



List 8410, 8510: 2 Flute, Stub Length, Ball End

Finishing - Contouring

Hardness		Up to 45 HRC		45-55 HRC		55-62 HRC		62-66 HRC		66-70 HRC													
Work Material		Tool Steels Hardened Steels Alloy Steels		Hardened Steels																			
Cutting Speed (SFM)		345 (265-395)		310 (230-360)		195 (130-265)		195 (165-230)		165 (130-195)													
Depth of Cut		<table border="1"> <tr><th>aa</th><th>ar</th></tr> <tr><td>0.05D</td><td>0.1D</td></tr> </table>		aa	ar	0.05D	0.1D	<table border="1"> <tr><th>aa</th><th>ar</th></tr> <tr><td>0.03D</td><td>0.1D</td></tr> </table>		aa	ar	0.03D	0.1D	<table border="1"> <tr><th>aa</th><th>ar</th></tr> <tr><td>0.02D</td><td>0.05D</td></tr> </table>						aa	ar	0.02D	0.05D
aa	ar																						
0.05D	0.1D																						
aa	ar																						
0.03D	0.1D																						
aa	ar																						
0.02D	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)												
(Inch)	(mm)																						
-	0.2	25,000	14.8	25,000	14.8	25,000	14.8	25,000	11.7	25,000	9.4												
1/32	0.8	25,000	49.2	25,000	49.2	25,000	49.2	25,000	35.8	25,000	28.6												
-	1.0	25,000	60.2	25,000	60.2	25,000	51.3	25,000	41.0	25,000	32.8												
-	1.4	25,000	73.0	25,000	73.0	25,000	59.8	25,000	54.9	25,000	43.9												
-	1.5	25,000	78.2	25,000	78.2	25,000	64.1	25,000	58.8	20,000	47.0												
1/16	-	25,000	73.2	25,000	72.2	25,000	59.7	25,000	57.0	20,000	45.6												
-	2.0	25,000	92.3	25,000	91.0	25,000	75.2	23,750	68.2	19,000	54.6												
3/32	-	25,000	109.9	25,000	108.3	24,050	86.1	19,950	68.2	15,960	54.6												
-	2.5	25,000	109.3	25,000	108.9	22,900	82.2	19,400	66.2	15,520	53.0												
-	3.0	25,000	123.8	25,000	125.0	19,100	78.3	16,150	62.8	12,920	50.2												
1/8	-	25,000	131.0	23,850	126.2	18,050	78.3	15,300	63.0	12,240	50.4												
-	4.0	24,000	143.7	19,150	115.8	14,300	74.3	11,900	59.1	9,520	47.3												
3/16	-	20,150	137.7	15,700	104.0	12,000	66.5	10,000	53.3	8,000	42.6												
-	5	19,200	137.8	14,950	104.0	11,450	66.6	9,500	53.1	7,600	42.5												
-	6	16,150	131.5	12,600	90.6	9,550	61.3	7,900	48.6	6,320	38.9												
1/4	-	15,300	131.8	11,900	90.5	9,000	61.2	7,500	48.8	6,000	39.0												
5/16	-	12,000	112.3	9,550	80.5	7,200	53.5	6,000	41.7	4,800	33.4												
-	8	11,900	112.2	9,450	80.3	7,150	53.5	5,950	41.7	4,760	33.4												
3/8	-	10,000	100.7	7,950	70.6	6,100	45.4	5,000	34.2	4,000	27.4												
-	10	9,500	100.4	7,550	70.4	5,800	45.3	4,750	34.1	3,800	27.3												
-	12	8,000	94.5	6,400	65.0	4,750	37.2	3,950	30.9	3,160	24.7												
1/2	-	7,550	94.4	6,050	65.0	4,500	37.3	3,750	31.1	3,000	24.9												

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. The above parameters are standard starting values for contouring and side milling operations. If vibration or chatter occurs due to machine or part setup, please adjust the speed, feed, and depth of cut accordingly.
4. If the cutting depth is small it is possible to increase the speed and feed above the recommended parameters.

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List 8410, 8510: 2 Flute, Stub Length, Ball End (Continued)

Finishing - High Speed Contouring

Hardness		Up to 45 HRC		45-55 HRC		55-62 HRC		62-66 HRC		66-70 HRC									
Work Material		Tool Steels Hardened Steels Alloy Steels		Hardened Steels															
Depth of Cut		<table border="1"> <tr><th>aa</th><th>ar</th></tr> <tr><td>0.02D</td><td>0.05D</td></tr> </table>						aa	ar	0.02D	0.05D	<table border="1"> <tr><th>aa</th><th>ar</th></tr> <tr><td>0.01D</td><td>0.05D</td></tr> </table>				aa	ar	0.01D	0.05D
aa	ar																		
0.02D	0.05D																		
aa	ar																		
0.01D	0.05D																		
Mill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed								
(Inch)	(mm)	(RPM)	(in/min)	(RPM)	(in/min)	(RPM)	(in/min)	(RPM)	(in/min)	(RPM)	(in/min)								
-	0.2	25,000	20.8	25,000	20.8	25,000	17.5	25,000	14.6	25,000	13.5								
1/32	0.8	25,000	63.6	25,000	63.6	25,000	53.3	25,000	44.7	25,000	41.3								
-	1	25,000	72.8	25,000	72.8	25,000	61.0	25,000	51.2	25,000	47.2								
-	1.4	25,000	88.2	25,000	88.2	25,000	71.7	25,000	56.0	25,000	55.0								
-	1.5	25,000	94.5	25,000	94.5	25,000	76.8	25,000	60.0	25,000	59.0								
1/16	-	25,000	87.5	25,000	83.6	25,000	59.4	25,000	57.0	25,000	57.0								
-	2	25,000	110.2	25,000	105.3	25,000	74.8	25,000	71.8	25,000	71.8								
3/32	-	25,000	131.3	25,000	125.4	25,000	89.1	25,000	85.4	24,050	82.2								
-	2.5	25,000	120.0	25,000	117.1	25,000	90.0	25,000	86.4	22,900	78.3								
-	3	25,000	122.5	25,000	123.0	25,000	103.7	25,000	99.6	19,100	74.4								
1/8	-	25,000	129.7	25,000	130.2	25,000	109.7	23,850	100.6	18,050	74.4								
-	4	25,000	150.8	25,000	150.4	24,000	126.0	19,150	94.2	14,300	70.4								
3/16	-	25,000	170.3	23,850	156.9	20,150	112.2	16,300	84.2	12,000	62.6								
-	5	25,000	178.8	22,700	156.8	19,200	112.2	15,500	84.1	11,450	62.7								
-	6	24,600	204.7	19,250	136.2	16,150	100.1	12,600	80.7	9,550	61.3								
1/4	-	23,250	204.8	18,200	136.3	15,300	100.3	11,900	80.7	9,000	61.2								
5/16	-	18,750	175.2	14,550	120.4	12,000	88.6	9,550	70.7	7,200	53.5								
-	8	18,600	175.2	14,450	120.5	11,900	88.6	9,450	70.5	7,150	53.5								
3/8	-	15,750	155.5	12,100	104.6	10,000	75.0	7,950	60.8	6,100	45.4								
-	10	15,000	155.5	11,550	104.8	9,500	74.8	7,550	60.6	5,800	45.3								
-	12	12,600	145.7	9,450	97.9	8,000	63.0	6,400	53.1	4,750	38.8								
1/2	-	11,900	145.6	8,950	98.1	7,550	62.9	6,050	53.2	4,500	38.9								

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