



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	.00045	.00093	.00141	.00186	.00234	.00279	.00375	.00561	.00750
	Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	600									
	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									
	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	.00036	.00074	.00113	.00149	.00187	.00223	.00300	.00449	.00600
	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									
	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									

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									
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									
	414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	125									
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									
TITANIUM ALLOYS		100	.00023	.00047	.00071	.00093	.00117	.00140	.00188	.00281	.00375
HIGH TEMP ALLOYS	Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70									

	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									
	414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	90									
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									
TITANIUM ALLOYS		75	.00016	.00033	.00049	.00065	.00082	.00098	.00131	.00196	.00263
HIGH TEMP ALLOYS	Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	50									