

Series 45ARA / 47ARA • Operating Guidelines

ROUND LINE - HI-FEED END MILL (2 AND 4 FLUTE)

Materials		DC Cutting Diameter (mm)	Vc (min) Cutting Speed m/min	Vc (max) Cutting Speed m/min	fz (min) Feed/Tooth (mm)	fz (max) Feed/Tooth (mm)	APMX Depth of Cut Max. (mm)
ISO	Type						
P	Non-alloy steel, cast steel, free cutting steel	1.0	198	290	0.02	0.05	0.06
		2.0			0.10	0.14	0.12
		3.0				0.20	0.20
		4.0				0.25	
		5.0				0.30	0.30
		6.0				0.40	0.40
		8.0			0.15	0.50	0.50
		10.0					0.60
		12.0					0.80
		16.0			0.20	0.60	1.00
		20.0				0.70	1.00
		Low-alloy steel, cast steel (less than 5% of alloying elements)			1.0	183	259
	2.0		0.10	0.14	0.12		
	3.0			0.20	0.20		
	4.0			0.25			
	5.0			0.30	0.30		
	6.0			0.40	0.40		
	8.0		0.15	0.50	0.50		
	10.0				0.60		
	12.0				0.80		
	16.0		0.20	0.60	1.00		
	20.0			0.70	1.00		
	High-alloy steel, cast steel, tool steel		1.0	152	213		
		2.0	0.10			0.14	0.09
		3.0				0.20	0.15
		4.0				0.25	
		5.0				0.30	0.23
		6.0				0.40	0.30
		8.0	0.15			0.50	0.38
		10.0					0.45
		12.0					0.60
		16.0	0.20			0.60	0.60
		20.0				0.70	0.75

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may necessitate adjustments in speed or feed. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

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ISO	Type						
M	Stainless steel	1.0	137	198	0.02	0.05	0.05
		2.0			0.10	0.14	0.09
		3.0				0.20	0.15
		4.0				0.25	
		5.0				0.30	0.23
		6.0					
		8.0				0.40	0.30
		10.0			0.15	0.50	0.38
		12.0					0.45
		16.0			0.20	0.60	0.60
		20.0				0.70	0.75
K	Gray cast iron (GG)	1.0	198	290	0.02	0.05	0.06
		2.0			0.10	0.14	0.12
		3.0				0.20	0.20
		4.0				0.25	
		5.0				0.30	0.30
		6.0					
		8.0				0.40	0.40
		10.0			0.15	0.50	0.50
		12.0					0.60
		16.0			0.20	0.60	0.80
		20.0				0.70	1.00
	Cast iron nodular (GGG), malleable cast iron	1.0	152	213	0.02	0.05	0.05
		2.0			0.10	0.14	0.09
		3.0				0.20	0.15
		4.0				0.25	
		5.0				0.30	0.23
		6.0					
		8.0				0.40	0.30
		10.0			0.15	0.50	0.38
		12.0					0.45
		16.0			0.20	0.60	0.60
		20.0				0.70	0.75

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ISO	Type						
S	High-temp alloys, Titanium, Ti alloys	1.0	40	76	0.02	0.03	0.03
		2.0			0.10	0.08	0.06
		3.0				0.12	0.10
		4.0				0.15	
		5.0				0.18	0.15
		6.0					
		8.0			0.15	0.30	0.25
		10.0					0.30
		12.0					0.25
		16.0			0.20	0.36	0.40
		20.0					0.42
		H			Hardened steel <50 HRC	1.0	91
2.0	0.10		0.11	0.06			
3.0			0.15	0.10			
4.0			0.19				
5.0			0.23	0.15			
6.0						0.30	
8.0	0.15		0.38	0.25			
10.0				0.30			
12.0				0.40			
16.0	0.20		0.45	0.40			
20.0				0.53		0.50	
Hardened steel <58 HRC, chilled cast iron, cast iron nodular	1.0		46	76		0.02	
	2.0				0.10	0.11	0.05
	3.0					0.14	0.09
	4.0					0.17	
	5.0					0.22	0.14
	6.0						
	8.0				0.15	0.28	0.23
	10.0						0.27
	12.0						0.36
	16.0				0.20	0.33	0.36
	20.0						0.39

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