



Speeds & Feeds

Product Table: Miniature End Mills - Square - Long Reach, Stub Flute
Characteristics: 12x Reach Multiple, 4 Flutes
Series: 8017xx

Please note:

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: ≤ 28 Rc (≤ 271 HBn)																
		SFM	Chip Load (IPT) by Dia			Depth of Cut		Chip Load (IPT) by Cutter Dia						Depth of Cut				
			0.015	0.031	0.047	Radial	Axial	0.062	0.078	0.093	0.125	0.187	0.250	0.375	0.500	Radial	Axial	
ALUMINUM ALLOYS																		
	Casting (2xx, 5xx, 7xx, 8xx)	750	Slotting	.00009	.00019	.00029	1 x Dia	.06 x Dia	.00033	.00041	.00049	.00066	.00099	.00132	.00198	.00264	1 x Dia	.15 x Dia
	Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000	Roughing	.00011	.00024	.00036	.23 x Dia	.25 x Dia	.00041	.00051	.00061	.00083	.00123	.00165	.00248	.00330	.45 x Dia	.25 x Dia
			Finishing	.00022	.00045	.00068	.05 x Dia	1.5 x Dia	.00078	.00098	.00116	.00156	.00234	.00313	.00469	.00626	.10 x Dia	1.5 x Dia
	Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	750	Slotting	.00008	.00017	.00026	1 x Dia	.06 x Dia	.00029	.00037	.00044	.00059	.00089	.00119	.00178	.00238	1 x Dia	.15 x Dia
	Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700	Roughing	.00010	.00021	.00032	.23 x Dia	.25 x Dia	.00037	.00046	.00055	.00074	.00111	.00149	.00223	.00297	.45 x Dia	.25 x Dia
	Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	650	Roughing	.00010	.00021	.00032	.23 x Dia	.25 x Dia	.00037	.00046	.00055	.00074	.00111	.00149	.00223	.00297	.45 x Dia	.25 x Dia
	Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475	Roughing	.00010	.00021	.00032	.23 x Dia	.25 x Dia	.00037	.00046	.00055	.00074	.00111	.00149	.00223	.00297	.45 x Dia	.25 x Dia
	Wrought - 5%-8% Si (4xxx)	1000	Finishing	.00019	.00040	.00061	.05 x Dia	1.5 x Dia	.00070	.00088	.00105	.00141	.00211	.00282	.00422	.00563	.10 x Dia	1.5 x Dia
	Wrought - 8%-12% Si (4xxx)	800	Finishing	.00019	.00040	.00061	.05 x Dia	1.5 x Dia	.00070	.00088	.00105	.00141	.00211	.00282	.00422	.00563	.10 x Dia	1.5 x Dia
MAGNESIUM ALLOYS		1500	Slotting	.00009	.00019	.00029	1 x Dia	.06 x Dia	.00033	.00041	.00049	.00066	.00099	.00132	.00198	.00264	1 x Dia	.15 x Dia
			Roughing	.00011	.00024	.00036	.23 x Dia	.25 x Dia	.00041	.00051	.00061	.00083	.00123	.00165	.00248	.00330	.45 x Dia	.25 x Dia
			Finishing	.00022	.00045	.00068	.05 x Dia	1.5 x Dia	.00078	.00098	.00116	.00156	.00234	.00313	.00469	.00626	.10 x Dia	1.5 x Dia
ZINC ALLOYS		800	Finishing	.00022	.00045	.00068	.05 x Dia	1.5 x Dia	.00078	.00098	.00116	.00156	.00234	.00313	.00469	.00626	.10 x Dia	1.5 x Dia
COPPER ALLOYS																		
	High Coppers - 90%+ (C1xxx)	225	Slotting	.00007	.00015	.00023	1 x Dia	.06 x Dia	.00026	.00033	.00039	.00053	.00079	.00106	.00158	.00211	1 x Dia	.15 x Dia
	Brass (Copper Zinc alloys, C2xxx, C3xxx, C4xxx, C6400-C69800)	500	Slotting	.00007	.00015	.00023	1 x Dia	.06 x Dia	.00026	.00033	.00039	.00053	.00079	.00106	.00158	.00211	1 x Dia	.15 x Dia
	Phosphor Bronzes (Copper Tin alloys, C5xxx)	225	Slotting	.00007	.00015	.00023	1 x Dia	.06 x Dia	.00026	.00033	.00039	.00053	.00079	.00106	.00158	.00211	1 x Dia	.15 x Dia
	Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200)	500	Slotting	.00009	.00019	.00029	1 x Dia	.06 x Dia	.00033	.00041	.00049	.00066	.00099	.00132	.00198	.00264	1 x Dia	.15 x Dia
	Silicon Bronzes (Copper Silicon alloys, C64700-C68100)	500	Roughing	.00009	.00019	.00029	.23 x Dia	.25 x Dia	.00033	.00041	.00049	.00066	.00099	.00132	.00198	.00264	.45 x Dia	.25 x Dia
	Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxx)	225	Slotting	.00007	.00015	.00023	1 x Dia	.06 x Dia	.00026	.00033	.00039	.00053	.00079	.00106	.00158	.00211	1 x Dia	.15 x Dia
	Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700)	550	Finishing	.00017	.00036	.00054	.05 x Dia	1.5 x Dia	.00062	.00078	.00093	.00125	.00187	.00250	.00375	.00501	.10 x Dia	1.5 x Dia

MATERIAL		Hardness: 29-37 Rc (279-344 HBn)																
		SFM	Chip Load (IPT) by Dia			Depth of Cut		Chip Load (IPT) by Cutter Dia						Depth of Cut				
			0.015	0.031	0.047	Radial	Axial	0.062	0.078	0.093	0.125	0.187	0.250	0.375	0.500	Radial	Axial	
CARBON STEELS																		
	Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	600	Slotting	.00003	.00006	.00010	1 x Dia	.06 x Dia	.00011	.00014	.00017	.00023	.00034	.00045	.00068	.00091	1 x Dia	.15 x Dia
			Roughing	.00004	.00007	.00011	.23 x Dia	.25 x Dia	.00013	.00016	.00019	.00026	.00038	.00051	.00077	.00102	.45 x Dia	.25 x Dia
			Finishing	.00007	.00014	.00021	.05 x Dia	1.5 x Dia	.00024	.00031	.00036	.00049	.00073	.00098	.00147	.00196	.10 x Dia	1.5 x Dia
	1030 - 1095, 1140 - 1151, 13xx, 15xx, 20xx, 30xx, 40xx & 44Lxx, 50xx & 54Lxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 60xx, 80xx, 90xx	200	Slotting	.00003	.00006	.00009	1 x Dia	.06 x Dia	.00010	.00013	.00015	.00021	.00031	.00041	.00062	.00083	1 x Dia	.15 x Dia
			Roughing	.00003	.00007	.00010	.23 x Dia	.25 x Dia	.00012	.00015	.00017	.00023	.00035	.00047	.00070	.00093	.45 x Dia	.25 x Dia
			Finishing	.00006	.00013	.00019	.05 x Dia	1.5 x Dia	.00022	.00028	.00033	.00045	.00067	.00089	.00134	.00179	.10 x Dia	1.5 x Dia
STAINLESS STEELS																		
	203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	Slotting	.00003	.00006	.00010	1 x Dia	.06 x Dia	.00011	.00014	.00017	.00023	.00034	.00045	.00068	.00091	1 x Dia	.15 x Dia
			Roughing	.00004	.00007	.00011	.23 x Dia	.25 x Dia	.00013	.00016	.00019	.00026	.00038	.00051	.00077	.00102	.45 x Dia	.25 x Dia
			Finishing	.00007	.00014	.00021	.05 x Dia	1.5 x Dia	.00024	.00031	.00036	.00049	.00073	.00098	.00147	.00196	.10 x Dia	1.5 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	Slotting	.00003	.00006	.00009	1 x Dia	.06 x Dia	.00010	.00013	.00015	.00021	.00031	.00041	.00062	.00083	1 x Dia	.15 x Dia
			Roughing	.00003	.00007	.00010	.23 x Dia	.25 x Dia	.00012	.00015	.00017	.00023	.00035	.00047	.00070	.00093	.45 x Dia	.25 x Dia
			Finishing	.00006	.00013	.00019	.05 x Dia	1.5 x Dia	.00022	.00028	.00033	.00045	.00067	.00089	.00134	.00179	.10 x Dia	1.5 x Dia
	414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Slotting	.00002	.00004	.00006	1 x Dia	.06 x Dia	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	1 x Dia	.15 x Dia
			Roughing	.00002	.00004	.00006	.23 x Dia	.25 x Dia	.00007	.00009	.00011	.00015	.00022	.00029	.00044	.00058	.45 x Dia	.25 x Dia
			Finishing	.00004	.00008	.00012	.05 x Dia	1.5 x Dia	.00014	.00017	.00021	.00028	.00042	.00056	.00084	.00112	.10 x Dia	1.5 x Dia
TOOL STEELS																		
	A, L, O, P, W series	200	Slotting	.00003	.00006	.00009	1 x Dia	.06 x Dia	.00010	.00013	.00015	.00021	.00031	.00041	.00062	.00083	1 x Dia	.15 x Dia
			Roughing	.00003	.00007	.00010	.23 x Dia	.25 x Dia	.00012	.00015	.00017	.00023	.00035	.00047	.00070	.00093	.45 x Dia	.25 x Dia
			Finishing	.00006	.00013	.00019	.05 x Dia	1.5 x Dia	.00022	.00028	.00033	.00045	.00067	.00089	.00134	.00179	.10 x Dia	1.5 x Dia
	D, H, M, T, S series	150	Slotting	.00002	.00004	.00006	1 x Dia	.06 x Dia	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	1 x Dia	.15 x Dia
			Roughing	.00002	.00004	.00006	.23 x Dia	.25 x Dia	.00007	.00009	.00011	.00015	.00022	.00029	.00044	.00058	.45 x Dia	.25 x Dia
			Finishing	.00004	.00008	.00012	.05 x Dia	1.5 x Dia	.00014	.00017	.00021	.00028	.00042	.00056	.00084	.00112	.10 x Dia	1.5 x Dia
TITANIUM ALLOYS		150	Slotting	.00002	.00004	.00006	1 x Dia	.06 x Dia	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	1 x Dia	.15 x Dia
			Roughing	.00002	.00004	.00006	.23 x Dia	.25 x Dia	.00007	.00009	.00011	.00015	.00022	.00029	.00044	.00058	.45 x Dia	.25 x Dia
			Finishing	.00004	.00008	.00012	.05 x Dia	1.5 x Dia	.00014	.00017	.00021	.00028	.00042	.00056	.00084	.00112	.10 x Dia	1.5 x Dia
HIGH TEMP ALLOYS																		
	Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	Slotting	.00002	.00004	.00006	1 x Dia	.06 x Dia	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	1 x Dia	.15 x Dia
			Roughing	.00002	.00004	.00006	.23 x Dia	.25 x Dia	.00007	.00009	.00011	.00015	.00022	.00029	.00044	.00058	.45 x Dia	.25 x Dia
			Finishing	.00004	.00008	.00012	.05 x Dia	1.5 x Dia	.00014	.00017	.00021	.00028	.00042	.00056	.00084	.00112	.10 x Dia	1.5 x Dia

MATERIAL		Hardness: 38-45 Rc (353-421 HBn)																
		SFM	Chip Load (IPT) by Dia			Depth of Cut		Chip Load (IPT) by Cutter Dia						Depth of Cut				
			0.015	0.031	0.047	Radial	Axial	0.062	0.078	0.093	0.125	0.187	0.250	0.375	0.500	Radial	Axial	
CARBON STEELS																		
	Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx																	