

## APT5/APC5 Application Guide – Speed & Feed (inch)

ISO Code	Work Material	Type of Cut	Axial DOC	Radial DOC	No. of Flutes	Speed (SFM)	Feed (Inch per Tooth)					
							1/4	3/8	1/2	5/8	3/4	1
N	Aluminum Alloys 6061, 7075, 2024	Slotting	1 x D	1 x D	5	600	.0015	.0023	.0030	.0038	.0045	.0060
		Peripheral - HEM	≤ 2 x D	.25 x D	5	850	.0050	.0075	.0100	.0125	.0150	.0200
		Peripheral - HEM	> 2 - 2.5 x D	.25 x D	5	800	.0050	.0075	.0100	.0125	.0150	.0200
		Peripheral - HEM	> 2.5 - 3 x D	.25 x D	5	800	.0050	.0075	.0100	.0125	.0150	.0200
		Peripheral - HEM	> 3 - 3.5 x D	.25 x D	5	800	.0048	.0071	.0095	.0119	.0143	.0190
		Peripheral - HEM	> 3.5 - 4 x D	.20 x D	5	780	.0048	.0071	.0095	.0119	.0143	.0190
		Peripheral - Rough	≤ 2 x D	.45 x D	5	1000	.0024	.0036	.0048	.0060	.0072	.0096
		Peripheral - Rough	> 2 - 3 x D	.375 x D	5	900	.0023	.0035	.0046	.0058	.0069	.0092
		Peripheral - Rough	> 3 - 4 x D	.35 x D	5	800	.0023	.0034	.0045	.0056	.0068	.0090
		Finish	≤ 4 x D	.01 x D	5	650	.0015	.0023	.0030	.0038	.0045	.0060

D = Tool Diameter HEM = High-efficiency machining

## APT5/APC5 Application Guide – Speed & Feed (metric)

ISO Code	Work Material	Type of Cut	Axial DOC	Radial DOC	Number of Flutes	Speed (M/min)	Feed (MM per Tooth)					
							6.0	8.0	10.0	12.0	16.0	20.0
N	Aluminum Alloys 6061, 7075, 2024	Slotting	1 x D	1 x D	5	183	.0360	.0480	.0598	.0720	.0958	.1195
		Peripheral - HEM	≤ 2 x D	.25 x D	5	259	.1200	.1600	.1992	.2400	.3192	.3984
		Peripheral - HEM	> 2 - 2.5 x D	.25 x D	5	244	.1200	.1600	.1992	.2400	.3192	.3984
		Peripheral - HEM	> 2.5 - 3 x D	.25 x D	5	244	.1200	.1600	.1992	.2400	.3192	.3984
		Peripheral - HEM	> 3 - 3.5 x D	.25 x D	5	244	.1140	.1520	.1892	.2280	.3032	.3784
		Peripheral - HEM	> 3.5 - 4 x D	.20 x D	5	238	.1140	.1520	.1892	.2280	.3032	.3784
		Peripheral - Rough	≤ 2 x D	.45 x D	5	305	.0576	.0768	.0956	.1152	.1532	.1912
		Peripheral - Rough	> 2 - 3 x D	.375 x D	5	274	.0552	.0736	.0916	.1104	.1468	.1832
		Peripheral - Rough	> 3 - 4 x D	.35 x D	5	244	.0540	.0720	.0896	.1080	.1436	.1793
		Finish	≤ 4 x D	.01 x D	5	198	.0360	.0480	.0598	.0720	.0958	.1195

D = Tool Diameter HEM = High-efficiency machining

≈ Approximately Equals < Less Than  
 ≤ Less Than or Equal To > Greater Than  
 ≥ Greater Than or Equal To = Equals  
 × Multiply

## Common Machining Formulas

$$RPM = \frac{SFM \times 3.82}{D}$$

$$SFM = RPM \times D \times .262$$

$$IPM = RPM \times IPT \times Z$$

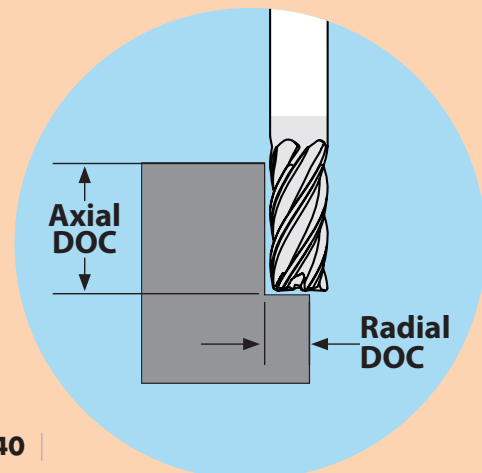
$$MRR = RDOC \times ADOC \times IPM$$

$$RPM = \frac{M/min \times 318.3}{D}$$

$$M/min = RPM \times D \times .00314$$

$$MMPM = RPM \times MMPT \times Z$$

$$MRR = RDOC \times ADOC \times MMPM$$



D Tool Diameter  
 Z Number of Flutes  
 RPM Revolutions per Minute  
 SFM Surface Feet per Minute  
 M/min Surface Meters per Minute  
 IPM Inches per Minute  
 MMPM Millimeters per Minute  
 IPT Inch per Tooth  
 MMPT Millimeters per Tooth  
 MRR Metal Removal Rate  
 RDOC Radial Depth of Cut  
 ADOC Axial Depth of Cut

## Technical Resources

Information on tips and adjustments for the following milling operations can be found in our Technical Resources section beginning on page 125.

- HEM slotting
- Face milling
- Helical entry ramping
- Straight line ramping
- Long tool projection adjustments
- Ball nose milling adjustments
- Other helpful tips and calculations