



Five Flute End Mills

Features & Benefits

- Unique 5-flute geometry
- Certified premium micro-grain carbide
- Available in stub-, regular-, and long-flute lengths
- Corner radii improves strength
- Ti-NAMITE-A (AlTiN) coated for longer tool life
- Reduced harmonics:
 - Improved finishes
 - Heavier stock removal
- Can be run at higher production rates
- Suitable for a variety of materials up to 45 Rc

Application Tips

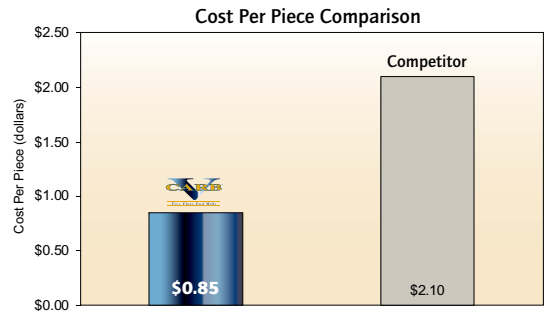
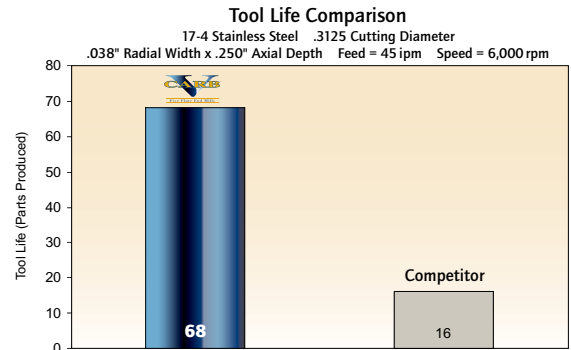
- Tool holders with adequate gripping pressure are required
- Stub length solid holders are recommended for heavy stock removal
- Avoid remilling chips
- Set-up rigidity critical during heavy roughing
- Regrind and recondition services are available from SGS Tool Company



The Finishing Touch

Expect More From a Finishing Mill

Produce exceptional results in semi-finish and finish milling applications. Tackle heavy milling tasks, including roughing and slotting.



Fractional

**V-CARB™ - Series 55CR -
5 Flute End Mills with
Corner Radius**



Cutting Diameter d_1	Length of Cut l_2	Overall Length l_1	Shank Diameter d_2	Corner Radius	Ti-NAMITE-A (AlTiN) EDP Number	Ti-NAMITE-A (AlTiN) EDP Number w/Flat
1/8	1/4	1-1/2	1/8	.010+0/-0.002	32606	
1/8	1/2	1-1/2	1/8	.010+0/-0.002	32607	
5/32	5/16	2	3/16	.010+0/-0.002	32608	
5/32	9/16	2	3/16	.010+0/-0.002	32609	
3/16	5/16	2	3/16	.010+0/-0.002	32610	
3/16	5/8	2	3/16	.010+0/-0.002	32611	
7/32	3/8	2	1/4	.015+0/-0.002	32612	
7/32	3/4	2-1/2	1/4	.015+0/-0.002	32613	
1/4	3/8	2	1/4	.015+0/-0.002	32614	
1/4	3/4	2-1/2	1/4	.015+0/-0.002	32615	
1/4	1-1/4	4	1/4	.015+0/-0.002	32616	
5/16	7/16	2	5/16	.015+0/-0.002	32619	
5/16	13/16	2-1/2	5/16	.015+0/-0.002	32620	
5/16	1-1/4	4	5/16	.015+0/-0.002	32621	
3/8	1/2	2	3/8	.015+0/-0.002	32625	
3/8	1	2-1/2	3/8	.015+0/-0.002	32626	32628
3/8	1-1/2	4	3/8	.015+0/-0.002	32627	
7/16	1	2-3/4	7/16	.015+0/-0.002	32632	
7/16	2	4	7/16	.015+0/-0.002	32633	
1/2	5/8	2-1/2	1/2	.025+0/-0.002	32636	
1/2	1-1/4	3	1/2	.025+0/-0.002	32637	32639
1/2	2	4	1/2	.025+0/-0.002	32638	
5/8	1-5/8	3-1/2	5/8	.035+0/-0.002	32642	32644
5/8	2-1/2	5	5/8	.035+0/-0.002	32643	
3/4	1	3	3/4	.035+0/-0.002	32645	
3/4	1-5/8	4	3/4	.035+0/-0.002	32646	32649
3/4	3-1/4	6	3/4	.035+0/-0.002	32648	
1	1-1/2	4	1	.035+0/-0.002	32651	32654
1	2-5/8	6	1	.035+0/-0.002	32653	

Tolerances (inch)		
Diameter	d1	d2
1/8 - 1	+0.000 / -.0020	-.0001 / -.0004

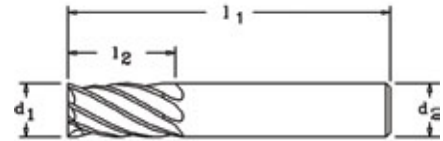


Five Flute End Mills

Fractional

V-CARB™ - Series 55 - Fractional - 5 Flute End Mills With Square Corner

Cutting Diameter d ₁	Length of Cut l ₂	Overall Length l ₁	Shank Diameter d ₂	Ti-NAMITE-A (AlTiN) EDP No.	Ti-NAMITE-A (AlTiN)w/Flat EDP No.
1/8	1/2	1-1/2	1/8	32655	
5/32	9/16	2	3/16	32656	
3/16	5/8	2	3/16	32657	
7/32	3/4	2-1/2	1/4	32658	
1/4	3/4	2-1/2	1/4	32659	
5/16	13/16	2-1/2	5/16	32660	
3/8	1	2-1/2	3/8	32661	32662
7/16	1	2-3/4	7/16	32663	
1/2	1-1/4	3	1/2	32664	32665
5/8	1-5/8	3-1/2	5/8	32666	32667
3/4	1-5/8	4	3/4	32668	32669
1	1-1/2	4	1	32670	32671



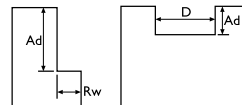
V-CARB™ - Series 55CR and 55 - Fractional 5 Flute End Mills

Speed and Feed Recommendations

	Finishing***				Semi-Finishing***				Heavy Peripheral**				Slotting*			
	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC
Stub	.05 x D	LOC	0	0	.1 x D	LOC	.8	1.2	.5 x D	1.25 x D	.6	.35	1 x D	.7 x D	.5	.30
Reg	.05 x D	LOC	0	0	.1 x D	LOC	.8	1.2	.5 x D	1 x D	.6	.35	1 x D	.5 x D	.5	.30
*Long	.02 x D	3 x D	0	0	.05 x D	3 x D	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Material Type	Bhn	1/8		3/16		1/4		5/16		3/8		1/2		5/8		3/4		1	
		rpm	in/min	rpm	in/min	rpm	in/min	rpm	in/min	rpm	in/min	rpm	in/min	rpm	in/min	rpm	in/min	rpm	in/min
Low Carbon Steels	~175	20,935	50	13,960	60	10,465	70	8,375	70	6,980	70	5,235	60	4,185	60	3,490	60	2,615	55
Low Carbon Steels	~275	18,320	35	12,225	40	9,160	50	7,335	50	6,110	50	4,580	45	3,665	45	3,055	45	2,290	40
Med Alloy Steels	~275	15,265	30	10,185	35	7,635	40	6,110	40	5,090	40	3,815	40	3,055	40	2,545	40	1,910	35
Mold And Die Steels	~275	13,750	25	9,170	30	6,875	35	5,500	35	4,585	35	3,440	35	2,750	35	2,290	35	1,720	30
Cast Iron - Gray	~200	11,765	35	7,845	40	5,880	40	4,705	40	3,920	40	2,940	40	2,355	35	1,960	35	1,470	30
Cast Iron - Ductile	~300	10,545	20	7,030	25	5,270	25	4,215	25	3,515	25	2,635	25	2,110	25	1,755	25	1,320	20
Cast Iron - Malleable	~300	6,570	10	4,380	15	3,285	15	2,630	15	2,190	15	1,645	15	1,315	15	1,095	15	820	10
Stainless 300 Series	~275	10,695	15	7,130	20	5,350	25	4,280	25	3,565	25	2,675	25	2,140	25	1,785	25	1,335	20
Stainless 400 Series	~185	15,265	30	10,185	40	7,635	45	6,110	45	5,090	45	3,815	45	3,055	45	2,545	45	1,910	40
Stainless PH Series	~325	9,160	10	6,110	15	4,580	20	3,665	20	3,055	20	2,290	20	1,830	20	1,525	20	1,145	15
Titanium Alloys	~295	11,460	25	7,640	30	5,730	35	4,585	35	3,820	35	2,865	35	2,290	35	1,910	35	1,435	30
High Temp. Alloys	~300	3,055	6	2,035	7	1,530	8	1,220	8	1,020	8	765	8	610	8	510	8	380	7

Rates shown are for finish milling. When performing an alternate cut, multiply the speed and feed rates shown by the correction factors SpC and FeC.
 *Available in diameters 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, and 3/4
 V-Carbs are not intended for plunging. Recommendations are a starting point. Some adjustments may be required.

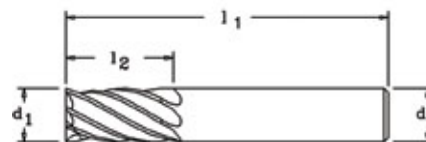


Radial Width of Cut (Rw)
 Axial Depth of Cut (Ad)
 Tool Diameter (D)
 Speed Correction Factor (SpC)
 Feed Correction Factor (FeC)

V-CARB™ - Series 55M - Metric - 5 Flute End Mills With Square Corner

Metric

Cutting Diameter	Length of Cut	Overall Length	Shank Diameter	Ti-NAMITE-A (AlTiN) EDP No.	Ti-NAMITE-A (AlTiN w/Flat) EDP No.
d ₁	l ₂	l ₁	d ₂		
6	12	50	6	42606	
6	19	63	6	42607	
6	25	75	6	42608	
8	12	50	8	42609	
8	20	63	8	42610	
8	25	75	8	42611	
10	16	50	10	42612	
10	22	75	10	42622	42613
10	38	100	10	42614	
12	19	63	12	42615	
12	25	75	12	42616	42623
12	50	100	12	42617	
16	32	89	16	42618	42624
16	75	150	16	42619	
20	38	100	20	42620	42625
20	75	150	20	42621	



Tolerances (mm)		
Diameter	d1	d2
6-20	+0,000 / -0,050	+0,0025 / -0,010

V-CARB™ - Series 55M - Metric

Speed and Feed Recommendations

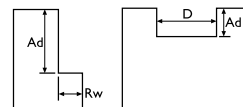
	Finishing****				Semi-Finishing***				Heavy Peripheral**				Slotting*			
	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC
*Stub	.05 x D	LOC	0	0	.1 x D	LOC	.8	1.2	.5 x D	1.25 x D	.6	.35	1 x D	.7 x D	.5	.30
Reg	.05 x D	LOC	0	0	.1 x D	LOC	.8	1.2	.5 x D	1 x D	.6	.35	1 x D	.5 x D	.5	.30
Long	.02 x D	3 x D	0	0	.05 x D	3 x D	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Material Type	Bhn	Cutting Diameter											
		6		8		10		12		16		20	
		rpm	mm/min	rpm	mm/min	rpm	mm/min	rpm	mm/min	rpm	mm/min	rpm	mm/min
Low Carbon Steels	~175	11,080	1,780	8,310	1,780	6,645	1,780	5,540	1,525	4,155	1,525	3,325	1,525
Low Carbon Steels	~275	9,705	1,270	7,275	1,270	5,820	1,270	4,855	1,145	3,640	1,145	2,910	1,145
Med Alloy Steels	~275	8,085	1,015	6,065	1,015	4,850	1,015	4,045	1,015	3,035	1,015	2,425	1,015
Mold And Die Steels	~275	7,280	890	5,460	890	4,365	890	3,640	890	2,730	890	2,185	890
Cast Iron - Gray	~200	6,230	1,015	4,670	1,015	3,735	1,015	3,115	1,015	2,335	1,015	1,870	1,015
Cast Iron - Ductile	~300	5,580	635	4,185	635	3,350	635	2,790	635	2,095	635	1,675	635
Cast Iron - Malleable	~300	3,480	380	2,610	380	2,085	380	1,740	380	1,305	380	1,045	380
Stainless 300 Series	~275	5,660	635	4,245	635	3,395	635	2,830	635	2,125	635	1,700	635
Stainless 400 Series	~185	8,085	1,145	6,065	1,145	4,850	1,145	4,045	1,145	3,035	1,145	2,425	1,145
Stainless PH Series	~325	4,850	510	3,640	510	2,910	510	2,425	510	1,820	510	1,455	510
Titanium Alloys	~295	6,065	890	4,550	890	3,640	890	3,030	890	2,275	890	1,820	890
High Temp. Alloys	~300	1,615	205	1,215	205	970	205	810	205	610	205	485	205

Rates shown are for finish milling. When performing an alternate cut, multiply the speed and feed rates shown by the correction factors SpC and FeC.

*Available in diameters 6, 8, 10, and 12

V-Carbs are not intended for plunging. Recommendations are a starting point. Some adjustments may be required.



Radial Width of Cut (Rw)
Axial Depth of Cut (Ad)
Tool Diameter (D)
Speed Correction Factor (SpC)
Feed Correction Factor (FeC)