

MATERIAL		Hardness: ≤ 28 Rc (≤ 271 HBn)															
		SFM	Chip Load (IPT) By Cutter Dia			Depth of Cut		Chip Load (IPT) By Cutter Dia					Depth of Cut				
			.015	.031	.047	Radial	Axial	.062	.078	.093	.125	.187	.250	Radial	Axial		
<b>ALUMINUM ALLOYS</b>																	
Casting (2xx, 5xx, 7xx, 8xx)		750															
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)		1000	Finishing	.00005	.00011	.00016	.03 x Dia	10 x Dia	.00019	.00024	.00028	.00038	.00056	.00075	.06 x Dia	10 x Dia	
Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)		750															
Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)		700															
Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)		650	Finishing	.00005	.00010	.00015	.03 x Dia	10 x Dia	.00017	.00021	.00025	.00034	.00051	.00068	.06 x Dia	10 x Dia	
Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)		475															
Wrought - 5%-8% Si (4xxx)		1000															
Wrought - 8%-12% Si (4xxx)		800															
<b>MAGNESIUM ALLOYS</b>		1500	Finishing	.00005	.00011	.00016	.03 x Dia	10 x Dia	.00019	.00024	.00028	.00038	.00056	.00075	.06 x Dia	10 x Dia	
<b>ZINC ALLOYS</b>		800															
<b>COPPER ALLOYS</b>																	
High Coppers - 90%+ (C1xxxx)		225															
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	Finishing	.00004	.00009	.00013	.03 x Dia	10 x Dia	.00015	.00019	.00022	.00030	.00045	.00060	.06 x Dia	10 x Dia	
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															



Speeds & Feeds

**Product Table:** Miniature End Mills - Tapered - Square  
**Characteristics:** 5°-6° Angle per Side, 10x Length of Cut  
**Series:** 271xx, 9933xx

**Product Notes:**  
 Use the end diameter of the tool to select the correct Chip Load (IPT)

**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 10%-20% 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.

MATERIAL		Hardness: 29-37 Rc (279-344 HBn)															
		SFM	Chip Load (IPT) By Cutter Dia			Depth of Cut		Chip Load (IPT) By Cutter Dia					Depth of Cut				
			.015	.031	.047	Radial	Axial	.062	.078	.093	.125	.187	.250	Radial	Axial		
<b>CARBON STEELS</b>																	
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx		600	Finishing	.00002	.00003	.00005	.03 x Dia	10 x Dia	.00006	.00007	.00009	.00012	.00018	.00024	.06 x Dia	10 x Dia	
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx		200	Finishing	.00001	.00003	.00005	.03 x Dia	10 x Dia	.00005	.00007	.00008	.00011	.00016	.00022	.06 x Dia	10 x Dia	
<b>STAINLESS STEELS</b>																	
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe		450	Finishing	.00002	.00003	.00005	.03 x Dia	10 x Dia	.00006	.00007	.00009	.00012	.00018	.00024	.06 x Dia	10 x Dia	
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	Finishing	.00001	.00003	.00005	.03 x Dia	10 x Dia	.00005	.00007	.00008	.00011	.00016	.00022	.06 x Dia	10 x Dia	
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7		150	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	
<b>TOOL STEELS</b>																	
A, L, O, P, W series		200	Finishing	.00001	.00003	.00005	.03 x Dia	10 x Dia	.00005	.00007	.00008	.00011	.00016	.00022	.06 x Dia	10 x Dia	
D, H, M, T, S series		150	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	
<b>TITANIUM ALLOYS</b>		150	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	
<b>HIGH TEMP ALLOYS</b>																	
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy		70	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	

MATERIAL		Hardness: 38-45 Rc (353-421 HBn)															
		SFM	Chip Load (IPT) By Cutter Dia			Depth of Cut		Chip Load (IPT) By Cutter Dia					Depth of Cut				
			.015	.031	.047	Radial	Axial	.062	.078	.093	.125	.187	.250	Radial	Axial		
<b>CARBON STEELS</b>																	
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx		600	Finishing	.00002	.00003	.00005	.03 x Dia	10 x Dia	.00006	.00007	.00009	.00012	.00018	.00024	.06 x Dia	10 x Dia	
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx		200	Finishing	.00001	.00003	.00005	.03 x Dia	10 x Dia	.00005	.00007	.00008	.00011	.00016	.00022	.06 x Dia	10 x Dia	
<b>STAINLESS STEELS</b>																	
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe		450	Finishing	.00002	.00003	.00005	.03 x Dia	10 x Dia	.00006	.00007	.00009	.00012	.00018	.00024	.06 x Dia	10 x Dia	
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	Finishing	.00001	.00003	.00005	.03 x Dia	10 x Dia	.00005	.00007	.00008	.00011	.00016	.00022	.06 x Dia	10 x Dia	
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7		150	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	
<b>TOOL STEELS</b>																	
A, L, O, P, W series		200	Finishing	.00001	.00003	.00005	.03 x Dia	10 x Dia	.00005	.00007	.00008	.00011	.00016	.00022	.06 x Dia	10 x Dia	
D, H, M, T, S series		150	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	
<b>TITANIUM ALLOYS</b>		150	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	
<b>HIGH TEMP ALLOYS</b>																	
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy		70	Finishing	.00001	.00002	.00003	.03 x Dia	10 x Dia	.00003	.00004	.00005	.00007	.00010	.00013	.06 x Dia	10 x Dia	