



Speeds & Feeds - Profiling Tools

Speeds & Feeds listed are based on a tool that has a reach 3X the min. bore diameter. These are considered safe starting parameters and will vary by application. To achieve optimal Speeds & Feeds please contact Micro 100 tech support at 800-421-8065.

Quick Change

QPR Radial Profiling
 QPF Axial Profiling
 QPA Angled Profiling
 QBT Top Rake Chipbreaker

Standard

PR Radial Profiling
 PF Axial Profiling
 PA Angled Profiling
 PBT Top Rake Chipbreaker

Material Guide		Hardness	SFM	FEED RATE IN INCHES PER REVOLUTION BY DIAMETER					
				.015 - .060	.061 - .130	.131 - .200	.201 - .280	.281 - .374	.375+
WROUGHT ALUMINUM ALLOY	2014, 5062, 6061, 7050, 7075, 7475	<75 HRB	600	0.0005	0.0009	0.0013	0.0025	0.003	0.004
CAST ALUMINUM ALLOY	319.0, 328.0, 355.0, 360.0, 380.0, 383.0, 390.0, 520.0, 535.0	<75 HRB	400						
COPPER ALLOY	Cu-ETP, CuBe2, CuZn30, CuZn36Pb3, CuZn10, CuSn5	<75 HRB	450	0.0005	0.0009	0.0013	0.002	0.0025	0.003
CARBON STEEL	10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36	<75 HRB 75 - 98 HRB 21 - 36 HRC	200	0.0002	0.0004	0.0005	0.0008	0.0011	0.0013
LOW ALLOY STEEL	13XX, 41XX, 43XX, 51XX, 86XX, 93XX	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC >50 HRC	150 150 100 60	0.0002	0.0004	0.0005	0.0008	0.0011	0.0013
TOOL STEEL	A2, H13, L6, P20, S7	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC >50 HRC	100 80 65 35						
SPECIALTY STEEL	300M, Invar 36, Kovar, Maraging 200, Maraging 250, Maraging 300, Maraging 350	<75 HRB 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC >50 HRC	75 65 50 40 35	0.0002	0.0004	0.0005	0.0008	0.0011	0.0013
AUSTENITIC STAINLESS STEEL	Nitronic 50, Nitronic 60, 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	140 110 50						
MARTENSITIC & FERRITIC STAINLESS STEEL	403, 410, 416, 420, 440, 430, 446	75 - 98 HRB 21 - 36 HRC	160 115	0.0001	0.0001	0.0003	0.0005	0.0007	0.0008
PH STAINLESS STEEL	15-5, 17-4, Carpenter 450, Carpenter 465	21 - 36 HRC 36 - 50 HRC	100 73						
GRAY CAST IRON	AE J431, ASTM A48	75 - 98 HRB 21 - 36 HRC	205 185	0.0002	0.0007	0.0009	0.0014	0.0018	0.0029
MALLEABLE CAST IRON	ASTM A47, ASTM A220, ASTM A602	75 - 98 HRB 21 - 36 HRC	173 168						
NODULAR (DUCTILE) CAST IRON	ASTM A536, ASTM 897	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	155 130 68	0.0002	0.0004	0.0006	0.0009	0.0012	0.0019
PURE NICKEL	Nickel 200, Nickel 201	<75 HRB 75 - 98 HRB	143 125						
NICKEL ALLOY	Hastelloy C-22, Inconel 625, Waspaloy, René 41, Inconel 718, Incoloy 20	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	55 38 35	0.0001	0.0002	0.0003	0.0005	0.0006	0.0008
PURE TITANIUM	Ti Grade 1, Ti Grade 2, Ti Grade 3, Ti Grade 4, Ti Grade 7, Ti Grade 12	<75 HRB 75 - 98 HRB 21 - 36 HRC	150 138 125						
TITANIUM ALLOY	Ti 3Al-2.5V, Ti 6Al-4V, Ti 10V-2Fe-3Al	21 - 28 HRC 29 - 36 HRC	100 75	0.0002	0.0003	0.0004	0.0006	0.0008	0.0009
COBALT ALLOY	ASTM F562, ASTM F90, ASTM F75, ASTM F799	75 - 98 HRB 21 - 36 HRC 36 - 50 HRC	105 85 33						

Calculations

Finishing depth of Cut - Not to exceed 30% of Radius

Example: Tool Radius is .006 (.006 x .30 = .0018)

Finishing Feed Rate - Multiply radius by 25%

Example: Tool Radius is .004 (.004 x .25 = .001)

RDOC= Radial Depth of Cut

Helpful Hints

- Program in G96 (Constant Surface Footage On) in conjunction with G50 (Maximum Spindle Speed) to achieve best part finish
- Calculate RPM by part diameter being cut
- When using coated tools, increase SFM 5% - 10%