



The Original High Performance End Mill for Aluminum

Design Features

Circular Land – One of the unique features of the SGS Ski-Carb® end mill design is the polished circular land. Tight control of the circular land width reduces edge aggressiveness, which allows the user to vary speed and feed rates, as well as mill into corners without inducing the chatter typical to conventional tools.

Ski-Land – Another unique feature of the SGS Ski-Carb® end mill is the primary/secondary flute wall construction. Ski-Land is beneficial in avoiding chip interference by directing the chip away from the secondary flute.

High-Helix – The 45 degree helix angle increases effective rake for greater shearing ability without reducing edge strength. It also helps elevate the chip up and away from the work area.

Stub Length – The SGS Ski-Carb® is available in short flute lengths for increased rigidity in the most demanding roughing applications.

Corner Radii – The entire SGS Ski-Carb® line is available with a corner radius to provide additional protection against chipping.

Versatility of SGS Ski-Carb®

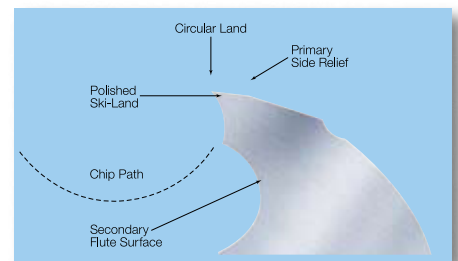
The SGS Ski-Carb® end mills have been proven winners for rough and finish milling applications in aluminum, plastic and other nonferrous and non-metallic materials. The combination of unique patented* features, blended with available options, provides customers with unsurpassed versatility, making the purchase of several tools unnecessary to complete the job.

The SGS Ski-Carb® offers the following enhancements: stub lengths for increased rigidity in the most demanding applications; corner radius geometry for additional protection against chipping; neck options on stub length shanks for extended reach capabilities; and, set screw flats.

A wider range of feeds and speeds are possible with the exclusive SGS Ski-Carb® design to increase your production rates and improve your productivity. The SGS Ski-Carb® end mills give you clean, easy shearing action for chatter-free work finishes, better workpiece tolerances, and significantly longer tool life.

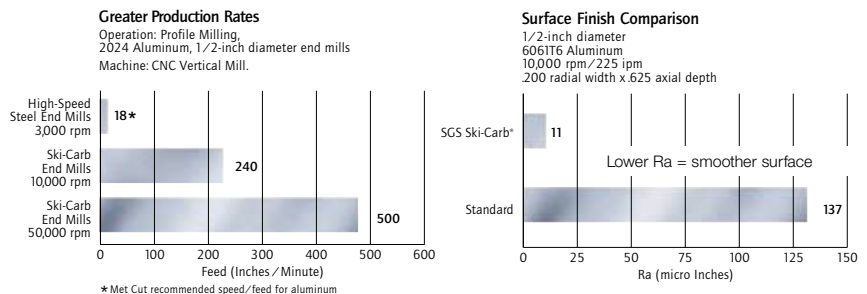
Features/Benefits

- Patented Design Offers:
 - High Feed Capability
 - Superior Surface Finishing
 - Chatter Free Operation
- Utilizes Maximum Spindle Speeds
 - Proven Performance at 50,000 rpm
- One-Step Roughing and Finishing
- Stub Lengths for Greater Rigidity
- Popular Corner Radius Sizes
- Neck & Flat Options



* U.S. Patent No. 5,049,009

SKI-CARB® End Mills Performance Data



Roughing and Finishing Operations with a Single Pass – SGS Ski-Carb® provides a surface finish better than a finishing tool with the metal removal rates of a roughing tool!

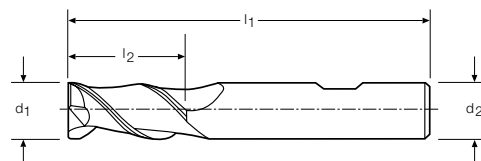


Fractional

SKI-CARB® - Series 44
2 Flute - Standard Lengths - Fractional - End Mill

Cutting Diameter d_1	Length of Cut l_2	Overall Length l_1	Shank Diameter d_2	Radius* (Optional)	Uncoated	
					EDP No. w/Flat	EDP No. w/o Flat
1/4	3/4	2-7/16	3/8	.015-.060	34501	32033
1/4	1-1/4	3-1/16	3/8	.015-.060	34503	32034
1/4	1-3/4	3-9/16	3/8	.015-.060	34505	32035
5/16	1-3/8	3-1/8	3/8	.015-.060	34507	32036
3/8	3/4	2-1/2	3/8	.015-.060	34509	32037
3/8	1-1/2	3-1/4	3/8	.015-.060	34511	32038
3/8	2-1/2	4-1/4	3/8	.015-.060	34513	32039
1/2	1-1/4	3-1/4	1/2	.015-.125	34515	32040
1/2	2	4	1/2	.015-.125	34517	32041
1/2	3	5	1/2	.015-.125	34519	32042
5/8	1-5/8	3-3/4	5/8	.015-.125	34521	32043
5/8	2-1/2	4-5/8	5/8	.015-.125	34523	32044
3/4	1-5/8	3-7/8	3/4	.015-.125	34525	32045
3/4	3	5-1/4	3/4	.015-.125	34527	32046
3/4	4	6-1/4	3/4	.015-.125	34529	32047
1	2	4-1/2	1	.015-.125	34531	32048
1	4	6-1/2	1	.015-.125	34533	32049

*Contact your SGS Sales Representative for more information on Corner Radius Options.

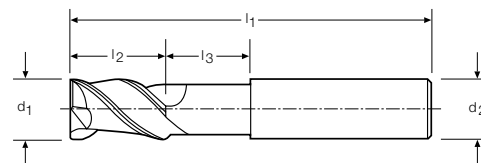


Tolerances (inch)		
Diameter	d_1	d_2
1/4 - 1	+0.000/-0.005	-0.001/-0.004
Corner Radius: +0.000/-0.002		

SKI-CARB® - Series 45
2 Flute - Stub Lengths - Fractional - End Mill

Cutting Diameter d_1	Length of Cut l_2	Overall Length l_1	Neck* (Optional) l_3	Shank Diameter d_2	Radius	Uncoated	
						EDP No. w/Flat	EDP No. w/o Flat
1/4	3/8	2-1/2	9/16	3/8	.010	91257	91250
5/16	7/16	2-1/2	5/8	3/8	.012	91258	91251
3/8	9/16	2-1/2	9/16	3/8	.015	91259	91252
1/2	3/4	3	3/4	1/2	.020	91260	91253
5/8	7/8	3-1/2	7/8	5/8	.025	91261	91254
3/4	1	4	1	3/4	.030	91262	91255
1	1-1/4	4	7/8	1	.040	91263	91256

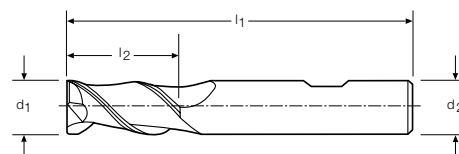
*Contact your SGS Sales Representative for more information on Neck Options.



SKI-CARB® - Series 44M
2 Flute - Standard Lengths - Metric - End Mill

Metric

Cutting Diameter d_1 h_6 mm	Length of Cut l_2 mm	Overall Length l_1 mm	Shank Diameter d_2 h_6 mm	Radius* (Optional) mm	Uncoated	
					EDP No. w/Flat	EDP No. w/o Flat
3	8	52	6	0,38-0,76	44505	49663
4	11	55	6	0,38-0,76	44509	49664
5	13	57	6	0,38-0,76	44513	49665
6	13	57	6	0,38-1,52	44517	49666
8	19	69	10	0,38-1,52	44521	49667
10	22	72	10	0,38-1,52	44525	49668
12	26	83	12	0,38-3,17	44529	49669
14	26	83	14	0,38-3,17	44533	49670
16	32	92	16	0,38-3,17	44537	49671
18	32	92	18	0,38-3,17	44541	49672
20	38	104	20	0,38-3,17	44545	49673



*Contact your SGS Sales Representative for more information on Corner Radius Options.

Tolerances (mm)		
Diameter	d_1	d_2
1 - 3	+0,000/-0,006	+0,000/-0,006
> 3 - 6	+0,000/-0,008	+0,000/-0,008
> 6 - 10	+0,000/-0,009	+0,000/-0,009
> 10 - 18	+0,000/-0,011	+0,000/-0,011
> 18 - 20	+0,000/-0,013	+0,000/-0,013
Corner Radius: +0,00/-0,05		





Speed and Feed Recommendations

RPM – Use Maximum Available – No speed limits for SGS Ski-Carb®

Recommendations:

- Increase feed based on motor load
- Adjust feed appropriately when finish milling
- Use sufficient coolant, particularly in aluminum applications
- Mist may be advantageous when milling deep pockets
- For optimum performance balance holder/tool assembly

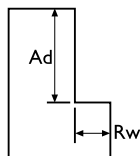
Contact SGS Tool Company for re-sharpening information.

		Aluminum Alloys		Plastics		Copper Alloys		Brass/Bronze	
Diameter (D)		1600-2000 sfm 490-610 m/min		1200-1600 sfm 365-490 m/min		800-1200 sfm 245-365 m/min		800-1500 sfm 245-455 m/min	
		Feed Rate Per Tooth							
in	mm	in	mm	in	mm	in	mm	in	mm
	3		.04		.08		.04		.04
	4		.05		.10		.05		.05
	5		.06		.12		.06		.06
1/4	6	.003	.07	.006	.14	.003	.07	.003	.07
5/16	8	.004	.10	.008	.20	.004	.10	.004	.10
3/8	10	.005	.12	.010	.24	.005	.12	.005	.12
1/2	12	.006	.15	.012	.30	.006	.15	.006	.15
	14		.17		.34		.17		.17
5/8	16	.007	.18	.014	.36	.007	.18	.007	.18
	18		.20		.40		.20		.20
3/4	20	.008	.22	.016	.44	.008	.22	.008	.22
1		.010		.018		.010		.010	

The above are recommended starting points for regular orstrib flute length mills – adjust feed accordingly for extra-long flute lengths

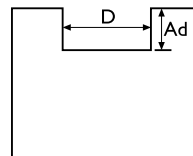
Profiling

Axial Depth (Ad) ≤ 1.5 x D
Radial Width ≤ (Rw) .5 x D



Slotting

Axial Depth (Ad) ≤ 1 x D



$$\text{rpm} = \text{sfm} \times 3.82 / \text{tool diameter}$$

$$\text{rpm} = (\text{m/min} \times 1000) / (3.14 \times \text{tool diameter})$$

$$\text{feed per minute} = \text{feed per tooth} \times \text{no. of teeth} \times \text{rpm}$$