

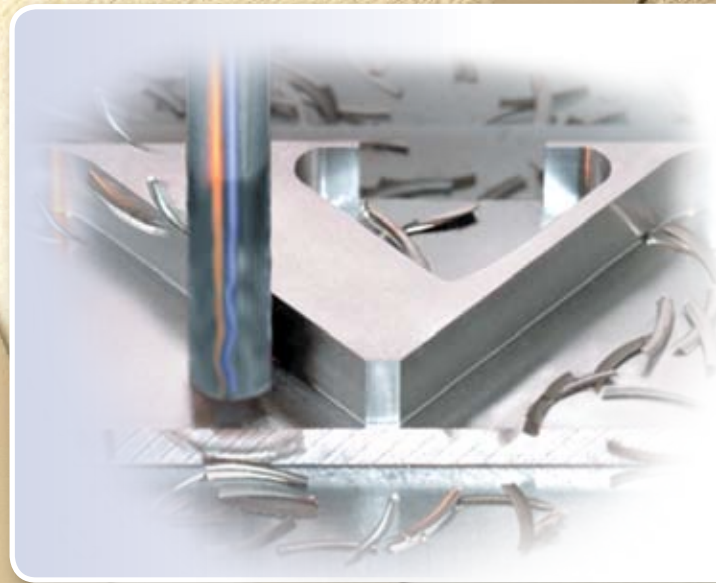


Five Flute End Mills

New Sizes Added!
See highlighted products inside.

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.

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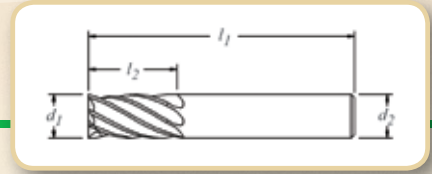
SGS
Solid Carbide Tools
An ISO 9001 Certified Company



The Finishing Touch

Expect more from a finishing mill

Five Flute End Mills



Features & Benefits

- Unique 5-flute geometry
- Certified premium micro-grain carbide
- Available in short-, 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
- Short 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

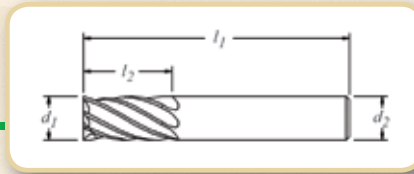


V-Carb - Series 55CR - Fractional - 5 Flute End Mills with Corner Radius

Cutting Diameter d_1	Length of Cut l_2	Overall Length l_1	Shank Diameter d_2	Corner Radius	Ti-NAMITE-A (AlTiN) EDP No.	Ti-NAMITE-A (AlTiN) EDP No. w/Flat
1/8	1/4	1-1/2	1/8	.010	32606	
1/8	1/2	1-1/2	1/8	.010	32607	
5/32	5/16	2	3/16	.010	32608	
5/32	9/16	2	3/16	.010	32609	
3/16	5/16	2	3/16	.010	32610	
3/16	5/8	2	3/16	.010	32611	
7/32	3/8	2	1/4	.015	32612	
7/32	3/4	2-1/2	1/4	.015	32613	
1/4	3/8	2	1/4	.015	32614	
1/4	3/4	2-1/2	1/4	.015	32615	
1/4	1-1/4	4	1/4	.015	32616	
5/16	7/16	2	5/16	.015	32619	
5/16	13/16	2-1/2	5/16	.015	32620	
5/16	1-1/4	4	5/16	.015	32621	
3/8	1/2	2	3/8	.015	32625	32591
3/8	1/2	2	3/8	.030	32592	32593
3/8	1	2-1/2	3/8	.015	32626	32628
3/8	1	2-1/2	3/8	.030	32573	32574
3/8	1-1/2	4	3/8	.015	32627	
3/8	1-1/2	4	3/8	.030	32569	
7/16	1	2-3/4	7/16	.015	32632	
7/16	2	4	7/16	.015	32633	
1/2	5/8	2-1/2	1/2	.030	32594	32595
1/2	5/8	2-1/2	1/2	.060	32596	32597
1/2	1-1/4	3	1/2	.030	32575	32576
1/2	1-1/4	3	1/2	.060	32577	32578
1/2	2	4	1/2	.030	32685	
1/2	2	4	1/2	.060	32686	
5/8	3/4	3	5/8	.030	32598	32599
5/8	3/4	3	5/8	.060	32600	32601
5/8	1-5/8	3-1/2	5/8	.030	32579	32580
5/8	1-5/8	3-1/2	5/8	.060	32581	32582
5/8	2-1/2	5	5/8	.030	32570	
5/8	2-1/2	5	5/8	.060	32687	
3/4	1	3	3/4	.030	32602	32603
3/4	1	3	3/4	.060	32604	32605
3/4	1-5/8	4	3/4	.030	32583	32584
3/4	1-5/8	4	3/4	.060	32585	32586
3/4	3-1/4	6	3/4	.030	32571	
3/4	3-1/4	6	3/4	.060	32688	
1	1-1/2	4	1	.030	32587	32588
1	1-1/2	4	1	.060	32589	32590
1	2-5/8	6	1	.030	32572	
1	2-5/8	6	1	.060	32689	

Tolerances (inch)		
Cutting Diameter	Shank Diameter	Corner Radius
+0.0000/-0.0020	-0.0001/-0.0004	+0/-0.002

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



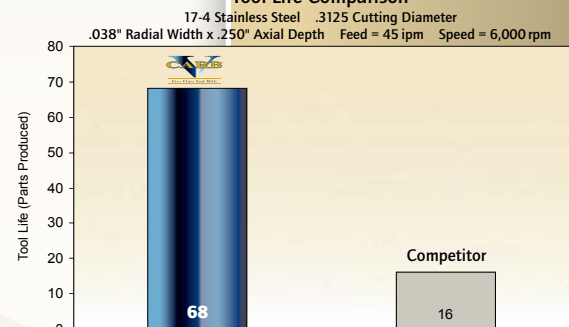
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V-Carb - Series 55 **Fractional** - 5 Flute End Mills with Square Corner

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) EDP No. w/Flat
1/8	1/4	1-1/2	1/8	32672	
1/8	1/2	1-1/2	1/8	32655	
5/32	9/16	2	3/16	32656	
3/16	5/16	2	3/16	32673	
3/16	5/8	2	3/16	32657	
7/32	3/4	2-1/2	1/4	32658	
1/4	3/8	2	1/4	32674	
1/4	3/4	2-1/2	1/4	32659	
5/16	7/16	2	5/16	32675	
5/16	13/16	2-1/2	5/16	32660	
3/8	1/2	2	3/8	32676	32677
3/8	1	2-1/2	3/8	32661	32662
7/16	1	2-3/4	7/16	32663	
1/2	5/8	2-1/2	1/2	32678	32679
1/2	1-1/4	3	1/2	32664	32665
5/8	3/4	3	5/8	32680	32681
5/8	1-5/8	3-1/2	5/8	32666	32667
3/4	1	3	3/4	32682	32683
3/4	1-5/8	4	3/4	32668	32669
1	1-1/2	4	1	32670	32671



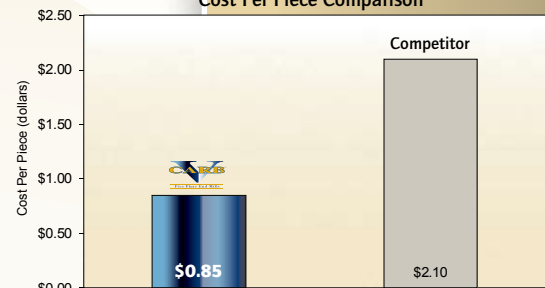
Tool Life Comparison



V-Carb - Series 55M - **Metric** - 5 Flute End Mill with Square Corner

Cutting Diameter d_1 mm	Length of Cut l_2 mm	Overall Length l_1 mm	Shank Diameter d_2 mm	Ti-NAMITE-A (AlTiN) EDP No.	Ti-NAMITE-A (AlTiN) EDP No. w/Flat
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	

Cost Per Piece Comparison



Tolerance (mm)

Cutting Diameter	Shank Diameter
+0,000/-0,050	+0,0025/-0,010

	Finishing★★★★				Semi-Finishing★★★				Heavy Peripheral★★				Slotting★			
	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC
Short	.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

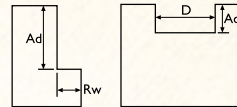
Cutting Diameter

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

	Finishing★★★★				Semi-Finishing★★★				Heavy Peripheral★★				Slotting★			
	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC	Rw	Ad	SpC	FeC
*Short	.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

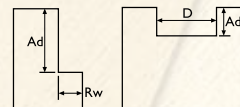
Cutting Diameter

Material Type	Bhn	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)



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