



List 9140: MAX-HARD, Regular Length, 6 Flute

List 9144: MAX-HARD, Regular Length, 6 Flute, Corner Radius

Side Milling

Hardness	-		<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC				
Work Material	Carbon Steels Cast Iron Mild Steels		Hardened Steels Pre-hardened Steels Alloy Steels		Tool Steels Hardened Steels		Hardened Steels Alloy Steels		Hardened Steels								
Cutting Speed	460 SFM		460 SFM		410 SFM		330 SFM		250 SFM		230 SFM		165 SFM				
Depth of Cut	Dia		aa		ar				aa=1.5D ar=0.05D arMax=1.0mm		aa=1.5D ar=0.03D arMax=0.5mm		aa=1.0D ar=0.02D arMax=0.5mm				
	D=1		1.5D		0.02D				D=2		1.5D		0.05D		D>2		1.5D
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	Speed RPM	Feed in/min			
1	20,000	31.5	20,000	31.5	20,000	31.5	20,000	31.5	20,000	22.0	20,000	18.9	16,000	13.4			
2	20,000	63.0	20,000	63.0	20,000	63.0	16,000	49.2	12,000	26.4	11,000	21.1	7,950	13.4			
3	15,000	70.9	15,000	70.9	13,500	63.0	10,500	49.2	7,950	26.4	7,450	21.1	5,300	13.4			
4	11,000	70.9	11,000	70.9	9,950	63.0	7,950	49.2	5,950	26.4	5,550	21.1	4,000	13.4			
5	8,900	70.9	8,900	70.9	7,950	63.0	6,350	49.2	4,750	26.4	4,450	21.1	3,200	13.4			
6	7,450	104.3	7,450	104.3	6,650	94.5	5,300	74.8	4,000	39.4	3,700	31.5	2,650	19.9			
8	5,550	104.3	5,550	104.3	4,950	94.5	4,000	74.8	3,000	39.4	2,800	31.5	2,000	19.9			
10	4,450	104.3	4,450	104.3	4,000	94.5	3,200	74.8	2,400	39.4	2,250	31.5	1,600	19.9			
12	3,700	104.3	3,700	104.3	3,300	94.5	2,650	74.8	2,000	39.4	1,850	31.5	1,350	19.9			

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow or MQL (Mist).
3. When using low speed machines, use the maximum speed and adjust feedrate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (0.0004")

High Speed Light Milling

Hardness	-		<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Carbon Steels Cast Iron Mild Steels		Hardened Steels Pre-hardened Steels Alloy Steels		Tool Steels Hardened Steels		Hardened Steels Alloy Steels		Hardened Steels					
Cutting Speed	1030 SFM		985 SFM		985 SFM		820 SFM		525 SFM		490 SFM		330 SFM	
Depth of Cut	aa=1.0D ar=0.05D arMax=0.8mm		aa=1.0D ar=0.05D arMax=0.5mm		aa=1.0D ar=0.03D arMax=0.5mm		aa=1.0D ar=0.02D arMax=0.2mm		aa=1.0D ar=0.01D arMax=0.2mm					
	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	Speed RPM
1	25000	31.5	25000	31.5	25000	39.4	25000	39.4	25000	31.5	25000	28.0	25000	22.0
2	25000	66.9	25000	67.3	25000	78.7	25000	78.7	25000	63.7	24000	53.1	16000	31.5
3	25000	105.7	25000	106.1	25000	116.9	25000	118.9	17000	65.0	16000	53.1	10500	31.5
4	25000	162.1	24000	153.5	24000	149.6	20000	126.0	12500	65.0	12000	53.1	7950	31.5
5	20500	173.2	19000	161.4	19000	149.6	16000	126.0	10000	65.0	9550	53.1	6350	31.5
6	17000	240.2	16000	226.4	16000	226.4	13500	189.0	8500	96.5	7950	78.7	5300	47.2
8	12500	240.2	12000	226.4	12000	226.4	9950	189.0	6350	96.5	5950	78.7	4000	47.2
10	10000	240.2	9550	226.4	9550	226.4	7950	189.0	5100	96.5	4800	78.7	3200	47.2
12	8500	240.2	7950	226.4	7950	226.4	6650	189.0	4250	96.5	4000	78.7	2650	47.2

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow or MQL (Mist).
3. When using low speed machines, use the maximum speed and adjust feedrate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (0.0004")

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