

ASC 320® | Imperial (inch)

ISO	Material	Hardness (BHN)	Speed (SFM)	Feed Rate (IPR) by Diameter								
				0.118 - 0.157	0.161 - 0.236	0.240 - 0.315	0.319 - 0.394	0.398 - 0.472	0.476 - 0.551	0.555 - 0.630	0.634 - 0.709	0.713 - 0.787
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	450	0.007	0.009	0.011	0.013	0.014	0.016	0.018	0.020	0.022
		150 - 200	400	0.005	0.008	0.009	0.011	0.012	0.014	0.016	0.018	0.020
		200 - 250	375	0.004	0.006	0.007	0.009	0.010	0.012	0.014	0.016	0.018
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	425	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.019	0.021
		125 - 175	390	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.018	0.020
		175 - 225	360	0.005	0.008	0.010	0.011	0.013	0.015	0.017	0.017	0.019
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	330	0.004	0.007	0.009	0.010	0.012	0.014	0.016	0.016	0.018
		125 - 175	390	0.006	0.008	0.010	0.012	0.013	0.014	0.016	0.018	0.020
		175 - 225	360	0.005	0.007	0.010	0.012	0.012	0.013	0.015	0.017	0.019
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	320	0.004	0.006	0.009	0.011	0.011	0.012	0.014	0.016	0.018
		275 - 325	285	0.003	0.006	0.008	0.010	0.010	0.011	0.013	0.015	0.017
		175 - 225	375	0.006	0.008	0.010	0.012	0.013	0.014	0.016	0.018	0.020
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 275	340	0.005	0.007	0.009	0.011	0.012	0.013	0.015	0.017	0.019
		275 - 325	300	0.004	0.006	0.008	0.010	0.011	0.012	0.013	0.016	0.018
		325 - 375	275	0.003	0.005	0.007	0.009	0.010	0.010	0.012	0.014	0.016
	Structural Steel A36, A285, A516, etc.	225 - 300	260	0.005	0.007	0.008	0.011	0.011	0.012	0.013	0.014	0.016
		300 - 350	210	0.004	0.006	0.007	0.009	0.010	0.011	0.012	0.013	0.015
		350 - 400	160	0.003	0.005	0.006	0.008	0.009	0.010	0.011	0.012	0.013
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	100 - 150	360	0.005	0.008	0.009	0.011	0.012	0.013	0.014	0.016	0.018
		150 - 250	320	0.004	0.007	0.008	0.010	0.011	0.012	0.013	0.015	0.017
250 - 350		270	0.003	0.005	0.007	0.008	0.009	0.010	0.011	0.013	0.015	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	100 - 150	260	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	
		200 - 250	220	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
M	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	140 - 220	120	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	
		220 - 310	90	0.002	0.003	0.003	0.004	0.005	0.006	0.007	0.008	
K	Nodular, Grey, Ductile Cast Iron	135 - 185	200	0.004	0.005	0.006	0.007	0.008	0.009	0.011	0.012	
		185 - 275	140	0.003	0.004	0.004	0.005	0.006	0.007	0.009	0.010	
		120 - 150	550	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.022	
		150 - 200	500	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.022	
		200 - 220	475	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.021	
N	Cast Aluminum	220 - 260	430	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.021	
		260 - 320	400	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.020	
	Wrought Aluminum	30	1500	0.008	0.010	0.013	0.015	0.017	0.020	0.022	0.024	
		180	1000	0.006	0.008	0.011	0.013	0.015	0.018	0.020	0.022	

Speed and Feed Adjustment

	3.5xD	6xD	9xD
See above chart		0.90	0.75

Recommended Speed and Feed Example

If the recommended speed and feed is 300 SFM and 0.010 IPR, then reduce to 225 SFM and 0.0075 IPR when using a 9xD tool

$300 \cdot 0.75 = 225 \text{ SFM}$	$0.010 \cdot 0.75 = 0.0075 \text{ IPR}$
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Calculations

Value	Formula
IPM	$\text{RPM} \cdot \text{IPR}$
SFM	$\text{RPM} \cdot 0.262 \cdot \text{DIA}$
RPM	$(\text{SFM} \cdot 3.82) / \text{DIA}$

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department.

Coolant Recommendations

