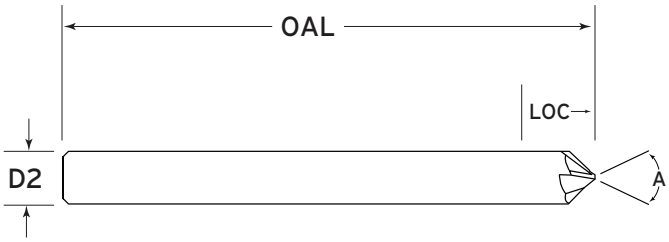


2 & 4 FLUTE CHAMFER MILLS (INCH)

SPEEDS & FEEDS CHART PAGE 207									
SKU	EDP	FLUTES	A Included Angle	D2 Shank Dia.	WEB THICKNESS	LOC	OAL	COATING	LIST PRICE
CM12C4060	90196	**4**	60°	1/2	.040	.433	3	GMX-35	$58.13
CM12C4082	90192	**4**	82°	1/2	.040	.287	3	GMX-35	$58.13
CM12C4090	90194	**4**	90°	1/2	.040	.250	3	GMX-35	$58.13
CM12C4120	90190	**4**	120°	1/2	.040	.144	3	GMX-35	$58.13
CM34C4060	90204	**4**	60°	3/4	.045	.649	3	GMX-35	$123.55
CM34C4082	90200	**4**	82°	3/4	.045	.431	3	GMX-35	$123.55
CM34C4090	90202	**4**	90°	3/4	.045	.375	3	GMX-35	$123.55
CM34C4120	90198	**4**	120°	3/4	.045	.216	3	GMX-35	$123.55



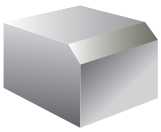


MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

CHAMFERING



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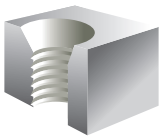


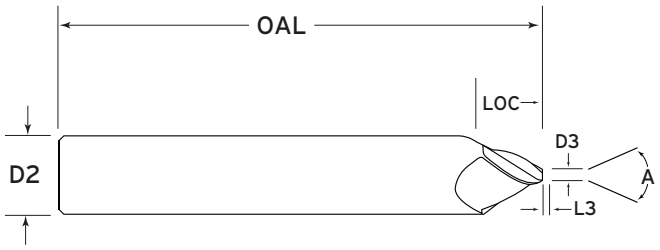
HIGH PERFORMANCE
3 & 5 FLUTE CHAMFER MILLS (INCH)

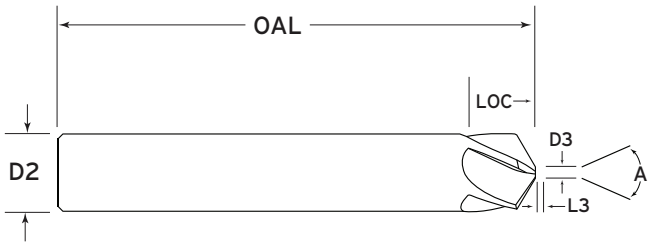
Designed for eye-popping high performance chimpfering and countersinking in all materials. The Lemur high performance chamfer line is designed in 3 flute (Zrn coated) and 5 flute (GMS² coated) configurations and "drop the mic" while achieving maximum finish quality in materials up to 55 Rc. See "Speeds and Feeds" chart at the back of the catalog.

Available in special diameters, lengths and completely resharpenable.

3 FLUTE
5 FLUTE

SPEEDS & FEEDS CHART PAGE 207										
SKU	EDP	FLUTES	A Included Angle	D2 Shank Dia.	LOC	OAL	L3 Theoretical Tip Length	D3 Tip Dia.	COATING	LIST PRICE
CMHP14C3060G	90199	3	60°	1/4	.164	2 1/2	.052	.060	GMS²	$31.98
CMHP14C3060Z	90212	3	60°	1/4	.164	2 1/2	.052	.060	ZrN	$31.98
CMHP14C3082G	90160	3	82°	1/4	.109	2 1/2	.035	.060	GMS²	$31.98
CMHP14C3082Z	90210	3	82°	1/4	.109	2 1/2	.035	.060	ZrN	$31.98
CMHP14C3090G	90162	3	90°	1/4	.095	2 1/2	.030	.060	GMS²	$31.98
CMHP14C3090Z	90208	3	90°	1/4	.095	2 1/2	.030	.060	ZrN	$31.98
CMHP14C3120G	90164	3	120°	1/4	.055	2 1/2	.017	.060	GMS²	$31.98
CMHP14C3120Z	90206	3	120°	1/4	.055	2 1/2	.017	.060	ZrN	$31.98
CMHP38C3060G	90166	3	60°	3/8	.264	2 1/2	.061	.070	GMS²	$43.98
CMHP38C3060Z	90220	3	60°	3/8	.264	2 1/2	.061	.070	ZrN	$43.98
CMHP38C3082G	90168	3	82°	3/8	.175	2 1/2	.040	.070	GMS²	$43.98
CMHP38C3082Z	90218	3	82°	3/8	.175	2 1/2	.040	.070	ZrN	$43.98
CMHP38C3090G	90170	3	90°	3/8	.153	2 1/2	.035	.070	GMS²	$43.98
CMHP38C3090Z	90216	3	90°	3/8	.153	2 1/2	.035	.070	ZrN	$43.98
CMHP38C3120G	90172	3	120°	3/8	.088	2 1/2	.020	.070	GMS²	$43.98
CMHP38C3120Z	90214	3	120°	3/8	.088	2 1/2	.020	.070	ZrN	$43.98
CMHP12C3060G	90175	3	60°	1/2	.364	3	.069	.080	GMS²	$73.21
CMHP12C3060Z	90228	3	60°	1/2	.364	3	.069	.080	ZrN	$73.21
CMHP12C3082G	90177	3	82°	1/2	.242	3	.046	.080	GMS²	$73.21
CMHP12C3082Z	90226	3	82°	1/2	.242	3	.046	.080	ZrN	$73.21



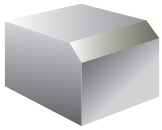


MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

TOLERANCES
Cut Dia +.000/-.002
Shank Dia -.0001/-.0005
LOC +.025/+.050
OAL +/-.050

CHAMFERING



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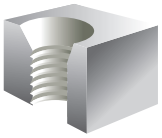


3 & 5 FLUTE CHAMFER MILLS (INCH)


SPEEDS & FEEDS CHART PAGE 207										
SKU	EDP	FLUTES	A Included Angle	D2 Shank Dia.	LOC	OAL	L3 Theoretical Tip Length	D3 Tip Dia.	COATING	LIST PRICE
CMHP12C3090G	90179	3	90°	1/2	.210	3	.040	.080	GMS²	$73.21
CMHP12C3090Z	90224	3	90°	1/2	.210	3	.040	.080	ZrN	$73.21
CMHP12C3120G	90181	3	120°	1/2	.121	3	.023	.080	GMS²	$73.21
CMHP12C3120Z	90222	3	120°	1/2	.121	3	.023	.080	ZrN	$73.21
CMHP58C3060G	90183	3	60°	5/8	.463	3	.078	.090	GMS²	$155.90
CMHP58C3060Z	90236	3	60°	5/8	.463	3	.078	.090	ZrN	$155.90
CMHP58C3082G	90185	3	82°	5/8	.308	3	.052	.090	GMS²	$155.90
CMHP58C3082Z	90234	3	82°	5/8	.308	3	.052	.090	ZrN	$155.90
CMHP58C3090G	90187	3	90°	5/8	.268	3	.045	.090	GMS²	$155.90
CMHP58C3090Z	90232	3	90°	5/8	.268	3	.045	.090	ZrN	$155.90
CMHP58C3120G	90189	3	120°	5/8	.154	3	.026	.090	GMS²	$155.90
CMHP58C3120Z	90230	3	120°	5/8	.154	3	.026	.090	ZrN	$155.90
CMHP34C3060G	90191	3	60°	3/4	.562	3	.087	.100	GMS²	$173.38
CMHP34C3060Z	90244	3	60°	3/4	.562	3	.087	.100	ZrN	$173.38
CMHP34C3082G	90193	3	82°	3/4	.374	3	.058	.100	GMS²	$173.38
CMHP34C3082Z	90242	3	82°	3/4	.374	3	.058	.100	ZrN	$173.38
CMHP34C3090G	90195	3	90°	3/4	.325	3	.050	.100	GMS²	$173.38
CMHP34C3090Z	90240	3	90°	3/4	.325	3	.050	.100	ZrN	$173.38
CMHP34C3120G	90197	3	120°	3/4	.188	3	.029	.100	GMS²	$173.38
CMHP34C3120Z	90238	3	120°	3/4	.188	3	.029	.100	ZrN	$173.38
CMHP14C5060	90213	5	60°	1/4	.164	2 1/2	.052	.060	GMS²	$35.07
CMHP14C5082	90211	5	82°	1/4	.109	2 1/2	.035	.060	GMS²	$35.07
CMHP14C5090	90209	5	90°	1/4	.095	2 1/2	.030	.060	GMS²	$35.07
CMHP14C5120	90207	5	120°	1/4	.055	2 1/2	.017	.060	GMS²	$35.07
CMHP38C5060	90221	5	60°	3/8	.264	2 1/2	.061	.070	GMS²	$45.23
CMHP38C5082	90219	5	82°	3/8	.175	2 1/2	.040	.070	GMS²	$45.23
CMHP38C5090	90217	5	90°	3/8	.153	2 1/2	.035	.070	GMS²	$45.23
CMHP38C5120	90215	5	120°	3/8	.088	2 1/2	.020	.070	GMS²	$45.23
CMHP12C5060	90229	5	60°	1/2	.364	3	.069	.080	GMS²	$73.78
CMHP12C5082	90227	5	82°	1/2	.242	3	.046	.080	GMS²	$73.78
CMHP12C5090	90225	5	90°	1/2	.210	3	.040	.080	GMS²	$73.78
CMHP12C5120	90223	5	120°	1/2	.121	3	.023	.080	GMS²	$73.78
CMHP58C5060	90237	5	60°	5/8	.463	3	.078	.090	GMS²	$157.74
CMHP58C5082	90235	5	82°	5/8	.308	3	.052	.090	GMS²	$157.74
CMHP58C5090	90233	5	90°	5/8	.268	3	.045	.090	GMS²	$157.74
CMHP58C5120	90231	5	120°	5/8	.154	3	.026	.090	GMS²	$157.74
CMHP34C5060	90245	5	60°	3/4	.562	3	.087	.100	GMS²	$175.66
CMHP34C5082	90243	5	82°	3/4	.374	3	.058	.100	GMS²	$175.66
CMHP34C5090	90241	5	90°	3/4	.325	3	.050	.100	GMS²	$175.66
CMHP34C5120	90239	5	120°	3/4	.188	3	.029	.100	GMS²	$175.66

HIGH PERFORMANCE THREADMILLS
COOLANT THRU VARIABLE HELIX/INDEX 1.5xD

The 3-flute and 4-flute, Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

COOLANT THRU VARIABLE HELIX/INDEX 1.5xD – INCH

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 208

SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTMAC10-24UN3FL1.5X	90095	10-24	3	0.141	3/16	0.150	0.312	1.77	$107.23
GMTMAC12-24UN3FL1.5X	90106	12-24	3	0.163	1/4	0.177	0.354	2.24	$114.63
GMTMAC14-20UN3FL1.5X	90113	1/4-20	3	0.192	1/4	0.201	0.375	2.24	$114.63
GMTMAC516-18UN3FL1.5X	90129	5/16-18	3	0.242	5/16	0.260	0.472	2.40	$137.91
GMTMAC38-16UN3FL1.5X	90126	3/8-16	3	0.301	5/16	0.315	0.594	2.40	$137.91
GMTMAC716-14UN3FL1.5X	90134	7/16-14	3	0.354	3/8	0.370	0.678	2.87	$147.64
GMTMAC12-13UN4FL1.5X	90103	1/2-13	4	0.407	1/2	0.429	0.808	3.15	$183.14
GMTMAC916-12UN4FL1.5X	90140	9/16-12	4	0.465	1/2	0.484	0.875	3.15	$183.14

PATENT NO. 7,367,754

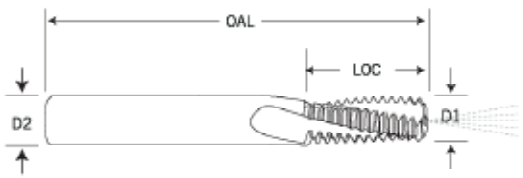
COOLANT THRU VARIABLE HELIX/INDEX 1.5xD – METRIC

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 208

SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTMAC0300MM-0.503FL1.5X	90077	M3x0.50	3	0.094	3/16	0.098	0.187	45mm	$107.23
GMTMAC0400MM-0.703FL1.5X	90079	M4x0.70	3	0.124	3/16	0.129	0.262	45mm	$107.23
GMTMAC0500MM-0.803FL1.5X	90083	M5x0.80	3	0.159	3/16	0.165	0.299	45mm	$107.23
GMTMAC0600MM-1.003FL1.5X	90086	M6x1.00	3	0.189	1/4	0.197	0.374	57mm	$114.63
GMTMAC0800MM-1.253FL1.5X	90089	M8x1.25	3	0.256	5/16	0.268	0.524	61mm	$137.91
GMTMAC1000MM-1.503FL1.5X	90093	M10x1.50	3	0.323	3/8	0.335	0.620	73mm	$147.64
GMTMAC1200MM-1.754FL1.5X	90101	M12x1.75	4	0.370	3/8	0.405	0.724	73mm	$149.91
GMTMAC1400MM-2.004FL1.5X	90111	M14x2.00	4	0.457	1/2	0.472	0.827	73mm	$185.25
GMTMAC1600MM-2.004FL1.5X	90117	M16x2.00	4	0.535	5/8	0.551	0.984	92mm	$244.48

PATENT NO. 7,367,754



SOLID VARIABLE HELIX/INDEX 2xD (INCH)

The 3-flute and 4-flute Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

SOLID VARIABLE HELIX/INDEX 2xD – INCH

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 209

SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTM10-24UN3FL	90035	10-24	3	0.120	1/8	0.150	0.333	2.0	$78.11
GMTM10-28UN3FL	90036	10-28	3	0.121	1/8	0.155	0.321	2.0	$78.11
GMTM10-32UN3FL	90037	10-32	3	0.121	1/8	0.157	0.312	2.0	$78.11
GMTM12-24UN3FL	90049	12-24	3	0.138	3/16	0.177	0.458	2.5	$93.09
GMTM12-28UN3FL	90050	12-28	3	0.150	3/16	0.181	0.464	2.5	$93.09
GMTM14-20UN3FL	90055	1/4-20	3	0.181	3/16	0.205	0.500	2.5	$93.09
GMTM14-28UN3FL	90056	1/4-28	3	0.181	3/16	0.217	0.500	2.5	$93.09
GMTM516-18UN3FL	90068	5/16-18	3	0.232	1/4	0.256	0.667	2.5	$100.49
GMTM516-24UN3FL	90069	5/16-24	3	0.232	1/4	0.268	0.625	2.5	$100.49
GMTM38-16UN4FL	90066	3/8-16	4	0.285	5/16	0.315	0.750	3.0	$120.38
GMTM38-24UN4FL	90067	3/8-24	4	0.291	5/16	0.335	0.750	3.0	$120.38
GMTM716-14UN4FL	90072	7/16-14	4	0.305	5/16	0.366	0.786	3.0	$120.38
GMTM716-20UN4FL	90073	7/16-20	4	0.335	3/8	0.386	0.900	3.5	$133.65
GMTM12-13UN4FL	90045	1/2-13	4	0.350	3/8	0.425	0.923	3.5	$133.65
GMTM12-20UN4FL	90048	1/2-20	4	0.371	3/8	0.453	1.000	3.5	$131.78
GMTM916-12UN4FL	90075	9/16-12	4	0.371	3/8	0.484	0.917	3.5	$133.65
GMTM916-18UN4FL	90076	9/16-18	4	0.371	3/8	0.504	0.889	3.5	$133.65
GMTM58-11UN4FL	90070	5/8-11	4	0.469	1/2	0.531	1.273	3.5	$160.48
GMTM58-18UN4FL	90071	5/8-18	4	0.496	1/2	0.571	1.278	3.5	$160.48
GMTM34-10UN4FL	90064	3/4-10	4	0.496	1/2	0.650	1.300	3.5	$160.48
GMTM34-16UN4FL	90065	3/4-16	4	0.496	1/2	0.689	1.250	3.5	$160.48
GMTM78-9UN4FL	90074	7/8-9	4	0.621	5/8	0.768	1.444	4.0	$229.38
GMTM1-8UN4FL	90060	1.0-8	4	0.621	5/8	0.878	1.375	4.0	$229.38

PATENT NO. 7,367,754

HIGH PERFORMANCE THREADMILLS
SOLID VARIABLE HELIX/INDEX 2xD (METRIC)

The 3-flute, 4-flute, and 5-flute Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

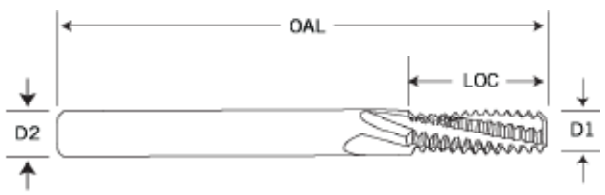
SOLID VARIABLE HELIX/INDEX 2xD – METRIC

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 210									
SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTM0300MM-0.503FL	90023	M3x0.50	3	0.087	4mm	0.098	0.236	45mm	$93.09
GMTM0400MM-0.703FL	90025	M4x0.70	3	0.110	4mm	0.130	0.331	45mm	$93.09
GMTM0400MM-0.503FL	90024	M4x0.50	3	0.118	4mm	0.138	0.315	45mm	$93.09
GMTM0500MM-0.803FL	90027	M5x0.80	3	0.138	4mm	0.165	0.409	45mm	$93.09
GMTM0500MM-0.503FL	90026	M5x0.50	3	0.154	4mm	0.177	0.394	45mm	$93.09
GMTM0600MM-0.753FL	90028	M6x0.75	3	0.154	4mm	0.209	0.472	45mm	$93.09
GMTM0600MM-1.003FL	90029	M6x1.00	3	0.154	4mm	0.197	0.472	45mm	$93.09
GMTM0800MM-1.253FL	90031	M8x1.25	3	0.228	6mm	0.268	0.640	57mm	$100.49
GMTM0800MM-1.003FL	90030	M8x1.00	3	0.232	6mm	0.276	0.630	57mm	$100.49
GMTM1000MM-1.253FL	90033	M10x1.25	3	0.303	8mm	0.346	0.787	63mm	$118.93
GMTM1000MM-1.503FL	90034	M10x1.50	3	0.303	8mm	0.335	0.827	63mm	$118.93
GMTM1000MM-1.003FL	90032	M10x1.00	3	0.311	8mm	0.354	0.787	63mm	$118.93
GMTM1200MM-1.754FL	90044	M12x1.75	4	0.343	10mm	0.402	0.965	73mm	$132.99
GMTM1200MM-1.504FL	90043	M12x1.50	4	0.370	10mm	0.413	0.945	73mm	$132.99
GMTM1200MM-1.004FL	90042	M12x1.00	4	0.390	10mm	0.433	0.945	73mm	$132.99
GMTM1400MM-2.004FL	90052	M14x2.00	4	0.390	10mm	0.472	1.102	73mm	$132.99
GMTM1400MM-1.504FL	90051	M14x1.50	4	0.441	12mm	0.492	1.122	83mm	$160.48
GMTM1600MM-1.504FL	90057	M16x1.50	4	0.469	12mm	0.571	1.299	83mm	$160.48
GMTM1600MM-2.004FL	90058	M16x2.00	4	0.469	12mm	0.551	1.260	83mm	$160.48
GMTM1800MM-2.505FL	90059	M18x2.50	5	0.547	16mm	0.610	1.575	92mm	$231.63
GMTM2400MM-3.004FL	90063	M24x3.00	4	0.626	16mm	0.827	1.654	92mm	$231.63

PATENT NO. 7,367,754

PATENT NO. 7,153,067



COOLANT THRU VARIABLE HELIX/INDEX 2xD (INCH)

The 3-flute and 4-flute Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

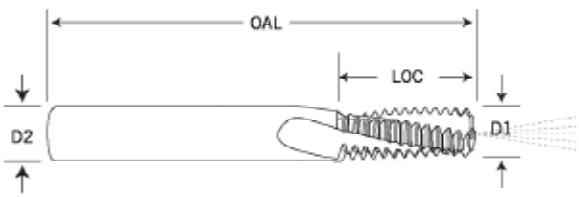
COOLANT THRU HELIX/INDEX 2xD – INCH

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 211

SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTMAC10-24UN3FL2X	90096	10-24	3	0.141	3/16	0.150	0.396	1.77	$107.23
GMTMAC10-32UN3FL2X	90097	10-32	3	0.150	3/16	0.150	0.391	1.77	$107.23
GMTMAC12-24UN3FL2X	90107	12-24	3	0.163	1/4	0.177	0.437	2.24	$114.63
GMTMAC12-28UN3FL2X	90108	12-28	3	0.169	1/4	0.181	0.446	2.24	$114.63
GMTMAC12-32UN3FL2X	90109	12-32	3	0.173	1/4	0.185	0.453	2.24	$114.63
GMTMAC14-20UN3FL2X	90114	1/4-20	3	0.192	1/4	0.201	0.525	2.24	$114.63
GMTMAC14-28UN3FL2X	90115	1/4-28	3	0.203	1/4	0.216	0.518	2.24	$114.63
GMTMAC516-18UN3FL2X	90130	5/16-18	3	0.242	5/16	0.260	0.639	2.40	$137.91
GMTMAC516-24UN3FL2X	90131	5/16-24	3	0.263	5/16	0.272	0.646	2.40	$137.91
GMTMAC38-16UN3FL2X	90127	3/8-16	3	0.301	5/16	0.315	0.781	2.40	$137.91
GMTMAC38-24UN3FL2X	90128	3/8-24	3	0.323	3/8	0.771	0.771	2.87	$147.64
GMTMAC716-14UN3FL2X	90135	7/16-14	3	0.354	3/8	0.370	0.893	2.87	$147.64
GMTMAC716-20UN3FL2X	90136	7/16-20	3	0.362	3/8	0.390	0.875	2.87	$147.64
GMTMAC716-28UN3FL2X	90137	7/16-28	3	0.371	3/8	0.401	0.875	2.87	$147.64
GMTMAC12-13UN4FL2X	90104	1/2-13	4	0.407	1/2	0.430	1.039	3.15	$183.14
GMTMAC12-20UN4FL2X	90105	1/2-20	4	0.437	1/2	0.453	1.025	3.15	$183.14
GMTMAC916-12UN4FL2X	90141	9/16-12	4	0.465	1/2	0.484	1.125	3.15	$183.14
GMTMAC916-18UN4FL2X	90142	9/16-18	4	0.492	1/2	0.512	1.139	3.15	$183.14
GMTMAC916-24UN4FL2X	90143	9/16-24	4	0.496	1/2	0.520	1.145	3.15	$183.14
GMTMAC58-11UN4FL2X	90132	5/8-11	4	0.516	5/8	0.539	1.318	3.62	$244.48
GMTMAC58-18UN4FL2X	90133	5/8-18	4	0.555	5/8	0.575	1.250	3.62	$244.48
GMTMAC34-10UN4FL2X	90123	3/4-10	4	0.622	5/8	0.657	1.550	3.62	$244.48
GMTMAC34-16UN4FL2X	90124	3/4-16	4	0.669	3/4	0.689	1.528	4.02	$392.84
GMTMAC34-20UN4FL2X	90125	3/4-20	4	0.685	3/4	0.701	1.525	4.02	$392.84
GMTMAC78-14UN4FL2X	90138	7/8-14	4	0.746	3/4	0.807	1.750	4.02	$392.84
GMTMAC78-9UN4FL2X	90139	7/8-9	4	0.746	3/4	0.768	1.833	4.02	$392.84
GMTMAC1-12UN4FL2X	90098	1.0-12	4	0.746	3/4	0.925	2.042	4.02	$392.84
GMTMAC1-8UN4FL2X	90120	1.0-8	4	0.746	3/4	0.866	2.063	4.02	$392.84

PATENT NO. 7,367,754



HIGH PERFORMANCE THREADMILLS
COOLANT THRU VARIABLE HELIX/INDEX 2xD (METRIC)

The 3-flute and 4-flute Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

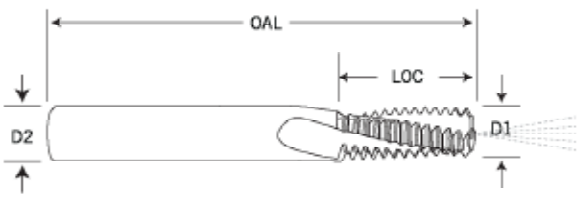
COOLANT THRU HELIX/INDEX 2xD – METRIC

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 212

SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTMAC0300MM-0.503FL2X	90078	M3x0.50	3	0.094	3/16	0.098	0.246	45mm	$107.23
GMTMAC0400MM-0.703FL2X	90081	M4x0.70	3	0.124	3/16	0.129	0.344	45mm	$111.49
GMTMAC0400MM-0.503FL2X	90080	M4x0.50	3	0.126	3/16	0.138	0.325	45mm	$107.23
GMTMAC0500MM-0.803FL2X	90084	M5x0.80	3	0.159	3/16	0.165	0.425	45mm	$107.23
GMTMAC0500MM-0.503FL2X	90082	M5x0.50	3	0.165	1/4	0.177	0.404	57mm	$114.63
GMTMAC0600MM-1.003FL2X	90087	M6x1.00	3	0.189	1/4	0.197	0.492	57mm	$114.63
GMTMAC0600MM-0.753FL2X	90085	M6x0.75	3	0.197	1/4	0.209	0.487	57mm	$114.63
GMTMAC0800MM-1.253FL2X	90090	M8x1.25	3	0.256	5/16	0.268	0.664	61mm	$137.91
GMTMAC0800MM-1.003FL2X	90088	M8x1.00	3	0.264	5/16	0.276	0.650	61mm	$137.91
GMTMAC1000MM-1.503FL2X	90094	M10x1.50	3	0.323	3/8	0.335	0.797	73mm	$147.64
GMTMAC1000MM-1.253FL2X	90092	M10x1.25	3	0.335	3/8	0.346	0.812	73mm	$147.64
GMTMAC1000MM-1.003FL2X	90091	M10x1.00	3	0.343	3/8	0.354	0.807	73mm	$147.64
GMTMAC1200MM-1.503FL2X	90100	M12x1.50	3	0.370	3/8	0.413	0.974	73mm	$147.64
GMTMAC1200MM-1.754FL2X	90102	M12x1.75	4	0.370	3/8	0.405	0.999	73mm	$149.91
GMTMAC1200MM-1.004FL2X	90099	M12x1.00	4	0.421	1/2	0.433	0.965	73mm	$180.45
GMTMAC1400MM-2.004FL2X	90112	M14x2.00	4	0.457	1/2	0.472	1.142	80mm	$180.45
GMTMAC1400MM-1.504FL2X	90110	M14x1.50	4	0.469	1/2	0.492	1.152	80mm	$183.14
GMTMAC1600MM-2.004FL2X	90118	M16x2.00	4	0.535	5/8	0.551	1.299	92mm	$244.48
GMTMAC1600MM-1.504FL2X	90116	M16x1.50	4	0.547	5/8	0.571	1.270	80mm	$244.48
GMTMAC1800MM-2.504FL2X	90119	M18x2.50	4	0.583	5/8	0.598	1.427	92mm	$244.48
GMTMAC2000MM-2.504FL2X	90121	M20x2.50	4	0.673	3/4	0.687	1.624	102mm	$392.84
GMTMAC2400MM-3.004FL2X	90122	M24x3.00	4	0.746	3/4	0.827	1.949	102mm	$392.84

PATENT NO. 7,367,754



SOLID VARIABLE HELIX/INDEX (NPT & NPTF)

The 3-flute and 4-flute Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

SOLID VARIABLE HELIX/INDEX NPT — GMX-35 COATED

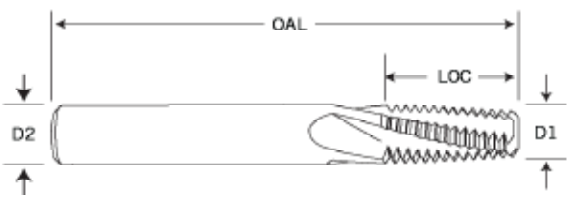
SPEEDS & FEEDS CHART PAGE 213									
SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTM116-27NPT3FL	90040	1/16-27NPT	3	0.209	1/4	0.248 / 0.335	0.407	2.5	$100.49
GMTM14-18NPT4FL	90053	1/4-18NPT	4	0.305	5/16	0.437 / 0.571	0.611	3.0	$120.38
GMTM12-14NPT4FL	90046	1/2-14NPT	4	0.496	1/2	0.697 / 0.906	0.929	3.5	$160.48
GMTM1-11.5NPT4FL	90038	1-11.5NPT	4	0.621	5/8	1.142 / 2.205	1.130	4.0	$229.38
GMTM2.5-8NPT4FL	90061	2.5-8NPT	4	0.746	3/4	From / 2.618	1.500	5.0	$319.69

PATENT NO. 7,367,754

SOLID VARIABLE HELIX/INDEX NPTF — GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 213									
SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMTM116-27NPTF3FL	90041	1/16-27NPTF	3	0.209	1/4	0.248 / 0.331	0.407	2.5	$100.49
GMTM14-18NPTF4FL	90054	1/4-18NPTF	4	0.305	5/16	0.437 / 0.579	0.611	3.0	$120.38
GMTM12-14NPTF4FL	90047	1/2-14NPTF	4	0.496	1/2	0.705 / 0.921	0.929	3.5	$160.48
GMTM1-11.5NPTF4FL	90039	1-11.5NPTF	4	0.621	5/8	1.158 / 2.213	1.130	4.0	$229.38
GMTM2.5-8NPTF4FL	90062	2.5-8NPTF	4	0.746	3/4	From / 2.638	1.500	5.0	$319.69

PATENT NO. 7,367,754



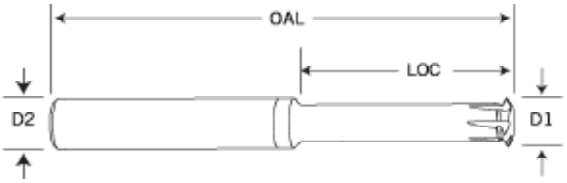
HIGH PERFORMANCE THREADMILLS
PARTIAL PROFILE – SINGLE PITCH (INCH & METRIC)

The 4-flute, 5-flute, and 6-flute Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

PARTIAL PROFILE – SINGLE PITCH INCH & METRIC — GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 214

SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	RECOMMENDED PITCH	LIST PRICE
GMPPTM0500MM-104FL	90016	M5 #10	4	0.154	3/16	–	0.63	2.0	0.5-0.8 32-56	$60.00
GMPPTM0600MM-125FL	90017	M6 #12	5	0.191	1/4	–	0.79	2.5	0.5-1.0 24-56	$66.60
GMPPTM0800MM-5165FL	90018	M8 5/16	5	0.232	1/4	–	1.00	2.5	0.5-1.25 20-48	$66.60
GMPPTM1000MM-3756FL	90019	M10 3/8	6	0.307	5/16	–	1.26	2.5	1.0-1.50 16-24	$72.85
GMPPTM1000MM-7166FL	90020	M10 7/16	6	0.370	3/8	–	1.38	3.0	0.5-1.0 24-56	$79.97
GMPPTM1200MM-126FL	90021	M12 1/2	6	0.370	3/8	–	1.50	3.0	1.0-1.75 14-24	$79.97
GMPPTM1300MM-9166FL	90022	M13 9/16	6	0.469	1/2	–	1.77	3.5	1.0-1.75 14-24	$115.42



DEEP THREADING – SINGLE PITCH (INCH)

HP

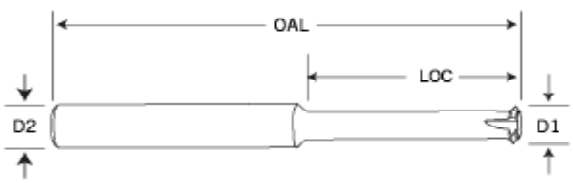
The 3-flute, 4-flute, and 5-flute Gorilla Mill Missing Link Thread Mills are made versatile through geometric enhancements. A patented variable helix/index design differentiates the Gorilla Mill Missing Link from the competition, making it the ideal choice for increased tool life and cycle time reduction in threading. See “Speeds and Feeds” chart at the back of the catalog.

DEEP THREADING – SINGLE PITCH INCH

GMX-35 COATED

SPEEDS & FEEDS CHART PAGE 215

SKU	EDP	THREAD/ PITCH	FLUTES	D1 Cutting Dia.	D2 Shank Dia.	MINOR DIAMETER	LOC	OAL	LIST PRICE
GMDTTM14-20UN3FL	90002	1/4-20	3	0.157	5/16	0.205	0.787	2.5	$72.85
GMDTTM14-28UN3FL	90003	1/4-28	3	0.181	5/16	0.217	0.787	2.5	$72.85
GMDTTM516-18UN3FL	90008	5/16-18	3	0.205	3/8	0.256	0.984	3.0	$79.97
GMDTTM516-24UN3FL	90009	5/16-24	3	0.224	3/8	0.268	0.984	3.0	$79.97
GMDTTM38-16UN3FL	90006	3/8-16	3	0.264	3/8	0.315	1.181	3.0	$79.97
GMDTTM38-24UN3FL	90007	3/8-24	3	0.291	3/8	0.335	1.181	3.0	$79.97
GMDTTM716-14UN4FL	90012	7/16-14	4	0.299	1/2	0.366	1.378	3.5	$115.42
GMDTTM716-20UN4FL	90013	7/16-20	4	0.335	1/2	0.386	1.378	3.5	$115.42
GMDTTM12-13UN4FL	90000	1/2-13	4	0.350	1/2	0.425	1.575	3.5	$115.42
GMDTTM12-20UN4FL	90001	1/2-20	4	0.398	1/2	0.453	1.575	3.5	$115.42
GMDTTM916-12UN4FL	90014	9/16-12	4	0.406	5/8	0.484	1.772	4.0	$163.14
GMDTTM58-11UN4FL	90010	5/8-11	4	0.433	5/8	0.531	1.969	4.0	$163.14
GMDTTM916-18UN4FL	90015	9/16-18	4	0.445	5/8	0.504	1.772	4.0	$163.14
GMDTTM58-18UN4FL	90011	5/8-18	4	0.504	5/8	0.571	1.969	4.0	$163.14
GMDTTM34-10UN5FL	90004	3/4-10	5	0.531	5/8	0.650	2.362	5.0	$193.51
GMDTTM34-16UN5FL	90005	3/4-16	5	0.610	5/8	0.689	2.362	5.0	$193.51



SUPER BITCHIN' PERFORMANCE

3 & 4 FLUTE PICATINNY FORM CUTTERS (INCH)

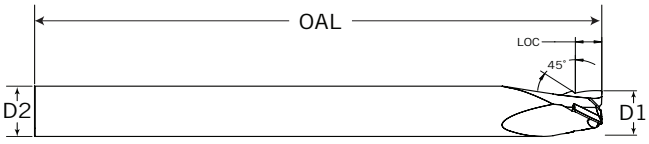
Picatinny Rail or "Pic Rail" cutters, Pic Rail Groove cutters and Attachment/Accessory cutters designed to MIL-STD-1913 specs with extra **"Secret Squirrel Sh*t"** performance enhancements. Gorilla Mill patented geometries makes milling the entire Pic Rail in a single pass easy peasy. Solid carbide high performance 3, 4, and 5 flute cutters manufactured right here in **'Merica** by We The People. GMS² coated for high heat resistance, longer tool life and faster running speeds. Run all of the Gorilla Arsenal cutters with cocky-ass confidence in ferrous and non-ferrous materials. Run them in 6061, 7051, 300, 400 and PH series stainless, titanium, high temp alloys, high carbon steel, low carbon steel, somewhere in between carbon steel, rice pudding, concrete, a bowl of Lucky Charms® or lava! We don't give two sh*ts what you run them in. **JUST RUN THEM HARD!** See "Speeds and Feeds" chart at the back of the catalog.

GROOVE CUTTERS (SQUARE & RADIUS)

GMS² COATED

SPEEDS & FEEDS CHART PAGE 216

SKU	EDP	FLUTES	D1	D2	LOC	OAL	END/ CORNER SHAPE	CORNER RADIUS	LIST PRICE
GAGC206F3	90150	3	0.206	1/4	0.118	2-1/2	SQUARE	—	$40.48
GAGC206R3010	90151	3	0.206	1/4	0.118	2-1/2	RADIUS	0.010	$41.67
GAGC206F4	90152	4	0.206	1/4	0.118	2-1/2	SQUARE	—	$43.74
GAGC206R4010	90153	4	0.206	1/4	0.118	2-1/2	RADIUS	0.010	$44.27
GAGC210F3	90154	3	0.210	1/4	0.118	2-1/2	SQUARE	—	$40.48
GAGC210R3010	90155	3	0.210	1/4	0.118	2-1/2	RADIUS	0.010	$41.67
GAGC210F4	90156	4	0.210	1/4	0.118	2-1/2	SQUARE	—	$43.74
GAGC210R4010	90157	4	0.210	1/4	0.118	2-1/2	RADIUS	0.010	$44.27



MATERIALS

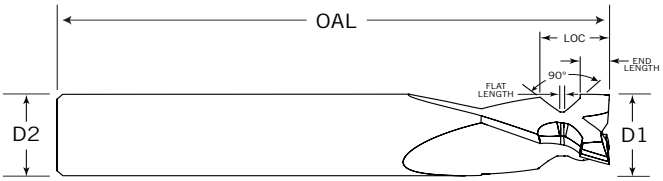
Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

3, 4 & 5 FLUTE PICATINNY FORM CUTTERS (INCH)

RAIL CUTTERS

GMS² COATED

SPEEDS & FEEDS CHART PAGE 216							
SKU	EDP	FLUTES	D1	D2	LOC	OAL	LIST PRICE
GARC500F3	90144	3	1/2	1/2	0.377	3	$141.57
GARC500F4	90145	4	1/2	1/2	0.377	3	$145.28
GARC500F5	90146	5	1/2	1/2	0.377	3	$145.28
GARC625F3	90147	3	5/8	5/8	0.377	3-1/2	$152.90
GARC625F4	90148	4	5/8	5/8	0.377	3-1/2	$156.25
GARC625F5	90149	5	5/8	5/8	0.377	3-1/2	$156.25



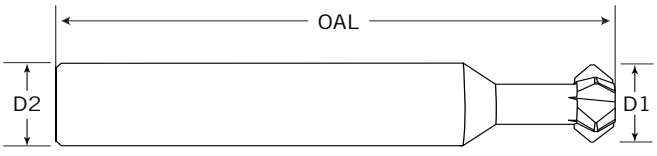
MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

ATTACHMENT CUTTERS

GMS² COATED

SPEEDS & FEEDS CHART PAGE 216							
SKU	EDP	FLUTES	D1	D2	LOC	OAL	LIST PRICE
GAAC500F5	90158	5	1/2	1/2	—	3	$150.14
GAAC625F5	90159	5	5/8	5/8	—	3-1/2	$193.47



MATERIALS

Aircraft Aluminum, (2000,5000, 7000 series), Soft Aluminum, (6061), Copper (200 Brinell <), Copper (200 Brinell >), Cast Aluminum (6% Silcon & <), Brass, Bronze, Gray Cast Iron, Soft Steels (A36, 1018, 8620, 1045), Alloy Steels (4340, 4140), Tool Steels (A2, D2, S7), Die Steels (H13, P20), Stainless Steel (303, 304, 316), Difficult Stainless Steel (400 & PH Series), High Temperature Alloys, Titanium (6AL4V)

HIGH PERFORMANCE
4 FLUTE (INCH & METRIC)

GORILLA MILL 4 FLUTE (INCH) COATED SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/8"		3/16"		1/4"		5/16"		3/8"		7/16"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	600	18,336	58.6	12,224	48.8	9,168	43.9	7,334	43.9	6,112	41.5	5,238	46.1	4,584	45.8	3,667	44.1	3,056	42.7	2,292	36.7
Ductile Iron	500	15,280	24.2	10,186	24.5	7,640	27.4	6,112	29.3	5,093	33.1	4,365	36.8	3,820	35.1	3,056	36.8	2,546	35.3	1,910	32.4
Soft Steels, (A36,1018, 8620,1045)	650	19,864	39.7	13,246	37.1	9,932	39.7	7,945	41.2	6,621	39.7	5,675	40.8	4,966	41.7	3,972	42.9	3,310	42.4	2,483	39.7
Alloy Steels, (4340, 4140)	400	12,224	19.5	8,149	19.5	6,112	24.4	4,890	29.3	4,074	29.3	3,492	28.1	3,056	29.3	2,444	27.3	2,037	27.6	1,528	24.4
4140 Pre-Hard (28 to 32 Rc)	300	9,168	10.9	6,112	12.2	4,854	15.5	3,667	14.6	3,056	17.1	2,619	18.8	2,292	18.3	1,833	18.3	1,528	18.3	1,146	16.1
Tool Steels (A2,D2,S7)	300	9,168	14.7	6,112	14.6	4,584	14.7	3,667	17.5	3,056	19.6	2,619	20.8	2,292	20.2	1,833	19.1	1,528	18.2	1,146	16.5
Die Steels, (H13,P20)	325	9,932	15.8	6,621	15.8	4,966	21.8	3,972	23.8	3,310	26.4	2,837	26.1	2,483	24.8	1,986	22.2	1,655	22.5	1,241	19.9
Stainless Steel, (303, 304, 316)	350	10,696	17.1	7,130	17.1	5,348	17.1	4,278	20.4	3,565	22.7	3,056	23.2	2,674	23.5	2,139	22.2	1,782	22.7	1,338	19.8
Difficult Stainless Steel, (400 & PH Series)	300	9,168	14.6	6,112	12.2	4,584	12.8	3,667	16.1	3,056	13.8	2,619	17.8	2,292	18.4	1,833	18.4	1,528	18.4	1,146	16.1
Stainless Steel (13-8)	150	4,584	7.3	3,056	6.1	2,292	6.4	1,833	7.3	1,528	7.9	1,309	9.4	1,146	11.9	916	10.2	764	10.1	573	9.3
High Temp. Alloys	250	7,640	12.2	5,093	10.1	3,820	10.6	3,056	13.4	2,546	14.3	2,182	14.1	1,910	14.5	1,528	13.4	1,273	14.3	955	12.7
Titanium (6AL4V)	200	6,112	9.7	4,074	8.1	3,056	8.1	2,444	11.7	2,037	13.1	1,746	13.2	1,528	14.1	1,222	13.3	1,018	13.1	764	12.3
Inconel 718	155	4,736	7.5	3,157	6.3	2,368	6.6	1,894	7.6	1,578	8.2	1,353	9.7	1,184	9.5	947	8.7	790	9.5	592	8.3
Inconel 625	135	4,125	6.6	2,750	5.5	2,062	5.8	1,650	6.6	1,375	7.1	1,178	8.5	1,031	8.6	825	8.6	687	9.1	515	8.3

GORILLA MILL 4 FLUTE (METRIC) COATED SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3 MM		4 MM		5 MM		6 MM		8 MM		10 MM		12 MM		16 MM		20 MM		25 MM	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	600	19,405	.0200	14,554	.0220	11,643	.0250	9,702	.0300	7,277	.0380	5,821	.0440	4,851	.0610	3,638	.0760	2,910	.0910	2,328	.1050
Ductile Iron	500	16,171	.0100	12,128	.0120	9,702	.0150	8,085	.0220	6,064	.0300	4,851	.0450	4,042	.0580	3,032	.0740	2,425	.0890	1,940	.1030
Soft Steels, (A36,1018, 8620,1045)	650	21,022	.0120	15,767	.0150	12,613	.0170	9,702	.0250	7,883	.0330	6,306	.0390	5,255	.0530	3,941	.0680	3,153	.0860	2,522	.1010
Alloy Steels, (4340, 4140)	400	12,937	.0100	9,702	.0120	7,762	.0150	6,468	.0250	4,851	.0380	3,881	.0450	3,234	.0580	2,425	.0710	1,940	.0860	1,552	.1010
4140 Pre-Hard (28 to 32 Rc)	300	9,702	.0070	7,277	.0100	5,821	.0120	4,851	.0200	3,638	.0250	2,910	.0350	2,425	.0500	1,819	.0630	1,455	.0760	1,164	.0890
Tool Steels (A2,D2,S7)	300	9,702	.0100	7,277	.0120	5,821	.0150	4,851	.0200	3,638	.0300	2,910	.0400	2,425	.0550	1,819	.0660	1,455	.0760	1,164	.0910
Die Steels, (H13,P20)	325	10,511	.0100	7,883	.0120	6,306	.0150	5,255	.0270	3,941	.0380	3,153	.0500	2,627	.0630	1,970	.0710	1,576	.0860	1,261	.1010
Stainless Steel, (303, 304, 316)	350	11,319	.0100	8,489	.0120	6,791	.0150	5,659	.0200	4,244	.0300	3,395	.0400	2,829	.0550	2,122	.0660	1,697	.0810	1,358	.0940
Difficult Stainless Steel, (400 & PH Series)	300	9,702	.0100	7,277	.0120	5,821	.0130	4,851	.0170	3,638	.0280	2,910	.0380	2,425	.0500	1,819	.0630	1,455	.0760	1,164	.0890
Stainless Steel (13-8)	150	4,851	.0100	3,638	.0120	2,910	.0130	2,425	.0170	1,819	.0250	1,455	.0340	1,212	.0550	909	.0690	727	.0810	582	.1010
High Temp. Alloys	250	8,085	.0100	6,064	.0110	4,851	.0120	4,042	.0170	3,032	.0270	2,425	.0360	2,021	.0480	1,516	.0560	1,212	.0710	970	.0840
Titanium (6AL4V)	200	6,468	.0100	4,851	.0110	3,881	.0110	3,234	.0170	2,425	.0300	1,940	.0400	1,617	.0580	1,212	.0680	970	.0810	776	.1010
Inconel 718	155	5,013	.0100	3,759	.0120	3,007	.0130	2,506	.0180	1,880	.0250	1,503	.0330	1,253	.0510	939	.0590	752	.0760	601	.0940
Inconel 625	135	4,366	.0100	3,274	.0110	2,619	.0120	2,183	.0170	1,637	.0250	1,309	.0330	1,091	.0530	818	.0660	655	.0830	524	.1010

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

4 FLUTE BALLNOSE (INCH)

CALCULATE YOUR EFFECTIVE CUTTING DIAMETER

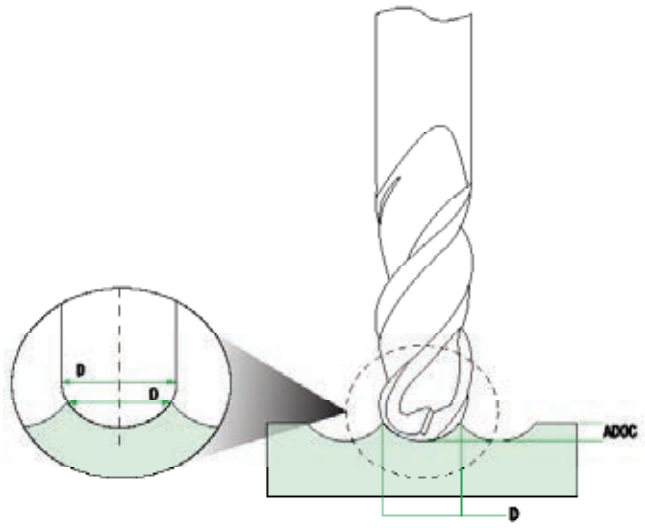
This can be done using the chart below that represents some Common Tool Diameters and ADOC combinations.

GORILLA MILL BALLNOSE MILLING TECHNIQUES

(ADOC) AXIAL DEPTH OF CUT (EFFECTIVE DIAMETER FOR SFM CALCULATION)

DEPTH		0.010	0.020	0.030	0.040	0.050	0.070	0.080	0.100	0.120	0.150	0.220	0.300	0.350	0.400	0.450
INCH DIAMETER	1/8"	0.068	0.092	0.107	0.117	0.122	0.124	0.120	0.100	—	—	—	—	—	—	—
	5/32"	0.076	0.104	0.123	0.136	0.146	0.155	0.156	0.150	0.132	—	—	—	—	—	—
	3/16"	0.084	0.116	0.137	0.154	0.166	0.181	0.185	0.187	0.180	0.150	—	—	—	—	—
	1/4"	0.098	0.136	0.162	0.183	0.200	0.224	0.233	0.245	0.250	0.245	0.162	—	—	—	—
	5/16"	0.110	0.153	0.184	0.209	0.229	0.261	0.273	0.292	0.304	0.312	0.285	0.122	—	—	—
	3/8"	0.121	0.169	0.203	0.232	0.255	0.292	0.307	0.332	0.350	0.367	0.369	0.300	0.187	—	—
	7/16"	0.131	0.183	0.221	0.252	0.278	0.321	0.338	0.367	0.390	0.415	0.437	0.406	0.350	0.245	—
	1/2"	0.140	0.196	0.237	0.271	0.300	0.347	0.367	0.400	0.427	0.458	0.496	0.490	0.458	0.400	0.300
	5/8"	0.157	0.220	0.267	0.306	0.339	0.394	0.418	0.458	0.492	0.533	0.596	0.624	0.620	0.600	0.561
	3/4"	0.172	0.242	0.294	0.337	0.374	0.436	0.463	0.510	0.550	0.600	0.683	0.735	0.748	0.748	0.735
	1"	0.199	0.280	0.341	0.392	0.436	0.510	0.543	0.600	0.650	0.714	0.828	0.877	0.954	0.980	0.995

Calculate your new SFM adjustment. This new SFM adjustment will be calculated using the new effective cutting diameter.
If you are using less than the cutter diameter, then its likely your RPM's will need to be adjusted upward.



HIGH PERFORMANCE
4 FLUTE BALLNOSE (INCH)

4 FLUTE BALLNOSE (INCH) SPEEDS & FEEDS CHART PROFILING AND "D" EFFECTIVE, CHIMP LOAD PER TOOTH

			1/8"			5/32"			3/16"		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.0014	0.0010	0.0008	0.0016	0.0011	0.0009	0.00162	0.0011	0.0009
	Ductile Iron	500	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	Soft Steels, (A36,1018,8620,1045)	650	0.0009	0.0006	0.0005	0.0011	0.0007	0.0006	0.00126	0.0008	0.0007
	Alloy Steels, (4340,4140)	400	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	4140 Pre-Hard (28 to 32 Rc)	300	0.0005	0.0004	0.0003	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005
	Tool Steels (A2,D2,S7)	300	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	Die Steels, (H13,P20)	325	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	Stainless Steel, (303) (304) (316)	350	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	Difficult Stainless Steel, (400 & PH Series)	300	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	(13-8) Stainless Steel	150	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	High Temp. Alloys	250	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	Titanium (6AL4V)	200	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	Inconel 718	155	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006
	Inconel 625	135	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.00108	0.0007	0.0006

*NOTE: Recommended Speeds & Feeds, applications may vary.

4 FLUTE BALLNOSE (INCH) SPEEDS & FEEDS CHART PROFILING AND "D" EFFECTIVE, CHIMP LOAD PER TOOTH

			1/4"			5/16"			3/8"		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.0022	0.0014	0.0012	0.0027	0.0018	0.0015	0.0029	0.0019	0.0016
	Ductile Iron	500	0.0016	0.0011	0.0009	0.0022	0.00144	0.0012	0.0027	0.0018	0.0015
	Soft Steels, (A36,1018, 8620,1045)	650	0.0018	0.0012	0.0010	0.0023	0.00156	0.0013	0.0025	0.0017	0.0014
	Alloy Steels, (4340,4140)	400	0.0018	0.0012	0.0010	0.0027	0.0018	0.0015	0.0031	0.0020	0.0017
	4140 Pre-Hard (28 to 32 Rc)	300	0.0014	0.0010	0.0008	0.0018	0.0012	0.0010	0.0023	0.0016	0.0013
	Tool Steels (A2,D2,S7)	300	0.0014	0.0010	0.0008	0.0022	0.00144	0.0012	0.0029	0.0019	0.0016
	Die Steels, (H13,P20)	325	0.0020	0.0013	0.0011	0.0027	0.0018	0.0015	0.0034	0.0023	0.0019
	Stainless Steel, (303) (304) (316)	350	0.0014	0.0010	0.0008	0.0022	0.00144	0.0012	0.0027	0.0018	0.0015
	Difficult Stainless Steel, (400 & PH Series)	300	0.0013	0.0008	0.0007	0.0020	0.00132	0.0011	0.0022	0.0014	0.0012
	(13-8) Stainless Steel	150	0.0013	0.0008	0.0007	0.0018	0.0012	0.0010	0.0023	0.0016	0.0013
	High Temp. Alloys	250	0.0013	0.0008	0.0007	0.0020	0.00132	0.0011	0.0025	0.0017	0.0014
	Titanium (6AL4V)	200	0.0013	0.0008	0.0007	0.0022	0.00144	0.0012	0.0029	0.0019	0.0016
	Inconel 718	155	0.0013	0.0008	0.0007	0.0018	0.0012	0.0010	0.0023	0.0016	0.0013
	Inconel 625	135	0.0013	0.0008	0.0007	0.0018	0.0012	0.0010	0.0023	0.0016	0.0013

*NOTE: Recommended Speeds & Feeds, applications may vary.

4 FLUTE BALLNOSE (INCH)

4 FLUTE BALLNOSE (INCH) SPEEDS & FEEDS CHART PROFILING AND "D" EFFECTIVE, CHIMP LOAD PER TOOTH

			7/16"			1/2"			5/8"		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.0034	0.0023	0.0019	0.0038	0.0025	0.0021	0.0054	0.0036	0.0030
	Ductile Iron	500	0.0031	0.0020	0.0017	0.0036	0.0024	0.0020	0.0054	0.0036	0.0030
	Soft Steels, (A36,1018, 8620,1045)	650	0.0031	0.0020	0.0017	0.0038	0.0025	0.0021	0.0049	0.0032	0.0027
	Alloy Steels, (4340,4140)	400	0.0034	0.0023	0.0019	0.0038	0.0025	0.0021	0.0050	0.0034	0.0028
	4140 Pre-Hard (28 to 32 Rc)	300	0.0029	0.0019	0.0016	0.0032	0.0022	0.0018	0.0045	0.0030	0.0025
	Tool Steels (A2,D2,S7)	300	0.0034	0.0023	0.0019	0.0040	0.0026	0.0022	0.0047	0.0031	0.0026
	Die Steels, (H13,P20)	325	0.0038	0.0025	0.0021	0.0040	0.0026	0.0022	0.0050	0.0034	0.0028
	Stainless Steel, (303) (304) (316)	350	0.0032	0.0022	0.0018	0.0036	0.0024	0.0020	0.0047	0.0031	0.0026
	Difficult Stainless Steel, (400 & PH Series)	300	0.0029	0.0019	0.0016	0.0036	0.0024	0.0020	0.0045	0.0030	0.0025
	(13-8) Stainless Steel	150	0.0029	0.0019	0.0016	0.0038	0.0025	0.0021	0.0050	0.0034	0.0028
	High Temp. Alloys	250	0.0029	0.0019	0.0016	0.0034	0.0023	0.0019	0.0040	0.0026	0.0022
	Titanium (6AL4V)	200	0.0032	0.0022	0.0018	0.0038	0.0025	0.0021	0.0049	0.0032	0.0027
	Inconel 718	155	0.0029	0.0019	0.0016	0.0036	0.0024	0.0020	0.0041	0.0028	0.0023
	Inconel 625	135	0.0029	0.0019	0.0016	0.0036	0.0024	0.0020	0.0041	0.0028	0.0023

			3/4"			1"		
			Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.0063	0.0042	0.0035	0.0072	0.0048	0.0040
	Ductile Iron	500	0.0063	0.0042	0.0035	0.0076	0.0050	0.0042
	Soft Steels, (A36,1018, 8620,1045)	650	0.0058	0.0038	0.0032	0.0072	0.0048	0.0040
	Alloy Steels, (4340,4140)	400	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040
	4140 Pre-Hard (28 to 32 Rc)	300	0.0054	0.0036	0.0030	0.0063	0.0042	0.0035
	Tool Steels (A2,D2,S7)	300	0.0054	0.0036	0.0030	0.0065	0.0043	0.0036
	Die Steels, (H13,P20)	325	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040
	Stainless Steel, (303) (304) (316)	350	0.0058	0.0038	0.0032	0.0067	0.0044	0.0037
	Difficult Stainless Steel, (400 & PH Series)	300	0.0054	0.0036	0.0030	0.0063	0.0042	0.0035
	(13-8) Stainless Steel	150	0.0059	0.0040	0.0033	0.0074	0.0049	0.0041
	High Temp. Alloys	250	0.0050	0.0034	0.0028	0.0059	0.0040	0.0033
	Titanium (6AL4V)	200	0.0058	0.0038	0.0032	0.0072	0.0048	0.0040
	Inconel 718	155	0.0054	0.0036	0.0030	0.0063	0.0042	0.0035
	Inconel 625	135	0.0054	0.0036	0.0030	0.0063	0.0042	0.0035

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE
4 FLUTE BALLNOSE (METRIC)

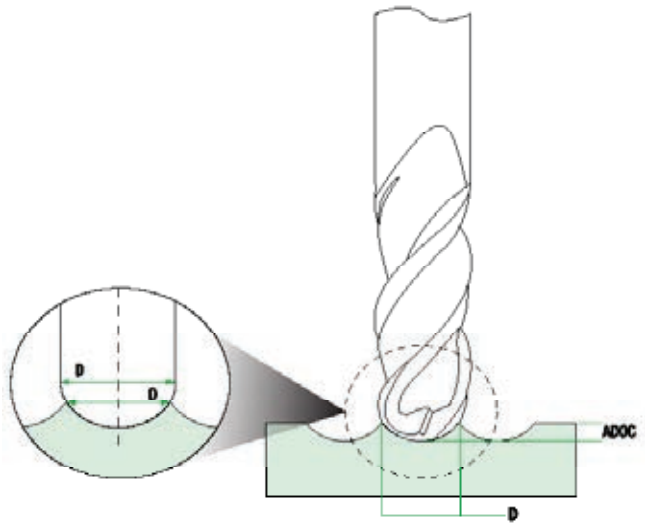
CALCULATE YOUR EFFECTIVE CUTTING DIAMETER
This can be done using the chart below that represents some Common Tool Diameters and ADOC combinations.

GORILLA MILL BALLNOSE MILLING TECHNIQUES

(ADOC) AXIAL DEPTH OF CUT (EFFECTIVE DIAMETER FOR SFM CALCULATION)

	DEPTH	0.254	0.508	0.762	1.016	1.270	1.778	2.032	2.540	3.048	3.810	5.588	7.620	8.890	10.160	11.430
METRIC DIAMETER	3 mm	1.676	2.260	2.616	2.845	2.972	2.9464	2.794	—	—	—	—	—	—	—	—
	4 mm	1.956	2.667	3.150	3.480	3.734	3.988	3.988	3.861	3.404	—	—	—	—	—	—
	5 mm	2.184	3.023	3.607	4.013	4.343	4.775	4.902	5.004	4.877	4.267	—	—	—	—	—
	6 mm	2.413	3.353	3.988	4.496	4.902	5.486	5.690	5.918	5.994	5.766	—	—	—	—	—
	8 mm	2.794	3.912	4.699	5.334	5.842	6.655	6.960	7.442	7.772	8.001	7.341	—	—	—	—
	10 mm	3.150	4.394	5.309	6.045	6.655	7.645	8.052	8.712	9.195	9.703	9.931	8.509	—	—	—
	12 mm	3.454	4.826	5.842	6.680	7.391	8.534	8.992	9.804	10.439	11.176	11.963	11.557	10.516	8.636	
	16 mm	3.988	5.613	6.807	7.798	8.661	10.058	10.643	11.684	12.573	13.640	15.265	15.977	15.900	15.392	14.453
	20 mm	4.470	6.299	7.645	8.788	9.754	11.379	12.090	13.310	14.376	15.697	17.958	19.431	19.888	19.990	19.787
	25 mm	5.004	7.061	8.585	9.881	10.973	12.852	13.665	15.113	16.358	17.983	20.828	23.012	23.927	24.562	24.917

Calculate your new SFM adjustment. This new SFM adjustment will be calculated using the new effective cutting diameter.
If you are using less than the cutter diameter, then its likely your RPM's will need to be adjusted upward.



4 FLUTE BALLNOSE (METRIC)

4 FLUTE BALLNOSE (METRIC) SPEEDS & FEEDS CHART PROFILING AND "D" EFFECTIVE, CHIMP LOAD PER TOOTH

			3MM (.1181)			4MM (.1575)			5MM (.1969)		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.0320	0.0213	0.0178	0.041148	0.0274	0.0229	0.0457	0.0274	0.0254
	Ductile Iron	500	0.0137	0.0091	0.0076	0.02286	0.0152	0.0127	0.0274	0.0152	0.0152
	Soft Steels, (A36,1018, 8620,1045)	650	0.0183	0.0122	0.0102	0.027432	0.0183	0.0152	0.0320	0.0183	0.0178
	Alloy Steels, (4340,4140)	400	0.0137	0.0091	0.0076	0.02286	0.0152	0.0127	0.0274	0.0152	0.0152
	4140 Pre-Hard (28 to 32 Rc)	300	0.0137	0.0091	0.0076	0.018288	0.0122	0.0102	0.0229	0.0122	0.0127
	Tool Steels (A2,D2,S7)	300	0.0183	0.0122	0.0102	0.02286	0.0152	0.0127	0.0274	0.0152	0.0152
	Die Steels, (H13,P20)	325	0.0183	0.0122	0.0102	0.02286	0.0152	0.0127	0.0274	0.0152	0.0152
	Stainless Steel, (303) (304) (316)	350	0.0183	0.0122	0.0102	0.02286	0.0152	0.0127	0.0274	0.0152	0.0152
	Difficult Stainless Steel, (400 & PH Series)	300	0.0183	0.0122	0.01016	0.02286	0.0152	0.0127	0.0274	0.0152	0.01524
	(13-8) Stainless Steel	150	0.0137	0.0091	0.00762	0.02286	0.0152	0.0127	0.0274	0.0152	0.01524
	High Temp. Alloys	250	0.0183	0.0122	0.01016	0.02286	0.0152	0.0127	0.0274	0.0152	0.01524
	Titanium (6AL4V)	200	0.0183	0.0122	0.01016	0.02286	0.0152	0.0127	0.0274	0.0152	0.01524
	Inconel 718	155	0.0183	0.0122	0.01016	0.02286	0.0152	0.0127	0.0274	0.0152	0.01524
	Inconel 625	135	0.0137	0.0091	0.00762	0.02286	0.0152	0.0127	0.0274	0.0152	0.01524

*NOTE: Recommended Speeds & Feeds, applications may vary.

4 FLUTE BALLNOSE (METRIC) SPEEDS & FEEDS CHART PROFILING AND "D" EFFECTIVE, CHIMP LOAD PER TOOTH

			6MM (.2362)			8MM (.315)			10MM (.3937)		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.0503	0.033528	0.0279	0.0686	0.0457	0.0381	0.0777	0.0518	0.0432
	Ductile Iron	500	0.0366	0.024384	0.0203	0.0549	0.0366	0.0305	0.0732	0.0488	0.0406
	Soft Steels, (A36,1018, 8620,1045)	650	0.0411	0.027432	0.0229	0.0594	0.0396	0.0330	0.0686	0.0457	0.0381
	Alloy Steels, (4340,4140)	400	0.0366	0.024384	0.0203	0.0686	0.0457	0.0381	0.0823	0.0549	0.0457
	4140 Pre-Hard (28 to 32 Rc)	300	0.0274	0.018288	0.0152	0.0457	0.0305	0.0254	0.0640	0.0427	0.0356
	Tool Steels (A2,D2,S7)	300	0.0320	0.021336	0.0178	0.0549	0.0366	0.0305	0.0732	0.0488	0.0406
	Die Steels, (H13,P20)	325	0.0411	0.027432	0.0229	0.0686	0.0457	0.0381	0.0914	0.0610	0.0508
	Stainless Steel, (303) (304) (316)	350	0.0366	0.024384	0.02032	0.0549	0.0366	0.03048	0.0732	0.0488	0.04064
	Difficult Stainless Steel, (400 & PH Series)	300	0.0320	0.021336	0.0178	0.0503	0.0335	0.0279	0.0594	0.0396	0.0330
	(13-8) Stainless Steel	150	0.0320	0.021336	0.0178	0.0457	0.0305	0.0254	0.0594	0.0396	0.0330
	High Temp. Alloys	250	0.0320	0.021336	0.0178	0.0503	0.0335	0.0279	0.0640	0.0427	0.0356
	Titanium (6AL4V)	200	0.0320	0.021336	0.0178	0.0549	0.0366	0.0305	0.0732	0.0488	0.0406
	Inconel 718	155	0.0320	0.021336	0.0178	0.0457	0.0305	0.0254	0.0594	0.0396	0.0330
	Inconel 625	135	0.0320	0.021336	0.0178	0.0457	0.0305	0.0254	0.0594	0.0396	0.0330

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE
4 FLUTE BALLNOSE (METRIC)

4 FLUTE BALLNOSE (METRIC) SPEEDS & FEEDS CHART PROFILING AND "D" EFFECTIVE, CHIMP LOAD PER TOOTH

			12MM (.4724)			16MM (.6299)			20MM (.7874)		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.0960	0.0640	0.0533	0.1372	0.0914	0.0762	0.1600	0.1067	0.0889
	Ductile Iron	500	0.0914	0.0610	0.0508	0.1372	0.0914	0.0762	0.1600	0.1067	0.0889
	Soft Steels, (A36,1018,8620,1045)	650	0.0960	0.0640	0.0533	0.1234	0.0823	0.0686	0.1463	0.0975	0.0813
	Alloy Steels, (4340,4140)	400	0.0960	0.0640	0.0533	0.1280	0.0853	0.0711	0.1554	0.1036	0.0864
	4140 Pre-Hard (28 to 32 Rc)	300	0.0823	0.0549	0.0457	0.1143	0.0762	0.0635	0.1372	0.0914	0.0762
	Tool Steels (A2,D2,S7)	300	0.1006	0.0671	0.0559	0.1189	0.0792	0.0660	0.1372	0.0914	0.0762
	Die Steels, (H13,P20)	325	0.1006	0.0671	0.0559	0.1280	0.0853	0.0711	0.1554	0.1036	0.0864
	Stainless Steel, (303) (304) (316)	350	0.0914	0.0610	0.0508	0.1189	0.0792	0.0660	0.1463	0.0975	0.0813
	Difficult Stainless Steel, (400 & PH Series)	300	0.0914	0.0610	0.0508	0.1143	0.0762	0.0635	0.1372	0.0914	0.0762
	(13-8) Stainless Steel	150	0.0960	0.0640	0.0533	0.1280	0.0853	0.0711	0.1509	0.1006	0.0838
	High Temp. Alloys	250	0.0869	0.0579	0.0483	0.1006	0.0671	0.0559	0.1280	0.0853	0.0711
	Titanium (6AL4V)	200	0.0960	0.0640	0.0533	0.1234	0.0823	0.0686	0.1463	0.0975	0.0813
	Inconel 718	155	0.0914	0.0610	0.0508	0.1052	0.0701	0.0584	0.1372	0.0914	0.0762
	Inconel 625	135	0.0914	0.0610	0.0508	0.1052	0.0701	0.0584	0.1372	0.0914	0.0762

			25MM (.9843)		
			Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot
WORK PIECE MATERIAL	Gray Cast Iron	600	0.1829	0.1219	0.1016
	Ductile Iron	500	0.1920	0.1280	0.1067
	Soft Steels, (A36,1018, 8620,1045)	650	0.1829	0.1219	0.1016
	Alloy Steels, (4340,4140)	400	0.1829	0.1219	0.1016
	4140 Pre-Hard (28 to 32 Rc)	300	0.1600	0.1067	0.0889
	Tool Steels (A2,D2,S7)	300	0.1646	0.1097	0.0914
	Die Steels, (H13,P20)	325	0.1829	0.1219	0.1016
	Stainless Steel, (303) (304) (316)	350	0.1692	0.1128	0.0940
	Difficult Stainless Steel, (400 & PH Series)	300	0.1600	0.1067	0.0889
	(13-8) Stainless Steel	150	0.1875	0.1250	0.1041
	High Temp. Alloys	250	0.1509	0.1006	0.0838
	Titanium (6AL4V)	200	0.1829	0.1219	0.1016
	Inconel 718	155	0.1600	0.1067	0.0889
	Inconel 625	135	0.1600	0.1067	0.0889

*NOTE: Recommended Speeds & Feeds, applications may vary.

4 FLUTE NECK RELIEVED (INCH)

4 FLUTE NECK RELIEVED (INCH) COATED SPEEDS & FEEDS CHART. 1/2X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/4"		3/8"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	450	6,876	32.9	4,584	31.1	3,438	34.4	2,750	33.1	2,292	32.0	1,719	27.5
Ductile Iron	375	5,730	20.6	3,820	24.8	2,865	26.3	2,292	27.6	1,910	26.5	1,433	24.3
Soft Steels, (A36,1018, 8620,1045)	480	7,449	29.8	4,966	29.8	3,725	31.3	2,979	32.2	2,483	31.8	1,862	29.8
Alloy Steels, (4340, 4140)	300	4,584	18.3	3,056	22.0	2,292	22.0	1,833	20.5	1,528	20.7	1,146	18.3
4140 Pre-Hard (28 to 32 Rc)	225	3,641	11.6	2,292	12.8	1,719	13.7	1,375	13.7	1,146	13.7	860	12.1
Tool Steels (A2,D2,S7)	225	3,438	11.0	2,292	14.7	1,719	15.2	1,375	14.3	1,146	13.7	860	12.4
Die Steels, (H13,P20)	245	3,725	16.4	2,483	19.8	1,862	18.6	1,490	16.7	1,241	16.9	931	14.9
Stainless Steel, (303, 304, 316)	260	4,011	12.8	2,674	17.0	2,006	17.6	1,604	16.7	1,337	17.0	1,004	14.9
Difficult Stainless Steel, (400 & PH Series)	225	3,438	9.6	2,292	10.4	1,719	13.8	1,375	13.8	1,146	13.8	860	12.1
Stainless Steel (13-8)	115	1,719	4.8	1,146	5.9	860	8.9	687	7.7	573	7.6	430	7.0
High Temp. Alloys	190	2,865	8.0	1,910	10.7	1,433	10.9	1,146	10.1	955	10.7	716	9.5
Titanium (6AL4V)	150	2,292	6.1	1,528	9.8	1,146	10.6	917	10.0	764	9.8	573	9.2
Inconel 718	115	1,776	5.0	1,184	6.2	888	7.1	710	6.5	593	7.1	444	6.2
Inconel 625	100	1,547	4.4	1,031	5.3	773	6.5	619	6.5	515	6.8	386	6.2

*NOTE: Recommended Speeds & Feeds meant for shortest reach tools.

SUPER BITCHIN' PERFORMANCE
4 FLUTE (INCH & METRIC)

YETI 4 FLUTE (INCH) COATED SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, AND ½X THE DIAMETER DEEP SLOTTING CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/8"		3/16"		1/4"		5/16"		3/8"		7/16"		1/2"		5/8"		3/4"		1"	
		1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot
Gray Cast Iron	850	0.0006	0.0005	0.0010	0.0008	0.0012	0.0010	0.0014	0.0012	0.0020	0.0017	0.0025	0.0021	0.0028	0.0024	0.0034	0.0031	0.0041	0.0037	0.0046	0.0042
Ductile Iron	600	0.0005	0.0004	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0023	0.0019	0.0025	0.0022	0.0032	0.0029	0.0039	0.0035	0.0045	0.0041
Soft Steels, (A36,1018, 8620,1045)	850	0.0005	0.0004	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0023	0.0019	0.0025	0.0022	0.0032	0.0029	0.0039	0.0035	0.0045	0.0041
Alloy Steels, (4340,4140)	600	0.0005	0.0004	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0023	0.0019	0.0025	0.0022	0.0032	0.0029	0.0039	0.0035	0.0045	0.0041
4140 Pre-Hard (28 to 32 Rc)	375	0.0004	0.0003	0.0005	0.0004	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0018	0.0015	0.0021	0.0018	0.0026	0.0024	0.0033	0.0030	0.0039	0.0035
Tool Steels (A2,D2,S7)	375	0.0006	0.0005	0.0010	0.0008	0.0012	0.0010	0.0014	0.0012	0.0020	0.0017	0.0025	0.0021	0.0028	0.0024	0.0034	0.0031	0.0041	0.0037	0.0046	0.0042
Die Steels, (H13,P20)	450	0.0006	0.0005	0.0010	0.0008	0.0012	0.0010	0.0014	0.0012	0.0020	0.0017	0.0025	0.0021	0.0028	0.0024	0.0034	0.0031	0.0041	0.0037	0.0046	0.0042
Stainless Steel, (303, 304, 316)	450	0.0005	0.0004	0.0007	0.0006	0.0010	0.0008	0.0012	0.001	0.0018	0.0015	0.0023	0.0019	0.0025	0.0022	0.0032	0.0029	0.0039	0.0035	0.0045	0.0041
Difficult Stainless Steel, (400 & PH Series)	400	0.0004	0.0003	0.0005	0.0004	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0018	0.0015	0.0021	0.0018	0.0026	0.0024	0.0033	0.0030	0.0039	0.0035
Stainless Steel (13-8)	200	0.0004	0.0003	0.0005	0.0004	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0018	0.0015	0.0021	0.0018	0.0026	0.0024	0.0033	0.0030	0.0039	0.0035
High Temp. Alloys	350	0.0005	0.0004	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0023	0.0019	0.0025	0.0022	0.0032	0.0029	0.0039	0.0035	0.0045	0.0041
Titanium (6AL4V)	300	0.0005	0.0004	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0023	0.0019	0.0025	0.0022	0.0032	0.0029	0.0039	0.0035	0.0045	0.0041
Inco 718	225	0.0004	0.0003	0.0005	0.0004	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0018	0.0015	0.0021	0.0018	0.0026	0.0024	0.0033	0.0030	0.0039	0.0035
Inco 625	200	0.0004	0.0003	0.0005	0.0004	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0018	0.0015	0.0021	0.0018	0.0026	0.0024	0.0033	0.0030	0.0039	0.0035

YETI 4 FLUTE (INCH) COATED SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, AND ½X THE DIAMETER DEEP SLOTTING CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3 MM		4 MM		5 MM		6 MM		8 MM		10 MM		12 MM		16 MM		20 MM		25 MM	
		1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot	1/2 Dia. Deep	Full Slot
Gray Cast Iron	850	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0014	0.0012	0.0020	0.0017	0.0026	0.0023	0.0034	0.0031	0.0040	0.0036	0.0046	0.0042
Ductile Iron	600	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0024	0.0021	0.0032	0.0029	0.0037	0.0034	0.0045	0.0041
Soft Steels, (A36,1018, 8620,1045)	850	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0024	0.0021	0.0032	0.0029	0.0037	0.0034	0.0045	0.0041
Alloy Steels, (4340,4140)	600	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0024	0.0021	0.0032	0.0029	0.0037	0.0034	0.0045	0.0041
4140 Pre-Hard (28 to 32 Rc)	375	0.0004	0.0003	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0022	0.0019	0.0026	0.0024	0.0032	0.0029	0.0039	0.0035
Tool Steels (A2,D2,S7)	375	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0014	0.0012	0.0020	0.0017	0.0026	0.0023	0.0034	0.0031	0.0040	0.0036	0.0046	0.0042
Die Steels, (H13,P20)	450	0.0006	0.0005	0.0008	0.0007	0.0010	0.0008	0.0012	0.0010	0.0014	0.0012	0.0020	0.0017	0.0026	0.0023	0.0034	0.0031	0.0040	0.0036	0.0046	0.0042
Stainless Steel, (303, 304, 316)	450	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0024	0.0021	0.0032	0.0029	0.0037	0.0034	0.0045	0.0041
Difficult Stainless Steel, (400 & PH Series)	400	0.0004	0.0003	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0020	0.0017	0.0026	0.0024	0.0032	0.0029	0.0039	0.0035
Stainless Steel (13-8)	200	0.0004	0.0003	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0020	0.0017	0.0026	0.0024	0.0032	0.0029	0.0039	0.0035
High Temp. Alloys	350	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0024	0.0021	0.0032	0.0029	0.0037	0.0034	0.0045	0.0041
Titanium (6AL4V)	300	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0010	0.0008	0.0012	0.0010	0.0018	0.0015	0.0024	0.0021	0.0032	0.0029	0.0037	0.0034	0.0045	0.0041
Inco 718	225	0.0004	0.0003	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0022	0.0019	0.0026	0.0024	0.0032	0.0029	0.0039	0.0035
Inco 625	200	0.0004	0.0003	0.0005	0.0004	0.0006	0.0005	0.0007	0.0006	0.0011	0.0009	0.0013	0.0011	0.0022	0.0019	0.0026	0.0024	0.0032	0.0029	0.0039	0.0035

*NOTE: Recommended Speeds & Feeds for the 4 Flute Yeti Full slotting 1 times the diameter deep & 1/2 times diameter deep.

HIGH PERFORMANCE
3 FLUTE ROUGHERS (INCH)

3 FLUTE KNUCKLEDRAGGERS (INCH) SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING. CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/4"	
		RPM	IPM
Gray Cast Iron	750	11,460	34.3
Ductile Iron	550	8,404	25.2
Soft Steels, (A36,1018,8620,1045)	750	11,460	34.3
Alloy Steels, (4340, 4140)	500	7,640	18.3
4140 Pre-Hard (28 to 32 Rc)	400	6,112	11.1
Tool Steels (A2,D2,S7)	300	4,584	11.1
Die Steels, (H13,P20)	350	5,348	14.4
Stainless Steel, (303, 304, 316)	400	6,112	14.6
Difficult Stainless Steel, (400 & PH Series)	350	5,348	11.2
Stainless Steel (13-8)	180	2,750	5.7
High Temp. Alloys	275	4,202	12.6
Titanium (6AL4V)	250	3,820	10.3
Inconel 718	180	2,750	6.6
Inconel 625	150	2,292	5.5

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE
4 FLUTE ROUGHERS (INCH)

4 FLUTE KNUCKLEDRAGGERS (INCH) SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING. CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3/8"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	750	7,640	57.8	5,730	52.7	4,584	55.0	3,820	48.9	2,865	45.8
Ductile Iron	550	5,602	42.6	4,202	36.9	3,362	41.7	2,801	35.9	2,101	33.6
Soft Steels, (A36,1018,8620,1045)	750	7,640	67.2	5,730	57.3	4,584	58.6	3,820	48.9	2,865	45.8
Alloy Steels, (4340, 4140)	500	5,093	44.8	3,820	42.7	3,056	36.7	2,546	34.6	1,910	30.5
4140 Pre-Hard (28 to 32 Rc)	400	4,075	24.5	3,056	24.5	2,444	23.4	2,037	22.0	1,528	19.6
Tool Steels (A2,D2,S7)	300	3,056	28.1	2,292	22.0	1,833	19.1	1,528	18.3	1,146	16.5
Die Steels, (H13,P20)	350	3,565	34.2	2,674	28.8	2,139	29.1	1,783	24.3	1,337	21.4
Stainless Steel, (303, 304, 316)	400	4,075	35.8	3,056	28.1	2,445	32.3	2,037	28.5	1,528	24.4
Difficult Stainless Steel, (400 & PH Series)	350	3,565	27.1	2,674	23.5	2,140	25.6	1,783	23.5	1,337	21.4
Stainless Steel (13-8)	180	1,834	12.5	1,375	11.1	1,100	11.0	917	11.0	688	9.7
High Temp. Alloys	275	2,801	24.6	2,101	19.3	1,680	20.1	1,400	16.8	1,050	14.7
Titanium (6AL4V)	250	2,547	19.3	1,910	19.1	1,528	20.7	1,273	17.3	955	15.3
Inconel 718	180	1,834	13.8	1,375	12.6	1,100	13.2	917	11.0	688	9.6
Inconel 625	150	1,528	11.6	1,146	10.0	917	10.2	764	9.2	573	8.1

HIGH PERFORMANCE
3 FLUTE ROUGHERS (METRIC)

3 FLUTE KNUCKLEDRAGGERS (METRIC) SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, METRIC CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	6mm	
		RPM	MMPT
Gray Cast Iron	750	12,128	0.0380
Ductile Iron	550	8,894	0.0330
Soft Steels, (A36,1018,8620,1045)	750	12,128	0.0250
Alloy Steels, (4340, 4140)	500	8,085	0.0250
4140 Pre-Hard (28 to 32 Rc)	400	6,468	0.0200
Tool Steels (A2,D2,S7)	300	4,851	0.0250
Die Steels, (H13,P20)	350	5,659	0.0330
Stainless Steel, (303, 304, 316)	400	6,468	0.0250
Difficult Stainless Steel, (400 & PH Series)	350	5,659	0.0200
Stainless Steel (13-8)	180	2,910	0.0250
High Temp. Alloys	275	4,447	0.0330
Titanium (6AL4V)	250	4,042	0.0250
Inconel 718	180	2,910	0.0200
Inconel 625	150	2,425	0.0220

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE
4 FLUTE ROUGHERS (METRIC)

4 FLUTE KNUCKLEDRAGGERS (METRIC) SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, METRIC CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	8mm		10mm		12mm		16mm		20mm		25mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	750	9,096	0.0400	7,277	0.0480	6,064	0.0580	4,548	0.0760	3,638	0.0910	2,910	0.1010
Ductile Iron	550	6,670	0.0350	5,336	0.0480	4,447	0.0550	3,335	0.0750	2,668	0.0880	2,134	0.1010
Soft Steels, (A36,1018,8620,1045)	750	9,096	0.0400	7,277	0.0550	6,064	0.0630	4,548	0.0810	3,638	0.0940	2,910	0.1060
Alloy Steels, (4340, 4140)	500	6,064	0.0370	4,851	0.0550	4,042	0.0660	3,032	0.0760	2,425	0.0920	1,940	0.1010
4140 Pre-Hard (28 to 32 Rc)	400	4,851	0.0300	3,881	0.0380	3,234	0.0500	2,425	0.0600	1,940	0.0760	1,552	0.0870
Tool Steels (A2,D2,S7)	300	3,638	0.0350	2,910	0.0550	2,425	0.0610	1,819	0.0660	1,455	0.0860	1,164	0.0980
Die Steels, (H13,P20)	350	4,244	0.0350	3,395	0.0480	2,829	0.0680	2,122	0.0860	1,697	0.0940	1,358	0.1010
Stainless Steel, (303, 304, 316)	400	4,851	0.0400	3,881	0.0550	3,234	0.0590	2,425	0.0830	1,940	0.0960	1,552	0.1010
Difficult Stainless Steel, (400 & PH Series)	350	4,244	0.0400	3,395	0.0480	2,829	0.0560	2,122	0.0760	1,697	0.0940	1,358	0.0980
Stainless Steel (13-8)	180	2,183	0.0350	1,746	0.0430	1,455	0.0510	1,091	0.0640	873	0.0860	698	0.0970
High Temp. Alloys	275	3,335	0.0380	2,668	0.0550	2,223	0.0580	1,667	0.0760	1,334	0.0890	1,067	0.0970
Titanium (6AL4V)	250	3,032	0.0400	2,425	0.0480	2,021	0.0620	1,516	0.0860	1,212	0.0970	970	0.1010
Inconel 718	180	2,183	0.0300	1,746	0.0470	1,455	0.0580	1,091	0.0760	873	0.0890	698	0.0940
Inconel 625	150	1,819	0.0300	1,455	0.0470	1,212	0.0580	909	0.0710	727	0.0880	582	0.0940

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

SUPER BITCHIN' PERFORMANCE
4 FLUTE ROUGHER/FINISHER (INCH)

4 FLUTE SASQUATCH ROUGHER/FINISHER (INCH) SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING. CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3/8"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	750	7,640	57.8	5,730	52.7	4,584	55.0	3,820	48.9	2,865	45.8
Ductile Iron	550	5,602	42.6	4,202	36.9	3,362	41.7	2,801	35.9	2,101	33.6
Soft Steels (A36,1018,8620,1045)	800	8,150	61.0	6,112	56.2	4,890	58.6	4,075	52.1	3,056	48.9
Alloy Steels (4340,4140)	500	5,093	40.7	3,820	39.7	3,056	35.4	2,547	36.6	1,910	31.3
4140 Pre-Hard (28 to 32 Rc)	380	3,871	23.3	2,903	23.3	2,323	22.3	1,935	20.9	1,452	18.6
Tool Steels (A2,D2,S7)	300	3,056	24.5	2,292	20.2	1,834	19.1	1,528	18.3	1,146	17.4
Die Steels (H13,P20)	350	3,565	31.3	2,674	26.7	2,139	30.8	1,783	27.1	1,337	21.4
Stainless Steel (303, 304, 316)	400	4,075	35.8	3,056	28.1	2,445	32.3	2,037	28.5	1,528	24.4
Difficult Stainless Steel (400 & PH Series)	350	3,565	27.1	2,674	23.5	2,140	25.6	1,783	23.5	1,337	21.4
Stainless Steel (13-8)	180	1,834	12.5	1,375	11.1	1,100	11.0	917	11.0	688	9.7
High Temp. Alloys	275	2,801	21.3	2,101	19.3	1,681	20.1	1,401	16.8	1,051	14.7
Titanium (6AL4V)	250	2,547	17.3	1,910	19.1	1,528	20.7	1,273	17.3	955	16.0
Inconel 718	180	1,834	13.8	1,375	12.6	1,100	13.2	917	11.0	688	9.6
Inconel 625	150	1,528	11.6	1,146	10.0	917	10.2	764	9.2	573	8.1

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

SUPER BITCHIN' PERFORMANCE
4 FLUTE ROUGHER/FINISHER (METRIC)

4 FLUTE SASQUATCH ROUGHER/FINISHER (METRIC) SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	8mm		10mm		12mm		16mm		20mm		25mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	750	9096	0.0380	7277	0.0440	6064	0.0610	4548	0.0760	3638	0.0910	2911	0.1050
Ductile Iron	550	6670	0.0300	5336	0.0450	4447	0.0580	3335	0.0740	2668	0.0890	2134	0.1030
Soft Steels (A36,1018,8620,1045)	800	9702	0.0330	7762	0.0390	6468	0.0530	4851	0.0680	3881	0.0860	3104	0.1010
Alloy Steels (4340,4140)	500	6064	0.0380	4851	0.0450	4042	0.0580	3032	0.0710	2425	0.0860	1940	0.1010
4140 Pre-Hard (28 to 32 Rc)	380	4609	0.0250	3687	0.0350	3072	0.0500	2304	0.0630	1843	0.0760	1474	0.0890
Tool Steels (A2,D2,S7)	300	3638	0.0300	2910	0.0400	2425	0.0550	1819	0.0660	1455	0.0760	1164	0.0910
Die Steels (H13,P20)	350	4244	0.0380	3395	0.0500	2830	0.0630	2122	0.0710	1698	0.0860	1358	0.1010
Stainless Steel (303, 304, 316)	400	4851	0.0300	3881	0.0400	3234	0.0550	2425	0.0660	1940	0.0810	1552	0.0940
Difficult Stainless Steel (400 & PH Series)	350	4244	0.0280	3395	0.0380	2830	0.0500	2122	0.0630	1698	0.0760	1358	0.0890
Stainless Steel (13-8)	180	2183	0.0250	1746	0.0340	1455	0.0550	1091	0.0690	873	0.0810	698	0.1010
High Temp. Alloys	275	3335	0.0270	2668	0.0360	2223	0.0480	1667	0.0560	1334	0.0710	1067	0.0840
Titanium (6AL4V)	250	3032	0.0300	2425	0.0400	2021	0.0580	1516	0.0680	1212	0.0810	970	0.1010
Inconel 718	180	2183	0.0250	1746	0.0330	1455	0.0510	1091	0.0590	873	0.0760	698	0.0940
Inconel 625	150	1819	0.0250	1455	0.0330	1212	0.0530	909	0.0660	727	0.0830	582	0.1010

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

HIGH PERFORMANCE
5 FLUTE (INCH)

5 FLUTE (INCH) COATED SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/8"					3/16"					1/4"					5/16"					3/8"				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	600	.0015	.0012	.0009	.0008	.0007	.0021	.0017	.0013	.0012	.0010	.0027	.0022	.0017	.0015	.0013	.0036	.0029	.0022	.0020	.0017	.0040	.0032	.0025	.0022	.0019
Ductile Iron	500	.0013	.0010	.0008	.0007	.0006	.0019	.0015	.0012	.0010	.0009	.0027	.0022	.0017	.0015	.0013	.0032	.0026	.0020	.0017	.0015	.0040	.0032	.0025	.0022	.0019
Soft Steels, (A36,1018,8620,1045)	650	.0013	.0010	.0008	.0007	.0006	.0019	.0015	.0012	.0010	.0009	.0023	.0019	.0014	.0013	.0011	.0029	.0024	.0018	.0016	.0014	.0036	.0029	.0022	.0020	.0017
Alloy Steels, (4340, 4140)	425	.0011	.0009	.0007	.0006	.0005	.0017	.0014	.0010	.0009	.0008	.0023	.0019	.0014	.0013	.0011	.0036	.0029	.0022	.0020	.0017	.0042	.0034	.0026	.0023	.0020
4140 Pre-Hard (28 to 32 Rc)	300	.0008	.0007	.0005	.0005	.0004	.0015	.0012	.0009	.0008	.0007	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012
Tool Steels (A2,D2,S7)	300	.0008	.0007	.0005	.0005	.0004	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0027	.0022	.0017	.0015	.0013	.0038	.0031	.0023	.0021	.0018
Die Steels, (H13,P20)	325	.0011	.0009	.0007	.0006	.0005	.0017	.0014	.0010	.0009	.0008	.0025	.0020	.0016	.0014	.0012	.0036	.0029	.0022	.0020	.0017	.0046	.0037	.0029	.0025	.0022
Stainless Steel, (303, 304, 316)	350	.0008	.0007	.0005	.0005	.0004	.0019	.0015	.0012	.0010	.0009	.0019	.0015	.0012	.0010	.0009	.0027	.0022	.0017	.0015	.0013	.0038	.0031	.0023	.0021	.0018
Difficult Stainless Steel, (400 & PH Series)	325	.0008	.0007	.0005	.0005	.0004	.0015	.0012	.0009	.0008	.0007	.0017	.0014	.0010	.0009	.0008	.0023	.0019	.0014	.0013	.0011	.0032	.0026	.0020	.0017	.0015
Stainless Steel (13-8)	140	.0008	.0007	.0005	.0005	.0004	.0015	.0012	.0009	.0008	.0007	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012
High Temp. Alloys	400	.0008	.0007	.0005	.0005	.0004	.0019	.0015	.0012	.0010	.0009	.0017	.0014	.0010	.0009	.0008	.0025	.0020	.0016	.0014	.0012	.0032	.0026	.0020	.0017	.0015
Titanium (6AL4V)	300	.0011	.0009	.0007	.0006	.0005	.0019	.0015	.0012	.0010	.0009	.0017	.0014	.0010	.0009	.0008	.0027	.0022	.0017	.0015	.0013	.0038	.0031	.0023	.0021	.0018
Inconel 718	150	.0008	.0007	.0005	.0005	.0004	.0015	.0012	.0009	.0008	.0007	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012
Inconel 625	130	.0008	.0007	.0005	.0005	.0004	.0015	.0012	.0009	.0008	.0007	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012

WORK PIECE MATERIAL	SFM	7/16"					1/2"					5/8"					3/4"					1"				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	600	.0050	.0041	.0031	.0028	.0024	.0059	.0048	.0036	.0032	.0028	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039	.0092	.0075	.0057	.0051	.0044
Ductile Iron	500	.0048	.0039	.0030	.0026	.0023	.0055	.0044	.0034	.0030	.0026	.0067	.0054	.0042	.0037	.0032	.0076	.0061	.0047	.0041	.0036	.0088	.0071	.0055	.0048	.0042
Soft Steels, (A36,1018,8620,1045)	650	.0042	.0034	.0026	.0023	.0020	.0048	.0039	.0030	.0026	.0023	.0063	.0051	.0039	.0035	.0030	.0074	.0060	.0046	.0040	.0035	.0092	.0075	.0057	.0051	.0044
Alloy Steels, (4340, 4140)	425	.0046	.0037	.0029	.0025	.0022	.0055	.0044	.0034	.0030	.0026	.0065	.0053	.0040	.0036	.0031	.0078	.0063	.0048	.0043	.0037	.0092	.0075	.0057	.0051	.0044
4140 Pre-Hard (28 to 32 Rc)	300	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039
Tool Steels (A2,D2,S7)	300	.0046	.0037	.0029	.0025	.0022	.0050	.0041	.0031	.0028	.0024	.0061	.0049	.0038	.0033	.0029	.0069	.0056	.0043	.0038	.0033	.0084	.0068	.0052	.0046	.0040
Die Steels, (H13,P20)	325	.0053	.0043	.0033	.0029	.0025	.0059	.0048	.0036	.0032	.0028	.0065	.0053	.0040	.0036	.0031	.0078	.0063	.0048	.0043	.0037	.0092	.0075	.0057	.0051	.0044
Stainless Steel, (303, 304, 316)	350	.0044	.0036	.0027	.0024	.0021	.0050	.0041	.0031	.0028	.0024	.0061	.0049	.0038	.0033	.0029	.0074	.0060	.0046	.0040	.0035	.0088	.0071	.0055	.0048	.0042
Difficult Stainless Steel, (400 & PH Series)	325	.0040	.0032	.0025	.0022	.0019	.0046	.0037	.0029	.0025	.0022	.0055	.0044	.0034	.0030	.0026	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039
Stainless Steel (13-8)	140	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039
High Temp. Alloys	400	.0038	.0031	.0023	.0021	.0018	.0044	.0036	.0027	.0024	.0021	.0050	.0041	.0031	.0028	.0024	.0065	.0053	.0040	.0036	.0031	.0076	.0061	.0047	.0041	.0036
Titanium (6AL4V)	300	.0044	.0036	.0027	.0024	.0021	.0053	.0043	.0033	.0029	.0025	.0063	.0051	.0039	.0035	.0030	.0074	.0060	.0046	.0040	.0035	.0092	.0075	.0057	.0051	.0044
Inconel 718	150	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039
Inconel 625	130	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039

*NOTE: Recommended Speeds & Feeds, applications may vary.

5 FLUTE PHENOM (INCH) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/4"					5/16"					3/8"					7/16"					1/2"				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	675	.0027	.0022	.0017	.0015	.0013	.0036	.0029	.0022	.0020	.0017	.0040	.0032	.0025	.0022	.0019	.0050	.0041	.0031	.0028	.0024	.0059	.0048	.0036	.0032	.0028
Ductile Iron	500	.0027	.0022	.0017	.0015	.0013	.0032	.0026	.0020	.0017	.0015	.0040	.0032	.0025	.0022	.0019	.0048	.0039	.0030	.0026	.0023	.0055	.0044	.0034	.0030	.0026
Soft Steels (A36,1018, 8620,1045)	800	.0023	.0019	.0014	.0013	.0011	.0029	.0024	.0018	.0016	.0014	.0036	.0029	.0022	.0020	.0017	.0042	.0034	.0026	.0023	.0020	.0048	.0039	.0030	.0026	.0023
Alloy Steels (4340, 4140)	550	.0023	.0019	.0014	.0013	.0011	.0036	.0029	.0022	.0020	.0017	.0042	.0034	.0026	.0023	.0020	.0046	.0037	.0029	.0025	.0022	.0055	.0044	.0034	.0030	.0026
4140 Pre-Hard (28 to 32 Rc)	400	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020
Tool Steels (A2,D2,S7)	350	.0019	.0015	.0012	.0010	.0009	.0027	.0022	.0017	.0015	.0013	.0038	.0031	.0023	.0021	.0018	.0046	.0037	.0029	.0025	.0022	.0050	.0041	.0031	.0028	.0024
Die Steels (H13,P20)	400	.0025	.0020	.0016	.0014	.0012	.0036	.0029	.0022	.0020	.0017	.0046	.0037	.0029	.0025	.0022	.0053	.0043	.0033	.0029	.0025	.0059	.0048	.0036	.0032	.0028
Stainless Steel (303, 304, 316)	450	.0019	.0015	.0012	.0010	.0009	.0027	.0022	.0017	.0015	.0013	.0038	.0031	.0023	.0021	.0018	.0044	.0036	.0027	.0024	.0021	.0050	.0041	.0031	.0028	.0024
Difficult Stainless Steel (400 & PH Series)	400	.0017	.0014	.0010	.0009	.0008	.0023	.0019	.0014	.0013	.0011	.0032	.0026	.0020	.0017	.0015	.0040	.0032	.0025	.0022	.0019	.0046	.0037	.0029	.0025	.0022
Stainless Steel (13-8)	150	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020
High Temp. Alloys	275	.0017	.0014	.0010	.0009	.0008	.0025	.0020	.0016	.0014	.0012	.0032	.0026	.0020	.0017	.0015	.0038	.0031	.0023	.0021	.0018	.0044	.0036	.0027	.0024	.0021
Titanium (6AL4V)	300	.0017	.0014	.0010	.0009	.0008	.0027	.0022	.0017	.0015	.0013	.0038	.0031	.0023	.0021	.0018	.0044	.0036	.0027	.0024	.0021	.0053	.0043	.0033	.0029	.0025
Inconel 718	160	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020
Inconel 625	150	.0015	.0012	.0009	.0008	.0007	.0019	.0015	.0012	.0010	.0009	.0025	.0020	.0016	.0014	.0012	.0029	.0024	.0018	.0016	.0014	.0042	.0034	.0026	.0023	.0020

WORK PIECE MATERIAL	SFM	5/8"					3/4"					1"					1-1/4"				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	675	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039	.0092	.0075	.0057	.0051	.0044	.0103	.0083	.0064	.0056	.0049
Ductile Iron	500	.0067	.0054	.0042	.0037	.0032	.0076	.0061	.0047	.0041	.0036	.0088	.0071	.0055	.0048	.0042	.0099	.0080	.0061	.0054	.0047
Soft Steels (A36,1018, 8620,1045)	800	.0063	.0051	.0039	.0035	.0030	.0074	.0060	.0046	.0040	.0035	.0092	.0075	.0057	.0051	.0044	.0103	.0083	.0064	.0056	.0049
Alloy Steels (4340, 4140)	550	.0065	.0053	.0040	.0036	.0031	.0078	.0063	.0048	.0043	.0037	.0092	.0075	.0057	.0051	.0044	.0103	.0083	.0064	.0056	.0049
4140 Pre-Hard (28 to 32 Rc)	400	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039	.0092	.0075	.0057	.0051	.0044
Tool Steels (A2,D2,S7)	350	.0061	.0049	.0038	.0033	.0029	.0069	.0056	.0043	.0038	.0033	.0084	.0068	.0052	.0046	.0040	.0095	.0077	.0059	.0052	.0045
Die Steels (H13,P20)	400	.0065	.0053	.0040	.0036	.0031	.0078	.0063	.0048	.0043	.0037	.0092	.0075	.0057	.0051	.0044	.0103	.0083	.0064	.0056	.0049
Stainless Steel (303, 304, 316)	450	.0061	.0049	.0038	.0033	.0029	.0074	.0060	.0046	.0040	.0035	.0088	.0071	.0055	.0048	.0042	.0099	.0080	.0061	.0054	.0047
Difficult Stainless Steel (400 & PH Series)	400	.0055	.0044	.0034	.0030	.0026	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039	.0092	.0075	.0057	.0051	.0044
Stainless Steel (13-8)	150	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039	.0092	.0075	.0057	.0051	.0044
High Temp. Alloys	275	.0050	.0041	.0031	.0028	.0024	.0065	.0053	.0040	.0036	.0031	.0076	.0061	.0047	.0041	.0036	.0084	.0068	.0052	.0046	.0040
Titanium (6AL4V)	300	.0063	.0051	.0039	.0035	.0030	.0074	.0060	.0046	.0040	.0035	.0092	.0075	.0057	.0051	.0044	.0103	.0083	.0064	.0056	.0049
Inconel 718	160	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039	.0092	.0075	.0057	.0051	.0044
Inconel 625	150	.0050	.0041	.0031	.0028	.0024	.0069	.0056	.0043	.0038	.0033	.0082	.0066	.0051	.0045	.0039	.0092	.0075	.0057	.0051	.0044

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
5 FLUTE (METRIC)

5 FLUTE PHENOM (METRIC) SPEEDS & FEEDS CHART FOR PROFILING. CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3mm					4mm					5mm					6mm					8mm				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	675	.0462	.0374	.0286	.0253	.0220	.0525	.0425	.0325	.0288	.0250	.0630	.0510	.0390	.0345	.0300	.0693	.0561	.0429	.0380	.0330	.0903	.0731	.0559	.0495	.0430
Ductile Iron	500	.0315	.0255	.0195	.0173	.0150	.0357	.0289	.0221	.0196	.0170	.0462	.0374	.0286	.0253	.0220	.0693	.0561	.0429	.0380	.0330	.0798	.0646	.0494	.0437	.0380
Soft Steels (A36,1018, 8620,1045)	800	.0315	.0255	.0195	.0173	.0150	.0357	.0289	.0221	.0196	.0170	.0462	.0374	.0286	.0253	.0220	.0567	.0459	.0351	.0311	.0270	.0735	.0595	.0455	.0403	.0350
Alloy Steels (4340, 4140)	550	.0210	.0170	.0130	.0115	.0100	.0315	.0255	.0195	.0173	.0150	.0420	.0340	.0260	.0230	.0200	.0567	.0459	.0351	.0311	.0270	.0903	.0731	.0559	.0495	.0430
4140 Pre-Hard (28 to 32 Rc)	400	.0147	.0119	.0091	.0081	.0070	.0168	.0136	.0104	.0092	.0080	.0210	.0170	.0130	.0115	.0100	.0357	.0289	.0221	.0196	.0170	.0462	.0374	.0286	.0253	.0220
Tool Steels (A2,D2,S7)	350	.0210	.0170	.0130	.0115	.0100	.0315	.0255	.0195	.0173	.0150	.0420	.0340	.0260	.0230	.0200	.0462	.0374	.0286	.0253	.0220	.0693	.0561	.0429	.0380	.0330
Die Steels (H13,P20)	400	.0210	.0170	.0130	.0115	.0100	.0315	.0255	.0195	.0173	.0150	.0420	.0340	.0260	.0230	.0200	.0630	.0510	.0390	.0345	.0300	.0903	.0731	.0559	.0495	.0430
Stainless Steel (303, 304, 316)	450	.0210	.0170	.0130	.0115	.0100	.0315	.0255	.0195	.0173	.0150	.0420	.0340	.0260	.0230	.0200	.0462	.0374	.0286	.0253	.0220	.0693	.0561	.0429	.0380	.0330
Difficult Stainless Steel (400 & PH Series)	400	.0147	.0119	.0091	.0081	.0070	.0168	.0136	.0104	.0092	.0080	.0210	.0170	.0130	.0115	.0100	.0420	.0340	.0260	.0230	.0200	.0567	.0459	.0351	.0311	.0270
Stainless Steel (13-8)	150	.0147	.0119	.0091	.0081	.0070	.0168	.0136	.0104	.0092	.0080	.0210	.0170	.0130	.0115	.0100	.0357	.0289	.0221	.0196	.0170	.0462	.0374	.0286	.0253	.0220
High Temp. Alloys	275	.0210	.0170	.0130	.0115	.0100	.0252	.0204	.0156	.0138	.0120	.0357	.0289	.0221	.0196	.0170	.0420	.0340	.0260	.0230	.0200	.0630	.0510	.0390	.0345	.0300
Titanium (6AL4V)	300	.0210	.0170	.0130	.0115	.0100	.0252	.0204	.0156	.0138	.0120	.0357	.0289	.0221	.0196	.0170	.0420	.0340	.0260	.0230	.0200	.0693	.0561	.0429	.0380	.0330
Inconel 718	160	.0147	.0119	.0091	.0081	.0070	.0168	.0136	.0104	.0092	.0080	.0252	.0204	.0156	.0138	.0120	.0357	.0289	.0221	.0196	.0170	.0462	.0374	.0286	.0253	.0220
Inconel 625	150	.0147	.0119	.0091	.0081	.0070	.0168	.0136	.0104	.0092	.0080	.0252	.0204	.0156	.0138	.0120	.0357	.0289	.0221	.0196	.0170	.0462	.0374	.0286	.0253	.0220

WORK PIECE MATERIAL	SFM	10mm					12mm					16mm					20mm					25mm				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	675	.1050	.0850	.0650	.0575	.0500	.1386	.1122	.0858	.0759	.0660	.1743	.1411	.1079	.0955	.0830	.2184	.1768	.1352	.1196	.1040	.2331	.1887	.1443	.1277	.1110
Ductile Iron	500	.1050	.0850	.0650	.0575	.0500	.1281	.1037	.0793	.0702	.0610	.1701	.1377	.1053	.0932	.0810	.2016	.1632	.1248	.1104	.0960	.2226	.1802	.1378	.1219	.1060
Soft Steels (A36,1018, 8620,1045)	800	.0945	.0765	.0585	.0518	.0450	.1113	.0901	.0689	.0610	.0530	.1596	.1292	.0988	.0874	.0760	.1974	.1598	.1222	.1081	.0940	.2331	.1887	.1443	.1277	.1110
Alloy Steels (4340, 4140)	550	.1113	.0901	.0689	.0610	.0530	.1281	.1037	.0793	.0702	.0610	.1638	.1326	.1014	.0897	.0780	.2079	.1683	.1287	.1139	.0990	.2331	.1887	.1443	.1277	.1110
4140 Pre-Hard (28 to 32 Rc)	400	.0693	.0561	.0429	.0380	.0330	.0945	.0765	.0585	.0518	.0450	.1281	.1037	.0793	.0702	.0610	.1848	.1496	.1144	.1012	.0880	.2079	.1683	.1287	.1139	.0990
Tool Steels (A2,D2,S7)	350	.1008	.0816	.0624	.0552	.0480	.1155	.0935	.0715	.0633	.0550	.1533	.1241	.0949	.0840	.0730	.1848	.1496	.1144	.1012	.0880	.2121	.1717	.1313	.1162	.1010
Die Steels (H13,P20)	400	.1218	.0986	.0754	.0667	.0580	.1386	.1122	.0858	.0759	.0660	.1638	.1326	.1014	.0897	.0780	.2079	.1683	.1287	.1139	.0990	.2331	.1887	.1443	.1277	.1110
Stainless Steel (303, 304, 316)	450	.1008	.0816	.0624	.0552	.0480	.1155	.0935	.0715	.0633	.0550	.1533	.1241	.0949	.0840	.0730	.1974	.1598	.1222	.1081	.0940	.2226	.1802	.1378	.1219	.1060
Difficult Stainless Steel (400 & PH Series)	400	.0840	.0680	.0520	.0460	.0400	.1050	.0850	.0650	.0575	.0500	.1386	.1122	.0858	.0759	.0660	.1848	.1496	.1144	.1012	.0880	.2079	.1683	.1287	.1139	.0990
Stainless Steel (13-8)	150	.0693	.0561	.0429	.0380	.0330	.0945	.0765	.0585	.0518	.0450	.1281	.1037	.0793	.0702	.0610	.1848	.1496	.1144	.1012	.0880	.2079	.1683	.1287	.1139	.0990
High Temp. Alloys	275	.0840	.0680	.0520	.0460	.0400	.1008	.0816	.0624	.0552	.0480	.1281	.1037	.0793	.0702	.0610	.1743	.1411	.1079	.0955	.0830	.1911	.1547	.1183	.1047	.0910
Titanium (6AL4V)	300	.1008	.0816	.0624	.0552	.0480	.1218	.0986	.0754	.0667	.0580	.1596	.1292	.0988	.0874	.0760	.1974	.1598	.1222	.1081	.0940	.2331	.1887	.1443	.1277	.1110
Inconel 718	160	.0693	.0561	.0429	.0380	.0330	.0945	.0765	.0585	.0518	.0450	.1281	.1037	.0793	.0702	.0610	.1848	.1496	.1144	.1012	.0880	.2079	.1683	.1287	.1139	.0990
Inconel 625	150	.0693	.0561	.0429	.0380	.0330	.0945	.0765	.0585	.0518	.0450	.1281	.1037	.0793	.0702	.0610	.1848	.1496	.1144	.1012	.0880	.2079	.1683	.1287	.1139	.0990

*NOTE: Recommended Speeds & Feeds, applications may vary.

5 FLUTE NECK RELIEVED (INCH)

5 FLUTE NECK RELIEVED (INCH) COATED SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/4"			SFM	3/8"			SFM	1/2"			SFM	5/8"		
PERCENTAGE OF CUTTER DIAMETER		5%	15%	30%		5%	15%	30%		5%	15%	30%		5%	15%	30%
Gray Cast Iron	70	0.0018	0.0011	0.0009	100	0.0030	0.0018	0.0014	150	0.0041	0.0025	0.0020	230	0.0064	0.0039	0.0031
Ductile Iron	70	0.0016	0.0010	0.0008	100	0.0027	0.0017	0.0013	150	0.0037	0.0022	0.0017	230	0.0060	0.0036	0.0028
Soft Steels, (A36,1018,8620,1045)	70	0.0018	0.0011	0.0009	100	0.0030	0.0018	0.0014	150	0.0041	0.0025	0.0020	230	0.0064	0.0039	0.0031
Alloy Steels, (4340, 4140)	70	0.0016	0.0010	0.0008	100	0.0027	0.0017	0.0013	150	0.0037	0.0022	0.0017	230	0.0060	0.0036	0.0028
4140 Pre-Hard (28 to 32 Rc)	70	0.0011	0.0007	0.0005	100	0.0023	0.0014	0.0011	150	0.0034	0.0020	0.0015	230	0.0057	0.0034	0.0026
Tool Steels (A2,D2,S7)	70	0.0016	0.0010	0.0008	100	0.0027	0.0017	0.0013	150	0.0037	0.0022	0.0020	230	0.0060	0.0036	0.0028
Die Steels, (H13,P20)	70	0.0016	0.0010	0.0008	100	0.0027	0.0017	0.0013	150	0.0037	0.0022	0.0020	230	0.0060	0.0036	0.0028
Stainless Steel, (303, 304, 316)	70	0.0018	0.0011	0.0009	100	0.0030	0.0018	0.0014	150	0.0041	0.0025	0.0020	230	0.0064	0.0039	0.0031
Difficult Stainless Steel, (400 & PH Series)	70	0.0011	0.0007	0.0005	100	0.0023	0.0014	0.0011	150	0.0034	0.0020	0.0015	230	0.0057	0.0034	0.0026
Stainless Steel (13-8)	70	0.0011	0.0007	0.0005	100	0.0023	0.0014	0.0011	150	0.0034	0.0020	0.0015	150	0.0062	0.0038	0.0029
High Temp. Alloys	70	0.0018	0.0011	0.0009	100	0.0030	0.0018	0.0014	150	0.0041	0.0025	0.0020	150	0.0064	0.0039	0.0031
Titanium (6AL4V)	70	0.0016	0.0010	0.0008	100	0.0027	0.0017	0.0013	150	0.0037	0.0022	0.0017	150	0.0060	0.0036	0.0028
Inconel 718	70	0.0014	0.0008	0.0007	100	0.0025	0.0015	0.0012	150	0.0035	0.0020	0.0016	150	0.0060	0.0036	0.0027
Inconel 625	70	0.0014	0.0008	0.0007	100	0.0025	0.0015	0.0012	150	0.0035	0.0020	0.0016	150	0.0060	0.0036	0.0027

WORK PIECE MATERIAL	SFM	3/4"			SFM	1"			SFM	1-1/4"		
PERCENTAGE OF CUTTER DIAMETER		5%	15%	30%		5%	15%	30%		5%	15%	30%
Gray Cast Iron	300	0.0069	0.0042	0.0033	400	0.0092	0.0056	0.0044	500	0.0096	0.0059	0.0046
Ductile Iron	300	0.0066	0.0041	0.0032	400	0.0087	0.0053	0.0041	500	0.0092	0.0056	0.0044
Soft Steels, (A36,1018,8620,1045)	300	0.0069	0.0042	0.0033	400	0.0092	0.0056	0.0044	600	0.0096	0.0059	0.0046
Alloy Steels, (4340, 4140)	300	0.0066	0.0041	0.0032	400	0.0087	0.0053	0.0041	500	0.0092	0.0056	0.0044
4140 Pre-Hard (28 to 32 Rc)	300	0.0060	0.0036	0.0028	300	0.0080	0.0049	0.0038	400	0.0090	0.0055	0.0043
Tool Steels (A2,D2,S7)	300	0.0066	0.0041	0.0032	300	0.0092	0.0056	0.0044	450	0.0096	0.0059	0.0046
Die Steels, (H13,P20)	300	0.0066	0.0041	0.0028	350	0.0092	0.0056	0.0044	500	0.0096	0.0059	0.0046
Stainless Steel, (303, 304, 316)	300	0.0069	0.0042	0.0033	400	0.0092	0.0056	0.0044	450	0.0096	0.0059	0.0046
Difficult Stainless Steel, (400 & PH Series)	300	0.0060	0.0036	0.0028	350	0.0080	0.0049	0.0038	450	0.0090	0.0055	0.0043
Stainless Steel (13-8)	150	0.0065	0.0040	0.0031	150	0.0091	0.0055	0.0043	200	0.0095	0.0058	0.0045
High Temp. Alloys	300	0.0069	0.0042	0.0033	350	0.0092	0.0056	0.0044	400	0.0096	0.0059	0.0046
Titanium (6AL4V)	300	0.0066	0.0041	0.0028	300	0.0092	0.0056	0.0044	350	0.0096	0.0059	0.0046
Inconel 718	150	0.0064	0.0039	0.0027	150	0.0090	0.0054	0.0042	200	0.0093	0.0056	0.0043
Inconel 625	150	0.0064	0.0039	0.0027	150	0.0090	0.0054	0.0042	200	0.0093	0.0056	0.0043

*NOTE: Recommended Speeds & Feeds meant for shortest reach tools.

SUPER BITCHIN' PERFORMANCE
5 FLUTE CHIMPBREAKERS (INCH)

5 FLUTE PHENOM CHIMPBREAKERS (INCH) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	3/8"					1/2"					5/8"					3/4"				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	700	0.0036	0.0029	0.0022	0.0020	0.0017	0.0053	0.0043	0.0033	0.0029	0.0025	0.0063	0.0051	0.0039	0.0035	0.0030	0.0076	0.0061	0.0047	0.0041	0.0036
Ductile Iron	500	0.0036	0.0029	0.0022	0.0020	0.0017	0.0048	0.0039	0.0030	0.0026	0.0023	0.0061	0.0049	0.0038	0.0033	0.0029	0.0069	0.0056	0.0043	0.0038	0.0033
Soft Steels (A36,1018, 8620,1045)	750	0.0032	0.0026	0.0020	0.0017	0.0015	0.0048	0.0039	0.0030	0.0026	0.0023	0.0057	0.0046	0.0035	0.0031	0.0027	0.0067	0.0054	0.0042	0.0037	0.0032
Alloy Steels (4340, 4140)	550	0.0038	0.0031	0.0023	0.0021	0.0018	0.0048	0.0039	0.0030	0.0026	0.0023	0.0059	0.0048	0.0036	0.0032	0.0028	0.0071	0.0058	0.0044	0.0039	0.0034
4140 Pre-Hard (28 to 32 Rc)	350	0.0021	0.0017	0.0013	0.0012	0.0010	0.0038	0.0031	0.0023	0.0021	0.0018	0.0048	0.0039	0.0030	0.0026	0.0023	0.0065	0.0053	0.0040	0.0036	0.0031
Tool Steels (A2,D2,S7)	350	0.0034	0.0027	0.0021	0.0018	0.0016	0.0046	0.0037	0.0029	0.0025	0.0022	0.0055	0.0044	0.0034	0.0030	0.0026	0.0065	0.0053	0.0040	0.0036	0.0031
Die Steels (H13,P20)	375	0.0042	0.0034	0.0026	0.0023	0.0020	0.0055	0.0044	0.0034	0.0030	0.0026	0.0059	0.0048	0.0036	0.0032	0.0028	0.0071	0.0058	0.0044	0.0039	0.0034
Stainless Steel (303, 304, 316)	400	0.0034	0.0027	0.0021	0.0018	0.0016	0.0046	0.0037	0.0029	0.0025	0.0022	0.0055	0.0044	0.0034	0.0030	0.0026	0.0067	0.0054	0.0042	0.0037	0.0032
Difficult Stainless Steel (400 & PH Series)	350	0.0027	0.0022	0.0017	0.0015	0.0013	0.0042	0.0034	0.0026	0.0023	0.0020	0.0050	0.0041	0.0031	0.0028	0.0024	0.0065	0.0053	0.0040	0.0036	0.0031
Stainless Steel (13-8)	170	0.0021	0.0017	0.0013	0.0012	0.0010	0.0038	0.0031	0.0023	0.0021	0.0018	0.0046	0.0037	0.0029	0.0025	0.0022	0.0065	0.0053	0.0040	0.0036	0.0031
High Temp. Alloys	275	0.0027	0.0022	0.0017	0.0015	0.0013	0.0040	0.0032	0.0025	0.0022	0.0019	0.0046	0.0037	0.0029	0.0025	0.0022	0.0061	0.0049	0.0038	0.0033	0.0029
Titanium (6AL4V)	275	0.0034	0.0027	0.0021	0.0018	0.0016	0.0046	0.0037	0.0029	0.0025	0.0022	0.0057	0.0046	0.0035	0.0031	0.0027	0.0067	0.0054	0.0042	0.0037	0.0032
Inconel 718	160	0.0021	0.0017	0.0013	0.0012	0.0010	0.0038	0.0031	0.0023	0.0021	0.0018	0.0046	0.0037	0.0029	0.0025	0.0022	0.0065	0.0053	0.0040	0.0036	0.0031
Inconel 625	170	0.0021	0.0017	0.0013	0.0012	0.0010	0.0038	0.0031	0.0023	0.0021	0.0018	0.0046	0.0037	0.0029	0.0025	0.0022	0.0065	0.0053	0.0040	0.0036	0.0031

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
5 FLUTE CHIMPBREAKERS (METRIC)

5 FLUTE PHENOM CHIMPBREAKERS (METRIC) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	10mm					12mm					16mm					20mm				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	700	0.0907	0.0734	0.0562	0.0497	0.0432	0.1334	0.1080	0.0826	0.0730	0.0635	0.1600	0.1295	0.0991	0.0876	0.0762	0.1919	0.1554	0.1188	0.1051	0.0914
Ductile Iron	500	0.0907	0.0734	0.0562	0.0497	0.0432	0.1226	0.0993	0.0759	0.0672	0.0584	0.1548	0.1253	0.0958	0.0848	0.0737	0.1760	0.1425	0.1089	0.0964	0.0838
Soft Steels (A36,1018, 8620,1045)	750	0.0800	0.0648	0.0495	0.0438	0.0381	0.1226	0.0993	0.0759	0.0672	0.0584	0.1441	0.1166	0.0892	0.0789	0.0686	0.1707	0.1382	0.1057	0.0935	0.0813
Alloy Steels (4340, 4140)	550	0.0960	0.0777	0.0594	0.0526	0.0457	0.1226	0.0993	0.0759	0.0672	0.0584	0.1493	0.1209	0.0924	0.0818	0.0711	0.1814	0.1469	0.1123	0.0994	0.0864
4140 Pre-Hard (28 to 32 Rc)	350	0.0533	0.0432	0.0330	0.0292	0.0254	0.0960	0.0777	0.0594	0.0526	0.0457	0.1226	0.0993	0.0759	0.0672	0.0584	0.1653	0.1338	0.1023	0.0905	0.0787
Tool Steels (A2,D2,S7)	350	0.0853	0.0690	0.0528	0.0467	0.0406	0.1174	0.0950	0.0727	0.0643	0.0559	0.1386	0.1122	0.0858	0.0759	0.0660	0.1653	0.1338	0.1023	0.0905	0.0787
Die Steels (H13,P20)	375	0.1067	0.0864	0.0660	0.0584	0.0508	0.1386	0.1122	0.0858	0.0759	0.0660	0.1493	0.1209	0.0924	0.0818	0.0711	0.1814	0.1469	0.1123	0.0994	0.0864
Stainless Steel (303, 304, 316)	400	0.0853	0.0690	0.0528	0.0467	0.0406	0.1174	0.0950	0.0727	0.0643	0.0559	0.1386	0.1122	0.0858	0.0759	0.0660	0.1707	0.1382	0.1057	0.0935	0.0813
Difficult Stainless Steel (400 & PH Series)	350	0.0693	0.0561	0.0429	0.0380	0.0330	0.1067	0.0864	0.0660	0.0584	0.0508	0.1281	0.1037	0.0793	0.0702	0.0610	0.1653	0.1338	0.1023	0.0905	0.0787
Stainless Steel (13-8)	170	0.0533	0.0432	0.0330	0.0292	0.0254	0.0960	0.0777	0.0594	0.0526	0.0457	0.1174	0.0950	0.0727	0.0643	0.0559	0.1653	0.1338	0.1023	0.0905	0.0787
High Temp. Alloys	275	0.0693	0.0561	0.0429	0.0380	0.0330	0.1014	0.0821	0.0628	0.0555	0.0483	0.1174	0.0950	0.0727	0.0643	0.0559	0.1548	0.1253	0.0958	0.0848	0.0737
Titanium (6AL4V)	275	0.0853	0.0690	0.0528	0.0467	0.0406	0.1174	0.0950	0.0727	0.0643	0.0559	0.1441	0.1166	0.0892	0.0789	0.0686	0.1707	0.1382	0.1057	0.0935	0.0813
Inconel 718	160	0.0533	0.0432	0.0330	0.0292	0.0254	0.0960	0.0777	0.0594	0.0526	0.0457	0.1174	0.0950	0.0727	0.0643	0.0559	0.1653	0.1338	0.1023	0.0905	0.0787
Inconel 625	170	0.0533	0.0432	0.0330	0.0292	0.0254	0.0960	0.0777	0.0594	0.0526	0.0457	0.1174	0.0950	0.0727	0.0643	0.0559	0.1653	0.1338	0.1023	0.0905	0.0787

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE
5 FLUTE ROUGHERS (INCH)

5 FLUTE KNUCKLEDRAGGER (INCH) SPEEDS & FEEDS CHART FOR PROFILING. CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3/8"		1/2"		5/8"		3/4"		1"	
PERCENTAGE OF CUTTER DIAMETER		15%	30%	15%	30%	15%	30%	15%	30%	15%	30%
Gray Cast Iron	850	0.0024	0.0019	0.0035	0.0028	0.0042	0.0033	0.0049	0.0039	0.0056	0.0044
Ductile Iron	675	0.0024	0.0019	0.0034	0.0026	0.0041	0.0032	0.0046	0.0036	0.0053	0.0042
Soft Steels (A36,1018,8620,1045)	950	0.0021	0.0017	0.0029	0.0023	0.0038	0.0030	0.0045	0.0035	0.0056	0.0044
Alloy Steels (4340, 4140)	700	0.0025	0.0020	0.0034	0.0026	0.0039	0.0031	0.0048	0.0037	0.0056	0.0044
4140 Pre-Hard (28 to 32 Rc)	400	0.0015	0.0012	0.0025	0.0020	0.0031	0.0024	0.0042	0.0033	0.0049	0.0039
Tool Steels (A2,D2,S7)	450	0.0022	0.0018	0.0031	0.0024	0.0036	0.0029	0.0042	0.0033	0.0050	0.0040
Die Steels (H13,P20)	500	0.0028	0.0022	0.0035	0.0028	0.0039	0.0031	0.0048	0.0037	0.0056	0.0044
Stainless Steel (303, 304, 316)	550	0.0022	0.0018	0.0031	0.0024	0.0036	0.0029	0.0045	0.0035	0.0053	0.0042
Difficult Stainless Steel (400 & PH Series)	475	0.0020	0.0015	0.0028	0.0022	0.0034	0.0026	0.0042	0.0033	0.0063	0.0039
Stainless Steel (13-8)	150	0.0015	0.0012	0.0025	0.0020	0.0031	0.0024	0.0042	0.0033	0.0049	0.0039
High Temp. Alloys	400	0.0020	0.0015	0.0027	0.0021	0.0031	0.0024	0.0039	0.0031	0.0046	0.0036
Titanium (6AL4V)	375	0.0022	0.0018	0.0032	0.0025	0.0038	0.0030	0.0045	0.0035	0.0072	0.0044
Inconel 718	200	0.0015	0.0012	0.0025	0.0020	0.0031	0.0024	0.0042	0.0033	0.0049	0.0039
Inconel 625	150	0.0015	0.0012	0.0025	0.0020	0.0031	0.0024	0.0042	0.0033	0.0049	0.0039

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE
5 FLUTE ROUGHERS (METRIC)

5 FLUTE KNUCKLEDRAGGER (METRIC) SPEEDS & FEEDS CHART FOR PROFILING. CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	8mm		10mm		12mm		16mm		20mm		25mm	
PERCENTAGE OF CUTTER DIAMETER		15%	30%	15%	30%	15%	30%	15%	30%	15%	30%	15%	30%
Gray Cast Iron	850	0.0450	0.0360	0.0610	0.0480	0.0830	0.0660	0.1060	0.0830	0.1240	0.0990	0.1420	0.1110
Ductile Iron	675	0.0450	0.0360	0.0610	0.0480	0.0810	0.0610	0.1040	0.0810	0.1160	0.0910	0.1340	0.1060
Soft Steels (A36,1018,8620,1045)	950	0.0400	0.0320	0.0530	0.0430	0.0680	0.0580	0.0960	0.0760	0.1140	0.0880	0.1420	0.1110
Alloy Steels (4340, 4140)	700	0.0470	0.0380	0.0630	0.0500	0.0810	0.0660	0.0990	0.0780	0.1210	0.0940	0.1420	0.1110
4140 Pre-Hard (28 to 32 Rc)	400	0.0270	0.0220	0.0380	0.0300	0.0580	0.0500	0.0780	0.0610	0.1060	0.0830	0.1240	0.0990
Tool Steels (A2,D2,S7)	450	0.0420	0.0340	0.0560	0.0450	0.0730	0.0610	0.0910	0.0730	0.1060	0.0830	0.1270	0.1010
Die Steels (H13,P20)	500	0.0530	0.0420	0.0710	0.0560	0.0830	0.0710	0.0990	0.0780	0.1210	0.0940	0.1420	0.1110
Stainless Steel (303, 304, 316)	550	0.0420	0.0340	0.0560	0.0450	0.0730	0.0610	0.0910	0.0730	0.1140	0.0880	0.1340	0.1060
Difficult Stainless Steel (400 & PH Series)	475	0.0380	0.0270	0.0510	0.0380	0.0660	0.0550	0.0860	0.0660	0.1060	0.0830	0.1600	0.0990
Stainless Steel (13-8)	150	0.0280	0.0220	0.0380	0.0300	0.0580	0.0500	0.0780	0.0610	0.1060	0.0830	0.1240	0.0990
High Temp. Alloys	400	0.0380	0.0280	0.0510	0.0380	0.0630	0.0530	0.0780	0.0610	0.0990	0.0780	0.1160	0.0910
Titanium (6AL4V)	375	0.0420	0.0340	0.0560	0.0450	0.0760	0.0630	0.0960	0.0760	0.1140	0.0880	0.1820	0.1110
Inconel 718	200	0.0280	0.0220	0.0380	0.0300	0.0580	0.0500	0.0780	0.0610	0.1060	0.0830	0.1240	0.0990
Inconel 625	150	0.0280	0.0220	0.0380	0.0300	0.0580	0.0500	0.0780	0.0610	0.1060	0.0830	0.1240	0.0990

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
6 FLUTE (INCH)

6 FLUTE KONG (INCH) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	1/4"					5/16"					3/8"					1/2"				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	750	0.0025	0.0020	0.0016	0.0014	0.0012	0.0029	0.0024	0.0018	0.0016	0.0014	0.0036	0.0029	0.0022	0.0020	0.0017	0.0048	0.0039	0.0030	0.0026	0.0023
Ductile Iron	600	0.0025	0.0020	0.0016	0.0014	0.0012	0.0027	0.0022	0.0017	0.0015	0.0013	0.0032	0.0026	0.0020	0.0017	0.0015	0.0042	0.0034	0.0026	0.0023	0.0020
Soft Steels (A36,1018, 8620,1045)	700	0.0021	0.0017	0.0013	0.0012	0.0010	0.0023	0.0019	0.0014	0.0013	0.0011	0.0029	0.0024	0.0018	0.0016	0.0014	0.0040	0.0032	0.0025	0.0022	0.0019
Alloy Steels (4340,4140)	600	0.0021	0.0017	0.0013	0.0012	0.0010	0.0023	0.0019	0.0014	0.0013	0.0011	0.0029	0.0024	0.0018	0.0016	0.0014	0.0040	0.0032	0.0025	0.0022	0.0019
4140 Pre-Hard (28 to 32 Rc)	400	0.0015	0.0012	0.0009	0.0008	0.0007	0.0019	0.0015	0.0012	0.0010	0.0009	0.0023	0.0019	0.0014	0.0013	0.0011	0.0032	0.0026	0.0020	0.0017	0.0015
Tool Steels (A2,D2,S7)	450	0.0021	0.0017	0.0013	0.0012	0.0010	0.0023	0.0019	0.0014	0.0013	0.0011	0.0029	0.0024	0.0018	0.0016	0.0014	0.0040	0.0032	0.0025	0.0022	0.0019
Die Steels (H13,P20)	450	0.0023	0.0019	0.0014	0.0013	0.0011	0.0027	0.0022	0.0017	0.0015	0.0013	0.0034	0.0027	0.0021	0.0018	0.0016	0.0046	0.0037	0.0029	0.0025	0.0022
Stainless Steel (303, 304, 316)	500	0.0021	0.0017	0.0013	0.0012	0.0010	0.0027	0.0022	0.0017	0.0015	0.0013	0.0032	0.0026	0.0020	0.0017	0.0015	0.0042	0.0034	0.0026	0.0023	0.0020
Difficult Stainless Steel (400 & PH Series)	400	0.0019	0.0015	0.0012	0.0010	0.0009	0.0023	0.0019	0.0014	0.0013	0.0011	0.0029	0.0024	0.0018	0.0016	0.0014	0.0038	0.0031	0.0023	0.0021	0.0018
Stainless Steel (13-8)	175	0.0017	0.0014	0.0010	0.0009	0.0008	0.0021	0.0017	0.0013	0.0012	0.0010	0.0025	0.0020	0.0016	0.0014	0.0012	0.0034	0.0027	0.0021	0.0018	0.0016
High Temp. Alloys	300	0.0019	0.0015	0.0012	0.0010	0.0009	0.0021	0.0017	0.0013	0.0012	0.0010	0.0027	0.0022	0.0017	0.0015	0.0013	0.0036	0.0029	0.0022	0.0020	0.0017
Titanium (6AL4V)	275	0.0021	0.0017	0.0013	0.0012	0.0010	0.0025	0.0020	0.0016	0.0014	0.0012	0.0029	0.0024	0.0018	0.0016	0.0014	0.0038	0.0031	0.0023	0.0021	0.0018
Inconel 718	175	0.0017	0.0014	0.0010	0.0009	0.0008	0.0019	0.0015	0.0012	0.0010	0.0009	0.0023	0.0019	0.0014	0.0013	0.0011	0.0034	0.0027	0.0021	0.0018	0.0016
Inconel 625	160	0.0017	0.0014	0.0010	0.0009	0.0008	0.0019	0.0015	0.0012	0.0010	0.0009	0.0023	0.0019	0.0014	0.0013	0.0011	0.0034	0.0027	0.0021	0.0018	0.0016

WORK PIECE MATERIAL	SFM	5/8"					3/4"					1"					1-1/4"				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	750	0.0059	0.0048	0.0036	0.0032	0.0028	0.0069	0.0056	0.0043	0.0038	0.0033	0.0084	0.0068	0.0052	0.0046	0.0040	0.0095	0.0077	0.0059	0.0052	0.0045
Ductile Iron	600	0.0055	0.0044	0.0034	0.0030	0.0026	0.0065	0.0053	0.0040	0.0036	0.0031	0.0080	0.0065	0.0049	0.0044	0.0038	0.0090	0.0073	0.0056	0.0049	0.0043
Soft Steels (A36,1018, 8620,1045)	700	0.0053	0.0043	0.0033	0.0029	0.0025	0.0065	0.0053	0.0040	0.0036	0.0031	0.0082	0.0066	0.0051	0.0045	0.0039	0.0092	0.0075	0.0057	0.0051	0.0044
Alloy Steels (4340,4140)	600	0.0053	0.0043	0.0033	0.0029	0.0025	0.0063	0.0051	0.0039	0.0035	0.0030	0.0082	0.0066	0.0051	0.0045	0.0039	0.0092	0.0075	0.0057	0.0051	0.0044
4140 Pre-Hard (28 to 32 Rc)	400	0.0046	0.0037	0.0029	0.0025	0.0022	0.0057	0.0046	0.0035	0.0031	0.0027	0.0071	0.0058	0.0044	0.0039	0.0034	0.0082	0.0066	0.0051	0.0045	0.0039
Tool Steels (A2,D2,S7)	450	0.0053	0.0043	0.0033	0.0029	0.0025	0.0063	0.0051	0.0039	0.0035	0.0030	0.0080	0.0065	0.0049	0.0044	0.0038	0.0092	0.0075	0.0057	0.0051	0.0044
Die Steels (H13,P20)	450	0.0055	0.0044	0.0034	0.0030	0.0026	0.0065	0.0053	0.0040	0.0036	0.0031	0.0082	0.0066	0.0051	0.0045	0.0039	0.0095	0.0077	0.0059	0.0052	0.0045
Stainless Steel (303, 304, 316)	500	0.0050	0.0041	0.0031	0.0028	0.0024	0.0061	0.0049	0.0038	0.0033	0.0029	0.0078	0.0063	0.0048	0.0043	0.0037	0.0090	0.0073	0.0056	0.0049	0.0043
Difficult Stainless Steel (400 & PH Series)	400	0.0048	0.0039	0.0030	0.0026	0.0023	0.0059	0.0048	0.0036	0.0032	0.0028	0.0076	0.0061	0.0047	0.0041	0.0036	0.0088	0.0071	0.0055	0.0048	0.0042
Stainless Steel (13-8)	175	0.0044	0.0036	0.0027	0.0024	0.0021	0.0055	0.0044	0.0034	0.0030	0.0026	0.0074	0.0060	0.0046	0.0040	0.0035	0.0082	0.0066	0.0051	0.0045	0.0039
High Temp. Alloys	300	0.0046	0.0037	0.0029	0.0025	0.0022	0.0057	0.0046	0.0035	0.0031	0.0027	0.0076	0.0061	0.0047	0.0041	0.0036	0.0090	0.0073	0.0056	0.0049	0.0043
Titanium (6AL4V)	275	0.0048	0.0039	0.0030	0.0026	0.0023	0.0059	0.0048	0.0036	0.0032	0.0028	0.0078	0.0063	0.0048	0.0043	0.0037	0.0092	0.0075	0.0057	0.0051	0.0044
Inconel 718	175	0.0044	0.0036	0.0027	0.0024	0.0021	0.0055	0.0044	0.0034	0.0030	0.0026	0.0074	0.0060	0.0046	0.0040	0.0035	0.0082	0.0066	0.0051	0.0045	0.0039
Inconel 625	160	0.0044	0.0036	0.0027	0.0024	0.0021	0.0055	0.0044	0.0034	0.0030	0.0026	0.0074	0.0060	0.0046	0.0040	0.0035	0.0082	0.0066	0.0051	0.0045	0.0039

*NOTE: Recommended Speeds & Feeds, applications may vary.

6 FLUTE KONG (METRIC) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	6mm					8mm					10mm					12mm				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	750	0.0641	0.0519	0.0397	0.0351	0.0305	0.0748	0.0605	0.0463	0.0409	0.0356	0.0907	0.0734	0.0562	0.0497	0.0432	0.1226	0.0993	0.0759	0.0672	0.0584
Ductile Iron	600	0.0641	0.0519	0.0397	0.0351	0.0305	0.0693	0.0561	0.0429	0.0380	0.0330	0.0800	0.0648	0.0495	0.0438	0.0381	0.1067	0.0864	0.0660	0.0584	0.0508
Soft Steels (A36,1018, 8620,1045)	700	0.0533	0.0432	0.0330	0.0292	0.0254	0.0586	0.0474	0.0363	0.0321	0.0279	0.0748	0.0605	0.0463	0.0409	0.0356	0.1014	0.0821	0.0628	0.0555	0.0483
Alloy Steels (4340,4140)	600	0.0533	0.0432	0.0330	0.0292	0.0254	0.0586	0.0474	0.0363	0.0321	0.0279	0.0748	0.0605	0.0463	0.0409	0.0356	0.1014	0.0821	0.0628	0.0555	0.0483
4140 Pre-Hard (28 to 32 Rc)	400	0.0374	0.0303	0.0231	0.0205	0.0178	0.0481	0.0389	0.0298	0.0263	0.0229	0.0586	0.0474	0.0363	0.0321	0.0279	0.0800	0.0648	0.0495	0.0438	0.0381
Tool Steels (A2,D2,S7)	450	0.0533	0.0432	0.0330	0.0292	0.0254	0.0586	0.0474	0.0363	0.0321	0.0279	0.0748	0.0605	0.0463	0.0409	0.0356	0.1014	0.0821	0.0628	0.0555	0.0483
Die Steels (H13,P20)	450	0.0586	0.0474	0.0363	0.0321	0.0279	0.0693	0.0561	0.0429	0.0380	0.0330	0.0853	0.0690	0.0528	0.0467	0.0406	0.1174	0.0950	0.0727	0.0643	0.0559
Stainless Steel (303, 304, 316)	500	0.0533	0.0432	0.0330	0.0292	0.0254	0.0693	0.0561	0.0429	0.0380	0.0330	0.0800	0.0648	0.0495	0.0438	0.0381	0.1067	0.0864	0.0660	0.0584	0.0508
Difficult Stainless Steel (400 & PH Series)	400	0.0481	0.0389	0.0298	0.0263	0.0229	0.0586	0.0474	0.0363	0.0321	0.0279	0.0748	0.0605	0.0463	0.0409	0.0356	0.0960	0.0777	0.0594	0.0526	0.0457
Stainless Steel (13-8)	175	0.0426	0.0345	0.0264	0.0233	0.0203	0.0533	0.0432	0.0330	0.0292	0.0254	0.0641	0.0519	0.0397	0.0351	0.0305	0.0853	0.0690	0.0528	0.0467	0.0406
High Temp. Alloys	300	0.0481	0.0389	0.0298	0.0263	0.0229	0.0533	0.0432	0.0330	0.0292	0.0254	0.0693	0.0561	0.0429	0.0380	0.0330	0.0907	0.0734	0.0562	0.0497	0.0432
Titanium (6AL4V)	275	0.0533	0.0432	0.0330	0.0292	0.0254	0.0641	0.0519	0.0397	0.0351	0.0305	0.0748	0.0605	0.0463	0.0409	0.0356	0.0960	0.0777	0.0594	0.0526	0.0457
Inconel 718	175	0.0426	0.0345	0.0264	0.0233	0.0203	0.0481	0.0389	0.0298	0.0263	0.0229	0.0586	0.0474	0.0363	0.0321	0.0279	0.0853	0.0690	0.0528	0.0467	0.0406
Inconel 625	160	0.0426	0.0345	0.0264	0.0233	0.0203	0.0481	0.0389	0.0298	0.0263	0.0229	0.0586	0.0474	0.0363	0.0321	0.0279	0.0853	0.0690	0.0528	0.0467	0.0406

WORK PIECE MATERIAL	SFM	16mm					20mm					25mm				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	750	0.1493	0.1209	0.0924	0.0818	0.0711	0.1760	0.1425	0.1089	0.0964	0.0838	0.2134	0.1727	0.1321	0.1168	0.1016
Ductile Iron	600	0.1386	0.1122	0.0858	0.0759	0.0660	0.1653	0.1338	0.1023	0.0905	0.0787	0.2027	0.1641	0.1255	0.1110	0.0965
Soft Steels (A36,1018, 8620,1045)	700	0.1334	0.1080	0.0826	0.0730	0.0635	0.1653	0.1338	0.1023	0.0905	0.0787	0.2081	0.1685	0.1288	0.1140	0.0991
Alloy Steels (4340,4140)	600	0.1334	0.1080	0.0826	0.0730	0.0635	0.1600	0.1295	0.0991	0.0876	0.0762	0.2081	0.1685	0.1288	0.1140	0.0991
4140 Pre-Hard (28 to 32 Rc)	400	0.1174	0.0950	0.0727	0.0643	0.0559	0.1441	0.1166	0.0892	0.0789	0.0686	0.1814	0.1469	0.1123	0.0994	0.0864
Tool Steels (A2,D2,S7)	450	0.1334	0.1080	0.0826	0.0730	0.0635	0.1600	0.1295	0.0991	0.0876	0.0762	0.2027	0.1641	0.1255	0.1110	0.0965
Die Steels (H13,P20)	450	0.1386	0.1122	0.0858	0.0759	0.0660	0.1653	0.1338	0.1023	0.0905	0.0787	0.2081	0.1685	0.1288	0.1140	0.0991
Stainless Steel (303, 304, 316)	500	0.1281	0.1037	0.0793	0.0702	0.0610	0.1548	0.1253	0.0958	0.0848	0.0737	0.1974	0.1598	0.1222	0.1081	0.0940
Difficult Stainless Steel (400 & PH Series)	400	0.1226	0.0993	0.0759	0.0672	0.0584	0.1493	0.1209	0.0924	0.0818	0.0711	0.1919	0.1554	0.1188	0.1051	0.0914
Stainless Steel (13-8)	175	0.1119	0.0906	0.0693	0.0613	0.0533	0.1386	0.1122	0.0858	0.0759	0.0660	0.1867	0.1511	0.1156	0.1022	0.0889
High Temp. Alloys	300	0.1174	0.0950	0.0727	0.0643	0.0559	0.1441	0.1166	0.0892	0.0789	0.0686	0.1919	0.1554	0.1188	0.1051	0.0914
Titanium (6AL4V)	275	0.1226	0.0993	0.0759	0.0672	0.0584	0.1493	0.1209	0.0924	0.0818	0.0711	0.1974	0.1598	0.1222	0.1081	0.0940
Inconel 718	175	0.1119	0.0906	0.0693	0.0613	0.0533	0.1386	0.1122	0.0858	0.0759	0.0660	0.1867	0.1511	0.1156	0.1022	0.0889
Inconel 625	160	0.1119	0.0906	0.0693	0.0613	0.0533	0.1386	0.1122	0.0858	0.0759	0.0660	0.1867	0.1511	0.1156	0.1022	0.0889

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
6 FLUTE CHIMPBREAKERS (INCH)

6 FLUTE KONG CHIMPBREAKER (INCH) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	3/8					1/2					5/8					3/4				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	775	0.0036	0.0029	0.0022	0.0020	0.0017	0.0048	0.0039	0.0030	0.0026	0.0023	0.0059	0.0048	0.0036	0.0032	0.0028	0.0069	0.0056	0.0043	0.0038	0.0033
Ductile Iron	625	0.0032	0.0026	0.0020	0.0017	0.0015	0.0042	0.0034	0.0026	0.0023	0.0020	0.0055	0.0044	0.0034	0.0030	0.0026	0.0065	0.0053	0.0040	0.0036	0.0031
Soft Steels (A36,1018, 8620,1045)	750	0.0029	0.0024	0.0018	0.0016	0.0014	0.0040	0.0032	0.0025	0.0022	0.0019	0.0053	0.0043	0.0033	0.0029	0.0025	0.0065	0.0053	0.0040	0.0036	0.0031
Alloy Steels (4340,4140)	600	0.0029	0.0024	0.0018	0.0016	0.0014	0.0040	0.0032	0.0025	0.0022	0.0019	0.0053	0.0043	0.0033	0.0029	0.0025	0.0063	0.0051	0.0039	0.0035	0.0030
4140 Pre-Hard (28 to 32 Rc)	400	0.0023	0.0019	0.0014	0.0013	0.0011	0.0032	0.0026	0.0020	0.0017	0.0015	0.0046	0.0037	0.0029	0.0025	0.0022	0.0057	0.0046	0.0035	0.0031	0.0027
Tool Steels (A2,D2,S7)	450	0.0029	0.0024	0.0018	0.0016	0.0014	0.0040	0.0032	0.0025	0.0022	0.0019	0.0053	0.0043	0.0033	0.0029	0.0025	0.0063	0.0051	0.0039	0.0035	0.0030
Die Steels (H13,P20)	450	0.0034	0.0027	0.0021	0.0018	0.0016	0.0046	0.0037	0.0029	0.0025	0.0022	0.0055	0.0044	0.0034	0.0030	0.0026	0.0065	0.0053	0.0040	0.0036	0.0031
Stainless Steel (303, 304, 316)	500	0.0032	0.0026	0.0020	0.0017	0.0015	0.0042	0.0034	0.0026	0.0023	0.0020	0.0050	0.0041	0.0031	0.0028	0.0024	0.0061	0.0049	0.0038	0.0033	0.0029
Difficult Stainless Steel (400 & PH Series)	400	0.0029	0.0024	0.0018	0.0016	0.0014	0.0038	0.0031	0.0023	0.0021	0.0018	0.0048	0.0039	0.0030	0.0026	0.0023	0.0059	0.0048	0.0036	0.0032	0.0028
Stainless Steel (13-8)	180	0.0025	0.0020	0.0016	0.0014	0.0012	0.0034	0.0027	0.0021	0.0018	0.0016	0.0044	0.0036	0.0027	0.0024	0.0021	0.0055	0.0044	0.0034	0.0030	0.0026
High Temp. Alloys	300	0.0027	0.0022	0.0017	0.0015	0.0013	0.0036	0.0029	0.0022	0.0020	0.0017	0.0046	0.0037	0.0029	0.0025	0.0022	0.0057	0.0046	0.0035	0.0031	0.0027
Titanium (6AL4V)	300	0.0029	0.0024	0.0018	0.0016	0.0014	0.0038	0.0031	0.0023	0.0021	0.0018	0.0048	0.0039	0.0030	0.0026	0.0023	0.0059	0.0048	0.0036	0.0032	0.0028
Inconel 718	180	0.0023	0.0019	0.0014	0.0013	0.0011	0.0034	0.0027	0.0021	0.0018	0.0016	0.0044	0.0036	0.0027	0.0024	0.0021	0.0055	0.0044	0.0034	0.0030	0.0026
Inconel 625	180	0.0023	0.0019	0.0014	0.0013	0.0011	0.0034	0.0027	0.0021	0.0018	0.0016	0.0044	0.0036	0.0027	0.0024	0.0021	0.0055	0.0044	0.0034	0.0030	0.0026

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
6 FLUTE CHIMPBREAKERS (METRIC)

6 FLUTE KONG CHIMPBREAKER (METRIC) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	10mm					12mm					16mm					20mm				
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%	5%	10%	15%	20%	30%
Gray Cast Iron	775	0.0907	0.0734	0.0562	0.0497	0.0432	0.1226	0.0993	0.0759	0.0672	0.0584	0.1493	0.1209	0.0924	0.0818	0.0711	0.1760	0.1425	0.1089	0.0964	0.0838
Ductile Iron	625	0.0800	0.0648	0.0495	0.0438	0.0381	0.1067	0.0864	0.0660	0.0584	0.0508	0.1386	0.1122	0.0858	0.0759	0.0660	0.1653	0.1338	0.1023	0.0905	0.0787
Soft Steels (A36,1018, 8620,1045)	750	0.0748	0.0605	0.0463	0.0409	0.0356	0.1014	0.0821	0.0628	0.0555	0.0483	0.1334	0.1080	0.0826	0.0730	0.0635	0.1653	0.1338	0.1023	0.0905	0.0787
Alloy Steels (4340,4140)	600	0.0748	0.0605	0.0463	0.0409	0.0356	0.1014	0.0821	0.0628	0.0555	0.0483	0.1334	0.1080	0.0826	0.0730	0.0635	0.1600	0.1295	0.0991	0.0876	0.0762
4140 Pre-Hard (28 to 32 Rc)	400	0.0586	0.0474	0.0363	0.0321	0.0279	0.0800	0.0648	0.0495	0.0438	0.0381	0.1174	0.0950	0.0727	0.0643	0.0559	0.1441	0.1166	0.0892	0.0789	0.0686
Tool Steels (A2,D2,S7)	450	0.0748	0.0605	0.0463	0.0409	0.0356	0.1014	0.0821	0.0628	0.0555	0.0483	0.1334	0.1080	0.0826	0.0730	0.0635	0.1600	0.1295	0.0991	0.0876	0.0762
Die Steels (H13,P20)	450	0.0853	0.0690	0.0528	0.0467	0.0406	0.1174	0.0950	0.0727	0.0643	0.0559	0.1386	0.1122	0.0858	0.0759	0.0660	0.1653	0.1338	0.1023	0.0905	0.0787
Stainless Steel (303, 304, 316)	500	0.0800	0.0648	0.0495	0.0438	0.0381	0.1067	0.0864	0.0660	0.0584	0.0508	0.1281	0.1037	0.0793	0.0702	0.0610	0.1548	0.1253	0.0958	0.0848	0.0737
Difficult Stainless Steel (400 & PH Series)	400	0.0748	0.0605	0.0463	0.0409	0.0356	0.0960	0.0777	0.0594	0.0526	0.0457	0.1226	0.0993	0.0759	0.0672	0.0584	0.1493	0.1209	0.0924	0.0818	0.0711
Stainless Steel (13-8)	180	0.0641	0.0519	0.0397	0.0351	0.0305	0.0853	0.0690	0.0528	0.0467	0.0406	0.1119	0.0906	0.0693	0.0613	0.0533	0.1386	0.1122	0.0858	0.0759	0.0660
High Temp. Alloys	300	0.0693	0.0561	0.0429	0.0380	0.0330	0.0907	0.0734	0.0562	0.0497	0.0432	0.1174	0.0950	0.0727	0.0643	0.0559	0.1441	0.1166	0.0892	0.0789	0.0686
Titanium (6AL4V)	300	0.0748	0.0605	0.0463	0.0409	0.0356	0.0960	0.0777	0.0594	0.0526	0.0457	0.1226	0.0993	0.0759	0.0672	0.0584	0.1493	0.1209	0.0924	0.0818	0.0711
Inconel 718	180	0.0586	0.0474	0.0363	0.0321	0.0279	0.0853	0.0690	0.0528	0.0467	0.0406	0.1119	0.0906	0.0693	0.0613	0.0533	0.1386	0.1122	0.0858	0.0759	0.0660
Inconel 625	180	0.0586	0.0474	0.0363	0.0321	0.0279	0.0853	0.0690	0.0528	0.0467	0.0406	0.1174	0.0950	0.0727	0.0643	0.0559	0.1386	0.1122	0.0858	0.0759	0.0660

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
7 FLUTE (INCH)

7 FLUTE BABOON (INCH) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH. NOTE MAX STEP OVER IS 20% OF CUTTER DIAMETER.

WORK PIECE MATERIAL	SFM	1/4"				5/16"				3/8"				7/16"				1/2"			
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%
Gray Cast Iron	800	.0015	.0011	.0009	.0008	.0022	.0016	.0013	.0012	.0031	.0023	.0019	.0017	.0043	.0031	.0025	.0023	.0048	.0035	.0029	.0026
Ductile Iron	625	.0013	.0009	.0008	.0007	.0020	.0015	.0012	.0011	.0030	.0022	.0018	.0016	.0041	.0030	.0024	.0022	.0046	.0034	.0028	.0025
Soft Steels (A36,1018, 8620,1045)	800	.0013	.0009	.0008	.0007	.0020	.0015	.0012	.0011	.0030	.0022	.0018	.0016	.0041	.0030	.0024	.0022	.0046	.0034	.0028	.0025
Alloy Steels (4340,4140)	625	.0013	.0009	.0008	.0007	.0020	.0015	.0012	.0011	.0030	.0022	.0018	.0016	.0041	.0030	.0024	.0022	.0046	.0034	.0028	.0025
4140 Pre-Hard (28 to 32 Rc)	400	.0009	.0007	.0006	.0005	.0015	.0011	.0009	.0008	.0019	.0014	.0011	.0010	.0030	.0022	.0018	.0016	.0039	.0028	.0023	.0021
Tool Steels (A2,D2,S7)	400	.0011	.0008	.0007	.0006	.0020	.0015	.0012	.0011	.0030	.0022	.0018	.0016	.0041	.0030	.0024	.0022	.0046	.0034	.0028	.0025
Die Steels (H13,P20)	450	.0013	.0009	.0008	.0007	.0020	.0015	.0012	.0011	.0030	.0022	.0018	.0016	.0041	.0030	.0024	.0022	.0046	.0034	.0028	.0025
Stainless Steel (303, 304, 316)	500	.0013	.0009	.0008	.0007	.0020	.0015	.0012	.0011	.0030	.0022	.0018	.0016	.0041	.0030	.0024	.0022	.0046	.0034	.0028	.0025
Difficult Stainless Steel (400 & PH Series)	350	.0011	.0008	.0007	.0006	.0022	.0016	.0013	.0012	.0031	.0023	.0019	.0017	.0043	.0031	.0025	.0023	.0048	.0035	.0029	.0026
Stainless Steel (13-8)	180	.0011	.0008	.0007	.0006	.0017	.0012	.0010	.0009	.0022	.0016	.0013	.0012	.0033	.0024	.0020	.0018	.0039	.0028	.0023	.0021
High Temp. Alloys	325	.0011	.0008	.0007	.0006	.0017	.0012	.0010	.0009	.0022	.0016	.0013	.0012	.0033	.0024	.0020	.0018	.0039	.0028	.0023	.0021
Titanium (6AL4V)	250	.0013	.0009	.0008	.0007	.0017	.0012	.0010	.0009	.0022	.0016	.0013	.0012	.0033	.0024	.0020	.0018	.0039	.0028	.0023	.0021
Inconel 718	200	.0011	.0008	.0007	.0006	.0017	.0012	.0010	.0009	.0022	.0016	.0013	.0012	.0033	.0024	.0020	.0018	.0039	.0028	.0023	.0021
Inconel 625	180	.0011	.0008	.0007	.0006	.0017	.0012	.0010	.0009	.0022	.0016	.0013	.0012	.0033	.0024	.0020	.0018	.0039	.0028	.0023	.0021

WORK PIECE MATERIAL	SFM	5/8"				3/4"				1"				1-1/4"			
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%
Gray Cast Iron	800	.0063	.0046	.0037	.0034	.0078	.0057	.0046	.0042	.0104	.0076	.0062	.0056	.0128	.0093	.0076	.0069
Ductile Iron	625	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041	.0100	.0073	.0059	.0054	.0124	.0090	.0074	.0067
Soft Steels (A36,1018, 8620,1045)	800	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041	.0100	.0073	.0059	.0054	.0124	.0090	.0074	.0067
Alloy Steels (4340,4140)	625	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041	.0100	.0073	.0059	.0054	.0124	.0090	.0074	.0067
4140 Pre-Hard (28 to 32 Rc)	400	.0054	.0039	.0032	.0029	.0061	.0045	.0036	.0033	.0078	.0057	.0046	.0042	.0094	.0069	.0056	.0051
Tool Steels (A2,D2,S7)	400	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041	.0100	.0073	.0059	.0054	.0124	.0090	.0074	.0067
Die Steels (H13,P20)	450	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041	.0100	.0073	.0059	.0054	.0124	.0090	.0074	.0067
Stainless Steel (303, 304, 316)	500	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041	.0100	.0073	.0059	.0054	.0124	.0090	.0074	.0067
Difficult Stainless Steel (400 & PH Series)	350	.0063	.0046	.0037	.0034	.0078	.0057	.0046	.0042	.0104	.0076	.0062	.0056	.0128	.0093	.0076	.0069
Stainless Steel (13-8)	180	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037	.0093	.0068	.0055	.0050	.0117	.0085	.0069	.0063
High Temp. Alloys	325	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037	.0093	.0068	.0055	.0050	.0117	.0085	.0069	.0063
Titanium (6AL4V)	250	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037	.0093	.0068	.0055	.0050	.0117	.0085	.0069	.0063
Inconel 718	200	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037	.0093	.0068	.0055	.0050	.0117	.0085	.0069	.0063
Inconel 625	180	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037	.0093	.0068	.0055	.0050	.0117	.0085	.0069	.0063

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
7 FLUTE (METRIC)

7 FLUTE BABOON (METRIC) SPEEDS & FEEDS CHART FOR PROFILING, CHIMP LOAD PER TOOTH. NOTE MAX STEP OVER IS 20% OF CUTTER DIAMETER.

WORK PIECE MATERIAL	SFM	6mm				8mm				10mm				12mm			
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%
Gray Cast Iron	800	0.0015	0.0011	0.0009	0.0008	0.0022	0.0016	0.0013	0.0012	0.0031	0.0023	0.0019	0.0017	0.0048	0.0035	0.0029	0.0026
Ductile Iron	625	0.0013	0.0009	0.0008	0.0007	0.0020	0.0015	0.0012	0.0011	0.0030	0.0022	0.0018	0.0016	0.0046	0.0034	0.0028	0.0025
Soft Steels (A36,1018, 8620,1045)	800	0.0013	0.0009	0.0008	0.0007	0.0020	0.0015	0.0012	0.0011	0.0030	0.0022	0.0018	0.0016	0.0046	0.0034	0.0028	0.0025
Alloy Steels (4340,4140)	625	0.0013	0.0009	0.0008	0.0007	0.0020	0.0015	0.0012	0.0011	0.0030	0.0022	0.0018	0.0016	0.0046	0.0034	0.0028	0.0025
4140 Pre-Hard (28 to 32 Rc)	400	0.0009	0.0007	0.0006	0.0005	0.0015	0.0011	0.0009	0.0008	0.0019	0.0014	0.0011	0.0010	0.0039	0.0028	0.0023	0.0021
Tool Steels (A2,D2,S7)	400	0.0011	0.0008	0.0007	0.0006	0.0020	0.0015	0.0012	0.0011	0.0030	0.0022	0.0018	0.0016	0.0046	0.0034	0.0028	0.0025
Die Steels (H13,P20)	450	0.0013	0.0009	0.0008	0.0007	0.0020	0.0015	0.0012	0.0011	0.0030	0.0022	0.0018	0.0016	0.0046	0.0034	0.0028	0.0025
Stainless Steel (303, 304, 316)	500	0.0013	0.0009	0.0008	0.0007	0.0020	0.0015	0.0012	0.0011	0.0030	0.0022	0.0018	0.0016	0.0046	0.0034	0.0028	0.0025
Difficult Stainless Steel (400 & PH Series)	350	0.0011	0.0008	0.0007	0.0006	0.0022	0.0016	0.0013	0.0012	0.0031	0.0023	0.0019	0.0017	0.0048	0.0035	0.0029	0.0026
Stainless Steel (13-8)	180	0.0011	0.0008	0.0007	0.0006	0.0017	0.0012	0.0010	0.0009	0.0022	0.0016	0.0013	0.0012	0.0039	0.0028	0.0023	0.0021
High Temp. Alloys	325	0.0011	0.0008	0.0007	0.0006	0.0017	0.0012	0.0010	0.0009	0.0022	0.0016	0.0013	0.0012	0.0039	0.0028	0.0023	0.0021
Titanium (6AL4V)	250	0.0013	0.0009	0.0008	0.0007	0.0017	0.0012	0.0010	0.0009	0.0022	0.0016	0.0013	0.0012	0.0039	0.0028	0.0023	0.0021
Inconel 718	200	0.0011	0.0008	0.0007	0.0006	0.0017	0.0012	0.0010	0.0009	0.0022	0.0016	0.0013	0.0012	0.0039	0.0028	0.0023	0.0021
Inconel 625	180	0.0011	0.0008	0.0007	0.0006	0.0017	0.0012	0.0010	0.0009	0.0022	0.0016	0.0013	0.0012	0.0039	0.0028	0.0023	0.0021

WORK PIECE MATERIAL	SFM	16mm				20mm				25mm			
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%
Gray Cast Iron	800	0.0063	0.0046	0.0037	0.0034	0.0078	0.0057	0.0046	0.0042	0.0104	0.0076	0.0062	0.0056
Ductile Iron	625	0.0061	0.0045	0.0036	0.0033	0.0076	0.0055	0.0045	0.0041	0.0100	0.0073	0.0059	0.0054
Soft Steels (A36,1018, 8620,1045)	800	0.0061	0.0045	0.0036	0.0033	0.0076	0.0055	0.0045	0.0041	0.0100	0.0073	0.0059	0.0054
Alloy Steels (4340,4140)	625	0.0061	0.0045	0.0036	0.0033	0.0076	0.0055	0.0045	0.0041	0.0100	0.0073	0.0059	0.0054
4140 Pre-Hard (28 to 32 Rc)	400	0.0054	0.0039	0.0032	0.0029	0.0061	0.0045	0.0036	0.0033	0.0078	0.0057	0.0046	0.0042
Tool Steels (A2,D2,S7)	400	0.0061	0.0045	0.0036	0.0033	0.0076	0.0055	0.0045	0.0041	0.0100	0.0073	0.0059	0.0054
Die Steels (H13,P20)	450	0.0061	0.0045	0.0036	0.0033	0.0076	0.0055	0.0045	0.0041	0.0100	0.0073	0.0059	0.0054
Stainless Steel (303, 304, 316)	500	0.0061	0.0045	0.0036	0.0033	0.0076	0.0055	0.0045	0.0041	0.0100	0.0073	0.0059	0.0054
Difficult Stainless Steel (400 & PH Series)	350	0.0063	0.0046	0.0037	0.0034	0.0078	0.0057	0.0046	0.0042	0.0104	0.0076	0.0062	0.0056
Stainless Steel (13-8)	180	0.0054	0.0039	0.0032	0.0029	0.0068	0.0050	0.0041	0.0037	0.0093	0.0068	0.0055	0.0050
High Temp. Alloys	325	0.0054	0.0039	0.0032	0.0029	0.0068	0.0050	0.0041	0.0037	0.0093	0.0068	0.0055	0.0050
Titanium (6AL4V)	250	0.0054	0.0039	0.0032	0.0029	0.0068	0.0050	0.0041	0.0037	0.0093	0.0068	0.0055	0.0050
Inconel 718	200	0.0054	0.0039	0.0032	0.0029	0.0068	0.0050	0.0041	0.0037	0.0093	0.0068	0.0055	0.0050
Inconel 625	180	0.0054	0.0039	0.0032	0.0029	0.0068	0.0050	0.0041	0.0037	0.0093	0.0068	0.0055	0.0050

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
7 FLUTE CHIMPBREAKERS (INCH)

7 FLUTE BABOON CHIMPBREAKERS (INCH) SPEEDS & FEEDS CHART
FOR PROFILING, CHIMP LOAD PER TOOTH. NOTE MAX STEP OVER IS 20% OF CUTTER DIAMETER.

WORK PIECE MATERIAL	SFM	3/8"				1/2"				5/8"				3/4"			
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%
Gray Cast Iron	800	.0031	.0023	.0019	.0017	.0048	.0035	.0029	.0026	.0063	.0046	.0037	.0034	.0078	.0057	.0046	.0042
Ductile Iron	625	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Soft Steels (A36,1018, 8620,1045)	800	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Alloy Steels (4340,4140)	625	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
4140 Pre-Hard (28 to 32 Rc)	400	.0019	.0014	.0011	.0010	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0061	.0045	.0036	.0033
Tool Steels (A2,D2,S7)	400	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Die Steels (H13,P20)	450	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Stainless Steel (303, 304, 316)	500	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Difficult Stainless Steel (400 & PH Series)	350	.0031	.0023	.0019	.0017	.0048	.0035	.0029	.0026	.0063	.0046	.0037	.0034	.0078	.0057	.0046	.0042
Stainless Steel (13-8)	180	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
High Temp. Alloys	325	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
Titanium (6AL4V)	250	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
Inconel 718	200	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
Inconel 625	180	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037

*NOTE: Recommended Speeds & Feeds, applications may vary.

SUPER BITCHIN' PERFORMANCE
7 FLUTE CHIMPBREAKERS (METRIC)

7 FLUTE BABOON CHIMPBREAKERS (METRIC) SPEEDS & FEEDS CHART
FOR PROFILING, CHIMP LOAD PER TOOTH. NOTE MAX STEP OVER IS 20% OF CUTTER DIAMETER.

WORK PIECE MATERIAL	SFM	10mm				12mm				16mm				20mm			
PERCENTAGE OF CUTTER DIAMETER		5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%	5%	10%	15%	20%
Gray Cast Iron	800	.0031	.0023	.0019	.0017	.0048	.0035	.0029	.0026	.0063	.0046	.0037	.0034	.0078	.0057	.0046	.0042
Ductile Iron	625	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Soft Steels (A36,1018, 8620,1045)	800	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Alloy Steels (4340,4140)	625	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
4140 Pre-Hard (28 to 32 Rc)	400	.0019	.0014	.0011	.0010	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0061	.0045	.0036	.0033
Tool Steels (A2,D2,S7)	400	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Die Steels (H13,P20)	450	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Stainless Steel (303, 304, 316)	500	.0030	.0022	.0018	.0016	.0046	.0034	.0028	.0025	.0061	.0045	.0036	.0033	.0076	.0055	.0045	.0041
Difficult Stainless Steel (400 & PH Series)	350	.0031	.0023	.0019	.0017	.0048	.0035	.0029	.0026	.0063	.0046	.0037	.0034	.0078	.0057	.0046	.0042
Stainless Steel (13-8)	180	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
High Temp. Alloys	325	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
Titanium (6AL4V)	250	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
Inconel 718	200	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037
Inconel 625	180	.0022	.0016	.0013	.0012	.0039	.0028	.0023	.0021	.0054	.0039	.0032	.0029	.0068	.0050	.0041	.0037

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE
3 FLUTE (INCH & METRIC)

3 FLUTE (INCH) SPEEDS & FEEDS CHART FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/8"			3/16"			1/4"			5/16"			3/8"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.0031	0.0026	0.0061	0.0041	0.0034
Soft Aluminum (6061)	2000	0.0014	0.0010	0.0008	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0032	0.0022	0.0018	0.0050	0.0034	0.0028
Copper (200 Brinell <)	500	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0032	0.0022	0.0018	0.0043	0.0029	0.0024	0.0050	0.0034	0.0028
Copper (200 Brinell >)	400	0.0014	0.0010	0.0008	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0032	0.0022	0.0018	0.0047	0.0031	0.0026
Cast Aluminum, Silicon (6% <)	1300	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.0031	0.0026	0.0061	0.0041	0.0034
Cast Aluminum, Silicon (6% >)	800	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.0031	0.0026	0.0061	0.0041	0.0034
Brass	1500	0.0011	0.0007	0.0006	0.0025	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.0031	0.0026	0.0061	0.0041	0.0034
Bronze	600	0.0014	0.0010	0.0008	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0032	0.0022	0.0018	0.0047	0.0031	0.0026

WORK PIECE MATERIAL	SFM	7/16"			1/2"			5/8"			3/4"			1"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
Soft Aluminum (6061)	2000	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0086	0.0058	0.0048	0.0101	0.0067	0.0056	0.0119	0.00792	0.0066
Copper (200 Brinell <)	500	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0086	0.0058	0.0048	0.0101	0.0067	0.0056	0.0119	0.00792	0.0066
Copper (200 Brinell >)	400	0.0054	0.0036	0.0030	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0083	0.0055	0.0046	0.0097	0.00648	0.0054
Cast Aluminum, Silicon (6% <)	1300	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
Cast Aluminum, Silicon (6% >)	800	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
Brass	1500	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
Bronze	600	0.0054	0.0036	0.0030	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0083	0.0055	0.0046	0.0097	0.00648	0.0054

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

3 FLUTE (METRIC) SPEEDS & FEEDS CHART FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3mm			4mm			5mm			6mm			8mm			10mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.0412	0.0275	0.0229	0.0549	0.0366	0.0305	0.0641	0.0427	0.0356	0.0823	0.0548	0.0457	0.1188	0.0792	0.0660	0.1555	0.1037	0.0864
Soft Aluminum (6061)	2000	0.0320	0.0214	0.0178	0.0389	0.0259	0.0216	0.0457	0.0305	0.0254	0.0594	0.0396	0.0330	0.0823	0.0548	0.0457	0.1280	0.0853	0.0711
Copper (200 Brinell <)	500	0.0412	0.0275	0.0229	0.0389	0.0259	0.0216	0.0641	0.0427	0.0356	0.0778	0.0518	0.0432	0.1098	0.0732	0.0610	0.1280	0.0853	0.0711
Copper (200 Brinell >)	400	0.0320	0.0214	0.0178	0.0389	0.0259	0.0216	0.0457	0.0305	0.0254	0.0594	0.0396	0.0330	0.0823	0.0548	0.0457	0.1188	0.0792	0.0660
Cast Aluminum, Silicon (6% <)	1300	0.0320	0.0214	0.0178	0.0389	0.0259	0.0216	0.0641	0.0427	0.0356	0.0823	0.0548	0.0457	0.1188	0.0792	0.0660	0.1555	0.1037	0.0864
Cast Aluminum, Silicon (6% >)	800	0.0320	0.0214	0.0178	0.0389	0.0259	0.0216	0.0641	0.0427	0.0356	0.0823	0.0548	0.0457	0.1188	0.0792	0.0660	0.1555	0.1037	0.0864
Brass	1500	0.0320	0.0214	0.0178	0.0389	0.0259	0.0216	0.0641	0.0427	0.0356	0.0823	0.0548	0.0457	0.1188	0.0792	0.0660	0.1555	0.1037	0.0864
Bronze	600	0.0320	0.0214	0.0178	0.0389	0.0259	0.0216	0.0457	0.0305	0.0254	0.0594	0.0396	0.0330	0.0823	0.0548	0.0457	0.1188	0.0792	0.0660

WORK PIECE MATERIAL	SFM	12mm			16mm			20mm			25mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.1829	0.1219	0.1016	0.2470	0.1646	0.1372	0.3109	0.2072	0.1727	0.3566	0.2377	0.1981
Soft Aluminum (6061)	2000	0.1737	0.1158	0.0965	0.2194	0.1463	0.1219	0.2651	0.1768	0.1473	0.2972	0.1981	0.1651
Copper (200 Brinell <)	500	0.1737	0.1158	0.0965	0.2194	0.1463	0.1219	0.2651	0.1768	0.1473	0.2972	0.1981	0.1651
Copper (200 Brinell >)	400	0.1463	0.0976	0.0813	0.1829	0.1219	0.1016	0.2194	0.1463	0.1219	0.2423	0.1615	0.1346
Cast Aluminum, Silicon (6% <)	1300	0.1829	0.1219	0.1016	0.2470	0.1646	0.1372	0.3109	0.2072	0.1727	0.3566	0.2377	0.1981
Cast Aluminum, Silicon (6% >)	800	0.1829	0.1219	0.1016	0.2470	0.1646	0.1372	0.3109	0.2072	0.1727	0.3566	0.2377	0.1981
Brass	1500	0.1829	0.1219	0.1016	0.2470	0.1646	0.1372	0.3109	0.2072	0.1727	0.3566	0.2377	0.1981
Bronze	600	0.1463	0.0976	0.0813	0.1829	0.1219	0.1016	0.2194	0.1463	0.1219	0.2423	0.1615	0.1346

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

HIGH PERFORMANCE
3 FLUTE BALLNOSE (INCH)

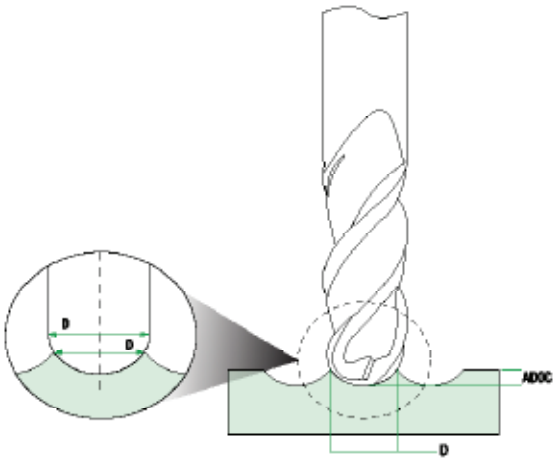
CALCULATE YOUR EFFECTIVE CUTTING DIAMETER
This can be done using the chart below that represents some Common Tool Diameters and ADOC combinations.

SILVERBACK BALLNOSE MILLING TECHNIQUES

(ADOC) AXIAL DEPTH OF CUT (TRUE DIAMETER)

DEPTH	0.010	0.020	0.030	0.040	0.050	0.070	0.080	0.100	0.120	0.150	0.220	0.300	0.350	0.400	0.450
1/8"	0.068	0.092	0.107	0.117	0.122	0.124	0.120	0.100	0.049	—	—	—	—	—	—
1/4"	0.098	0.136	0.162	0.183	0.200	0.224	0.233	0.245	0.250	0.245	0.162	–			
3/8"	0.121	0.169	0.203	0.232	0.255	0.292	0.307	0.332	0.350	0.367	0.369	0.3			
1/2"	0.140	0.196	0.237	0.271	0.300	0.347	0.367	0.400	0.427	0.458	0.496	0.4			
5/8"	0.157	0.220	0.267	0.306	0.339	0.394	0.418	0.458	0.492	0.533	0.596	0.6			
3/4"	0.172	0.242	0.294	0.337	0.374	0.436	0.463	0.510	0.550	0.600	0.683	0.7			
1"	0.199	0.280	0.341	0.392	0.436	0.510	0.543	0.600	0.650	0.714	0.828	0.8			

Calculate your new SFM adjustment. This new SFM adjustment will be calculated using the new effective cutting
If you are using less then the cutter diameter, then its likely your RPM's will need to be adjusted upward.



3 FLUTE BALLNOSE (INCH) SPEEDS & FEEDS CHART PROFILING AND "D" EFFECTIVE, CHIMP LOAD PER TOOTH

			1/8"			3/16"			1/4"			5/16"			3/8"		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Aircraft Aluminum (2000,5000 & 7000 series)	2000	0.0018	0.0012	0.0010	0.00252	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.00312	0.0026	0.0061	0.0041	0.0034
	Soft Aluminum (6061)	2000	0.0014	0.0010	0.0008	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0032	0.00216	0.0018	0.0050	0.0034	0.0028
	Copper (200 Brinell <)	500	0.0018	0.0012	0.0010	0.00252	0.0017	0.0014	0.0032	0.0022	0.0018	0.0043	0.00288	0.0024	0.0050	0.0034	0.0028
	Copper (200 Brinell >)	400	0.0014	0.0010	0.0008	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0032	0.00216	0.0018	0.0047	0.0031	0.0026
	Cast Aluminum, Silicon 6% <	1300	0.0018	0.0012	0.0010	0.00252	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.00312	0.0026	0.0061	0.0041	0.0034
	Cast Aluminum, Silicon 6% >	800	0.0018	0.0012	0.0010	0.00252	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.00312	0.0026	0.0061	0.0041	0.0034
	Brass	1500	0.0011	0.0007	0.0006	0.00252	0.0017	0.0014	0.0036	0.0024	0.0020	0.0047	0.00312	0.0026	0.0061	0.0041	0.0034
	Bronze	600	0.0014	0.0010	0.0008	0.0018	0.0012	0.0010	0.0025	0.0017	0.0014	0.0032	0.00216	0.0018	0.0047	0.0031	0.0026

			7/16"			1/2"			5/8"			3/4"			1"		
			Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective	Profiling		"D" Effective
PERCENTAGE OF CUTTER DIAMETER		SFM	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
WORK PIECE MATERIAL	Aircraft Aluminum (2000,5000 & 7000 series)	2000	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
	Soft Aluminum (6061)	2000	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0086	0.0058	0.0048	0.0101	0.0067	0.0056	0.0119	0.0079	0.0066
	Copper (200 Brinell <)	500	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0086	0.0058	0.0048	0.0101	0.0067	0.0056	0.0119	0.0079	0.0066
	Copper (200 Brinell >)	400	0.0054	0.0036	0.0030	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0083	0.0055	0.0046	0.0097	0.0065	0.0054
	Cast Aluminum, Silicon 6% <	1300	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
	Cast Aluminum, Silicon 6% >	800	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
	Brass	1500	0.0068	0.0046	0.0038	0.0076	0.0050	0.0042	0.0097	0.0065	0.0054	0.0119	0.0079	0.0066	0.0144	0.0096	0.0080
	Bronze	600	0.0054	0.0036	0.0030	0.0061	0.0041	0.0034	0.0072	0.0048	0.0040	0.0083	0.0055	0.0046	0.0097	0.0065	0.0054

*NOTE: Recommended Speeds & Feeds, applications may vary.

HIGH PERFORMANCE

3 FLUTE NECK RELIEVED (INCH)

3 FLUTE NECK RELIEVED (INCH) SPEEDS & FEEDS CHART FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/4"			3/8"			1/2"			5/8"			3/4"			1"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	1200	0.0015	0.0008	0.0008	0.0023	0.0015	0.0015	0.0034	0.0023	0.0016	0.0041	0.0027	0.0020	0.0047	0.0032	0.0025	0.0054	0.0036	0.0030
Soft Aluminum (6061)	1200	0.0014	0.0009	0.0005	0.0020	0.0014	0.0011	0.0029	0.0019	0.0015	0.0037	0.0024	0.0018	0.0044	0.0029	0.0021	0.0054	0.0036	0.0025
Copper (200 Brinell <)	300	0.0014	0.0009	0.0007	0.0024	0.0017	0.0011	0.0032	0.0022	0.0015	0.0038	0.0026	0.0018	0.0046	0.0031	0.0021	0.0054	0.0036	0.0025
Copper (200 Brinell >)	240	0.0011	0.0008	0.0005	0.0022	0.0014	0.0010	0.0030	0.0020	0.0013	0.0035	0.0023	0.0015	0.0041	0.0027	0.0017	0.0049	0.0032	0.0020
Cast Aluminum, Silicon 6% <	780	0.0015	0.0010	0.0008	0.0027	0.0018	0.0013	0.0034	0.0023	0.0016	0.0038	0.0026	0.0020	0.0046	0.0031	0.0025	0.0054	0.0036	0.0030
Cast Aluminum, Silicon 6% >	480	0.0011	0.0008	0.0008	0.0022	0.0014	0.0013	0.0030	0.0020	0.0016	0.0035	0.0023	0.0020	0.0044	0.0029	0.0025	0.0051	0.0035	0.0030
Brass	900	0.0010	0.0006	0.0008	0.0020	0.0014	0.0013	0.0027	0.0018	0.0016	0.0034	0.0023	0.0020	0.0041	0.0027	0.0025	0.0047	0.0032	0.0030
Bronze	360	0.0010	0.0006	0.0005	0.0019	0.0013	0.0010	0.0026	0.0017	0.0013	0.0030	0.0020	0.0015	0.0038	0.0026	0.0017	0.0044	0.0030	0.0020

*NOTE: Recommended Speeds & Feeds meant for shortest reach tools.

HIGH PERFORMANCE
3 FLUTE CHIMPBREAKER (INCH)

3 FLUTE CHIMPBREAKERS (INCH) SPEEDS & FEEDS CHART
FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3/8"			1/2"			5/8"			3/4"			1"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.0047	0.0034	0.0031	0.0063	0.0046	0.0042	0.0081	0.0059	0.0054	0.0099	0.0073	0.0066	0.0120	0.0088	0.0080
Soft Aluminum (6061)	2000	0.0045	0.0033	0.0030	0.0060	0.0044	0.0040	0.0072	0.0053	0.0048	0.0084	0.0062	0.0056	0.0099	0.0073	0.0066
Copper (200 Brinell <)	500	0.0044	0.0032	0.0029	0.0060	0.0044	0.0040	0.0072	0.0053	0.0048	0.0084	0.0062	0.0056	0.0099	0.0073	0.0066
Copper (200 Brinell >)	400	0.0042	0.0031	0.0028	0.0051	0.0037	0.0034	0.0060	0.0044	0.0040	0.0069	0.0051	0.0046	0.0081	0.0059	0.0054
Cast Aluminum, Silicon (6% <)	1300	0.0047	0.0034	0.0031	0.0063	0.0046	0.0042	0.0081	0.0059	0.0054	0.0099	0.0073	0.0066	0.0120	0.0088	0.0080
Cast Aluminum, Silicon (6% >)	800	0.0047	0.0034	0.0031	0.0063	0.0046	0.0042	0.0081	0.0059	0.0054	0.0099	0.0073	0.0066	0.0120	0.0088	0.0080
Brass	1500	0.0047	0.0034	0.0031	0.0063	0.0046	0.0042	0.0081	0.0059	0.0054	0.0099	0.0073	0.0066	0.0120	0.0088	0.0080
Bronze	600	0.0042	0.0031	0.0028	0.0051	0.0037	0.0034	0.0060	0.0044	0.0040	0.0069	0.0051	0.0046	0.0081	0.0059	0.0054

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

HIGH PERFORMANCE
3 FLUTE CHIMPBREAKER (METRIC)

3 FLUTE CHIMPBREAKERS (METRIC) SPEEDS & FEEDS CHART
FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	10mm			12mm			16mm			20mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.1219	0.0894	0.0813	0.1562	0.1146	0.1041	0.2057	0.1509	0.1372	0.2553	0.1872	0.1702
Soft Aluminum (6061)	2000	0.1181	0.0866	0.0787	0.1486	0.1090	0.0991	0.1829	0.1341	0.1219	0.2172	0.1593	0.1448
Copper (200 Brinell <)	500	0.1143	0.0838	0.0762	0.1486	0.1090	0.0991	0.1829	0.1341	0.1219	0.2172	0.1593	0.1448
Copper (200 Brinell >)	400	0.1105	0.0810	0.0737	0.1257	0.0922	0.0838	0.1524	0.1118	0.1016	0.1791	0.1313	0.1194
Cast Aluminum, Silicon (6% <)	1300	0.1219	0.0894	0.0813	0.1562	0.1146	0.1041	0.2057	0.1509	0.1372	0.2553	0.1872	0.1702
Cast Aluminum, Silicon (6% >)	800	0.1219	0.0894	0.0813	0.1562	0.1146	0.1041	0.2057	0.1509	0.1372	0.2553	0.1872	0.1702
Brass	1500	0.1219	0.0894	0.0813	0.1562	0.1146	0.1041	0.2057	0.1509	0.1372	0.2553	0.1872	0.1702
Bronze	600	0.1105	0.0810	0.0737	0.1257	0.0922	0.0838	0.1524	0.1118	0.1016	0.1791	0.1313	0.1194

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

HIGH PERFORMANCE
3 FLUTE ROUGHERS (INCH)

3 FLUTE SILVERBACK KNUCKLEDRAGGERS (INCH) SPEEDS & FEEDS CHART. FULL SLOTTING. CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3/8" SLOT	1/2" SLOT	5/8" SLOT	3/4" SLOT	1" SLOT
Aircraft Aluminum	4000	0.0065	0.0090	0.0110	0.0120	0.0140
Soft Aluminum (6061)	3000	0.0055	0.0080	0.0090	0.0105	0.0120
Copper (200 Brinell <)	1800	0.0060	0.0090	0.0095	0.0110	0.0130
Copper (200 Brinell >)	1800	0.0055	0.0075	0.0090	0.0105	0.0110
Cast Aluminum, Silicon 6% <	2500	0.0065	0.0090	0.0110	0.0120	0.0140
Cast Aluminum, Silicon 6% >	2000	0.0065	0.0090	0.0110	0.0120	0.0140
Brass	2500	0.0065	0.0090	0.0110	0.0120	0.0140
Bronze	1600	0.0055	0.0075	0.0085	0.0100	0.0110

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

HIGH PERFORMANCE
3 FLUTE ROUGHERS (METRIC)

3 FLUTE SILVERBACK KNUCKLEDRAGGERS (METRIC) SPEEDS & FEEDS CHART. FULL SLOTTING, METRIC CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	6mm SLOT	8mm SLOT	10mm SLOT	12mm SLOT	16mm SLOT	20mm SLOT	25mm SLOT
Aircraft Aluminum	4000	0.0990	0.1390	0.1700	0.2150	0.2790	0.3170	0.3500
Soft Aluminum (6061)	3000	0.0910	0.1290	0.1440	0.1900	0.2280	0.2710	0.2990
Copper (200 Brinell <)	1800	0.0760	0.1270	0.1570	0.2150	0.2410	0.2920	0.3220
Copper (200 Brinell >)	1800	0.0760	0.1140	0.1440	0.1770	0.2280	0.2710	0.2840
Cast Aluminum, Silicon 6% <	2500	0.0990	0.1390	0.1700	0.2150	0.2790	0.3170	0.3500
Cast Aluminum, Silicon 6% >	2000	0.0990	0.1390	0.1700	0.2150	0.2790	0.3170	0.3500
Brass	2500	0.1100	0.1390	0.1700	0.2150	0.2790	0.3170	0.3500
Bronze	1600	0.0990	0.1140	0.1440	0.1770	0.2150	0.2660	0.2840

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

2 FLUTE (INCH) SPEEDS & FEEDS CHART FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/8"			3/16"			1/4"			5/16"			3/8"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.0022	0.0014	0.0012	0.0029	0.0019	0.0016	0.0040	0.0026	0.0022	0.0052	0.0035	0.0029	0.0063	0.0042	0.0035
Soft Aluminum (6061)	2000	0.0020	0.0013	0.0011	0.0025	0.0017	0.0014	0.0029	0.0019	0.0016	0.0040	0.0026	0.0022	0.0052	0.0035	0.0029
Copper (200 Brinell <)	500	0.0018	0.0012	0.0010	0.0022	0.0014	0.0012	0.0036	0.0024	0.0020	0.0049	0.0032	0.0027	0.0058	0.0038	0.0032
Copper (200 Brinell >)	400	0.0018	0.0012	0.0010	0.0022	0.0014	0.0012	0.0029	0.0019	0.0016	0.0040	0.0026	0.0022	0.0049	0.0032	0.0027
Cast Aluminum, Silicon (6% <)	1300	0.0020	0.0013	0.0011	0.0023	0.0016	0.0013	0.0040	0.0026	0.0022	0.0052	0.0035	0.0029	0.0063	0.0042	0.0035
Cast Aluminum, Silicon (6% >)	800	0.0020	0.0013	0.0011	0.0023	0.0016	0.0013	0.0040	0.0026	0.0022	0.0052	0.0035	0.0029	0.0063	0.0042	0.0035
Brass	1500	0.0020	0.0013	0.0011	0.0023	0.0016	0.0013	0.0040	0.0026	0.0022	0.0052	0.0035	0.0029	0.0063	0.0042	0.0035
Bronze	600	0.0018	0.0012	0.0010	0.0022	0.0014	0.0012	0.0029	0.0019	0.0016	0.0040	0.0026	0.0022	0.0049	0.0032	0.0027

WORK PIECE MATERIAL	SFM	7/16"			1/2"			5/8"			3/4"			1"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum	2000	0.0070	0.0047	0.0039	0.0079	0.0053	0.0044	0.0101	0.0067	0.0056	0.0122	0.0082	0.0068	0.0148	0.0098	0.0082
Soft Aluminum (6061)	2000	0.0063	0.0042	0.0035	0.0074	0.0049	0.0041	0.0088	0.0059	0.0049	0.0104	0.0070	0.0058	0.0122	0.0082	0.0068
Copper (200 Brinell <)	500	0.0067	0.0044	0.0037	0.0074	0.0049	0.0041	0.0088	0.0059	0.0049	0.0104	0.0070	0.0058	0.0122	0.0082	0.0068
Copper (200 Brinell >)	400	0.0059	0.0040	0.0033	0.0067	0.0044	0.0037	0.0076	0.0050	0.0042	0.0086	0.0058	0.0048	0.0104	0.0070	0.0058
Cast Aluminum, Silicon (6% <)	1300	0.0070	0.0047	0.0039	0.0079	0.0053	0.0044	0.0101	0.0067	0.0056	0.0122	0.0082	0.0068	0.0148	0.0098	0.0082
Cast Aluminum, Silicon (6% >)	800	0.0070	0.0047	0.0039	0.0079	0.0053	0.0044	0.0101	0.0067	0.0056	0.0122	0.0082	0.0068	0.0148	0.0098	0.0082
Brass	1500	0.0070	0.0047	0.0039	0.0079	0.0053	0.0044	0.0101	0.0067	0.0056	0.0122	0.0082	0.0068	0.0148	0.0098	0.0082
Bronze	600	0.0059	0.0040	0.0033	0.0067	0.0044	0.0037	0.0076	0.0050	0.0042	0.0086	0.0058	0.0048	0.0104	0.0070	0.0058

*NOTE: Recommended Speeds & Feeds, applications may vary.

DIE MOLD
2 FLUTE (INCH)

CALCULATE YOUR EFFECTIVE CUTTING DIAMETER

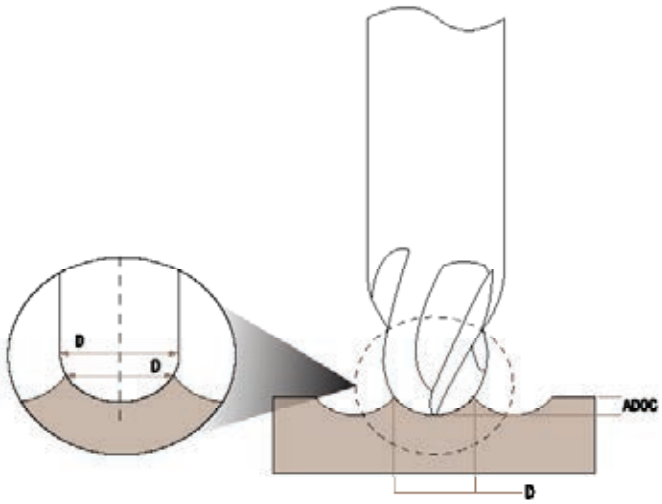
This can be done using the chart below that represents some Common Tool Diameters and ADOC combinations.

CHIMP BALLNOSE MILLING DATA (INCH)

(ADOC) AXIAL DEPTH OF CUT (EFFECTIVE DIAMETER FOR SFM CALCULATION)

DEPTH	0.005	0.010	0.020	0.030	0.040	0.050	0.070	0.080	0.100	0.120	0.150	0.220	0.300	0.350	0.400	0.450
1/32"	0.023	0.029	0.030	–	–	–	–	–	–	–	–	–	–	–	–	–
1/16"	0.034	0.046	0.058	0.062	0.060	–	–	–	–	–	–	–	–	–	–	–
1/8"	0.049	0.068	0.092	0.107	0.117	0.122	0.124	0.120	0.100	–	–	–	–	–	–	–
3/16"	0.06	0.084	0.116	0.137	0.154	0.166	0.181	0.185	0.187	0.180	0.15					
1/4"	0.07	0.098	0.136	0.162	0.183	0.200	0.224	0.233	0.245	0.250	0.24					
5/16"	0.078	0.110	0.153	0.184	0.209	0.229	0.261	0.273	0.292	0.304	0.31					
3/8"	0.086	0.121	0.169	0.203	0.232	0.255	0.292	0.307	0.332	0.350	0.36					
1/2"	0.099	0.140	0.196	0.237	0.271	0.300	0.347	0.367	0.400	0.427	0.45					

Calculate your new SFM adjustment. This new SFM adjustment will be calculated using the new effe
If you are using less then the cutter diameter, then its likely your RPM's will need to be adjusted upw



NOTE: IF DESIRED RPM CANNOT BE ACHIEVED, PLEASE RUN AT YOUR COMFORTABLE MAXIMUM RPM.

2 FLUTE CHIMPS (INCH) SPEEDS & FEEDS CHART FOR CALCULATING SFM BASED ON EFFECTIVE DIAMETER & FEED PER ADJUSTMENT. NOTE THIS IS IPR (INCHES PER REVOLUTION) FOR THE CHIMP PROFILING.

		1/32"			1/16"			1/8"			3/16"			1/4"			5/16"			3/8"			1/2"		
DEPTH OF CUT PER DIAMETER	SFM	.0050	.0100	0.0150	.0050	.0100	0.0150	.0050	.0100	0.0150	.0050	.0100	0.0150	.0050	.0100	0.0150	.0050	.0100	0.0150	.0050	.0100	0.0150	.0050	.0100	0.0150
EFFECTIVE DIAMETER, FOR SFM CALCULATION		0.023	0.029	0.031	0.034	0.046	0.053	0.049	0.068	0.081	0.060	0.084	0.102	0.070	0.098	0.119	0.078	0.110	0.134	0.086	0.121	0.147	0.099	0.140	0.171
Gray Cast Iron	600	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Ductile Iron	500	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Soft Steels (A36,1018,8620,1045)	600	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Alloy Steels (4340,4140)	500	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
4140 Pre-Hard (28 to 32 Rc)	400	0.0007	0.0004	0.0003	0.0013	0.0008	0.0005	0.0026	0.0016	0.0010	0.0031	0.0021	0.0012	0.0054	0.0039	0.0022	0.006	0.0042	0.0024	0.0066	0.00465	0.0026	0.0075	0.0054	0.0030
Tool Steels (A2,D2,S7)	450	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Die Steels (H13,P20)	450	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Stainless Steel (303, 304, 316)	400	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Difficult Stainless Steel (400 & PH Series)	350	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Stainless Steel (13-8)	250	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
High Temp. Alloys	400	0.0010	0.0006	0.0004	0.0020	0.0012	0.0008	0.0039	0.0024	0.0016	0.00465	0.00315	0.0019	0.0072	0.0052	0.0029	0.008	0.0056	0.0032	0.0088	0.0062	0.0035	0.0100	0.0072	0.0040
Titanium (6AL4V)	200	0.0007	0.0004	0.0003	0.0013	0.0008	0.0005	0.0026	0.0016	0.0010	0.0031	0.0021	0.0012	0.0054	0.0039	0.0022	0.006	0.0042	0.0024	0.0066	0.00465	0.0026	0.0075	0.0054	0.0030
Inconel 718	150	0.0007	0.0004	0.0003	0.0013	0.0008	0.0005	0.0026	0.0016	0.0010	0.0031	0.0021	0.0012	0.0054	0.0039	0.0022	0.006	0.0042	0.0024	0.0066	0.00465	0.0026	0.0075	0.0054	0.0030
Inconel 625	150	0.0007	0.0004	0.0003	0.0013	0.0008	0.0005	0.0026	0.0016	0.0010	0.0031	0.0021	0.0012	0.0054	0.0039	0.0022	0.006	0.0042	0.0024	0.0066	0.00465	0.0026	0.0075	0.0054	0.0030

*NOTE: Recommended Speeds & Feeds, applications may vary.

CALCULATE YOUR EFFECTIVE CUTTING DIAMETER

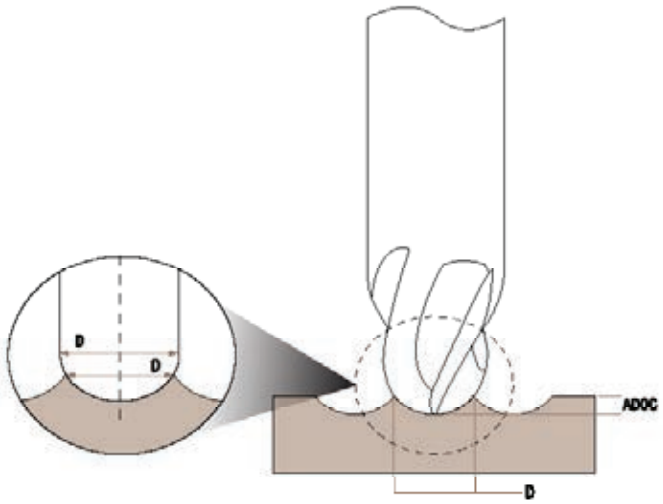
This can be done using the chart below that represents some Common Tool Diameters and ADOC combinations.

CHIMP BALLNOSE MILLING DATA (METRIC)

(ADOC) AXIAL DEPTH OF CUT (EFFECTIVE DIAMETER FOR SFM CALCULATION)

DEPTH	0.127	0.254	0.508	0.762	1.016	1.270	1.778	2.032	2.540	3.048	3.810	5.588	7.620	8.890	10.160	11.430
1 mm	0.660	0.863	0.990	–	–	–	–	–	–	–	–	–	–	–	–	–
2 mm	0.965	1.320	1.752	1.930	2.000	–	–	–	–	–	–	–	–	–	–	–
3 mm	1.219	1.676	2.260	2.616	2.845	2.972	2.9464	2.794	–	–	–	–	–	–	–	–
4 mm	1.397	1.956	2.667	3.150	3.480	3.734	3.988	3.988	3.861	3.404	-					
5 mm	1.574	2.184	3.023	3.607	4.013	4.343	4.775	4.902	5.004	4.877	4.2					
6 mm	1.727	2.413	3.353	3.988	4.496	4.902	5.486	5.690	5.918	5.994	5.7					
8 mm	1.981	2.794	3.912	4.699	5.334	5.842	6.655	6.960	7.442	7.772	8.0					
10 mm	2.235	3.150	4.394	5.309	6.045	6.655	7.645	8.052	8.712	9.195	9.7					
12 mm	2.463	3.454	4.826	5.842	6.680	7.391	8.534	8.992	9.804	10.439	11.					

Calculate your new SFM adjustment. This new SFM adjustment will be calculated using the new effective cutting diameter. If you are using less then the cutter diameter, then its likely your RPM's will need to be adjusted upward.



NOTE: IF DESIRED RPM CANNOT BE ACHIEVED, PLEASE RUN AT YOUR COMFORTABLE MAXIMUM RPM.

2 FLUTE CHIMPS (METRIC) SPEEDS & FEEDS CHART FOR CALCULATING SFM BASED ON EFFECTIVE DIAMETER & FEED PER ADJUSTMENT. NOTE THIS IS IPR (INCHES PER REVOLUTION) FOR THE CHIMP PROFILING.

		1 MM			2 MM			3 MM			4 MM			5 MM			6 MM			8 MM			10 MM			12 MM		
DEPTH OF CUT PER DIAMETER	SFM	0.127	0.254	0.381	0.127	0.254	0.381	0.127	0.254	0.381	0.127	0.254	0.381	0.127	0.254	0.381	0.127	0.254	0.381	0.127	0.254	0.381	0.127	0.254	0.381	0.127	0.254	0.381
EFFECTIVE DIAMETER, FOR SFM CALCULATION		0.66	0.863	0.965	0.965	1.320	1.575	1.219	1.676	2.006	1.397	1.956	2.336	1.574	2.184	2.641	1.727	2.413	2.921	1.981	2.794	3.403	2.235	3.150	3.835	2.463	3.454	4.216
Gray Cast Iron	600	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Ductile Iron	500	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Soft Steels (A36,1018,8620,1045)	600	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Alloy Steels (4340,4140)	500	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
4140 Pre-Hard (28 to 32 Rc)	400	0.017	0.010	0.007	0.033	0.020	0.013	0.066	0.041	0.026	0.071	0.046	0.028	0.122	0.084	0.049	0.131	0.094	0.052	0.152	0.107	0.061	0.126	0.175	0.050	0.191	0.137	.0764
Tool Steels (A2,D2,S7)	450	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Die Steels (H13,P20)	450	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Stainless Steel (303, 304, 316)	400	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Difficult Stainless Steel (400 & PH Series)	350	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Stainless Steel (13-8)	250	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
High Temp. Alloys	400	0.025	0.015	0.010	0.050	0.030	0.020	0.099	0.061	0.040	0.107	0.076	0.043	0.163	0.112	0.065	0.174	0.126	0.070	0.203	0.142	0.081	0.231	0.168	0.092	0.254	0.183	.1016
Titanium (6AL4V)	200	0.017	0.010	0.007	0.033	0.020	0.013	0.066	0.041	0.026	0.071	0.046	0.028	0.122	0.084	0.049	0.131	0.094	0.052	0.152	0.107	0.061	0.126	0.175	0.050	0.191	0.137	.0764
Inconel 718	150	0.017	0.010	0.007	0.033	0.020	0.013	0.066	0.041	0.026	0.071	0.046	0.028	0.122	0.084	0.049	0.131	0.094	0.052	0.152	0.107	0.061	0.126	0.175	0.050	0.191	0.137	.0764
Inconel 625	150	0.017	0.010	0.007	0.033	0.020	0.013	0.066	0.041	0.026	0.071	0.046	0.028	0.122	0.084	0.049	0.131	0.094	0.052	0.152	0.107	0.061	0.126	0.175	0.050	0.191	0.137	.0764

*NOTE: Recommended Speeds & Feeds, applications may vary.

STANDARD PERFORMANCE
2 FLUTE (INCH)

2 FLUTE PRIMATE (INCH) SPEEDS & FEEDS CHART, FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/8"			3/16"			1/4"			5/16"			3/8"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0014	0.0010	0.0007	0.0018	0.0012	0.0008	0.0022	0.0014	0.0010	0.0027	0.0018	0.0015	0.0031	0.0020	0.0018
Soft Aluminum (6061)	650	0.0009	0.0006	0.0005	0.0013	0.0008	0.0005	0.0018	0.0012	0.0012	0.0023	0.0016	0.0015	0.0027	0.0018	0.0014
Copper (200 Brinell <)	400	0.0007	0.0005	0.0005	0.0011	0.0007	0.0006	0.0018	0.0012	0.0010	0.0027	0.0018	0.0012	0.0032	0.0022	0.0015
Copper (200 Brinell >)	400	0.0007	0.0005	0.0004	0.0011	0.0007	0.0005	0.0014	0.0010	0.0007	0.0022	0.0014	0.0012	0.0029	0.0019	0.0013
Cast Aluminum, Silicon 6% <	500	0.0007	0.0005	0.0005	0.0011	0.0007	0.0007	0.0020	0.0013	0.0010	0.0027	0.0018	0.0015	0.0036	0.0024	0.0018
Cast Aluminum, Silicon 6% >	400	0.0007	0.0005	0.0005	0.0011	0.0007	0.0007	0.0014	0.0012	0.0010	0.0022	0.0014	0.0013	0.0029	0.0019	0.0017
Brass	800	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.0013	0.0010	0.0008	0.0020	0.0013	0.0012	0.0027	0.0018	0.0016
Bronze	400	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.0013	0.0008	0.0006	0.0020	0.0013	0.0010	0.0025	0.0019	0.0014

WORK PIECE MATERIAL	SFM	7/16"			1/2"			5/8"			3/4"			1"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0040	0.0026	0.0020	0.0045	0.0030	0.0023	0.0054	0.0036	0.0030	0.0063	0.0042	0.0035	0.0072	0.0048	0.0040
Soft Aluminum (6061)	650	0.0032	0.0022	0.0020	0.0038	0.0025	0.0023	0.0049	0.0032	0.0030	0.0058	0.0038	0.0035	0.0072	0.0048	0.0040
Copper (200 Brinell <)	400	0.0036	0.0024	0.0017	0.0043	0.0029	0.0020	0.0050	0.0034	0.0023	0.0061	0.0041	0.0029	0.0072	0.0048	0.0033
Copper (200 Brinell >)	400	0.0036	0.0024	0.0017	0.0040	0.0026	0.0020	0.0047	0.0031	0.0023	0.0054	0.0036	0.0029	0.0065	0.0043	0.0033
Cast Aluminum, Silicon 6% <	500	0.0041	0.0028	0.0020	0.0045	0.0030	0.0023	0.0050	0.0034	0.0030	0.0061	0.0041	0.0035	0.0072	0.0048	0.0040
Cast Aluminum, Silicon 6% >	400	0.0034	0.0023	0.0020	0.0040	0.0026	0.0023	0.0047	0.0032	0.0030	0.0058	0.0038	0.0033	0.0068	0.0046	0.0040
Brass	800	0.0031	0.0020	0.0019	0.0036	0.0024	0.0021	0.0045	0.0030	0.0027	0.0054	0.0036	0.0033	0.0063	0.0042	0.0040
Bronze	400	0.0029	0.0020	0.0017	0.0034	0.0023	0.0020	0.0040	0.0030	0.0027	0.0050	0.0038	0.0031	0.0059	0.0045	0.0040

2 FLUTE PRIMATE (INCH) COATED SPEEDS & FEEDS CHART, 1X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

RECOMMENDED RPM AND FEED RATES FOR COATED STANDARD 2 FLUTE CARBIDE END MILLS

Work Piece Material	SFM	1/8"		1/4"		5/16"		3/8"		7/16"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	300	9,168	14.6	4,584	10.1	3,667	14.6	3,056	15.2	2,619	14.1	2,292	13.7	1,833	12.8	1,528	12.2	1,146	10.3
Soft Steels (A36,1018,8620,1045)	225	6,876	9.6	3,438	6.8	2,750	6.6	2,292	6.4	1,964	6.2	1,719	6.1	1,375	6.1	1,146	6.8	860	6.0
Alloy Steels (4340,4140)	140	4,278	3.4	2,139	3.4	1,711	3.4	1,426	3.4	1,222	3.2	1,069	3.2	855	3.4	713	3.5	535	3.2
Tool Steels(A2,D2,S7)	125	3,820	3.1	1,910	3.1	1,528	3.1	1,273	3.1	1,091	2.5	955	2.6	764	3.1	637	3.1	477	2.8
Die Steels (H13,P20)	125	3,820	3.1	1,910	3.1	1,528	3.1	1,273	3.1	1,091	2.5	955	2.6	764	3.1	637	3.1	477	2.8
Stainless Steel (303, 304, 316)	175	5,348	5.3	2,674	4.8	2,139	6.4	1,782	6.4	1,528	5.5	1,337	5.3	1,070	5.3	891	5.3	668	4.6
Difficult Stainless Steel (400 & PH Series)	100	3,056	3.1	1,528	2.4	1,222	2.5	1,018	2.6	873	2.4	764	2.2	611	2.4	509	2.5	382	2.3
High Temp. Alloys	80	2,444	1.9	1,222	1.6	977	1.7	815	1.7	698	1.7	611	1.7	489	1.7	407	1.8	305	1.8
Titanium (6AL4V)	60	1,833	2.2	916	1.6	733	1.7	611	1.7	524	1.6	458	1.6	367	1.6	305	1.8	229	1.6

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

2 FLUTE PRIMATE (METRIC) SPEEDS & FEEDS CHART FOR FULL SLOTTING AND PROFILING, METRIC CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3mm			4mm			5mm			6mm			8mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0350	0.0250	0.0170	0.0400	0.0270	0.0180	0.0450	0.0300	0.0200	0.0530	0.0330	0.0220	0.0680	0.0450	0.0380
Soft Aluminum (6061)	650	0.0220	0.0150	0.0120	0.0270	0.0180	0.0130	0.0330	0.0200	0.0150	0.0430	0.0270	0.0270	0.0580	0.0400	0.0380
Copper (200 Brinell <)	400	0.0170	0.0120	0.0120	0.0230	0.0140	0.0130	0.0270	0.0170	0.0150	0.0430	0.0270	0.0220	0.0680	0.0450	0.0300
Copper (200 Brinell >)	400	0.0170	0.0120	0.0100	0.0220	0.0140	0.0120	0.0270	0.0170	0.0120	0.0330	0.0220	0.0150	0.0550	0.0350	0.0300
Cast Aluminum, Silicon 6% <	500	0.0170	0.0120	0.0120	0.0220	0.0150	0.0140	0.0270	0.0170	0.0170	0.0480	0.0300	0.0220	0.0680	0.0450	0.0380
Cast Aluminum, Silicon 6% >	400	0.0170	0.0120	0.0120	0.0220	0.0150	0.0140	0.0270	0.0170	0.0170	0.0330	0.0270	0.0250	0.0550	0.0350	0.0330
Brass	800	0.0170	0.0120	0.0100	0.0140	0.0130	0.0110	0.0220	0.0150	0.0120	0.0300	0.0220	0.0170	0.0500	0.0330	0.0300
Bronze	400	0.0170	0.0120	0.0100	0.0140	0.0130	0.0110	0.0220	0.0150	0.0120	0.0300	0.0200	0.0150	0.0500	0.0330	0.0250

WORK PIECE MATERIAL	SFM	10mm			12mm			16mm			20mm			25mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0780	0.0500	0.0450	0.1110	0.0730	0.0530	0.1370	0.0910	0.0760	0.1640	0.1090	0.0880	0.1820	0.1240	0.1010
Soft Aluminum (6061)	650	0.0680	0.0450	0.0350	0.0960	0.0630	0.0550	0.1240	0.0810	0.0760	0.1520	0.0990	0.0880	0.1820	0.1240	0.1010
Copper (200 Brinell <)	400	0.0810	0.0550	0.0380	0.1040	0.0680	0.0500	0.1270	0.0860	0.0580	0.1600	0.1060	0.0780	0.1820	0.1240	0.0860
Copper (200 Brinell >)	400	0.0730	0.0480	0.0330	0.0960	0.0630	0.0500	0.1190	0.0780	0.0580	0.1440	0.0940	0.0780	0.1670	0.1110	0.0860
Cast Aluminum, Silicon 6% <	500	0.0910	0.0610	0.0450	0.1090	0.0760	0.0530	0.1270	0.0860	0.0760	0.1600	0.1060	0.0880	0.1820	0.1240	0.1010
Cast Aluminum, Silicon 6% >	400	0.0730	0.0480	0.0430	0.0960	0.0660	0.0530	0.1190	0.0810	0.0760	0.1520	0.1040	0.0830	0.1750	0.1140	0.1010
Brass	800	0.0680	0.0450	0.0400	0.0860	0.0530	0.0500	0.1140	0.0760	0.0680	0.1440	0.0960	0.0830	0.1620	0.1090	0.1010
Bronze	400	0.0630	0.0480	0.0350	0.0810	0.0530	0.0500	0.1010	0.0760	0.0680	0.1340	0.1040	0.0810	0.1520	0.1140	0.1010

Run UNCOATED endmills 25% less on SFM

Continued on next page

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

STANDARD PERFORMANCE
2 FLUTE (METRIC)

2 FLUTE PRIMATE (METRIC) COATED SPEEDS & FEEDS CHART, 1X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

RECOMMENDED RPM AND FEED RATES FOR COATED STANDARD 2 FLUTE CARBIDE END MILLS

Work Piece Material	SFM	3mm		4mm		5mm		6mm		8mm		10mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	300	9702	0.0200	7277	0.0220	5821	0.0240	4851	0.0280	3638	0.0500	2910	0.0630
Soft Steels (A36,1018,8620,1045)	225	7277	0.0170	5457	0.0200	4366	0.0230	3638	0.0250	2729	0.0300	2183	0.0350
Alloy Steels (4340,4140)	140	4527	0.0100	3395	0.0130	2716	0.0160	2264	0.0200	1698	0.0250	1358	0.0300
Tool Steels (A2,D2,S7)	125	4042	0.0100	3032	0.0130	2425	0.0160	2021	0.0200	1516	0.0250	1212	0.0300
Die Steels (H13,P20)	125	4042	0.0100	3032	0.0130	2425	0.0160	2021	0.0200	1516	0.0250	1212	0.0300
Stainless Steel (303, 304, 316)	175	5660	0.0120	4245	0.0160	3396	0.0200	2830	0.0220	2122	0.0380	1698	0.0450
Difficult Stainless Steel (400 & PH Series)	100	3234	0.0120	2425	0.0140	1940	0.0170	1617	0.0200	1212	0.0260	970	0.0320
High Temp. Alloys	80	2587	0.0100	1940	0.0120	1552	0.0140	1293	0.0160	970	0.0220	776	0.0260
Titanium (6AL4V)	60	1940	0.0150	1455	0.0170	1164	0.0200	970	0.0220	727	0.0290	582	0.0350

Work Piece Material	SFM	12mm		16mm		20mm		25mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	300	2425	0.0750	1819	0.0880	1455	0.1040	1164	0.1140
Soft Steels (A36,1018,8620,1045)	225	1819	0.0450	1364	0.0560	1091	0.0760	873	0.0880
Alloy Steels (4340,4140)	140	1132	0.0380	848	0.0500	679	0.0670	543	0.0760
Tool Steels (A2,D2,S7)	125	1010	0.0350	758	0.0510	606	0.0650	485	0.0740
Die Steels (H13,P20)	125	1010	0.0350	758	0.0510	606	0.0670	485	0.0740
Stainless Steel (303, 304, 316)	175	1415	0.0500	1061	0.0630	849	0.0780	679	0.0870
Difficult Stainless Steel (400 & PH Series)	100	808	0.0370	606	0.0500	485	0.0680	388	0.0760
High Temp. Alloys	80	646	0.0350	485	0.0440	388	0.0640	310	0.0750
Titanium (6AL4V)	60	485	0.0440	363	0.0550	291	0.0720	232	0.0880

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

3 FLUTE PRIMATE (INCH) SPEEDS & FEEDS CHART FOR FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	1/8"			3/16"			1/4"			5/16"			3/8"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0014	0.0010	0.0007	0.0018	0.0012	0.0008	0.0022	0.0014	0.0010	0.0027	0.0018	0.0015	0.0031	0.0020	0.0018
Soft Aluminum (6061)	650	0.0009	0.0006	0.0005	0.0013	0.0008	0.0005	0.0018	0.0012	0.0012	0.0023	0.0016	0.0015	0.0027	0.0018	0.0014
Copper (200 Brinell <)	400	0.0007	0.0005	0.0005	0.0011	0.0007	0.0006	0.0018	0.0012	0.0010	0.0027	0.0018	0.0012	0.0032	0.0022	0.0015
Copper (200 Brinell >)	400	0.0007	0.0005	0.0004	0.0011	0.0007	0.0005	0.0014	0.0010	0.0007	0.0022	0.0014	0.0012	0.0029	0.0019	0.0013
Cast Aluminum, Silicon 6% <	500	0.0007	0.0005	0.0005	0.0011	0.0007	0.0007	0.0020	0.0013	0.0010	0.0027	0.0018	0.0015	0.0036	0.0024	0.0018
Cast Aluminum, Silicon 6% >	400	0.0007	0.0005	0.0005	0.0011	0.0007	0.0007	0.0014	0.0012	0.0010	0.0022	0.0014	0.0013	0.0029	0.0019	0.0017
Brass	800	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.0013	0.0010	0.0008	0.0020	0.0013	0.0012	0.0027	0.0018	0.0016
Bronze	400	0.0007	0.0005	0.0004	0.0009	0.0006	0.0005	0.0013	0.0008	0.0006	0.0020	0.0013	0.0010	0.0025	0.0019	0.0014

WORK PIECE MATERIAL	SFM	7/16"			1/2"			5/8"			3/4"			1"		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0040	0.0026	0.0020	0.0045	0.0030	0.0023	0.0054	0.0036	0.0030	0.0063	0.0042	0.0035	0.0072	0.0048	0.0040
Soft Aluminum (6061)	650	0.0032	0.0022	0.0020	0.0038	0.0025	0.0023	0.0049	0.0032	0.0030	0.0058	0.0038	0.0035	0.0072	0.0048	0.0040
Copper (200 Brinell <)	400	0.0036	0.0024	0.0017	0.0043	0.0029	0.0020	0.0050	0.0034	0.0023	0.0061	0.0041	0.0029	0.0072	0.0048	0.0033
Copper (200 Brinell >)	400	0.0036	0.0024	0.0017	0.0040	0.0026	0.0020	0.0047	0.0031	0.0023	0.0054	0.0036	0.0029	0.0065	0.0043	0.0033
Cast Aluminum, Silicon 6% <	500	0.0041	0.0028	0.0020	0.0045	0.0030	0.0023	0.0050	0.0034	0.0030	0.0061	0.0041	0.0035	0.0072	0.0048	0.0040
Cast Aluminum, Silicon 6% >	400	0.0034	0.0023	0.0020	0.0040	0.0026	0.0023	0.0047	0.0032	0.0030	0.0058	0.0038	0.0033	0.0068	0.0046	0.0040
Brass	800	0.0031	0.0020	0.0019	0.0036	0.0024	0.0021	0.0045	0.0030	0.0027	0.0054	0.0036	0.0033	0.0063	0.0042	0.0040
Bronze	400	0.0029	0.0020	0.0017	0.0034	0.0023	0.0020	0.0040	0.0030	0.0027	0.0050	0.0038	0.0031	0.0059	0.0045	0.0040

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

3 FLUTE PRIMATES (INCH) COATED SPEEDS & FEEDS CHART, 1X DIAMETER DEEP, CHIMP LOAD PER TOOTH

RECOMMENDED RPM AND FEED RATES FOR COATED STANDARD 3 FLUTE CARBIDE END MILLS

WORK PIECE MATERIAL	SFM	1/8"		1/4"		5/16"		3/8"		7/16"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	300	9,168	21.9	4,584	15.1	3,667	21.9	3,056	22.8	2,619	21.1	2,292	20.6	1,833	19.2	1,528	18.3	1,146	15.5
Soft Steels (A36,1018,8620,1045)	225	6,876	14.4	3,438	10.3	2,750	9.9	2,292	9.6	1,964	9.3	1,719	9.2	1,375	9.1	1,146	10.3	860	9.1
Alloy Steels (4340,4140)	140	4,278	5.1	2,139	5.1	1,711	5.1	1,426	5.1	1,222	4.8	1,069	4.8	855	5.1	713	5.3	535	4.8
Tool Steels(A2,D2,S7)	125	3,820	4.6	1,910	4.6	1,528	4.6	1,273	4.6	1,091	4.2	955	4.2	764	4.5	637	4.7	477	4.3
Die Steels (H13,P20)	125	3,820	4.6	1,910	4.6	1,528	4.6	1,273	4.6	1,091	4.2	955	4.2	764	4.5	637	4.7	477	4.3
Stainless Steel (303, 304, 316)	175	5,348	7.9	2,674	7.2	2,139	9.6	1,782	9.6	1,528	8.7	1,337	7.9	1,070	8.1	891	8.1	668	6.9
Difficult Stainless Steel, (400 & PH Series)	100	3,056	4.6	1,528	3.6	1,222	3.6	1,018	3.9	873	3.6	764	3.3	611	3.6	509	3.8	382	3.4
High Temp. Alloys	80	2,444	2.9	1,222	2.5	977	2.6	815	2.9	698	2.7	611	2.5	489	2.6	407	2.7	305	2.7
Titanium (6AL4V)	60	1,833	3.3	916	2.4	733	2.6	611	2.5	524	2.4	458	2.4	367	2.4	305	2.7	229	2.4

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

STANDARD PERFORMANCE
3 FLUTE (METRIC)

3 FLUTE PRIMATE (METRIC) SPEEDS & FEEDS CHART FOR FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3mm			4mm			5mm			6mm			8mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0350	0.0250	0.0150	0.0400	0.0270	0.0190	0.0460	0.0290	0.0210	0.0530	0.0330	0.0220	0.0680	0.0450	0.0380
Soft Aluminum (6061)	650	0.0220	0.0150	0.0120	0.0280	0.0190	0.0180	0.0350	0.0230	0.0230	0.0430	0.0270	0.0250	0.0580	0.0400	0.0380
Copper (200 Brinell <)	400	0.0170	0.0120	0.0120	0.0250	0.0160	0.0150	0.0350	0.0220	0.0210	0.0430	0.0270	0.0250	0.0680	0.0450	0.0300
Copper (200 Brinell >)	400	0.0170	0.0120	0.0100	0.0250	0.0160	0.0140	0.0350	0.0220	0.0210	0.0330	0.0220	0.0150	0.0550	0.0350	0.0300
Cast Aluminum, Silicon 6% <	500	0.0170	0.0120	0.0120	0.0250	0.0160	0.0140	0.0350	0.0230	0.0210	0.0480	0.0300	0.0220	0.0680	0.0450	0.0380
Cast Aluminum, Silicon 6% >	400	0.0170	0.0120	0.0120	0.0250	0.0160	0.0140	0.0350	0.0230	0.0210	0.0330	0.0270	0.0220	0.0550	0.0350	0.0330
Brass	800	0.0170	0.0120	0.0100	0.0250	0.0160	0.0120	0.0350	0.0230	0.0150	0.0300	0.0220	0.0170	0.0500	0.0330	0.0300
Bronze	400	0.0170	0.0120	0.0100	0.0250	0.0160	0.0120	0.0350	0.0220	0.0140	0.0300	0.0170	0.0150	0.0500	0.0330	0.0250

WORK PIECE MATERIAL	SFM	10mm			12mm			16mm			20mm			25mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0830	0.0530	0.0480	0.1090	0.0730	0.0550	0.1370	0.0910	0.0760	0.1670	0.1110	0.0910	0.1820	0.1210	0.1010
Soft Aluminum (6061)	650	0.0730	0.0480	0.0500	0.0910	0.0610	0.0550	0.1240	0.0810	0.0760	0.1540	0.1010	0.0910	0.1820	0.1210	0.1010
Copper (200 Brinell <)	400	0.0860	0.0580	0.0400	0.1040	0.0710	0.0480	0.1270	0.0860	0.0580	0.1620	0.1090	0.0760	0.1820	0.1210	0.0830
Copper (200 Brinell >)	400	0.0780	0.0500	0.0350	0.0960	0.0630	0.0480	0.1190	0.0780	0.0580	0.1440	0.0960	0.0760	0.1650	0.1090	0.0830
Cast Aluminum, Silicon 6% <	500	0.0960	0.0630	0.0480	0.1090	0.0730	0.0550	0.1270	0.0860	0.0760	0.1620	0.1090	0.0910	0.1820	0.1210	0.1010
Cast Aluminum, Silicon 6% >	400	0.0780	0.0500	0.0450	0.0960	0.0630	0.0550	0.1190	0.0810	0.0760	0.1540	0.1010	0.0860	0.1720	0.1160	0.1010
Brass	800	0.0730	0.0480	0.0430	0.0860	0.0580	0.0500	0.1140	0.0760	0.0680	0.1440	0.0960	0.0860	0.1600	0.1060	0.1010
Bronze	400	0.0680	0.0500	0.0380	0.0810	0.0550	0.0480	0.1010	0.0760	0.0680	0.1340	0.1010	0.0810	0.1500	0.1140	0.1010

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

3 FLUTE PRIMATE (METRIC) COATED SPEEDS & FEEDS CHART, 1X DIAMETER DEEP, FULL SLOTTING METRIC CHIMP LOAD PER TOOTH

RECOMMENDED RPM AND FEED RATES FOR COATED STANDARD 3 FLUTE CARBIDE END MILLS

WORK PIECE MATERIAL	SFM	3mm		4mm		5mm		6mm		8mm		10mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	300	9702	0.0200	7277	0.0220	5821	0.0240	4851	0.0280	3638	0.0500	2425	0.0750
Soft Steels (A36,1018,8620,1045)	225	7277	0.0170	5457	0.0200	4366	0.0230	3638	0.0250	2729	0.0300	1819	0.0450
Alloy Steels (4340,4140)	140	4527	0.0100	3395	0.0130	2716	0.0160	2264	0.0200	1698	0.0250	1132	0.0380
Tool Steels(A2,D2,S7)	125	4042	0.0100	3032	0.0130	2425	0.0160	2021	0.0200	1516	0.0250	1010	0.0350
Die Steels (H13,P20)	125	4042	0.0100	3032	0.0130	2425	0.0160	2021	0.0200	1516	0.0250	1010	0.0350
Stainless Steel (303, 304, 316)	175	5660	0.0120	4245	0.0160	3396	0.0200	2830	0.0220	2122	0.0380	1415	0.0500
Difficult Stainless Steel (400 & PH Series)	100	3234	0.0120	2425	0.0140	1940	0.0170	1617	0.0200	1212	0.0260	808	0.0370
High Temp. Alloys	80	2587	0.0100	1940	0.0120	1552	0.0140	1293	0.0160	970	0.0220	646	0.0350
Titanium (6AL4V)	60	1940	0.0150	1455	0.0170	1164	0.0200	970	0.0220	727	0.0290	485	0.0440

WORK PIECE MATERIAL	SFM	12mm		16mm		20mm		25mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	300	2079	0.0810	1617	0.0970	1164	0.1140	1164	0.1140
Soft Steels (A36,1018,8620,1045)	225	1559	0.0500	1212	0.0660	873	0.0880	873	0.0880
Alloy Steels (4340,4140)	140	970	0.0440	754	0.0590	543	0.0760	543	0.0760
Tool Steels(A2,D2,S7)	125	866	0.0430	673	0.0580	485	0.0740	485	0.0740
Die Steels (H13,P20)	125	866	0.0430	673	0.0590	485	0.0740	485	0.0740
Stainless Steel (303, 304, 316)	175	1212	0.0560	943	0.0710	679	0.0870	679	0.0870
Difficult Stainless Steel (400 & PH Series)	100	693	0.0440	539	0.0590	388	0.0760	388	0.0760
High Temp. Alloys	80	554	0.0390	431	0.0540	310	0.0750	310	0.0750
Titanium (6AL4V)	60	415	0.0480	323	0.0630	232	0.0880	232	0.0880

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

STANDARD PERFORMANCE
4 FLUTE (INCH)

4 FLUTE PRIMATE (INCH) COATED SPEEDS & FEEDS CHART, 1X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

RECOMMENDED RPM AND FEED RATES FOR COATED STANDARD 4 FLUTE CARBIDE END MILLS

WORK PIECE MATERIAL	SFM	1/8"		1/4"		5/16"		3/8"		7/16"		1/2"		5/8"		3/4"		1"	
		RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Gray Cast Iron	300	9,168	29.3	4,584	20.1	3,667	29.3	3,056	30.5	2,619	28.2	2,292	27.5	1,833	25.6	1,528	24.4	1,146	20.6
Soft Steels (A36,1018,8620,1045)	225	6,876	19.2	3,438	13.8	2,750	13.2	2,292	12.8	1,964	12.5	1,719	12.3	1,375	12.1	1,146	13.7	860	12.0
Alloy Steels (4340,4140)	140	4,278	6.8	2,139	6.8	1,711	6.8	1,426	6.8	1,222	6.4	1,069	6.4	855	6.8	713	7.1	535	6.4
Tool Steels (A2,D2,S7)	125	3,820	6.1	1,910	6.1	1,528	6.1	1,273	6.1	1,091	5.6	955	5.7	764	6.1	637	6.3	477	5.7
Die Steels (H13,P20)	125	3,820	6.1	1,910	6.1	1,528	6.1	1,273	6.1	1,091	5.6	955	5.7	764	6.1	637	6.3	477	5.7
Stainless Steel (303, 304, 316)	175	5,348	10.6	2,674	9.6	2,139	12.8	1,782	12.8	1,528	11.6	1,337	10.6	1,070	10.7	891	10.7	668	9.3
Difficult Stainless Steel (400 & PH Series)	100	3,056	6.1	1,528	4.9	1,222	4.9	1,018	5.3	873	4.8	764	4.5	611	4.9	509	5.1	382	4.6
High Temp. Alloys	80	2,444	3.9	1,222	3.4	977	3.5	815	3.9	698	3.6	611	3.4	489	3.5	407	3.7	305	3.6
Titanium (6AL4V)	60	1,833	4.4	916	3.3	733	3.5	611	3.4	524	3.3	458	3.3	367	3.2	305	3.6	229	3.2

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

STANDARD PERFORMANCE
4 FLUTE (METRIC)

4 FLUTE PRIMATE (METRIC) SPEEDS & FEEDS CHART FOR FULL SLOTTING AND PROFILING, CHIMP LOAD PER TOOTH

WORK PIECE MATERIAL	SFM	3mm			4mm			5mm			6mm			8mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0350	0.0250	0.0150	0.0400	0.0270	0.0190	0.0460	0.0290	0.0210	0.0530	0.0330	0.0220	0.0680	0.0450	0.0380
Soft Aluminum (6061)	650	0.0220	0.0150	0.0120	0.0280	0.0190	0.0180	0.0350	0.0230	0.0230	0.0430	0.0270	0.0250	0.0580	0.0400	0.0380
Copper (200 Brinell <)	400	0.0170	0.0120	0.0120	0.0250	0.0160	0.0150	0.0350	0.0220	0.0210	0.0430	0.0270	0.0250	0.0680	0.0450	0.0300
Copper (200 Brinell >)	400	0.0170	0.0120	0.0100	0.0250	0.0160	0.0140	0.0350	0.0220	0.0210	0.0330	0.0220	0.0150	0.0550	0.0350	0.0300
Cast Aluminum, Silicon 6% <	500	0.0170	0.0120	0.0120	0.0250	0.0160	0.0140	0.0350	0.0230	0.0210	0.0480	0.0300	0.0220	0.0680	0.0450	0.0380
Cast Aluminum, Silicon 6% >	400	0.0170	0.0120	0.0120	0.0250	0.0160	0.0140	0.0350	0.0230	0.0210	0.0330	0.0270	0.0220	0.0550	0.0350	0.0330
Brass	800	0.0170	0.0120	0.0100	0.0250	0.0160	0.0120	0.0350	0.0230	0.0150	0.0300	0.0220	0.0170	0.0500	0.0330	0.0300
Bronze	400	0.0170	0.0120	0.0100	0.0250	0.0160	0.0120	0.0350	0.0220	0.0140	0.0300	0.0170	0.0150	0.0500	0.0330	0.0250

WORK PIECE MATERIAL	SFM	10mm			12mm			16mm			20mm			25mm		
PERCENTAGE OF CUTTER DIAMETER		10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot	10%	20%	Slot
Aircraft Aluminum (2000,5000 & 7000 series)	800	0.0830	0.0530	0.0480	0.1090	0.0730	0.0550	0.1370	0.0910	0.0760	0.1670	0.1110	0.0910	0.1820	0.1210	0.1010
Soft Aluminum (6061)	650	0.0730	0.0480	0.0500	0.0910	0.0610	0.0550	0.1240	0.0810	0.0760	0.1540	0.1010	0.0910	0.1820	0.1210	0.1010
Copper (200 Brinell <)	400	0.0860	0.0580	0.0400	0.1040	0.0710	0.0480	0.1270	0.0860	0.0580	0.1620	0.1090	0.0760	0.1820	0.1210	0.0830
Copper (200 Brinell >)	400	0.0780	0.0500	0.0350	0.0960	0.0630	0.0480	0.1190	0.0780	0.0580	0.1440	0.0960	0.0760	0.1650	0.1090	0.0830
Cast Aluminum, Silicon 6% <	500	0.0960	0.0630	0.0480	0.1090	0.0730	0.0550	0.1270	0.0860	0.0760	0.1620	0.1090	0.0910	0.1820	0.1210	0.1010
Cast Aluminum, Silicon 6% >	400	0.0780	0.0500	0.0450	0.0960	0.0630	0.0550	0.1190	0.0810	0.0760	0.1540	0.1010	0.0860	0.1720	0.1160	0.1010
Brass	800	0.0730	0.0480	0.0430	0.0860	0.0580	0.0500	0.1140	0.0760	0.0680	0.1440	0.0960	0.0860	0.1600	0.1060	0.1010
Bronze	400	0.0680	0.0500	0.0380	0.0810	0.0550	0.0480	0.1010	0.0760	0.0680	0.1340	0.1010	0.0810	0.1500	0.1140	0.1010

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

4 FLUTE PRIMATE (METRIC) COATED SPEEDS & FEEDS CHART. 1X DIAMETER DEEP, FULL SLOTTING, CHIMP LOAD PER TOOTH

RECOMMENDED RPM AND FEED RATES FOR COATED STANDARD 4 FLUTE CARBIDE END MILLS

WORK PIECE MATERIAL	SFM	3mm		4mm		5mm		6mm		8mm		10mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	300	9702	0.0200	7277	0.0220	5821	0.0240	4851	0.0280	3638	0.0500	2425	0.0750
Soft Steels (A36,1018,8620,1045)	225	7277	0.0170	5457	0.0200	4366	0.0230	3638	0.0250	2729	0.0300	1819	0.0450
Alloy Steels (4340,4140)	140	4527	0.0100	3395	0.0130	2716	0.0160	2264	0.0200	1698	0.0250	1132	0.0380
Tool Steels (A2,D2,S7)	125	4042	0.0100	3032	0.0130	2425	0.0160	2021	0.0200	1516	0.0250	1010	0.0350
Die Steels (H13,P20)	125	4042	0.0100	3032	0.0130	2425	0.0160	2021	0.0200	1516	0.0250	1010	0.0350
Stainless Steel (303, 304, 316)	175	5660	0.0120	4245	0.0160	3396	0.0200	2830	0.0220	2122	0.0380	1415	0.0500
Difficult Stainless Steel (400 & PH Series)	100	3234	0.0120	2425	0.0140	1940	0.0170	1617	0.0200	1212	0.0260	808	0.0370
High Temp. Alloys	80	2587	0.0100	1940	0.0120	1552	0.0140	1293	0.0160	970	0.0220	646	0.0350
Titanium (6AL4V)	60	1940	0.0150	1455	0.0170	1164	0.0200	970	0.0220	727	0.0290	485	0.0440

WORK PIECE MATERIAL	SFM	12mm		16mm		20mm		25mm	
		RPM	MMPT	RPM	MMPT	RPM	MMPT	RPM	MMPT
Gray Cast Iron	300	2079	0.0810	1617	0.0970	1164	0.1140	1164	0.1140
Soft Steels (A36,1018,8620,1045)	225	1559	0.0500	1212	0.0660	873	0.0880	873	0.0880
Alloy Steels (4340,4140)	140	970	0.0440	754	0.0590	543	0.0760	543	0.0760
Tool Steels(A2,D2,S7)	125	866	0.0430	673	0.0580	485	0.0740	485	0.0740
Die Steels (H13,P20)	125	866	0.0430	673	0.0590	485	0.0740	485	0.0740
Stainless Steel (303, 304, 316)	175	1212	0.0560	943	0.0710	679	0.0870	679	0.0870
Difficult Stainless Steel (400 & PH Series)	100	693	0.0440	539	0.0590	388	0.0760	388	0.0760
High Temp. Alloys	80	554	0.0390	431	0.0540	310	0.0750	310	0.0750
Titanium (6AL4V)	60	415	0.0480	323	0.0630	232	0.0880	232	0.0880

Run UNCOATED endmills 25% less on SFM

*NOTE: Recommended Speeds & Feeds, applications may vary. These Speeds & Feeds are based on Standard & Stub LOC.

HIGH PERFORMANCE
DRILLS (INCH & METRIC)

SFM FIND RIGHT RPM = (SFM X 3.82 / DIAMETER = RPM)					
MATERIALS	EXAMPLES	SOLID		COOLANT	
		3 X SFM	5 X SFM	5 X SFM	7 X SFM
Low Carbon Steel	1018 / A36	350	350	600	550
Alloy Steel	4140 (Soft)	300	275	500	450
Alloy Steel (28-32Rc)	4140 Pre-Hard	200	175	300	275
Aluminum	6061-T6	1200	1000	1400	1400
Aircraft Aluminum	5000 / 7000	1400	1100	1600	1500
Austenetic Stainless Steel	304 / 316	200	175	325	300
High Temp Alloys	Inconel, Hastelloy, Waspelloy	180	150	225	200
Precipitation Hardened Stainless Steel	13-8 PH, 15-5 PH, 17-4 PH	200	150	225	200
Titanium	6AL4V	200	180	300	250
Gray Cast Iron	A48 Class 20 / G4000	450	400	600	550
Ductile Cast Iron	A536 / 60-40-18	350	375	550	500

NOTE: THIS IS IPR. FIND RIGHT IPM = RPM X IPR = IPM									
MATERIALS	EXAMPLES	1/32”	1/16”	1/8”	1/4”	3/8”	1/2”	5/8”	3/4”
Low Carbon Steel	1018 / A36	0.0011	0.0013	0.0020	0.0044	0.0066	0.0074	0.0082	0.0092
Alloy Steel	4140 (Soft)	0.0011	0.0013	0.0020	0.0040	0.0066	0.0074	0.0082	0.0092
Alloy Steel (28-32Rc)	4140 Pre - Hard	0.0007	0.0009	0.0012	0.0020	0.0040	0.0056	0.0064	0.0075
Aluminum	6061-T6	0.0012	0.0014	0.0021	0.0035	0.0050	0.0062	0.0082	0.0092
Aircraft Aluminum	5000 / 7000	0.0014	0.0016	0.0030	0.0044	0.0055	0.0068	0.0085	0.0100
Austenetic Stainless Steel	304 / 316	0.0011	0.0013	0.0020	0.0040	0.0066	0.0074	0.0086	0.0096
High Temp Alloys	Inconel, Hastelloy, Waspelloy	0.0007	0.0009	0.0014	0.0025	0.0050	0.0062	0.0082	0.0092
Precipitation Hardened Stainless Steel	13-8 PH, 15-5 PH, 17-4 PH	0.0007	0.0009	0.0012	0.0025	0.0040	0.0056	0.0066	0.0078
Titanium	6AL4V	0.0007	0.0009	0.0012	0.0030	0.0045	0.0060	0.0080	0.0092
Gray Cast Iron	A48 Class 20 / G4000	0.0011	0.0013	0.0020	0.0044	0.0066	0.0074	0.0086	0.0098
Ductile Cast Iron	A536 / 60-40-18	0.0009	0.0011	0.0020	0.0042	0.0063	0.0074	0.0086	0.0098

2, 3, 4 & 5 FLUTE CHAMFER MILLS (INCH)

2 AND 4 FLUTE CHAMFER MILL, STRAIGHT FLUTED, CHIMP LOAD PER TOOTH

Note: The range on the CLPT is due to the desired finish on part

WORK PIECE MATERIAL	SFM	Effective Cutter Diameter (D-EFF)							
		< .125	.125 to .187	.187 to .250	.250 to .312	.312 to .375	.375 to .500	.500 to .625	.625 to .750
Soft Steels (A36,1018, 8620,1045)	500	0.0010 / 0.0007	0.0020 / 0.0015	0.0030 / 0.0020	0.0040 / 0.0028	0.0045 / 0.0030	0.0055 / 0.0040	0.0070 / 0.0045	0.0090 / 0.0070
Alloy Steels (4340,4140)	425	0.0007 / 0.0005	0.0012 / 0.0009	0.0018 / 0.0015	0.0025 / 0.0018	0.0030 / 0.0022	0.0035 / 0.0028	0.0050 / 0.0035	0.0060 / 0.0045
4140 Pre-Hard (28 to 32Rc up to 42Rc)	350	0.0005 / 0.0003	0.0009 / 0.0006	0.0015 / 0.0010	0.0018	0.0022	0.0030	0.0045 / 0.0035	0.0045
Stainless Steel (303, 304, 316)	250	0.0005 / 0.0003	0.0009	0.0012	0.0018	0.0022	0.0028 / 0.0024	0.0035	0.0045
Difficult Stainless Steel (400 & PH Series)	200	0.0004 / 0.0003	0.0009 / 0.0007	0.0012 / 0.0010	0.0018 / 0.0012	0.0022 / 0.0018	0.0028 / 0.0020	0.0035 / 0.0028	0.0045 / 0.0035
Stainless Steel (13-8)	200	0.0004 / 0.0003	0.0009 / 0.0007	0.0012 / 0.0010	0.0018 / 0.0012	0.0022 / 0.0018	0.0028 / 0.0020	0.0035 / 0.0028	0.0045 / 0.0035
Tool Steels (A2,D2,S7)	300	0.0005 / 0.0003	0.0011 / 0.0009	0.0018 / 0.0015	0.0025 / 0.0018	0.0030 / 0.0022	0.0035 / 0.0028	0.0050 / 0.0035	0.0060 / 0.0045
Die Steels (H13,P20)	325	0.0005 / 0.0003	0.0011 / 0.0009	0.0018 / 0.0015	0.0025 / 0.0018	0.0030 / 0.0022	0.0035 / 0.0028	0.0050 / 0.0035	0.0060 / 0.0045
Gray Cast Iron/Ductile Iron	450	0.0007 / 0.0005	0.0012 / 0.0010	0.0020 / 0.0015	0.0025 / 0.0018	0.0030 / 0.0022	0.0035 / 0.0028	0.0050 / 0.0035	0.0060 / 0.0045
Titanium (6AL4V)	200	0.0004 / 0.0003	0.0009 / 0.0007	0.0012 / 0.0010	0.0018 / 0.0012	0.0022 / 0.0018	0.0028 / 0.0020	0.0035 / 0.0028	0.0045 / 0.0035
Inconel 625	175	0.0004 / 0.0003	0.0009 / 0.0007	0.0012 / 0.0010	0.0018 / 0.0012	0.0022 / 0.0018	0.0028 / 0.0020	0.0035 / 0.0028	0.0045 / 0.0035
Inconel 718	175	0.0004 / 0.0003	0.0009 / 0.0007	0.0012 / 0.0010	0.0018 / 0.0012	0.0022 / 0.0018	0.0028 / 0.0020	0.0035 / 0.0028	0.0045 / 0.0035
Aluminum (6061, 7000 Series or Max RPM)	2200	0.0009 / 0.0006	0.0018 / 0.0012	0.0026 / 0.0018	0.0035 / 0.0022	0.0045 / 0.0028	0.0055 / 0.0030	0.0070 / 0.0045	0.0090 / 0.0055
Cast Aluminum Alloy	1800	0.0012 / 0.0009	0.0025 / 0.0018	0.0040 / 0.0028	0.0050 / 0.0040	0.0060 / 0.0050	0.0080 / 0.0060	0.0100 / 0.0085	0.0130 / 0.0100
All other None Ferrous Material	600	0.0007 / 0.0005	0.0015	0.0022	0.0029	0.0035	0.0045 / 0.0035	0.0060 / 0.0050	0.007

3 AND 5 FLUTE CHAMFER MILLS, HELICAL FLUTED, CHIMP LOAD PRE TOOTH

Note: The range on the CLPT is due to the desired finish on part

WORK PIECE MATERIAL	SFM	Effective Cutter Diameter (D-EFF)							
		< .125	.125 to .187	.187 to .250	.250 to .312	.312 to .375	.375 to .500	.500 to .625	.625 to .750
Soft Steels (A36,1018, 8620,1045)	500	0.0010 / 0.0007	0.0020 / 0.0015	0.0030 / 0.0022	0.0040 / 0.0028	0.0050 / 0.0035	0.0060 / 0.0045	0.0080 / 0.0055	0.0100 / 0.0070
Alloy Steels (4340,4140)	425	0.0006 / 0.0005	0.0012 / 0.0010	0.0020 / 0.0015	0.0025 / 0.0020	0.0030 / 0.0025	0.0040 / 0.0028	0.0050 / 0.0040	0.0060 / 0.0050
4140 Pre-Hard (28 to 32Rc up to 42Rc)	350	0.0005 / 0.0003	0.0010 / 0.0007	0.0015 / 0.0010	0.0020 / 0.0012	0.0025 / 0.0018	0.0028 / 0.0020	0.0040 / 0.0028	0.0050 / 0.0035
Stainless Steel (303, 304, 316)	250	0.0005 / 0.0003	0.0009	0.0015 / 0.0012	0.0018	0.0022	0.0028	0.0035	0.0045
Difficult Stainless Steel (400 & PH Series)	200	0.0005 / 0.0003	0.0009 / 0.0007	0.0012 / 0.0010	0.0018 / 0.0015	0.0022 / 0.0018	0.0028 / 0.0020	0.0035 / 0.0028	0.0045 / 0.0035
Stainless Steel (13-8)	200	0.0005 / 0.0003	0.0009 / 0.0007	0.0012 / 0.0010	0.0018 / 0.0015	0.0022 / 0.0018	0.0028 / 0.0020	0.0035 / 0.0028	0.0045 / 0.0035
Tool Steels (A2,D2,S7)	300	0.0006 / 0.0004	0.0010	0.0018 / 0.0015	0.0022 / 0.0019	0.0028 / 0.0024	0.0035 / 0.0028	0.0045 / 0.0038	0.0055 / 0.0050
Die Steels (H13,P20)	325	0.0006 / 0.0004	0.0010	0.0018 / 0.0015	0.0022 / 0.0019	0.0028 / 0.0024	0.0035 / 0.0028	0.0045 / 0.0038	0.0055 / 0.0050
Gray Cast Iron/Ductile Iron	450	0.0007 / 0.0005	0.0015 / 0.0010	0.0020 / 0.0015	0.0028 / 0.0020	0.0035 / 0.0025	0.0040 / 0.0030	0.0055 / 0.0040	0.0070 / 0.0050
Titanium (6AL4V)	200	0.0005 / 0.0004	0.0009 / 0.0008	0.0012	0.0018 / 0.0015	0.0022 / 0.0020	0.0028 / 0.0022	0.0035 / 0.0030	0.0045 / 0.0040
Inconel 625	175	0.0005 / 0.0004	0.0009 / 0.0008	0.0012	0.0018	0.0022 / 0.0020	0.0028 / 0.0025	0.0035	0.0045 / 0.0040
Inconel 718	175	0.0005 / 0.0004	0.0009 / 0.0008	0.0012	0.0018	0.0022 / 0.0020	0.0028 / 0.0025	0.0035	0.0045 / 0.0040
Aluminum (6061, 7000 Series or Max RPM)	2200	0.0009 / 0.0006	0.0018 / 0.0012	0.0028 / 0.0018	0.0035 / 0.0022	0.0045 / 0.0030	0.0055 / 0.0035	0.0070 / 0.0045	0.0090 / 0.0060
Cast Aluminum Alloy	1800	0.0012 / 0.0011	0.0028 / 0.0020	0.0040 / 0.0028	0.0050 / 0.0045	0.0070 / 0.0055	0.0080 / 0.0060	0.0110 / 0.0085	0.0130 / 0.0110
All other None Ferrous Material	600	0.0008 / 0.0006	0.0015	0.0022	0.003	0.0040 / 0.0035	0.0045	0.006	0.0080 / 0.0070

HIGH PERFORMANCE THREADMILLS

COOLANT THRU VARIABLE HELIX/INDEX 1.5xD

RECOMMENDED SPEEDS & FEEDS FOR COOLANT THRU VARIABLE HELIX/INDEX 1.5 X DIAMETER DEEP (INCH) CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	10 -24	12 - 24	1/4 - 20	5/16 - 18	3/8 - 16	7/16 - 14	1/2 - 13	9/16 - 12
Gray Cast Iron	400	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
Ductile Iron	350	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
Soft Steels, (A36,1018,8620,1045)	600	0.0008	0.0012	0.0015	0.0018	0.0020	0.0025	0.0030	0.0039
Alloy Steels, (4340,4140)	450	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
4140 Pre-Hard (28-32 Rc)	300	0.0004	0.0007	0.0008	0.0011	0.0015	0.0018	0.0020	0.0025
Tool Steels (A2,D2,S7)	350	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
Die Steels, (H13,P20)	400	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
Stainless Steel, (303, 304, 316)	450	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
Difficult Stainless Steel, (400 & PH Series)	400	0.0004	0.0007	0.0008	0.0011	0.0015	0.0018	0.0020	0.0025
Stainless Steel (13-8)	200	0.0004	0.0007	0.0008	0.0011	0.0015	0.0018	0.0020	0.0025
High Temp. Alloys	250	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
Titanium (6AL4V)	300	0.0008	0.0012	0.0015	0.0018	0.0020	0.0024	0.0028	0.0034
Inconel 718	200	0.0004	0.0007	0.0008	0.0011	0.0015	0.0018	0.0020	0.0025
Inconel 625	200	0.0004	0.0007	0.0008	0.0011	0.0015	0.0018	0.0020	0.0025

RECOMMENDED SPEEDS & FEEDS FOR COOLANT THRU VARIABLE HELIX/INDEX 1.5 X DIAMETER DEEP (METRIC) CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	M3 x 0.5	M4 x 0.7	M5 x 0.8	M6 x 1.0	M8 x 1.25	M10 x 1.5	M12 x 1.75	M14 x 2.0	M16 x 2.0
Gray Cast Iron	400	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
Ductile Iron	350	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
Soft Steels, (A36,1018,8620,1045)	600	0.0005	0.0006	0.0010	0.0014	0.0018	0.0022	0.0028	0.0033	0.0043
Alloy Steels, (4340,4140)	450	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
4140 Pre-Hard (28-32 Rc)	300	0.0003	0.0004	0.0005	0.0007	0.0011	0.0016	0.0020	0.0022	0.0028
Tool Steels (A2,D2,S7)	350	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
Die Steels, (H13,P20)	400	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
Stainless Steel, (303, 304, 316)	450	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
Difficult Stainless Steel, (400 & PH Series)	400	0.0003	0.0004	0.0005	0.0007	0.0011	0.0016	0.0020	0.0022	0.0028
Stainless Steel (13-8)	200	0.0003	0.0004	0.0005	0.0007	0.0011	0.0016	0.0020	0.0022	0.0028
High Temp. Alloys	250	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
Titanium (6AL4V)	300	0.0005	0.0006	0.0010	0.0014	0.0018	0.0021	0.0025	0.0031	0.0039
Inconel 718	200	0.0003	0.0004	0.0005	0.0007	0.0011	0.0016	0.0020	0.0022	0.0028
Inconel 625	200	0.0003	0.0004	0.0005	0.0007	0.0011	0.0016	0.0020	0.0022	0.0028

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

SOLID VARIABLE HELIX/INDEX 2xD (INCH)

RECOMMENDED SPEEDS & FEEDS FOR SOLID VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, INCH CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	10-32	10-28	12-28	1/4-28	10-24	12-24	5/16-24	3/8-24	1/4-20	1/2-20	7/16-20
Gray Cast Iron	300	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Ductile Iron	250	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Soft Steels, (A36,1018,8620,1045)	500	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Alloy Steels, (4340,4140)	350	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
4140 Pre-Hard (28-32 Rc)	200	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
Tool Steels (A2,D2,S7)	300	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Die Steels, (H13,P20)	300	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Stainless Steel, (303, 304, 316)	375	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Difficult Stainless Steel, (400 & PH Series)	300	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
Stainless Steel (13-8)	150	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
High Temp. Alloys	200	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Titanium (6AL4V)	200	0.0005	0.0006	0.0006	0.0006	0.0007	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Inconel 718	200	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
Inconel 625	175	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011

RECOMMENDED SPEEDS & FEEDS FOR SOLID VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, INCH, CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	5/16-18	9/16-18	5/8-18	3/8-16	3/4-16	7/16-14	1/2-13	9/16-12	5/8-11	3/4-10	7/8-9	1.0- 8
Gray Cast Iron	300	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Ductile Iron	250	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Soft Steels, (A36,1018,8620,1045)	500	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Alloy Steels, (4340,4140)	350	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
4140 Pre-Hard (28-32 Rc)	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033	0.0035	0.0037
Tool Steels (A2,D2,S7)	300	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Die Steels, (H13,P20)	300	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Stainless Steel, (303, 304, 316)	375	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Difficult Stainless Steel, (400 & PH Series)	300	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033	0.0035	0.0037
Stainless Steel (13-8)	150	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033	0.0035	0.0037
High Temp. Alloys	200	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Titanium (6AL4V)	200	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044	0.0046	0.0048
Inconel 718	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033	0.0035	0.0037
Inconel 625	175	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033	0.0035	0.0037

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

HIGH PERFORMANCE THREADMILLS
SOLID VARIABLE HELIX/INDEX 2xD (METRIC)

RECOMMENDED SPEEDS & FEEDS FOR SOLID VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, METRIC, CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	M3 x 0.5	M4 x 0.5	M5 x 0.5	M4 x 0.7	M6 x .75	M5 x 0.8	M6 x 1.0	M8 x 1.0	M10 x 1.0	M12 x 1.0
Gray Cast Iron	300	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Ductile Iron	250	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Soft Steels, (A36,1018,8620,1045)	500	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Alloy Steels, (4340,4140)	350	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
4140 Pre-Hard (28-32 Rc)	200	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011
Tool Steels (A2,D2,S7)	300	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Die Steels, (H13,P20)	300	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Stainless Steel, (303, 304, 316)	375	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Difficult Stainless Steel, (400 & PH Series)	300	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011
Stainless Steel (13-8)	150	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011
High Temp. Alloys	200	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Titanium (6AL4V)	200	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018
Inconel 718	200	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011
Inconel 625	175	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011

RECOMMENDED SPEEDS & FEEDS FOR SOLID VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, METRIC, CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	M8 x 1.25	M10 x 1.25	M10 x 1.5	M12 x 1.5	M14 x 1.5	M16 x 1.5	M12 x 1.75	M14 x 2.0	M16 x 2.0	M18 x 2.5	M24 x3.0
Gray Cast Iron	300	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Ductile Iron	250	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Soft Steels, (A36,1018,8620,1045)	500	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Alloy Steels, (4340,4140)	350	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
4140 Pre-Hard (28-32 Rc)	200	0.0011	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033
Tool Steels (A2,D2,S7)	300	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Die Steels, (H13,P20)	300	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Stainless Steel, (303, 304, 316)	375	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Difficult Stainless Steel, (400 & PH Series)	300	0.0011	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033
Stainless Steel (13-8)	150	0.0011	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033
High Temp. Alloys	200	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Titanium (6AL4V)	200	0.0018	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0044
Inconel 718	200	0.0011	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033
Inconel 625	175	0.0011	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0033

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

COOLANT THRU VARIABLE HELIX/INDEX 2xD (INCH)

RECOMMENDED SPEEDS & FEEDS FOR COOLANT THRU VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, INCH (NPT), CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	10-32	12-32	12-28	1/4-28	7/16-28	10-24	12-24	5/16-24	3/8-24	9/16-24	1/4-20	7/16-20	1/2-20	3/4-20
Gray Cast Iron	400	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Ductile Iron	350	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Soft Steels, (A36,1018,8620,1045)	600	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Alloy Steels, (4340,4140)	450	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
4140 Pre-Hard (28-32 Rc)	300	0.0003	0.0003	0.0004	0.0004	0.0011	0.0005	0.0005	0.0007	0.0009	0.0016	0.0010	0.0011	0.0011	0.0020
Tool Steels (A2,D2,S7)	350	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Die Steels, (H13,P20)	400	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Stainless Steel, (303, 304, 316)	450	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Difficult Stainless Steel, (400 & PH Series)	400	0.0003	0.0003	0.0004	0.0004	0.0011	0.0005	0.0005	0.0007	0.0009	0.0016	0.0010	0.0011	0.0011	0.0020
Stainless Steel (13-8)	200	0.0003	0.0003	0.0004	0.0004	0.0011	0.0005	0.0005	0.0007	0.0009	0.0016	0.0010	0.0011	0.0011	0.0020
High Temp. Alloys	250	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Titanium (6AL4V)	300	0.0005	0.0006	0.0006	0.0006	0.0015	0.0007	0.0010	0.0014	0.0015	0.0021	0.0016	0.0018	0.0018	0.0025
Inconel 718	200	0.0003	0.0003	0.0004	0.0004	0.0011	0.0005	0.0005	0.0007	0.0009	0.0016	0.0010	0.0011	0.0011	0.0020
Inconel 625	200	0.0003	0.0003	0.0004	0.0004	0.0011	0.0005	0.0005	0.0007	0.0009	0.0016	0.0010	0.0011	0.0011	0.0020

RECOMMENDED SPEEDS & FEEDS FOR COOLANT THRU VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, INCH (NPT), CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	5/16-18	9/16-18	5/8-18	3/8-16	3/4-16	7/16-14	7/8-14	1/2-13	9/16-12	1.0-12	5/8-11	3/4-10	7/8-9	1.0- 8
Gray Cast Iron	400	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0.0044	0.0046	0.0048
Ductile Iron	350	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0.0044	0.0046	0.0048
Soft Steels, (A36,1018,8620,1045)	600	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0.0044	0.0046	0.0048
Alloy Steels, (4340,4140)	450	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0.0044	0.0046	0.0048
4140 Pre-Hard (28-32 Rc)	300	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0035	0.0022	0.0028	0.0037	0.0030	0.0033	0.0035	0.0037
Tool Steels (A2,D2,S7)	350	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0.0044	0.0046	0.0048
Die Steels, (H13,P20)	400	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0.0044	0.0046	0.0048
Stainless Steel, (303, 304, 316)	450	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0. 0044	0.0046	0.0048
Difficult Stainless Steel, (400 & PH Series)	400	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0035	0.0022	0.0028	0.0037	0.0030	0.0033	0.0035	0.0037
Stainless Steel (13-8)	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0035	0.0022	0.0028	0.0037	0.0030	0.0033	0.0035	0.0037
High Temp. Alloys	250	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0. 0044	0.0046	0.0048
Titanium (6AL4V)	300	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0046	0.0031	0.0039	0.0048	0.0041	0. 0044	0.0046	0.0048
Inconel 718	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0035	0.0022	0.0028	0.0037	0.0030	0.0033	0.0035	0.0037
Inconel 625	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0035	0.0022	0.0028	0.0037	0.0030	0.0033	0.0035	0.0037

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

HIGH PERFORMANCE THREADMILLS
COOLANT THRU VARIABLE HELIX/INDEX 2xD (METRIC)

RECOMMENDED SPEEDS & FEEDS FOR COOLANT THRU VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, METRIC (NPT), CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	M3 x 0.5	M4 x 0.5	M5 x 0.5	M4 x 0.7	M6 x .75	M5 x 0.8	M6 x 1.0	M8 x 1.0	M10 x 1.0	M12 x 1.0	M8 x 1.25
Gray Cast Iron	400	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Ductile Iron	350	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Soft Steels, (A36,1018,8620,1045)	600	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Alloy Steels, (4340,4140)	450	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
4140 Pre-Hard (28-32 Rc)	300	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
Tool Steels (A2,D2,S7)	350	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Die Steels, (H13,P20)	400	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Stainless Steel, (303, 304, 316)	450	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Difficult Stainless Steel, (400 & PH Series)	300	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
Stainless Steel (13-8)	200	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
High Temp. Alloys	250	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Titanium (6AL4V)	300	0.0005	0.0006	0.0006	0.0006	0.0008	0.0010	0.0014	0.0015	0.0016	0.0018	0.0018
Inconel 718	200	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011
Inconel 625	200	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0011

RECOMMENDED SPEEDS & FEEDS FOR COOLANT THRU VARIABLE HELIX/INDEX 2 X DIAMETER DEEP, METRIC (NPT), CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	M10 x 1.25	M10 x 1.5	M12 x 1.5	M14 x 1.5	M16 x 1.5	M12 x 1.75	M14 x 2.0	M16 x 2.0	M18 x 2.5	M20 x 2.5	M24 x3.0
Gray Cast Iron	400	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0.0044
Ductile Iron	350	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
Soft Steels, (A36,1018,8620,1045)	600	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
Alloy Steels, (4340,4140)	450	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
4140 Pre-Hard (28-32 Rc)	300	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0032	0.0033
Tool Steels (A2,D2,S7)	350	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
Die Steels, (H13,P20)	400	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
Stainless Steel, (303, 304, 316)	450	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
Difficult Stainless Steel, (400 & PH Series)	300	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0032	0.0033
Stainless Steel (13-8)	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0032	0.0033
High Temp. Alloys	250	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
Titanium (6AL4V)	300	0.0020	0.0021	0.0022	0.0023	0.0025	0.0025	0.0031	0.0039	0.0041	0.0042	0. 0044
Inconel 718	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0032	0.0033
Inconel 625	200	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0028	0.0030	0.0032	0.0033

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

SOLID VARIABLE HELIX/INDEX (NPT & NPTF)

RECOMMENDED SPEEDS & FEEDS FOR SOLID VARIABLE HELIX/INDEX, NPT & NPTF, CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	1/6-27 NPT	1/4-18 NPT	1/2-14 NPT	1-11.5 NPT	2.5-8 NPT	1/16-27 NPTF	1/4-18 NPTF	1/2- 14 NPTF	1-11.5 NPTF	2.5-8 NPTF
Gray Cast Iron	300	0.0008	0.0012	0.0020	0.0025	0.0030	0.0008	0.0012	0.0020	0.0025	0.0030
Ductile Iron	250	0.0010	0.0011	0.0018	0.0023	0.0028	0.0010	0.0011	0.0018	0.0023	0.0028
Soft Steels, (A36,1018,8620,1045)	500	0.0012	0.0021	0.0030	0.0035	0.0040	0.0012	0.0021	0.0030	0.0035	0.0040
Alloy Steels, (4340,4140)	350	0.0012	0.0021	0.0030	0.0035	0.0040	0.0012	0.0021	0.0030	0.0035	0.0040
4140 Pre-Hard (28-32 Rc)	200	0.0008	0.0012	0.0018	0.0021	0.0027	0.0008	0.0012	0.0018	0.0021	0.0027
Tool Steels (A2,D2,S7)	300	0.0012	0.0021	0.0030	0.0035	0.0040	0.0012	0.0021	0.0030	0.0035	0.0040
Die Steels, (H13,P20)	300	0.0012	0.0021	0.0030	0.0035	0.0040	0.0012	0.0021	0.0030	0.0035	0.0040
Stainless Steel, (303, 304, 316)	375	0.0012	0.0021	0.0030	0.0035	0.0040	0.0012	0.0021	0.0030	0.0035	0.0040
Difficult Stainless Steel, (400 & PH Series)	300	0.0012	0.0021	0.0030	0.0035	0.0040	0.0012	0.0021	0.0030	0.0035	0.0040
Stainless Steel (13-8)	150	0.0008	0.0012	0.0018	0.0021	0.0027	0.0008	0.0012	0.0018	0.0021	0.0027
High Temp. Alloys	200	0.0012	0.0021	0.0030	0.0035	0.0040	0.0012	0.0021	0.0030	0.0035	0.0040
Titanium (6AL4V)	200	0.0008	0.0012	0.0018	0.0021	0.0027	0.0008	0.0012	0.0018	0.0021	0.0027
Inconel 718	200	0.0008	0.0012	0.0018	0.0021	0.0027	0.0008	0.0012	0.0018	0.0021	0.0027
Inconel 625	175	0.0008	0.0012	0.0018	0.0021	0.0027	0.0008	0.0012	0.0018	0.0021	0.0027

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

HIGH PERFORMANCE THREADMILLS

PARTIAL PROFILE – SINGLE PITCH (INCH & METRIC)

RECOMMENDED SPEEDS & FEEDS FOR PARTIAL PROFILE, SINGLE PITCH, INCH & METRIC (NPT), CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	M5 / #10	M6 / #12	M8 / 5/16	M10 / 7/16	M10 / 3/8	M12 / 1/2	M13 / 9/16
Gray Cast Iron	300	0.0010	0.0013	0.0020	0.0027	0.0023	0.0027	0.0031
Ductile Iron	250	0.0010	0.0012	0.0018	0.0026	0.0021	0.0026	0.0030
Soft Steels, (A36,1018,8620,1045)	500	0.0011	0.0018	0.0022	0.0032	0.0028	0.0032	0.0032
Alloy Steels, (4340,4140)	350	0.0011	0.0018	0.0022	0.0032	0.0028	0.0032	0.0032
4140 Pre-Hard (28-32 Rc)	200	0.0008	0.0012	0.0018	0.0026	0.0021	0.0026	0.0029
Tool Steels (A2,D2,S7)	300	0.0011	0.0018	0.0022	0.0032	0.0028	0.0032	0.0032
Die Steels, (H13,P20)	300	0.0011	0.0018	0.0022	0.0032	0.0028	0.0032	0.0032
Stainless Steel, (303, 304, 316)	375	0.0010	0.0016	0.0022	0.0032	0.0028	0.0032	0.0032
Difficult Stainless Steel, (400 & PH Series)	300	0.0010	0.0015	0.0022	0.0032	0.0028	0.0032	0.0032
Stainless Steel (13-8)	150	0.0008	0.0012	0.0018	0.0027	0.0021	0.0027	0.0030
High Temp. Alloys	200	0.0010	0.0015	0.0022	0.0032	0.0028	0.0032	0.0031
Titanium (6AL4V)	200	0.0008	0.0012	0.0018	0.0026	0.0021	0.0026	0.0029
Inconel 718	200	0.0008	0.0012	0.0018	0.0026	0.0021	0.0026	0.0029
Inconel 625	175	0.0008	0.0012	0.0018	0.0026	0.0021	0.0026	0.0029

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

DEEP THREADING – SINGLE PITCH (INCH)

RECOMMENDED SPEEDS & FEEDS FOR DEEP THREADING, SINGLE PITCH, INCH, CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	1/4-20	1/4-28	5/16-18	5/16-24	3/8-16	3/8-24	7/16-14	7/16-20
Gray Cast Iron	300	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
Ductile Iron	250	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
Soft Steels, (A36,1018,8620,1045)	500	0.0010	0.0010	0.0015	0.0013	0.0018	0.0016	0.0020	0.0018
Alloy Steels, (4340,4140)	350	0.0010	0.0010	0.0015	0.0013	0.0018	0.0016	0.0020	0.0018
4140 Pre-Hard (28-32 Rc)	200	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
Tool Steels (A2,D2,S7)	300	0.0010	0.0010	0.0015	0.0013	0.0018	0.0016	0.0020	0.0018
Die Steels, (H13,P20)	300	0.0010	0.0010	0.0015	0.0013	0.0018	0.0016	0.0020	0.0018
Stainless Steel, (303, 304, 316)	375	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
Difficult Stainless Steel, (400 & PH Series)	300	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
Stainless Steel (13-8)	150	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
High Temp. Alloys	200	0.0010	0.0010	0.0015	0.0013	0.0018	0.0016	0.0020	0.0018
Titanium (6AL4V)	200	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
Inconel 718	200	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017
Inconel 625	175	0.0007	0.0007	0.0010	0.0010	0.0014	0.0013	0.0018	0.0017

RECOMMENDED SPEEDS & FEEDS FOR DEEP THREADING, SINGLE PITCH, INCH, CHIMP LOAD PER TOOTH

TOOL ENTRY SHOULD BE SET AT 60% OF THE FEED RATE. THEN GO TO 100% WHEN ENGAGED WITH MATERIAL.	SFM	1/2-13	1/2-20	9/16-12	9/16-18	5/8-11	5/8-18	3/4-10	3/4-16
Gray Cast Iron	300	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
Ductile Iron	250	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
Soft Steels, (A36,1018,8620,1045)	500	0.0022	0.0020	0.0026	0.0026	0.0031	0.0031	0.0035	0.0037
Alloy Steels, (4340,4140)	350	0.0022	0.0020	0.0026	0.0026	0.0031	0.0031	0.0035	0.0037
4140 Pre-Hard (28-32 Rc)	200	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
Tool Steels (A2,D2,S7)	300	0.0022	0.0020	0.0026	0.0026	0.0031	0.0031	0.0035	0.0037
Die Steels, (H13,P20)	300	0.0022	0.0020	0.0026	0.0026	0.0031	0.0031	0.0035	0.0037
Stainless Steel, (303, 304, 316)	375	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
Difficult Stainless Steel, (400 & PH Series)	300	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
Stainless Steel (13-8)	150	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
High Temp. Alloys	200	0.0022	0.0020	0.0026	0.0026	0.0031	0.0031	0.0035	0.0037
Titanium (6AL4V)	200	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
Inconel 718	200	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032
Inconel 625	175	0.0020	0.0018	0.0024	0.0024	0.0028	0.0029	0.0032	0.0032

If the RPM's are to high for your machine, run max RPM you are comfortable with.

Note that these Chip Loads are Chip Loads Per Tooth.

SFM should be calculated on minor diameter.

SUPER BITCHIN' PERFORMANCE

3, 4 & 5 FLUTE PICATINNY FORM CUTTERS (INCH)

3 & 4 FLUTE GROOVE CUTTERS FOR SLOTTING, SPEEDS & FEEDS CHART. CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	DIAMETER	
		0.2060	0.2100
Soft Steels (A36,1018, 8620,1045)	450	0.0010	0.0012
Alloy Steels (4340,4140)	400	0.0010	0.0012
4140 Pre-Hard (28 to 32 Rc) (Up to 42Rc)	275	0.0007	0.0008
Stainless Steel (303, 304, 316)	350	0.0010	0.0011
Difficult Stainless Steel (400 & PH Series)	325	0.0009	0.0011
Stainless Steel (13-8)	200	0.0008	0.0010
Tool Steels (A2,D2,S7)	250	0.0010	0.0011
Die Steels (H13,P20)	250	0.0010	0.0012
Gray Cast Iron / Ductile Iron	400	0.0010	0.0011
Titanium (6AL4V)	225	0.0009	0.0010
Inconel 625	150	0.0008	0.0009
Inconel 718	150	0.0008	0.0009
Aluminum (6061) (Or Max RPM)	1200	0.0024	0.0027
Aluminum (7000 Series) (Or Max RPM)	1500	0.0024	0.0027
All other None Ferrous Material	750	0.0024	0.0027

*NOTE: Recommended Speeds & Feeds, applications may vary.
Drop the RPM's by 10 to 20% on Uncoated Tools.

3, 4 & 5 FLUTE RAIL CUTTERS FOR PROFILING, SPEED & FEED CHART. CHIMP LOAD PER TOOTH

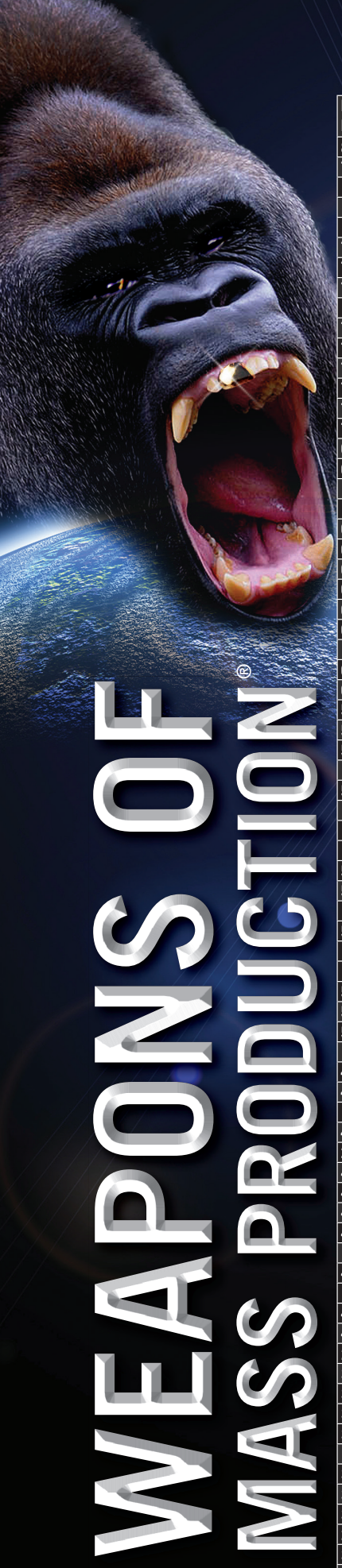
WORK PIECE MATERIAL	SFM	STEPOVER	
		50.00%	100.00%
Soft Steels (A36,1018, 8620,1045)	400	0.0017	0.0012
Alloy Steels (4340,4140)	360	0.0017	0.0012
4140 Pre-Hard (28 to 32 Rc) (Up to 42Rc)	275	0.0011	0.0008
Stainless Steel (303, 304, 316)	350	0.0015	0.0011
Difficult Stainless Steel (400 & PH Series)	325	0.0015	0.0011
Stainless Steel (13-8)	200	0.0014	0.0010
Tool Steels (A2,D2,S7)	250	0.0015	0.0011
Die Steels (H13,P20)	250	0.0017	0.0012
Gray Cast Iron / Ductile Iron	400	0.0015	0.0011
Titanium (6AL4V)	225	0.0014	0.0010
Inconel 625	150	0.0013	0.0009
Inconel 718	150	0.0013	0.0009
Aluminum (6061) (Or Max RPM)	1200	N/A	0.0030
Aluminum (7000 Series) (Or Max RPM)	1500	N/A	0.0030
All other None Ferrous Material	750	N/A	0.0030

*NOTE: Recommended Speeds & Feeds, applications may vary.
Drop the RPM's by 10 to 20% on Uncoated Tools.

5 FLUTE ATTACHMENT CUTTERS FOR PROFILING, SPEED & FEED CHART. CHIMP LOAD PER TOOTH.

WORK PIECE MATERIAL	SFM	DIAMETER (INCHES)		UP TO # OF PASSES
		1/2	5/8	
Soft Steels (A36,1018, 8620,1045)	600	0.0015	0.0019	4
Alloy Steels (4340,4140)	360	0.0015	0.0019	4
4140 Pre-Hard (28 to 32 Rc) (Up to 37Rc)	150	0.0014	0.0017	5
Stainless Steel (303, 304, 316)	450	0.0015	0.0019	4
Difficult Stainless Steel (400 & PH Series)	200	0.0009	0.0011	4
Stainless Steel (13-8)	200	0.0009	0.0011	4
Tool Steels (A2,D2,S7)	200	0.0014	0.0017	4
Die Steels (H13,P20)	200	0.0014	0.0017	4
Gray Cast Iron / Ductile Iron	400	0.0014	0.0017	4
Titanium (6AL4V)	150	0.0009	0.0011	4
Inconel 625	100	0.0009	0.0011	4
Inconel 718	100	0.0009	0.0011	4
Aluminum (6061) (Or Max RPM)	1000	0.0021	0.0024	1 or 2
Aluminum (7000 Series) (Or Max RPM)	1200	0.0021	0.0024	1 or 2
All other None Ferrous Material	600	0.0020	0.0022	1 or 2

*NOTE: Recommended Speeds & Feeds, applications may vary.
Drop the RPM's by 10 to 20% on Uncoated Tools.



WEAPONS OF MASS PRODUCTION®

Fraction or Drill Size	Decimal Equivalent	Tap Size
80	0.0135	
79	0.0145	
1/ 64	0.0156	
78	0.0160	
77	0.0180	
76	0.0200	
75	0.0210	
74	0.0225	
73	0.0240	
72	0.0250	
71	0.0260	
70	0.0280	
69	0.0292	
68	0.0310	
1/ 32	0.0313	
67	0.0320	
66	0.0330	
65	0.0350	
64	0.0360	
63	0.0370	
62	0.0380	
61	0.0390	
60	0.0400	
59	0.0410	
58	0.0420	
57	0.0430	
56	0.0465	
3/ 64	0.0469	0-80
1.25 MM	0.0492	M1.6 X .35
55	0.0520	
54	0.0550	
53	0.0595	1-64,72
1/ 16	0.0625	
1.6 MM	0.0630	M2 X .4
52	0.0635	
51	0.0670	
50	0.0700	2-56,64
49	0.0730	
48	0.0760	
5/ 64	0.0781	3-48
47	0.0785	
2.05 MM	0.0807	M2.5 X .45
46	0.0810	
45	0.0820	
44	0.0860	
43	0.0890	4-40
42	0.0935	
3/ 32	0.0937	4-48
41	0.0960	
40	0.0980	
2.5 MM	0.0984	M3 X .5
39	0.0995	
38	0.1015	5-40
37	0.1040	5-44
36	0.1065	6-32
7/ 64	0.1093	
35	0.1100	
34	0.1110	
33	0.1130	6-40
2.9 MM	0.1142	M3.5 X .6
32	0.1160	
31	0.1200	

1/8	0.1250	
30	0.1285	
3.3 MM	0.1299	M4 X .7
29	0.0136	8-32,36
28	0.1405	
9/ 64	0.1406	
27	0.1440	
3.7 MM	0.1457	M4.5 X .75
26	0.1470	10-24
25	0.1495	
24	0.1520	
23	0.1540	
5/32	0.1562	
22	0.1570	
21	0.1590	10-32
20	0.1610	
4.2 MM	0.1654	M5 X .8
19	0.1660	
18	0.1695	
11/64	0.1719	
17	0.1730	
16	0.1770	12-24
15	0.1800	12-28
14	0.1820	
13	0.1850	
3/16	0.1875	
12	0.1890	
11	0.1910	
10	0.1935	
9	0.1960	
5.0 MM	0.1969	M6 X 1.0
8	0.1990	
Fraction or Drill Size	Decimal Equivalent	Tap Size
7	0.2010	1/4-20
13/64	0.2031	
6	0.2040	
5	0.2055	
4	0.2090	
3	0.2130	1/4-28
7/32	0.2187	
2	0.2210	
1	0.2280	
A	0.2340	
15/64	0.2344	
6.0 MM	0.2362	M7 X 1.0
B	0.2380	
C	0.2420	
D	0.2460	
1/4 E	0.2500	
F	0.2570	5/16-18
G	0.2610	
17/64	0.2656	
H	0.2660	
6.8 MM	0.2677	M8 X 1.25
I	0.2720	5/16-24
J	0.2770	
K	0.2810	
9/32	0.2812	
L	0.2900	
M	0.2950	
19/64	0.2968	
N	0.3020	
5/16	0.3125	3/8-16
O	0.3160	

P	0.3230	
21/64	0.3281	
Q	0.3320	3/8-24
8.5 MM	0.3346	M10 X 1.5
R	0.3390	
11/32	0.3437	
S	0.3480	
T	0.3580	
23/64	0.3594	
U	0.3680	7/16-14
3/ 8	0.3750	
V	0.3770	
W	0.3860	
25/64	0.3906	7/16-20
X	0.3970	
10.2 MM	0.4016	M12 X 1.75
Y	0.4040	
13/32	0.4062	
Z	0.4130	
27/64	0.4219	1/2-13
7/16	0.4375	
29/64	0.4531	1/2-20
15/32	0.4687	
12 MM	0.4724	M14 X 2.0
31/64	0.4843	9/16-12
1/ 2	0.5000	
33/64	0.5156	9/16-18
17/32	0.5312	5/8-11
35/64	0.5469	
14 MM	0.5512	M16 X 2.0
9/16	0.5625	
37/64	0.5781	5/8-18
19/32	0.5937	
39/64	0.6094	
15.5 MM	0.6102	M18 X 2.5
5/ 8	0.6250	
41/64	0.6406	
21/32	0.6562	3/4-10
43/64	0.6719	
11/16	0.6875	3/4-16
17.5 MM	0.6890	M20 X 2.5
45/64	0.7031	
23/32	0.7187	
47/64	0.7344	
3/ 4	0.7500	
49/64	0.7656	7/8-9
25/32	0.7812	
51/64	0.7969	
13/16	0.8125	7/8-14
21 MM	0.8268	M24 X 3.0
53/64	0.8281	
27/32	0.8437	
55/64	0.8594	
7/ 8	0.8750	1-8
57/64	0.8906	
29/32	0.9062	
59/64	0.9219	
15/16	0.9375	1-14
61/64	0.9531	
31/32	0.9687	
63/64	0.9844	1-1/8-7
1.0	1.0000	

GORILLA MILL FAMILY TREE

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