HARVEY TOOL

Speeds & Feeds

Product Table: Thread Milling Cutters - Thread Relief Cutter
Characteristics: Short Reach
Series: 9429xx, 9460xx, 9525xx, 9553xx, 9754xx, 9796xx, 9857xx, 9888xx

MATERIAL	Hardness: ≤ 28 Rc (≤ 271 HBn)															
	SFM	Chip Load (IPT) By Cutter Diameter													Depth of Cut	
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.438	0.500	0.625	0.750	1.000	Radial	Axial
ALUMINUM ALLOYS																
Casting (2xx, 5xx, 7xx, 8xx)	750	.00036	.00045	.00054	.00072	.00113	.00151	.00189	.00227	.00265	.00303	.00378	.00454	.00605	2 Passes	Full Form
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000															
Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	750	.00032	.00041	.00048	.00065	.00102	.00136	.00170	.00204	.00238	.00272	.00340	.00408	.00545	2 Passes	Full Form
Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700															
Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	650															
Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475															
Wrought - 5%-8% Si (4xxx)	1000															
Wrought - 8%-12% Si (4xxx)	800															
MAGNESIUM ALLOYS	1500	.00036	.00045	.00054	.00072	.00113	.00151	.00189	.00227	.00265	.00303	.00378	.00454	.00605	2 Passes	Full Form
ZINC ALLOYS	800															
COPPER ALLOYS																
High Coppers - 90%+ (C1xxxx)	225	.00029	.00036	.00043	.00058	.00091	.00121	.00151	.00182	.00212	.00242	.00303	.00363	.00484	2 Passes	Full Form
Brass (Copper Zinc alloys, C2xxxx, C3xxxx, C4xxxx, C66400-C69800)	500															
Phosphor Bronzes (Copper Tin alloys, C5xxxx)	225															
Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200)	500															
Silicon Bronzes (Copper Silicon alloys, C64700-C66100)	500															
Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxxx)	225															
Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700)	550															

MATERIAL	Hardness: 29-37 Rc (279-344 HBn)															
	SFM	Chip Load (IPT) By Cutter Diameter													Depth of Cut	
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.438	0.500	0.625	0.750	1.000	Radial	Axial
CARBON STEELS																
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	600	.00013	.00016	.00020	.00026	.00041	.00055	.00069	.00083	.00097	.00110	.00138	.00166	.00221	3 Passes	Full Form
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx	200	.00012	.00015	.00018	.00024	.00038	.00050	.00063	.00076	.00088	.00101	.00126	.00151	.00202	3 Passes	Full Form
STAINLESS STEELS																
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	.00013	.00016	.00020	.00026	.00041	.00055	.00069	.00083	.00097	.00110	.00138	.00166	.00221	3 Passes	Full Form
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	200	.00012	.00015	.00018	.00024	.00038	.00050	.00063	.00076	.00088	.00101	.00126	.00151	.00202	3 Passes	Full Form
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	.00007	.00009	.00011	.00015	.00024	.00032	.00039	.00047	.00055	.00063	.00079	.00095	.00126	3 Passes	Full Form
TOOL STEELS																
A, L, O, P, W series	200	.00012	.00015	.00018	.00024	.00038	.00050	.00063	.00076	.00088	.00101	.00126	.00151	.00202	3 Passes	Full Form
D, H, M, T, S series	150	.00007	.00009	.00011	.00015	.00024	.00032	.00039	.00047	.00055	.00063	.00079	.00095	.00126	3 Passes	Full Form
TITANIUM ALLOYS	150	.00007	.00009	.00011	.00015	.00024	.00032	.00039	.00047	.00055	.00063	.00079	.00095	.00126	3 Passes	Full Form
HIGH TEMP ALLOYS																
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	.00007	.00009	.00011	.00015	.00024	.00032	.00039	.00047	.00055	.00063	.00079	.00095	.00126	3 Passes	Full Form

Hardness: 38-45 Rc (353-421 HBn)																
SFM	Chip Load (IPT) By Cutter Diameter														Depth of Cut	
	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.438	0.500	0.625	0.750	1.000	Radial	Axial
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	.00011	.00013	.00016	.00021	.00033	.00045	.00056	.00067	.00078	.00089	.00111	.00134	.00178	3 Passes	Full Form
90	.00007	.00008	.00010	.00013	.00021	.00028	.00035	.00042	.00049	.00056	.00070	.00084	.00111	3 Passes	Full Form
100	.00011	.00013	.00016	.00021	.00033	.00045	.00056	.00067	.00078	.00089	.00111	.00134	.00178	3 Passes	Full Form
90	.00007	.00008	.00010	.00013	.00021	.00028	.00035	.00042	.00049	.00056	.00070	.00084	.00111	3 Passes	Full Form
75	.00007	.00008	.00010	.00013	.00021	.00028	.00035	.00042	.00049	.00056	.00070	.00084	.00111	3 Passes	Full Form
50	.00007	.00008	.00010	.00013	.00021	.00028	.00035	.00042	.00049	.00056	.00070	.00084	.00111	3 Passes	Full Form

Product notes:

Typical thread reliefs are done before threading to avoid any damage to the threads. Depth of Cut is shown as number of Passes with each pass resulting in a descending stepover.

Chip Loads within table pertain to machining on one side (from tool centerline) of the cutter head. This chart represents a linear feed rate chip load. Since this tool is used in a helical interpolation environment, adjusting the feed rate for a circular motion is needed to avoid deflection and tool breakage. To calculate use the formula:

Adj Internal Circular Feed = [(Hole Dia - Cutter Dia) / Hole Dia] x Linear Feed

General notes:

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. Chip loads reflect uncoated cutters and may be increased up to 15% if coated. For ferrous materials with hardness ≤ 28 Rc, chip loads can be increased 10%-20%.

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.