



Product Table: Chamfer Cutters - Pointed & Flat End - Helical Flutes
Characteristics: 3 Flutes
Series: 8313xx, 8446xx, 8634xx, 8972xx, 9165xx

Product notes:

Due to a varying diameter, an Effective Cutter Diameter is needed for Chip Load selection and RPM calculation:
 Effective Cutter Diameter = (Major Diameter + Minor Diameter)/2.
 Or consider the actual diameter along the angle that is engaged with the workpiece.

Depth of Cut is shown as number of Passes with each pass resulting in a descending stepover

Chip Loads are given 3 ways:

- Traditional Edge Break of .010"-.015"
- Full Chamfer engagement for cutters with angles GREATER than 25° per side (50° included)
- Full Chamfer engagement for cutters with angles LESS than 25° per side (50° included)

Chip Loads within table pertain to machining on one side of workpiece.

For machining on two sides, reduce Chip Loads to 60%-80% depending on contact length and finish
 For vertical plunging, reduce Chip Loads to 40%-50% depending on finish

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

MATERIAL	SFM	Hardness: ≤ 28 Rc (≤ 271 HBn)										Depth of Cut Passes			
		Chip Load (IPT) By Effective Cutter Diameter													
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	0.625		0.750	1.000	
ALUMINUM ALLOYS	750	Edge Break	.00096	.00121	.00144	.00194	.00290	.00388	.00484	.00582	.00776	.00970	.01164	.01553	1
		Full Chamfer (≥ 25°)	.00080	.00101	.00120	.00162	.00242	.00323	.00404	.00485	.00647	.00809	.00970	.01294	2
Castings (2xx, 5xx, 7xx, 8xx)															
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000	Full Chamfer (< 25°)	.00060	.00076	.00090	.00121	.00181	.00243	.00303	.00364	.00485	.00606	.00728	.00970	3
		Edge Break	.00087	.00109	.00130	.00175	.00261	.00349	.00436	.00524	.00699	.00873	.01048	.01397	1
Castings - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)															
Castings - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700	Edge Break	.00087	.00109	.00130	.00175	.00261	.00349	.00436	.00524	.00699	.00873	.01048	.01397	1
		Full Chamfer (≥ 25°)	.00072	.00091	.00108	.00146	.00218	.00291	.00363	.00437	.00582	.00728	.00873	.01164	2
Castings - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)															
Castings - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475	Full Chamfer (≥ 25°)	.00072	.00091	.00108	.00146	.00218	.00291	.00363	.00437	.00582	.00728	.00873	.01164	2
		Full Chamfer (< 25°)	.00054	.00068	.00081	.00109	.00163	.00218	.00272	.00327	.00437	.00546	.00655	.00873	3
Wrought - 5%-8% Si (4xxx)															
Wrought - 8%-12% Si (4xxx)	800	Edge Break	.00096	.00121	.00144	.00194	.00290	.00388	.00484	.00582	.00776	.00970	.01164	.01553	1
		Full Chamfer (≥ 25°)	.00080	.00101	.00120	.00162	.00242	.00323	.00404	.00485	.00647	.00809	.00970	.01294	2
MAGNESIUM ALLOYS	1500	Edge Break	.00096	.00121	.00144	.00194	.00290	.00388	.00484	.00582	.00776	.00970	.01164	.01553	1
		Full Chamfer (≥ 25°)	.00080	.00101	.00120	.00162	.00242	.00323	.00404	.00485	.00647	.00809	.00970	.01294	2
ZINC ALLOYS	800	Edge Break	.00060	.00076	.00090	.00121	.00181	.00243	.00303	.00364	.00485	.00606	.00728	.00970	3
		Full Chamfer (< 25°)	.00060	.00076	.00090	.00121	.00181	.00243	.00303	.00364	.00485	.00606	.00728	.00970	3
COPPER ALLOYS High Copper (30% - C1xxx)	225	Edge Break	.00077	.00097	.00116	.00155	.00232	.00311	.00388	.00466	.00621	.00776	.00932	.01242	1
		Full Chamfer (≥ 25°)	.00064	.00081	.00096	.00129	.00194	.00259	.00323	.00388	.00518	.00647	.00776	.01035	2
Brass (Copper Zinc alloys, C2xxx, C3xxx, C4xxx, C6400-C69800)															
Phosphor Bronzes (Copper Tin alloys, C5xxx)															
Aluminum Bronzes (Copper Aluminum alloys, C69800-C64200)															
Silicon Bronzes (Copper Silicon alloys, C64700-C66100)															
Copper Nicksels, Nickel Silvers (Copper Nickel alloys, C7xxx)															
Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700)															

MATERIAL	SFM	Hardness: 29-37 Rc (279-344 HBn)										Depth of Cut Passes			
		Chip Load (IPT) By Effective Cutter Diameter													
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	0.625		0.750	1.000	
CARBON STEELS	600	Edge Break	.00036	.00046	.00055	.00073	.00110	.00147	.00183	.00220	.00293	.00367	.00440	.00587	1
		Full Chamfer (≥ 25°)	.00030	.00038	.00045	.00061	.00091	.00122	.00153	.00183	.00245	.00306	.00367	.00489	3
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx															
1030 - 1095, 1140 - 1151, 13xx, 15xx, 20xx, 30xx, 40xx & 4xLxx, 50xx & 5xLxx, 50xx & 50Lxx, 51xx & 51Lxx, 52xx & 52Lxx, 60xx, 80xx, 90xx	200	Full Chamfer (< 25°)	.00023	.00029	.00034	.00046	.00069	.00092	.00114	.00138	.00183	.00229	.00275	.00367	4
		Edge Break	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00201	.00268	.00335	.00402	.00537	1
STAINLESS STEELS	450	Full Chamfer (≥ 25°)	.00028	.00035	.00042	.00056	.00084	.00112	.00140	.00168	.00224	.00279	.00335	.00447	3
		Full Chamfer (< 25°)	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	4
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe															
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	Edge Break	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00201	.00268	.00335	.00402	.00537	1
		Full Chamfer (≥ 25°)	.00028	.00035	.00042	.00056	.00084	.00112	.00140	.00168	.00224	.00279	.00335	.00447	3
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Full Chamfer (< 25°)	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	4
		Edge Break	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	1
TOOL STEELS	200	Full Chamfer (≥ 25°)	.00017	.00022	.00026	.00035	.00052	.00070	.00087	.00105	.00140	.00175	.00210	.00279	3
		Full Chamfer (< 25°)	.00013	.00016	.00019	.00026	.00039	.00052	.00065	.00079	.00105	.00131	.00157	.00210	4
A, L, O, P, W series															
D, H, M, T, S series	150	Edge Break	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00201	.00268	.00335	.00402	.00537	1
		Full Chamfer (≥ 25°)	.00028	.00035	.00042	.00056	.00084	.00112	.00140	.00168	.00224	.00279	.00335	.00447	3
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Full Chamfer (< 25°)	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	4
		Edge Break	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	1
TITANIUM ALLOYS	150	Full Chamfer (≥ 25°)	.00017	.00022	.00026	.00035	.00052	.00070	.00087	.00105	.00140	.00175	.00210	.00279	3
		Full Chamfer (< 25°)	.00013	.00016	.00019	.00026	.00039	.00052	.00065	.00079	.00105	.00131	.00157	.00210	4
HIGH TEMP ALLOYS	70	Edge Break	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	1
		Full Chamfer (≥ 25°)	.00017	.00022	.00026	.00035	.00052	.00070	.00087	.00105	.00140	.00175	.00210	.00279	3
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy															

MATERIAL	SFM	Hardness: 38-45 Rc (353-421 HBn)										Depth of Cut Passes			
		Chip Load (IPT) By Effective Cutter Diameter													
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	0.625		0.750	1.000	
CARBON STEELS	600	Edge Break	.00036	.00046	.00055	.00073	.00110	.00147	.00183	.00220	.00293	.00367	.00440	.00587	1
		Full Chamfer (≥ 25°)	.00030	.00038	.00045	.00061	.00091	.00122	.00153	.00183	.00245	.00306	.00367	.00489	3
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx															
1030 - 1095, 1140 - 1151, 13xx, 15xx, 20xx, 30xx, 40xx & 4xLxx, 50xx & 5xLxx, 50xx & 50Lxx, 51xx & 51Lxx, 52xx & 52Lxx, 60xx, 80xx, 90xx	200	Full Chamfer (< 25°)	.00023	.00029	.00034	.00046	.00069	.00092	.00114	.00138	.00183	.00229	.00275	.00367	4
		Edge Break	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00201	.00268	.00335	.00402	.00537	1
STAINLESS STEELS	450	Full Chamfer (≥ 25°)	.00028	.00035	.00042	.00056	.00084	.00112	.00140	.00168	.00224	.00279	.00335	.00447	3
		Full Chamfer (< 25°)	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	4
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe															
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	Edge Break	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00201	.00268	.00335	.00402	.00537	1
		Full Chamfer (≥ 25°)	.00028	.00035	.00042	.00056	.00084	.00112	.00140	.00168	.00224	.00279	.00335	.00447	3
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Full Chamfer (< 25°)	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	4
		Edge Break	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00126	.00168	.00210	.00252	.00335	1
TOOL STEELS	200	Full Chamfer (≥ 25°)	.00017	.00022	.00026	.00035	.00052	.00070	.00087	.00105	.00140	.00175	.00210	.00279	3
		Full Chamfer (< 25°)	.00013	.00016	.00019	.00026	.00039	.00052	.00065	.00079	.00105	.00131	.00157	.00210	4
A, L, O, P, W series															
D, H, M, T, S series	150	Edge Break	.00033	.00042	.00050										