



Speeds & Feeds - Miniature Drills | DR

All posted Speed & Feeds parameters are suggested starting values that may be increased given optimal setup conditions. If you require additional information, Micro100 has a team of technical experts available to assist you through even the most challenging applications. Please contact us at 800-421-8065 or Micro100tech@harveyperformance.com.

Helpful Hints

- Pecking cycles are recommended to avoid chip packing and breakage.
- For Non-Ferrous materials, the initial peck depth should be 3-5x Diameter with each subsequent peck at 2-3x Diameter.
- Tools with a diameter < .010" are extremely fragile and require special precautions to avoid immediate failure. To help determine a customized setup for your unique application, please contact our Technical Specialists.

800-421-8065
www.micro100.com

	Material	SFM	Hardness: ≤ 28 Rc (≤ 271 HBn)																	
			Chip Load IPR (Inches Per Revolution) By Drill Diameter																	
			0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250									
ALUMINUM ALLOY	Casting (2xx, 5xx, 7xx, 8xx)	450																		
	Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	600	.00045	.00093	.00141	.00186	.00234	.00279	.00375	.00561	.00750									
	Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	450																		
	Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	420																		
	Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	390																		
	Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	350	.00041	.00084	.00127	.00167	.00211	.00251	.00338	.00505	.00675									
	Wrought - 5%-8% Si (4xxx)	600																		
	Wrought - 8%-12% Si (4xxx)	480																		
MAGNESIUM ALLOYS		900	.00045	.00093	.00141	.00186	.00234	.00279	.00375	.00561	.00750									
ZINC ALLOYS		480																		
COPPER ALLOY	High Coppers - 90%+ (C1xxx)	170																		
	Brass (Copper Zinc alloys, C2xxx, C3xxx, C4xxx, C66400-C69800)	375																		
	Phosphor Bronzes (Copper Tin alloys, C5xxx)	170																		
	Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200)	375	.00036	.00074	.00113	.00149	.00187	.00223	.00300	.00449	.00600									
	Silicon Bronzes (Copper Silicon alloys, C64700-C66100)	375																		
	Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxx)	170																		
	Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700)	400																		
PLASTICS	Unfilled Plastics	500	.00060	.00124	.00188	.00248	.00312	.00372	.00500	.00748	.01000									
	Reinforced Plastics	350	.00048	.00099	.00150	.00250	.00298	.00400	.00598	.00800	.01200									

For Ferretic materials under 28 RC. Utilize SFM listed in the 29-37 RC section, Increase feed by 10-20% (.0024/.9 = .00266 new feed rate 10% increase)

	Material	SFM	Hardness: 29-37 Rc (279-344 HBn)																
			Chip Load IPR (Inches Per Revolution) By Drill Diameter																
			0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250								
CARBON STEELS	Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	240	.00039	.00081	.00123	.00163	.00205	.00244	.00328	.00491	.00656								
	1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx	150	.00036	.00074	.00113	.00149	.00187	.00223	.00300	.00449	.00600								
STAINLESS STEELS	203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	180	.00039	.00081	.00123	.00163	.00205	.00244	.00328	.00491	.00656								
	201, 202, 203, 205, 301, 302, 304, 304L, 308, 309, 310, 314, 316, 316L, 317, 321, 329, 330, 347, 348, 385, 403, 405, 409, 410, 413, 420, 429, 430, 434, 436, 442, 446, 501, 502	150	.00036	.00074	.00113	.00149	.00187	.00223	.00300	.00449	.00600								
	414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	125	.00023	.00047	.00071	.00093	.00117	.00140	.00188	.00281	.00375								
TOOL STEELS	A, L, O, P, W series	125	.00036	.00074	.00113	.00149	.00187	.00223	.00300	.00449	.00600								
	D, H, M, T, S series	90	.00023	.00047	.00071	.00093	.00117	.00140	.00188	.00281	.00375								
TITANIUM ALLOYS		100	.00023	.00047	.00071	.00093	.00117	.00140	.00188	.00281	.00375								
HIGH TEMP ALLOYS	Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	.00023	.00047	.00071	.00093	.00117	.00140	.00188	.00281	.00375								

	Material	SFM	Hardness: 38-45 Rc (353-421 HBn)																
			Chip Load IPR (Inches Per Revolution) By Drill Diameter																
			0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250								
CARBON STEELS	Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
STAINLESS STEELS	203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	201, 202, 203, 205, 301, 302, 304, 304L, 308, 309, 310, 314, 316, 316L, 317, 321, 329, 330, 347, 348, 385, 403, 405, 409, 410, 413, 420, 429, 430, 434, 436, 442, 446, 501, 502	100	.00025	.00052	.00079	.00104	.00131	.00156	.00210	.00314	.00420								
	414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	90	.00016	.00033	.00049	.00065	.00082	.00098	.00131	.00196	.00263								
TOOL STEELS	A, L, O, P, W series	100	.00025	.00052	.00079	.00104	.00131	.00156	.00210	.00314	.00420								
	D, H, M, T, S series	75	.00016	.00033	.00049	.00065	.00082	.00098	.00131	.00196	.00263								
TITANIUM ALLOYS		75	.00016	.00033	.00049	.00065	.00082	.00098	.00131	.00196	.00263								
HIGH TEMP ALLOYS	Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	50	.00016	.00033	.00049	.00065	.00082	.00098	.00131	.00196	.00263								