

SKOOKUM TOOLS®

SOLID CARBIDE END MILLS

2027

ENGINEERED FOR PERFORMANCE • CANADIAN MADE TOOLING

www.skookumendmills.com

PRODUCT FAMILIES

PRECISION CUTTING TOOL FAMILIES

Choose an end mill by workpiece material, cutting strategy and finish requirements. General Purpose tools support everyday milling. HP and UHP variable-pitch designs help reduce chatter in demanding cuts. HEM tools are suited to dynamic toolpaths, HTAS tools to stainless and high-temperature alloys, and polished Aluminum tools to effective chip evacuation in nonferrous materials.

GOOD | General Purpose — 1,750 tools

30° helix; honed cutting edges; 10% micrograin carbide; diameter tolerance +0.0000 / -0.0020 in.

BETTER | High Performance — 261 tools

Variable pitch and honed edges; 10% micrograin carbide; diameter tolerance +0.0000 / -0.0020 in.

BEST | Ultra High Performance — 234 tools

Variable pitch; 10% premium micrograin carbide; diameter tolerance +0.0000 / -0.0015 in.

BEST | High Efficiency Machining — 210 tools

Variable-pitch tools for HEM/dynamic milling; with or without chipbreakers; diameter tolerance +0.0000 / -0.0015 in.

SPECIALIST | High Temp Alloy & Stainless — 1,342 tools

Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

BEST | Aluminum & Nonferrous — 347 tools

Balanced pitch, polished flutes and cylindrical margin; uncoated, ZrN and selected DLC options; diameter tolerance +0.0000 / -0.0004 in.

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30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square End | Stub Length | Single End | Inch

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
1/32	1/8	1/16	1-1/2	4321000	4321001	4321002	4321096	4321097	4321098
3/64	1/8	3/32	1-1/2	4321003	4321004	4321005	4321099	4321100	4321101
1/16	1/8	1/8	1-1/2	4321006	4321007	4321008	4321102	4321103	4321104
3/32	1/8	3/16	1-1/2	4321009	4321010	4321011	4321105	4321106	4321107
1/8	1/8	1/4	1-1/2	4321015	4321016	4321017	4321111	4321112	4321113
5/32	3/16	5/16	2	4321018	4321019	4321020	4321114	4321115	4321116
3/16	3/16	3/8	2	4321021	4321022	4321023	4321117	4321118	4321119
7/32	1/4	7/16	2	4321024	4321025	4321026	4321120	4321121	4321122
1/4	1/4	1/2	2	4321027	4321028	4321029	4321123	4321124	4321125
5/16	5/16	1/2	2	4321030	4321031	4321032	4321126	4321127	4321128
3/8	3/8	5/8	2	4321033	4321034	4321035	4321129	4321130	4321131
7/16	7/16	5/8	2-1/2	4321036	4321037	4321038	4321132	4321133	4321134
1/2	1/2	5/8	2-1/2	4321039	4321040	4321041	4321135	4321136	4321137
5/8	5/8	3/4	3	4321042	4321043	4321044	4321138	4321139	4321140
3/4	3/4	1	3	4321045	4321046	4321047	4321141	4321142	4321143
1	1	1	3	4321012	4321013	4321014	4321108	4321109	4321110

Square End | Regular Length | Single End | Inch

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
1/32	1/8	3/32	1-1/2	4321147	4321148	4321149	4321543	4321544	4321545
3/64	1/8	1/8	1-1/2	4321150	4321151	4321152	4321546	4321547	4321548
1/16	1/8	3/16	1-1/2	4321153	4321154	4321155	4321549	4321550	4321551
5/64	1/8	1/4	1-1/2	4321156	4321157	4321158	4321552	4321553	4321554
3/32	1/8	3/8	1-1/2	4321159	4321160	4321161	4321555	4321556	4321557
7/64	1/8	3/8	1-1/2	4321166	4321167	4321168	4321562	4321563	4321564
1/8	1/8	1/2	1-1/2	4321169	4321170	4321171	4321565	4321566	4321567
9/64	3/16	9/16	2	4321173	4321174	4321175	4321569	4321570	4321571
5/32	3/16	9/16	2	4321176	4321177	4321178	4321572	4321573	4321574
11/64	3/16	9/16	2	4321179	4321180	4321181	4321575	4321576	4321577
3/16	3/16	5/8	2	4321182	4321183	4321184	4321578	4321579	4321580
13/64	1/4	5/8	2-1/2	4321186	4321187	4321188	4321582	4321583	4321584
7/32	1/4	5/8	2-1/2	4321189	4321190	4321191	4321585	4321586	4321587
15/64	1/4	3/4	2-1/2	4321192	4321193	4321194	4321588	4321589	4321590
1/4	1/4	3/4	2-1/2	4321195	4321196	4321197	4321591	4321592	4321593
17/64	3/8	7/8	2-1/2	4321199	4321200	4321201	4321595	4321596	4321597

SOLID CARBIDE END MILLS | 2027



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square End | Regular Length | Single End | Inch (continued)									
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
9/32	3/8	7/8	2-1/2	4321202	4321203	4321204	4321598	4321599	4321600
19/64	3/8	7/8	2-1/2	4321205	4321206	4321207	4321601	4321602	4321603
5/16	5/16	7/8	2-1/2	4321208	4321209	4321210	4321604	4321605	4321606
21/64	3/8	7/8	2-1/2	4321212	4321213	4321214	4321608	4321609	4321610
11/32	3/8	7/8	2-1/2	4321215	4321216	4321217	4321611	4321612	4321613
23/64	3/8	7/8	2-1/2	4321218	4321219	4321220	4321614	4321615	4321616
3/8	3/8	1	2-1/2	4321221	4321222	4321223	4321617	4321618	4321619
25/64	7/16	1	2-1/2	4321225	4321226	4321227	4321621	4321622	4321623
13/32	7/16	1	2-1/2	4321228	4321229	4321230	4321624	4321625	4321626
27/64	7/16	1	2-1/2	4321231	4321232	4321233	4321627	4321628	4321629
7/16	7/16	1	2-1/2	4321234	4321235	4321236	4321630	4321631	4321632
29/64	1/2	1	3	4321238	4321239	4321240	4321634	4321635	4321636
15/32	1/2	1	3	4321241	4321242	4321243	4321637	4321638	4321639
31/64	1/2	1	3	4321244	4321245	4321246	4321640	4321641	4321642
1/2	1/2	1	3	4321247	4321248	4321249	4321643	4321644	4321645
1/2	1/2	1-1/4	3			4324001			4324000
33/64	9/16	1-1/4	3-1/2	4321251	4321252	4321253	4321647	4321648	4321649
17/32	9/16	1-1/4	3-1/2	4321254	4321255	4321256	4321650	4321651	4321652
35/64	9/16	1-1/4	3-1/2	4321257	4321258	4321260	4321653	4321654	4321655
9/16	9/16	1-1/4	3-1/2	4321261	4321262	4321263	4321656	4321657	4321658
37/64	5/8	1-1/4	3-1/2	4321265	4321266	4321267	4321660	4321661	4321662
19/32	5/8	1-1/4	3-1/2	4321268	4321269	4321270	4321663	4321664	4321665
39/64	5/8	1-1/4	3-1/2	4321271	4321272	4321273	4321666	4321667	4321668
5/8	5/8	1-1/4	3-1/2	4321274	4321275	4321276	4321669	4321670	4321671
41/64	3/4	1-1/2	4	4321278	4321279	4321280	4321673	4321674	4321675
21/32	3/4	1-1/2	4	4321281	4321282	4321283	4321676	4321677	4321678
43/64	3/4	1-1/2	4	4321284	4321285	4321286	4321679	4321680	4321681
11/16	3/4	1-1/2	4	4321287	4321288	4321289	4321682	4321683	4321684
45/64	3/4	1-1/2	4	4321290	4321291	4321292	4321685	4321686	4321687
23/32	3/4	1-1/2	4	4321293	4321294	4321295	4321688	4321689	4321690
47/64	3/4	1-1/2	4	4321296	4321297	4321298	4321691	4321692	4321693
3/4	3/4	1-1/2	4	4321299	4321300	4321301	4321694	4321695	4321696
49/64	7/8	1-1/2	4	4321303	4321304	4321305	4321698	4321699	4321700
25/32	7/8	1-1/2	4	4321306	4321307	4321308	4321701	4321702	4321703
51/64	7/8	1-1/2	4	4321309	4321310	4321311	4321704	4321705	4321706
13/16	7/8	1-1/2	4	4321312	4321313	4321314	4321707	4321708	4321709
53/64	7/8	1-1/2	4	4321315	4321316	4321317	4321710	4321711	4321712



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square End | Regular Length | Single End | Inch (continued)

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
27/32	7/8	1-1/2	4	4321318	4321319	4321320	4321713	4321714	4321715
55/64	7/8	1-1/2	4	4321321	4321322	4321323	4321716	4321717	4321718
7/8	7/8	1-1/2	4	4321324	4321325	4321326	4321719	4321720	4321721
57/64	1	1-1/2	4	4321328	4321329	4321330	4321723	4321724	4321725
29/32	1	1-1/2	4	4321331	4321332	4321333	4321726	4321727	4321728
59/64	1	1-1/2	4	4321334	4321335	4321336	4321729	4321730	4321731
15/16	1	1-1/2	4	4321337	4321338	4321339	4321732	4321733	4321734
61/64	1	1-1/2	4	4321340	4321341	4321342	4321735	4321736	4321737
31/32	1	1-1/2	4	4321343	4321344	4321345	4321738	4321739	4321740
63/64	1	1-1/2	4	4321346	4321347	4321348	4321741	4321742	4321743
1	1	1-1/2	4	4321162	4321163	4321164	4321558	4321559	4321560

Square End | Extra Long Length | Single End | Inch

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1/8	1/8	1	3	4321815	4321816	4321879	4321880
3/16	3/16	1-1/8	3	4321817	4321818	4321881	4321882
1/4	1/4	1-1/2	4	4321819	4321820	4321883	4321884
1/4	1/4	1-1/2	6	4321821	4321822	4321885	4321886
5/16	5/16	1-1/2	6	4321825	4321826	4321889	4321890
5/16	5/16	1-5/8	4	4321823	4321824	4321887	4321888
3/8	3/8	1-1/2	6	4321831	4321832	4321895	4321896
3/8	3/8	1-3/4	4	4321829	4321830	4321893	4321894
3/8	3/8	3	6	4321827	4321828	4321891	4321892
1/2	1/2	1-1/2	6	4321835	4321836	4321899	4321900
1/2	1/2	3	6	4321833	4321834	4321897	4321898
5/8	5/8	3	6	4321837	4321838	4321901	4321902
3/4	3/4	3	6	4321839	4321840	4321903	4321904
3/4	3/4	4	7	4321841	4321842	4321905	4321906
1	1	3	6	4321810	4321812	4321875	4321876
1	1	4	7	4321813	4321814	4321877	4321878



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square End | Long Length | Single End | Inch							
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1/8	1/8	3/4	2-1/2	4321746	4321747	4321790	4321791
3/16	3/16	3/4	2-1/2	4321748	4321749	4321792	4321793
1/4	1/4	1-1/8	3	4321750	4321751	4321794	4321795
5/16	5/16	1-1/8	3	4321752	4321753	4321796	4321797
3/8	3/8	1-1/8	3	4321754	4321755	4321798	4321799
7/16	7/16	2	4	4321756	4321757	4321800	4321801
1/2	1/2	1-1/2	4	4321760	4321761	4321804	4321805
1/2	1/2	2	4	4321758	4321759	4321802	4321803
5/8	5/8	2-1/4	5	4321762	4321763	4321806	4321807
3/4	3/4	2-1/4	5	4321764	4321765	4321808	4321809
1	1	2-1/4	5	4321744	4321745	4321788	4321789

Square End | Stub Length | Double End | Inch								
Cutter D	Shank d	LOC	OAL	Shank Type	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1/32	1/8	1/16	1-1/2	RND	4322789	4322790	4322861	4322862
3/64	1/8	3/32	1-1/2	RND	4322791	4322792	4322863	4322864
1/16	1/8	1/8	1-1/2	RND	4322793	4322794	4322865	4322866
3/32	1/8	3/16	1-1/2	RND	4322795	4322796	4322867	4322868
7/64	1/8	7/32	1-1/2	RND	4322797	4322798	4322869	4322870
1/8	1/8	1/4	1-1/2	RND	4322799	4322800	4322871	4322872
5/32	3/16	5/16	2	RND	4322801	4322802	4322873	4322874
3/16	3/16	5/16	2	RND	4322803	4322804	4322875	4322876
7/32	1/4	3/8	2-1/2	RND	4322805	4322806	4322877	4322878
1/4	1/4	1/2	2-1/2	WLDN	4322807	4322808	4322879	4322880
9/32	5/16	1/2	2-1/2	WLDN	4322809	4322810	4322881	4322882
5/16	5/16	1/2	2-1/2	WLDN	4322811	4322812	4322883	4322884
3/8	3/8	9/16	2-1/2	WLDN	4322813	4322814	4322885	4322886
7/16	1/2	9/16	2-3/4	WLDN	4322815	4322816	4322887	4322888
1/2	1/2	5/8	3	WLDN	4322817	4322818	4322889	4322890
9/16	5/8	11/16	3-1/2	WLDN	4322819	4322820	4322891	4322892
5/8	5/8	11/16	3-1/2	WLDN	4322821	4322822	4322893	4322894
3/4	3/4	7/8	4	WLDN	4322823	4322824	4322895	4322896



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square End | Regular Length | Double End | Inch								
Cutter D	Shank d	LOC	OAL	Shank Type	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
5/32	3/16	7/16	3	RND	4323009	4323010	4323037	4323038
3/16	3/16	1/2	3	RND	4323011	4323012	4323039	4323040
7/32	1/4	9/16	4	RND	4323013	4323014	4323041	4323042
1/4	1/4	5/8	4	WLDN	4323015	4323016	4323043	4323044
5/16	5/16	3/4	4	WLDN	4323017	4323018	4323045	4323046
11/32	3/8	3/4	4	WLDN	4323019	4323020	4323047	4323048
3/8	3/8	3/4	4	WLDN	4323021	4323022	4323049	4323050
7/16	1/2	7/8	4	WLDN	4323023	4323024	4323051	4323052
1/2	1/2	1	4	WLDN	4323025	4323026	4323053	4323054
9/16	5/8	1-1/4	5	WLDN	4323027	4323028	4323055	4323056
5/8	5/8	1-1/2	6	WLDN	4323029	4323030	4323057	4323058
3/4	3/4	1-1/2	6	WLDN	4323031	4323032	4323059	4323060

Square End | Regular Length | Single End | Metric									
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
1	1	3	38	4323245	4323246	4323247	4323311	4323312	4323313
1.5	2	5	38	4323248	4323249	4323250	4323314	4323315	4323316
2	2	6	38	4323251	4323252	4323253	4323317	4323318	4323319
2.5	3	7	38	4323254	4323255	4323256	4323320	4323321	4323322
3	3	12	38	4323257	4323258	4323259	4323323	4323324	4323325
3.5	4	12	50	4323260	4323261	4323262	4323326	4323327	4323328
4	4	14	50	4323263	4323264	4323265	4323329	4323330	4323331
4.5	5	14	50	4323266	4323267	4323268	4323332	4323333	4323334
5	5	16	50	4323269	4323270	4323271	4323335	4323336	4323337
6	6	19	63	4323272	4323273	4323274	4323338	4323339	4323340
7	8	19	63	4323275	4323276	4323277	4323341	4323342	4323343
8	8	19	63	4323278	4323279	4323280	4323344	4323345	4323346
9	10	22	70	4323281	4323282	4323283	4323347	4323348	4323349
10	10	22	70	4323284	4323285	4323286	4323350	4323351	4323352
11	12	25	70	4323287	4323288	4323289	4323353	4323354	4323355
12	12	25	75	4323290	4323291	4323292	4323356	4323357	4323358
14	14	30	88	4323293	4323294	4323295	4323359	4323360	4323361
16	16	32	88	4323296	4323297	4323298	4323362	4323363	4323364
18	18	36	100	4323299	4323300	4323301	4323365	4323366	4323367
20	20	38	100	4323302	4323303	4323304	4323368	4323369	4323370



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square End | Regular Length | Single End | Metric (continued)

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
22	25	38	100	**4323305**	**4323306**	**4323307**	**4323371**	**4323372**	**4323373**
25	25	38	100	**4323308**	**4323309**	**4323310**	**4323374**	**4323375**	**4323376**

Square End | Extra Long Length | Single End | Metric

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
3	3	25	100	**4323513**	**4323514**	**4323529**	**4323530**
4	4	50	100	**4323515**	**4323516**	**4323531**	**4323532**
5	5	30	100	**4323517**	**4323518**	**4323533**	**4323534**
6	6	50	100	**4323519**	**4323520**	**4323535**	**4323536**
8	8	50	150	**4323521**	**4323522**	**4323537**	**4323538**
10	10	75	150	**4323523**	**4323524**	**4323539**	**4323540**
12	12	75	150	**4323525**	**4323526**	**4323541**	**4323542**
14	14	75	150	**4323527**	**4323528**	**4323543**	**4323544**

Square End | Long Length | Single End | Metric

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
3	3	25	75	**4323465**	**4323466**	**4323489**	**4323490**
4	4	25	75	**4323467**	**4323468**	**4323491**	**4323492**
5	5	25	75	**4323469**	**4323470**	**4323493**	**4323494**
6	6	25	75	**4323471**	**4323472**	**4323495**	**4323496**
8	8	30	100	**4323473**	**4323474**	**4323497**	**4323498**
10	10	38	100	**4323475**	**4323476**	**4323499**	**4323500**
12	12	50	100	**4323477**	**4323478**	**4323501**	**4323502**
14	14	50	125	**4323479**	**4323480**	**4323503**	**4323504**
16	16	75	150	**4323481**	**4323482**	**4323505**	**4323506**
18	18	75	150	**4323483**	**4323484**	**4323507**	**4323508**
20	20	75	150	**4323485**	**4323486**	**4323509**	**4323510**
25	25	75	150	**4323487**	**4323488**	**4323511**	**4323512**



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Stub Length | Single End | Inch

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
1/32	1/8	1/16	1-1/2	4321907	4321908	4321909	4322003	4322004	4322005
3/64	1/8	3/32	1-1/2	4321910	4321911	4321912	4322006	4322007	4322008
1/16	1/8	1/8	1-1/2	4321913	4321914	4321915	4322009	4322010	4322011
3/32	1/8	3/16	1-1/2	4321916	4321917	4321918	4322012	4322013	4322014
1/8	1/8	1/4	1-1/2	4321922	4321923	4321924	4322018	4322019	4322020
5/32	3/16	5/16	2	4321925	4321926	4321927	4322021	4322022	4322023
3/16	3/16	3/8	2	4321928	4321929	4321930	4322024	4322025	4322026
7/32	1/4	7/16	2	4321931	4321932	4321933	4322027	4322028	4322029
1/4	1/4	1/2	2	4321934	4321935	4321936	4322030	4322031	4322032
5/16	5/16	1/2	2	4321937	4321938	4321939	4322033	4322034	4322035
3/8	3/8	5/8	2	4321940	4321941	4321942	4322036	4322037	4322038
7/16	7/16	5/8	2-1/2	4321943	4321944	4321945	4322039	4322040	4322041
1/2	1/2	5/8	2-1/2	4321946	4321947	4321948	4322042	4322043	4322044
5/8	5/8	3/4	3	4321949	4321950	4321951	4322045	4322046	4322047
3/4	3/4	1	3	4321952	4321953	4321954	4322048	4322049	4322050
1	1	1	3	4321919	4321920	4321921	4322015	4322016	4322017

Ball Nose | Regular Length | Single End | Inch

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
1/32	1/8	3/32	1-1/2	4322054	4322055	4322056	4322438	4322439	4322440
3/64	1/8	1/8	1-1/2	4322057	4322058	4322059	4322441	4322442	4322443
1/16	1/8	3/16	1-1/2	4322060	4322061	4322062	4322444	4322445	4322446
5/64	1/8	1/4	1-1/2	4322063	4322064	4322065	4322447	4322448	4322449
3/32	1/8	3/8	1-1/2	4322066	4322067	4322068	4322450	4322451	4322452
7/64	1/8	3/8	1-1/2	4322072	4322073	4322074	4322456	4322457	4322458
1/8	1/8	1/2	1-1/2	4322075	4322076	4322077	4322459	4322460	4322461
9/64	3/16	9/16	2	4322078	4322079	4322080	4322462	4322463	4322464
5/32	3/16	9/16	2	4322081	4322082	4322083	4322465	4322466	4322467
11/64	3/16	9/16	2	4322084	4322085	4322086	4322468	4322469	4322470
3/16	3/16	5/8	2	4322087	4322088	4322089	4322471	4322472	4322473
13/64	1/4	5/8	2-1/2	4322090	4322091	4322092	4322474	4322475	4322476
7/32	1/4	5/8	2-1/2	4322093	4322094	4322095	4322477	4322478	4322479
15/64	1/4	3/4	2-1/2	4322096	4322097	4322098	4322480	4322481	4322482
1/4	1/4	3/4	2-1/2	4322099	4322100	4322101	4322483	4322484	4322485
17/64	3/8	7/8	2-1/2	4322102	4322103	4322104	4322486	4322487	4322488



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Regular Length | Single End | Inch (continued)									
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
9/32	3/8	7/8	2-1/2	4322105	4322106	4322107	4322489	4322490	4322491
19/64	3/8	7/8	2-1/2	4322108	4322109	4322110	4322492	4322493	4322494
5/16	5/16	7/8	2-1/2	4322111	4322112	4322113	4322495	4322496	4322497
21/64	3/8	7/8	2-1/2	4322114	4322115	4322116	4322498	4322499	4322500
11/32	3/8	7/8	2-1/2	4322117	4322118	4322119	4322501	4322502	4322503
23/64	3/8	7/8	2-1/2	4322120	4322121	4322122	4322504	4322505	4322506
3/8	3/8	7/8	2-1/2		4322124			4322508	
3/8	3/8	1	2-1/2	4322123		4322125	4322507		4322509
25/64	7/16	7/8	2-1/2		4322127			4322511	
25/64	7/16	1	2-1/2	4322126		4322128	4322510		4322512
13/32	7/16	7/8	2-1/2		4322130			4322514	
13/32	7/16	1	2-1/2	4322129		4322131	4322513		4322515
27/64	7/16	7/8	2-1/2		4322133			4322517	
27/64	7/16	1	2-1/2	4322132		4322134	4322516		4322518
7/16	7/16	1	2-1/2	4322135	4322136	4322137	4322519	4322520	4322521
29/64	1/2	1	3	4322138	4322139	4322140	4322522	4322523	4322524
15/32	1/2	1	3	4322141	4322142	4322143	4322525	4322526	4322527
31/64	1/2	1	3	4322144	4322145	4322146	4322528	4322529	4322530
1/2	1/2	1	3	4322147	4322148	4322149	4322531	4322532	4322533
33/64	9/16	1-1/4	3-1/2	4322150	4322151	4322152	4322534	4322535	4322536
17/32	9/16	1-1/4	3-1/2	4322153	4322154	4322155	4322537	4322538	4322539
35/64	9/16	1-1/4	3-1/2	4322156	4322157	4322158	4322540	4322541	4322542
9/16	9/16	1-1/4	3-1/2	4322159	4322160	4322161	4322543	4322544	4322545
37/64	5/8	1-1/4	3-1/2	4322162	4322163	4322164	4322546	4322547	4322548
19/32	5/8	1-1/4	3-1/2	4322165	4322166	4322167	4322549	4322550	4322551
39/64	5/8	1-1/4	3-1/2	4322168	4322169	4322170	4322552	4322553	4322554
5/8	5/8	1-1/4	3-1/2	4322171	4322172	4322173	4322555	4322556	4322557
41/64	3/4	1-1/2	4	4322174	4322175	4322176	4322558	4322559	4322560
21/32	3/4	1-1/2	4	4322177	4322178	4322179	4322561	4322562	4322563
43/64	3/4	1-1/2	4	4322180	4322181	4322182	4322564	4322565	4322566
11/16	3/4	1-1/2	4	4322183	4322184	4322185	4322567	4322568	4322569
45/64	3/4	1-1/2	4	4322186	4322187	4322188	4322570	4322571	4322572
23/32	3/4	1-1/2	4	4322189	4322190	4322191	4322573	4322574	4322575
47/64	3/4	1-1/2	4	4322192	4322193	4322194	4322576	4322577	4322578
3/4	3/4	1-1/2	4	4322195	4322196	4322197	4322579	4322580	4322581
49/64	7/8	1-1/2	4	4322198	4322199	4322200	4322582	4322583	4322584
25/32	7/8	1-1/2	4	4322201	4322202	4322203	4322585	4322586	4322587



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Regular Length | Single End | Inch (continued)

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 3 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 3 Flute	TiALN 4 Flute
51/64	7/8	1-1/2	4	4322204	4322205	4322206	4322588	4322589	4322590
13/16	7/8	1-1/2	4	4322207	4322208	4322209	4322591	4322592	4322593
53/64	7/8	1-1/2	4	4322210	4322211	4322212	4322594	4322595	4322596
27/32	7/8	1-1/2	4	4322213	4322214	4322215	4322597	4322598	4322599
55/64	7/8	1-1/2	4	4322216	4322217	4322218	4322600	4322601	4322602
7/8	7/8	1-1/2	4	4322219	4322220	4322221	4322603	4322604	4322605
57/64	1	1-1/2	4	4322222	4322223	4322224	4322606	4322607	4322608
29/32	1	1-1/2	4	4322225	4322226	4322227	4322609	4322610	4322611
59/64	1	1-1/2	4	4322228	4322229	4322230	4322612	4322613	4322614
15/16	1	1-1/2	4	4322231	4322232	4322233	4322615	4322616	4322617
61/64	1	1-1/2	4	4322234	4322235	4322236	4322618	4322619	4322620
31/32	1	1-1/2	4	4322237	4322238	4322239	4322621	4322622	4322623
63/64	1	1-1/2	4	4322240	4322241	4322242	4322624	4322625	4322626
1	1	1-1/2	4	4322069	4322070	4322071	4322453	4322454	4322455

Ball Nose | Extra Long Length | Single End | Inch

Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1/8	1/8	1	3	4322697	4322698	4322761	4322762
3/16	3/16	1-1/8	3	4322699	4322700	4322763	4322764
1/4	1/4	1-1/2	4	4322701	4322702	4322765	4322766
1/4	1/4	1-1/2	6	4322703	4322704	4322767	4322768
5/16	5/16	1-1/2	6	4322707	4322708	4322771	4322772
5/16	5/16	1-5/8	4	4322705	4322706	4322769	4322770
3/8	3/8	1-1/2	6	4322713	4322714	4322777	4322778
3/8	3/8	1-3/4	4	4322711	4322712	4322775	4322776
3/8	3/8	3	6	4322709	4322710	4322773	4322774
1/2	1/2	1-1/2	6	4322717	4322718	4322781	4322782
1/2	1/2	3	6	4322715	4322716	4322779	4322780
5/8	5/8	3	6	4322719	4322720	4322783	4322784
3/4	3/4	3	6	4322721	4322722	4322785	4322786
3/4	3/4	4	7	4322723	4322724	4322787	4322788
1	1	3	6	4322693	4322694	4322757	4322758
1	1	4	7	4322695	4322696	4322759	4322760



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Long Length | Single End | Inch							
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1/8	1/8	3/4	2-1/2	4322629	4322630	4322673	4322674
3/16	3/16	3/4	2-1/2	4322631	4322632	4322675	4322676
1/4	1/4	1-1/8	3	4322633	4322634	4322677	4322678
5/16	5/16	1-1/8	3	4322635	4322636	4322679	4322680
3/8	3/8	1-1/8	3	4322637	4322638	4322681	4322682
7/16	7/16	2	4	4322639	4322640	4322683	4322684
1/2	1/2	1-1/2	4	4322643	4322644	4322687	4322688
1/2	1/2	2	4	4322641	4322642	4322685	4322686
5/8	5/8	2-1/4	5	4322645	4322646	4322689	4322690
3/4	3/4	2-1/4	5	4322647	4322648	4322691	4322692
1	1	2-1/4	5	4322627	4322628	4322671	4322672

Ball Nose | Stub Length | Double End | Inch								
Cutter D	Shank d	LOC	OAL	Shank Type	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1/32	1/8	1/16	1-1/2	RND	4322897	4322898	4322969	4322970
3/64	1/8	3/32	1-1/2	RND	4322899	4322900	4322971	4322972
1/16	1/8	1/8	1-1/2	RND	4322901	4322902	4322973	4322974
3/32	1/8	3/16	1-1/2	RND	4322903	4322904	4322975	4322976
7/64	1/8	7/32	1-1/2	RND	4322905	4322906	4322977	4322978
1/8	1/8	1/4	1-1/2	RND	4322907	4322908	4322979	4322980
5/32	3/16	5/16	2	RND	4322909	4322910	4322981	4322982
3/16	3/16	5/16	2	RND	4322911	4322912	4322983	4322984
7/32	1/4	3/8	2-1/2	RND	4322913	4322914	4322985	4322986
1/4	1/4	1/2	2-1/2	WLDN	4322915	4322916	4322987	4322988
9/32	5/16	1/2	2-1/2	WLDN	4322917	4322918	4322989	4322990
5/16	5/16	1/2	2-1/2	WLDN	4322919	4322920	4322991	4322992
3/8	3/8	9/16	2-1/2	WLDN	4322921	4322922	4322993	4322994
7/16	1/2	9/16	2-3/4	WLDN	4322923	4322924	4322995	4322996
1/2	1/2	5/8	3	WLDN	4322925	4322926	4322997	4322998
9/16	5/8	11/16	3-1/2	WLDN	4322927	4322928	4322999	4323000
5/8	5/8	11/16	3-1/2	WLDN	4322929	4322930	4323001	4323002
3/4	3/4	7/8	4	WLDN	4322931	4322932	4323003	4323004



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Regular Length | Double End | Inch								
Cutter D	Shank d	LOC	OAL	Shank Type	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
5/32	3/16	7/16	3	RND	4323065	4323066	4323093	4323094
3/16	3/16	1/2	3	RND	4323067	4323068	4323095	4323096
7/32	1/4	9/16	4	RND	4323069	4323070	4323097	4323098
1/4	1/4	5/8	4	WLDN	4323071	4323072	4323099	4323100
5/16	5/16	3/4	4	WLDN	4323073	4323074	4323101	4323102
11/32	3/8	3/4	4	WLDN	4323075	4323076	4323103	4323104
3/8	3/8	3/4	4	WLDN	4323077	4323078	4323105	4323106
7/16	1/2	7/8	4	WLDN	4323079	4323080	4323107	4323108
1/2	1/2	1	4	WLDN	4323081	4323082	4323109	4323110
9/16	5/8	1-1/4	5	WLDN	4323083	4323084	4323111	4323112
5/8	5/8	1-1/2	6	WLDN	4323085	4323086	4323113	4323114
3/4	3/4	1-1/2	6	WLDN	4323087	4323088	4323115	4323116

Ball Nose | Regular Length | Single End | Metric							
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1	1	3	38	4323377	4323378	4323421	4323422
1.5	2	5	38	4323379	4323380	4323423	4323424
2	2	6	38	4323381	4323382	4323425	4323426
2.5	3	7	38	4323383	4323384	4323427	4323428
3	3	12	38	4323385	4323386	4323429	4323430
3.5	4	12	50	4323387	4323388	4323431	4323432
4	4	14	50	4323389	4323390	4323433	4323434
4.5	5	14	50	4323391	4323392	4323435	4323436
5	5	16	50	4323393	4323394	4323437	4323438
6	6	19	63	4323395	4323396	4323439	4323440
7	8	19	63	4323397	4323398	4323441	4323442
8	8	19	63	4323399	4323400	4323443	4323444
9	10	22	70	4323401	4323402	4323445	4323446
10	10	22	70	4323403	4323404	4323447	4323448
11	12	25	70	4323405	4323406	4323449	4323450
12	12	25	75	4323407	4323408	4323451	4323452
14	14	30	88	4323409	4323410	4323453	4323454
16	16	32	88	4323411	4323412	4323455	4323456
18	18	36	100	4323413	4323414	4323457	4323458
20	20	38	100	4323415	4323416	4323459	4323460



30° helix; honed cutting edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Regular Length | Single End | Metric (continued)							
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
22	25	38	100	4323417	4323418	4323461	4323462
25	25	38	100	4323419	4323420	4323463	4323464

90 Degree Drill / Mill							
Cutter D	Shank d	LOC	OAL	Uncoated 2 Flute	Uncoated 4 Flute	TiALN 2 Flute	TiALN 4 Flute
1/8	1/8	1/2	1-1/2	4323545	4323546	4323563	4323564
3/16	3/16	5/8	2	4323547	4323548	4323565	4323566
1/4	1/4	3/4	2-1/2	4323549	4323550	4323567	4323568
5/16	5/16	7/8	2-1/2	4323551	4323552	4323569	4323570
3/8	3/8	1	2-1/2	4323553	4323554	4323571	4323572
7/16	7/16	1	2-3/4	4323555	4323556	4323573	4323574
1/2	1/2	1	3	4323557	4323558	4323575	4323576
5/8	5/8	1-1/4	3-1/2	4323559	4323560	4323577	4323578
3/4	3/4	1-1/2	4	4323561	4323562	4323579	4323580

Engraving Tools				
Cutter D	Shank d	LOC	OAL	TiALN 1 Flute
.005	1/4	1/2	2-1/2	4323581
.010	1/4	1/2	2-1/2	4323582
.020	1/4	1/2	2-1/2	4323583

Spot Drills				
Cutter D	Shank d	LOC	OAL	TiALN 2 Flute
1/4	1/4	1/2	3	4323584
3/8	3/8	3/4	3	4323585
1/2	1/2	1	4	4323586
5/8	5/8	1	4	4323587
3/4	3/4	1-1/8	4	4323588



Variable pitch and honed edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square & Corner Radius | Stub Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	4 Flute Weldon
3/16	3/16	3/8	2	.015CR	**3321148**	
3/16	3/16	3/8	2	SQ	**3321147**	
1/4	1/4	3/8	2	.015CR	**3321150**	
1/4	1/4	3/8	2	SQ	**3321149**	
5/16	5/16	3/8	2	.020CR	**3321152**	
5/16	5/16	3/8	2	SQ	**3321151**	
3/8	3/8	1/2	2	.020CR	**3321154**	
3/8	3/8	1/2	2	SQ	**3321153**	
1/2	1/2	5/8	2-1/2	.030CR	**3321156**	**3321162**
1/2	1/2	5/8	2-1/2	SQ	**3321155**	**3321161**
5/8	5/8	3/4	3	.030CR	**3321158**	**3321164**
5/8	5/8	3/4	3	SQ	**3321157**	**3321163**
3/4	3/4	1	3	.030CR	**3321160**	**3321166**
3/4	3/4	1	3	SQ	**3321159**	**3321165**

Square & Corner Radius | Regular Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round	4 Flute Weldon
1/8	1/8	1/2	1-1/2	.010CR	**3324001**		
1/8	1/8	1/2	1-1/2	SQ	**3324000**		
3/16	3/16	5/8	2	.015CR	**3321005**		
3/16	3/16	5/8	2	SQ	**3321004**		
1/4	1/4	3/4	2-1/2	.020CR	**3321007**	**3324013**	**3321031**
1/4	1/4	3/4	2-1/2	SQ	**3321006**	**3324012**	**3321030**
5/16	5/16	13/16	2-1/2	.020CR	**3321009**	**3324015**	**3321033**
5/16	5/16	13/16	2-1/2	SQ	**3321008**	**3324014**	**3321032**
3/8	3/8	7/8	2-1/2	.020CR	**3321011**	**3324017**	**3321035**
3/8	3/8	7/8	2-1/2	.030CR	**3321012**		
3/8	3/8	7/8	2-1/2	SQ	**3321010**	**3324016**	**3321034**
7/16	7/16	1	2-3/4	SQ	**3321013**		**3321036**
1/2	1/2	1-1/4	3	.015CR	**3321015**		**3321038**
1/2	1/2	1-1/4	3	.030CR	**3321016**	**3324019**	**3321039**
1/2	1/2	1-1/4	3	.060CR	**3321017**		**3321040**
1/2	1/2	1-1/4	3	SQ	**3321014**	**3324018**	**3321037**
5/8	5/8	1-1/4	3-1/2	.030CR	**3321019**	**3324021**	**3321042**
5/8	5/8	1-1/4	3-1/2	.060CR	**3321020**		**3321043**



Variable pitch and honed edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square & Corner Radius | Regular Length | TiALN Coated (continued)

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round	4 Flute Weldon
5/8	5/8	1-1/4	3-1/2	.125CR	**3321021**		**3321044**
5/8	5/8	1-1/4	3-1/2	SQ	**3321018**	**3324020**	**3321041**
3/4	3/4	1-1/2	4	.030CR	**3321023**	**3324023**	**3321046**
3/4	3/4	1-1/2	4	.060CR	**3321024**		**3321047**
3/4	3/4	1-1/2	4	.125CR	**3321025**		**3321048**
3/4	3/4	1-1/2	4	SQ	**3321022**	**3324022**	**3321045**
1	1	1-1/2	4	.030CR	**3321001**	**3324011**	**3321027**
1	1	1-1/2	4	.060CR	**3321002**		**3321028**
1	1	1-1/2	4	.125CR	**3321003**		**3321029**
1	1	1-1/2	4	SQ	**3321000**	**3324010**	**3321026**

Square & Corner Radius | Extra Long Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round
3/16	3/16	1-1/8	3	.015CR	**3324003**	
3/16	3/16	1-1/8	3	SQ	**3321132**	
1/4	1/4	1-1/2	4	.020CR	**3324004**	**3324041**
1/4	1/4	1-1/2	4	SQ	**3321133**	**3324040**
5/16	5/16	1-5/8	4	.020CR	**3324005**	**3324043**
5/16	5/16	1-5/8	4	SQ	**3321134**	**3324042**
3/8	3/8	1-3/4	4	.020CR	**3324006**	**3324045**
3/8	3/8	1-3/4	4	SQ	**3321135**	**3324044**
1/2	1/2	3	6	.030CR	**3324007**	**3324047**
1/2	1/2	3	6	SQ	**3321136**	**3324046**
5/8	5/8	3	6	.030CR	**3324008**	**3324049**
5/8	5/8	3	6	SQ	**3321137**	**3324048**
3/4	3/4	3	6	.030CR	**3324009**	**3324051**
3/4	3/4	3	6	SQ	**3321138**	**3324050**
1	1	3	6	.030CR	**3324002**	**3324039**
1	1	3	6	SQ	**3321131**	**3324038**



Variable pitch and honed edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square & Corner Radius | Long Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round	4 Flute Weldon
3/16	3/16	3/4	2-1/2	.015CR	**3321054**		
3/16	3/16	3/4	2-1/2	SQ	**3321053**		
1/4	1/4	1-1/8	3	.020CR	**3321056**	**3324027**	**3321079**
1/4	1/4	1-1/8	3	SQ	**3321055**	**3324026**	**3321078**
5/16	5/16	1-1/8	3	.020CR	**3321058**	**3324029**	**3321081**
5/16	5/16	1-1/8	3	SQ	**3321057**	**3324028**	**3321080**
3/8	3/8	1-1/8	3	.020CR	**3321060**	**3324031**	**3321083**
3/8	3/8	1-1/8	3	SQ	**3321059**	**3324030**	**3321082**
7/16	7/16	2	4	SQ	**3321061**		**3321084**
1/2	1/2	2	4	.015CR	**3321063**		**3321086**
1/2	1/2	2	4	.030CR	**3321064**	**3324033**	**3321087**
1/2	1/2	2	4	.060CR	**3321065**		**3321088**
1/2	1/2	2	4	SQ	**3321062**	**3324032**	**3321085**
5/8	5/8	2-1/4	5	.030CR	**3321067**	**3324035**	**3321090**
5/8	5/8	2-1/4	5	.060CR	**3321068**		**3321091**
5/8	5/8	2-1/4	5	.125CR	**3321069**		**3321092**
5/8	5/8	2-1/4	5	SQ	**3321066**	**3324034**	**3321089**
3/4	3/4	2-1/4	5	.030CR	**3321071**	**3324037**	**3321094**
3/4	3/4	2-1/4	5	.060CR	**3321072**		**3321095**
3/4	3/4	2-1/4	5	.125CR	**3321073**		**3321096**
3/4	3/4	2-1/4	5	SQ	**3321070**	**3324036**	**3321093**
1	1	2-1/4	5	.030CR	**3321050**	**3324025**	**3321075**
1	1	2-1/4	5	.060CR	**3321051**		**3321076**
1	1	2-1/4	5	.125CR	**3321052**		**3321077**
1	1	2-1/4	5	SQ	**3321049**	**3324024**	**3321074**

Square & Corner Radius | Long Reach / Neck Relief | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round
3/16	3/16	3/8	4	.015CR	**3321174**
3/16	3/16	3/8	4	SQ	**3321173**
1/4	1/4	3/8	4	.015CR	**3321176**
1/4	1/4	3/8	4	SQ	**3321175**
5/16	5/16	7/16	4	.020CR	**3321178**
5/16	5/16	7/16	4	SQ	**3321177**
3/8	3/8	1/2	4	.020CR	**3321180**



Variable pitch and honed edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Square & Corner Radius | Long Reach / Neck Relief | TiALN Coated (continued)

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round
3/8	3/8	1/2	4	SQ	**3321179**
1/2	1/2	5/8	5	.020CR	**3321182**
1/2	1/2	5/8	5	SQ	**3321181**
1/2	1/2	5/8	6	.020CR	**3321183**
1/2	1/2	5/8	6	SQ	**3321184**
5/8	5/8	3/4	5	.020CR	**3321186**
5/8	5/8	3/4	5	SQ	**3321185**
5/8	5/8	3/4	6	.020CR	**3321187**
5/8	5/8	3/4	6	SQ	**3321188**
3/4	3/4	1	5	.020CR	**3321190**
3/4	3/4	1	5	SQ	**3321189**
3/4	3/4	1	6	.020CR	**3321191**
3/4	3/4	1	6	SQ	**3321193**
3/4	3/4	1	7	.020CR	**3321192**
3/4	3/4	1	7	SQ	**3321194**
1	1	1-1/4	5	.020CR	**3321168**
1	1	1-1/4	5	SQ	**3321167**
1	1	1-1/4	6	.020CR	**3321169**
1	1	1-1/4	6	SQ	**3321171**
1	1	1-1/4	7	.020CR	**3321170**
1	1	1-1/4	7	SQ	**3321172**

Ball Nose | Regular Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	4 Flute Weldon
3/16	3/16	5/8	2	BN	**3321098**	
1/4	1/4	3/4	2-1/2	BN	**3321099**	**3321107**
5/16	5/16	13/16	2-1/2	BN	**3321100**	**3321108**
3/8	3/8	7/8	2-1/2	BN	**3321101**	**3321109**
7/16	7/16	1	2-3/4	BN	**3321102**	**3321110**
1/2	1/2	1	3	BN	**3321103**	**3321111**
5/8	5/8	1-1/4	3-1/2	BN	**3321104**	**3321112**
3/4	3/4	1-1/2	4	BN	**3321105**	**3321113**
1	1	1-1/2	4	BN	**3321097**	**3321106**



Variable pitch and honed edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Extra Long Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round
3/16	3/16	1-1/8	3	BN	3321140
1/4	1/4	1-1/2	4	BN	3321141
5/16	5/16	1-5/8	4	BN	3321142
3/8	3/8	1-3/4	4	BN	3321143
1/2	1/2	3	6	BN	3321144
5/8	5/8	3	6	BN	3321145
3/4	3/4	3	6	BN	3321146
1	1	3	6	BN	3321139

Ball Nose | Long Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	4 Flute Weldon
3/16	3/16	3/4	2-1/2	BN	3321115	
1/4	1/4	1-1/8	3	BN	3321116	3321124
5/16	5/16	1-1/8	3	BN	3321117	3321125
3/8	3/8	1-1/8	3	BN	3321118	3321126
7/16	7/16	2	4	BN	3321119	3321127
1/2	1/2	2	4	BN	3321120	3321128
5/8	5/8	2-1/4	5	BN	3321121	3321129
3/4	3/4	2-1/4	5	BN	3321122	3321130
1	1	2-1/4	5	BN	3321114	3321123

Ball Nose | Long Reach / Neck Relief | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round
3/16	3/16	3/8	4	BN	3321198
1/4	1/4	3/8	4	BN	3321199
5/16	5/16	7/16	4	BN	3321200
3/8	3/8	1/2	4	BN	3321201
1/2	1/2	5/8	5	BN	3321202
1/2	1/2	5/8	6	BN	3321203
5/8	5/8	3/4	5	BN	3321204
5/8	5/8	3/4	6	BN	3321205
3/4	3/4	1	5	BN	3321206
3/4	3/4	1	6	BN	3321207



Variable pitch and honed edges; 10% micrograin carbide;
diameter tolerance +0.0000 / -0.0020 in.

Ball Nose | Long Reach / Neck Relief | TiALN Coated (continued)

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round
3/4	3/4	1	7	BN	**3321208**
1	1	1-1/4	5	BN	**3321195**
1	1	1-1/4	6	BN	**3321196**
1	1	1-1/4	7	BN	**3321197**

ULTRA HIGH PERFORMANCE

SOLID CARBIDE END MILLS | 2027



Variable pitch; 10% premium micrograin carbide;
diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Stub Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	4 Flute Weldon
3/16	3/16	3/8	2	.015CR	**2321180**	
3/16	3/16	3/8	2	SQ	**2321179**	
1/4	1/4	3/8	2	.015CR	**2321182**	
1/4	1/4	3/8	2	SQ	**2321181**	
5/16	5/16	3/8	2	.020CR	**2321184**	
5/16	5/16	3/8	2	SQ	**2321183**	
3/8	3/8	1/2	2	.020CR	**2321186**	
3/8	3/8	1/2	2	SQ	**2321185**	
1/2	1/2	5/8	2-1/2	.030CR	**2321188**	**2321194**
1/2	1/2	5/8	2-1/2	SQ	**2321187**	**2321193**
5/8	5/8	3/4	3	.030CR	**2321190**	**2321196**
5/8	5/8	3/4	3	SQ	**2321189**	**2321195**
3/4	3/4	1	3	.030CR	**2321192**	**2321198**
3/4	3/4	1	3	SQ	**2321191**	**2321197**

Square & Corner Radius | Regular Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round	4 Flute Weldon
1/8	1/8	1/2	1-1/2	.010CR	**2321007**		
1/8	1/8	1/2	1-1/2	SQ	**2321006**		
3/16	3/16	5/8	2	.015CR	**2321009**		**2321052**
3/16	3/16	5/8	2	SQ	**2321008**		**2321051**
1/4	1/4	3/4	2-1/2	.015CR	**2321011**		**2321054**
1/4	1/4	3/4	2-1/2	.020CR	**2321012**	**2321014**	**2321055**
1/4	1/4	3/4	2-1/2	SQ	**2321010**	**2321013**	**2321053**
5/16	5/16	13/16	2-1/2	.020CR	**2321016**	**2321018**	**2321057**
5/16	5/16	13/16	2-1/2	SQ	**2321015**	**2321017**	**2321056**
3/8	3/8	7/8	2-1/2	.015CR	**2321020**		**2321059**
3/8	3/8	7/8	2-1/2	.020CR	**2321021**	**2321024**	**2321060**
3/8	3/8	7/8	2-1/2	.030CR	**2321022**	**2321025**	**2321061**
3/8	3/8	7/8	2-1/2	SQ	**2321019**	**2321023**	**2321058**
7/16	7/16	1	2-3/4	SQ	**2321026**		**2321062**
1/2	1/2	1	3	.030CR	**2321030**		**2321066**
1/2	1/2	1	3	SQ	**2321032**		**2321068**
1/2	1/2	1-1/4	3	.015CR	**2321028**		**2321064**
1/2	1/2	1-1/4	3	.030CR	**2321029**	**2321034**	**2321065**



Variable pitch; 10% premium micrograin carbide;
diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Regular Length | TiALN Coated (continued)							
Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round	4 Flute Weldon
1/2	1/2	1-1/4	3	.060CR	2321031		2321067
1/2	1/2	1-1/4	3	SQ	2321027	2321033	2321063
5/8	5/8	1-1/4	3-1/2	.030CR	2321036	2321040	2321070
5/8	5/8	1-1/4	3-1/2	.060CR	2321037		2321071
5/8	5/8	1-1/4	3-1/2	.125CR	2321038		2321072
5/8	5/8	1-1/4	3-1/2	SQ	2321035	2321039	2321069
3/4	3/4	1-1/2	4	.020CR			2321074
3/4	3/4	1-1/2	4	.030CR	2321042	2321046	2321075
3/4	3/4	1-1/2	4	.060CR	2321043		2321076
3/4	3/4	1-1/2	4	.125CR	2321044		2321077
3/4	3/4	1-1/2	4	SQ	2321041	2321045	2321073
1	1	1-1/2	4	.030CR	2321001	2321005	2321048
1	1	1-1/2	4	.060CR	2321002		2321049
1	1	1-1/2	4	.125CR	2321003		2321050
1	1	1-1/2	4	SQ	2321000	2321004	2321047

Square & Corner Radius | Extra Long Length | TiALN Coated						
Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round
3/16	3/16	1-1/8	3	.015CR	2324001	
3/16	3/16	1-1/8	3	SQ	2321163	
1/4	1/4	1-1/2	4	.020CR	2324002	2324025
1/4	1/4	1-1/2	4	SQ	2321164	2324024
5/16	5/16	1-5/8	4	.020CR	2324003	2324027
5/16	5/16	1-5/8	4	SQ	2321165	2324026
3/8	3/8	1-3/4	4	.020CR	2324004	2324029
3/8	3/8	1-3/4	4	SQ	2321166	2324028
1/2	1/2	3	6	.030CR	2324005	2324031
1/2	1/2	3	6	SQ	2321167	2324030
5/8	5/8	3	6	.030CR	2324006	2324033
5/8	5/8	3	6	SQ	2321168	2324032
3/4	3/4	3	6	.030CR	2324007	2324035
3/4	3/4	3	6	SQ	2321169	2324034
1	1	3	6	.030CR	2324000	2324023
1	1	3	6	SQ	2321162	2324022



Variable pitch; 10% premium micrograin carbide;
diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Long Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	5 Flute Round	4 Flute Weldon
1/8	1/8	3/4	2-1/2	SQ	**2321082**		
3/16	3/16	3/4	2-1/2	.015CR	**2321084**		
3/16	3/16	3/4	2-1/2	SQ	**2321083**		
1/4	1/4	1-1/8	3	.020CR	**2321086**	**2324011**	**2321109**
1/4	1/4	1-1/8	3	SQ	**2321085**	**2324010**	**2321108**
5/16	5/16	1-1/8	3	.020CR	**2321088**	**2324013**	**2321111**
5/16	5/16	1-1/8	3	SQ	**2321087**	**2324012**	**2321110**
3/8	3/8	1-1/8	3	.020CR	**2321090**	**2324015**	**2321113**
3/8	3/8	1-1/8	3	SQ	**2321089**	**2324014**	**2321112**
7/16	7/16	2	4	SQ	**2321091**		**2321114**
1/2	1/2	2	4	.015CR	**2321093**		**2321116**
1/2	1/2	2	4	.030CR	**2321094**	**2324017**	**2321117**
1/2	1/2	2	4	.060CR	**2321095**		**2321118**
1/2	1/2	2	4	SQ	**2321092**	**2324016**	**2321115**
5/8	5/8	2-1/4	5	.030CR	**2321097**	**2324019**	**2321120**
5/8	5/8	2-1/4	5	.060CR	**2321098**		**2321121**
5/8	5/8	2-1/4	5	.125CR	**2321099**		**2321122**
5/8	5/8	2-1/4	5	SQ	**2321096**	**2324018**	**2321119**
3/4	3/4	2-1/4	5	.030CR	**2321101**	**2324021**	**2321124**
3/4	3/4	2-1/4	5	.060CR	**2321102**		**2321125**
3/4	3/4	2-1/4	5	.125CR	**2321103**		**2321126**
3/4	3/4	2-1/4	5	SQ	**2321100**	**2324020**	**2321123**
1	1	2-1/4	5	.030CR	**2321079**	**2324009**	**2321105**
1	1	2-1/4	5	.060CR	**2321080**		**2321106**
1	1	2-1/4	5	.125CR	**2321081**		**2321107**
1	1	2-1/4	5	SQ	**2321078**	**2324008**	**2321104**

Ball Nose | Regular Length | TiALN Coated

Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	4 Flute Weldon
1/8	1/8	1/2	1-1/2	BN	**2321128**	
3/16	3/16	5/8	2	BN	**2321129**	
1/4	1/4	3/4	2-1/2	BN	**2321130**	**2321138**
5/16	5/16	13/16	2-1/2	BN	**2321131**	**2321139**
3/8	3/8	7/8	2-1/2	BN	**2321132**	**2321140**
7/16	7/16	1	2-3/4	BN	**2321133**	**2321141**



Variable pitch; 10% premium micrograin carbide;
diameter tolerance +0.0000 / -0.0015 in.

Ball Nose | Regular Length | TiALN Coated (continued)						
Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	4 Flute Weldon
1/2	1/2	1	3	BN	**2321134**	**2321142**
5/8	5/8	1-1/4	3-1/2	BN	**2321135**	**2321143**
3/4	3/4	1-1/2	4	BN	**2321136**	**2321144**
1	1	1-1/2	4	BN	**2321127**	**2321137**

Ball Nose | Extra Long Length | TiALN Coated					
Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round
3/16	3/16	1-1/8	3	BN	**2321172**
1/4	1/4	1-1/2	4	BN	**2321173**
5/16	5/16	1-5/8	4	BN	**2321174**
3/8	3/8	1-3/4	4	BN	**2321175**
1/2	1/2	3	6	BN	**2321176**
5/8	5/8	3	6	BN	**2321177**
3/4	3/4	3	6	BN	**2321178**
1	1	3	6	BN	**2321170**

Ball Nose | Long Length | TiALN Coated						
Cutter D	Shank d	LOC	OAL	End Form	4 Flute Round	4 Flute Weldon
3/16	3/16	3/4	2-1/2	BN	**2321146**	
1/4	1/4	1-1/8	3	BN	**2321147**	**2321155**
5/16	5/16	1-1/8	3	BN	**2321148**	**2321156**
3/8	3/8	1-1/8	3	BN	**2321149**	**2321157**
7/16	7/16	2	4	BN	**2321150**	**2321158**
1/2	1/2	2	4	BN	**2321151**	**2321159**
5/8	5/8	2-1/4	5	BN	**2321152**	**2321160**
3/4	3/4	2-1/4	5	BN	**2321153**	**2321161**
1	1	2-1/4	5	BN	**2321145**	**2321154**



Variable-pitch tools for HEM/dynamic milling; with or without chipbreakers; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Regular Length | ALL4 Coated								
Cutter D	Shank d	LOC	OAL	End Form	5 Flute	7 Flute	5 Flute Chipbreaker	7 Flute Chipbreaker
1/4	1/4	3/4	2-1/2	.015CR	2324037			
1/4	1/4	3/4	2-1/2	.030CR	2324038			
1/4	1/4	3/4	2-1/2	SQ	2324036			
5/16	5/16	13/16	2-1/2	.015CR	2324043			
5/16	5/16	13/16	2-1/2	.030CR	2324044			
5/16	5/16	13/16	2-1/2	SQ	2324042			
3/8	3/8	1	2-1/2	.015CR	2324052	2324061	2324067	2324076
3/8	3/8	1	2-1/2	.030CR	2324053	2324062	2324068	2324077
3/8	3/8	1	2-1/2	SQ	2324051	2324060	2324066	2324075
1/2	1/2	1-1/4	3	.015CR	2324082	2324098	2324114	2324130
1/2	1/2	1-1/4	3	.030CR	2324083	2324099	2324115	2324131
1/2	1/2	1-1/4	3	.060CR	2324084	2324100	2324116	
1/2	1/2	1-1/4	3	SQ	2324081	2324097	2324113	2324129
5/8	5/8	1-1/2	3-1/2	.030CR	2324142	2324151	2324160	2324169
5/8	5/8	1-1/2	3-1/2	.060CR	2324143	2324152	2324161	
5/8	5/8	1-1/2	3-1/2	SQ	2324141	2324150	2324159	2324168
3/4	3/4	1-5/8	4	.030CR	2324175	2324184	2324193	2324199
3/4	3/4	1-5/8	4	.060CR	2324176	2324185		
3/4	3/4	1-5/8	4	SQ	2324174	2324183	2324192	2324198
1	1	1-5/8	4	.030CR	2324205	2324214	2324223	2324229
1	1	1-5/8	4	.060CR	2324206	2324215		
1	1	1-5/8	4	SQ	2324204	2324213	2324222	2324228

Square & Corner Radius | Regular Length | TIALN Coated					
Cutter D	Shank d	LOC	OAL	End Form	6 Flute
1/4	1/4	3/4	2-1/2	.030CR	2321203
1/4	1/4	3/4	2-1/2	SQ	2321202
3/8	3/8	7/8	2-1/2	.030CR	2321205
3/8	3/8	7/8	2-1/2	SQ	2321204
1/2	1/2	1-1/4	3	.030CR	2321207
1/2	1/2	1-1/4	3	SQ	2321206
5/8	5/8	1-1/2	3-1/2	.030CR	2321210
5/8	5/8	1-1/2	3-1/2	SQ	2321209
3/4	3/4	1-1/2	4	.030CR	2321213
3/4	3/4	1-1/2	4	SQ	2321212



Variable-pitch tools for HEM/dynamic milling; with or without chipbreakers; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Regular Length | TIALN Coated (continued)					
Cutter D	Shank d	LOC	OAL	End Form	6 Flute
1	1	1-1/2	4	.030CR	**2321200**
1	1	1-1/2	4	SQ	**2321199**

Square & Corner Radius | Extra Long Length | ALL4 Coated								
Cutter D	Shank d	LOC	OAL	End Form	5 Flute	7 Flute	5 Flute Chipbreaker	7 Flute Chipbreaker
5/16	5/16	2-1/8	4	.015CR	**2324049**			
5/16	5/16	2-1/8	4	.030CR	**2324050**			
5/16	5/16	2-1/8	4	SQ	**2324048**			
3/8	3/8	2-1/8	4	.015CR	**2324058**		**2324073**	
3/8	3/8	2-1/8	4	.030CR	**2324059**		**2324074**	
3/8	3/8	2-1/8	4	SQ	**2324057**		**2324072**	
1/2	1/2	3-1/4	6	.015CR	**2324094**	**2324110**	**2324126**	**2324139**
1/2	1/2	3-1/4	6	.030CR	**2324095**	**2324111**	**2324127**	**2324140**
1/2	1/2	3-1/4	6	.060CR	**2324096**	**2324112**	**2324128**	
1/2	1/2	3-1/4	6	SQ	**2324093**	**2324109**	**2324125**	**2324138**
5/8	5/8	3-1/4	6	.030CR	**2324148**	**2324157**	**2324166**	**2324173**
5/8	5/8	3-1/4	6	.060CR	**2324149**	**2324158**	**2324167**	
5/8	5/8	3-1/4	6	SQ	**2324147**	**2324156**	**2324165**	**2324172**
3/4	3/4	3-1/4	6	.030CR	**2324181**	**2324190**	**2324197**	**2324203**
3/4	3/4	3-1/4	6	.060CR	**2324182**	**2324191**		
3/4	3/4	3-1/4	6	SQ	**2324180**	**2324189**	**2324196**	**2324202**
1	1	3-1/4	6	.030CR	**2324211**	**2324220**	**2324227**	**2324233**
1	1	3-1/4	6	.060CR	**2324212**	**2324221**		
1	1	3-1/4	6	SQ	**2324210**	**2324219**	**2324226**	**2324232**

Square & Corner Radius | Long Length | ALL4 Coated								
Cutter D	Shank d	LOC	OAL	End Form	5 Flute	7 Flute	5 Flute Chipbreaker	7 Flute Chipbreaker
1/4	1/4	1-1/8	3	.015CR	**2324040**			
1/4	1/4	1-1/8	3	.030CR	**2324041**			
1/4	1/4	1-1/8	3	SQ	**2324039**			
5/16	5/16	1-1/4	3	.015CR	**2324046**			
5/16	5/16	1-1/4	3	.030CR	**2324047**			
5/16	5/16	1-1/4	3	SQ	**2324045**			



Variable-pitch tools for HEM/dynamic milling; with or without chipbreakers; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Long Length | ALL4 Coated (continued)								
Cutter D	Shank d	LOC	OAL	End Form	5 Flute	7 Flute	5 Flute Chipbreaker	7 Flute Chipbreaker
3/8	3/8	1-1/4	3	.015CR	2324055	2324064	2324070	2324079
3/8	3/8	1-1/4	3	.030CR	2324056	2324065	2324071	2324080
3/8	3/8	1-1/4	3	SQ	2324054	2324063	2324069	2324078
1/2	1/2	2-1/8	4	.015CR	2324086	2324102	2324118	2324133
1/2	1/2	2-1/8	4	.030CR	2324087	2324103	2324119	2324134
1/2	1/2	2-1/8	4	.060CR	2324088	2324104	2324120	
1/2	1/2	2-1/8	4	SQ	2324085	2324101	2324117	2324132
1/2	1/2	2-5/8	5	.015CR	2324090	2324106	2324122	2324136
1/2	1/2	2-5/8	5	.030CR	2324091	2324107	2324123	2324137
1/2	1/2	2-5/8	5	.060CR	2324092	2324108	2324124	
1/2	1/2	2-5/8	5	SQ	2324089	2324105	2324121	2324135
5/8	5/8	2-1/2	5	.030CR	2324145	2324154	2324163	
5/8	5/8	2-1/2	5	.060CR	2324146	2324155	2324164	
5/8	5/8	2-1/2	5	SQ	2324144	2324153	2324162	
5/8	5/8	2-5/8	5	.030CR				2324171
5/8	5/8	2-5/8	5	SQ				2324170
3/4	3/4	2-1/2	5	.030CR	2324178	2324187	2324195	2324201
3/4	3/4	2-1/2	5	.060CR	2324179	2324188		
3/4	3/4	2-1/2	5	SQ	2324177	2324186	2324194	2324200
1	1	2-5/8	5	.030CR	2324208	2324217	2324225	2324231
1	1	2-5/8	5	.060CR	2324209	2324218		
1	1	2-5/8	5	SQ	2324207	2324216	2324224	2324230

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Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Regular Length | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
1/4	1/4	3/8	2	.015CR	**4324035**	**4324039**	**4324679**	**4324683**
1/4	1/4	3/8	2	.030CR	**4324036**	**4324040**	**4324680**	**4324684**
1/4	1/4	3/8	2	.060CR	**4324037**	**4324041**	**4324681**	**4324685**
1/4	1/4	3/8	2	SQ	**4324034**	**4324038**	**4324678**	**4324682**
5/16	5/16	7/16	2-1/2	.015CR	**4324051**	**4324055**	**4324695**	**4324699**
5/16	5/16	7/16	2-1/2	.030CR	**4324052**	**4324056**	**4324696**	**4324700**
5/16	5/16	7/16	2-1/2	.060CR	**4324053**	**4324057**	**4324697**	**4324701**
5/16	5/16	7/16	2-1/2	SQ	**4324050**	**4324054**	**4324694**	**4324698**
3/8	3/8	1/2	2	.015CR	**4324067**	**4324072**	**4324711**	**4324716**
3/8	3/8	1/2	2	.030CR	**4324068**	**4324073**	**4324712**	**4324717**
3/8	3/8	1/2	2	.060CR	**4324069**	**4324074**	**4324713**	**4324718**
3/8	3/8	1/2	2	.090CR	**4324070**	**4324075**	**4324714**	**4324719**
3/8	3/8	1/2	2	SQ	**4324066**	**4324071**	**4324710**	**4324715**
1/2	1/2	5/8	2-1/2	.015CR	**4324087**	**4324093**	**4324731**	**4324737**
1/2	1/2	5/8	2-1/2	.030CR	**4324088**	**4324094**	**4324732**	**4324738**
1/2	1/2	5/8	2-1/2	.060CR	**4324089**	**4324095**	**4324733**	**4324739**
1/2	1/2	5/8	2-1/2	.090CR	**4324090**	**4324096**	**4324734**	**4324740**
1/2	1/2	5/8	2-1/2	.125CR	**4324091**	**4324097**	**4324735**	**4324741**
1/2	1/2	5/8	2-1/2	SQ	**4324086**	**4324092**	**4324730**	**4324736**
5/8	5/8	3/4	3	.015CR	**4324111**	**4324117**	**4324755**	**4324761**
5/8	5/8	3/4	3	.030CR	**4324112**	**4324118**	**4324756**	**4324762**
5/8	5/8	3/4	3	.060CR	**4324113**	**4324119**	**4324757**	**4324763**
5/8	5/8	3/4	3	.090CR	**4324114**	**4324120**	**4324758**	**4324764**
5/8	5/8	3/4	3	.125CR	**4324115**	**4324121**	**4324759**	**4324765**
5/8	5/8	3/4	3	SQ	**4324110**	**4324116**	**4324754**	**4324760**
3/4	3/4	1	3	.015CR	**4324135**	**4324143**	**4324779**	**4324787**
3/4	3/4	1	3	.030CR	**4324136**	**4324144**	**4324780**	**4324788**
3/4	3/4	1	3	.060CR	**4324137**	**4324145**	**4324781**	**4324789**
3/4	3/4	1	3	.090CR	**4324138**	**4324146**	**4324782**	**4324790**
3/4	3/4	1	3	.125CR	**4324139**	**4324147**	**4324783**	**4324791**
3/4	3/4	1	3	.190CR	**4324140**	**4324148**	**4324784**	**4324792**
3/4	3/4	1	3	.250CR	**4324141**	**4324149**	**4324785**	**4324793**
3/4	3/4	1	3	SQ	**4324134**	**4324142**	**4324778**	**4324786**
1	1	1-3/4	4-1/2	.015CR	**4324003**	**4324011**	**4324647**	**4324655**
1	1	1-3/4	4-1/2	.030CR	**4324004**	**4324012**	**4324648**	**4324656**
1	1	1-3/4	4-1/2	.060CR	**4324005**	**4324013**	**4324649**	**4324657**
1	1	1-3/4	4-1/2	.090CR	**4324006**	**4324014**	**4324650**	**4324658**

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Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Regular Length | 4 & 5 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
1	1	1-3/4	4-1/2	.125CR	**4324007**	**4324015**	**4324651**	**4324659**
1	1	1-3/4	4-1/2	.190CR	**4324008**	**4324016**	**4324652**	**4324660**
1	1	1-3/4	4-1/2	.250CR	**4324009**	**4324017**	**4324653**	**4324661**
1	1	1-3/4	4-1/2	SQ	**4324002**	**4324010**	**4324646**	**4324654**

Square & Corner Radius | Regular Length | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
1/4	1/4	3/8	2	.015CR	**4324043**	**4324047**	**4324687**	**4324691**
1/4	1/4	3/8	2	.030CR	**4324044**	**4324048**	**4324688**	**4324692**
1/4	1/4	3/8	2	.060CR	**4324045**	**4324049**	**4324689**	**4324693**
1/4	1/4	3/8	2	SQ	**4324042**	**4324046**	**4324686**	**4324690**
5/16	5/16	7/16	2-1/2	.015CR	**4324059**	**4324063**	**4324703**	**4324707**
5/16	5/16	7/16	2-1/2	.030CR	**4324060**	**4324064**	**4324704**	**4324708**
5/16	5/16	7/16	2-1/2	.060CR	**4324061**	**4324065**	**4324705**	**4324709**
5/16	5/16	7/16	2-1/2	SQ	**4324058**	**4324062**	**4324702**	**4324706**
3/8	3/8	1/2	2	.015CR	**4324077**	**4324082**	**4324721**	**4324726**
3/8	3/8	1/2	2	.030CR	**4324078**	**4324083**	**4324722**	**4324727**
3/8	3/8	1/2	2	.060CR	**4324079**	**4324084**	**4324723**	**4324728**
3/8	3/8	1/2	2	.090CR	**4324080**	**4324085**	**4324724**	**4324729**
3/8	3/8	1/2	2	SQ	**4324076**	**4324081**	**4324720**	**4324725**
1/2	1/2	5/8	2-1/2	.015CR	**4324099**	**4324105**	**4324743**	**4324749**
1/2	1/2	5/8	2-1/2	.030CR	**4324100**	**4324106**	**4324744**	**4324750**
1/2	1/2	5/8	2-1/2	.060CR	**4324101**	**4324107**	**4324745**	**4324751**
1/2	1/2	5/8	2-1/2	.090CR	**4324102**	**4324108**	**4324746**	**4324752**
1/2	1/2	5/8	2-1/2	.125CR	**4324103**	**4324109**	**4324747**	**4324753**
1/2	1/2	5/8	2-1/2	SQ	**4324098**	**4324104**	**4324742**	**4324748**
5/8	5/8	3/4	3	.015CR	**4324123**	**4324129**	**4324767**	**4324773**
5/8	5/8	3/4	3	.030CR	**4324124**	**4324130**	**4324768**	**4324774**
5/8	5/8	3/4	3	.060CR	**4324125**	**4324131**	**4324769**	**4324775**
5/8	5/8	3/4	3	.090CR	**4324126**	**4324132**	**4324770**	**4324776**
5/8	5/8	3/4	3	.125CR	**4324127**	**4324133**	**4324771**	**4324777**
5/8	5/8	3/4	3	SQ	**4324122**	**4324128**	**4324766**	**4324772**
3/4	3/4	1	3	.015CR	**4324151**	**4324159**	**4324795**	**4324803**
3/4	3/4	1	3	.030CR	**4324152**	**4324160**	**4324796**	**4324804**
3/4	3/4	1	3	.060CR	**4324153**	**4324161**	**4324797**	**4324805**

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Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Regular Length | 6 & 7 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
3/4	3/4	1	3	.090CR	4324154	4324162	4324798	4324806
3/4	3/4	1	3	.125CR	4324155	4324163	4324799	4324807
3/4	3/4	1	3	.190CR	4324156	4324164	4324800	4324808
3/4	3/4	1	3	.250CR	4324157	4324165	4324801	4324809
3/4	3/4	1	3	SQ	4324150	4324158	4324794	4324802
1	1	1-3/4	4-1/2	.015CR	4324019	4324027	4324663	4324671
1	1	1-3/4	4-1/2	.030CR	4324020	4324028	4324664	4324672
1	1	1-3/4	4-1/2	.060CR	4324021	4324029	4324665	4324673
1	1	1-3/4	4-1/2	.090CR	4324022	4324030	4324666	4324674
1	1	1-3/4	4-1/2	.125CR	4324023	4324031	4324667	4324675
1	1	1-3/4	4-1/2	.190CR	4324024	4324032	4324668	4324676
1	1	1-3/4	4-1/2	.250CR	4324025	4324033	4324669	4324677
1	1	1-3/4	4-1/2	SQ	4324018	4324026	4324662	4324670

Square & Corner Radius | Long Length | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
1/4	1/4	3/4	2-1/2	.015CR	4324199	4324203	4324843	4324847
1/4	1/4	3/4	2-1/2	.030CR	4324200	4324204	4324844	4324848
1/4	1/4	3/4	2-1/2	.060CR	4324201	4324205	4324845	4324849
1/4	1/4	3/4	2-1/2	SQ	4324198	4324202	4324842	4324846
5/16	5/16	13/16	2-1/2	.015CR	4324215	4324219	4324859	4324863
5/16	5/16	13/16	2-1/2	.030CR	4324216	4324220	4324860	4324864
5/16	5/16	13/16	2-1/2	.060CR	4324217	4324221	4324861	4324865
5/16	5/16	13/16	2-1/2	SQ	4324214	4324218	4324858	4324862
3/8	3/8	1	2-1/2	.015CR	4324231	4324236	4324875	4324880
3/8	3/8	1	2-1/2	.030CR	4324232	4324237	4324876	4324881
3/8	3/8	1	2-1/2	.060CR	4324233	4324238	4324877	4324882
3/8	3/8	1	2-1/2	.090CR	4324234	4324239	4324878	4324883
3/8	3/8	1	2-1/2	SQ	4324230	4324235	4324874	4324879
1/2	1/2	1	3	.015CR	4324251	4324257	4324895	4324901
1/2	1/2	1	3	.030CR	4324252	4324258	4324896	4324902
1/2	1/2	1	3	.060CR	4324253	4324259	4324897	4324903
1/2	1/2	1	3	.090CR	4324254	4324260	4324898	4324904
1/2	1/2	1	3	.125CR	4324255	4324261	4324899	4324905
1/2	1/2	1	3	SQ	4324250	4324256	4324894	4324900



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Long Length | 4 & 5 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
5/8	5/8	1-1/4	3-1/2	.015CR	4324275	4324281	4324919	4324925
5/8	5/8	1-1/4	3-1/2	.030CR	4324276	4324282	4324920	4324926
5/8	5/8	1-1/4	3-1/2	.060CR	4324277	4324283	4324921	4324927
5/8	5/8	1-1/4	3-1/2	.090CR	4324278	4324284	4324922	4324928
5/8	5/8	1-1/4	3-1/2	.125CR	4324279	4324285	4324923	4324929
5/8	5/8	1-1/4	3-1/2	SQ	4324274	4324280	4324918	4324924
3/4	3/4	1-5/8	4	.015CR	4324299	4324307	4324943	4324951
3/4	3/4	1-5/8	4	.030CR	4324300	4324308	4324944	4324952
3/4	3/4	1-5/8	4	.060CR	4324301	4324309	4324945	4324953
3/4	3/4	1-5/8	4	.090CR	4324302	4324310	4324946	4324954
3/4	3/4	1-5/8	4	.125CR	4324303	4324311	4324947	4324955
3/4	3/4	1-5/8	4	.190CR	4324304	4324312	4324948	4324956
3/4	3/4	1-5/8	4	.250CR	4324305	4324313	4324949	4324957
3/4	3/4	1-5/8	4	SQ	4324298	4324306	4324942	4324950
1	1	2-5/8	5	.015CR	4324167	4324175	4324811	4324819
1	1	2-5/8	5	.030CR	4324168	4324176	4324812	4324820
1	1	2-5/8	5	.060CR	4324169	4324177	4324813	4324821
1	1	2-5/8	5	.090CR	4324170	4324178	4324814	4324822
1	1	2-5/8	5	.125CR	4324171	4324179	4324815	4324823
1	1	2-5/8	5	.190CR	4324172	4324180	4324816	4324824
1	1	2-5/8	5	.250DR	4324173	4324181	4324817	4324825
1	1	2-5/8	5	SQ	4324166	4324174	4324810	4324818

Square & Corner Radius | Extra Long Length | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
1/4	1/4	1-1/8	3	.015CR	4324363	4324367	4325007	4325011
1/4	1/4	1-1/8	3	.030CR	4324364	4324368	4325008	4325012
1/4	1/4	1-1/8	3	.060CR	4324365	4324369	4325009	4325013
1/4	1/4	1-1/8	3	SQ	4324362	4324366	4325006	4325010
5/16	5/16	1-1/4	3	.015CR	4324379	4324383	4325023	4325027
5/16	5/16	1-1/4	3	.030CR	4324380	4324384	4325024	4325028
5/16	5/16	1-1/4	3	.060CR	4324381	4324385	4325025	4325029
5/16	5/16	1-1/4	3	SQ	4324378	4324382	4325022	4325026
3/8	3/8	1-1/4	3	.015CR	4324395	4324400	4325039	4325044
3/8	3/8	1-1/4	3	.030CR	4324396	4324401	4325040	4325045



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Extra Long Length | 4 & 5 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
3/8	3/8	1-1/4	3	.060CR	4324397	4324402	4325041	4325046
3/8	3/8	1-1/4	3	.090CR	4324398	4324403	4325042	4325047
3/8	3/8	1-1/4	3	SQ	4324394	4324399	4325038	4325043
1/2	1/2	1-1/4	3	.015CR	4324415	4324421	4325059	4325065
1/2	1/2	1-1/4	3	.030CR	4324416	4324422	4325060	4325066
1/2	1/2	1-1/4	3	.060CR	4324417	4324423	4325061	4325067
1/2	1/2	1-1/4	3	.090CR	4324418	4324424	4325062	4325068
1/2	1/2	1-1/4	3	.125CR	4324419	4324425	4325063	4325069
1/2	1/2	1-1/4	3	SQ	4324414	4324420	4325058	4325064
5/8	5/8	1-5/8	4	.015CR	4324440	4324446	4325083	4325089
5/8	5/8	1-5/8	4	.030CR	4324439	4324445	4325084	4325090
5/8	5/8	1-5/8	4	.060CR	4324441	4324447	4325085	4325091
5/8	5/8	1-5/8	4	.090CR	4324442	4324448	4325086	4325092
5/8	5/8	1-5/8	4	.125CR	4324443	4324449	4325087	4325093
5/8	5/8	1-5/8	4	SQ	4324438	4324444	4325082	4325088
3/4	3/4	2-1/2	5	.015CR	4324463	4324471	4325107	4325115
3/4	3/4	2-1/2	5	.030CR	4324464	4324472	4325108	4325116
3/4	3/4	2-1/2	5	.060CR	4324465	4324473	4325109	4325117
3/4	3/4	2-1/2	5	.090CR	4324466	4324474	4325110	4325118
3/4	3/4	2-1/2	5	.125CR	4324467	4324475	4325111	4325119
3/4	3/4	2-1/2	5	.190CR	4324468	4324476	4325112	4325120
3/4	3/4	2-1/2	5	.250CR	4324469	4324477	4325113	4325121
3/4	3/4	2-1/2	5	SQ	4324462	4324470	4325106	4325114
1	1	3-1/4	6	.015CR	4324331	4324339	4324975	4324983
1	1	3-1/4	6	.030CR	4324332	4324340	4324976	4324984
1	1	3-1/4	6	.060CR	4324333	4324341	4324977	4324985
1	1	3-1/4	6	.090CR	4324334	4324342	4324978	4324986
1	1	3-1/4	6	.125CR	4324335	4324343	4324979	4324987
1	1	3-1/4	6	.190CR	4324336	4324344	4324980	4324988
1	1	3-1/4	6	.250CR	4324337	4324345	4324981	4324989
1	1	3-1/4	6	SQ	4324330	4324338	4324974	4324982

HIGH TEMP ALLOY & STAINLESS

SOLID CARBIDE END MILLS | 2027



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Long Length | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
1/4	1/4	3/4	2-1/2	.015CR	**4324207**	**4324211**	**4324851**	**4324855**
1/4	1/4	3/4	2-1/2	.030CR	**4324208**	**4324212**	**4324852**	**4324856**
1/4	1/4	3/4	2-1/2	.060CR	**4324209**	**4324213**	**4324853**	**4324857**
1/4	1/4	3/4	2-1/2	SQ	**4324206**	**4324210**	**4324850**	**4324854**
5/16	5/16	13/16	2-1/2	.015CR	**4324223**	**4324227**	**4324867**	**4324871**
5/16	5/16	13/16	2-1/2	.030CR	**4324224**	**4324228**	**4324868**	**4324872**
5/16	5/16	13/16	2-1/2	.060CR	**4324225**	**4324229**	**4324869**	**4324873**
5/16	5/16	13/16	2-1/2	SQ	**4324222**	**4324226**	**4324866**	**4324870**
3/8	3/8	1	2-1/2	.015CR	**4324241**	**4324246**	**4324885**	**4324890**
3/8	3/8	1	2-1/2	.030CR	**4324242**	**4324247**	**4324886**	**4324891**
3/8	3/8	1	2-1/2	.060CR	**4324243**	**4324248**	**4324887**	**4324892**
3/8	3/8	1	2-1/2	.090CR	**4324244**	**4324249**	**4324888**	**4324893**
3/8	3/8	1	2-1/2	SQ	**4324240**	**4324245**	**4324884**	**4324889**
1/2	1/2	1	3	.015CR	**4324263**	**4324269**	**4324907**	**4324913**
1/2	1/2	1	3	.030CR	**4324264**	**4324270**	**4324908**	**4324914**
1/2	1/2	1	3	.060CR	**4324265**	**4324271**	**4324909**	**4324915**
1/2	1/2	1	3	.090CR	**4324266**	**4324272**	**4324910**	**4324916**
1/2	1/2	1	3	.125CR	**4324267**	**4324273**	**4324911**	**4324917**
1/2	1/2	1	3	SQ	**4324262**	**4324268**	**4324906**	**4324912**
5/8	5/8	1-1/4	3-1/2	.015CR	**4324287**	**4324293**	**4324931**	**4324937**
5/8	5/8	1-1/4	3-1/2	.030CR	**4324288**	**4324294**	**4324932**	**4324938**
5/8	5/8	1-1/4	3-1/2	.060CR	**4324289**	**4324295**	**4324933**	**4324939**
5/8	5/8	1-1/4	3-1/2	.090CR	**4324290**	**4324296**	**4324934**	**4324940**
5/8	5/8	1-1/4	3-1/2	.125CR	**4324291**	**4324297**	**4324935**	**4324941**
5/8	5/8	1-1/4	3-1/2	SQ	**4324286**	**4324292**	**4324930**	**4324936**
3/4	3/4	1-5/8	4	.015CR	**4324315**	**4324323**	**4324959**	**4324967**
3/4	3/4	1-5/8	4	.030CR	**4324316**	**4324324**	**4324960**	**4324968**
3/4	3/4	1-5/8	4	.060CR	**4324317**	**4324325**	**4324961**	**4324969**
3/4	3/4	1-5/8	4	.090CR	**4324318**	**4324326**	**4324962**	**4324970**
3/4	3/4	1-5/8	4	.125CR	**4324319**	**4324327**	**4324963**	**4324971**
3/4	3/4	1-5/8	4	.190CR	**4324320**	**4324328**	**4324964**	**4324972**
3/4	3/4	1-5/8	4	.250CR	**4324321**	**4324329**	**4324965**	**4324973**
3/4	3/4	1-5/8	4	SQ	**4324314**	**4324322**	**4324958**	**4324966**
1	1	2-5/8	5	.015CR	**4324183**	**4324191**	**4324827**	**4324835**
1	1	2-5/8	5	.030CR	**4324184**	**4324192**	**4324828**	**4324836**
1	1	2-5/8	5	.060CR	**4324185**	**4324193**	**4324829**	**4324837**
1	1	2-5/8	5	.090CR	**4324186**	**4324194**	**4324830**	**4324838**



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Long Length | 6 & 7 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
1	1	2-5/8	5	.125CR	4324187	4324195	4324831	4324839
1	1	2-5/8	5	.190CR	4324188	4324196	4324832	4324840
1	1	2-5/8	5	.250DR	4324189	4324197	4324833	4324841
1	1	2-5/8	5	SQ	4324182	4324190	4324826	4324834

Square & Corner Radius | Extra Long Length | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
1/4	1/4	1-1/8	3	.015CR	4324371	4324375	4325015	4325019
1/4	1/4	1-1/8	3	.030CR	4324372	4324376	4325016	4325020
1/4	1/4	1-1/8	3	.060CR	4324373	4324377	4325017	4325021
1/4	1/4	1-1/8	3	SQ	4324370	4324374	4325014	4325018
5/16	5/16	1-1/4	3	.015CR	4324387	4324391	4325031	4325035
5/16	5/16	1-1/4	3	.030CR	4324388	4324392	4325032	4325036
5/16	5/16	1-1/4	3	.060CR	4324389	4324393	4325033	4325037
5/16	5/16	1-1/4	3	SQ	4324386	4324390	4325030	4325034
3/8	3/8	1-1/4	3	.015CR	4324407	4324410	4325049	4325054
3/8	3/8	1-1/4	3	.030CR	4324408	4324411	4325050	4325055
3/8	3/8	1-1/4	3	.060CR	4324404	4324412	4325051	4325056
3/8	3/8	1-1/4	3	.090CR	4324405	4324413	4325052	4325057
3/8	3/8	1-1/4	3	SQ	4324406	4324409	4325048	4325053
1/2	1/2	1-1/4	3	.015CR	4324427	4324433	4325071	4325077
1/2	1/2	1-1/4	3	.030CR	4324428	4324434	4325072	4325078
1/2	1/2	1-1/4	3	.060CR	4324429	4324435	4325073	4325079
1/2	1/2	1-1/4	3	.090CR	4324430	4324436	4325074	4325080
1/2	1/2	1-1/4	3	.125CR	4324431	4324437	4325075	4325081
1/2	1/2	1-1/4	3	SQ	4324426	4324432	4325070	4325076
5/8	5/8	1-5/8	4	.015CR	4324452	4324458	4325095	4325101
5/8	5/8	1-5/8	4	.030CR	4324451	4324457	4325096	4325102
5/8	5/8	1-5/8	4	.060CR	4324453	4324459	4325097	4325103
5/8	5/8	1-5/8	4	.090CR	4324454	4324460	4325098	4325104
5/8	5/8	1-5/8	4	.125CR	4324455	4324461	4325099	4325105
5/8	5/8	1-5/8	4	SQ	4324450	4324456	4325094	4325100
3/4	3/4	2-1/2	5	.015CR	4324479	4324487	4325123	4325131
3/4	3/4	2-1/2	5	.030CR	4324480	4324488	4325124	4325132
3/4	3/4	2-1/2	5	.060CR	4324481	4324489	4325125	4325133



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Extra Long Length | 6 & 7 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
3/4	3/4	2-1/2	5	.090CR	4324482	4324490	4325126	4325134
3/4	3/4	2-1/2	5	.125CR	4324483	4324491	4325127	4325135
3/4	3/4	2-1/2	5	.190CR	4324484	4324492	4325128	4325136
3/4	3/4	2-1/2	5	.250CR	4324485	4324493	4325129	4325137
3/4	3/4	2-1/2	5	SQ	4324478	4324486	4325122	4325130
1	1	3-1/4	6	.015CR	4324347	4324355	4324991	4324999
1	1	3-1/4	6	.030CR	4324348	4324356	4324992	4325000
1	1	3-1/4	6	.060CR	4324349	4324357	4324993	4325001
1	1	3-1/4	6	.090CR	4324350	4324358	4324994	4325002
1	1	3-1/4	6	.125CR	4324351	4324359	4324995	4325003
1	1	3-1/4	6	.190CR	4324352	4324360	4324996	4325004
1	1	3-1/4	6	.250CR	4324353	4324361	4324997	4325005
1	1	3-1/4	6	SQ	4324346	4324354	4324990	4324998

Square & Corner Radius | Long Reach | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
3/8	3/8	1-5/8	3-1/2	.015CR	4324495	4324501	4325139	4325145
3/8	3/8	1-5/8	3-1/2	.030CR	4324496	4324502	4325140	4325146
3/8	3/8	1-5/8	3-1/2	.060CR	4324497	4324503	4325141	4325147
3/8	3/8	1-5/8	3-1/2	.090CR	4324498	4324504	4325142	4325148
3/8	3/8	1-5/8	3-1/2	.120CR	4324499	4324505	4325143	4325149
3/8	3/8	1-5/8	3-1/2	SQ	4324494	4324500	4325138	4325144
1/2	1/2	1-5/8	4	.015CR	4324519	4324525	4325163	4325169
1/2	1/2	1-5/8	4	.030CR	4324520	4324526	4325164	4325170
1/2	1/2	1-5/8	4	.060CR	4324521	4324527	4325165	4325171
1/2	1/2	1-5/8	4	.090CR	4324522	4324528	4325166	4325172
1/2	1/2	1-5/8	4	.125CR	4324523	4324529	4325167	4325173
1/2	1/2	1-5/8	4	SQ	4324518	4324524	4325162	4325168
5/8	5/8	2-1/8	4	.015CR	4324544	4324550	4325187	4325193
5/8	5/8	2-1/8	4	.030CR	4324543	4324549	4325188	4325194
5/8	5/8	2-1/8	4	.060CR	4324545	4324551	4325189	4325195
5/8	5/8	2-1/8	4	.090CR	4324546	4324552	4325190	4325196
5/8	5/8	2-1/8	4	.125CR	4324547	4324553	4325191	4325197
5/8	5/8	2-1/8	4	SQ	4324542	4324548	4325186	4325192
3/4	3/4	3-1/4	6	.015CR	4324567	4324575	4325211	4325219



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Long Reach | 4 & 5 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
3/4	3/4	3-1/4	6	.030CR	4324568	4324576	4325212	4325220
3/4	3/4	3-1/4	6	.060CR	4324569	4324577	4325213	4325221
3/4	3/4	3-1/4	6	.090CR	4324570	4324578	4325214	4325222
3/4	3/4	3-1/4	6	.125CR	4324571	4324579	4325215	4325223
3/4	3/4	3-1/4	6	.190CR	4324572	4324580	4325216	4325224
3/4	3/4	3-1/4	6	.250CR	4324573	4324581	4325217	4325225
3/4	3/4	3-1/4	6	SQ	4324566	4324574	4325210	4325218

Square & Corner Radius | Long Reach | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
3/8	3/8	1-5/8	3-1/2	.015CR	4324507	4324513	4325151	4325157
3/8	3/8	1-5/8	3-1/2	.030CR	4324508	4324514	4325152	4325158
3/8	3/8	1-5/8	3-1/2	.060CR	4324509	4324515	4325153	4325159
3/8	3/8	1-5/8	3-1/2	.090CR	4324510	4324516	4325154	4325160
3/8	3/8	1-5/8	3-1/2	.120CR	4324511	4324517	4325155	4325161
3/8	3/8	1-5/8	3-1/2	SQ	4324506	4324512	4325150	4325156
1/2	1/2	1-5/8	4	.015CR	4324531	4324537	4325175	4325181
1/2	1/2	1-5/8	4	.030CR	4324532	4324538	4325176	4325182
1/2	1/2	1-5/8	4	.060CR	4324533	4324539	4325177	4325183
1/2	1/2	1-5/8	4	.090CR	4324534	4324540	4325178	4325184
1/2	1/2	1-5/8	4	.125CR	4324535	4324541	4325179	4325185
1/2	1/2	1-5/8	4	SQ	4324530	4324536	4325174	4325180
5/8	5/8	2-1/8	4	.015CR	4324556	4324562	4325199	4325205
5/8	5/8	2-1/8	4	.030CR	4324555	4324561	4325200	4325206
5/8	5/8	2-1/8	4	.060CR	4324557	4324563	4325201	4325207
5/8	5/8	2-1/8	4	.090CR	4324558	4324564	4325202	4325208
5/8	5/8	2-1/8	4	.125CR	4324559	4324565	4325203	4325209
5/8	5/8	2-1/8	4	SQ	4324554	4324560	4325198	4325204
3/4	3/4	3-1/4	6	.015CR	4324583	4324591	4325227	4325235
3/4	3/4	3-1/4	6	.030CR	4324584	4324592	4325228	4325236
3/4	3/4	3-1/4	6	.060CR	4324585	4324593	4325229	4325237
3/4	3/4	3-1/4	6	.090CR	4324586	4324594	4325230	4325238
3/4	3/4	3-1/4	6	.125CR	4324587	4324595	4325231	4325239
3/4	3/4	3-1/4	6	.190CR	4324588	4324596	4325232	4325240
3/4	3/4	3-1/4	6	.250CR	4324589	4324597	4325233	4325241



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Square & Corner Radius | Long Reach | 6 & 7 Flute | ALL4 (continued)

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
3/4	3/4	3-1/4	6	SQ	4324582	4324590	4325226	4325234

Square & Corner Radius | Extended Reach | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute	5 Flute	4 Flute Chipbreaker	5 Flute Chipbreaker
1/2	1/2	2-1/8	4	.015CR	4324599	4324605	4325243	4325249
1/2	1/2	2-1/8	4	.030CR	4324600	4324606	4325244	4325250
1/2	1/2	2-1/8	4	.060CR	4324601	4324607	4325245	4325251
1/2	1/2	2-1/8	4	.090CR	4324602	4324608	4325246	4325252
1/2	1/2	2-1/8	4	.125CR	4324603	4324609	4325247	4325253
1/2	1/2	2-1/8	4	SQ	4324598	4324604	4325242	4325248
5/8	5/8	2-5/8	5	.015CR	4324624	4324630	4325267	4325273
5/8	5/8	2-5/8	5	.030CR	4324623	4324629	4325268	4325274
5/8	5/8	2-5/8	5	.060CR	4324625	4324631	4325269	4325275
5/8	5/8	2-5/8	5	.090CR	4324626	4324632	4325270	4325276
5/8	5/8	2-5/8	5	.125CR	4324627	4324633	4325271	4325277
5/8	5/8	2-5/8	5	SQ	4324622	4324628	4325266	4325272

Square & Corner Radius | Extended Reach | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute	7 Flute	6 Flute Chipbreaker	7 Flute Chipbreaker
1/2	1/2	2-1/8	4	.015CR	4324611	4324617	4325255	4325261
1/2	1/2	2-1/8	4	.030CR	4324612	4324618	4325256	4325262
1/2	1/2	2-1/8	4	.060CR	4324613	4324619	4325257	4325263
1/2	1/2	2-1/8	4	.090CR	4324614	4324620	4325258	4325264
1/2	1/2	2-1/8	4	.125CR	4324615	4324621	4325259	4325265
1/2	1/2	2-1/8	4	SQ	4324610	4324616	4325254	4325260
5/8	5/8	2-5/8	5	.015CR	4324636	4324642	4325279	4325285
5/8	5/8	2-5/8	5	.030CR	4324635	4324641	4325280	4325286
5/8	5/8	2-5/8	5	.060CR	4324637	4324643	4325281	4325287
5/8	5/8	2-5/8	5	.090CR	4324638	4324644	4325282	4325288
5/8	5/8	2-5/8	5	.125CR	4324639	4324645	4325283	4325289
5/8	5/8	2-5/8	5	SQ	4324634	4324640	4325278	4325284

HIGH TEMP ALLOY & STAINLESS

SOLID CARBIDE END MILLS | 2027



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Ball Nose | Regular Length | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute
1/4	1/4	3/8	2	BN	**4325293**
5/16	5/16	7/16	2-1/2	BN	**4325295**
3/8	3/8	1/2	2	BN	**4325297**
1/2	1/2	5/8	2-1/2	BN	**4325299**
5/8	5/8	3/4	3	BN	**4325301**
3/4	3/4	1	3	BN	**4325303**
1	1	1-3/4	4-1/2	BN	**4325290**

Ball Nose | Regular Length | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute
1/4	1/4	3/8	2	BN	**4325294**
5/16	5/16	7/16	2-1/2	BN	**4325296**
3/8	3/8	1/2	2	BN	**4325298**
1/2	1/2	5/8	2-1/2	BN	**4325300**
5/8	5/8	3/4	3	BN	**4325302**
3/4	3/4	1	3	BN	**4325304**
1	1	1-3/4	4-1/2	BN	**4325291**

Ball Nose | Long Length | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute
1/4	1/4	3/4	2-1/2	BN	**4325306**
5/16	5/16	13/16	2-1/2	BN	**4325308**
3/8	3/8	1	2-1/2	BN	**4325310**
1/2	1/2	1	3	BN	**4325312**
5/8	5/8	1-1/4	3-1/2	BN	**4325314**
3/4	3/4	1-5/8	4	BN	**4325316**
1	1	2-5/8	5	BN	**4325305**

HIGH TEMP ALLOY & STAINLESS

SOLID CARBIDE END MILLS | 2027



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Ball Nose | Extra Long Length | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute
1/4	1/4	1-1/8	3	BN	**4325320**
5/16	5/16	1-1/4	3	BN	**4325322**
3/8	3/8	1-1/4	3	BN	**4325324**
1/2	1/2	1-1/4	3	BN	**4325326**
5/8	5/8	1-5/8	4	BN	**4325328**
3/4	3/4	2-1/2	5	BN	**4325330**
1	1	3-1/4	6	BN	**4325318**

Ball Nose | Long Length | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute
1/4	1/4	3/4	2-1/2	BN	**4325307**
5/16	5/16	13/16	2-1/2	BN	**4325309**
3/8	3/8	1	2-1/2	BN	**4325311**
1/2	1/2	1	3	BN	**4325313**
5/8	5/8	1-1/4	3-1/2	BN	**4325315**
3/4	3/4	1-5/8	4	BN	**4325317**
1	1	2-5/8	5	BN	**4325292**

Ball Nose | Extra Long Length | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute
1/4	1/4	1-1/8	3	BN	**4325321**
5/16	5/16	1-1/4	3	BN	**4325323**
3/8	3/8	1-1/4	3	BN	**4325325**
1/2	1/2	1-1/4	3	BN	**4325327**
5/8	5/8	1-5/8	4	BN	**4325329**
3/4	3/4	2-1/2	5	BN	**4325331**
1	1	3-1/4	6	BN	**4325319**

HIGH TEMP ALLOY & STAINLESS

SOLID CARBIDE END MILLS | 2027



Variable pitch, honed edges and 12% premium micrograin carbide; ALL4 coated; diameter tolerance +0.0000 / -0.0015 in.

Ball Nose | Long Reach | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute
3/8	3/8	1-5/8	3-1/2	BN	**4325332**
1/2	1/2	1-5/8	4	BN	**4325334**
5/8	5/8	2-1/8	4	BN	**4325336**
3/4	3/4	3-1/4	6	BN	**4325338**

Ball Nose | Long Reach | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute
3/8	3/8	1-5/8	3-1/2	BN	**4325333**
1/2	1/2	1-5/8	4	BN	**4325335**
5/8	5/8	2-1/8	4	BN	**4325337**
3/4	3/4	3-1/4	6	BN	**4325339**

Ball Nose | Extended Reach | 4 & 5 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	4 Flute
1/2	1/2	2-1/8	4	BN	**4325340**
5/8	5/8	2-5/8	5	BN	**4325342**

Ball Nose | Extended Reach | 6 & 7 Flute | ALL4

Cutter D	Shank d	LOC	OAL	End Form	6 Flute
1/2	1/2	2-1/8	4	BN	**4325341**
5/8	5/8	2-5/8	5	BN	**4325343**

HIGH PERFORMANCE ALUMINUM

SOLID CARBIDE END MILLS | 2027



Balanced pitch, polished flutes and cylindrical margin; uncoated, ZrN and selected DLC options; diameter tolerance +0.0000 / -0.0004 in.

Medium / Finishing | Square & Corner Radius | Extra Long Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 2 Flute	Uncoated 3 Flute	ZrN 2 Flute	ZrN 3 Flute
3/16	3/16	1-1/8	3	SQ	**1321200**	**1321201**	**1321084**	**1321085**
1/4	1/4	1-1/2	4	SQ	**1321202**	**1321203**	**1321086**	**1321087**
5/16	5/16	1-5/8	4	SQ	**1321204**	**1321205**	**1321088**	**1321089**
3/8	3/8	1-3/4	4	SQ	**1321206**	**1321207**	**1321090**	**1321091**
1/2	1/2	3	6	SQ	**1321208**	**1321209**	**1321092**	**1321093**
5/8	5/8	3	6	SQ	**1321210**	**1321211**	**1321094**	**1321095**
3/4	3/4	3	6	SQ	**1321212**	**1321213**	**1321096**	**1321097**
1	1	3	6	SQ	**1321198**	**1321199**	**1321082**	**1321083**

Medium / Finishing | Square & Corner Radius | Long Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 2 Flute	Uncoated 3 Flute	ZrN 2 Flute	ZrN 3 Flute
3/16	3/16	3/4	2-1/2	SQ	**1321152**	**1321153**	**1321036**	**1321037**
1/4	1/4	1-1/8	3	SQ	**1321154**	**1321155**	**1321038**	**1321039**
5/16	5/16	1-1/8	3	SQ	**1321156**	**1321157**	**1321040**	**1321041**
3/8	3/8	1-1/8	3	SQ	**1321158**	**1321159**	**1321042**	**1321043**
1/2	1/2	2	4	SQ	**1321160**	**1321161**	**1321044**	**1321045**
5/8	5/8	2-1/4	5	SQ	**1321162**	**1321163**	**1321046**	**1321047**
3/4	3/4	2-1/4	5	SQ	**1321164**	**1321165**	**1321048**	**1321049**
1	1	2-1/4	5	SQ	**1321150**	**1321151**	**1321034**	**1321035**

Medium / Finishing | Square & Corner Radius | Regular Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 2 Flute	Uncoated 3 Flute	ZrN 2 Flute	ZrN 3 Flute	DLC 2 Flute	DLC 3 Flute
1/8	1/8	1/2	1-1/2	SQ	**1321118**	**1321119**				
3/16	3/16	5/8	2	.060CR	**1321121**		**1321005**			
3/16	3/16	5/8	2	SQ	**1321120**	**1321122**	**1321004**	**1321006**	**1321234**	**1321236**
1/4	1/4	3/4	2-1/2	.020CR	**1321124**	**1321126**	**1321008**	**1321010**	**1321238**	**1321240**
1/4	1/4	3/4	2-1/2	.060CR		**1321127**		**1321011**		
1/4	1/4	3/4	2-1/2	SQ	**1321123**	**1321125**	**1321007**	**1321009**	**1321237**	**1321239**
5/16	5/16	13/16	2 1/2	.010CR		**1321131**		**1321015**		
5/16	5/16	13/16	2 1/2	.020CR	**1321129**	**1321132**	**1321013**	**1321016**	**1321243**	**1321246**
5/16	5/16	13/16	2 1/2	.060CR		**1321133**		**1321017**		
5/16	5/16	13/16	2 1/2	SQ	**1321128**	**1321130**	**1321012**	**1321014**	**1321242**	**1321244**
3/8	3/8	1	2-1/2	.020CR	**1321135**	**1321137**	**1321019**	**1321021**	**1321249**	**1321251**

HIGH PERFORMANCE ALUMINUM

SOLID CARBIDE END MILLS | 2027



Balanced pitch, polished flutes and cylindrical margin; uncoated, ZrN and selected DLC options; diameter tolerance +0.0000 / -0.0004 in.

Medium / Finishing | Square & Corner Radius | Regular Length (continued)

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 2 Flute	Uncoated 3 Flute	ZrN 2 Flute	ZrN 3 Flute	DLC 2 Flute	DLC 3 Flute
3/8	3/8	1	2-1/2	SQ	1321134	1321136	1321018	1321020	1321248	1321250
1/2	1/2	1-1/4	3	.030CR	1321139	1321141	1321023	1321025	1321253	1321255
1/2	1/2	1-1/4	3	SQ	1321138	1321140	1321022	1321024	1321252	1321254
5/8	5/8	1-1/4	3-1/2	.030CR	1321143	1321145	1321027	1321029	1321257	1321259
5/8	5/8	1-1/4	3-1/2	SQ	1321142	1321144	1321026	1321028	1321256	1321258
3/4	3/4	1-1/2	4	.030CR	1321147	1321149	1321031	1321033	1321261	1321263
3/4	3/4	1-1/2	4	SQ	1321146	1321148	1321030	1321032	1321260	1321262
1	1	1-1/2	4	.030CR	1321115	1321117	1321001	1321003	1321231	1321233
1	1	1-1/2	4	SQ	1321114	1321116	1321000	1321002	1321230	1321232

Medium / Finishing | Ball Nose | Extra Long Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 2 Flute	Uncoated 3 Flute	ZrN 2 Flute	ZrN 3 Flute
3/16	3/16	1-1/8	3	BN	1321216	1321217	1321100	1321101
1/4	1/4	1-1/2	4	BN	1321218	1321219	1321102	1321103
5/16	5/16	1-5/8	4	BN	1321220	1321221	1321104	1321105
3/8	3/8	1-3/4	4	BN	1321222	1321223	1321106	1321107
1/2	1/2	3	6	BN	1321224	1321225	1321108	1321109
5/8	5/8	3	6	BN	1321226	1321227	1321110	1321111
3/4	3/4	3	6	BN	1321228	1321229	1321112	1321113
1	1	3	6	BN	1321214	1321215	1321098	1321099

Medium / Finishing | Ball Nose | Long Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 2 Flute	Uncoated 3 Flute	ZrN 2 Flute	ZrN 3 Flute
3/16	3/16	3/4	2-1/2	BN	1321184	1321185	1321068	1321069
1/4	1/4	1-1/8	3	BN	1321186	1321187	1321070	1321071
5/16	5/16	1-1/8	3	BN	1321188	1321189	1321072	1321073
3/8	3/8	1-1/8	3	BN	1321190	1321191	1321074	1321075
1/2	1/2	2	4	BN	1321192	1321193	1321076	1321077
5/8	5/8	2-1/4	5	BN	1321194	1321195	1321078	1321079
3/4	3/4	2-1/4	5	BN	1321196	1321197	1321080	1321081
1	1	2-1/4	5	BN	1321182	1321183	1321066	1321067

HIGH PERFORMANCE ALUMINUM

SOLID CARBIDE END MILLS | 2027



Balanced pitch, polished flutes and cylindrical margin; uncoated, ZrN and selected DLC options; diameter tolerance +0.0000 / -0.0004 in.

Medium / Finishing | Ball Nose | Regular Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 2 Flute	Uncoated 3 Flute	ZrN 2 Flute	ZrN 3 Flute
3/16	3/16	5/8	2	BN	**1321168**	**1321169**	**1321052**	**1321053**
1/4	1/4	3/4	2-1/2	BN	**1321170**	**1321171**	**1321054**	**1321055**
5/16	5/16	13/16	2 1/2	BN	**1321172**	**1321173**	**1321056**	**1321057**
3/8	3/8	1	2-1/2	BN	**1321174**	**1321175**	**1321058**	**1321059**
1/2	1/2	1-1/4	3	BN	**1321176**	**1321177**	**1321060**	**1321061**
5/8	5/8	1-1/4	3-1/2	BN	**1321178**	**1321179**	**1321062**	**1321063**
3/4	3/4	1-1/2	4	BN	**1321180**	**1321181**	**1321064**	**1321065**
1	1	1-1/2	4	BN	**1321166**	**1321167**	**1321050**	**1321051**

Medium / Roughing | Square & Corner Radius | Long Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 3 Flute	Uncoated 3 Flute CB	ZrN 3 Flute	ZrN 3 Flute CB
3/8	3/8	1-1/8	3	.030CR	**1321358**	**1321359**	**1321405**	**1321406**
3/8	3/8	1-1/8	3	SQ	**1321357**		**1321404**	
1/2	1/2	2	4	.030CR	**1321367**	**1321368**	**1321411**	**1321412**
1/2	1/2	2	4	SQ	**1321366**		**1321410**	
5/8	5/8	2-1/4	5	.030CR	**1321376**	**1321377**	**1321417**	**1321418**
5/8	5/8	2-1/4	5	SQ	**1321375**		**1321416**	
3/4	3/4	2-1/4	5	.030CR	**1321385**	**1321386**	**1321423**	**1321424**
3/4	3/4	2-1/4	5	SQ	**1321384**		**1321422**	
1	1	2-1/4	5	.030CR	**1321393**	**1321394**	**1321429**	**1321430**
1	1	2-1/4	5	SQ	**1321392**		**1321428**	

Medium / Roughing | Square & Corner Radius | Regular Length

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 3 Flute	Uncoated 3 Flute CB	ZrN 3 Flute	ZrN 3 Flute CB
1/4	1/4	3/4	2-1/2	.015CR	**1321345**		**1321396**	
1/4	1/4	3/4	2-1/2	.020CR	**1321346**	**1321349**	**1321397**	**1321398**
1/4	1/4	3/4	2-1/2	.030CR	**1321347**			
1/4	1/4	3/4	2-1/2	.060CR	**1321348**			
1/4	1/4	3/4	2-1/2	SQ	**1321344**		**1321395**	
5/16	5/16	13/16	2-1/2	.030CR	**1321351**		**1321400**	
5/16	5/16	13/16	2-1/2	.060CR	**1321352**			
5/16	5/16	13/16	2-1/2	SQ	**1321350**		**1321399**	
3/8	3/8	1	2-1/2	.030CR	**1321354**	**1321356**	**1321402**	**1321403**

HIGH PERFORMANCE ALUMINUM

SOLID CARBIDE END MILLS | 2027



Balanced pitch, polished flutes and cylindrical margin; uncoated, ZrN and selected DLC options; diameter tolerance +0.0000 / -0.0004 in.

Medium / Roughing | Square & Corner Radius | Regular Length (continued)

Cutter D	Shank d	LOC	OAL	End Form	Uncoated 3 Flute	Uncoated 3 Flute CB	ZrN 3 Flute	ZrN 3 Flute CB
3/8	3/8	1	2-1/2	.060CR	**1321355**			
3/8	3/8	1	2-1/2	SQ	**1321353**		**1321401**	
1/2	1/2	1-1/4	3	.030CR	**1321361**	**1321365**	**1321408**	**1321409**
1/2	1/2	1-1/4	3	.060CR	**1321362**			
1/2	1/2	1-1/4	3	.090CR	**1321363**			
1/2	1/2	1-1/4	3	.120CR	**1321364**			
1/2	1/2	1-1/4	3	SQ	**1321360**		**1321407**	
5/8	5/8	1-1/4	3-1/2	.030CR	**1321370**	**1321374**	**1321414**	**1321415**
5/8	5/8	1-1/4	3-1/2	.060CR	**1321371**			
5/8	5/8	1-1/4	3-1/2	.090CR	**1321372**			
5/8	5/8	1-1/4	3-1/2	.120CR	**1321373**			
5/8	5/8	1-1/4	3-1/2	SQ	**1321369**		**1321413**	
3/4	3/4	1-5/8	4	.030CR	**1321379**	**1321383**	**1321420**	**1321421**
3/4	3/4	1-5/8	4	.060CR	**1321380**			
3/4	3/4	1-5/8	4	.090CR	**1321381**			
3/4	3/4	1-5/8	4	.120CR	**1321382**			
3/4	3/4	1-5/8	4	SQ	**1321378**		**1321419**	
1	1	1-1/2	4	.030CR	**1321388**	**1321391**	**1321426**	**1321427**
1	1	1-1/2	4	.060CR	**1321389**			
1	1	1-1/2	4	.120CR	**1321390**			
1	1	1-1/2	4	SQ	**1321387**		**1321425**	

COATINGS & MATERIALS

Coating selection, ISO work-material groups and cutter tolerances

COATING OPTIONS

UNCOATED / BRIGHT

Uncoated carbide cutting edges for compatible applications; shown as BRITE in the distributor data.

TiALN | Titanium Aluminum Nitride

Violet coating. Improved abrasion and heat resistance for longer tool life.

ALL4 | Aluminum Chromium Titanium Nitride

Grey ultra-high-performance coating designed for high heat, abrasion and wear in ferrous materials.

ZrN | Zirconium Nitride

Pale gold coating with high lubricity for machining aluminum and other nonferrous materials.

DLC | Diamond Like Carbon

Black, highly wear-resistant coating for finishing aluminum, nonferrous and composite materials.

MATERIAL GROUPS

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

DIAMETER / SHANK TOLERANCES (INCHES)

GP / HP	+0.0000 / -0.0020
UHP / HEM / HTAS	+0.0000 / -0.0015
Aluminum	+0.0000 / -0.0004

All families: shank tolerance +0.0000 / -0.0004. Confirm application-specific requirements.

HIGH-EFFICIENCY MACHINING (HEM)

HEM / dynamic / trochoidal toolpaths can increase axial engagement while reducing radial engagement, spreading wear across more cutting length. Recommended feeds and speeds should always be checked for the specific machine and application.

1. **Special tapered core**
   Increases tool stiffness.
2. **Premium micrograin carbide**
   A carbide grade selected for exceptional tool life.
3. **Variable pitch**
   Reduces harmonic vibration, benefiting surface finish and tool life.
4. **Finish performance**
   Can improve surface quality where chip evacuation and toolpath design permit.
5. **Unique chipbreakers**
   Assist chip management in slotting and pocketing applications.
6. **ALL4 coating**
   High-performance coating for abrasion and heat resistance.
7. **Proprietary edge honing**
   Designed to support quiet cutting and long tool life.

ENGAGEMENT COMPARISON

HEM / DYNAMIC	TRADITIONAL
Long axial depth of cut Short radial width of cut; broad tool-length utilization	**Shorter axial depth of cut** Larger radial engagement, depending on the operation

GENERAL PURPOSE | SPEEDS & FEEDS

WORK MATERIAL	ISO	SPEED (SFM)		FEED PER TOOTH (IPT) · CUTTER DIAMETER							
		Uncoated	TiAlN	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum & Aluminum Alloys	N	600-1200	900-1800	.0020	.0025	.0030	.0035	.0040	.0050	.0060	.0080
Copper & Copper Alloys	N	350-850	525-1275	.0020	.0025	.0025	.0030	.0030	.0035	.0040	.0060
Brass & Bronze	N	250-400	375-600	.0020	.0025	.0025	.0030	.0030	.0035	.0040	.0050
Graphite	N	500-800	500-1200	.0030	.0035	.0025	.0030	.0030	.0040	.0050	.0070
Plastics	N	600-1100	600-1650	.0030	.0035	.0040	.0050	.0060	.0080	.0100	.0150
Iron, Cast (soft)	K	250-450	375-650	.0020	.0022	.0025	.0027	.0030	.0045	.0060	.0080
Iron, Cast (hard)	K	100-250	100-375	.0008	.0010	.0015	.0017	.0020	.0025	.0030	.0040
Iron, Ductile	K	80-400	100-600	.0010	.0012	.0015	.0017	.0020	.0030	.0040	.0060
Iron, Malleable	K	150-500	225-650	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0070
Carbon Steels, Low	P	200-400	300-600	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0070
Carbon Steels, Medium	P	100-250	150-375	.0015	.0016	.0017	.0018	.0020	.0030	.0040	.0050
Carbon Steels Hardened to 35 Rc	P	130-230	130-345	.0010	.0011	.0012	.0013	.0015	.0017	.0020	.0030
Carbon Steels Hardened to 50 Rc	P	70-130	70-160	.0007	.0007	.0008	.0009	.0010	.0015	.0020	.0030
Carbon Steels Hardened to 60 Rc	P	30-70	30-90	.0005	.0006	.0007	.0009	.0010	.0012	.0015	.0020
Steels, Mold	P	200-350	300-525	.0010	.0012	.0015	.0017	.0020	.0025	.0030	.0040
Steels, Tool	P	100-250	150-375	.0010	.0012	.0015	.0017	.0020	.0025	.0030	.0040
Stainless Steels, Soft	M	200-350	300-450	.0010	.0012	.0015	.0012	.0020	.0030	.0040	.0060
Stainless Steels, Hard	M	100-200	150-300	.0005	.0006	.0007	.0008	.0010	.0020	.0030	.0050
Monel & High Nickel Steel	S	75-175	75-200	.0010	.0012	.0015	.0017	.0020	.0025	.0030	.0040
Titanium, Soft	S	125-300	125-375	.0010	.0012	.0015	.0017	.0020	.0030	.0040	.0060
Titanium, Hard	S	50-150	50-175	.0005	.0006	.0007	.0008	.0010	.0015	.0020	.0020
Nickel Based High Temp Alloys	S	50-100	50-125	.0008	.0008	.0009	.0009	.0010	.0012	.0015	.0020

APPLICATION NOTES

Starting recommendations. For profiling, axial depth should not exceed 1x tool diameter; for full slotting, 0.5x.
Adjust SFM and feed for rigidity, engagement, coolant, workholding, vibration and surface finish.

HIGH PERFORMANCE · VARIABLE PITCH | SPEEDS & FEEDS

WORK MATERIAL	ISO	SPEED (SFM)	FEED PER TOOTH (IPT) · CUTTER DIAMETER							
		TiAlN	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum & Aluminum Alloys	N	900-1800	0.0025	0.0030	0.0035	0.004	0.0045	0.0055	0.0065	0.0085
Copper & Copper Alloys	N	525-1275	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0065
Brass & Bronze	N	375-600	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0055
Iron, Cast (soft)	K	375-650	0.0025	0.0027	0.0030	0.0032	0.0035	0.0040	0.0065	0.0085
Iron, Cast (hard)	K	100-375	0.0013	0.0015	0.0020	0.0022	0.0025	0.0030	0.0035	0.0045
Iron, Ductile	K	100-600	0.0015	0.0017	0.0020	0.0022	0.0025	0.0035	0.0045	0.0065
Iron, Malleable	K	225-650	0.0015	0.0020	0.0025	0.0030	0.0035	0.0045	0.0055	0.0075
Carbon Steels, Low	P	300-600	0.0015	0.0020	0.0025	0.0030	0.0035	0.0045	0.0055	0.0075
Carbon Steels, Medium	P	150-375	0.0020	0.0021	0.0022	0.0023	0.0025	0.0035	0.0045	0.0055
Carbon Steels Hardened to 35 Rc	P	130-345	0.0015	0.0016	0.0017	0.0018	0.0020	0.0022	0.0025	0.0035
Carbon Steels Hardened to 50 Rc	P	70-160	0.0012	0.0012	0.0013	0.0014	0.0015	0.0020	0.0025	0.0035
Steels, Mold	P	300-525	0.0015	0.0017	0.0020	0.0022	0.0025	0.0030	0.0035	0.0045
Steels, Tool	P	150-375	0.0015	0.0017	0.0020	0.0022	0.0025	0.0030	0.0035	0.0045
Stainless Steels, Soft	M	300-450	0.0015	0.0017	0.0020	0.0017	0.0025	0.0035	0.0045	0.0065
Stainless Steels, Hard	M	150-300	0.0010	0.0011	0.0012	0.0013	0.0015	0.0025	0.0035	0.0055
Monel & High Nickel Steel	S	75-200	0.0015	0.0017	0.0020	0.0021	0.0025	0.003	0.0035	0.0045
Titanium, Soft	S	125-375	0.0015	0.0017	0.0020	0.0021	0.0025	0.0035	0.0045	0.0065
Titanium, Hard	S	50-175	0.0010	0.0011	0.0012	0.0012	0.0014	0.0017	0.0022	0.0023
Nickel Based High Temp Alloys	S	50-125	0.0013	0.0012	0.0011	0.0011	0.0014	0.0015	0.0017	0.0023

APPLICATION NOTES

Starting recommendations. For profiling, axial depth should not exceed 1.25x tool diameter; for full slotting, 0.75x.
Adjust speeds and feeds to the machine, workpiece, toolpath and vibration conditions.

ULTRA HIGH PERFORMANCE · VARIABLE PITCH | SPEEDS & FEEDS

WORK MATERIAL	ISO	SPEED (SFM)	FEED PER TOOTH (IPT) · CUTTER DIAMETER							
		TiAlN	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum & Aluminum Alloys	N	900-1800	0.0025	0.0030	0.0035	0.004	0.0045	0.0055	0.0065	0.0085
Copper & Copper Alloys	N	525-1275	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0065
Brass & Bronze	N	375-600	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0055
Iron, Cast (soft)	K	375-650	0.0030	0.0032	0.0035	0.0037	0.0040	0.0045	0.0070	0.0090
Iron, Cast (hard)	K	100-375	0.0018	0.0020	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Iron, Ductile	K	100-600	0.0020	0.0022	0.0025	0.0027	0.0030	0.0040	0.0050	0.0070
Iron, Malleable	K	225-650	0.0020	0.0025	0.0030	0.0035	0.0040	0.0050	0.0060	0.0080
Carbon Steels, Low	P	300-600	0.0020	0.0025	0.0030	0.0035	0.0040	0.0050	0.0060	0.0080
Carbon Steels, Medium	P	150-375	0.0025	0.0026	0.0027	0.0028	0.0030	0.0040	0.0050	0.0060
Carbon Steels Hardened to 35 Rc	P	130-345	0.0020	0.0021	0.0022	0.0023	0.0025	0.0027	0.0030	0.0040
Carbon Steels Hardened to 50 Rc	P	70-160	0.0012	0.0012	0.0013	0.0014	0.0015	0.0026	0.0030	0.0035
Steels, Mold	P	300-525	0.0020	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Steels, Tool	P	150-375	0.0020	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Stainless Steels, Soft	M	300-450	0.0020	0.0022	0.0025	0.0022	0.0030	0.0040	0.0050	0.0070
Stainless Steels, Hard	M	150-300	0.0015	0.0016	0.0017	0.0018	0.0020	0.0030	0.0040	0.0060
Monel & High Nickel Steel	S	75-200	0.0015	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Titanium, Soft	S	125-375	0.0015	0.0022	0.0025	0.0027	0.0030	0.0040	0.0050	0.0070
Titanium, Hard	S	50-175	0.0010	0.0016	0.0017	0.0018	0.0020	0.0022	0.0026	0.0030
Nickel Based High Temp Alloys	S	50-125	0.0014	0.0014	0.0015	0.0016	0.0017	0.0018	0.0020	0.0023

APPLICATION NOTES

Starting recommendations. For profiling, axial depth should not exceed 1.25x tool diameter; for full slotting, 0.75x.
Adjust speeds and feeds to the machine, workpiece, toolpath and vibration conditions.

HIGH EFFICIENCY MACHINING (HEM) | SPEEDS & FEEDS

WORK MATERIAL	ISO	SPEED (SFM)	FEED PER TOOTH (IPT) · CUTTER DIAMETER							
		ALL4	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum & Aluminum Alloys	N	900-1800	0.0025	0.0030	0.0035	0.004	0.0045	0.0055	0.0065	0.0085
Copper & Copper Alloys	N	525-1275	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0065
Brass & Bronze	N	375-900	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0055
Iron, Cast (soft)	K	375-950	0.0030	0.0032	0.0035	0.0037	0.0040	0.0045	0.0070	0.0090
Iron, Cast (hard)	K	150-475	0.0018	0.0020	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Iron, Ductile	K	200-900	0.0020	0.0022	0.0025	0.0027	0.0030	0.0040	0.0050	0.0070
Iron, Malleable	K	275-850	0.0020	0.0025	0.0030	0.0035	0.0040	0.0050	0.0060	0.0080
Carbon Steels, Low	P	350-900	0.0020	0.0025	0.0030	0.0035	0.0040	0.0050	0.0060	0.0080
Carbon Steels, Medium	P	200-675	0.0025	0.0026	0.0027	0.0028	0.0030	0.0040	0.0050	0.0060
Carbon Steels Hardened to 35 Rc	P	190-545	0.0020	0.0021	0.0022	0.0023	0.0025	0.0027	0.0030	0.0040
Carbon Steels Hardened to 50 Rc	P	90-275	0.0012	0.0012	0.0013	0.0014	0.0015	0.0026	0.0030	0.0035
Steels, Mold	P	300-725	0.0020	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Steels, Tool	P	175-525	0.0020	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Stainless Steels, Soft	M	300-525	0.0020	0.0022	0.0025	0.0022	0.0030	0.0040	0.0050	0.0070
Stainless Steels, Hard	M	150-475	0.0015	0.0016	0.0017	0.0018	0.0020	0.0030	0.0040	0.0060
Monel & High Nickel Steel	S	75-250	0.0015	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Titanium, Soft	S	125-475	0.0015	0.0022	0.0025	0.0027	0.0030	0.0040	0.0050	0.0070
Titanium, Hard	S	50-195	0.0010	0.0016	0.0017	0.0018	0.0020	0.0022	0.0026	0.0030
Nickel Based High Temp Alloys	S	50-175	0.0014	0.0014	0.0015	0.0016	0.0017	0.0018	0.0020	0.0023

APPLICATION NOTES

HEM / dynamic toolpaths: account for radial chip thinning when calculating programmed feed (RCTF).
Values are starting points only. Adjust to the machine, engagement, stiffness, coolant and chip evacuation.

HIGH TEMP ALLOY & STAINLESS (HTAS) | SPEEDS & FEEDS

WORK MATERIAL	ISO	SPEED (SFM)	FEED PER TOOTH (IPT) · CUTTER DIAMETER							
		ALL4	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum & Aluminum Alloys	N	900-1800	0.0025	0.0030	0.0035	0.004	0.0045	0.0055	0.0065	0.0085
Copper & Copper Alloys	N	525-1275	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0065
Brass & Bronze	N	375-900	0.0025	0.0030	0.0030	0.0035	0.0035	0.0040	0.0045	0.0055
Iron, Cast (soft)	K	375-950	0.0030	0.0032	0.0035	0.0037	0.0040	0.0045	0.0070	0.0090
Iron, Cast (hard)	K	150-475	0.0018	0.0020	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Iron, Ductile	K	200-900	0.0020	0.0022	0.0025	0.0027	0.0030	0.0040	0.0050	0.0070
Iron, Malleable	K	275-850	0.0020	0.0025	0.0030	0.0035	0.0040	0.0050	0.0060	0.0080
Carbon Steels, Low	P	350-900	0.0020	0.0025	0.0030	0.0035	0.0040	0.0050	0.0060	0.0080
Carbon Steels, Medium	P	200-675	0.0025	0.0026	0.0027	0.0028	0.0030	0.0040	0.0050	0.0060
Carbon Steels Hardened to 35 Rc	P	190-545	0.0020	0.0021	0.0022	0.0023	0.0025	0.0027	0.0030	0.0040
Carbon Steels Hardened to 50 Rc	P	90-275	0.0012	0.0012	0.0013	0.0014	0.0015	0.0026	0.0030	0.0035
Steels, Mold	P	300-725	0.0020	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Steels, Tool	P	175-525	0.0020	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Stainless Steels, Soft	M	300-525	0.0020	0.0022	0.0025	0.0022	0.0030	0.0040	0.0050	0.0070
Stainless Steels, Hard	M	150-475	0.0015	0.0016	0.0017	0.0018	0.0020	0.0030	0.0040	0.0060
Monel & High Nickel Steel	S	75-250	0.0015	0.0022	0.0025	0.0027	0.0030	0.0035	0.0040	0.0050
Titanium, Soft	S	125-475	0.0015	0.0022	0.0025	0.0027	0.0030	0.0040	0.0050	0.0070
Titanium, Hard	S	50-195	0.0010	0.0016	0.0017	0.0018	0.0020	0.0022	0.0026	0.0030
Nickel Based High Temp Alloys	S	50-175	0.0014	0.0014	0.0015	0.0016	0.0017	0.0018	0.0020	0.0023

APPLICATION NOTES

For HEM toolpaths, apply radial chip thinning calculations (RCTF) before setting programmed feed.
Values are starting points only. Adjust for machine rigidity, engagement, coolant and cutting performance.

HIGH PERFORMANCE ALUMINUM | SPEEDS & FEEDS

WORK MATERIAL	ISO	SPEED (SFM)	FEED PER TOOTH (IPT) · CUTTER DIAMETER							
		ZrN	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
Aluminum & Aluminum Alloys	N	900-1800	0.003	0.0035	0.004	0.0045	0.005	0.006	0.007	0.009
Copper & Copper Alloys	N	525-1275	0.003	0.0035	0.0035	0.004	0.004	0.0045	0.005	0.007
Brass & Bronze	N	375-600	0.003	0.0035	0.0035	0.004	0.004	0.0045	0.005	0.006
Graphite	N	500-1200	0.004	0.0045	0.0045	0.0045	0.0045	0.005	0.006	0.008
Plastics	N	600-1650	0.004	0.0045	0.005	0.006	0.007	0.009	0.011	0.016
Iron, Cast (soft)	K	--	--	--	--	--	--	--	--	--
Iron, Cast (hard)	K	--	--	--	--	--	--	--	--	--
Iron, Ductile	K	--	--	--	--	--	--	--	--	--
Iron, Malleable	K	--	--	--	--	--	--	--	--	--
Carbon Steels, Low	P	--	--	--	--	--	--	--	--	--
Carbon Steels, Medium	P	--	--	--	--	--	--	--	--	--
Carbon Steels Hardened to 35 Rc	P	--	--	--	--	--	--	--	--	--
Carbon Steels Hardened to 50 Rc	P	--	--	--	--	--	--	--	--	--
Carbon Steels Hardened to 60 Rc	P	--	--	--	--	--	--	--	--	--
Steels, Mold	P	--	--	--	--	--	--	--	--	--
Steels, Tool	P	--	--	--	--	--	--	--	--	--
Stainless Steels, Soft	M	--	--	--	--	--	--	--	--	--
Stainless Steels, Hard	M	--	--	--	--	--	--	--	--	--
Monel & High Nickel Steel	S	--	--	--	--	--	--	--	--	--
Titanium, Soft	S	--	--	--	--	--	--	--	--	--
Titanium, Hard	S	--	--	--	--	--	--	--	--	--
Nickel Based High Temp Alloys	S	--	--	--	--	--	--	--	--	--

APPLICATION NOTES

ZrN-coated aluminum-family tools. Dashes (--) indicate no starting recommendation for that material group.
Verify diameter, engagement, setup rigidity, chip removal and workholding before adjusting cutting parameters.

CUSTOM END MILL REQUEST

Specials & engineered solutions | Based on 2024 Skookum request form

CUSTOM CARBIDE END MILL

Don't see the right cutter? Tell us what your application requires. We can review custom geometries, tooling modifications, and engineered solutions.

END STYLE

[ ] Square

[ ] Ball Nose

[ ] Corner Radius: _____

[ ] Chamfer: _____

DIMENSIONS

Cutting Diameter D: _____

Shank Diameter d: _____

Length of Cut L1: _____

Overall Length L: _____

Flute Count: _____

Quantity Required: _____

OPTIONAL FEATURES

[ ] Neck Relief d3: _____ L3: _____
[ ] Weldon Flat / Round Shank
[ ] Tapered (angle): _____
[ ] Chipbreaker / Special Flute
Coating: [ ] Uncoated [ ] TiALN [ ] ALL4
[ ] ZrN [ ] DLC [ ] Other: _____

APPLICATION INFORMATION

Material(s): _____

Current SFM / RPM: _____

Feed: _____

Radial DOC / Axial DOC: _____

Submit your specifications to sales@skookumtools.com

ADDITIONAL SERVICES

Custom tooling, regrinding and coatings

SPECIALS & ENGINEERED SOLUTIONS

- Tell us what you need and we can review a quotation for a custom end mill.
- Engineered solutions for unique applications, using application requirements to guide tool geometry.
- Prototype and production-tool options; lead times are quoted by project.

REGRINDING SERVICES

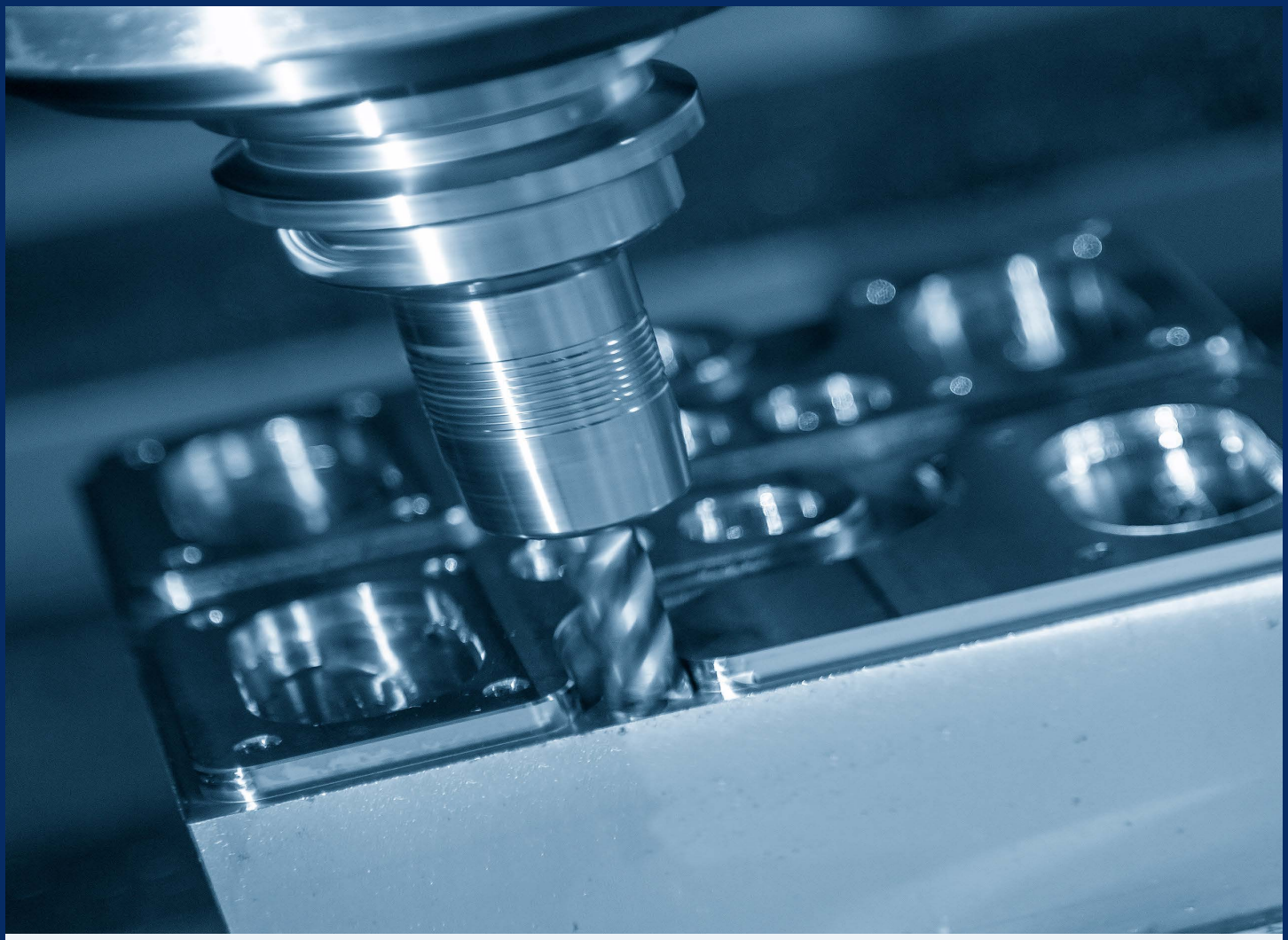
- Precision carbide and high-speed-steel regrinding on CNC tool-and-cutter grinders.
- Applications include end mills, HSS drills, reamers, countersinks, counterbores and spot drills.
- Available measurements, new-size labelling and tool-tube packaging can be quoted.

COATING SERVICES

- PVD coating choices for both new tooling and eligible regrinds.
- Common options include TiALN, ALL4 and ZrN. DLC may be available for selected applications.
- Consult sales for current capabilities, eligibility and turnaround.

CAN WE HELP WITH YOUR CUTTING APPLICATION?

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