List 3430 - EXOCARB® WXL®: 4 Flute, Ball End, Stub & Regular Length
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Roughing - Contouring

Hardness		–		Up to 32 HRC		33-41 HRC		42-50 HRC	
Work Material		Copper Copper Alloy		Cast Iron, Carbon Steel, Alloy Steel, Stainless, Die Steels		Hardened Steels, Pre-hardened Steels, P20, H13, S7, A2			
Cutting Speed (SFM)		388 SFM		400 SFM		366 SFM		350 SFM	
Depth of Cut 		aa 0.10D / ar 0.20D				aa 0.05D / ar 0.15D			
Mill Dia. Inch	Mill Dia. mm	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
-	1	25,000	59.1	25,000	43.3	25,000	39.4	25,000	31.5
-	2	18,810	88.9	19,390	67.2	17,750	55.9	16,970	42.8
-	3	12,540	113.5	12,930	74.5	11,830	64.0	11,320	50.5
1/8	-	11,850	114.0	12,220	75.0	11,180	64.3	10,690	50.8
-	4	9,410	114.5	9,700	75.5	8,880	64.6	8,490	51.1
3/16	-	7,900	115.0	8,150	76.0	7,460	64.9	7,130	51.4
-	5	7,530	115.5	7,760	76.5	7,100	65.2	6,790	51.7
-	6	6,270	116.0	6,470	77.0	5,920	65.5	5,660	52.0
1/4	-	5,930	116.5	6,110	77.5	5,590	65.8	5,350	52.3
5/16	-	4,740	117.0	4,890	78.0	4,480	66.1	4,280	52.6
	8	4,710	117.5	4,850	78.5	4,440	66.4	4,250	52.9
3/8	-	3,950	118.0	4,080	79.0	3,730	66.7	3,570	53.2
-	10	3,770	118.5	3,880	79.5	3,550	67.0	3,400	53.5
-	12	3,140	119.0	3,240	80.0	2,960	67.3	2,830	53.8
1/2	-	2,970	119.5	3,060	80.5	2,800	67.4	2,680	54.1

Finishing - Contouring

Hardness		–		Up to 32 HRC		33-41 HRC		42-50 HRC	
Work Material		Copper Copper Alloy		Cast Iron, Carbon Steel, Alloy Steel, Stainless, Die Steels		Hardened Steels, Pre-hardened Steels, P20, H13, S7, A2			
Cutting Speed (SFM)		659 SFM		713 SFM		651 SFM		561 SFM	
Depth of Cut 		aa 0.02D / ar 0.05D							
Mill Dia. Inch	Mill Dia. mm	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
-	1	25,000	59.1	25,000	43.3	25,000	39.4	25,000	31.5
-	2	25,000	118.1	25,000	86.6	25,000	78.7	25,000	63.0
-	3	21,300	152.5	23,050	136.5	21,040	116.3	18,130	82.7
1/8	-	20,130	153.0	21,780	137.0	19,880	116.6	17,130	83.0
-	4	15,980	153.5	17,290	137.5	15,780	116.9	13,600	83.3
3/16	-	13,420	154.0	14,520	138.0	13,260	117.2	11,420	83.6
-	5	12,780	154.5	13,830	138.5	12,630	117.5	10,880	83.9
-	6	10,650	155.0	11,530	139.0	10,520	117.8	9,070	84.2
1/4	-	10,070	155.5	10,890	139.5	9,940	118.1	8,570	84.5
5/16	-	8,050	156.0	8,710	140.0	7,960	118.4	6,860	84.8
	8	7,990	156.5	8,650	140.5	7,890	118.7	6,800	85.1
3/8	-	6,710	157.0	7,260	141.0	6,630	119.0	5,710	85.4
-	10	6,390	157.5	6,920	141.6	6,320	119.3	5,440	85.7
-	12	5,330	158.0	5,770	142.1	5,260	119.7	4,540	86.0
1/2	-	5,040	158.5	5,450	142.5	4,970	120.0	4,290	86.3

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (Mist).
3. The above parameters are applicable to an overhang of 4xD maximum. When the overhang is longer, please reduce feed, speed, and cutting depth.
4. The above parameters are standard starting values for contouring and side milling opperations. If vibration or chatter occurs due to machine or part setup, please adjust the speed, feed, and depth accordingly.
5. If contouring includes corners of radius less than 1.5 times the tool diameter, reduce speed and feed to 50-80% of above and reduce Ar to 20-60% of above.
6. When the part incline angle (β) is more than 15°, reduce the speed to 40-60% of above parameters, the feed to 30-50% of above parameters, and Aa to 30-60% of above parameters.
7. If the cutting depth is small it is possible to increase the speed and feed above the recommended parameters.