



MaxCut Premium

Solid Carbide End Mills



MaxCut GP

General Purpose 30° Helix 10% micrograin carbide. All tools honed to improve tool life. Available Uncoated & TiALN Coated.

MaxCut HP

High Performance Variable Pitch to reduce chatter. General Purpose 10% micrograin carbide. All tools honed to improve tool life. TiALN Coated with a unique post coating polishing process to reduce built up edge. Special core & heal design to enhance rigidity.

MaxCut HP Ultra

Extreme Production Variable Pitch to reduce chatter. Ultra Premium 10% micrograin carbide. All tools honed to improve tool life. TiALN Coated with a unique post coating polishing to reduce built up edge. Special core & heal design to enhance rigidity. Experience the highest performance & tool life.

AlumiMax

Specifically designed for high performance Aluminum machining. Specially blended 45° helix for medium to finishing applications. Unique variable pitch & variable helix combined with a polished surface, chipbreaking geometry & cylindrical margin. Available Uncoated, ZrN Coated & DLC Coated.

E.M. PRECISE TOOL LTD.

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Email: info@emprecise.com | Website: www.emprecise.com

MaxCut-GP

Shank Tolerance: +0.0000"/-0.0004"
Diameter Tolerance: +0.0000"/-0.0020"

General Purpose 30 Degree Helix 10% micrograin carbide. All tools honed to improve tool life. Available Uncoated & TiALN Coated.

GENERAL PURPOSE

Square End 2, 3 & 4 Flute - Fractional	3-5
Square End 2, 3 & 4 Flute - Metric	6
Ball Nose 2, 3 & 4 Flute - Fractional	7-9
Engraving Tools	9
Spot Drills	9
Ball Nose 2 & 4 Flute - Metric	10
90 Degree Drill/Mills 2 & 4 Flute - Fractional	10
Double Ended Square End 2 & 4 Flute - Fractional	11
Double Ended Ball Nose End 2 & 4 Flute - Fractional	12

MaxCut-HP

Shank Tolerance: +0.0000"/-0.0004"
Diameter Tolerance: +0.0000"/-0.0015"

High Performance Variable Pitch to reduce chatter. General Purpose 10% micrograin carbide. All tools honed to improve tool life. TiALN Coated for enhanced heat & abrasion resistance providing higher tool life. Special core & heal design to enhance rigidity.

HP Variable Pitch

Square End & Corner Radius 4 & 5 Flute - Fractional	14-15
Ball Nose 4 Flute - Fractional	16
Long Reach Neck Relief Square & Corner Radius 4 Flute - Fractional	16-17
Long Reach Neck Relief Ball Nose 4 Flute - Fractional	16-17

MaxCut-HP-Ultra

Shank Tolerance: +0.0000"/-0.0004"
Diameter Tolerance: +0.0000"/-0.0015"

Extreme Production Variable Pitch to reduce chatter. Ultra Premium 10% micrograin carbide. All tools honed to improve tool life. TiALN Coated with a unique post coating polishing process to reduce built up edge. Special core & heal design to enhance rigidity. Experience the highest performance & tool life.

HP Ultra Variable Pitch - EXTREME PRODUCTION

Square End & Corner Radius 4 & 5 Flute - Fractional	19-20
Ball Nose 4 Flute - Fractional	21
Square & Corner Radius HEM 5, 6 & 7 Flute - Fractional	22-24

AlumiMax

Shank Tolerance: +0.0000"/-0.0004"
Diameter Tolerance: +0.0000"/-0.0004"

Specifically designed for high performance Aluminum machining. Medium/Finishing applications & Medium/Roughing applications. Unique variable pitch & variable helix combined with a polished surface, chipbreaking geometry & cylindrical margin. Available Uncoated, ZrN Coated & DLC Coated.

HP Ultra Variable Pitch for Aluminum - EXTREME PRODUCTION

Square End & Corner Radius - Fractional Medium/Roughing	27
Square End & Corner Radius - Fractional Medium/Finishing	28
Ball Nose - Fractional	29

MaxCut-GP

Speeds & Feeds

Material Classification	Speed (SFM)		Feed Per Tooth By End Mill Diameter (IPT)							
	Uncoated	TiALN	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum Alloys & Aluminum	600-1200	900-1800	.0020	.0025	.0030	.0035	.0040	.0050	.0060	.0080
Copper Alloys & Copper	350-850	525-1275	.0020	.0025	.0025	.0030	.0030	.0035	.0040	.0060
Bronze & Brass	250-400	375-600	.0020	.0025	.0025	.0030	.0030	.0035	.0040	.0050
Graphite	500-800	500-1200	.0030	.0035	.0025	.0030	.0030	.0040	.0050	.0070
Plastics	600-1100	600-1650	.0030	.0035	.0040	.0050	.0060	.0080	.0100	.0150
Softer Cast Iron	250-450	375-650	.0020	.0022	.0025	.0027	.0030	.0045	.0060	.0080
Harder Cast Iron	100-250	100-375	.0008	.0010	.0015	.0017	.0020	.0025	.0030	.0040
Ductile Iron	80-400	100-600	.0010	.0012	.0015	.0017	.0020	.0030	.0040	.0060
Malleable Iron	150-500	225-650	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0070
Low Carbon Steels (1020 & Under)	200-400	300-600	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0070
Medium Carbon Steels (1030-1060)	100-250	150-375	.0015	.0016	.0017	.0018	.0020	.0030	.0040	.0050
Alloy Steels Hardened to 35 Rc	130-230	130-345	.0010	.0011	.0012	.0013	.0015	.0017	.0020	.0030
Alloy Steels Hardened to 40-50 Rc	70-130	70-160	.0007	.0007	.0008	.0009	.0010	.0015	.0020	.0030
Die Steels Hardened to 51-60 Rc	--	--	--	--	--	--	--	--	--	--
Tool Steels	100-250	150-375	.0010	.0012	.0015	.0017	.0020	.0025	.0030	.0040
Mold Steels	200-350	300-525	.0010	.0012	.0015	.0017	.0020	.0025	.0030	.0040
Softer Stainless Steels	200-350	300-450	.0010	.0012	.0015	.0012	.0020	.0030	.0040	.0060
Harder Stainless Steels	100-200	150-300	.0005	.0006	.0007	.0008	.0010	.0020	.0030	.0050
Monel & High Nickel Steel	75-175	75-200	.0010	.0012	.0015	.0017	.0020	.0025	.0030	.0040
Softer Titanium	125-300	125-375	.0010	.0012	.0015	.0017	.0020	.0030	.0040	.0060
Harder Titanium	50-150	50-175	.0005	.0006	.0007	.0008	.0010	.0015	.0020	.0020
Nickel Based High Temp Alloys	50-100	50-125	.0008	.0008	.0009	.0009	.0010	.0012	.0015	.0020

Note: These are guidelines only & the following points are important to consider:

- Higher Feed Per Tooth should be used to start for radial depths of cut less than 25% of the tool diameter. Lower Feed Per Tooth should be used to start for radial depths of cut greater than 25% of the tool diameter.
- The above recommendations are for axial lengths of cut not to exceed 1 times the tool diameter for profiling and .5 times the diameter for full slotting.
- The above parameters are recommended starting points only. If the tool is working well, without vibrations or significant noise, increase the SFM and/or Feed Per Tooth in 5-10% increments.
- Optimum speeds & feeds will depend upon material, setup, machine conditions & tool deflection. Higher or lower parameters may be required to achieve optimum machining conditions.
- For Light Radial Depths of cut, make certain to increase the feed rate to compensate for Radial Chip Thinning Factor (RCTF). Consult a formula or app to calculate.
- For Plunging or Ramping the feed rate should be reduced by about 50%.
- Climb Milling is preferred to Conventional Milling.

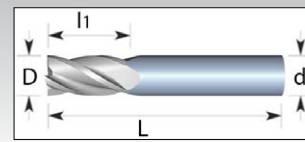
MaxCut-GP



P	●	Steel
M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S		High Temp. Alloys
H		Hardened Steel

- Square End
- 2, 3, 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional Sizes

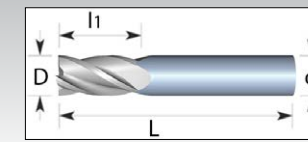
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



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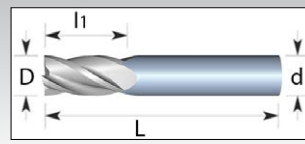


Square End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1/32	1/8	1/16 3/32	1-1/2	991000 991147	991001 991148	991002 991149	991096 991543	991097 991544	991098 991545
3/64	1/8	3/32 1/8	1-1/2	991003 991150	991004 991151	991005 991152	991099 991546	991100 991547	991101 991548
1/16	1/8	1/8 3/16	1-1/2	991006 991153	991007 991154	991008 991155	991102 991549	991103 991550	991104 991551
5/64	1/8	1/4	1-1/2	991156	991157	991158	991552	991553	991554
3/32	1/8	3/16 3/8	1-1/2	991009 991159	991010 991160	991011 991161	991105 991555	991106 991556	991107 991557
7/64	1/8	3/8	1-1/2	991166	991167	991168	991562	991563	991564
1/8	1/8	1/4	1-1/2	991015	991016	991017	991111	991112	991113
		1/2	2-1/2	991169	991170	991171	991565	991566	991567
		3/4	2-1/2	991746	--	991747	991790	--	991791
9/64	3/16	1	3	991815	--	991816	991879	--	991880
		9/16	2	991173	991174	991175	991569	991570	991571
		5/16 9/16	2	991018 991176	991019 991177	991020 991178	991114 991572	991115 991573	991116 991574
11/64	3/16	9/16	2	991179	991180	991181	991575	991576	991577
3/16	3/16	3/8	2	991021	991022	991023	991117	991118	991119
		5/8	2	991182	991183	991184	991578	991579	991580
		3/4 1-1/8	2-1/2 3	991748 991817	-- --	991749 991818	991792 991881	-- --	991793 991882
13/64	1/4	5/8	2-1/2	991186	991187	991188	991582	991583	991584
7/32	1/4	7/16 5/8	2	991024 991189	991025 991190	991026 991191	991120 991585	991121 991586	991122 991587
15/64	1/4	3/4	2-1/2	991192	991193	991194	991588	991589	991590
1/4	1/4	1/2	2	991027	991028	991029	991123	991124	991125
		3/4	2-1/2	991195	991196	991197	991591	991592	991593
		1-1/8 1-1/2	3 4	991750 991819	-- --	991751 991820	991794 991883	-- --	991795 991884
17/64	5/16	7/8	2-1/2	991199	991200	991201	991595	991596	991597
9/32	5/16	7/8	2-1/2	991202	991203	991204	991598	991599	991600
19/64	5/16	7/8	2-1/2	991205	991206	991207	991601	991602	991603
5/16	5/16	1/2	2	991030	991031	991032	991126	991127	991128
		7/8	2-1/2	991208	991209	991210	991604	991605	991606
		1-1/8 1-5/8	3 4	991752 991823	-- --	991753 991824	991796 991887	-- --	991797 991888
21/64	3/8	7/8	2-1/2	991212	991213	991214	991608	991609	991610

Square End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
11/32	3/8	7/8	2-1/2	991215	991216	991217	991611	991612	991613
23/64	3/8	7/8	2-1/2	991218	991219	991220	991614	991615	991616
3/8	3/8	5/8	2	991033	991034	991035	991129	991130	991131
		1	2-1/2	991221	991222	991223	991617	991618	991619
		1-1/8 1-3/4	3 4	991754 991829	-- --	991755 991830	991798 991893	-- --	991799 991894
25/64	7/16	1	2-1/2	991225	991226	991227	991621	991622	991623
13/32	7/16	1	2-1/2	991228	991229	991230	991624	991625	991626
27/64	7/16	1	2-1/2	991231	991232	991233	991627	991628	991629
7/16	7/16	5/8	2-1/2	991036	991037	991038	991132	991133	991134
		1	2-1/2	991234	991235	991236	991630	991631	991632
		2	4	991756	--	991757	991800	--	991801
29/64	1/2	1	3	991238	991239	991240	991634	991635	991636
15/32	1/2	1	3	991241	991242	991243	991637	991638	991639
31/64	1/2	1	3	991244	991245	991246	991640	991641	991642
1/2	1/2	5/8	2-1/2	991039	991040	991041	991135	991136	991137
		1	3	991247	991248	991249	991643	991644	991645
		1-1/4 2 3	3 4 6	-- 991758 991833	-- -- --	994001 991759 991834	-- 991802 991897	-- -- --	994000 991803 991898
33/64	9/16	1-1/4	3-1/2	991251	991252	991253	991647	991648	991649
17/32	9/16	1-1/4	3-1/2	991254	991255	991256	991650	991651	991652
35/64	9/16	1-1/4	3-1/2	991257	991258	991260	991653	991654	991655
9/16	9/16	1-1/4	3-1/2	991261	991262	991263	991656	991657	991658
37/64	5/8	1-1/4	3-1/2	991265	991266	991267	991660	991661	991662
19/32	5/8	1-1/4	3-1/2	991268	991269	991270	991663	991664	991665
39/64	5/8	1-1/4	3-1/2	991271	991272	991273	991666	991667	991668
5/8	5/8	3/4	3	991042	991043	991044	991138	991139	991140
		1-1/4	3-1/2	991274	991275	991276	991669	991670	991671
		2-1/4 3	5 6	991762 991837	-- --	991763 991838	991806 991901	-- --	991807 991902
41/64	3/4	1-1/2	4	991278	991279	991280	991673	991674	991675
21/32	3/4	1-1/2	4	991281	991282	991283	991676	991677	991678
43/64	3/4	1-1/2	4	991284	991285	991286	991679	991680	991681
11/16	3/4	1-1/2	4	991287	991288	991289	991682	991683	991684
45/64	3/4	1-1/2	4	991290	991291	991292	991685	991686	991687
23/32	3/4	1-1/2	4	991293	991294	991295	991688	991689	991690
47/64	3/4	1-1/2	4	991296	991297	991298	991691	991692	991693

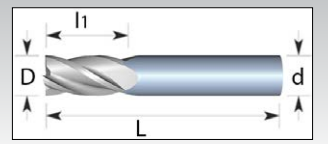
P	●	Steel
M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S		High Temp. Alloys
H		Hardened Steel

- Square End
- 2, 3, 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional & Metric
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



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Square End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
3/4	3/4	1	3	991045	991046	991047	991141	991142	991143
		1-1/2	4	991299	991300	991301	991694	991695	991696
		2-1/4	5	991764	--	991765	991808	--	991809
		3	6	991839	--	991840	991903	--	991904
49/64	7/8	1-1/2	4	991303	991304	991305	991698	991699	991700
25/32	7/8	1-1/2	4	991306	991307	991308	991701	991702	991703
51/64	7/8	1-1/2	4	991309	991310	991311	991704	991705	991706
13/16	7/8	1-1/2	4	991312	991313	991314	991707	991708	991709
53/64	7/8	1-1/2	4	991315	991316	991317	991710	991711	991712
27/32	7/8	1-1/2	4	991318	991319	991320	991713	991714	991715
55/64	7/8	1-1/2	4	991321	991322	991323	991716	991717	991718
7/8	7/8	1-1/2	4	991324	991325	991326	991719	991720	991721
57/64	1	1-1/2	4	991328	991329	991330	991723	991724	991725
29/32	1	1-1/2	4	991331	991332	991333	991726	991727	991728
59/64	1	1-1/2	4	991334	991335	991336	991729	991730	991731
15/16	1	1-1/2	4	991337	991338	991339	991732	991733	991734
61/64	1	1-1/2	4	991340	991341	991342	991735	991736	991737
31/32	1	1-1/2	4	991343	991344	991345	991738	991739	991740
63/64	1	1-1/2	4	991346	991347	991348	991741	991742	991743
1	1	1	3	991012	991013	991014	991108	991109	991110
		1-1/2	4	991162	991163	991164	991558	991559	991560
		2-1/4	5	991744	--	991745	991788	--	991789
		3	6	991810	--	991812	991875	--	991876

Square End - Metric									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
3	3	12	38	993256	993257	993258	993322	993323	993324
		25	75	993464	--	993465	993488	--	993489
		25	100	993512	--	993513	993528	--	993529
3.5	4	12	50	993259	993260	993261	993325	993326	993327
		14	50	993262	993263	993264	993328	993329	993330
4	4	25	75	993466	--	993467	993490	--	993491
		50	100	993514	--	993515	993530	--	993531
4.5	5	14	50	993265	993266	993267	993331	993332	993333
		16	50	993268	993269	993270	993334	993335	993336
5	5	25	75	993468	--	993469	993492	--	993493
		30	100	993516	--	993517	993532	--	993533
		19	63	993271	993272	993273	993337	993338	993339
6	6	25	75	993470	--	993471	993494	--	993495
		50	100	993518	--	993519	993534	--	993535
7	7	19	63	993274	993275	993276	993340	993341	993342
		19	63	993277	993278	993279	993343	993344	993345
8	8	30	100	993472	--	993473	993496	--	993497
		50	150	993520	--	993521	993536	--	993537
9	10	22	70	993280	993281	993282	993346	993347	993348
		22	70	993283	993284	993285	993349	993350	993351
10	10	38	100	993474	--	993475	993498	--	993499
		75	150	993522	--	993523	993538	--	993539
		25	70	993286	993287	993288	993352	993353	993354
12	12	25	75	993289	993290	993291	993355	993356	993357
		50	100	993476	--	993477	993500	--	993501
		75	150	993524	--	993525	993540	--	993541
14	14	30	88	993292	993293	993294	993358	993359	993360
		50	125	993478	--	993479	993502	--	993503
		75	150	993526	--	993527	993542	--	993543
16	16	32	88	993295	993296	993297	993361	993362	993363
		75	150	993480	--	993481	993504	--	993505
18	18	36	100	993298	993299	993300	993364	993365	993366
		75	150	993482	--	993483	993506	--	993507
20	20	38	100	993301	993302	993303	993367	993368	993369
		75	150	993484	--	993485	993508	--	993509
22	25	38	100	993304	993305	993306	993370	993371	993372
		38	100	993307	993308	993309	993373	993374	993375
25	25	38	100	993307	993308	993309	993373	993374	993375
		75	150	993486	--	993487	993510	--	993511

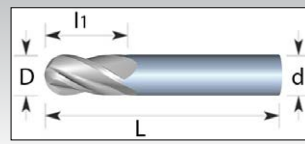


Precision Grinding with high quality surface finishes for maximum tool life!

Square End - Metric									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1	1	3	38	993244	993245	993246	993310	993311	993312
1.5	2	5	38	993247	993248	993249	993313	993314	993315
2	2	6	38	993250	993251	993252	993316	993317	993318

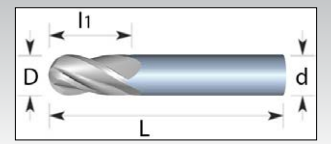
P	●	Steel
M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S		High Temp. Alloys
H		Hardened Steel

- Ball Nose End
- 2, 3, 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



P	●	Steel
M	◐	Stainless Steel
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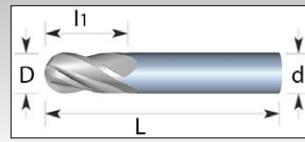
Ball Nose - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1/32	1/8	1/16 3/32	1-1/2	991907 992053	991908 992054	991909 992055	992003 992436	992004 992437	993580 992438
3/64	1/8	3/32 1/8	1-1/2	991910 992056	991911 992057	991912 992058	992005 992439	992006 992440	992007 992441
1/16	1/8	1/8 3/16	1-1/2	991913 992059	991914 992060	991915 992061	992008 992442	992009 992443	992010 992444
5/64	1/8	1/4	1-1/2	992062	992063	992064	992445	992446	992447
3/32	1/8	3/16 3/8	1-1/2	991916 992065	991917 992066	991918 992067	992011 992448	992012 992449	992013 992450
7/64	1/8	3/8	1-1/2	992071	992072	992073	992454	992455	992456
1/8	1/8	1/4	1-1/2	991922	991923	991924	992017	992018	992019
		1/2	2-1/2	992074	992075	992076	992457	992458	992459
		3/4	2-1/2	992628	--	992629	992672	--	992673
		1	3	992696	--	992697	992760	--	992761
9/64	3/16	9/16	2	992077	992078	992079	992460	992461	992462
5/32	3/16	5/16	2	991925	991926	991927	992020	992021	992022
		9/16	2	992080	992081	992082	992463	992464	992465
11/64	3/16	9/16	2	992083	992084	992085	992466	992467	992468
		3/8	2	991928	991929	991930	992023	992024	992025
		5/8	2	992086	992087	992088	992470	992471	992472
		3/4	2-1/2	992630	--	992631	992674	--	992675
3/16	3/16	1-1/8	3	992698	--	992699	992762	--	992763
		3/8	2	991928	991929	991930	992023	992024	992025
		5/8	2	992086	992087	992088	992470	992471	992472
13/64	1/4	5/8	2-1/2	992089	992090	992091	992473	992474	992475
7/32	1/4	7/16	2	991931	991932	991933	992026	992027	992028
		5/8	2-1/2	992092	992093	992094	992476	992477	992478
15/64	1/4	3/4	2-1/2	992095	992096	992097	992479	992480	992481
1/4	1/4	1/2	2	991934	991935	991936	992029	992030	992031
		3/4	2-1/2	992098	992099	992100	992482	992483	992484
		1-1/8	3	992632	--	992633	992676	--	992677
		1-1/2	4	992700	--	992701	992764	--	992765
17/64	5/16	7/8	2-1/2	992101	992102	992103	992485	992486	992487
9/32	5/16	7/8	2-1/2	992104	992105	992106	992488	992489	992490
19/64	5/16	7/8	2-1/2	992107	992108	992109	992491	992492	992493
5/16	5/16	1/2	2	991937	991938	991939	992032	992033	992034
		7/8	2-1/2	992110	992111	992112	992494	992495	992496
		1-1/8	3	992634	--	992635	992678	--	992679
		1-5/8	4	992704	--	992705	992768	--	992769

Ball Nose - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
21/64	3/8	7/8	2-1/2	992113	992114	992115	992497	992498	992499
11/32	3/8	7/8	2-1/2	992116	992117	992118	992500	992501	992502
23/64	3/8	7/8	2-1/2	992119	992120	992121	992503	992504	992505
3/8	3/8	5/8	2	991940	991941	991942	992035	992036	992037
		1	2-1/2	992122	992123	992124	992506	992507	992508
		1-1/8	3	992636	--	992637	992680	--	992681
		1-3/4	4	992710	--	992711	992774	--	992775
25/64	7/16	1	2-1/2	992125	992126	992127	992509	992510	992511
13/32	7/16	1	2-1/2	992128	992129	992130	992512	992513	992514
27/64	7/16	1	2-1/2	992131	992132	992133	992515	992516	992517
7/16	7/16	5/8	2-1/2	991943	991944	991945	992038	992039	992040
		1	2-1/2	992134	992135	992136	992518	992519	992520
		2	4	992638	--	992639	992682	--	992683
29/64	1/2	1	3	992137	992138	992139	992521	992522	992523
15/32	1/2	1	3	992140	992141	992142	992524	992525	992526
31/64	1/2	1	3	992143	992144	992145	992527	992528	992529
1/2	1/2	5/8	2-1/2	991946	991947	991948	992041	992042	992043
		1	3	992146	992147	992148	992530	992531	992532
		2	4	992640	--	992641	992684	--	992685
		3	6	992714	--	992715	992778	--	992779
33/64	9/16	1-1/4	3-1/2	992149	992150	992151	992533	992534	992535
17/32	9/16	1-1/4	3-1/2	992152	992153	992154	992536	992537	992538
35/64	9/16	1-1/4	3-1/2	992155	992156	992157	992539	992540	992541
9/16	9/16	1-1/4	3-1/2	992158	992159	992160	992542	992543	992544
37/64	5/8	1-1/4	3-1/2	992161	992162	992163	992545	992546	992547
19/32	5/8	1-1/4	3-1/2	992164	992165	992166	992548	992549	992550
39/64	5/8	1-1/4	3-1/2	992167	992168	992169	992551	992552	992553
5/8	5/8	3/4	3	991949	991950	991951	992044	992045	992046
		1-1/4	3-1/2	992170	992171	992172	992554	992555	992556
		2-1/4	5	992644	--	992645	992688	--	992689
		3	6	992718	--	992719	992782	--	992783
41/64	3/4	1-1/2	4	992173	992174	992175	992557	992558	992559
21/32	3/4	1-1/2	4	992176	992177	992178	992560	992561	992562
43/64	3/4	1-1/2	4	992179	992180	992181	992563	992564	992565
11/16	3/4	1-1/2	4	992182	992183	992184	992566	992567	992568
45/64	3/4	1-1/2	4	992185	992186	993999	992569	992570	992571
23/32	3/4	1-1/2	4	992187	992188	992189	992572	992573	992574
47/64	3/4	1-1/2	4	992190	992191	992192	992575	992576	992577

P	●	Steel
M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S		High Temp. Alloys
H		Hardened Steel

● GOOD ◐ OK ○ NOT OPTIMAL

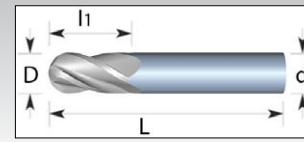
- Ball Nose End
- 2, 3, 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
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M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S		High Temp. Alloys
H		Hardened Steel

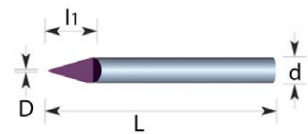
● GOOD ◐ OK ○ NOT OPTIMAL

- Ball Nose End
- 2 & 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Metric Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



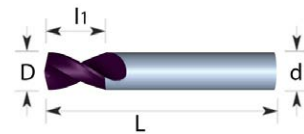
Ball Nose - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
3/4	3/4	1	3	991952	991953	991954	992047	992048	992049
		1-1/2	4	992193	992194	992195	992578	992579	992580
		2-1/4	5	992646	--	992647	992690	--	992691
		3	6	992720	--	992721	992784	--	992785
49/64	7/8	1-1/2	4	992196	992197	992198	992581	992582	992583
25/32	7/8	1-1/2	4	992199	992200	992201	992584	992585	992586
51/64	7/8	1-1/2	4	992202	992203	992204	992587	992588	992589
13/16	7/8	1-1/2	4	992205	992206	992207	992590	992591	992592
53/64	7/8	1-1/2	4	992208	992209	992210	992593	992594	992595
27/32	7/8	1-1/2	4	992211	992212	992213	992596	992597	992598
55/64	7/8	1-1/2	4	992214	992215	992216	992599	992600	992601
7/8	7/8	1-1/2	4	992217	992218	992219	992602	992603	992604
57/64	1	1-1/2	4	992220	992221	992222	992605	992606	992607
29/32	1	1-1/2	4	992223	992224	992225	992608	992609	992610
59/64	1	1-1/2	4	992226	992227	992228	992611	992612	992613
15/16	1	1-1/2	4	992229	992230	992231	992614	992615	992616
61/64	1	1-1/2	4	992232	992233	992234	992617	992618	992619
31/32	1	1-1/2	4	992235	992236	992237	992620	992621	992622
63/64	1	1-1/2	4	992238	992239	992240	992623	992624	992625
1	1	1	3	991919	991920	991921	992014	992015	992016
		1-1/2	4	992068	992069	992070	992451	992452	992453
		2-1/4	5	992626	--	992627	992670	--	992671
		3	6	992692	--	992693	992756	--	992757

Ball Nose - Metric									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1	1	3	38	993376	--	993377	993420	--	993421
1.5	2	5	38	993378	--	993379	993422	--	993423
2	2	6	38	993380	--	993381	993424	--	993425
3	3	12	38	993384	--	993385	993428	--	993429
3.5	4	12	50	993386	--	993387	993430	--	993431
4	4	14	50	993388	--	993389	993432	--	993433
4.5	5	14	50	993390	--	993391	993434	--	993435
5	5	16	50	993392	--	993393	993436	--	993437
6	6	19	63	993394	--	993395	993438	--	993439
7	7	19	63	993396	--	993397	993440	--	993441
8	8	19	63	993398	--	993399	993442	--	993443
9	9	22	70	993400	--	993401	993444	--	993445
10	10	22	70	993402	--	993403	993446	--	993447
11	11	25	70	993404	--	993405	993448	--	993449
12	12	25	75	993406	--	993407	993450	--	993451
14	14	30	88	993408	--	993409	993452	--	993453
16	16	32	88	993410	--	993411	993454	--	993455
18	18	36	100	993412	--	993413	993456	--	993457
20	20	38	100	993414	--	993415	993458	--	993459
22	25	38	100	993416	--	993417	993460	--	993461
25	25	38	100	993418	--	993419	993462	--	993463



- Engraving Tools with 30 Degree angle
- 3 tip sizes to choose from

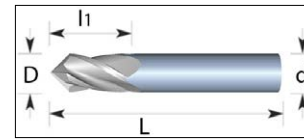
Engraving Tools				
Tip D	Shank d	LOC l1	Overall L	TiALN 1 Flute
.005	1/4	1/2	2-1/2	993998
.010	1/4	1/2	2-1/2	993581
.020	1/4	1/2	2-1/2	993582



- Allows High Performance drills to center properly without damaging their outside edge
- 145 Degree Point Carbide with honed edges

Spot Drills				
Drill D	Shank d	LOC l1	Overall L	TiALN 2 Flute
1/4	1/4	1/2	3	993583
3/8	3/8	3/4	3	993584
1/2	1/2	1	4	993585
5/8	5/8	1	4	993586
3/4	3/4	1-1/8	4	993587

- 90 Degree End
- 2 & 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Milling, Drilling
- Countersinking
- Chamfering, De-burring

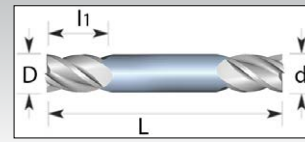


Drill/Mill 90 Degree - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1/8	1/8	1/2	1-1/2	993544	--	993545	993562	--	993563
3/16	3/16	5/8	2	993546	--	993547	993564	--	993565
1/4	1/4	3/4	2-1/2	993548	--	993549	993566	--	993567
5/16	5/16	7/8	2-1/2	993550	--	993551	993568	--	993569
3/8	3/8	1	2-1/2	993552	--	993553	993570	--	993571
7/16	7/16	1	2-3/4	993554	--	993555	993572	--	993573
1/2	1/2	1	3	993556	--	993557	993574	--	993575
5/8	5/8	1-1/4	3-1/2	993558	--	993559	993576	--	993577
3/4	3/4	1-1/2	4	993560	--	993561	993578	--	993579

P	●	Steel
M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S		High Temp. Alloys
H		Hardened Steel

● GOOD ◐ OK ○ NOT OPTIMAL

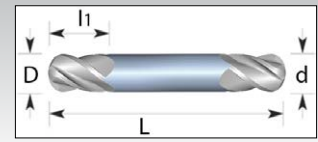
- Square End
- 2 & 4 Flute
- Double End
- 1/32-3/16 Round Shanks
- 7/32-3/4 Weldon Shanks
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



P	●	Steel
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K	●	Cast Iron
N	○	Non-Ferrous
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H		Hardened Steel

● GOOD ◐ OK ○ NOT OPTIMAL

- Ball Nose End
- 2 & 4 Flute
- Double End
- 1/32-3/16 Round Shanks
- 7/32-3/4 Weldon Shanks
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



Square Double End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1/32	1/8	1/16	1-1/2	992788	--	992789	992860	--	992861
3/64	1/8	3/32	1-1/2	992790	--	992791	992862	--	992863
1/16	1/8	1/8	1-1/2	992792	--	992793	992864	--	992865
3/32	1/8	3/16	1-1/2	992794	--	992795	992866	--	992867
7/64	1/8	7/32	1-1/2	992796	--	992797	992868	--	992869
1/8	1/8	1/4	1-1/2	992798	--	992799	992870	--	992871
5/32	3/16	5/16	2	992800	--	992801	992872	--	992873
		7/16	3	993008	--	993009	993036	--	993037
3/16	3/16	5/16	2	992802	--	992803	992874	--	992875
		1/2	3	993010	--	993011	993038	--	993039
7/32	1/4	3/8	2-1/2	992804	--	992805	992876	--	992877
		9/16	4	993012	--	993013	993040	--	993041
1/4	1/4	1/2	2-1/2	992806	--	992807	992878	--	992879
		5/8	4	993014	--	993015	993042	--	993043
9/32	5/16	1/2	2-1/2	992808	--	992809	992880	--	992881
5/16	5/16	1/2	2-1/2	992810	--	992811	992882	--	992883
		3/4	4	993016	--	993017	993044	--	993045
3/8	3/8	9/16	2-1/2	992812	--	992813	992884	--	992885
		3/4	4	993020	--	993021	993048	--	993049
7/16	1/2	9/16	2-3/4	992814	--	992815	992886	--	992887
		7/8	4	993022	--	993023	993050	--	993051
1/2	1/2	5/8	3	992816	--	992817	992888	--	992889
		1	4	993024	--	993025	993052	--	993053
9/16	5/8	11/16	3-1/2	992818	--	992819	992890	--	992891
5/8	5/8	11/16	3-1/2	992820	--	992821	992892	--	992893
		1-1/2	6	993028	--	993029	993056	--	993057
3/4	3/4	7/8	4	992822	--	992823	992894	--	992895
		1-1/2	6	993030	--	993031	993058	--	993059

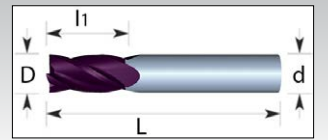
Ball Nose Double End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1/32	1/8	1/16	1-1/2	992896	--	992897	992968	--	992969
3/64	1/8	3/32	1-1/2	992898	--	992899	992970	--	992971
1/16	1/8	1/8	1-1/2	992900	--	992901	992972	--	992973
3/32	1/8	3/16	1-1/2	992902	--	992903	992974	--	992975
7/64	1/8	7/32	1-1/2	992904	--	992905	992976	--	992977
1/8	1/8	1/4	1-1/2	992906	--	992907	992978	--	992979
5/32	3/16	5/16	2	992908	--	992909	992980	--	992981
		7/16	3	993064	--	993065	993092	--	993093
3/16	3/16	5/16	2	992910	--	992911	992982	--	992983
		1/2	3	993066	--	993067	993094	--	993095
7/32	1/4	3/8	2-1/2	992912	--	992913	992984	--	992985
		9/16	4	993068	--	993069	993096	--	993097
1/4	1/4	1/2	2-1/2	992914	--	992915	992986	--	992987
		5/8	4	993070	--	993071	993098	--	993099
9/32	5/16	1/2	2-1/2	992916	--	992917	992988	--	992989
5/16	5/16	1/2	2-1/2	992918	--	992919	992990	--	992991
		3/4	4	993072	--	993073	993100	--	993101
3/8	3/8	9/16	2-1/2	992920	--	992921	992992	--	992993
		3/4	4	993076	--	993077	993104	--	993105
7/16	1/2	9/16	2-3/4	992922	--	992923	992994	--	992995
		7/8	4	993078	--	993079	993106	--	993107
1/2	1/2	5/8	3	992924	--	992925	992996	--	992997
		1	4	993080	--	993081	993108	--	993109
9/16	5/8	11/16	3-1/2	992926	--	992927	992998	--	992999
5/8	5/8	11/16	3-1/2	992928	--	992929	993000	--	993001
		1-1/2	6	993084	--	993085	993112	--	993113
3/4	3/4	7/8	4	992930	--	992931	993002	--	993003
		1-1/2	6	993086	--	993087	993114	--	993115

Material Classification		Speed	Feed Per Tooth By End Mill Diameter (IPT)							
		SFM	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum Alloys & Aluminum	N	900-1800	.0025	.0030	.0035	.0040	.0045	.0055	.0065	.0085
Copper Alloys & Copper		525-1275	.0025	.0030	.0030	.0035	.0035	.0040	.0045	.0065
Bronze & Brass		375-600	.0025	.0030	.0030	.0035	.0035	.0040	.0045	.0055
Graphite		--	--	--	--	--	--	--	--	--
Plastics		--	--	--	--	--	--	--	--	--
Softer Cast Iron	K	375-650	.0025	.0027	.0030	.0032	.0035	.0040	.0065	.0085
Harder Cast Iron		100-375	.0013	.0015	.0020	.0022	.0025	.0030	.0035	.0045
Ductile Iron		100-600	.0015	.0017	.0020	.0022	.0025	.0035	.0045	.0065
Malleable Iron		225-650	.0015	.0020	.0025	.0030	.0035	.0045	.0055	.0075
Low Carbon Steels (1020 & Under)	P	300-600	.0015	.0020	.0025	.0030	.0035	.0045	.0055	.0075
Medium Carbon Steels (1030-1060)		150-375	.0020	.0021	.0022	.0023	.0025	.0035	.0045	.0055
Alloy Steels Hardened to 35 Rc		130-345	.0015	.0016	.0017	.0018	.0020	.0022	.0025	.0035
Alloy Steels Hardened to 40-50 Rc		70-160	.0012	.0012	.0013	.0014	.0015	.0020	.0025	.0035
Die Steels Hardened to 51-60 Rc		--	--	--	--	--	--	--	--	--
Tool Steels		150-375	.0015	.0017	.0020	.0022	.0025	.0030	.0035	.0045
Mold Steels	300-525	.0015	.0017	.0020	.0022	.0025	.0030	.0035	.0045	
Softer Stainless Steels	M	300-450	.0015	.0017	.0020	.0017	.0025	.0035	.0045	.0065
Harder Stainless Steels		150-300	.0010	.0011	.0012	.0013	.0015	.0025	.0035	.0055
Monel & High Nickel Steel	S	75-200	.0015	.0017	.0020	.0021	.0025	.0030	.0035	.0045
Softer Titanium		125-375	.0015	.0017	.0020	.0021	.0025	.0035	.0045	.0065
Harder Titanium		50-175	.0010	.0011	.0012	.0012	.0014	.0017	.0022	.0023
Nickel Based High Temp Alloys		50-125	.0013	.0012	.0011	.0011	.0014	.0015	.0017	.0023

P	●	Steel
M	○	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	○	High Temp. Alloys
H	●	Hardened Steel

● BETTER ○ OK ○ NOT OPTIMAL

- Square & Corner Radius End
- 4 Flute TiAlN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- High Performance
- Micrograin Carbide
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



Square & Corner Radius End - Fractional								
Cutter D	Shank d	LOC l1	Overall L	End Face	TiAlN			
					4 Flute Round Shank	4 Flute Weldon Shank	5 Flute Round Shank	
1/8	1/8	1/2	1-1/2	SQ	884000	--	--	
		1/2	1-1/2	.010"R	884001	--	--	
3/16	3/16	3/8	2	SQ	881147	--	--	
		3/8	2	.015"R	881148	--	--	
		5/8	2	SQ	881004	--	--	
		5/8	2	.015"R	881005	--	--	
		3/4	2-1/2	SQ	881053	--	--	
		3/4	2-1/2	.015"R	881054	--	--	
1/4	1/4	1-1/8	3	SQ	881132	--	--	
		1-1/8	3	.015"R	884003	--	--	
		3/8	2	SQ	881149	--	--	
		3/8	2	.015"R	881150	--	--	
		3/4	2-1/2	SQ	881006	881030	884011	
		3/4	2-1/2	.020"R	881007	881031	884012	
		1-1/8	3	SQ	881055	881078	884025	
		1-1/8	3	.020"R	881056	881079	884026	
		1-1/2	4	SQ	881133	--	884039	
		1-1/2	4	.020"R	884004	--	884040	
5/16	5/16	3/8	2	SQ	881151	--	--	
		3/8	2	.020"R	881152	--	--	
		13/16	2-1/2	SQ	881008	881032	884013	
		13/16	2-1/2	.020"R	881009	881033	884014	
		1-1/8	3	SQ	881057	881080	884027	
		1-1/8	3	.020"R	881058	881081	884028	
		1-5/8	4	SQ	881134	--	884041	
		1-5/8	4	.020"R	884005	--	884042	
3/8	3/8	1/2	2	SQ	881153	--	--	
		1/2	2	.020"R	881154	--	--	
		7/8	2-1/2	SQ	881010	881034	884015	
		7/8	2-1/2	.020"R	881011	881035	884016	
		1-1/8	3	SQ	881059	881082	884029	
		1-1/8	3	.020"R	881060	881083	884030	
		1-3/4	4	SQ	881135	--	884043	
		1-3/4	4	.020"R	884006	--	884044	
7/16	7/16	1	2-3/4	SQ	881013	881036	--	
		2	4	SQ	881061	881084	--	
1/2	1/2	5/8	2-1/2	SQ	881155	881161	--	
		5/8	2-1/2	.030"R	881156	881162	--	
		1-1/4	3	SQ	881014	881037	884017	
		1-1/4	3	.015"R	881015	881038	--	
		1-1/4	3	.030"R	881016	881039	884018	
		1-1/4	3	.060"R	881017	881040	--	

Note: These are guidelines only & the following points are important to consider:

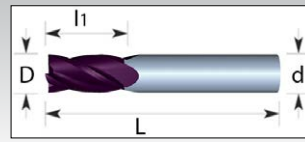
- Higher Feed Per Tooth should be used to start for radial depths of cut less than 25% of the tool diameter.
- The above recommendations are for axial lengths of cut not to exceed 1.25 times the tool diameter for profiling and .75 times the diameter for full slotting.
- The above parameters are recommended starting points only. If the tool is working well, without vibrations or significant noise, increase the SFM and/or Feed Per Tooth in 5-10% increments.
- Optimum speeds & feeds will depend upon material, setup, machine conditions & tool deflection. Higher or lower parameters may be required to achieve optimum machining conditions.
- For Light Radial Depths of cut, make certain to increase the feed rate to compensate for Radial Chip Thinning Factor (RCTF). Consult a formula or app to calculate.
- For Plunging or Ramping the feed rate should be reduced by about 50%.
- Climb Milling is preferred to Conventional Milling.



MaxCut-HP

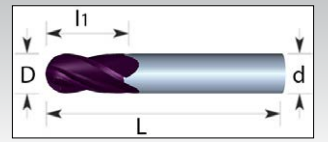
P	●	Steel
M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	○	High Temp. Alloys
H	■	Hardened Steel

- Square & Corner Radius End
- 4 Flute TiAlN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- High Performance
- Micrograin Carbide
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



P	●	Steel
M	◐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	○	High Temp. Alloys
H	■	Hardened Steel

- Ball Nose End
- 4 Flute TiAlN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- High Performance
- Micrograin Carbide
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



Square & Corner Radius End - Fractional							
Cutter D	Shank d	LOC l1	Overall L	End Face	TiAlN		
					4 Flute Round Shank	4 Flute Weldon Shank	5 Flute Round Shank
1/2	1/2	2	4	SQ	881062	881085	884031
		2	4	.015"R	881063	881086	--
		2	4	.030"R	881064	881087	884032
		2	4	.060"R	881065	881088	--
		3	6	SQ	881136	--	884045
		3	6	.030"R	884007	--	884046
5/8	5/8	3/4	3	SQ	881157	881163	--
		3/4	3	.030"R	881158	881164	--
		1-1/4	3-1/2	SQ	881018	881041	884019
		1-1/4	3-1/2	.030"R	881019	881042	884020
		1-1/4	3-1/2	.060"R	881020	881043	--
		1-1/4	3-1/2	.125"R	881021	881044	--
		2-1/4	5	SQ	881066	881089	884033
		2-1/4	5	.030"R	881067	881090	884034
		2-1/4	5	.060"R	881068	881091	--
		2-1/4	5	.125"R	881069	881092	--
		3	6	SQ	881137	--	884047
		3	6	.030"R	884008	--	884048
3/4	3/4	1	3	SQ	881159	881165	--
		1	3	.030"R	881160	881166	--
		1-1/2	4	SQ	881022	881045	884021
		1-1/2	4	.030"R	881023	881046	884022
		1-1/2	4	.060"R	881024	881047	--
		1-1/2	4	.125"R	881025	881048	--
		2-1/4	5	SQ	881070	881093	884035
		2-1/4	5	.030"R	881071	881094	884036
		2-1/4	5	.060"R	881072	881095	--
		2-1/4	5	.125"R	881073	881096	--
		3	6	SQ	881138	--	884049
		3	6	.030"R	884009	--	884050
1	1	1-1/2	4	SQ	881000	881026	884051
		1-1/2	4	.030"R	881001	881027	884010
		1-1/2	4	.060"R	881002	881028	--
		1-1/2	4	.125"R	881003	881029	--
		2-1/4	5	SQ	881049	881074	884023
		2-1/4	5	.030"R	881049	881075	884024
		2-1/4	5	.060"R	881051	881076	--
		2-1/4	5	.125"R	881052	881077	--
		3	6	SQ	881131	--	884037
		3	6	.030"R	884002	--	884038

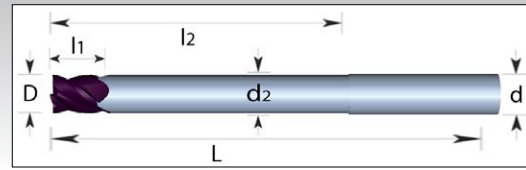
Ball Nose - Fractional							
Cutter D	Shank d	LOC l1	Overall L	End Face	TiAlN		
					4 Flute Round Shank	4 Flute Weldon Shank	
3/16	3/16	5/8	2	BN	881098	--	
		3/4	2-1/2	BN	881115	--	
		1-1/8	3	BN	881140	--	
1/4	1/4	3/4	2-1/2	BN	881099	881107	
		1-1/8	3	BN	881116	881124	
		1-1/2	4	BN	881141	--	
5/16	5/16	13/16	2-1/2	BN	881100	881108	
		1-1/8	3	BN	881117	881125	
		1-5/8	4	BN	881142	--	
3/8	3/8	7/8	2-1/2	BN	881101	881109	
		1-1/8	3	BN	881118	881126	
		1-3/4	4	BN	881143	--	
7/16	7/16	1	2-3/4	BN	881102	881110	
		2	4	BN	881119	881127	
		3	6	BN	881144	--	
1/2	1/2	1	3	BN	881103	881111	
		2	4	BN	881120	881128	
		3	6	BN	881144	--	
5/8	5/8	1-1/4	3-1/2	BN	881104	881112	
		2-1/4	5	BN	881121	881129	
		3	6	BN	881145	--	
3/4	3/4	1-1/2	4	BN	881105	881113	
		2-1/4	5	BN	881122	881130	
		3	6	BN	881146	--	
1	1	1-1/2	4	BN	881097	881106	
		2-1/4	5	BN	881114	881123	
		3	6	BN	881139	--	

Long Reach Neck Relief - Fractional							
Cutter D	Shank d	Neck d2	LOC l1	L.B.S l2	Overall L	End Face	TiAlN
							4 Flute Round Shank
3/16	3/16	.1775	3/8	2-1/2	4	SQ	881173
		.1775	3/8	2-1/2	4	.015"R	881174
		.1775	3/8	2-1/2	4	BN	881174
1/4	1/4	.2400	3/8	2-1/2	4	SQ	881175
		.2400	3/8	2-1/2	4	.015"R	881176
		.2400	3/8	2-1/2	4	BN	881199

P	●	Steel
M	○	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	○	High Temp. Alloys
H	○	Hardened Steel

● BETTER ○ OK ○ NOT OPTIMAL

- Long Reach & Neck Relieved
- Same design features as all MaxCut-HP End Mills
- Square, Corner Radius & Ball Nose
- 4 Flute TiALN Coated
- Center Cutting, Fractional Sizes
- Long Reach with side wall clearance



Long Reach Neck Relief - Fractional							
Cutter D	Shank d	Neck d2	LOC l1	L.B.S l2	Overall L	End Face	TiALN 4 Flute Round Shank
5/16	5/16	.3025	7/16	2-1/2	4	SQ	881177
		.3025	7/16	2-1/2	4	.015"R	881178
		.3025	7/16	2-1/2	4	BN	881200
3/8	3/8	.3650	1/2	2-1/2	4	SQ	881179
		.3650	1/2	2-1/2	4	.015"R	881180
		.3650	1/2	2-1/2	4	BN	881201
1/2	1/2	.4800	5/8	3	5	SQ	881181
		.4800	5/8	3	5	.020"R	881182
		.4800	5/8	3	5	BN	881202
		.4800	5/8	4	6	SQ	881184
		.4800	5/8	4	6	.020"R	881183
		.4800	5/8	4	6	BN	881203
5/8	5/8	.6050	3/4	3	5	SQ	881185
		.6050	3/4	3	5	.020"R	881186
		.6050	3/4	3	5	BN	881204
		.6050	3/4	4	6	SQ	881188
		.6050	3/4	4	6	.020"R	881187
		.6050	3/4	4	6	BN	881205
3/4	3/4	.7300	1	3	5	SQ	881189
		.7300	1	3	5	.020"R	881190
		.7300	1	3	5	BN	881206
		.7300	1	4	6	SQ	881193
		.7300	1	4	6	.020"R	881191
		.7300	1	4	6	BN	881207
		.7300	1	5	7	SQ	881194
		.7300	1	5	7	.020"R	881192
1	1	.9800	1-1/4	3	5	SQ	881167
		.9800	1-1/4	3	5	.020"R	881168
		.9800	1-1/4	3	5	BN	881195
		.9800	1-1/4	4	6	SQ	881171
		.9800	1-1/4	4	6	.020"R	881169
		.9800	1-1/4	4	6	BN	881196
		.9800	1-1/4	5	7	SQ	881172
		.9800	1-1/4	5	7	.020"R	881170
.9800	1-1/4	5	7	BN	881197		



MaxCut-HP-Ultra Speeds & Feeds

Material Classification	Speed SFM	Feed Per Tooth By End Mill Diameter (IPT)								
		1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"	
Aluminum Alloys & Aluminum	900-1800	.0025	.0030	.0035	.0040	.0045	.0055	.0065	.0085	
Copper Alloys & Copper	525-1275	.0025	.0030	.0030	.0035	.0035	.0040	.0045	.0065	
Bronze & Brass	375-600	.0025	.0030	.0030	.0035	.0035	.0040	.0045	.0055	
Graphite	--	--	--	--	--	--	--	--	--	
Plastics	--	--	--	--	--	--	--	--	--	
Softer Cast Iron	375-650	.0030	.0032	.0035	.0037	.0040	.0045	.0070	.0090	
Harder Cast Iron	100-375	.0018	.0020	.0025	.0027	.0030	.0035	.0040	.0050	
Ductile Iron	100-600	.0020	.0022	.0025	.0027	.0030	.0040	.0050	.0070	
Malleable Iron	225-650	.0020	.0025	.0030	.0035	.0040	.0050	.0060	.0080	
Low Carbon Steels (1020 & Under)	300-600	.0020	.0025	.0030	.0035	.0040	.0050	.0060	.0080	
Medium Carbon Steels (1030-1060)	150-375	.0025	.0026	.0027	.0028	.0030	.0040	.0050	.0060	
Alloy Steels Hardened to 35 Rc	130-345	.0020	.0021	.0022	.0023	.0025	.0027	.0030	.0040	
Alloy Steels Hardened to 40-50 Rc	70-160	.0012	.0012	.0013	.0014	.0015	.0026	.0030	.0035	
Die Steels Hardened to 51-60 Rc	--	--	--	--	--	--	--	--	--	
Tool Steels	150-375	.0020	.0022	.0025	.0027	.0030	.0035	.0040	.0050	
Mold Steels	300-525	.0020	.0022	.0025	.0027	.0030	.0035	.0040	.0050	
Softer Stainless Steels	300-450	.0020	.0022	.0025	.0022	.0030	.0040	.0050	.0070	
Harder Stainless Steels	150-300	.0015	.0016	.0017	.0018	.0020	.0030	.0040	.0060	
Monel & High Nickel Steel	75-200	.0015	.0022	.0025	.0027	.0030	.0035	.0040	.0050	
Softer Titanium	125-375	.0015	.0022	.0025	.0027	.0030	.0040	.0050	.0070	
Harder Titanium	50-175	.0010	.0016	.0017	.0018	.0020	.0022	.0026	.0030	
Nickel Based High Temp Alloys	50-125	.0014	.0014	.0015	.0016	.0017	.0018	.0020	.0023	

Note: These are guidelines only & the following points are important to consider:

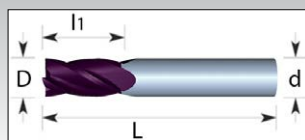
- Higher Feed Per Tooth should be used to start for radial depths of cut less than 25% of the tool diameter.
- The above recommendations are for axial lengths of cut not to exceed 1.5 times the tool diameter for profiling and 1 times the diameter for full slotting.
- The above parameters are recommended starting points only. If the tool is working well, without vibrations or significant noise, increase the SFM and/or Feed Per Tooth in 5-10% increments.
- Optimum speeds & feeds will depend upon material, setup, machine conditions & tool deflection. Higher or lower parameters may be required to achieve optimum machining conditions.
- For Light Radial Depths of cut, make certain to increase the feed rate to compensate for Radial Chip Thinning Factor (RCTF). Consult a formula or app to calculate.
- For Plunging or Ramping the feed rate should be reduced by about 50%.
- Climb Milling is preferred to Conventional Milling.

MaxCut-HP-Ultra



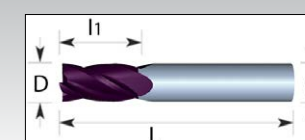
P	●	Steel
M	●	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	●	High Temp. Alloys
H	●	Hardened Steel

- Square & Corner Radius End
- 4 & 5 Flute TiALN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- Extreme Production
- Unique Polishing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin Carbide



P	●	Steel
M	●	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	●	High Temp. Alloys
H	●	Hardened Steel

- Square & Corner Radius End
- 4 & 5 Flute TiALN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- Extreme Production
- Unique Polishing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin Carbide

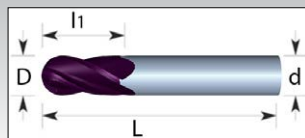


Square & Corner Radius End - Fractional								
Cutter D	Shank d	LOC li	Overall L	End Face	TiALN			
					4 Flute Round Shank	4 Flute Weldon Shank	5 Flute Round Shank	
1/8	1/8	1/2	1-1/2	SQ	771006	--	--	
		1/2	1-1/2	.010"R	771007	--	--	
3/16	3/16	3/8	2	SQ	771175	--	--	
		3/8	2	.015"R	771176	--	--	
		5/8	2	SQ	771008	--	--	
		5/8	2	.015"R	771009	--	--	
		3/4	2-1/2	SQ	771079	--	--	
		3/4	2-1/2	.015"R	771080	--	--	
		1-1/8	3	SQ	771159	--	--	
		1-1/8	3	.015"R	774001	--	--	
		3/8	2	SQ	771177	--	--	
		3/8	2	.015"R	771178	--	--	
1/4	1/4	3/4	2-1/2	SQ	771010	771051	771013	
		3/4	2-1/2	.020"R	771012	771053	771014	
		1-1/8	3	SQ	771081	771104	774010	
		1-1/8	3	.020"R	771082	771105	774011	
		1-1/2	4	SQ	771160	--	774024	
		1-1/2	4	.020"R	774002	--	774025	
		3/8	2	SQ	771179	--	--	
		3/8	2	.020"R	771180	--	--	
5/16	5/16	13/16	2-1/2	SQ	771015	771054	771017	
		13/16	2-1/2	.020"R	771016	771055	771018	
		1-1/8	3	SQ	771083	771106	774012	
		1-1/8	3	.020"R	771084	771107	774013	
		1-5/8	4	SQ	771161	--	774026	
		1-5/8	4	.020"R	774003	--	774027	
		1/2	2	SQ	771181	--	--	
1/2	2	.020"R	771182	--	--			
3/8	3/8	7/8	2-1/2	SQ	771019	771056	771023	
		7/8	2-1/2	.020"R	771021	771058	771024	
		7/8	2-1/2	.030"R	771022	771059	--	
		1-1/8	3	SQ	771085	771108	774014	
		1-1/8	3	.020"R	771086	771109	774015	
		1-3/4	4	SQ	771162	--	774028	
		1-3/4	4	.020"R	774004	--	774029	
		7/16	7/16	1	2-3/4	SQ	771026	771060
7/16	7/16	2	4	SQ	771087	771110		
1/2	1/2	5/8	2-1/2	SQ	771183	771189	--	
		5/8	2-1/2	.030"R	771184	771190	--	
		1-1/4	3	SQ	771027	771061	771031	
		1-1/4	3	.015"R	771028	771062	--	
		1-1/4	3	.030"R	771029	771063	771032	
		1-1/4	3	.060"R	771030	771064	--	

Square & Corner Radius End - Fractional								
Cutter D	Shank d	LOC li	Overall L	End Face	TiALN			
					4 Flute Round Shank	4 Flute Weldon Shank	5 Flute Round Shank	
1/2	1/2	2	4	SQ	771088	771111	774016	
		2	4	.015"R	771089	771112	--	
		2	4	.030"R	771090	771113	774017	
		2	4	.060"R	771091	771114	--	
		3	6	SQ	771163	--	774030	
		3	6	.030"R	774005	--	774031	
		3/4	3	SQ	771185	771191	--	
		3/4	3	.030"R	771186	771192	--	
		1-1/4	3-1/2	SQ	771033	771065	771037	
		1-1/4	3-1/2	.030"R	771034	771066	771038	
5/8	5/8	1-1/4	3-1/2	.060"R	771035	771067	--	
		1-1/4	3-1/2	.125"R	771036	771068	--	
		2-1/4	5	SQ	771092	771115	774018	
		2-1/4	5	.030"R	771093	771116	774019	
		2-1/4	5	.060"R	771094	771117	--	
		2-1/4	5	.125"R	771095	771118	--	
		3	6	SQ	771164	--	774032	
		3	6	.030"R	774006	--	774033	
		1	3	SQ	771187	771193	--	
		1	3	.030"R	771188	771194	--	
3/4	3/4	1-1/2	4	SQ	771039	771069	771043	
		1-1/2	4	.030"R	771040	771071	771044	
		1-1/2	4	.060"R	771041	771072	--	
		1-1/2	4	.125"R	771042	771073	--	
		2-1/4	5	SQ	771096	771119	774020	
		2-1/4	5	.030"R	771097	771120	774021	
		2-1/4	5	.060"R	771098	771121	--	
		2-1/4	5	.125"R	771099	771122	--	
		3	6	SQ	771165	--	774034	
		3	6	.030"R	774007	--	774035	
1	1	1-1/2	4	SQ	771000	771045	771004	
		1-1/2	4	.030"R	771001	771046	771005	
		1-1/2	4	.060"R	771002	771047	--	
		1-1/2	4	.125"R	771003	771048	--	
		2-1/4	5	SQ	771074	771100	774008	
		2-1/4	5	.030"R	771075	771101	774009	
		2-1/4	5	.060"R	771076	771102	--	
		2-1/4	5	.125"R	771077	771103	--	
		3	6	SQ	771158	--	774022	
		3	6	.030"R	774000	--	774023	

P	●	Steel
M	●	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	●	High Temp. Alloys
H	○	Hardened Steel
●	BEST	○ OK ○ NOT OPTIMAL

- Ball Nose End
- 4 Flute TiALN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- Extreme Production
- Unique Honing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin Carbide



Ball Nose - Fractional						TiALN	
Cutter D	Shank d	LOC l1	Overall L	End Face		4 Flute Round Shank	4 Flute Weldon Shank
		5/8	2	BN		771125	--
3/16	3/16	3/4	2-1/2	BN		771142	--
		1-1/8	3	BN		771168	--
1/4	1/4	3/4	2-1/2	BN		771126	771134
		1-1/2	4	BN		771143	771151
		1-1/2	4	BN		771169	--
5/16	5/16	13/16	2-1/2	BN		771127	771135
		1-1/8	3	BN		771144	771152
		1-5/8	4	BN		771170	--
		7/8	2-1/2	BN		771128	771136
3/8	3/8	1-1/8	3	BN		771145	771153
		1-3/4	4	BN		771171	--
7/16	7/16	1	2-3/4	BN		771129	771137
		2	4	BN		771146	771154
1/2	1/2	1	3	BN		771130	771138
		2	4	BN		771147	771155
		3	6	BN		771172	--
5/8	5/8	1-1/4	3-1/2	BN		771131	771139
		2-1/4	5	BN		771148	771156
		3	6	BN		771173	--
3/4	3/4	1-1/2	4	BN		771132	771140
		2-1/4	5	BN		771149	771157
		3	6	BN		771174	--
1	1	1-1/2	4	BN		771123	771133
		2-1/4	5	BN		771141	771150
		3	6	BN		771166	--

A Complete Range Of Tools For High Efficiency Milling (HEM), Dynamic And Trochoidal Milling

- Square & Corner Radius End
- 5, 6 & 7 Flute ALL4 Coated
- Variable Pitch, Reduces Chatter
- Round Shanks
- Center Cutting, Fractional Sizes
- Trochoidal & Dynamic Milling

P	●	Steel
M	●	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	●	High Temp. Alloys
H	○	Hardened Steel
●	BEST	○ OK ○ NOT OPTIMAL

- HEM (High Efficiency Milling)
- Chipbreakers Available
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin Carbide

Finisher



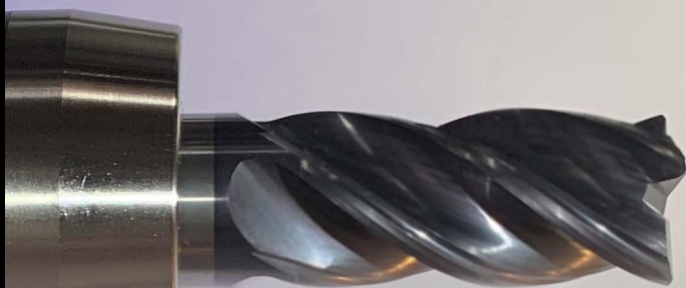
Chipbreaker



NEW!

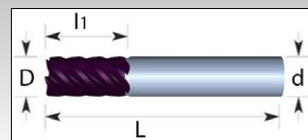
Use On-Size Hydraulic Holders, Precision Collet Chucks, Milling chucks, or Shrink Fit Holders for best tool performance!

MaxCut-HP-Ultra



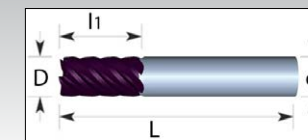
P	●	Steel
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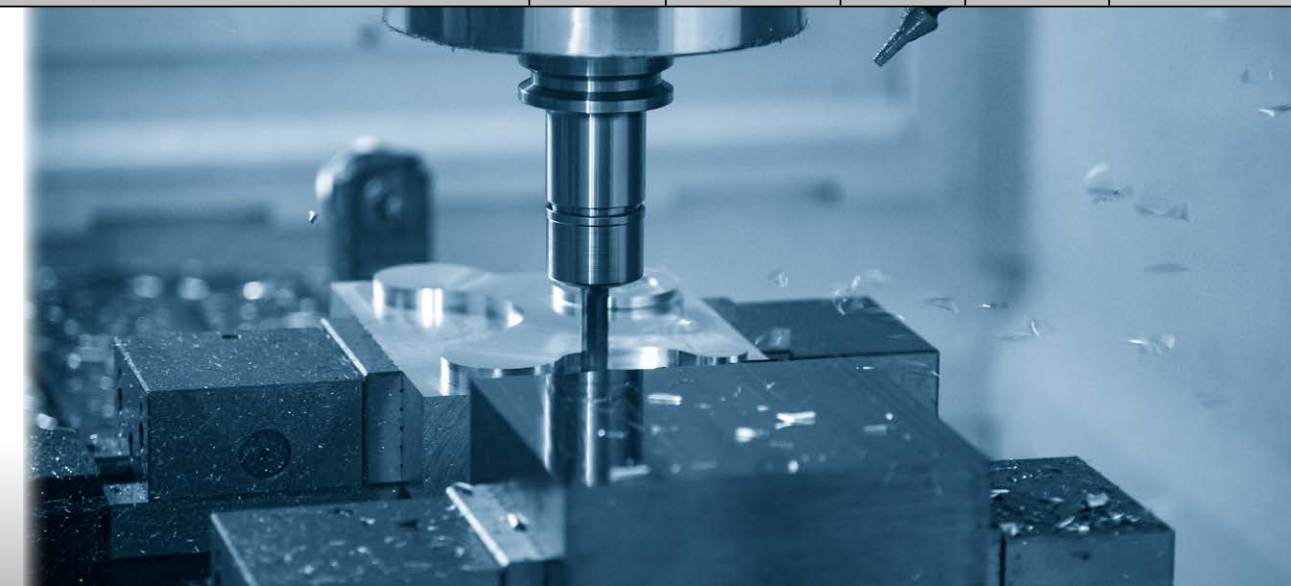
P	●	Steel
M	●	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	●	High Temp. Alloys
H	⊖	Hardened Steel

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HEM Square & Corner Radius End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	End Face	ALL4				
					5 Flute	5 Flute Chipbreaker	6 Flute	7 Flute	7 Flute Chipbreaker
1/4	1/4	3/4	2-1/2	SQ	774036	--	771198	--	--
		3/4	2-1/2	.015CR	774037	--	--	--	--
		3/4	2-1/2	.030CR	774038	--	771199	--	--
		1-1/8	3	SQ	774039	--	--	--	--
		1-1/8	3	.015CR	774040	--	--	--	--
		1-1/8	3	.030CR	774041	--	--	--	--
5/16	5/16	13/16	2-1/2	SQ	774042	--	--	--	--
		13/16	2-1/2	.015CR	774043	--	--	--	--
		13/16	2-1/2	.030CR	774044	--	--	--	--
		1-1/4	3	SQ	774045	--	--	--	--
		1-1/4	3	.015CR	774046	--	--	--	--
		1-1/4	3	.030CR	774047	--	--	--	--
		2-1/8	4	SQ	774048	--	--	--	--
		2-1/8	4	.015CR	774049	--	--	--	--
3/8	3/8	1	2-1/2	SQ	774051	774066	771200	774060	774075
		1	2-1/2	.015CR	774052	774067	--	774061	774076
		1	2-1/2	.030CR	774053	774068	771201	774062	774077
		1-1/4	3	SQ	774054	774069	--	774063	774078
		1-1/4	3	.015CR	774055	774070	--	774064	774079
		1-1/4	3	.030CR	774056	774071	--	774065	774080
		2-1/8	4	SQ	774057	774072	--	--	--
		2-1/8	4	.015CR	774058	774073	--	--	--
		2-1/8	4	.030CR	774059	774074	--	--	--
		1/2	1/2	1-1/4	3	SQ	774081	774112	771202
1-1/4	3			.015CR	774082	774113	--	774097	774129
1-1/4	3			.030CR	773999	774114	771203	774098	774130
1-1/4	3			.060CR	774083	774115	--	774099	--
2-1/8	4			SQ	774084	774116	--	774100	774131
2-1/8	4			.015CR	774085	774117	--	774101	774132
2-1/8	4			.030CR	774086	774118	--	774102	774133
2-1/8	4			.060CR	774087	774119	--	774103	--
2-5/8	5			SQ	774088	774120	--	774104	774134
2-5/8	5			.015CR	774089	774121	--	774105	774135
2-5/8	5			.030CR	774090	774122	--	774106	774136
2-5/8	5			.060CR	774091	774123	--	774107	--
3-1/4	6			SQ	774092	774124	--	774108	774137
3-1/4	6			.015CR	774093	774125	--	774109	774138
3-1/4	6			.030CR	774094	774126	--	774110	774139
3-1/4	6			.060CR	774095	774127	--	774111	--

HEM Square & Corner Radius End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	End Face	ALL4				
					5 Flute	5 Flute Chipbreaker	6 Flute	7 Flute	7 Flute Chipbreaker
5/8	5/8	1-1/2	3-1/2	SQ	774140	774158	771205	774149	774167
		1-1/2	3-1/2	.030CR	774141	774159	771206	774150	774168
		1-1/2	3-1/2	.060CR	774142	774160	--	774151	--
		2-1/2	5	SQ	774143	774161	--	774152	774169
		2-1/2	5	.030CR	774144	774162	--	774153	774170
		2-1/2	5	.060CR	774145	774163	--	774154	--
		3-1/4	6	SQ	774146	774164	--	774155	774171
		3-1/4	6	.030CR	774147	774165	--	774156	774172
		3-1/4	6	.060CR	774148	774166	--	774157	--
		3/4	3/4	1-1/2	4	SQ	774173	774191	771208
1-1/2	4			.030CR	774174	774192	771209	774183	774198
1-1/2	4			.060CR	774175	--	--	774184	--
2-1/2	5			SQ	774176	774193	--	774185	774199
2-1/2	5			.030CR	774177	774194	--	774186	774200
2-1/2	5			.060CR	774178	--	--	774187	--
3-1/4	6			SQ	774179	774195	--	774188	774201
3-1/4	6			.030CR	774180	774196	--	774189	774202
3-1/4	6			.060CR	774181	--	--	774190	--
1	1			1-1/2	4	SQ	774203	774221	771195
		1-1/2	4	.030CR	774204	774222	771196	774213	774228
		1-1/2	4	.060CR	774205	--	--	774214	--
		2-5/8	5	SQ	774206	774223	--	774215	774229
		2-5/8	5	.030CR	774207	774224	--	774216	774230
		2-5/8	5	.060CR	774208	--	--	774217	--
		3-1/4	6	SQ	774209	774225	--	774218	774231
		3-1/4	6	.030CR	774210	774226	--	774219	774232
		3-1/4	6	.060CR	774211	--	--	774220	--



MaxCut-HP-Ultra HEM Speeds & Feeds

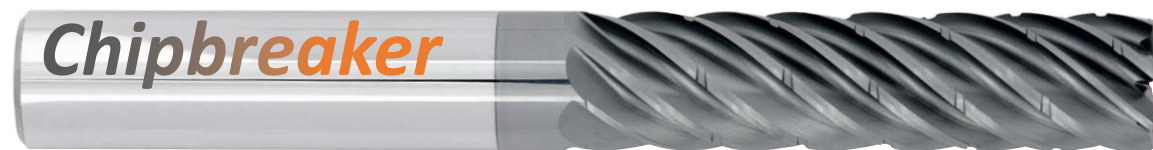
Material Classification	Speed SFM	Feed Per Tooth By End Mill Diameter (IPT)								
		1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"	
Softer Cast Iron	K	375-950	.0030	.0032	.0035	.0037	.0040	.0045	.0070	.0090
Harder Cast Iron		150-475	.0018	.0020	.0025	.0027	.0030	.0035	.0040	.0050
Ductile Iron		200-900	.0020	.0022	.0025	.0027	.0030	.0040	.0050	.0070
Malleable Iron		275-850	.0020	.0025	.0030	.0035	.0040	.0050	.0060	.0080
Low Carbon Steels (1020 & Under)	P	350-900	.0020	.0025	.0030	.0035	.0040	.0050	.0060	.0080
Medium Carbon Steels (1030-1060)		200-675	.0025	.0026	.0027	.0028	.0030	.0040	.0050	.0060
Alloy Steels Hardened to 35 Rc		190-545	.0020	.0021	.0022	.0023	.0025	.0027	.0030	.0040
Alloy Steels Hardened to 40-50 Rc		90-275	.0012	.0012	.0013	.0014	.0015	.0026	.0030	.0035
Die Steels Hardened to 51-60 Rc		--	--	--	--	--	--	--	--	
Tool Steels	M	175-525	.0020	.0022	.0025	.0027	.0030	.0035	.0040	.0050
Mold Steels		300-725	.0020	.0022	.0025	.0027	.0030	.0035	.0040	.0050
Softer Stainless Steels	S	300-520	.0020	.0022	.0025	.0022	.0030	.0040	.0050	.0070
Harder Stainless Steels		150-475	.0015	.0016	.0017	.0018	.0020	.0030	.0040	.0060
Monel & High Nickel Steel	S	75-250	.0015	.0022	.0025	.0027	.0030	.0035	.0040	.0050
Softer Titanium		125-425	.0015	.0022	.0025	.0027	.0030	.0040	.0050	.0070
Harder Titanium		50-195	.0010	.0016	.0017	.0018	.0020	.0022	.0026	.0030
Nickel Based High Temp Alloys		50-175	.0014	.0014	.0015	.0016	.0017	.0018	.0020	.0023

Note: These are guidelines only & the following points are important to consider:

- High Efficiency Milling (HEM) utilizes high axial depths of cut with low radial depths of cut. Make certain to increase the programmed feed rate to compensate for Radial Chip Thinning Factor (RCTF). Consult a formula or app to calculate.
- The above parameters are recommended starting points only. If the tool is working well, without vibrations or significant noise, increase the SFM and/or Feed Per Tooth in 5-10% increments.
- Optimum speeds & feeds will depend upon material, setup, machine conditions & tool deflection. Higher or lower parameters may be required to achieve optimum machining conditions.
- For Plunging or Ramping the feed rate should be reduced by about 50%.
- Climb Milling is preferred to Conventional Milling.



- Finisher design provides the best surface finish
- Use when chip management isn't an issue such as periphery milling applications



- Chipbreaker design allows for chip size management
- With managed chip sizes, chip augers and conveyors are kept clean
- Chips are easily flushed or blown away from being re-cut & damaging the tool
- Excellent for slotting & pocketing applications

MaxCut Premium Carbide Custom Order

End Face:

- Square
- Ball Nose
- Corner Radius Size: _____
- Chamfer Size: _____

Dimensions:

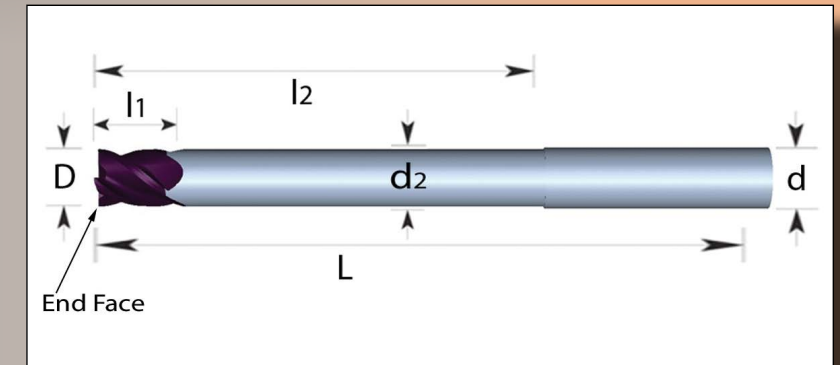
- L - Overall Length (OAL): _____
- d - Shank Diameter: _____
- l₁ - Length of Cut (LOC): _____
- D - Tool Diameter: _____
- Number of Flutes: _____

Shank:

- Round
- Weldon Flat

Coating:

- Uncoated
- TiALN (Titanium Aluminum Nitride)
- ZrN (Zirconium Nitride)
- DLC (Diamond Like Carbon)



Neck Relief: Optional

- No
- Yes
- d₂ - Neck Relief Diameter: _____
- l₂ - Length below Shank (LBS): _____

Tapered:

- No
- Yes
- Taper Angle Per Side: _____
- D - Tip Diameter: _____

Special Minimum Order Quantities

Tool Diameter Range	Minimum Order Qty.
Under 3/16" (4mm)	Not Available
3/16"-1/4" (4mm-6mm)	20
5/16"-3/8" (7mm-10mm)	15
7/16"-1/2" (11mm-12mm)	10
9/16"-3/4" (13mm-20mm)	5
7/8"-1" (25mm)	3

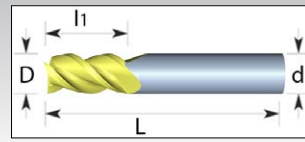
Series:

- MaxCut-GP
- MaxCut-HP
- MaxCut-HP-Ultra
- AlumiMax



P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High Temp. Alloys
H	Hardened Steel

- Square & Corner Radius End
- 3 Flute Uncoated & ZrN
- Variable Pitch, Reduces Chatter
- Round Shanks, Center Cutting
- With or Without Chipbreakers
- Fractional Sizes
- 36 Degree Helix
- Unique Polishing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin Carbide

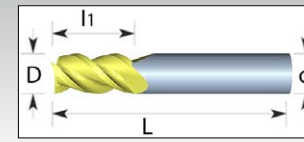


Square & Corner Radius - 3 Flute Medium/Roughing

Cutter D	Shank d	LOC l1	Overall L	End Face	Uncoated		ZrN	
					3 Flute	Chipbreaker	3 Flute	Chipbreaker
1/4	1/4	3/4	2-1/2	SQ	661344	--	661395	--
		3/4	2-1/2	.015CR	661345	--	661396	--
		3/4	2-1/2	.030CR	661347	--	--	--
		3/4	2-1/2	.060CR	661348	--	--	--
5/16	5/16	13/16	2-1/2	SQ	661350	--	661399	--
		13/16	2-1/2	.030CR	661351	--	661400	--
		13/16	2-1/2	.060CR	661352	--	--	--
		1	2-1/2	SQ	661353	--	661401	--
3/8	3/8	1	2-1/2	.030CR	661354	661356	661402	661403
		1	2-1/2	.060CR	661355	--	--	--
		1-1/8	3	SQ	661357	--	661404	--
		1-1/8	3	.030CR	661358	661359	661405	661406
		1-1/4	3	SQ	661360	--	661407	--
		1-1/4	3	.030CR	661361	661365	661408	661409
1/2	1/2	1-1/4	3	.060CR	661362	--	--	--
		1-1/4	3	.090CR	661363	--	--	--
		1-1/4	3	.120CR	661364	--	--	--
		2	4	SQ	661366	--	661410	--
		2	4	.030CR	661367	661368	661411	661412
		1-1/4	3-1/2	SQ	661369	--	661413	--
5/8	5/8	1-1/4	3-1/2	.030CR	661370	661374	661414	661415
		1-1/4	3-1/2	.060CR	661371	--	--	--
		1-1/4	3-1/2	.090CR	661372	--	--	--
		1-1/4	3-1/2	.120CR	661373	--	--	--
		2-1/4	5	SQ	661375	--	661416	--
		2-1/4	5	.030CR	661376	661377	661417	661418
3/4	3/4	1-5/8	4	SQ	661378	--	661419	--
		1-5/8	4	.030CR	661379	661383	661420	661421
		1-5/8	4	.060CR	661380	--	--	--
		1-5/8	4	.090CR	661381	--	--	--
		1-5/8	4	.120CR	661382	--	--	--
		2-1/4	5	SQ	661384	--	661422	--
1	1	2-1/4	5	.030CR	661385	661386	661423	661424
		1-1/2	4	SQ	661387	--	661425	--
		1-1/2	4	.030CR	661388	661391	661426	661427
		1-1/2	4	.060CR	661389	--	--	--
		1-1/2	4	.120CR	661390	--	--	--
		2-1/4	5	SQ	661392	--	661428	--
2-1/4	5	.030CR	661393	661394	661429	661430		

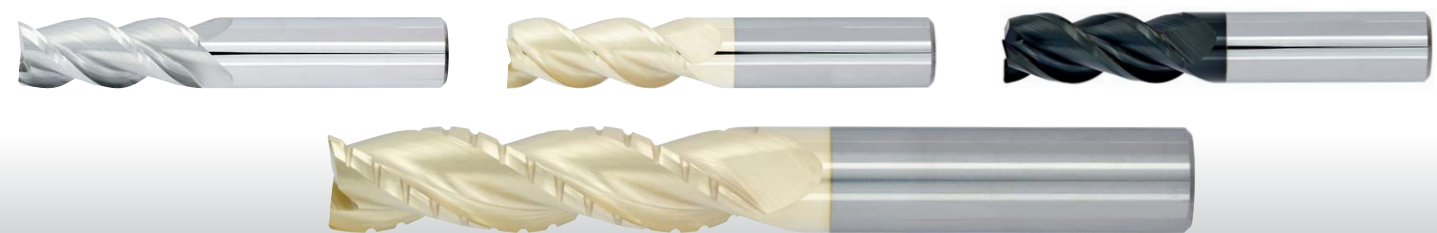
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High Temp. Alloys
H	Hardened Steel

- Square & Corner Radius End
- 2 & 3 Flute Uncoated, ZrN & DLC
- Variable Pitch, Reduces Chatter
- Round Shanks
- Center Cutting
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- Unique Polishing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin Carbide



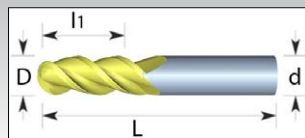
Square & Corner Radius - 2 & 3 Flute Medium/Finishing

Cutter D	Shank d	LOC l1	Overall L	End Face	Uncoated		ZrN		DLC	
					2 Flute	3 Flute	2 Flute	3 Flute	2 Flute	3 Flute
1/8	1/8	1/2	1-1/2	SQ	661118	661119	--	--	--	--
3/16	3/16	5/8	2	SQ	661120	661122	661004	661006	661234	661236
		3/4	2-1/2	SQ	661152	661153	661036	661037	--	--
1/4	1/4	1-1/8	3	SQ	661200	661201	661084	661085	--	--
		3/4	2-1/2	SQ	661123	661125	661007	661009	661237	661239
		3/4	2-1/2	.020"R	661124	661126	661008	661010	661238	661240
		1-1/8	3	SQ	661154	661155	661038	661039	--	--
5/16	5/16	1-1/2	4	SQ	661202	661203	661086	661087	--	--
		13/16	2-1/2	SQ	661128	661130	661012	661014	661242	661244
		13/16	2-1/2	.020"R	661129	661132	661013	661016	661243	661246
		1-1/8	3	SQ	661156	661157	661040	661041	--	--
		1-5/8	4	SQ	661204	661205	661088	661089	--	--
		1	2-1/2	SQ	661134	661136	661018	661020	661248	661250
3/8	3/8	1	2-1/2	.020"R	661135	661137	661019	661021	661249	661251
		1-1/8	3	SQ	661158	661159	661042	661043	--	--
		1-3/4	4	SQ	661206	661207	661090	661091	--	--
1/2	1/2	1-1/4	3	SQ	661138	661140	661022	661024	661252	661254
		1-1/4	3	.030"R	661139	661141	661023	661025	661253	661255
		2	4	SQ	661160	661161	661044	661045	--	--
5/8	5/8	3	6	SQ	661208	661209	661092	661093	--	--
		1-1/4	3-1/2	SQ	661142	661144	661026	661028	661256	661258
		1-1/4	3-1/2	.030"R	661143	661145	661027	661029	661257	661259
		2-1/4	5	SQ	661162	661163	661046	661047	--	--
3/4	3/4	3	6	SQ	661210	661211	661094	661095	--	--
		1-1/2	4	SQ	661146	661148	661030	661032	661260	661262
		1-1/2	4	.030"R	661147	661149	661031	661033	661261	661263
1	1	2-1/4	5	SQ	661164	661165	661048	661049	--	--
		3	6	SQ	661212	661213	661096	661097	--	--
		1-1/2	4	SQ	661114	661116	661000	661002	661230	661232
		1-1/2	4	.030"R	661115	661117	661001	661003	661231	661233
1	1	2-1/4	5	SQ	661150	661151	661034	661035	--	--
		3	6	SQ	661198	661199	661082	661083	--	--

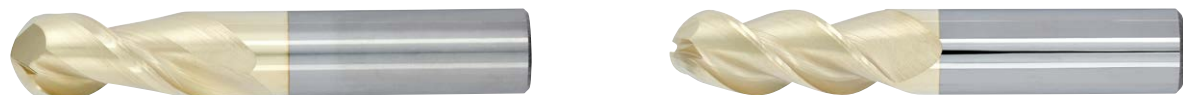


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M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High Temp. Alloys
H	Hardened Steel

- Ball Nose End
- 2 & 3 Flute Uncoated & ZrN
- Variable Pitch, Reduces Chatter
- Round Shanks
- Center Cutting
- Fractional Sizes
- Extreme Production
- Unique Polishing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin Carbide



Ball Nose - Fractional									
Cutter D	Shank d	LOC l1	Overall L	End Face	Uncoated		ZrN		
					2 Flute	3 Flute	2 Flute	3 Flute	
3/16	3/16	5/8	2	BN	661168	661169	661052	661053	
		3/4	2-1/2	BN	661184	661185	661068	661069	
		1-1/8	3	BN	661216	661217	661100	661101	
1/4	1/4	3/4	2-1/2	BN	661170	661171	661054	661055	
		1-1/8	3	BN	661186	661187	661070	661071	
		1-1/2	4	BN	661218	661219	661102	661103	
5/16	5/16	13/16	2-1/2	BN	661172	661173	661056	661057	
		1-1/8	3	BN	661188	661189	661072	661073	
		1-5/8	4	BN	661220	661221	661104	661105	
3/8	3/8	1	2-1/2	BN	661174	661175	661058	661059	
		1-1/8	3	BN	661190	661191	661074	661075	
		1-3/4	4	BN	661222	661223	661106	661107	
1/2	1/2	1-1/4	3	BN	661176	661177	661060	661061	
		2	4	BN	661192	661193	661076	661077	
		3	6	BN	661224	661225	661108	661109	
5/8	5/8	1-1/4	3-1/2	BN	661178	661179	661062	661063	
		2-1/4	5	BN	661194	661195	661078	661079	
		3	6	BN	661226	661227	661110	661111	
3/4	3/4	1-1/2	4	BN	661180	661181	661064	661065	
		2-1/4	5	BN	661196	661197	661080	661081	
		3	6	BN	661228	661229	661112	661113	
1	1	1-1/2	4	BN	661166	661167	661050	661051	
		2-1/4	5	BN	661182	661183	661066	661067	
		3	6	BN	661214	661215	661098	661099	



AlumiMax		Speeds & Feeds							
Material Classification	Speed SFM	Feed Per Tooth By End Mill Diameter (IPT)							
		1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum Alloys & Aluminum	900-1800	.0030	.0035	.0040	.0045	.0050	.0060	.0070	.0090
Copper Alloys & Copper	525-1275	.0030	.0035	.0035	.0040	.0040	.0045	.0050	.0070
Bronze & Brass	375-600	.0030	.0035	.0035	.0040	.0040	.0045	.0050	.0060
Graphite	500-1200	.0040	.0045	.0045	.0045	.0045	.0050	.0060	.0080
Plastics	600-1650	.0040	.0045	.0050	.0060	.0070	.0090	.0110	.0160
Softer Cast Iron	--	--	--	--	--	--	--	--	--
Harder Cast Iron	--	--	--	--	--	--	--	--	--
Ductile Iron	--	--	--	--	--	--	--	--	--
Malleable Iron	--	--	--	--	--	--	--	--	--
Low Carbon Steels (1020 & Under)	--	--	--	--	--	--	--	--	--
Medium Carbon Steels (1030-1060)	--	--	--	--	--	--	--	--	--
Alloy Steels Hardened to 35 Rc	--	--	--	--	--	--	--	--	--
Alloy Steels Hardened to 50 Rc	--	--	--	--	--	--	--	--	--
Die Steels Hardened to 60 Rc	--	--	--	--	--	--	--	--	--
Tool Steels	--	--	--	--	--	--	--	--	--
Mold Steels	--	--	--	--	--	--	--	--	--
Softer Stainless Steels	--	--	--	--	--	--	--	--	--
Harder Stainless Steels	--	--	--	--	--	--	--	--	--
Monel & High Nickel Steel	--	--	--	--	--	--	--	--	--
Softer Titanium	--	--	--	--	--	--	--	--	--
Harder Titanium	--	--	--	--	--	--	--	--	--
Nickel Based High Temp Alloys	--	--	--	--	--	--	--	--	--

Note: These are guidelines only & the following points are important to consider:

- Higher Feed Per Tooth should be used to start for radial depths of cut less than 25% of the tool diameter.
- The above recommendations are for axial lengths of cut not to exceed 1.5 times the tool diameter for profiling and 1 times the diameter for full slotting.
- The above parameters are recommended starting points only. If the tool is working well, without vibrations or significant noise, increase the SFM and/or Feed Per Tooth in 5-10% increments.
- Optimum speeds & feeds will depend upon material, setup, machine conditions & tool deflection. Higher or lower parameters may be required to achieve optimum machining conditions.
- For Light Radial Depths of cut, make certain to increase the feed rate to compensate for Radial Chip Thinning Factor (RCTF). Consult a formula or app to calculate.
- For Plunging or Ramping the feed rate should be reduced by about 50%.
- Climb Milling is preferred to Conventional Milling.

AlumiMax



MaxCut Premium Carbide



E.M. PRECISE TOOL Ltd.

CUTTING TOOLS • PRECISION TOOLS • COOLANTS

216A Arvin Avenue Stoney Creek, Ontario, Canada L8E 2L8

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