



# Recommended Cutting Conditions

## Recommended Cutting Conditions for High Speed Machining

Description	Side Milling		Diameter (inch)			Cutting Speed Vc (sfm)				
	ap	ae	.250-.312	.375-.500	.625-.750	Steel up to 45 HRC	Hardened Steel 45-55 HRC	Stainless Steels	Titanium	Inconel
			Fz ipt							
StediRound 48J RQ	2D	0.1D	.0031-.0060	.0031-.0098	.0040-.0110	650-1000	328-500	360-500	260-400	65-130
HyperRound 48/49C RQ	2D	0.06D	.0031-.0060	.0031-.0098	.0040-.0110	650-1000	328-500	360-500	260-400	65-130
Power Round 47/48J RD	2D	0.1D	.0031-.0060	.0031-.0098	.0040-.0110	650-1000	328-500	360-500	260-400	65-130
3n1 Round 47D RP	2D	0.1D	.0031-.0060	.0031-.0098	.0040-.0110	650-1000	328-500	360-500	260-400	65-130
HyperRound 48J RX	2D	0.1D	.0031-.0060	.0031-.0098	.0040-.0110				260-400	65-130

## Recommended Cutting Conditions for Finishing

Description	Side Milling		Diameter inch			Vc Cutting Speed (sfm)						
	ap	ae	.250-.312	.375-.500	.625-.750	Steel up to 45 HRC	Hardened Steel 45-55 HRC	Stainless Steels	Titanium	Inconel	Cast Iron	Aluminum
			Fz ipt									
HyperRound 48/49C RQ	2D	0.06D	.0008-.0015	.0011-.0020	.0011-.0027	500-820	328-500	360-500	260-400	65-130	500-650	
StediRound 48J RQ	2D	0.1D	.0008-.0015	.0011-.0020	.0011-.0027	500-820	328-500	360-500	260-400	65-130	500-650	
Power Round 47/48J RD	2D	0.1D	.0008-.0015	.0011-.0020	.0011-.0027	500-820	328-500	360-500	260-400	65-130	500-650	
HyperRound 48J RX	2D	0.1D	.0008-.0015	.0011-.0020	.0011-.0027				260-400	65-130		
StediRound 47D RQ IN05S	2D	0.3D	.0008-.0015	.0011-.0020	.0011-.0027							1310-2300
StediRound 46D RQ IN05S	2D	0.3D	.0008-.0015	.0011-.0020	.0011-.0027							1310-2300
Power Round 45J RD IN05S	2D	0.3D	.0008-.0015	.0011-.0020	.0011-.0027							1310-2300

## Milling Formulas

### Surface Speed per Minute

$$SFM = .26 \times \text{Diameter} \times \text{RPM}$$

### Feed per Revolution

$$FPR = \text{No. Eff. Inserts} \times \text{FPI}$$

### Revolutions per Minute

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

### Feed per Insert

$$FPI = \frac{FPR}{\text{No. Eff. Inserts}}$$

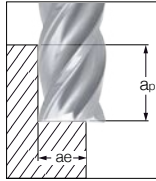
### Inches per Minute

$$IPM = \text{RPM} \times \text{FPR}$$

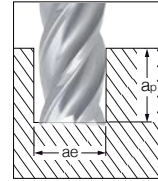


# Recommended Cutting Conditions for **Roughing**

**Side Milling**



**Slotting**



Steel up to 45 HRC		Side Milling			Fz ipt			Slotting			Fz ipt		
	Description	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750	Vc (sfm)	ae	ap	0.250-.312	0.375-.500	0.625-.750
	HyperRound 47 RQ	500-650	2D	0.4D	.0011-.0023	.0023-.0027	.0027-.0031	500-650	D	2D	.0001-.0014	.0012-.0021	.0015-.0021
	StediRound 47 RQ	500-650	2D	0.4D	.0010-.0019	.0019-.0025	.0023-.0027	500-650	D	2D	.0008-.0011	.0011-.0017	.0011-.0017
	RoughFin Round 47 RU CF	500-650	2D	0.4D	.0010-.0019	.0019-.0025	.0023-.0027	500-650	D	2D	.0008-.0011	.0011-.0017	.0011-.0017
	RoughFin Round 47 RU	500-650	2D	0.4D	.0010-.0019	.0019-.0025	.0023-.0027	500-650	D	2D	.0008-.0011	.0011-.0017	.0011-.0017
	Power Round 47C RN	420-500	2D	0.4D	.0008-.0015	.0015-.0017	.0017-.0025	420-500	D	1D	.0008-.0011	.0011-.0017	.0011-.0017
	3n1Round 45D RP	500-650	2D	0.2D	.0010-.0019	.0019-.0025	.0023-.0027	500-650	D	2D	.0008-.0011	.0011-.0017	.0011-.0017

Hardened Steel 45-55 HRC		Side Milling			Fz ipt			Slotting			Fz ipt		
	Description	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750	Vc (sfm)	ae	ap	0.250-.312	0.375-.500	0.625-.750
	RoughFin Round 47 RU	200-400	2D	0.4D	.0008-.0015	.0011-.0017	.0014-.0025	200-400	D	D	.0004-.0005	.0010-.0017	.0010-.0017
	Power Round 47C RN	200-400	2D	0.4D	.0006-.0015	.0015-.0019	.0020-.0026	200-400	D	D	.0004-.0005	.0010-.0017	.0010-.0017
	StediRound 47 RQ	200-400	2D	0.4D	.0004-.0015	.0015-.0019	.0020-.0026	200-400	D	D	.0004-.0005	.0010-.0017	.0010-.0017

Stainless Steels		Side Milling			Fz ipt			Slotting			Fz ipt		
	Description	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750	Vc (sfm)	ae	ap	0.250-.312	0.375-.500	0.625-.750
	HyperRound 47 RQ	220-360	2D	0.4D	.0010-.0017	.0015-.0019	.0020-.0025	220-360	D	2D	.0008-.0014	.0011-.0017	.0015-.0019
	RoughFin Round 47 RU IN2005/IN1005	220-360	2D	0.4D	.0010-.0014	.0014-.0016	.0020-.0023	220-360	D	2D	.0008-.0011	.0014-.0016	.0015-.0017
	StediRound 47 RQ IN2005/IN1005	220-360	2D	0.4D	.0010-.0014	.0014-.0016	.0020-.0023	220-360	D	2D	.0008-.0011	.0014-.0016	.0015-.0017
	Power Round 46/47 RU	220-360	2D	0.4D	.0010-.0014	.0014-.0016	.0020-.0023	220-360	D	2D	.0008-.0011	.0014-.0016	.0015-.0017

Titanium		Side Milling			Fz ipt			Slotting			Fz ipt		
	Description	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750	Vc (sfm)	ae	ap	0.250-.312	0.375-.500	0.625-.750
	RoughFin Round 47 RU IN1005	160-230	2D	0.4D	.0008-.0015	.0015-.0019	.0020-.0026	160-230	D	2D	.0004-.0005	.0011-.0020	.0015-.0021
	HyperRound 47D RX	160-230	2D	0.4D	.0011-.0017	.0024-.0031	.0024-.0031	160-230	D	2D	0.01-0.015	.0015-.0020	.0020-.0023
	StediRound 47 RQ IN1005	160-230	2D	0.4D	.0008-.0015	.0015-.0019	.0020-.0026	160-230	D	1.5D	.0004-.0005	.0011-.0020	.0015-.0021

Inconel		Side Milling			Fz ipt			Slotting			Fz ipt		
	Description	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750	Vc (sfm)	ae	ap	0.250-.312	0.375-.500	0.625-.750
	RoughFin Round 47 RU IN1005	50-100	2D	0.4D	.0008-.0015	.0015-.0019	.0020-.0026	50-100	D	2D	.0004-.0005	.0011-.0015	.0011-.0017
	HyperRound 47D RX	50-100	2D	0.4D	.0008-.0017	.0015-.0019	.0020-.0027	50-100	D	2D	.0004-.0005	.0011-.0015	.0011-.0017
	StediRound 47 RQ IN1005	50-100	2D	0.4D	.0008-.0015	.0015-.0019	.0020-.0026	50-100	D	2D	.0004-.0005	.0011-.0015	.0011-.0017

Aluminum		Side Milling			Fz ipt			Slotting			Fz ipt		
	Description	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750
	StediRound 46D RQ IN05S	Max	2D	0.4D	.0017-.0027	.0027-.0040	.0023-.0027	Max	D	2D	.0020-.0023	.0024-.0031	.0031-.0040
	StediRound 46J RD IN05S	Max	2D	0.4D	.0014-.0023	.0023-.0027	.0025-.0035	Max	D	2D	.0011-.0020	.0017-.0021	.0020-.0025

Cast Iron		Side Milling			Fz ipt			Slotting			Fz ipt		
	Description	Vc (sfm)	ap	ae	0.250-.312	0.375-.500	0.625-.750	Vc (sfm)	ae	ap	0.250-.312	0.375-.500	0.625-.750
	HyperRound 47 RQ	500-650	2D	0.4D	.0014-.0020	.0023-.0025	.0025-.0027	500-650	D	2D	.0011-.0015	.0015-.0017	.0015-.0017
	RoughFin Round 47 RU	500-650	2D	0.4D	.0014-.0020	.0023-.0025	.0025-.0027	500-650	D	2D	.0011-.0015	.0015-.0017	.0015-.0017