

MATERIAL	SFM	Hardness: ≤ 28 Rc (≤ 271 HBn)											Depth of Cut Passes		
		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		Deburr	.00016	.00033	.00050	.00066	.00083	.00099	.00134	.00200	.00267	.00334	.00401	.00535	1
Castling (2xx, 5xx, 7xx, 8xx)	750	Edge Break	.00013	.00028	.00042	.00055	.00069	.00083	.00111	.00167	.00223	.00278	.00334	.00446	1
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000	Full Chamfer	.00010	.00021	.00031	.00041	.00052	.00062	.00084	.00125	.00167	.00208	.00251	.00334	2
Castling - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	750	Deburr	.00014	.00030	.00045	.00060	.00075	.00089	.00120	.00180	.00241	.00300	.00361	.00481	1
Castling - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700	Edge Break	.00012	.00025	.00038	.00050	.00063	.00075	.00100	.00150	.00200	.00250	.00301	.00401	1
Castling - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	650	Edge Break	.00012	.00025	.00038	.00050	.00063	.00075	.00100	.00150	.00200	.00250	.00301	.00401	1
Castling - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475	Full Chamfer	.00009	.00019	.00028	.00037	.00047	.00056	.00075	.00112	.00150	.00188	.00226	.00301	2
Wrought - 5%-8% Si (4xxx)	1000	Deburr	.00016	.00033	.00050	.00066	.00083	.00099	.00134	.00200	.00267	.00334	.00401	.00535	1
Wrought - 8%-12% Si (4xxx)	800	Edge Break	.00013	.00028	.00042	.00055	.00069	.00083	.00111	.00167	.00223	.00278	.00334	.00446	1
MAGNESIUM ALLOYS	1500	Full Chamfer	.00010	.00021	.00031	.00041	.00052	.00062	.00084	.00125	.00167	.00208	.00251	.00334	2
ZINC ALLOYS	800	Deburr	.00016	.00033	.00050	.00066	.00083	.00099	.00134	.00200	.00267	.00334	.00401	.00535	1
COPPER ALLOYS		Edge Break	.00013	.00028	.00042	.00055	.00069	.00083	.00111	.00167	.00223	.00278	.00334	.00446	1
High Coppers - 20%+ (C1xxx)	225	Full Chamfer	.00010	.00021	.00031	.00041	.00052	.00062	.00084	.00125	.00167	.00208	.00251	.00334	2
Brass (Copper Zinc alloys, C2xxx, C3xxx, C4xxx, C6400-C69800)	500	Deburr	.00013	.00027	.00040	.00053	.00067	.00080	.00107	.00160	.00214	.00267	.00321	.00428	1
Phosphor Bronzes (Copper Tin alloys, C5xxx)	225	Edge Break	.00011	.00022	.00034	.00044	.00056	.00066	.00089	.00133	.00178	.00222	.00267	.00356	1
Aluminum Bronzes (Copper Aluminum alloys, C60500-C64200)	500	Full Chamfer	.00008	.00017	.00025	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00200	.00267	2
Silicon Bronzes (Copper Silicon alloys, C64700-C66100)	500	Deburr	.00013	.00027	.00040	.00053	.00067	.00080	.00107	.00160	.00214	.00267	.00321	.00428	1
Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxx)	225	Edge Break	.00011	.00022	.00034	.00044	.00056	.00066	.00089	.00133	.00178	.00222	.00267	.00356	1
Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400)	550	Full Chamfer	.00008	.00017	.00025	.00033	.00042	.00050	.00067	.00100	.00134	.00167	.00200	.00267	2

MATERIAL	SFM	Hardness: 29-37 Rc (279-344 HBn)											Depth of Cut Passes		
		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		Deburr	.00007	.00014	.00022	.00028	.00036	.00043	.00057	.00086	.00115	.00143	.00172	.00230	1
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	600	Edge Break	.00006	.00012	.00018	.00024	.00030	.00036	.00048	.00072	.00096	.00119	.00144	.00191	1
		Full Chamfer	.00004	.00009	.00013	.00018	.00022	.00027	.00036	.00054	.00072	.00090	.00108	.00144	3
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4Lxx, 5xxx & 5XLxx, 50xxx & 50Lxx, 51xxx & 51Lxx, 52xxx & 52Lxx, 6xxx, 8xxx, 9xxx	200	Deburr	.00006	.00013	.00020	.00026	.00033	.00039	.00052	.00079	.00105	.00131	.00157	.00210	1
		Edge Break	.00005	.00011	.00016	.00022	.00027	.00033	.00044	.00065	.00087	.00109	.00131	.00175	1
		Full Chamfer	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	3
STAINLESS STEELS		Deburr	.00007	.00014	.00022	.00028	.00036	.00043	.00057	.00086	.00115	.00143	.00172	.00230	1
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	Edge Break	.00006	.00012	.00018	.00024	.00030	.00036	.00048	.00072	.00096	.00119	.00144	.00191	1
		Full Chamfer	.00004	.00009	.00013	.00018	.00022	.00027	.00036	.00054	.00072	.00090	.00108	.00144	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	Deburr	.00006	.00013	.00020	.00026	.00033	.00039	.00052	.00079	.00105	.00131	.00157	.00210	1
		Edge Break	.00005	.00011	.00016	.00022	.00027	.00033	.00044	.00065	.00087	.00109	.00131	.00175	1
		Full Chamfer	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	3
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Deburr	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	1
		Edge Break	.00003	.00007	.00010	.00014	.00017	.00020	.00027	.00041	.00055	.00068	.00082	.00109	1
		Full Chamfer	.00002	.00005	.00008	.00010	.00013	.00015	.00021	.00031	.00041	.00051	.00062	.00082	3
TOOL STEELS		Deburr	.00006	.00013	.00020	.00026	.00033	.00039	.00052	.00079	.00105	.00131	.00157	.00210	1
A, L, O, P, W series	200	Edge Break	.00005	.00011	.00016	.00022	.00027	.00033	.00044	.00065	.00087	.00109	.00131	.00175	1
		Full Chamfer	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	3
D, H, M, T, S series	150	Deburr	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	1
		Edge Break	.00003	.00007	.00010	.00014	.00017	.00020	.00027	.00041	.00055	.00068	.00082	.00109	1
		Full Chamfer	.00002	.00005	.00008	.00010	.00013	.00015	.00021	.00031	.00041	.00051	.00062	.00082	3
TITANIUM ALLOYS		Deburr	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	1
	150	Edge Break	.00003	.00007	.00010	.00014	.00017	.00020	.00027	.00041	.00055	.00068	.00082	.00109	1
		Full Chamfer	.00002	.00005	.00008	.00010	.00013	.00015	.00021	.00031	.00041	.00051	.00062	.00082	3
HIGH TEMP ALLOYS		Deburr	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	1
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	Edge Break	.00003	.00007	.00010	.00014	.00017	.00020	.00027	.00041	.00055	.00068	.00082	.00109	1
		Full Chamfer	.00002	.00005	.00008	.00010	.00013	.00015	.00021	.00031	.00041	.00051	.00062	.00082	3



Speeds & Feeds

Product Table: Chamfer Cutters - Back Chamfer Cutters
Characteristics: 90° Included Angle, 3x Reach Multiple
Series: 9433xx

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	SFM	Hardness: 38-45 Rc (353-421 HBn)											Depth of Cut Passes		
		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	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deburr	100	.00006	.00013	.00020	.00026	.00033	.00039	.00052	.00079	.00105	.00131	.00157	.00210	1	
Edge Break		.00005	.00011	.00016	.00022	.00027	.00033	.00044	.00065	.00087	.00109	.00131	.00175	2	
Full Chamfer		.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	4	
Deburr	90	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	1	
Edge Break		.00003	.00007	.00010	.00014	.00017	.00020	.00027	.00041	.00055	.00068	.00082	.00109	2	
Full Chamfer		.00002	.00005	.00008	.00010	.00013	.00015	.00021	.00031	.00041	.00051	.00062	.00082	4	
Deburr	100	.00006	.00013	.00020	.00026	.00033	.00039	.00052	.00079	.00105	.00131	.00157	.00210	1	
Edge Break		.00005	.00011	.00016	.00022	.00027	.00033	.00044	.00065	.00087	.00109	.00131	.00175	2	
Full Chamfer		.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	4	
Deburr	90	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.00131	1	
Edge Break		.00003	.00007	.00010	.00014	.00017	.00020	.00027	.00041	.00055	.00068	.00082	.00109	2	
Full Chamfer (< 25°F)		.00002	.00005	.00008	.00010	.00013	.00015	.00021	.00031	.00041	.00051	.00062	.00082	4	
Deburr	75														