



List 3670 - EXOCARB® WXL®: 4 Flute, Regular Length, Corner Radius

Side Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Stainless Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	396 SFM		294 SFM		258 SFM		192 SFM		156 SFM		96 SFM	
Depth of Cut	$a_a=1.2D$ $a_r=0.2D$						$a_a=1D$ $a_r=0.1D$		$a_a=1D$ $a_r=0.05D$			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	24,000	38.4	18,000	28.8	15,600	25.0	12,000	19.2	9,600	11.5	6,000	4.8
5/64	19,200	38.4	14,400	28.8	12,480	25.0	9,600	19.2	7,680	12.3	4,800	5.8
3/32	16,080	38.6	12,000	28.8	10,380	24.9	7,980	19.2	6,420	12.8	4,020	4.8
7/64	13,740	38.5	10,320	28.9	8,940	25.0	6,900	19.3	5,520	13.2	3,480	5.6
1/8	12,000	43.2	9,000	28.8	7,800	25.0	6,000	19.2	4,800	13.4	3,000	6.0
5/32	9,600	46.1	7,200	31.7	6,240	27.5	4,800	21.1	3,840	15.4	2,400	7.7
3/16	8,040	51.5	6,000	36.0	5,220	31.3	4,020	22.5	3,180	17.8	1,980	9.5
7/32	6,900	55.2	5,160	37.2	4,440	30.2	3,420	23.3	2,760	16.6	1,740	9.0
1/4	6,000	55.2	4,500	39.6	3,900	31.2	3,000	24.0	2,400	16.3	1,500	9.0
5/16	4,800	57.6	3,600	38.9	3,120	32.4	2,400	24.0	1,920	16.9	1,200	9.6
3/8	4,020	56.3	3,000	38.4	2,640	30.6	1,980	22.2	1,620	16.2	1,020	9.4
7/16	3,480	55.7	2,580	38.2	2,280	31.0	1,740	22.3	1,380	16.0	840	8.4
1/2	3,000	54.0	2,280	35.6	1,980	27.7	1,500	19.2	1,200	13.9	750	8.1
5/8	2,400	43.2	1,800	28.1	1,600	22.4	1,200	15.4	980	11.4	600	6.5
3/4	2,000	36.0	1,500	23.4	1,300	18.2	1,000	12.8	800	9.3	500	5.4
1	1,500	27.0	1,100	17.2	1,000	14.0	750	9.6	600	7.0	380	4.1

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

High Speed Light Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC																						
Work Material	Carbon Steels 1045, 1055		Alloy Steels 4140, 4340		Hardened Steels Pre-hardened Steels D2, H13, 17-4PH		Tool Steels, Hardened Steels Pre-hardened Steels, D2, H13		Hardened Steels Heat Resistant Steels																						
Cutting Speed	1,560 SFM		1,380 SFM		960 SFM		600 SFM		310 SFM																						
Depth of Cut	a_a						<table border="1"> <tr><th>Dia</th><th>a_a</th><th>a_r</th></tr> <tr><td>D<1/8</td><td>1.5D</td><td>0.01D</td></tr> <tr><td>1/8≤D</td><td>1.5D</td><td>0.02D</td></tr> <tr><td>5/8<D</td><td>1.5D</td><td>0.05D</td></tr> </table>		Dia	a _a	a _r	D<1/8	1.5D	0.01D	1/8≤D	1.5D	0.02D	5/8<D	1.5D	0.05D	<table border="1"> <tr><th>Dia</th><th>a_a</th><th>a_r</th></tr> <tr><td>D≤5/16</td><td>1.0D</td><td>0.01D</td></tr> <tr><td>5/16<D</td><td>1.0D</td><td>0.02D</td></tr> </table>		Dia	a _a	a _r	D≤5/16	1.0D	0.01D	5/16<D	1.0D	0.02D
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Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min																					
1/4	24,000	220.8	21,000	184.8	14,760	118.1	9,000	72.0	4,800	32.6																					
9/32	20,400	212.2	18,000	172.8	13,200	121.4	7,920	69.7	4,200	33.6																					
5/16	18,840	226.1	16,320	176.3	12,000	124.8	7,200	72.0	3,840	33.8																					
3/8	15,600	218.4	13,800	176.6	9,960	115.5	6,000	67.2	3,120	31.2																					
7/16	13,200	211.2	12,000	177.6	8,640	117.5	5,160	66.0	2,760	32.0																					
1/2	11,880	213.8	10,440	162.9	7,440	104.2	4,440	56.8	2,400	27.8																					
5/8	9,500	171.0	8,400	131.1	5,900	82.6	3,670	47.0	1,900	22.1																					
3/4	7,950	143.1	7,000	109.2	4,950	69.3	3,050	39.0	1,580	18.3																					
1	5,960	107.3	5,270	82.3	3,700	51.8	2,300	29.5	1,180	13.7																					

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

