

Series H5
High Performance End Mills for Aluminum





HIGH PRODUCTION ALUMINUM MACHINING

High Performance 5-Flute End Mills for Aluminum

Engineered for versatile machining of aluminum and other non-ferrous materials, the **S-Carb H5** combines advanced flute geometry, integrated chip breakers, central coolant hole, and **Ti-NAMITE-B** coating to excel in high-efficiency milling and finishing. The result is higher material removal rates, excellent surface finishes, and reliable performance across a wide range of machining conditions.

IDEAL FOR:

MATERIALS

N Non-Ferrous Materials

INDUSTRIES



Aerospace



Medical



Power Gen & Energy



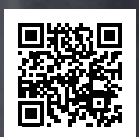
Automotive



Casting & Foundries



General Engineering



View Online

FEATURES

- ✓ **Higher Productivity**
Optimized for higher feed rates and increased metal removal
- ✓ **Greater Versatility**
Excels in slotting, high-efficiency milling, and finishing
- ✓ **Better Surface Finish**
Stable cutting action delivers smooth, consistent results

COMPREHENSIVE OFFERING

- Available in metric and imperial sizes
- Various square and corner radius options
- Equipped with integrated chip breakers and a central coolant hole
- **Ti-NAMITE-B** coating technology for longer tool life in aluminum machining applications

TI-NAMITE-B COATING

High-performance PVD coating reduces friction, minimizes built-up edge, and extends tool life in aluminum machining applications.

OPEN FLUTE GEOMETRY

Promotes excellent chip evacuation for aggressive slotting and high-efficiency milling.

INTEGRATED CHIP BREAKERS

Shorten chips for improved chip control and increased axial depths of cut.

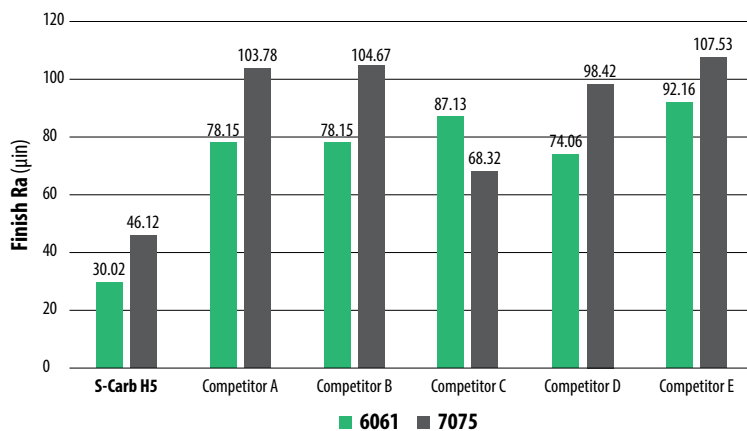
CENTRAL COOLANT HOLE

Directs coolant to the cutting zone for enhanced chip evacuation and heat control.

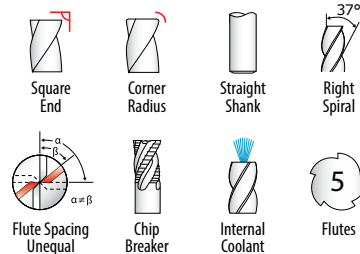
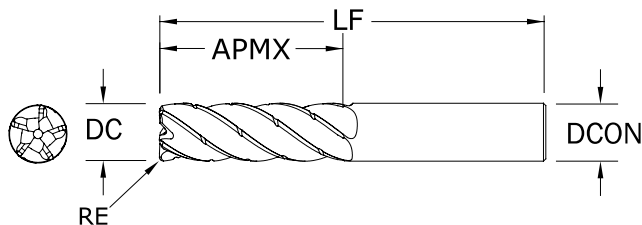
OPTIMIZED END GEOMETRY

Unique end work allows for improved ramping, chip control, stability, and floor finish.

FLOOR FINISH COMPARISON (Internal Evaluation)



The S-Carb H5 produced the best floor finish in both 6061 and 7075 aluminum when tested against competitors A-E. Its optimized end geometry delivers smoother surfaces, reduced vibration, and consistent results that help minimize secondary finishing operations.



Cutting Diameter	Length of Cut	Overall Length	Shank Diameter	Corner Radius	Ti-NAMITE-B (TB) EDP Numbers
					Internal Coolant + Chip Breaker
DC	APMX	LF	DCON	RE	
3/8	1-1/4	3	3/8	–	34837
3/8	1-1/4	3	3/8	0.0100	34838
3/8	1-1/4	3	3/8	0.0300	34839
1/2	1-5/8	3-1/2	1/2	–	34840
1/2	1-5/8	3-1/2	1/2	0.0100	34841
1/2	1-5/8	3-1/2	1/2	0.0300	34842
1/2	1-5/8	3-1/2	1/2	0.0600	34843
1/2	1-5/8	3-1/2	1/2	0.1200	34844
5/8	2	4	5/8	–	34845
5/8	2	4	5/8	0.0300	34846
5/8	2	4	5/8	0.0600	34847
3/4	2-3/8	5	3/4	–	34848
3/4	2-3/8	5	3/4	0.0300	34849
3/4	2-3/8	5	3/4	0.0600	34850
3/4	2-3/8	5	3/4	0.1200	34851

TOLERANCES (inch)

3/8 DIAMETER

DC = +0.0000/–0.00035

DCON = h_6

RE = +0.0000/–0.0020

1/2–5/8 DIAMETER

DC = +0.0000/–0.00043

DCON = h_6

RE = +0.0000/–0.0020

3/4 DIAMETER

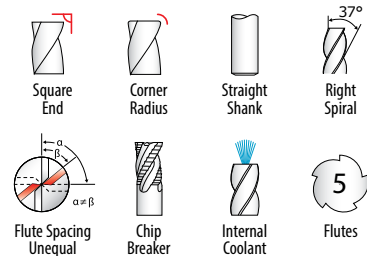
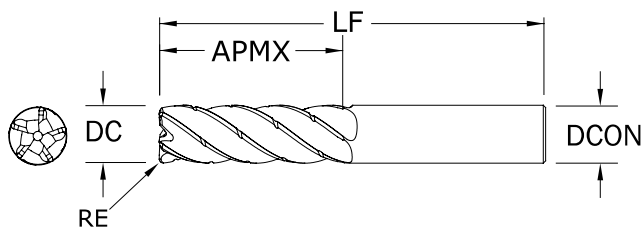
DC = +0.0000/–0.00051

DCON = h_6

RE = +0.0000/–0.0020

RECOMMENDED FOR

N Non-Ferrous Materials



Cutting Diameter	Length of Cut	Overall Length	Shank Diameter	Corner Radius	Ti-NAMITE-B (TB) EDP Numbers
					Internal Coolant + Chip Breaker
DC	APMX	LF	DCON	RE	
10,0	32,0	75,0	10,0	–	43455
10,0	32,0	75,0	10,0	1,00	43456
12,0	38,0	87,0	12,0	–	43457
12,0	38,0	87,0	12,0	1,00	43458
12,0	38,0	87,0	12,0	2,00	43459
12,0	38,0	87,0	12,0	3,00	43460
16,0	52,0	104,0	16,0	–	43461
16,0	52,0	104,0	16,0	1,00	43462
16,0	52,0	104,0	16,0	2,00	43463
16,0	52,0	104,0	16,0	3,00	43464
20,0	64,0	120,0	20,0	–	43465
20,0	64,0	120,0	20,0	1,00	43466
20,0	64,0	120,0	20,0	2,00	43467
20,0	64,0	120,0	20,0	3,00	43468

TOLERANCES (mm)**10 DIAMETER**

DC = +0,000/–0,009

DCON = h₆

RE = +0,000/–0,050

12–16 DIAMETER

DC = +0,000/–0,011

DCON = h₆

RE = +0,000/–0,050

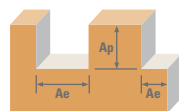
20 DIAMETER

DC = +0,000/–0,013

DCON = h₆

RE = +0,000/–0,050

RECOMMENDED FOR**N** Non-Ferrous Materials

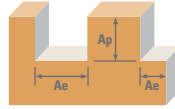


Material Classification	Hardness	Ae x DC	Ap x DC	Vc (sfm)		DC • in			
						3/8	1/2	5/8	3/4
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	Profile ≤ 0.25	≤ APMX	2475	RPM	25212	18909	15127	12606
				(1980-2970)	Fz	0.0049	0.0069	0.0077	0.0084
					Feed (ipm)	618	652	582	529
		Slot 1	≤ 1	1650	RPM	16808	12606	10085	8404
				(1320-1980)	Fz	0.0042	0.0060	0.0066	0.0073
					Feed (ipm)	353	378	333	307
	≤ 125 Bhn or ≤ 77 HRb	5° Ramp 1	≤ 0.5	1812	RPM	18458	13844	11075	9229
				(1450-2174)	Fz	0.0030	0.0042	0.0046	0.0051
					Feed (ipm)	277	291	255	235
ALUMINUM DIE CAST ALLOYS (HIGH SILICON) A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	Profile ≤ 0.25	≤ APMX	990	RPM	10085	7564	6051	5042
				(792-1188)	Fz	0.0049	0.0069	0.0077	0.0084
					Feed (ipm)	247	261	233	212
		Slot 1	≤ 0.5	660	RPM	6723	5042	4034	3362
				(528-792)	Fz	0.0042	0.0060	0.0066	0.0073
					Feed (ipm)	141	151	133	123
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc	5° Ramp 1	≤ 0.5	725	RPM	7385	5539	4431	3693
				(580-870)	Fz	0.0030	0.0042	0.0046	0.0051
					Feed (ipm)	111	116	102	94
	≤ 140 Bhn or ≤ 3 HRc	Profile ≤ 0.25	≤ APMX	660	RPM	6723	5042	4034	3362
				(528-792)	Fz	0.0040	0.0058	0.0064	0.0069
					Feed (ipm)	134	146	129	116
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Slot 1	≤ 0.5	440	RPM	4482	3362	2689	2241
				(352-528)	Fz	0.0035	0.0050	0.0055	0.0060
					Feed (ipm)	78	84	74	67
	≤ 200 Bhn or ≤ 23 HRc	5° Ramp 1	≤ 0.5	483	RPM	4920	3690	2952	2460
				(386-580)	Fz	0.0024	0.0035	0.0038	0.0042
					Feed (ipm)	59	65	56	52
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Profile ≤ 0.25	≤ APMX	528	RPM	5379	4034	3227	2689
				(422-634)	Fz	0.0040	0.0058	0.0064	0.0069
					Feed (ipm)	108	117	103	93
	≤ 200 Bhn or ≤ 23 HRc	Slot 1	≤ 0.5	352	RPM	3586	2689	2151	1793
				(282-422)	Fz	0.0035	0.0050	0.0055	0.0060
					Feed (ipm)	63	67	59	54
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	5° Ramp 1	≤ 0.5	386	RPM	3932	2949	2359	1966
				(309-463)	Fz	0.0024	0.0035	0.0038	0.0042
					Feed (ipm)	47	52	45	41

Bhn (Brinell) HRc (Rockwell C)
 rpm = sfm x 3.82 / DC
 ipm = Fz x 5 x rpm
 reduce speed and feed for materials harder than listed
 reduce feed and Ae when finish milling (.02 x DC maximum)



Refer to the SGS APEX: Application Expert
 for complete technical information
www.kyocera-sgstool.com/apex



Material Classification	Hardness			Vc (m/min)	DC • mm								
		Ae x DC	Ap x DC		10,0	12,0	16,0	20,0					
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	 Profile	≤ 0.25	≤ APMX	754	RPM	24024	20020	15015	12012			
					(603-905)	Fz	0.1319	0.1644	0.1974	0.2180			
					Feed (mm/min)	15844	16456	14820	13093				
		 Slot	1	≤ 1	503	RPM	16019	13349	10012	8010			
					(402-604)	Fz	0.1142	0.1424	0.1687	0.1888			
					Feed (mm/min)	9147	9505	8445	7561				
		 5° Ramp	1	≤ 0.5	552	RPM	17580	14650	10987	8790			
					(442-662)	Fz	0.0799	0.0997	0.1181	0.1322			
					Feed (mm/min)	7023	7303	6488	5810				
		ALUMINUM DIE CAST ALLOYS (HIGH SILICON) A-390, A-392, B- 390	≤ 125 Bhn or ≤ 77 HRb	 Profile	≤ 0.25	≤ APMX	302	RPM	9618	8015	6011	4809	
							(242-362)	Fz	0.1319	0.1644	0.1974	0.2180	
							Feed (mm/min)	6343	6588	5933	5242		
	 Slot			1	≤ 0.5	201	RPM	6401	5334	4001	3201		
						(161-241)	Fz	0.1142	0.1424	0.1687	0.1888		
						Feed (mm/min)	3655	3798	3375	3021			
	 5° Ramp			1	≤ 0.5	221	RPM	7038	5865	4399	3519		
						(177-265)	Fz	0.0799	0.0997	0.1181	0.1322		
						Feed (mm/min)	2812	2924	2598	2326			
	COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass			≤ 140 Bhn or ≤ 3 HRc	 Profile	≤ 0.25	≤ APMX	201	RPM	6401	5334	4001	3201
								(161-241)	Fz	0.1088	0.1368	0.1617	0.1803
								Feed (mm/min)	3482	3649	3235	2885	
		 Slot	1		≤ 0.5	134	RPM	4268	3556	2667	2134		
						(107-161)	Fz	0.0943	0.1184	0.1400	0.1561		
						Feed (mm/min)	2012	2105	1867	1665			
 5° Ramp		1	≤ 0.5		147	RPM	4682	3901	2926	2341			
					(118-176)	Fz	0.0660	0.0829	0.0980	0.1093			
					Feed (mm/min)	1545	1617	1434	1279				
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze		≤ 200 Bhn or ≤ 23 HRc	 Profile		≤ 0.25	≤ APMX	162	RPM	5159	4299	3225	2580	
							(130-194)	Fz	0.1088	0.1368	0.1617	0.1803	
							Feed (mm/min)	2807	2941	2607	2326		
	 Slot		1	≤ 0.5	108	RPM	3439	2866	2150	1720			
					(86-130)	Fz	0.0943	0.1184	0.1400	0.1561			
					Feed (mm/min)	1622	1697	1505	1342				
	 5° Ramp		1	≤ 0.5	118	RPM	3758	3132	2349	1879			
					(94-142)	Fz	0.0660	0.0889	0.0965	0.1067			
					Feed (mm/min)	1240	1392	1133	1002				

Bhn (Brinell) HRc (Rockwell C)
 rpm = (Vc x 1000) / (DC x 3.14)
 mm/min = Fz x 5 x rpm
 reduce speed and feed for materials harder than listed
 reduce feed and Ae when finish milling (.02 x DC maximum)



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