



Speeds & Feeds

Product Table: Miniature High Performance Drills - Deep Hole Coolant Through
Characteristics: 20x Length of Flute
Series: CXZxxxx-C3

Product Notes:

- For best results, the following steps are recommended:
- For hole depths of 12x Diameter or greater, drill a pilot hole up to 1.5x D in depth using a drill with 3x LOF or shorter.
 - Insert primary drill at low speed (~500 RPM) and start coolant flow.
 - Increase speed and feed to recommended parameters.
 - Under optimal conditions, it is possible to feed to full hole depth without pecking. In some cases, it is recommended to use 1-4 pecks to get to full hole depth.
 - After reaching desired hole depth, reduce speed (~500 RPM) before retracting the drill.

In order to achieve the best results, cutting oil is recommended. As an alternative, it is possible to use emulsions with EP additives. Use a fine mesh prefilter (=5µm) on spindle through coolant to prevent a blockage of the coolant hole. A minimum coolant pressure of 600-800 PSI is recommended.

MATERIAL	SFM	Hardness: 29-37 Rc (279-344 HBn)								
		Chip Load (IPR - Inches Per Revolution) By Cutter Diameter								
		0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.167	0.250
CARBON STEELS										
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	240	.00041	.00085	.00128	.00169	.00213	.00254	.00341	.00511	.00683
1030 - 1095, 1140 - 1151, 13xx, 15xx, 20xx, 30xx, 40xx & 4xLxx, 50xx & 5xLxx, 50xx & 50Lxx, 51xx & 51Lxx, 52xx & 52Lxx, 60xx, 80xx, 90xx	150	.00037	.00077	.00117	.00155	.00195	.00232	.00312	.00467	.00624
STAINLESS STEELS										
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	180	.00041	.00085	.00128	.00169	.00213	.00254	.00341	.00511	.00683
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	.00037	.00077	.00117	.00155	.00195	.00232	.00312	.00467	.00624
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	125	.00023	.00048	.00073	.00097	.00122	.00145	.00195	.00292	.00390
TOOL STEELS										
A, L, O, P, W series	125	.00037	.00077	.00117	.00155	.00195	.00232	.00312	.00467	.00624
D, H, M, T, S series	90	.00023	.00048	.00073	.00097	.00122	.00145	.00195	.00292	.00390
TITANIUM ALLOYS										
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	100	.00023	.00048	.00073	.00097	.00122	.00145	.00195	.00292	.00390
HIGH TEMP ALLOYS										
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	.00023	.00048	.00073	.00097	.00122	.00145	.00195	.00292	.00390

MATERIAL	SFM	Hardness: 38-45 Rc (353-421 HBn)								
		Chip Load (IPR - Inches Per Revolution) By Cutter Diameter								
		0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.167	0.250
CARBON STEELS										
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	240	-	-	-	-	-	-	-	-	-
1030 - 1095, 1140 - 1151, 13xx, 15xx, 20xx, 30xx, 40xx & 4xLxx, 50xx & 5xLxx, 50xx & 50Lxx, 51xx & 51Lxx, 52xx & 52Lxx, 60xx, 80xx, 90xx	150	-	-	-	-	-	-	-	-	-
STAINLESS STEELS										
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	180	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-
D, H, M, T, S series	90	.00019	.00039	.00059	.00077	.00097	.00116	.00156	.00233	.00312
TITANIUM ALLOYS										
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	100	.00030	.00062	.00094	.00124	.00156	.00186	.00250	.00373	.00499
HIGH TEMP ALLOYS										
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	.00019	.00039	.00059	.00077	.00097	.00116	.00156	.00233	.00312

Please note:

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions.

If you require additional information, Harvey Tool has a team of technical experts available to assist you through even the most challenging applications. Please contact us at **800-645-5609** or **Harveytech@harveyperformance.com**.

WARNING: Cutting tools may shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment in the vicinity of use.