HARVEY TOOL

Speeds & Feeds

Product Table: Miniature End Mills - Chip Breaker - Corner Radius - Stub & Standard
Characteristics: 1.5x Length of Cut, 4 Flutes
Series: 6770xx, 6771,xx, 6766xx, 6765xx, 6764xx

Hardness: ≤ 28 Rc (≤ 271 HBn)

MATERIAL	SFM		Chip Load (IPT) by Cutter Diameter											Depth of Cut	
			0.062	0.078	0.093	0.125	0.187	0.250	0.375	0.500	0.625	0.750	1.000	Radial	Axial
ALUMINUM ALLOYS Casting (2xx, 5xx, 7xx, 8xx)	750	Slotting	.00065	.00082	.00098	.00132	.00197	.00264	.00396	.00528	.00660	.00792	.01056	1 x Dia	.50 x Dia
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000	Roughing	.00085	.00107	.00128	.00172	.00257	.00344	.00516	.00688	.00859	.01031	.01375	.60 x Dia	1 x Dia
Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	750	Slotting	.00059	.00074	.00088	.00119	.00178	.00238	.00356	.00475	.00594	.00713	.00950	1 x Dia	.50 x Dia
Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700														
Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	650	Roughing	.00077	.00097	.00115	.00155	.00231	.00309	.00464	.00619	.00773	.00928	.01238	.60 x Dia	1 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														
MAGNESIUM ALLOYS	1500	Slotting	.00065	.00082	.00098	.00132	.00197	.00264	.00396	.00528	.00660	.00792	.01056	1 x Dia	.50 x Dia
ZINC ALLOYS	800	Roughing	.00085	.00107	.00128	.00172	.00257	.00344	.00516	.00688	.00859	.01031	.01375	.60 x Dia	1 x Dia
COPPER ALLOYS High Coppers - 90%+ (C1xxxx)	225	Slotting	.00052	.00066	.00079	.00106	.00158	.00211	.00317	.00422	.00528	.00634	.00845	1 x Dia	.50 x Dia
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	Roughing	.00068	.00086	.00102	.00138	.00206	.00275	.00413	.00550	.00688	.00825	.01100	.60 x Dia	1 x Dia
Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxxx)	225														
Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700)	550														

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.

Hardness: 29-37 Rc (279-344 HBn)

MATERIAL	SFM		Chip Load (IPT) by Cutter Diameter											Depth of Cut	
			0.062	0.078	0.093	0.125	0.187	0.250	0.375	0.500	0.625	0.750	1.000	Radial	Axial
CARBON STEELS	600	Slotting	.00022	.00028	.00034	.00045	.00068	.00091	.00136	.00181	.00227	.00272	.00363	1 x Dia	.50 x Dia
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx		Roughing	.00026	.00033	.00040	.00053	.00080	.00106	.00159	.00213	.00266	.00319	.00425	.60 x Dia	1 x Dia
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx	200	Slotting	.00021	.00026	.00031	.00041	.00062	.00083	.00124	.00166	.00207	.00249	.00332	1 x Dia	.50 x Dia
		Roughing	.00024	.00030	.00036	.00049	.00073	.00097	.00146	.00194	.00243	.00292	.00389	.60 x Dia	1 x Dia
STAINLESS STEELS	450	Slotting	.00022	.00028	.00034	.00045	.00068	.00091	.00136	.00181	.00227	.00272	.00363	1 x Dia	.50 x Dia
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe		Roughing	.00026	.00033	.00040	.00053	.00080	.00106	.00159	.00213	.00266	.00319	.00425	.60 x Dia	1 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	.00021	.00026	.00031	.00041	.00062	.00083	.00124	.00166	.00207	.00249	.00332	1 x Dia	.50 x Dia
		Roughing	.00024	.00030	.00036	.00049	.00073	.00097	.00146	.00194	.00243	.00292	.00389	.60 x Dia	1 x Dia
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Slotting	.00013	.00016	.00019	.00026	.00039	.00052	.00078	.00104	.00130	.00156	.00207	1 x Dia	.50 x Dia
		Roughing	.00015	.00019	.00023	.00030	.00045	.00061	.00091	.00122	.00152	.00182	.00243	.60 x Dia	1 x Dia
TOOL STEELS	200	Slotting	.00021	.00026	.00031	.00041	.00062	.00083	.00124	.00166	.00207	.00249	.00332	1 x Dia	.50 x Dia
A, L, O, P, W series		Roughing	.00024	.00030	.00036	.00049	.00073	.00097	.00146	.00194	.00243	.00292	.00389	.60 x Dia	1 x Dia
D, H, M, T, S series	150	Slotting	.00013	.00016	.00019	.00026	.00039	.00052	.00078	.00104	.00130	.00156	.00207	1 x Dia	.50 x Dia
		Roughing	.00015	.00019	.00023	.00030	.00045	.00061	.00091	.00122	.00152	.00182	.00243	.60 x Dia	1 x Dia
TITANIUM ALLOYS	150	Slotting	.00013	.00016	.00019	.00026	.00039	.00052	.00078	.00104	.00130	.00156	.00207	1 x Dia	.50 x Dia
		Roughing	.00015	.00019	.00023	.00030	.00045	.00061	.00091	.00122	.00152	.00182	.00243	.60 x Dia	1 x Dia
HIGH TEMP ALLOYS	70	Slotting	.00013	.00016	.00019	.00026	.00039	.00052	.00078	.00104	.00130	.00156	.00207	1 x Dia	.50 x Dia
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy		Roughing	.00015	.00019	.00023	.00030	.00045	.00061	.00091	.00122	.00152	.00182	.00243	.60 x Dia	1 x Dia

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	0.375	0.500	0.625	0.750	1.000	Radial	Axial
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	Slotting	.00010	.00013	.00015	.00021	.00031	.00041	.00062	.00083	.00104	.00124	.00166	1 x Dia	.50 x Dia
	Roughing	.00012	.00015	.00018	.00024	.00036	.00049	.00073	.00097	.00122	.00146	.00194	.60 x Dia	1 x Dia
90	Slotting	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	.00065	.00078	.00104	1 x Dia	.50 x Dia
	Roughing	.00008	.00009	.00011	.00015	.00023	.00030	.00046	.00061	.00076	.00091	.00122	.60 x Dia	1 x Dia
100	Slotting	.00010	.00013	.00015	.00021	.00031	.00041	.00062	.00083	.00104	.00124	.00166	1 x Dia	.50 x Dia
	Roughing	.00012	.00015	.00018	.00024	.00036	.00049	.00073	.00097	.00122	.00146	.00194	.60 x Dia	1 x Dia
90	Slotting	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	.00065	.00078	.00104	1 x Dia	.50 x Dia
	Roughing	.00008	.00009	.00011	.00015	.00023	.00030	.00046	.00061	.00076	.00091	.00122	.60 x Dia	1 x Dia
75	Slotting	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	.00065	.00078	.00104	1 x Dia	.50 x Dia
	Roughing	.00008	.00009	.00011	.00015	.00023	.00030	.00046	.00061	.00076	.00091	.00122	.60 x Dia	1 x Dia
50	Slotting	.00006	.00008	.00010	.00013	.00019	.00026	.00039	.00052	.00065	.00078	.00104	1 x Dia	.50 x Dia
	Roughing	.00008	.00009	.00011	.00015	.00023	.00030	.00046	.00061	.00076	.00091	.00122	.60 x Dia	1 x Dia