



List 3610 - EXOCARB® WXL®: Ball End, Regular Length, 2 Flute

Standard Milling

Hardness	-		<32 HRC		33-41 HRC		42-50 HRC											
Work Material	Aluminum Copper Alloy		Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels		Hardened Steels Pre-hardened Steels, P20, H13, S7, A2													
Cutting Speed	388 SFM		324 SFM		263 SFM		233 SFM											
Depth of Cut	<table border="1"> <thead> <tr> <th>Dia</th> <th>aa</th> <th>ar</th> </tr> </thead> <tbody> <tr> <td>D<1/16</td> <td>0.05D</td> <td>0.2D</td> </tr> <tr> <td>1/16≤D≤1/2</td> <td>0.10D</td> <td>0.2D</td> </tr> </tbody> </table>			Dia	aa	ar	D<1/16	0.05D	0.2D	1/16≤D≤1/2	0.10D	0.2D			aa=0.1D ar=0.2D		aa=0.05D ar=0.10D	
	Dia	aa	ar															
D<1/16	0.05D	0.2D																
1/16≤D≤1/2	0.10D	0.2D																
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min										
1/32	25,000	35.0	25,000	35.0	32,149	35.0	28,482	30.0										
1/16	23,715	61.7	19,803	51.5	16,075	41.8	14,241	34.2										
3/32	15,810	60.1	13,202	50.2	10,716	40.7	9,494	34.2										
1/8	11,857	56.9	9,901	47.5	8,037	38.6	7,120	31.3										
5/32	9,486	57.7	7,921	48.2	6,430	39.1	5,696	32.3										
3/16	7,905	58.5	6,601	48.8	5,358	39.7	4,747	33.2										
1/4	5,929	54.5	4,951	45.5	4,019	37.0	3,560	32.0										
5/16	4,743	56.9	3,961	47.5	3,215	38.6	2,848	32.5										
3/8	3,952	55.3	3,300	46.2	2,679	37.5	2,373	28.5										
1/2	2,964	51.6	2,475	43.1	2,009	35.0	1,780	30.6										

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	-		<32 HRC		33-41 HRC		42-50 HRC													
Work Material	Copper Copper Alloy		Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels		Hardened Steels Pre-hardened Steels, P20, H13, S7, A2															
Cutting Speed	659 SFM		713 SFM		651 SFM		561 SFM													
Depth of Cut	aa=0.02D ar=0.05D		<table border="1"> <thead> <tr> <th>Dia</th> <th>aa</th> <th>ar</th> </tr> </thead> <tbody> <tr> <td>D≤3/16</td> <td>0.02D</td> <td>0.05D</td> </tr> <tr> <td>1/4≤D≤3/8</td> <td>0.05D</td> <td>0.10D</td> </tr> <tr> <td>D=1/2</td> <td>0.40D</td> <td>0.20D</td> </tr> </tbody> </table>		Dia	aa	ar	D≤3/16	0.02D	0.05D	1/4≤D≤3/8	0.05D	0.10D	D=1/2	0.40D	0.20D			aa=0.02D ar=0.05D	
	Dia	aa	ar																	
D≤3/16	0.02D	0.05D																		
1/4≤D≤3/8	0.05D	0.10D																		
D=1/2	0.40D	0.20D																		
Mill Diameter	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min												
1/32	25,000	35.0	25,000	35.0	25,000	35.0	25,000	30.0												
1/16	25,000	65.0	25,000	65.0	25,000	65.0	25,000	60.0												
3/32	25,000	95.0	25,000	95.0	25,000	95.0	22,859	82.3												
1/8	20,139	96.7	21,789	104.6	19,895	95.5	17,144	75.4												
5/32	16,111	98.0	17,431	106.0	15,916	96.8	13,715	77.7												
3/16	13,426	99.4	14,526	107.5	13,263	98.1	11,429	80.0												
1/4	10,070	92.6	10,895	100.2	9,947	91.5	8,572	77.1												
5/16	8,056	96.7	8,716	104.6	7,958	95.5	6,858	78.2												
3/8	6,713	94.0	7,263	101.7	6,632	92.8	5,715	68.6												
1/2	5,035	87.6	5,447	94.8	4,974	86.5	4,286	73.7												

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.

