



BUCKEYE

SAWS & TOOLS



SOLID CARBIDE END MILLS

2024-2025

Precision Carbide

General Purpose

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	5-6
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

High Performance

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

Ultra High Performance

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

Ultra HP Aluminum

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

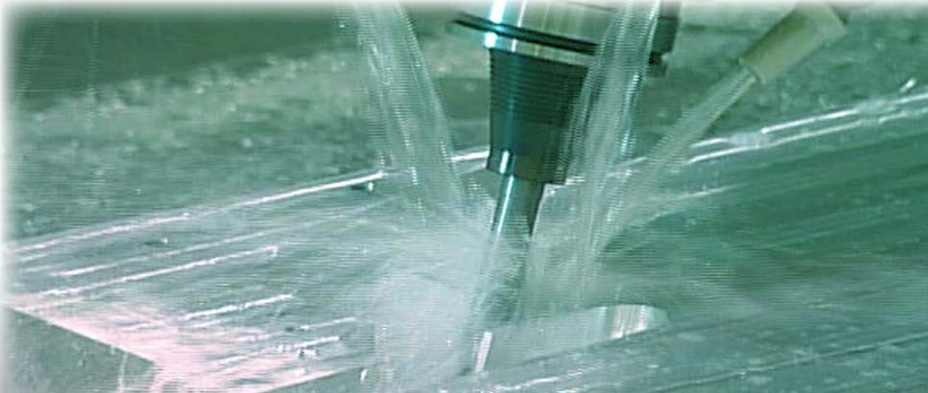
Square End & Corner Radius - Fractional Medium/Roughing	27
Square End & Corner Radius - Fractional Medium/Finishing	28
Ball Nose - Fractional	29

General Purpose 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

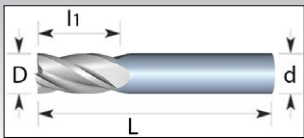
Note: These are guidelines only & the following points are important to consider:

- 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.



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

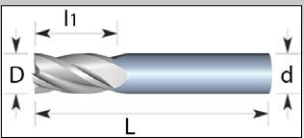
- Square End
- 2, 3, 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



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	1-1/2	BST-45213	BST-45214	BST-45215	BST-45261	BST-45262	BST-45263
		3/32		BST-45309	BST-45310	BST-45311	BST-45498	BST-45499	BST-45500
3/64	1/8	3/32	1-1/2	BST-45216	BST-45217	BST-45218	BST-45264	BST-45265	BST-45266
		1/8		BST-45312	BST-45313	BST-45314	BST-45501	BST-45502	BST-45503
1/16	1/8	1/8	1-1/2	BST-45219	BST-45220	BST-45221	BST-45267	BST-45268	BST-45269
		3/16		BST-45315	BST-45316	BST-45317	BST-45504	BST-45505	BST-45506
5/64	1/8	1/4	1-1/2	BST-45318	BST-45319	BST-45320	BST-45507	BST-45508	BST-45509
3/32	1/8	3/16	1-1/2	BST-45222	BST-45223	BST-45224	BST-45270	BST-45271	BST-45272
		3/8		BST-45321	BST-45322	BST-45323	BST-45510	BST-45511	BST-45512
7/64	1/8	3/8	1-1/2	BST-45327	BST-45328	BST-45329	BST-45516	BST-45517	BST-45518
1/8	1/8	1/4	1-1/2	BST-45228	BST-45229	BST-45230	BST-45276	BST-45277	BST-45278
		1/2		BST-45330	BST-45331	BST-45332	BST-45519	BST-45520	BST-45521
		3/4	2-1/2	BST-45689	--	BST-45690	BST-45711	--	BST-45712
		1		BST-45736	--	BST-45737	BST-45768	--	BST-45769
9/64	3/16	9/16	2	BST-45333	BST-45334	BST-45335	BST-45522	BST-45523	BST-45524
5/32	3/16	5/16	2	BST-45231	BST-45232	BST-45233	BST-45279	BST-45280	BST-45281
		9/16		BST-45336	BST-45337	BST-45338	BST-45525	BST-45526	BST-45527
11/64	3/16	9/16	2	BST-45339	BST-45340	BST-45341	BST-45528	BST-45529	BST-45530
3/16	3/16	3/8	2	BST-45234	BST-45235	BST-45236	BST-45282	BST-45283	BST-45284
		5/8		BST-45342	BST-45343	BST-45344	BST-45531	BST-45532	BST-45533
		3/4	2-1/2	BST-45691	--	BST-45692	BST-45713	--	BST-45714
		1-1/8		BST-45738	--	BST-45739	BST-45770	--	BST-45771
13/64	1/4	5/8	2-1/2	BST-45345	BST-45346	BST-45347	BST-45534	BST-45535	BST-45536
7/32	1/4	7/16	2	BST-45237	BST-45238	BST-45239	BST-45285	BST-45286	BST-45287
		5/8	2-1/2	BST-45348	BST-45349	BST-45350	BST-45537	BST-45538	BST-45539
15/64	1/4	3/4	2-1/2	BST-45351	BST-45352	BST-45353	BST-45540	BST-45541	BST-45542
1/4	1/4	1/2	2	BST-45240	BST-45241	BST-45242	BST-45288	BST-45289	BST-45290
		3/4		BST-45354	BST-45355	BST-45356	BST-45543	BST-45544	BST-45545
		1-1/8	3	BST-45693	--	BST-45694	BST-45715	--	BST-45716
		1-1/2		BST-45740	--	BST-45741	BST-45772	--	BST-45773
17/64	5/16	7/8	2-1/2	BST-45357	BST-45358	BST-45359	BST-45546	BST-45547	BST-45548
9/32	5/16	7/8	2-1/2	BST-45360	BST-45361	BST-45362	BST-45549	BST-45550	BST-45551
19/64	5/16	7/8	2-1/2	BST-45363	BST-45364	BST-45365	BST-45552	BST-45553	BST-45554
5/16	5/16	1/2	2	BST-45243	BST-45244	BST-45245	BST-45291	BST-45292	BST-45293
		7/8		BST-45366	BST-45367	BST-45368	BST-45555	BST-45556	BST-45557
		1-1/8	3	BST-45695	--	BST-45696	BST-45717	--	BST-45718
		1-5/8		BST-45744	--	BST-45745	BST-45776	--	BST-45777
21/64	3/8	7/8	2-1/2	BST-45369	BST-45370	BST-45371	BST-45558	BST-45559	BST-45560

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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
11/32	3/8	7/8	2-1/2	BST-45372	BST-45373	BST-45374	BST-45561	BST-45562	BST-45563
23/64	3/8	7/8	2-1/2	BST-45375	BST-45376	BST-45377	BST-45564	BST-45565	BST-45566
3/8	3/8	5/8	2	BST-45246	BST-45247	BST-45248	BST-45294	BST-45295	BST-45296
		1	2-1/2	BST-45378	BST-45379	BST-45380	BST-45567	BST-45568	BST-45569
		1-1/8	3	BST-45697	--	BST-45698	BST-45719	--	BST-45720
		1-3/4	4	BST-45750	--	BST-45751	BST-45782	--	BST-45783
25/64	7/16	1	2-1/2	BST-45381	BST-45382	BST-45383	BST-45570	BST-45571	BST-45572
13/32	7/16	1	2-1/2	BST-45384	BST-45385	BST-45386	BST-45573	BST-45574	BST-45575
27/64	7/16	1	2-1/2	BST-45387	BST-45388	BST-45389	BST-45576	BST-45577	BST-45578
7/16	7/16	5/8	2-1/2	BST-45249	BST-45250	BST-45251	BST-45297	BST-45298	BST-45299
		1		BST-45390	BST-45391	BST-45392	BST-45579	BST-45580	BST-45581
		2	4	BST-45699	--	BST-45700	BST-45721	--	BST-45722
29/64	1/2	1	3	BST-45393	BST-45394	BST-45395	BST-45582	BST-45583	BST-45584
15/32	1/2	1	3	BST-45396	BST-45397	BST-45398	BST-45585	BST-45586	BST-45587
31/64	1/2	1	3	BST-45399	BST-45400	BST-45401	BST-45588	BST-45589	BST-45590
1/2	1/2	5/8	2-1/2	BST-45252	BST-45253	BST-45254	BST-45300	BST-45301	BST-45302
		1	3	BST-45402	BST-45403	BST-45404	BST-45591	BST-45592	BST-45593
		1-1/4	3	--	--	BST-47519	--	--	BST-47518
		2	4	BST-45701	--	BST-45702	BST-45723	--	BST-45724
		3	6	BST-45754	--	BST-45755	BST-45786	--	BST-45787
33/64	9/16	1-1/4	3-1/2	BST-45405	BST-45406	BST-45407	BST-45594	BST-45595	BST-45596
17/32	9/16	1-1/4	3-1/2	BST-45408	BST-45409	BST-45410	BST-45597	BST-45598	BST-45599
35/64	9/16	1-1/4	3-1/2	BST-45411	BST-45412	BST-45413	BST-45600	BST-45601	BST-45602
9/16	9/16	1-1/4	3-1/2	BST-45414	BST-45415	BST-45416	BST-45603	BST-45604	BST-45605
37/64	5/8	1-1/4	3-1/2	BST-45417	BST-45418	BST-45419	BST-45606	BST-45607	BST-45608
19/32	5/8	1-1/4	3-1/2	BST-45420	BST-45421	BST-45422	BST-45609	BST-45610	BST-45611
39/64	5/8	1-1/4	3-1/2	BST-45423	BST-45424	BST-45425	BST-45612	BST-45613	BST-45614
5/8	5/8	3/4	3	BST-45255	BST-45256	BST-45257	BST-45303	BST-45304	BST-45305
		1-1/4	3-1/2	BST-45426	BST-45427	BST-45428	BST-45615	BST-45616	BST-45617
		2-1/4	5	BST-45705	--	BST-45706	BST-45727	--	BST-45728
		3	6	BST-45758	--	BST-45759	BST-45790	--	BST-45791
41/64	3/4	1-1/2	4	BST-45429	BST-45430	BST-45431	BST-45618	BST-45619	BST-45620
21/32	3/4	1-1/2	4	BST-45432	BST-45433	BST-45434	BST-45621	BST-45622	BST-45623
43/64	3/4	1-1/2	4	BST-45435	BST-45436	BST-45437	BST-45624	BST-45625	BST-45626
11/16	3/4	1-1/2	4	BST-45438	BST-45439	BST-45440	BST-45627	BST-45628	BST-45629
45/64	3/4	1-1/2	4	BST-45441	BST-45442	BST-45443	BST-45630	BST-45631	BST-45632
23/32	3/4	1-1/2	4	BST-45444	BST-45445	BST-45446	BST-45633	BST-45634	BST-45635
47/64	3/4	1-1/2	4	BST-45447	BST-45448	BST-45449	BST-45636	BST-45637	BST-45638

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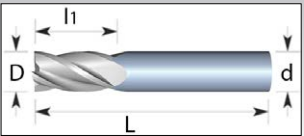
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Square End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
3/4	3/4	1	3	BST-45258	BST-45259	BST-45260	BST-45306	BST-45307	BST-45308
		1-1/2	4	BST-45450	BST-45451	BST-45452	BST-45639	BST-45640	BST-45641
		2-1/4	5	BST-45707	--	BST-45708	BST-45729	--	BST-45730
		3	6	BST-45760	--	BST-45761	BST-45792	--	BST-45793
49/64	7/8	1-1/2	4	BST-45453	BST-45454	BST-45455	BST-45642	BST-45643	BST-45644
25/32	7/8	1-1/2	4	BST-45456	BST-45457	BST-45458	BST-45645	BST-45646	BST-45647
51/64	7/8	1-1/2	4	BST-45459	BST-45460	BST-45461	BST-45648	BST-45649	BST-45650
13/16	7/8	1-1/2	4	BST-45462	BST-45463	BST-45464	BST-45651	BST-45652	BST-45653
53/64	7/8	1-1/2	4	BST-45465	BST-45466	BST-45467	BST-45654	BST-45655	BST-45656
27/32	7/8	1-1/2	4	BST-45468	BST-45469	BST-45470	BST-45657	BST-45658	BST-45659
55/64	7/8	1-1/2	4	BST-45471	BST-45472	BST-45473	BST-45660	BST-45661	BST-45662
7/8	7/8	1-1/2	4	BST-45474	BST-45475	BST-45476	BST-45663	BST-45664	BST-45665
57/64	1	1-1/2	4	BST-45477	BST-45478	BST-45479	BST-45666	BST-45667	BST-45668
29/32	1	1-1/2	4	BST-45480	BST-45481	BST-45482	BST-45669	BST-45670	BST-45671
59/64	1	1-1/2	4	BST-45483	BST-45484	BST-45485	BST-45672	BST-45673	BST-45674
15/16	1	1-1/2	4	BST-45486	BST-45487	BST-45488	BST-45675	BST-45676	BST-45677
61/64	1	1-1/2	4	BST-45489	BST-45490	BST-45491	BST-45678	BST-45679	BST-45680
31/32	1	1-1/2	4	BST-45492	BST-45493	BST-45494	BST-45681	BST-45682	BST-45683
63/64	1	1-1/2	4	BST-45495	BST-45496	BST-45497	BST-45684	BST-45685	BST-45686
1	1	1	3	BST-45225	BST-45226	BST-45227	BST-45273	BST-45274	BST-45275
		1-1/2	4	BST-45324	BST-45325	BST-45326	BST-45513	BST-45514	BST-45515
		2-1/4	5	BST-45687	--	BST-45688	BST-45709	--	BST-45710
		3	6	BST-45731	--	BST-45733	BST-45764	--	BST-45765



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	BST-46618	BST-46619	BST-46620	BST-46684	BST-46685	BST-46686
1.5	2	5	38	BST-46621	BST-46622	BST-46623	BST-46687	BST-46688	BST-46689
2	2	6	38	BST-46624	BST-46625	BST-46626	BST-46690	BST-46691	BST-46692

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▪ Metric Sizes
- General Purpose

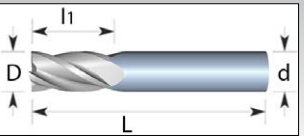
▪ Micrograin Carbide

▪ Uncoated & TiALN Coated

▪ Plunging, Pocketing

▪ Slotting, Ramping

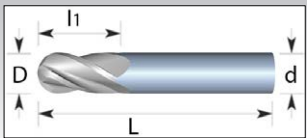
▪ Profiling



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	BST-46630	BST-46631	BST-46632	BST-46696	BST-46697	BST-46698
		25	75	BST-46838	--	BST-46839	BST-46862	--	BST-46863
		25	100	BST-46886	--	BST-46887	BST-46902	--	BST-46903
3.5	4	12	50	BST-46633	BST-46634	BST-46635	BST-46699	BST-46700	BST-46701
4	4	14	50	BST-46636	BST-46637	BST-46638	BST-46702	BST-46703	BST-46704
		25	75	BST-46840	--	BST-46841	BST-46864	--	BST-46865
		50	100	BST-46888	--	BST-46889	BST-46904	--	BST-46905
4.5	5	14	50	BST-46639	BST-46640	BST-46641	BST-46705	BST-46706	BST-46707
5	5	16	50	BST-46642	BST-46643	BST-46644	BST-46708	BST-46709	BST-46710
		25	75	BST-46842	--	BST-46843	BST-46866	--	BST-46867
		30	100	BST-46890	--	BST-46891	BST-46906	--	BST-46907
6	6	19	63	BST-46645	BST-46646	BST-46647	BST-46711	BST-46712	BST-46713
		25	75	BST-46844	--	BST-46845	BST-46868	--	BST-46869
		50	100	BST-46892	--	BST-46893	BST-46908	--	BST-46909
7	7	19	63	BST-46648	BST-46649	BST-46650	BST-46714	BST-46715	BST-46716
8	8	19	63	BST-46651	BST-46652	BST-46653	BST-46717	BST-46718	BST-46719
		30	100	BST-46846	--	BST-46847	BST-46870	--	BST-46871
		50	150	BST-46894	--	BST-46895	BST-46910	--	BST-46911
9	10	22	70	BST-46654	BST-46655	BST-46656	BST-46720	BST-46721	BST-46722
10	10	22	70	BST-46657	BST-46658	BST-46659	BST-46723	BST-46724	BST-46725
		38	100	BST-46848	--	BST-46849	BST-46872	--	BST-46873
		75	150	BST-46896	--	BST-46897	BST-46912	--	BST-46913
11	12	25	70	BST-46660	BST-46661	BST-46662	BST-46726	BST-46727	BST-46728
12	12	25	75	BST-46663	BST-46664	BST-46665	BST-46729	BST-46730	BST-46731
		50	100	BST-46850	--	BST-46851	BST-46874	--	BST-46875
		75	150	BST-46898	--	BST-46899	BST-46914	--	BST-46915
14	14	30	88	BST-46666	BST-46667	BST-46668	BST-46732	BST-46733	BST-46734
		50	125	BST-46852	--	BST-46853	BST-46876	--	BST-46877
		75	150	BST-46900	--	BST-46901	BST-46916	--	BST-46917
16	16	32	88	BST-46669	BST-46670	BST-46671	BST-46735	BST-46736	BST-46737
		75	150	BST-46854	--	BST-46855	BST-46878	--	BST-46879
18	18	36	100	BST-46672	BST-46673	BST-46674	BST-46738	BST-46739	BST-46740
		75	150	BST-46856	--	BST-46857	BST-46880	--	BST-46881
20	20	38	100	BST-46675	BST-46676	BST-46677	BST-46741	BST-46742	BST-46743
		75	150	BST-46858	--	BST-46859	BST-46882	--	BST-46883
22	25	38	100	BST-46678	BST-46679	BST-46680	BST-46744	BST-46745	BST-46746
25	25	38	100	BST-46681	BST-46682	BST-46683	BST-46747	BST-46748	BST-46749
		75	150	BST-46860	--	BST-46861	BST-46884	--	BST-46885

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

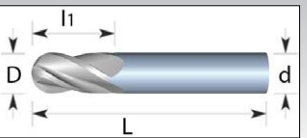
- Ball Nose End
- 2, 3, 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



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
1/32	1/8	1/16	1-1/2	BST-45796	BST-45797	BST-45798	BST-45844	BST-45845	BST-45846
		3/32		BST-45892	BST-45893	BST-45894	BST-46081	BST-46082	BST-46083
3/64	1/8	3/32	1-1/2	BST-45799	BST-45800	BST-45801	BST-45847	BST-45848	BST-45849
		1/8		BST-45895	BST-45896	BST-45897	BST-46084	BST-46085	BST-46086
1/16	1/8	1/8	1-1/2	BST-45802	BST-45803	BST-45804	BST-45850	BST-45851	BST-45852
		3/16		BST-45898	BST-45899	BST-45900	BST-46087	BST-46088	BST-46089
5/64	1/8	1/4	1-1/2	BST-45901	BST-45902	BST-45903	BST-46090	BST-46091	BST-46092
3/32	1/8	3/16	1-1/2	BST-45805	BST-45806	BST-45807	BST-45853	BST-45854	BST-45855
		3/8		BST-45904	BST-45905	BST-45906	BST-46093	BST-46094	BST-46095
7/64	1/8	3/8	1-1/2	BST-45910	BST-45911	BST-45912	BST-46099	BST-46100	BST-46101
1/8	1/8	1/4	1-1/2	BST-45811	BST-45812	BST-45813	BST-45859	BST-45860	BST-45861
		1/2		BST-45913	BST-45914	BST-45915	BST-46102	BST-46103	BST-46104
		3/4	2-1/2	BST-46272	--	BST-46273	BST-46294	--	BST-46295
		1		BST-46318	--	BST-46319	BST-46350	--	BST-46351
9/64	3/16	9/16	2	BST-45916	BST-45917	BST-45918	BST-46105	BST-46106	BST-46107
5/32	3/16	5/16	2	BST-45814	BST-45815	BST-45816	BST-45862	BST-45863	BST-45864
		9/16		BST-45919	BST-45920	BST-45921	BST-46108	BST-46109	BST-46110
11/64	3/16	9/16	2	BST-45922	BST-45923	BST-45924	BST-46111	BST-46112	BST-46113
3/16	3/16	3/8	2	BST-45817	BST-45818	BST-45819	BST-45865	BST-45866	BST-45867
		5/8		BST-45925	BST-45926	BST-45927	BST-46114	BST-46115	BST-46116
		3/4	2-1/2	BST-46274	--	BST-46275	BST-46296	--	BST-46297
		1-1/8		BST-46320	--	BST-46321	BST-46352	--	BST-46353
13/64	1/4	5/8	2-1/2	BST-45928	BST-45929	BST-45930	BST-46117	BST-46118	BST-46119
7/32	1/4	7/16	2	BST-45820	BST-45821	BST-45822	BST-45868	BST-45869	BST-45870
		5/8	2-1/2	BST-45931	BST-45932	BST-45933	BST-46120	BST-46121	BST-46122
15/64	1/4	3/4	2-1/2	BST-45934	BST-45935	BST-45936	BST-46123	BST-46124	BST-46125
1/4	1/4	1/2	2	BST-45823	BST-45824	BST-45825	BST-45871	BST-45872	BST-45873
		3/4		BST-45937	BST-45938	BST-45939	BST-46126	BST-46127	BST-46128
		1-1/8	3	BST-46276	--	BST-46277	BST-46298	--	BST-46299
		1-1/2		BST-46322	--	BST-46323	BST-46354	--	BST-46355
17/64	5/16	7/8	2-1/2	BST-45940	BST-45941	BST-45942	BST-46129	BST-46130	BST-46131
9/32	5/16	7/8	2-1/2	BST-45943	BST-45944	BST-45945	BST-46132	BST-46133	BST-46134
19/64	5/16	7/8	2-1/2	BST-45946	BST-45947	BST-45948	BST-46135	BST-46136	BST-46137
5/16	5/16	1/2	2	BST-45826	BST-45827	BST-45828	BST-45874	BST-45875	BST-45876
		7/8		BST-45949	BST-45950	BST-45951	BST-46138	BST-46139	BST-46140
		1-1/8	3	BST-46278	--	BST-46279	BST-46300	--	BST-46301
		1-5/8		BST-46326	--	BST-46327	BST-46358	--	BST-46359

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

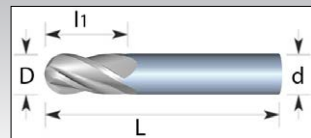
- Ball Nose End
- 2, 3, 4 Flute
- Single End
- Round Shanks
- Center Cutting
- Fractional Sizes
- General Purpose
- Micrograin Carbide
- Uncoated & TiALN Coated
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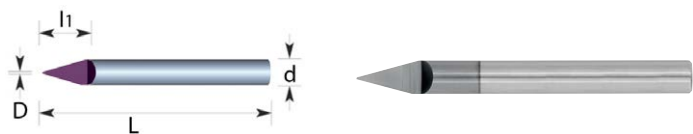
Ball Nose - Fractional									
Cutter	Shank	LOC	Overall	Uncoated			TiALN		
D	d	l1	L	2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
11/32	3/8	7/8	2-1/2	BST-45952	BST-45953	BST-45954	BST-46141	BST-46142	BST-46143
23/64	3/8	7/8	2-1/2	BST-45955	BST-45956	BST-45957	BST-46144	BST-46145	BST-46146
3/8	3/8	5/8	2	BST-45958	BST-45959	BST-45960	BST-46147	BST-46148	BST-46149
		1	2-1/2	BST-45829	BST-45830	BST-45831	BST-45877	BST-45878	BST-45879
		1-1/8	3	BST-45961	BST-45962	BST-45963	BST-46150	BST-46151	BST-46152
		1-3/4	4	BST-46280	--	BST-46281	BST-46302	--	BST-46303
25/64	7/16	1	2-1/2	BST-46332	--	BST-46333	BST-46364	--	BST-46365
13/32	7/16	1	2-1/2	BST-45964	BST-45965	BST-45966	BST-46153	BST-46154	BST-46155
27/64	7/16	1	2-1/2	BST-45967	BST-45968	BST-45969	BST-46156	BST-46157	BST-46158
7/16	7/16	5/8	2-1/2	BST-45970	BST-45971	BST-45972	BST-46159	BST-46160	BST-46161
		1		BST-45832	BST-45833	BST-45834	BST-45880	BST-45881	BST-45882
		2		4	BST-45973	BST-45974	BST-45975	BST-46162	BST-46163
29/64	1/2	1	3	BST-46282	--	BST-46283	BST-46304	--	BST-46305
15/32	1/2	1	3	BST-45976	BST-45977	BST-45978	BST-46165	BST-46166	BST-46167
31/64	1/2	1	3	BST-45979	BST-45980	BST-45981	BST-46168	BST-46169	BST-46170
1/2	1/2	5/8	2-1/2	BST-45982	BST-45983	BST-45984	BST-46171	BST-46172	BST-46173
		1	3	BST-45835	BST-45836	BST-45837	BST-45883	BST-45884	BST-45885
		1-1/4	3	BST-45985	BST-45986	BST-45987	BST-46174	BST-46175	BST-46176
		2	4	BST-46284	--	BST-46285	BST-46306	--	BST-46307
33/64	9/16	3	6	BST-46336	--	BST-46337	BST-46368	--	BST-46369
		1-1/4	3-1/2	BST-45988	BST-45989	BST-45990	BST-46177	BST-46178	BST-46179
17/32	9/16	1-1/4	3-1/2	BST-45991	BST-45992	BST-45993	BST-46180	BST-46181	BST-46182
35/64	9/16	1-1/4	3-1/2	BST-45994	BST-45995	BST-45996	BST-46183	BST-46184	BST-46185
9/16	9/16	1-1/4	3-1/2	BST-45997	BST-45998	BST-45999	BST-46186	BST-46187	BST-46188
37/64	5/8	1-1/4	3-1/2	BST-46000	BST-46001	BST-46002	BST-46189	BST-46190	BST-46191
19/32	5/8	1-1/4	3-1/2	BST-46003	BST-46004	BST-46005	BST-46192	BST-46193	BST-46194
39/64	5/8	1-1/4	3-1/2	BST-46006	BST-46007	BST-46008	BST-46195	BST-46196	BST-46197
5/8	5/8	3/4	3	BST-45838	BST-45839	BST-45840	BST-45886	BST-45887	BST-45888
		1-1/4	3-1/2	BST-46009	BST-46010	BST-46011	BST-46198	BST-46199	BST-46200
		2-1/4	5	BST-46288	--	BST-46289	BST-46310	--	BST-46311
		3	6	BST-46340	--	BST-46341	BST-46372	--	BST-46373
41/64	3/4	1-1/2	4	BST-46012	BST-46013	BST-46014	BST-46201	BST-46202	BST-46203
21/32	3/4	1-1/2	4	BST-46015	BST-46016	BST-46017	BST-46204	BST-46205	BST-46206
43/64	3/4	1-1/2	4	BST-46018	BST-46019	BST-46020	BST-46207	BST-46208	BST-46209
11/16	3/4	1-1/2	4	BST-46021	BST-46022	BST-46023	BST-46210	BST-46211	BST-46212
45/64	3/4	1-1/2	4	BST-46024	BST-46025	--	BST-46213	BST-46214	BST-46215
23/32	3/4	1-1/2	4	BST-46027	BST-46028	BST-46029	BST-46216	BST-46217	BST-46218
47/64	3/4	1-1/2	4	BST-46030	BST-46031	BST-46032	BST-46219	BST-46220	BST-46221

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
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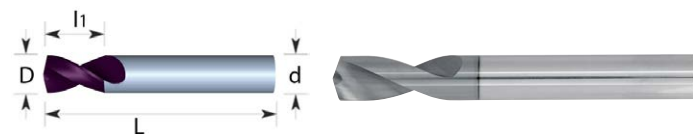


Ball Nose - Fractional									
Cutter	Shank	LOC	Overall	Uncoated			TiALN		
D	d	l1	L	2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
3/4	3/4	1	3	BST-45841	BST-45842	BST-45843	BST-45889	BST-45890	BST-45891
		1-1/2	4	BST-46033	BST-46034	BST-46035	BST-46222	BST-46223	BST-46224
		2-1/4	5	BST-46290	--	BST-46291	BST-46312	--	BST-46313
		3	6	BST-46342	--	BST-46343	BST-46374	--	BST-46375
49/64	7/8	1-1/2	4	BST-46036	BST-46037	BST-46038	BST-46225	BST-46226	BST-46227
25/32	7/8	1-1/2	4	BST-46039	BST-46040	BST-46041	BST-46228	BST-46229	BST-46230
51/64	7/8	1-1/2	4	BST-46042	BST-46043	BST-46044	BST-46231	BST-46232	BST-46233
13/16	7/8	1-1/2	4	BST-46045	BST-46046	BST-46047	BST-46234	BST-46235	BST-46236
53/64	7/8	1-1/2	4	BST-46048	BST-46049	BST-46050	BST-46237	BST-46238	BST-46239
27/32	7/8	1-1/2	4	BST-46051	BST-46052	BST-46053	BST-46240	BST-46241	BST-46242
55/64	7/8	1-1/2	4	BST-46054	BST-46055	BST-46056	BST-46243	BST-46244	BST-46245
7/8	7/8	1-1/2	4	BST-46057	BST-46058	BST-46059	BST-46246	BST-46247	BST-46248
57/64	1	1-1/2	4	BST-46060	BST-46061	BST-46062	BST-46249	BST-46250	BST-46251
29/32	1	1-1/2	4	BST-46063	BST-46064	BST-46065	BST-46252	BST-46253	BST-46254
59/64	1	1-1/2	4	BST-46066	BST-46067	BST-46068	BST-46255	BST-46256	BST-46257
15/16	1	1-1/2	4	BST-46069	BST-46070	BST-46071	BST-46258	BST-46259	BST-46260
61/64	1	1-1/2	4	BST-46072	BST-46073	BST-46074	BST-46261	BST-46262	BST-46263
31/32	1	1-1/2	4	BST-46075	BST-46076	BST-46077	BST-46264	BST-46265	BST-46266
63/64	1	1-1/2	4	BST-46078	BST-46079	BST-46080	BST-46267	BST-46268	BST-46269
1	1	1	3	BST-45808	BST-45809	BST-45810	BST-45856	BST-45857	BST-45858
		1-1/2	4	BST-45907	BST-45908	BST-45909	BST-46096	BST-46097	BST-46098
		2-1/4	5	BST-46270	--	BST-46271	BST-46292	--	BST-46293
		3	6	BST-46314	--	BST-46315	BST-46346	--	BST-46347



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

Engraving Tools				
Tip	Shank	LOC	Overall	TiALN
D	d	l1	L	1 Flute
.005	1/4	1/2	2-1/2	BST-47510
.010	1/4	1/2	2-1/2	BST-47511
.020	1/4	1/2	2-1/2	BST-47512

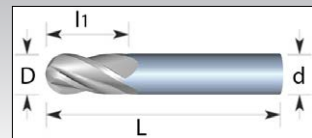


- Allows High Performance drills to center properly without damaging their outside edge
- 145 Degree Point Carbide with honed edges

Spot Drills				
Drill	Shank	LOC	Overall	TiALN
D	d	l1	L	2 Flute
1/4	1/4	1/2	3	BST-47513
3/8	3/8	3/4	3	BST-47514
1/2	1/2	1	4	BST-47515
5/8	5/8	1	4	BST-47516
3/4	3/4	1-1/8	4	BST-47517

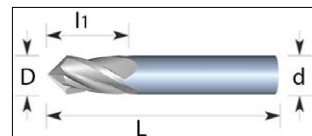
P	●	Steel
M	☐	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S		High Temp. Alloys
H		Hardened Steel
● GOOD ☐ OK ○ NOT OPTIMAL		

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



Ball Nose - Metric									
Cutter	Shank	LOC	Overall	Uncoated			TiALN		
D	d	l1	L	2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1	1	3	38	BST-46750	--	BST-46751	BST-46794	--	BST-46795
1.5	2	5	38	BST-46752	--	BST-46753	BST-46796	--	BST-46797
2	2	6	38	BST-46754	--	BST-46755	BST-46798	--	BST-46799
3	3	12	38	BST-46758	--	BST-46759	BST-46802	--	BST-46803
3.5	4	12	50	BST-46760	--	BST-46761	BST-46804	--	BST-46805
4	4	14	50	BST-46762	--	BST-46763	BST-46806	--	BST-46807
4.5	5	14	50	BST-46764	--	BST-46765	BST-46808	--	BST-46809
5	5	16	50	BST-46766	--	BST-46767	BST-46810	--	BST-46811
6	6	19	63	BST-46768	--	BST-46769	BST-46812	--	BST-46813
7	7	19	63	BST-46770	--	BST-46771	BST-46814	--	BST-46815
8	8	19	63	BST-46772	--	BST-46773	BST-46816	--	BST-46817
9	9	22	70	BST-46774	--	BST-46775	BST-46818	--	BST-46819
10	10	22	70	BST-46776	--	BST-46777	BST-46820	--	BST-46821
11	11	25	70	BST-46778	--	BST-46779	BST-46822	--	BST-46823
12	12	25	75	BST-46780	--	BST-46781	BST-46824	--	BST-46825
14	14	30	88	BST-46782	--	BST-46783	BST-46826	--	BST-46827
16	16	32	88	BST-46784	--	BST-46785	BST-46828	--	BST-46829
18	18	36	100	BST-46786	--	BST-46787	BST-46830	--	BST-46831
20	20	38	100	BST-46788	--	BST-46789	BST-46832	--	BST-46833
22	25	38	100	BST-46790	--	BST-46791	BST-46834	--	BST-46835
25	25	38	100	BST-46792	--	BST-46793	BST-46836	--	BST-46837

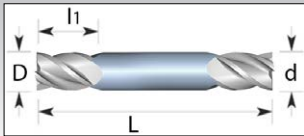
- 90 Degree End
- 2 & 4 Flute
- Center Cutting
- Round Shanks
- Uncoated & TiALN Coated
- Milling, Drilling
- Countersinking
- Chamfering, De-burring



Drill/Mill 90 Degree - Fractional									
Cutter	Shank	LOC	Overall	Uncoated			TiALN		
D	d	l1	L	2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1/8	1/8	1/2	1-1/2	BST-46918	--	BST-46919	BST-46936	--	BST-46937
3/16	3/16	5/8	2	BST-46920	--	BST-46921	BST-46938	--	BST-46939
1/4	1/4	3/4	2-1/2	BST-46922	--	BST-46923	BST-46940	--	BST-46941
5/16	5/16	7/8	2-1/2	BST-46924	--	BST-46925	BST-46942	--	BST-46943
3/8	3/8	1	2-1/2	BST-46926	--	BST-46927	BST-46944	--	BST-46945
7/16	7/16	1	2-3/4	BST-46928	--	BST-46929	BST-46946	--	BST-46947
1/2	1/2	1	3	BST-46930	--	BST-46931	BST-46948	--	BST-46949
5/8	5/8	1-1/4	3-1/2	BST-46932	--	BST-46933	BST-46950	--	BST-46951
3/4	3/4	1-1/2	4	BST-46934	--	BST-46935	BST-46952	--	BST-46953

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

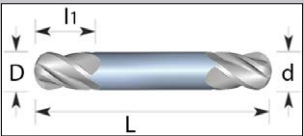


Square Double End - Fractional									
Cutter D	Shank d	LOC l1	Overall L	Uncoated			TiALN		
				2 Flute	3 Flute	4 Flute	2 Flute	3 Flute	4 Flute
1/32	1/8	1/16	1-1/2	BST-46378	--	BST-46379	BST-46414	--	BST-46415
3/64	1/8	3/32	1-1/2	BST-46380	--	BST-46381	BST-46416	--	BST-46417
1/16	1/8	1/8	1-1/2	BST-46382	--	BST-46383	BST-46418	--	BST-46419
3/32	1/8	3/16	1-1/2	BST-46384	--	BST-46385	BST-46420	--	BST-46421
7/64	1/8	7/32	1-1/2	BST-46386	--	BST-46387	BST-46422	--	BST-46423
1/8	1/8	1/4	1-1/2	BST-46388	--	BST-46389	BST-46424	--	BST-46425
5/32	3/16	5/16	2	BST-46390	--	BST-46391	BST-46426	--	BST-46427
		7/16	3	BST-46522	--	BST-46523	BST-46546	--	BST-46547
3/16	3/16	5/16	2	BST-46392	--	BST-46393	BST-46428	--	BST-46429
		1/2	3	BST-46524	--	BST-46525	BST-46548	--	BST-46549
7/32	1/4	3/8	2-1/2	BST-46394	--	BST-46395	BST-46430	--	BST-46431
		9/16	4	BST-46526	--	BST-46527	BST-46550	--	BST-46551
1/4	1/4	1/2	2-1/2	BST-46396	--	BST-46397	BST-46432	--	BST-46433
		5/8	4	BST-46528	--	BST-46529	BST-46552	--	BST-46553
9/32	5/16	1/2	2-1/2	BST-46398	--	BST-46399	BST-46434	--	BST-46435
5/16	5/16	1/2	2-1/2	BST-46400	--	BST-46401	BST-46436	--	BST-46437
		3/4	4	BST-46530	--	BST-46531	BST-46554	--	BST-46555
3/8	3/8	9/16	2-1/2	BST-46402	--	BST-46403	BST-46438	--	BST-46439
		3/4	4	BST-46534	--	BST-46535	BST-46558	--	BST-46559
7/16	1/2	9/16	2-3/4	BST-46404	--	BST-46405	BST-46440	--	BST-46441
		7/8	4	BST-46536	--	BST-46537	BST-46560	--	BST-46561
1/2	1/2	5/8	3	BST-46406	--	BST-46407	BST-46442	--	BST-46443
		1	4	BST-46538	--	BST-46539	BST-46562	--	BST-46563
9/16	5/8	11/16	3-1/2	BST-46408	--	BST-46409	BST-46444	--	BST-46445
5/8	5/8	11/16	3-1/2	BST-46410	--	BST-46411	BST-46446	--	BST-46447
		1-1/2	6	BST-46542	--	BST-46543	BST-46566	--	BST-46567
3/4	3/4	7/8	4	BST-46412	--	BST-46413	BST-46448	--	BST-46449
		1-1/2	6	BST-46544	--	BST-46545	BST-46568	--	BST-46569

* Double Ended tools under 1/4" diameter have Round Shanks. 1/4" diameter & larger have Weldon Shanks.

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



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	BST-46450	--	BST-46451	BST-46486	--	BST-46487
3/64	1/8	3/32	1-1/2	BST-46452	--	BST-46453	BST-46488	--	BST-46489
1/16	1/8	1/8	1-1/2	BST-46454	--	BST-46455	BST-46490	--	BST-46491
3/32	1/8	3/16	1-1/2	BST-46456	--	BST-46457	BST-46492	--	BST-46493
7/64	1/8	7/32	1-1/2	BST-46458	--	BST-46459	BST-46494	--	BST-46495
1/8	1/8	1/4	1-1/2	BST-46460	--	BST-46461	BST-46496	--	BST-46497
5/32	3/16	5/16	2	BST-46462	--	BST-46463	BST-46498	--	BST-46499
		7/16	3	BST-46570	--	BST-46571	BST-46594	--	BST-46595
3/16	3/16	5/16	2	BST-46464	--	BST-46465	BST-46500	--	BST-46501
		1/2	3	BST-46572	--	BST-46573	BST-46596	--	BST-46597
7/32	1/4	3/8	2-1/2	BST-46466	--	BST-46467	BST-46502	--	BST-46503
		9/16	4	BST-46574	--	BST-46575	BST-46598	--	BST-46599
1/4	1/4	1/2	2-1/2	BST-46468	--	BST-46469	BST-46504	--	BST-46505
		5/8	4	BST-46576	--	BST-46577	BST-46600	--	BST-46601
9/32	5/16	1/2	2-1/2	BST-46470	--	BST-46471	BST-46506	--	BST-46507
5/16	5/16	1/2	2-1/2	BST-46472	--	BST-46473	BST-46508	--	BST-46509
		3/4	4	BST-46578	--	BST-46579	BST-46602	--	BST-46603
3/8	3/8	9/16	2-1/2	BST-46474	--	BST-46475	BST-46510	--	BST-46511
		3/4	4	BST-46582	--	BST-46583	BST-46606	--	BST-46607
7/16	1/2	9/16	2-3/4	BST-46476	--	BST-46477	BST-46512	--	BST-46513
		7/8	4	BST-46584	--	BST-46585	BST-46608	--	BST-46609
1/2	1/2	5/8	3	BST-46478	--	BST-46479	BST-46514	--	BST-46515
		1	4	BST-46586	--	BST-46587	BST-46610	--	BST-46611
9/16	5/8	11/16	3-1/2	BST-46480	--	BST-46481	BST-46516	--	BST-46517
5/8	5/8	11/16	3-1/2	BST-46482	--	BST-46483	BST-46518	--	BST-46519
		1-1/2	6	BST-46590	--	BST-46591	BST-46614	--	BST-46615
3/4	3/4	7/8	4	BST-46484	--	BST-46485	BST-46520	--	BST-46521
		1-1/2	6	BST-46592	--	BST-46593	BST-46616	--	BST-46617

* Double Ended tools under 1/4" diameter have Round Shanks. 1/4" diameter & larger have Weldon Shanks.

High Performance Speeds & Feeds										
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

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

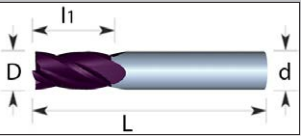
- Higher Feed Per Tooth should be used to start for radial depths of cut less than 25% of the tool diameter.
- The above recommendations are for axial lengths of cut not to exceed 1.25 times the tool diameter for profiling and .75 times the diameter for full slotting.
- The above parameters are recommended 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.



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 & 5 Flute TiAlN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes

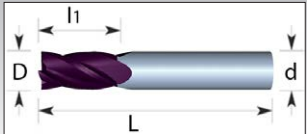
- High Performance
- Micrograin Carbide
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping
- Profiling



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	BST-47520	--	--	
		1/2	1-1/2	.010"R	BST-47521	--	--	
3/16	3/16	3/8	2	SQ	BST-47448	--	--	
		3/8	2	.015"R	BST-47449	--	--	
		5/8	2	SQ	BST-47305	--	--	
		5/8	2	.015"R	BST-47306	--	--	
		3/4	2-1/2	SQ	BST-47354	--	--	
		3/4	2-1/2	.015"R	BST-47355	--	--	
		1-1/8	3	SQ	BST-47433	--	--	
		1-1/8	3	.015"R	BST-47523	--	--	
1/4	1/4	3/8	2	SQ	BST-47450	--	--	
		3/8	2	.015"R	BST-47451	--	--	
		3/4	2-1/2	SQ	BST-47307	BST-47331	BST-47540	
		3/4	2-1/2	.020"R	BST-47308	BST-47332	BST-47541	
		1-1/8	3	SQ	BST-47356	BST-47379	BST-47554	
		1-1/8	3	.020"R	BST-47357	BST-47380	BST-47555	
		1-1/2	4	SQ	BST-47434	--	BST-47568	
		1-1/2	4	.020"R	BST-47524	--	BST-47569	
5/16	5/16	3/8	2	SQ	BST-47452	--	--	
		3/8	2	.020"R	BST-47453	--	--	
		13/16	2-1/2	SQ	BST-47309	BST-47333	BST-47542	
		13/16	2-1/2	.020"R	BST-47310	BST-47334	BST-47543	
		1-1/8	3	SQ	BST-47358	BST-47381	BST-47556	
		1-1/8	3	.020"R	BST-47359	BST-47382	BST-47557	
		1-5/8	4	SQ	BST-47435	--	BST-47570	
		1-5/8	4	.020"R	BST-47525	--	BST-47571	
3/8	3/8	1/2	2	SQ	BST-47454	--	--	
		1/2	2	.020"R	BST-47455	--	--	
		7/8	2-1/2	SQ	BST-47311	BST-47335	BST-47544	
		7/8	2-1/2	.020"R	BST-47312	BST-47336	BST-47545	
		1-1/8	3	SQ	BST-47360	BST-47383	BST-47558	
		1-1/8	3	.020"R	BST-47361	BST-47384	BST-47559	
		1-3/4	4	SQ	BST-47436	--	BST-47572	
		1-3/4	4	.020"R	BST-47526	--	BST-47573	
7/16	7/16	1	2-3/4	SQ	BST-47314	BST-47337	--	
		2	4	SQ	BST-47362	BST-47385	--	
1/2	1/2	5/8	2-1/2	SQ	BST-47456	BST-47462	--	
		5/8	2-1/2	.030"R	BST-47457	BST-47463	--	
		1-1/4	3	SQ	BST-47315	BST-47338	BST-47546	
		1-1/4	3	.015"R	BST-47316	BST-47339	--	
		1-1/4	3	.030"R	BST-47317	BST-47340	BST-47547	
		1-1/4	3	.060"R	BST-47318	BST-47341	--	

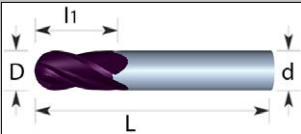
P	●	Steel
M	○	Stainless Steel
K	●	Cast Iron
N	○	Non-Ferrous
S	○	High Temp. Alloys
H		Hardened Steel
● BETTER ○ OK ○ NOT OPTIMAL		

- Square & Corner Radius End
 - 4 & 5 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
● BETTER ○ OK ○ NOT OPTIMAL		

- 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



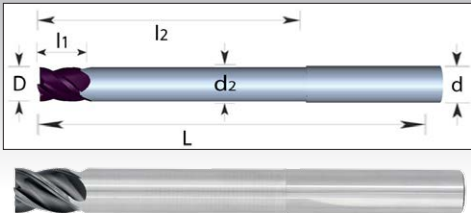
Square & Corner Radius End - Fractional							
Cutter D	Shank d	LOC l1	Overall L	End Face	TiALN		
					4 Flute Round Shank	4 Flute Weldon Shank	5 Flute Round Shank
1/2	1/2	2	4	SQ	BST-47363	BST-47386	BST-47560
		2	4	.015"R	BST-47364	BST-47387	--
		2	4	.030"R	BST-47365	BST-47388	BST-47561
		2	4	.060"R	BST-47366	BST-47389	--
		3	6	SQ	BST-47437	--	BST-47574
		3	6	.030"R	BST-47527	--	BST-47575
5/8	5/8	3/4	3	SQ	BST-47458	BST-47464	--
		3/4	3	.030"R	BST-47459	BST-47465	--
		1-1/4	3-1/2	SQ	BST-47319	BST-47342	BST-47548
		1-1/4	3-1/2	.030"R	BST-47320	BST-47343	BST-47549
		1-1/4	3-1/2	.060"R	BST-47321	BST-47344	--
		1-1/4	3-1/2	.125"R	BST-47322	BST-47345	--
		2-1/4	5	SQ	BST-47367	BST-47390	BST-47562
		2-1/4	5	.030"R	BST-47368	BST-47391	BST-47563
		2-1/4	5	.060"R	BST-47369	BST-47392	--
		2-1/4	5	.125"R	BST-47370	BST-47393	--
		3	6	SQ	BST-47438	--	BST-47576
		3	6	.030"R	BST-47528	--	BST-47577
		1	3	SQ	BST-47460	BST-47466	--
		1	3	.030"R	BST-47461	BST-47467	--
3/4	3/4	1-1/2	4	SQ	BST-47323	BST-47346	BST-47550
		1-1/2	4	.030"R	BST-47324	BST-47347	BST-47551
		1-1/2	4	.060"R	BST-47325	BST-47348	--
		1-1/2	4	.125"R	BST-47326	BST-47349	--
		2-1/4	5	SQ	BST-47371	BST-47394	BST-47564
		2-1/4	5	.030"R	BST-47372	BST-47395	BST-47565
		2-1/4	5	.060"R	BST-47373	BST-47396	--
		2-1/4	5	.125"R	BST-47374	BST-47397	--
		3	6	SQ	BST-47439	--	BST-47578
		3	6	.030"R	BST-47529	--	BST-47579
		1-1/2	4	SQ	BST-47301	BST-47327	BST-47538
		1-1/2	4	.030"R	BST-47302	BST-47328	BST-47539
1	1	1-1/2	4	.060"R	BST-47303	BST-47329	--
		1-1/2	4	.125"R	BST-47304	BST-47330	--
		2-1/4	5	SQ	BST-47350	BST-47375	BST-47552
		2-1/4	5	.030"R	BST-47351	BST-47376	BST-47553
		2-1/4	5	.060"R	BST-47352	BST-47377	--
		2-1/4	5	.125"R	BST-47353	BST-47378	--
		3	6	SQ	BST-47432	--	BST-47566
		3	6	.030"R	BST-47522	--	BST-47567
		1-1/2	4	SQ	BST-47301	BST-47327	BST-47538
		1-1/2	4	.030"R	BST-47302	BST-47328	BST-47539

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	BST-47399	--	
		3/4	2-1/2	BN	BST-47416	--	
		1-1/8	3	BN	BST-47441	--	
1/4	1/4	3/4	2-1/2	BN	BST-47400	BST-47408	
		1-1/8	3	BN	BST-47417	BST-47425	
		1-1/2	4	BN	BST-47442	--	
5/16	5/16	13/16	2-1/2	BN	BST-47401	BST-47409	
		1-1/8	3	BN	BST-47418	BST-47426	
		1-5/8	4	BN	BST-47443	--	
3/8	3/8	7/8	2-1/2	BN	BST-47402	BST-47410	
		1-1/8	3	BN	BST-47419	BST-47427	
		1-3/4	4	BN	BST-47444	--	
7/16	7/16	1	2-3/4	BN	BST-47403	BST-47411	
		2	4	BN	BST-47420	BST-47428	
		3	6	BN	BST-47445	--	
1/2	1/2	1	3	BN	BST-47404	BST-47412	
		2	4	BN	BST-47421	BST-47429	
		3	6	BN	BST-47446	--	
5/8	5/8	1-1/4	3-1/2	BN	BST-47405	BST-47413	
		2-1/4	5	BN	BST-47422	BST-47430	
		3	6	BN	BST-47447	--	
3/4	3/4	1-1/2	4	BN	BST-47406	BST-47414	
		2-1/4	5	BN	BST-47423	BST-47431	
		3	6	BN	BST-47447	--	
1	1	1-1/2	4	BN	BST-47398	BST-47407	
		2-1/4	5	BN	BST-47415	BST-47424	
		3	6	BN	BST-47440	--	

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	BST-47474
		.1775	3/8	2-1/2	4	.015"R	BST-47475
		.1775	3/8	2-1/2	4	BN	BST-47499
1/4	1/4	.2400	3/8	2-1/2	4	SQ	BST-47476
		.2400	3/8	2-1/2	4	.015"R	BST-47477
		.2400	3/8	2-1/2	4	BN	BST-47500

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 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	BST-47478
		.3025	7/16	2-1/2	4	.015"R	BST-47479
		.3025	7/16	2-1/2	4	BN	BST-47501
3/8	3/8	.3650	1/2	2-1/2	4	SQ	BST-47480
		.3650	1/2	2-1/2	4	.015"R	BST-47481
		.3650	1/2	2-1/2	4	BN	BST-47502
1/2	1/2	.4800	5/8	3	5	SQ	BST-47482
		.4800	5/8	3	5	.020"R	BST-47483
		.4800	5/8	3	5	BN	BST-47503
		.4800	5/8	4	6	SQ	BST-47485
		.4800	5/8	4	6	.020"R	BST-47484
		.4800	5/8	4	6	BN	BST-47504
5/8	5/8	.6050	3/4	3	5	SQ	BST-47486
		.6050	3/4	3	5	.020"R	BST-47487
		.6050	3/4	3	5	BN	BST-47505
		.6050	3/4	4	6	SQ	BST-47489
		.6050	3/4	4	6	.020"R	BST-47488
		.6050	3/4	4	6	BN	BST-47506
3/4	3/4	.7300	1	3	5	SQ	BST-47490
		.7300	1	3	5	.020"R	BST-47491
		.7300	1	3	5	BN	BST-47507
		.7300	1	4	6	SQ	BST-47494
		.7300	1	4	6	.020"R	BST-47492
		.7300	1	4	6	BN	BST-47508
		.7300	1	5	7	SQ	BST-47495
		.7300	1	5	7	.020"R	BST-47493
1	1	.9800	1-1/4	3	5	SQ	BST-47468
		.9800	1-1/4	3	5	.020"R	BST-47469
		.9800	1-1/4	3	5	BN	BST-47496
		.9800	1-1/4	4	6	SQ	BST-47472
		.9800	1-1/4	4	6	.020"R	BST-47470
		.9800	1-1/4	4	6	BN	BST-47497
		.9800	1-1/4	5	7	SQ	BST-47473
		.9800	1-1/4	5	7	.020"R	BST-47471
		.9800	1-1/4	5	7	BN	BST-47498



Ultra High Performance Speeds & Feeds

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	.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)	P	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	M	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	S	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.

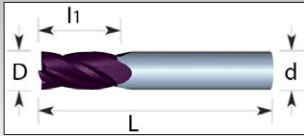


ULTRA HIGH PERFORMANCE



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

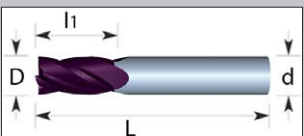
- Square & Corner Radius End
- 4 & 5 Flute TiALN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- Extreme Production
- Unique Polishing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin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



Square & Corner Radius End - Fractional								
Cutter D	Shank d	LOC 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	BST-45006	--	--	
		1/2	1-1/2	.010"R	BST-45007	--	--	
3/16	3/16	3/8	2	SQ	BST-45177	--	--	
		3/8	2	.015"R	BST-45178	--	--	
		5/8	2	SQ	BST-45009	--	--	
		5/8	2	.015"R	BST-45010	--	--	
		3/4	2-1/2	SQ	BST-45081	--	--	
		3/4	2-1/2	.015"R	BST-45082	--	--	
		1-1/8	3	SQ	BST-45161	--	--	
		1-1/8	3	.015"R	BST-47531	--	--	
		3/8	2	SQ	BST-45179	--	--	
		3/8	2	.015"R	BST-45180	--	--	
1/4	1/4	3/4	2-1/2	SQ	BST-45012	BST-45053	BST-45015	
		3/4	2-1/2	.020"R	BST-45014	BST-45055	BST-45016	
		1-1/8	3	SQ	BST-45083	BST-45106	BST-47582	
		1-1/8	3	.020"R	BST-45084	BST-45107	BST-47583	
		1-1/2	4	SQ	BST-45162	--	BST-47596	
		1-1/2	4	.020"R	BST-47532	--	BST-47597	
		3/8	2	SQ	BST-45181	--	--	
		3/8	2	.020"R	BST-45182	--	--	
5/16	5/16	13/16	2-1/2	SQ	BST-45017	BST-45056	BST-45019	
		13/16	2-1/2	.020"R	BST-45018	BST-45057	BST-45020	
		1-1/8	3	SQ	BST-45085	BST-45108	BST-47584	
		1-1/8	3	.020"R	BST-45086	BST-45109	BST-47585	
		1-5/8	4	SQ	BST-45163	--	BST-47598	
		1-5/8	4	.020"R	BST-47533	--	BST-47599	
		1/2	2	SQ	BST-45183	--	--	
3/8	3/8	1/2	2	.020"R	BST-45184	--	--	
		7/8	2-1/2	SQ	BST-45021	BST-45058	BST-45025	
		7/8	2-1/2	.020"R	BST-45023	BST-45060	BST-45026	
		7/8	2-1/2	.030"R	BST-45024	BST-45061	--	
		1-1/8	3	SQ	BST-45087	BST-45110	BST-47586	
		1-1/8	3	.020"R	BST-45088	BST-45111	BST-47587	
		1-3/4	4	SQ	BST-45164	--	BST-47600	
		1-3/4	4	.020"R	BST-47534	--	BST-47601	
		1	2-3/4	SQ	BST-45028	BST-45062	--	
		2	4	SQ	BST-45089	BST-45112	--	
1/2	1/2	5/8	2-1/2	SQ	BST-45185	BST-45191	--	
		5/8	2-1/2	.030"R	BST-45186	BST-45192	--	
		1-1/4	3	SQ	BST-45029	BST-45063	BST-45033	
		1-1/4	3	.015"R	BST-45030	BST-45064	--	
		1-1/4	3	.030"R	BST-45031	BST-45065	BST-45034	
		1-1/4	3	.060"R	BST-45032	BST-45066	--	
		1	2-3/4	SQ	BST-45028	BST-45062	--	

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

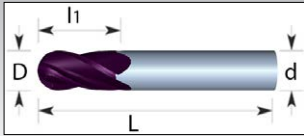
- Square & Corner Radius End
- 4 & 5 Flute TiALN Coated
- Variable Pitch, Reduces Chatter
- Round & Weldon Shanks
- Center Cutting
- Fractional Sizes
- Extreme Production
- Unique Polishing Process
- Unique Honing Process
- Plunging, Pocketing
- Slotting, Ramping, Profiling
- Ultra Premium Micrograin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



Square & Corner Radius End - Fractional								
Cutter D	Shank d	LOC 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	BST-45090	BST-45113	BST-47588	
		2	4	.015"R	BST-45091	BST-45114	--	
		2	4	.030"R	BST-45092	BST-45115	BST-47589	
		2	4	.060"R	BST-45093	BST-45116	--	
		3	6	SQ	BST-45165	--	BST-47602	
		3	6	.030"R	BST-47535	--	BST-47603	
5/8	5/8	3/4	3	SQ	BST-45187	BST-45193	--	
		3/4	3	.030"R	BST-45188	BST-45194	--	
		1-1/4	3-1/2	SQ	BST-45035	BST-45067	BST-45039	
		1-1/4	3-1/2	.030"R	BST-45036	BST-45068	BST-45040	
		1-1/4	3-1/2	.060"R	BST-45037	BST-45069	--	
		1-1/4	3-1/2	.125"R	BST-45038	BST-45070	--	
		2-1/4	5	SQ	BST-45094	BST-45117	BST-47590	
		2-1/4	5	.030"R	BST-45095	BST-45118	BST-47591	
		2-1/4	5	.060"R	BST-45096	BST-45119	--	
		2-1/4	5	.125"R	BST-45097	BST-45120	--	
		3	6	SQ	BST-45166	--	BST-47604	
		3	6	.030"R	BST-47536	--	BST-47605	
		1	3	SQ	BST-45189	BST-45195	--	
		1	3	.030"R	BST-45190	BST-45196	--	
3/4	3/4	1-1/2	4	SQ	BST-45041	BST-45071	BST-45045	
		1-1/2	4	.030"R	BST-45042	BST-45073	BST-45046	
		1-1/2	4	.060"R	BST-45043	BST-45074	--	
		1-1/2	4	.125"R	BST-45044	BST-45075	--	
		2-1/4	5	SQ	BST-45098	BST-45121	BST-47592	
		2-1/4	5	.030"R	BST-45099	BST-45122	BST-47593	
		2-1/4	5	.060"R	BST-45100	BST-45123	--	
		2-1/4	5	.125"R	BST-45101	BST-45124	--	
		3	6	SQ	BST-45167	--	BST-47606	
		3	6	.030"R	BST-47537	--	BST-47607	
1	1	1-1/2	4	SQ	BST-45000	BST-45047	BST-45004	
		1-1/2	4	.030"R	BST-45001	BST-45048	BST-45005	
		1-1/2	4	.060"R	BST-45002	BST-45049	--	
		1-1/2	4	.125"R	BST-45003	BST-45050	--	
		2-1/4	5	SQ	BST-45076	BST-45102	BST-47580	
		2-1/4	5	.030"R	BST-45077	BST-45103	BST-47581	
		2-1/4	5	.060"R	BST-45078	BST-45104	--	
		2-1/4	5	.125"R	BST-45079	BST-45105	--	
		3	6	SQ	BST-45160	--	BST-47594	
		3	6	.030"R	BST-47530	--	BST-47595	

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
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- Ultra Premium Micrograin Carbide



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	BST-45127	--
		3/4	2-1/2	BN	BST-45144	--
		1-1/8	3	BN	BST-45170	--
1/4	1/4	3/4	2-1/2	BN	BST-45128	BST-45136
		1-1/8	3	BN	BST-45145	BST-45153
		1-1/2	4	BN	BST-45171	--
5/16	5/16	13/16	2-1/2	BN	BST-45129	BST-45137
		1-1/8	3	BN	BST-45146	BST-45154
		1-5/8	4	BN	BST-45172	--
3/8	3/8	7/8	2-1/2	BN	BST-45130	BST-45138
		1-1/8	3	BN	BST-45147	BST-45155
		1-3/4	4	BN	BST-45173	--
7/16	7/16	1	2-3/4	BN	BST-45131	BST-45139
		2	4	BN	BST-45148	BST-45156
		3	6	BN	BST-45174	--
1/2	1/2	1	3	BN	BST-45132	BST-45140
		2	4	BN	BST-45149	BST-45157
		3	6	BN	BST-45174	--
5/8	5/8	1-1/4	3-1/2	BN	BST-45133	BST-45141
		2-1/4	5	BN	BST-45150	BST-45158
		3	6	BN	BST-45175	--
3/4	3/4	1-1/2	4	BN	BST-45134	BST-45142
		2-1/4	5	BN	BST-45151	BST-45159
		3	6	BN	BST-45176	--
1	1	1-1/2	4	BN	BST-45125	BST-45135
		2-1/4	5	BN	BST-45143	BST-45152
		3	6	BN	BST-45168	--

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

Unique Honing Process

Chip Management Geometry

ALL4 Premium Coating

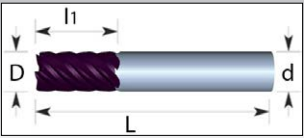
NEW!

Ultra Premium Micrograin Carbide

Use On-Size Hydraulic Holders or Shrink Fit for best performance!

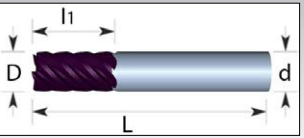
P	●	Steel
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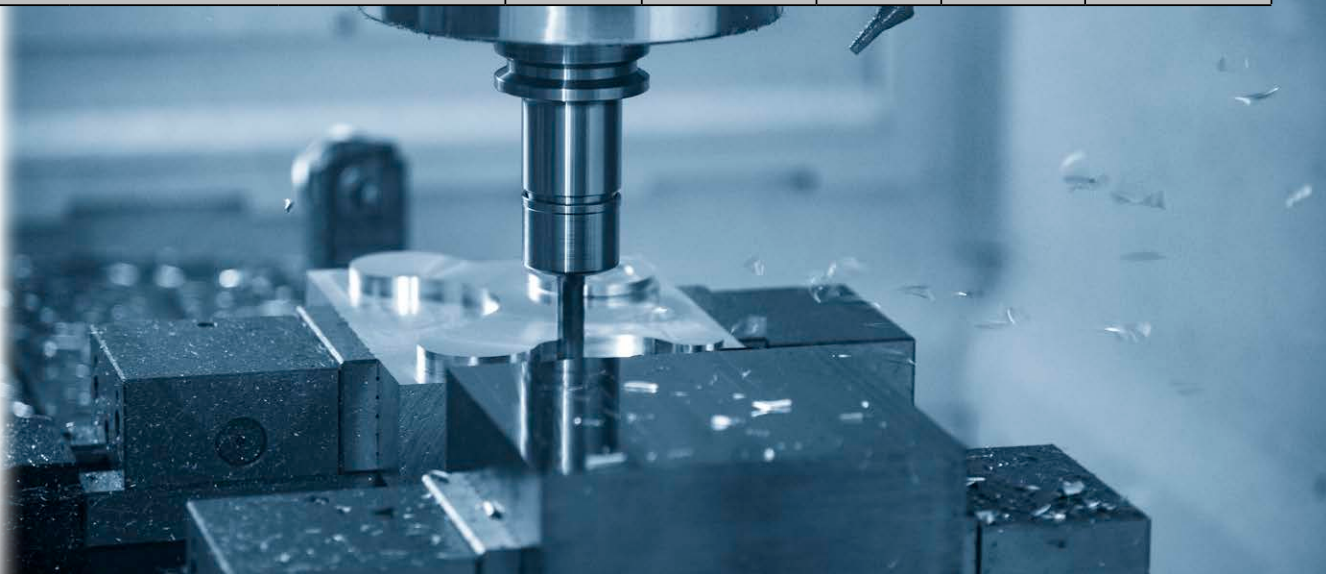


HEM Square & Corner Radius End - Fractional

Cutter	Shank	LOC	Overall	End	ALL4				
					5 Flute	5 Flute Chipbreaker	6 Flute	7 Flute	7 Flute Chipbreaker
1/4	1/4	3/4	2-1/2	SQ	BST-47608	--	BST-45199	--	--
		3/4	2-1/2	.015CR	BST-47609	--	--	--	--
		3/4	2-1/2	.030CR	BST-47610	--	BST-45200	--	--
		1-1/8	3	SQ	BST-47611	--	--	--	--
		1-1/8	3	.015CR	BST-47612	--	--	--	--
		1-1/8	3	.030CR	BST-47613	--	--	--	--
5/16	5/16	13/16	2-1/2	SQ	BST-47614	--	--	--	--
		13/16	2-1/2	.015CR	BST-47615	--	--	--	--
		13/16	2-1/2	.030CR	BST-47616	--	--	--	--
		1-1/4	3	SQ	BST-47617	--	--	--	--
		1-1/4	3	.015CR	BST-47618	--	--	--	--
		1-1/4	3	.030CR	BST-47619	--	--	--	--
		2-1/8	4	SQ	BST-47620	--	--	--	--
		2-1/8	4	.015CR	BST-47621	--	--	--	--
3/8	3/8	2-1/8	4	.030CR	BST-47622	--	--	--	--
		1	2-1/2	SQ	BST-47623	BST-47638	BST-45201	BST-47632	BST-47647
		1	2-1/2	.015CR	BST-47624	BST-47639	--	BST-47633	BST-47648
		1	2-1/2	.030CR	BST-47625	BST-47640	BST-45202	BST-47634	BST-47649
		1-1/4	3	SQ	BST-47626	BST-47641	--	BST-47635	BST-47650
		1-1/4	3	.015CR	BST-47627	BST-47642	--	BST-47636	BST-47651
		1-1/4	3	.030CR	BST-47628	BST-47643	--	BST-47637	BST-47652
		2-1/8	4	SQ	BST-47629	BST-47644	--	--	--
		2-1/8	4	.015CR	BST-47630	BST-47645	--	--	--
		2-1/8	4	.030CR	BST-47631	BST-47646	--	--	--
1/2	1/2	1-1/4	3	SQ	BST-47653	BST-47685	BST-45203	BST-47669	BST-47701
		1-1/4	3	.015CR	BST-47654	BST-47686	--	BST-47670	BST-47702
		1-1/4	3	.030CR	BST-47655	BST-47687	BST-45204	BST-47671	BST-47703
		1-1/4	3	.060CR	BST-47656	BST-47688	--	BST-47672	--
		2-1/8	4	SQ	BST-47657	BST-47689	--	BST-47673	BST-47704
		2-1/8	4	.015CR	BST-47658	BST-47690	--	BST-47674	BST-47705
		2-1/8	4	.030CR	BST-47659	BST-47691	--	BST-47675	BST-47706
		2-1/8	4	.060CR	BST-47660	BST-47692	--	BST-47676	--
		2-5/8	5	SQ	BST-47661	BST-47693	--	BST-47677	BST-47707
		2-5/8	5	.015CR	BST-47662	BST-47694	--	BST-47678	BST-47708
		2-5/8	5	.030CR	BST-47663	BST-47695	--	BST-47679	BST-47709
		2-5/8	5	.060CR	BST-47664	BST-47696	--	BST-47680	--
		3-1/4	6	SQ	BST-47665	BST-47697	--	BST-47681	BST-47710
		3-1/4	6	.015CR	BST-47666	BST-47698	--	BST-47682	BST-47711
		3-1/4	6	.030CR	BST-47667	BST-47699	--	BST-47683	BST-47712
		3-1/4	6	.060CR	BST-47668	BST-47700	--	BST-47684	--

HEM Square & Corner Radius End - Fractional

Cutter	Shank	LOC	Overall	End	ALL4				
					5 Flute	5 Flute Chipbreaker	6 Flute	7 Flute	7 Flute Chipbreaker
5/8	5/8	1-1/2	3-1/2	SQ	BST-47713	BST-47731	BST-45205	BST-47722	BST-47740
		1-1/2	3-1/2	.030CR	BST-47714	BST-47732	BST-45206	BST-47723	BST-47741
		1-1/2	3-1/2	.060CR	BST-47715	BST-47733	--	BST-47724	--
		2-1/2	5	SQ	BST-47716	BST-47734	--	BST-47725	BST-47742
		2-1/2	5	.030CR	BST-47717	BST-47735	--	BST-47726	BST-47743
		2-1/2	5	.060CR	BST-47718	BST-47736	--	BST-47727	--
		3-1/4	6	SQ	BST-47719	BST-47737	--	BST-47728	BST-47744
		3-1/4	6	.030CR	BST-47720	BST-47738	--	BST-47729	BST-47745
3/4	3/4	3-1/4	6	.060CR	BST-47721	BST-47739	--	BST-47730	--
		1-1/2	4	SQ	BST-47746	BST-47764	BST-45207	BST-47755	BST-47770
		1-1/2	4	.030CR	BST-47747	BST-47765	BST-45208	BST-47756	BST-47771
		1-1/2	4	.060CR	BST-47748	--	--	BST-47757	--
		2-1/2	5	SQ	BST-47749	BST-47766	--	BST-47758	BST-47772
		2-1/2	5	.030CR	BST-47750	BST-47767	--	BST-47759	BST-47773
		2-1/2	5	.060CR	BST-47751	--	--	BST-47760	--
		3-1/4	6	SQ	BST-47752	BST-47768	--	BST-47761	BST-47774
1	1	3-1/4	6	.030CR	BST-47753	BST-47769	--	BST-47762	BST-47775
		3-1/4	6	.060CR	BST-47754	--	--	BST-47763	--
		1-1/2	4	SQ	BST-47776	BST-47794	BST-45197	BST-47785	BST-47800
		1-1/2	4	.030CR	BST-47777	BST-47795	BST-45198	BST-47786	BST-47801
		1-1/2	4	.060CR	BST-47778	--	--	BST-47787	--
		2-5/8	5	SQ	BST-47779	BST-47796	--	BST-47788	BST-47802
		2-5/8	5	.030CR	BST-47780	BST-47797	--	BST-47789	BST-47803
		2-5/8	5	.060CR	BST-47781	--	--	BST-47790	--
		3-1/4	6	SQ	BST-47782	BST-47798	--	BST-47791	BST-47804
		3-1/4	6	.030CR	BST-47783	BST-47799	--	BST-47792	BST-47805
		3-1/4	6	.060CR	BST-47784	--	--	BST-47793	--

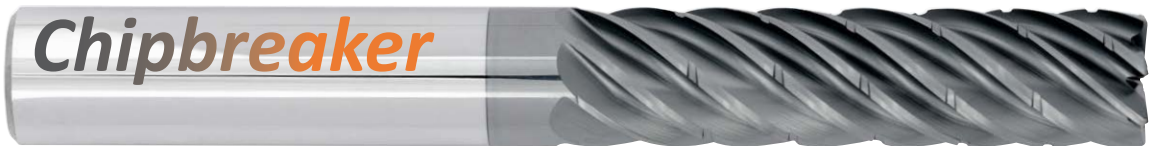


Ultra High Performance HEM Speeds & Feeds										
Material Classification		Speed	Feed Per Tooth By End Mill Diameter (IPT)							
		SFM	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Softer Cast Iron	K	375-950	.0030	.0032	.0035	.0037	.0040	.0045	.0070	.0090
Harder Cast Iron		150-475	.0018	.0020	.0025	.0027	.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		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	M	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

Precision Carbide Custom Order

End Face:

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

Dimensions:

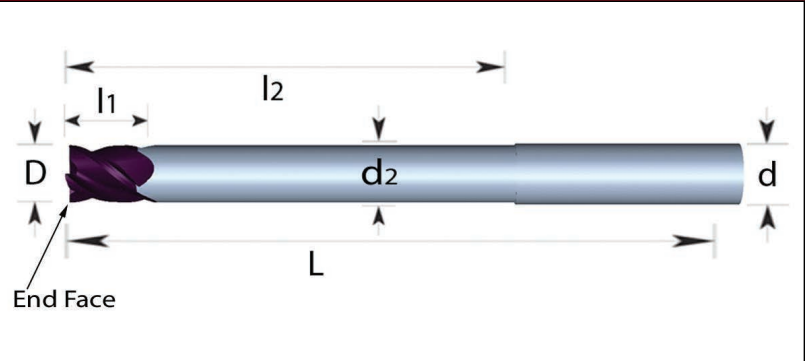
- L - Overall Length (OAL): _____
- d - Shank Diameter: _____
- l1 - Length of Cut (LOC): _____
- D - Tool Diameter: _____
- Number of Flutes: _____

Shank:

- ☐ Round
- ☐ Weldon Flat

Coating:

- ☐ Uncoated
- ☐ ALL4 (Aluminum Chromium Titanium Nitride)
- ☐ ZrN (Zirconium Nitride)
- ☐ DLC (Diamond Like Carbon)



Neck Relief:

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

Tapered:

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

Quantity Required (Note: minimums will apply based on size & style): _____

Material(s) being machined: _____

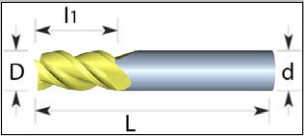
Series:

- ☐ General Purpose
- ☐ High Performance
- ☐ Ultra High Performance
- ☐ Ultra HP Aluminum



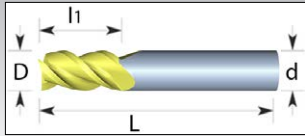
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High Temp. Alloys
H	Hardened Steel

- 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



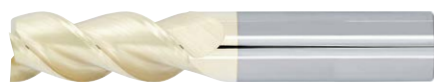
P	Steel
M	Stainless Steel
K	Cast Iron
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H	Hardened Steel

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



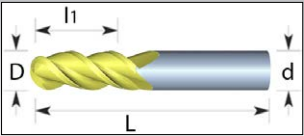
Square & Corner Radius - 3 Flute Medium/Roughing									
Cutter D	Shank d	LOC L1	Overall L	End Face	Uncoated		ZrN		
					3 Flute	Chipbreaker	3 Flute	Chipbreaker	
1/4	1/4	3/4	2-1/2	SQ	BST-47214	--	BST-47265	--	
		3/4	2-1/2	.015CR	BST-47215	--	BST-47266	--	
		3/4	2-1/2	.030CR	BST-47217	--	--	--	
		3/4	2-1/2	.060CR	BST-47218	--	--	--	
5/16	5/16	13/16	2-1/2	SQ	BST-47220	--	BST-47269	--	
		13/16	2-1/2	.030CR	BST-47221	--	BST-47270	--	
		13/16	2-1/2	.060CR	BST-47222	--	--	--	
3/8	3/8	1	2-1/2	SQ	BST-47223	--	BST-47271	--	
		1	2-1/2	.030CR	BST-47224	BST-47226	BST-47272	BST-47273	
		1	2-1/2	.060CR	BST-47225	--	--	--	
		1-1/8	3	SQ	BST-47227	--	BST-47274	--	
		1-1/8	3	.030CR	BST-47228	BST-47229	BST-47275	BST-47276	
1/2	1/2	1-1/4	3	SQ	BST-47230	--	BST-47277	--	
		1-1/4	3	.030CR	BST-47231	BST-47235	BST-47278	BST-47279	
		1-1/4	3	.060CR	BST-47232	--	--	--	
		1-1/4	3	.090CR	BST-47233	--	--	--	
		1-1/4	3	.120CR	BST-47234	--	--	--	
		2	4	SQ	BST-47236	--	BST-47280	--	
		2	4	.030CR	BST-47237	BST-47238	BST-47281	BST-47282	
5/8	5/8	1-1/4	3-1/2	SQ	BST-47239	--	BST-47283	--	
		1-1/4	3-1/2	.030CR	BST-47240	BST-47244	BST-47284	BST-47285	
		1-1/4	3-1/2	.060CR	BST-47241	--	--	--	
		1-1/4	3-1/2	.090CR	BST-47242	--	--	--	
		1-1/4	3-1/2	.120CR	BST-47243	--	--	--	
		2-1/4	5	SQ	BST-47245	--	BST-47286	--	
		2-1/4	5	.030CR	BST-47246	BST-47247	BST-47287	BST-47288	
3/4	3/4	1-5/8	4	SQ	BST-47248	--	BST-47289	--	
		1-5/8	4	.030CR	BST-47249	BST-47253	BST-47290	BST-47291	
		1-5/8	4	.060CR	BST-47250	--	--	--	
		1-5/8	4	.090CR	BST-47251	--	--	--	
		1-5/8	4	.120CR	BST-47252	--	--	--	
		2-1/4	5	SQ	BST-47254	--	BST-47292	--	
		2-1/4	5	.030CR	BST-47255	BST-47256	BST-47293	BST-47294	
1	1	1-1/2	4	SQ	BST-47257	--	BST-47295	--	
		1-1/2	4	.030CR	BST-47258	BST-47261	BST-47296	BST-47297	
		1-1/2	4	.060CR	BST-47259	--	--	--	
		1-1/2	4	.120CR	BST-47260	--	--	--	
		2-1/4	5	SQ	BST-47262	--	BST-47298	--	
		2-1/4	5	.030CR	BST-47263	BST-47264	BST-47299	BST-47300	

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	BST-47072	BST-47073	--	--	--	--	
3/16	3/16	5/8	2	SQ	BST-47074	BST-47076	BST-46958	BST-46960	BST-47188	BST-47189	
		3/4	2-1/2	SQ	BST-47106	BST-47107	BST-46990	BST-46991	--	--	
		1-1/8	3	SQ	BST-47154	BST-47155	BST-47038	BST-47039	--	--	
1/4	1/4	3/4	2-1/2	SQ	BST-47077	BST-47079	BST-46961	BST-46963	BST-47190	BST-47192	
		3/4	2-1/2	.020"R	BST-47078	BST-47080	BST-46962	BST-46964	BST-47191	BST-47193	
		1-1/8	3	SQ	BST-47108	BST-47109	BST-46992	BST-46993	--	--	
		1-1/2	4	SQ	BST-47156	BST-47157	BST-47040	BST-47041	--	--	
5/16	5/16	13/16	2-1/2	SQ	BST-47082	BST-47084	BST-46966	BST-46968	BST-47194	BST-47196	
		13/16	2-1/2	.020"R	BST-47083	BST-47086	BST-46967	BST-46970	BST-47195	BST-47197	
		1-1/8	3	SQ	BST-47110	BST-47111	BST-46994	BST-46995	--	--	
		1-5/8	4	SQ	BST-47158	BST-47159	BST-47042	BST-47043	--	--	
3/8	3/8	1	2-1/2	SQ	BST-47088	BST-47090	BST-46972	BST-46974	BST-47198	BST-47200	
		1	2-1/2	.020"R	BST-47089	BST-47091	BST-46973	BST-46975	BST-47199	BST-47201	
		1-1/8	3	SQ	BST-47112	BST-47113	BST-46996	BST-46997	--	--	
		1-3/4	4	SQ	BST-47160	BST-47161	BST-47044	BST-47045	--	--	
1/2	1/2	1-1/4	3	SQ	BST-47092	BST-47094	BST-46976	BST-46978	BST-47202	BST-47204	
		1-1/4	3	.030"R	BST-47093	BST-47095	BST-46977	BST-46979	BST-47203	BST-47205	
		2	4	SQ	BST-47114	BST-47115	BST-46998	BST-46999	--	--	
		3	6	SQ	BST-47162	BST-47163	BST-47046	BST-47047	--	--	
5/8	5/8	1-1/4	3-1/2	SQ	BST-47096	BST-47098	BST-46980	BST-46982	BST-47206	BST-47208	
		1-1/4	3-1/2	.030"R	BST-47097	BST-47099	BST-46981	BST-46983	BST-47207	BST-47209	
		2-1/4	5	SQ	BST-47116	BST-47117	BST-47000	BST-47001	--	--	
		3	6	SQ	BST-47164	BST-47165	BST-47048	BST-47049	--	--	
3/4	3/4	1-1/2	4	SQ	BST-47100	BST-47102	BST-46984	BST-46986	BST-47210	BST-47212	
		1-1/2	4	.030"R	BST-47101	BST-47103	BST-46985	BST-46987	BST-47211	BST-47213	
		2-1/4	5	SQ	BST-47118	BST-47119	BST-47002	BST-47003	--	--	
		3	6	SQ	BST-47166	BST-47167	BST-47050	BST-47051	--	--	
1	1	1-1/2	4	SQ	BST-47068	BST-47070	BST-46954	BST-46956	BST-47184	BST-47186	
		1-1/2	4	.030"R	BST-47069	BST-47071	BST-46955	BST-46957	BST-47185	BST-47187	
		2-1/4	5	SQ	BST-47104	BST-47105	BST-46988	BST-46989	--	--	
		3	6	SQ	BST-47152	BST-47153	BST-47036	BST-47037	--	--	



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

- 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	Shank	LOC	Overall	End	Uncoated		ZrN	
D	d	Lh	L	Face	2 Flute	3 Flute	2 Flute	3 Flute
3/16	3/16	5/8	2	BN	BST-47122	BST-47123	BST-47006	BST-47007
		3/4	2-1/2	BN	BST-47138	BST-47139	BST-47022	BST-47023
		1-1/8	3	BN	BST-47170	BST-47171	BST-47054	BST-47055
1/4	1/4	3/4	2-1/2	BN	BST-47124	BST-47125	BST-47008	BST-47009
		1-1/8	3	BN	BST-47140	BST-47141	BST-47024	BST-47025
		1-1/2	4	BN	BST-47172	BST-47173	BST-47056	BST-47057
5/16	5/16	13/16	2-1/2	BN	BST-47126	BST-47127	BST-47010	BST-47011
		1-1/8	3	BN	BST-47142	BST-47143	BST-47026	BST-47027
		1-5/8	4	BN	BST-47174	BST-47175	BST-47058	BST-47059
3/8	3/8	1	2-1/2	BN	BST-47128	BST-47129	BST-47012	BST-47013
		1-1/8	3	BN	BST-47144	BST-47145	BST-47028	BST-47029
		1-3/4	4	BN	BST-47176	BST-47177	BST-47060	BST-47061
1/2	1/2	1-1/4	3	BN	BST-47130	BST-47131	BST-47014	BST-47015
		2	4	BN	BST-47146	BST-47147	BST-47030	BST-47031
		3	6	BN	BST-47178	BST-47179	BST-47062	BST-47063
5/8	5/8	1-1/4	3-1/2	BN	BST-47132	BST-47133	BST-47016	BST-47017
		2-1/4	5	BN	BST-47148	BST-47149	BST-47032	BST-47033
		3	6	BN	BST-47180	BST-47181	BST-47064	BST-47065
3/4	3/4	1-1/2	4	BN	BST-47134	BST-47135	BST-47018	BST-47019
		2-1/4	5	BN	BST-47150	BST-47151	BST-47034	BST-47035
		3	6	BN	BST-47182	BST-47183	BST-47066	BST-47067
1	1	1-1/2	4	BN	BST-47120	BST-47121	BST-47004	BST-47005
		2-1/4	5	BN	BST-47136	BST-47137	BST-47020	BST-47021
		3	6	BN	BST-47168	BST-47169	BST-47052	BST-47053



Ultra HP Aluminum Speeds & Feeds

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	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.



Precision Carbide

Buckeye Saws & Tools
792 Jim Lachey Drive
St. Henry, OH. 45883
P: 419.763.4300

www.buckeyesaws.com
info@buckeyesaws.com

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