



Speeds & Feeds

Product Table: Chamfer Cutters - Back Chamfer Cutters
Characteristics: 90° Included Angle, 8x Reach Multiple, 4 flutes
Series: 9103xx, 9104xx

Product notes:

Due to a varying diameter, an Effective Cutter Diameter is needed for Chip Load selection and RPM calculation:

$$\text{Effective Cutter Diameter} = (\text{Major Diameter} + \text{Minor Diameter})/2$$

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: ≤ 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														
Casting (2xx, 5xx, 7xx, 8xx)	750	Deburr	.00012	.00026	.00039	.00052	.00065	.00077	.00104	.00156	.00208	.00259	.00312	.00416
	Edge Break	.00010	.00021	.00033	.00043	.00054	.00064	.00087	.00130	.00173	.00216	.00260	.00347	1
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000	Full Chamfer	.00008	.00016	.00024	.00032	.00041	.00048	.00065	.00097	.00130	.00162	.00195	.00260
	750	Deburr	.00011	.00023	.00035	.00046	.00058	.00070	.00094	.00140	.00187	.00234	.00281	.00374
Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700	Edge Break	.00009	.00019	.00029	.00039	.00049	.00058	.00078	.00117	.00156	.00195	.00234	.00312
	650	Full Chamfer	.00007	.00015	.00022	.00029	.00036	.00044	.00058	.00087	.00117	.00146	.00175	.00234
Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475	Deburr	.00012	.00026	.00039	.00052	.00065	.00077	.00104	.00156	.00208	.00259	.00312	.00416
	800	Edge Break	.00010	.00021	.00033	.00043	.00054	.00064	.00087	.00130	.00173	.00216	.00260	.00347
Wrought - 5%-8% Si (4xxx)	1000	Full Chamfer	.00008	.00016	.00024	.00032	.00041	.00048	.00065	.00097	.00130	.00162	.00195	.00260
	800	Deburr	.00012	.00026	.00039	.00052	.00065	.00077	.00104	.00156	.00208	.00259	.00312	.00416
MAGNESIUM ALLOYS														
1500	Edge Break	.00010	.00021	.00033	.00043	.00054	.00064	.00087	.00130	.00173	.00216	.00260	.00347	1
	800	Full Chamfer	.00008	.00016	.00024	.00032	.00041	.00048	.00065	.00097	.00130	.00162	.00195	.00260
ZINC ALLOYS														
225	Deburr	.00010	.00021	.00031	.00041	.00052	.00062	.00083	.00124	.00166	.00208	.00249	.00333	1
	500	Edge Break	.00008	.00017	.00026	.00034	.00043	.00052	.00069	.00104	.00139	.00173	.00208	.00277
225	Full Chamfer	.00006	.00013	.00020	.00026	.00032	.00039	.00052	.00078	.00104	.00130	.00156	.00208	2
	500	Deburr	.00010	.00021	.00031	.00041	.00052	.00062	.00083	.00124	.00166	.00208	.00249	.00333
500	Edge Break	.00008	.00017	.00026	.00034	.00043	.00052	.00069	.00104	.00139	.00173	.00208	.00277	1
	500	Full Chamfer	.00006	.00013	.00020	.00026	.00032	.00039	.00052	.00078	.00104	.00130	.00156	.00208
225	Deburr	.00010	.00021	.00031	.00041	.00052	.00062	.00083	.00124	.00166	.00208	.00249	.00333	1
	500	Edge Break	.00008	.00017	.00026	.00034	.00043	.00052	.00069	.00104	.00139	.00173	.00208	.00277
225	Full Chamfer	.00006	.00013	.00020	.00026	.00032	.00039	.00052	.00078	.00104	.00130	.00156	.00208	2
	550	Deburr	.00010	.00021	.00031	.00041	.00052	.00062	.00083	.00124	.00166	.00208	.00249	.00333
500	Edge Break	.00008	.00017	.00026	.00034	.00043	.00052	.00069	.00104	.00139	.00173	.00208	.00277	1
	550	Full Chamfer	.00006	.00013	.00020	.00026	.00032	.00039	.00052	.00078	.00104	.00130	.00156	.00208

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	Deburr	.00005	.00011	.00017	.00022	.00028	.00033	.00045	.00067	.00089	.00111	.00134	.00179
	Edge Break	.00004	.00009	.00014	.00018	.00023	.00028	.00037	.00056	.00074	.00093	.00112	.00149	1
	Full Chamfer	.00003	.00007	.00010	.00014	.00017	.00021	.00028	.00042	.00056	.00070	.00084	.00112	3
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4Lxx, 5xxx & 5Lxx, 50xxx & 50Lxx, 51xxx & 51Lxx, 52xxx & 52Lxx, 6xxx, 8xxx, 9xxx	200	Deburr	.00005	.00010	.00015	.00020	.00025	.00030	.00041	.00061	.00082	.00102	.00122	.00163
	Edge Break	.00004	.00008	.00013	.00017	.00021	.00025	.00034	.00051	.00068	.00085	.00102	.00136	1
	Full Chamfer	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102	3
STAINLESS STEELS														
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	Deburr	.00005	.00011	.00017	.00022	.00028	.00033	.00045	.00067	.00089	.00111	.00134	.00179
	Edge Break	.00004	.00009	.00014	.00018	.00023	.00028	.00037	.00056	.00074	.00093	.00112	.00149	1
	Full Chamfer	.00003	.00007	.00010	.00014	.00017	.00021	.00028	.00042	.00056	.00070	.00084	.00112	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	.00005	.00010	.00015	.00020	.00025	.00030	.00041	.00061	.00082	.00102	.00122	.00163
	Edge Break	.00004	.00008	.00013	.00017	.00021	.00025	.00034	.00051	.00068	.00085	.00102	.00136	1
	Full Chamfer	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102	3
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Deburr	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102
	Edge Break	.00003	.00005	.00008	.00011	.00013	.00016	.00021	.00032	.00043	.00053	.00064	.00085	1
	Full Chamfer	.00002	.00004	.00006	.00008	.00010	.00012	.00016	.00024	.00032	.00040	.00048	.00064	3
TOOL STEELS														
A, L, O, P, W series	200	Deburr	.00005	.00010	.00015	.00020	.00025	.00030	.00041	.00061	.00082	.00102	.00122	.00163
	Edge Break	.00004	.00008	.00013	.00017	.00021	.00025	.00034	.00051	.00068	.00085	.00102	.00136	1
	Full Chamfer	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102	3
D, H, M, T, S series	150	Deburr	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102
	Edge Break	.00003	.00005	.00008	.00011	.00013	.00016	.00021	.00032	.00043	.00053	.00064	.00085	1
	Full Chamfer	.00002	.00004	.00006	.00008	.00010	.00012	.00016	.00024	.00032	.00040	.00048	.00064	3
TITANIUM ALLOYS														
150	Deburr	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102	1
	Edge Break	.00003	.00005	.00008	.00011	.00013	.00016	.00021	.00032	.00043	.00053	.00064	.00085	1
	Full Chamfer	.00002	.00004	.00006	.00008	.00010	.00012	.00016	.00024	.00032	.00040	.00048	.00064	3
HIGH TEMP ALLOYS														
70	Deburr	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102	1
	Edge Break	.00003	.00005	.00008	.00011	.00013	.00016	.00021	.00032	.00043	.00053	.00064	.00085	1
	Full Chamfer	.00002	.00004	.00006	.00008	.00010	.00012	.00016	.00024	.00032	.00040	.00048	.00064	3

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	
CARBON STEELS														
- - - - -	100	Deburr	.00005	.00010	.00015	.00020	.00025	.00030	.00041	.00061	.00082	.00102	.00122	.00163
	Edge Break	.00004	.00008	.00013	.00017	.00021	.00025	.00034	.00051	.00068	.00085	.00102	.00136	2
	Full Chamfer	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102	4
- - - - -	90	Deburr	.00003	.00006	.00010	.00013	.00016	.00019	.00026	.00038	.00051	.00064	.00077	.00102
	Edge Break	.00003	.00005	.00008	.00011	.00013	.00016	.00021	.00032	.00043	.00053	.00064	.00085	2
	Full Chamfer	.00002	.00004	.00006	.0000									