

MATERIAL	Hardness: ≤ 28 Rc (≤ 271 HBn)												Depth of Cut Passes		
	SFM	Chip Load (IPT) By Effective Cutter Diameter													
		0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375		0.500	
ALUMINUM ALLOYS															
Castling (2xx, 5xx, 7xx, 8xx)	750	Debur	.00014	.00029	.00045	.00059	.00074	.00088	.00119	.00178	.00238	.00297	.00356	.00475	1
		Edge Break	.00012	.00025	.00037	.00049	.00062	.00074	.00099	.00148	.00198	.00247	.00297	.00396	1
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000	Full Chamfer	.00009	.00018	.00028	.00037	.00046	.00055	.00074	.00111	.00149	.00185	.00223	.00297	2
Castling - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	750	Debur	.00013	.00027	.00040	.00053	.00067	.00080	.00107	.00160	.00214	.00267	.00321	.00428	1
Castling - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700	Debur	.00013	.00027	.00040	.00053	.00067	.00080	.00107	.00160	.00214	.00267	.00321	.00428	1
Castling - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	650	Edge Break	.00011	.00022	.00034	.00044	.00056	.00066	.00089	.00133	.00178	.00222	.00267	.00356	1
Castling - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475	Edge Break	.00011	.00022	.00034	.00044	.00056	.00066	.00089	.00133	.00178	.00222	.00267	.00356	1
Wrought - 5%-8% Si (4xxx)	1000	Full Chamfer	.00008	.00017	.00025	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00200	.00267	2
Wrought - 8%-12% Si (4xxx)	800	Full Chamfer	.00008	.00017	.00025	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00200	.00267	2
MAGNESIUM ALLOYS															
	1500	Debur	.00014	.00029	.00045	.00059	.00074	.00088	.00119	.00178	.00238	.00297	.00356	.00475	1
		Edge Break	.00012	.00025	.00037	.00049	.00062	.00074	.00099	.00148	.00198	.00247	.00297	.00396	1
ZINC ALLOYS															
	800	Full Chamfer	.00009	.00018	.00028	.00037	.00046	.00055	.00074	.00111	.00149	.00185	.00223	.00297	2
COPPER ALLOYS															
High Coppers - 20%+ (C1xxx)	225	Debur	.00011	.00024	.00036	.00047	.00059	.00071	.00095	.00142	.00190	.00237	.00285	.00380	1
Brass (Copper Zinc alloys, C2xxx, C3xxx, C4xxx, C6400-C69800)	500	Debur	.00011	.00024	.00036	.00047	.00059	.00071	.00095	.00142	.00190	.00237	.00285	.00380	1
Phosphor Bronzes (Copper Tin alloys, C5xxx)	225	Debur	.00011	.00024	.00036	.00047	.00059	.00071	.00095	.00142	.00190	.00237	.00285	.00380	1
Aluminum Bronzes (Copper Aluminum alloys, C6500-C64200)	500	Edge Break	.00010	.00020	.00030	.00039	.00049	.00059	.00079	.00118	.00158	.00198	.00238	.00317	1
Silicon Bronzes (Copper Silicon alloys, C64700-C66100)	500	Edge Break	.00010	.00020	.00030	.00039	.00049	.00059	.00079	.00118	.00158	.00198	.00238	.00317	1
Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxx)	225	Full Chamfer	.00007	.00015	.00022	.00029	.00037	.00044	.00059	.00089	.00119	.00148	.00178	.00238	2
Cast Copper Alloys (C83300, C86200, C86400-C87900, C92200, C95800, C97300-C97800, C99400)	550	Full Chamfer	.00007	.00015	.00022	.00029	.00037	.00044	.00059	.00089	.00119	.00148	.00178	.00238	2

MATERIAL	Hardness: 29-37 Rc (279-344 HBn)												Depth of Cut Passes		
	SFM	Chip Load (IPT) By Effective Cutter Diameter													
		0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375		0.500	
CARBON STEELS															
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	600	Debur	.00006	.00013	.00019	.00025	.00032	.00038	.00051	.00076	.00102	.00127	.00153	.00204	1
		Edge Break	.00005	.00011	.00016	.00021	.00027	.00032	.00043	.00064	.00085	.00106	.00128	.00170	1
		Full Chamfer	.00004	.00008	.00012	.00016	.00020	.00024	.00032	.00048	.00064	.00080	.00096	.00128	3
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4Lxx, 5xxx & 5Lxx, 50xx & 50Lxx, 51xxx & 51Lxx, 52xxx & 52Lxx, 6xxx, 8xxx, 9xxx	200	Debur	.00006	.00012	.00018	.00023	.00029	.00035	.00047	.00070	.00093	.00116	.00140	.00187	1
		Edge Break	.00005	.00010	.00015	.00019	.00024	.00029	.00039	.00058	.00078	.00097	.00117	.00156	1
		Full Chamfer	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	3
STAINLESS STEELS															
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	Debur	.00006	.00013	.00019	.00025	.00032	.00038	.00051	.00076	.00102	.00127	.00153	.00204	1
		Edge Break	.00005	.00011	.00016	.00021	.00027	.00032	.00043	.00064	.00085	.00106	.00128	.00170	1
		Full Chamfer	.00004	.00008	.00012	.00016	.00020	.00024	.00032	.00048	.00064	.00080	.00096	.00128	3
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	Debur	.00006	.00012	.00018	.00023	.00029	.00035	.00047	.00070	.00093	.00116	.00140	.00187	1
		Edge Break	.00005	.00010	.00015	.00019	.00024	.00029	.00039	.00058	.00078	.00097	.00117	.00156	1
		Full Chamfer	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	3
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Debur	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	1
		Edge Break	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00049	.00061	.00073	.00097	1
		Full Chamfer	.00002	.00005	.00007	.00009	.00011	.00014	.00018	.00027	.00036	.00045	.00055	.00073	3
TOOL STEELS															
A, L, O, P, W series	200	Debur	.00006	.00012	.00018	.00023	.00029	.00035	.00047	.00070	.00093	.00116	.00140	.00187	1
		Edge Break	.00005	.00010	.00015	.00019	.00024	.00029	.00039	.00058	.00078	.00097	.00117	.00156	1
		Full Chamfer	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	3
D, H, M, T, S series	150	Debur	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	1
		Edge Break	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00049	.00061	.00073	.00097	1
		Full Chamfer	.00002	.00005	.00007	.00009	.00011	.00014	.00018	.00027	.00036	.00045	.00055	.00073	3
TITANIUM ALLOYS															
	150	Debur	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	1
		Edge Break	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00049	.00061	.00073	.00097	1
		Full Chamfer	.00002	.00005	.00007	.00009	.00011	.00014	.00018	.00027	.00036	.00045	.00055	.00073	3
HIGH TEMP ALLOYS															
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	Debur	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	1
		Edge Break	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00049	.00061	.00073	.00097	1
		Full Chamfer	.00002	.00005	.00007	.00009	.00011	.00014	.00018	.00027	.00036	.00045	.00055	.00073	3



Product Table: Chamfer Cutters - Back Chamfer Cutters
Characteristics: 90° Included Angle, 3x Reach Multiple, 6 Flutes
Series: 9434xx

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.
 For Full Chamfer engagement the Effective Cutter Diameter is 80% of the cutter diameter

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

Chip Loads are given 3 ways:
 Deburring refers to removing the burr only
 Traditional Edge Break of .010"-.015"
 Full Chamfer engagement

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	Hardness: 38-45 Rc (353-421 HBn)												Depth of Cut Passes		
	SFM	Chip Load (IPT) By Effective Cutter Diameter													
		0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375		0.500	
		Debur	.00006	.00012	.00018	.00023	.00029	.00035	.00047	.00070	.00093	.00116	.00140	.00187	1
		Edge Break	.00005	.00010	.00015	.00019	.00024	.00029	.00039	.00058	.00078	.00097	.00117	.00156	2
		Full Chamfer	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	4
		Debur	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	1
		Edge Break	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00049	.00061	.00073	.00097	2
		Full Chamfer	.00002	.00005	.00007	.00009	.00011	.00014	.00018	.00027	.00036	.00045	.00055	.00073	4
		Debur	.00003	.00007	.00011	.00014	.00018	.00022	.00029	.00044	.00058	.00073	.00087	.00117	1
		Edge Break	.00003	.00006	.00009	.00012									