

$$\text{RPM} = \frac{\text{SFM} \times 3.82}{\text{Diameter}}$$

$$\text{IPM} = \text{RPM} \times \frac{\text{Feed Rate}}{\text{Feed per tooth}} \times \frac{F}{\text{Number of flutes}}$$

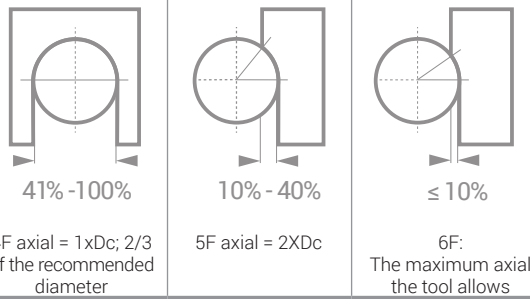
$$\text{MATERIAL REMOVAL RATE (IN.³/MIN.)} = \text{IPM} \times a_e \times a_p$$

Feed (in./min.) Radial engagement Axial engagement

SFM

Surface Feet per Minute (ft./min.)

Tooth path



P Steel	MILD STEEL	500	600	750
	35HRC STEEL	350	450	600
M Stainless	SS 300-400	300	350	525
	SS 15-5 AND 17-4PH	225	350	525
K Cast Iron	GREY	350	500	750
	DUCTILE	225	400	600
S High temp.	TITANIUM	150	230	8% radial 400
	INCONEL	75	90	5% radial 135

FEED PER TOOTH

Based on a tool with 0.5" in diameter

P Steel	K Cast Iron	S High temp.
-------------------	-----------------------	------------------------

Slotting engagement	Large engagement	Small engagement
0.003"	0.0045"	0.006"
Use the rule of 3 for different diameters		

FEED PER TOOTH

Based on a tool with 0.5" in diameter

M Stainless

Slotting engagement	Large engagement	Small engagement
0.0015"	0.0045"	0.006"
Use the rule of 3 for different diameters		

N	ALUMINIUM	1200 SFM TO MAX RPM
----------	-----------	---------------------

N	FEED PER TOOTH
	Based on a tool with 0.5 in diameter 0.008"

CALCULATION EXAMPLES

Parameters

M SS304

F 5
D 0.5"
a_p 0.75"

LARGE radial engagement
30%

$$\left(\left(\frac{\text{RPM}}{\left(\frac{350 \times 3.82}{0.5} \right)} \right) \right) \frac{\text{Feed Rate}}{0.003} \times \frac{F}{5} \times a_e \times a_p = 4.51 \text{ in.³/min.}$$

SMALL radial engagement
8%

$$\left(\left(\frac{\text{RPM}}{\left(\frac{525 \times 3.82}{0.5} \right)} \right) \right) \frac{\text{Feed Rate}}{0.006} \times \frac{F}{5} \times a_e \times a_p = 3.61 \text{ in.³/min.}$$