

Series 177/179 Inch

Workpiece Material Group		Examples	Coolant			Slotting		1 x Diameter Axial Depth											
								Profiling											
			 Max			 MMS							Small Radial Depth =====> Largest Radial Depth						
													25% Axial	50% Axial	1% of Dia.	5% of Dia.	10% of Dia.	15% of Dia.	20% of Dia.
Type												SFM							
Steels	P	Free Machining	●	●	●	500	500	2400	2250	2050	1850	1660	1260	500					
		Low Carbon	●	●	●	500	500	2400	2250	2050	1850	1660	1260	500					
		Medium Carbon	●	●	●	300	300	1100	1030	950	875	790	620	300					
		Alloy Steels	●	●	●	250	250	500	480	450	430	400	350	250					
		High Strength Alloys	●	●	●	250	250	500	480	450	430	400	350	250					
		Structural Steels	●	●	●	500	500	2400	2250	2050	1850	1660	1260	500					
Stainless Steels	M	Die/Tool Steels	●	●	●	200	200	400	390	380	370	360	300	200					
		Free Machining	●	x	○	300	300	500	485	460	450	430	380	300					
		Moderate Stainless	●	x	○	250	250	500	390	380	370	360	320	250					
		Difficult Stainless	●	x	○	200	200	350	330	320	300	295	260	200					
		PH Stainless	●	x	○	125	125	250	245	240	235	230	195	125					
		Cobalt Chrome Alloys	●	x	○	150	150	250	245	230	225	215	190	150					
Special Alloys	S	Duplex (22%)	●	x	○	125	125	250	245	230	225	215	185	125					
		Super Duplex (25%)	●	x	○	100	100	200	195	180	180	170	140	100					
		High Temp Alloys	●	x	x	150	150	250	240	220	215	200	180	150					
Cast Irons	K	Titanium Alloys	●	x	x	175	175	425	400	380	350	325	275	175					
		Gray Cast Iron	●	○	○	400	400	1500	1420	1315	1210	1100	860	400					
		SG Iron	●	○	○	350	350	1200	1130	1050	980	900	710	350					
		Ductile Cast Iron	●	○	○	300	300	500	485	460	450	430	380	300					
		Malleable Iron	●	○	○	300	300	400	385	375	360	345	330	300					

• Preferred
o Possible
x Not Possible

If axial depth is less than the ball diameter, the speed is figured using the effective cutting diameter.

Workpiece Material Group	Examples	Tool Diameter									
		1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1.0
		Inches/Tooth									
Steels	P	Free Machining									
		Low Carbon									
		Medium Carbon									
		Alloy Steels									
		High Strength Alloys									
		Structural Steels									
Stainless Steels	M	Die/Tool Steels									
		Free Machining									
		Moderate Stainless									
		Difficult Stainless									
		PH Stainless									
		Cobalt Chrome Alloys									
Special Alloys	S	Duplex (22%)									
		Super Duplex (25%)									
		Titanium Alloys									
Cast Irons	K	High Temp Alloys									
		Gray Cast Iron									
		SG Iron									
		Ductile Cast Iron									
		Malleable Iron									

Example: Profile Milling

- 1) Select Material from chart.
- 2) Select Tool Size.
- 3) Select feed per tooth.
- 4) Figure percentage of cutter Diameter Radial Cut Depth.
- 5) Select Chip Load Factor for Radial Depth.
- 6) Multiply Chip Load Factor x Feed per Tooth.
- 7) Answer: New Feed per Tooth.
- 8) New Feed per Tooth x Number of Teeth x RPM = IPM (Inches per Minute)

Example: Slotting

- 1) Select Material from chart.
- 2) Select Tool Size.
- 3) Select feed per tooth from chart.
- 4) Multiply Feed per Tooth x Number of Teeth x RPM.
- 5) Answer: IPM (Inches per Minute)

Spindle Max.

Should the Calculated Spindle Speed be more than your actual Spindle Max., Use Formula Below:

Calculated Feed x Spindle Max.

Calculated Speed

During Profile Milling less than 50% of the cutter diameter radial depth, the actual chipload at the cutting edge is less than the programmed chip load. Below are Chip Load factors depending on Radial Depth Percentage. Multiply your inches per tooth by the factor before figuring your IPM.

Radial Depth in Percentage of Cutter Diameter	Increase Chip Load Factor
50%	1.00
30%	1.10
20%	1.20
15%	1.40
10%	1.80
5%	2.30
1%	5.00

Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

For product information, call your local distributor.