Speeds & Feeds

Product Table: Chamfer Cutters - Back Chamfer Cutters
Characteristics: 90° Included Angle, 8x Reach Multiple, 5 and 6 Flutes
Series: 9104xx

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

Chip Loads within table pertain to machining on one side an existing slot.
For machining on two sides, reduce Chip Loads to 60%-80% depending on contact length and 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

Hardness: ≤ 28 Rc (≤ 271 HBn)

MATERIAL	SFM		Chip Load (IPT) By Effective Cutter Diameter												Depth of Cut
			0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	Passes
ALUMINUM ALLOYS		Deburr	.00012	.00024	.00037	.00049	.00061	.00073	.00098	.00147	.00196	.00245	.00295	.00393	1
Casting (2xx, 5xx, 7xx, 8xx)	750	Edge Break	.00010	.00020	.00031	.00041	.00051	.00061	.00082	.00122	.00164	.00204	.00245	.00327	1
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000	Full Chamfer	.00007	.00015	.00023	.00030	.00038	.00046	.00061	.00092	.00123	.00153	.00184	.00245	2
Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	750	Deburr	.00011	.00022	.00033	.00044	.00055	.00066	.00088	.00132	.00177	.00221	.00265	.00353	1
Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700														
Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	650	Edge Break	.00009	.00018	.00028	.00037	.00046	.00055	.00074	.00110	.00147	.00184	.00221	.00295	1
Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475														
Wrought - 5%-8% Si (4xxx)	1000	Full Chamfer	.00007	.00014	.00021	.00027	.00034	.00041	.00055	.00083	.00110	.00138	.00166	.00221	2
Wrought - 8%-12% Si (4xxx)	800														
MAGNESIUM ALLOYS	1500	Deburr	.00012	.00024	.00037	.00049	.00061	.00073	.00098	.00147	.00196	.00245	.00295	.00393	1
		Edge Break	.00010	.00020	.00031	.00041	.00051	.00061	.00082	.00122	.00164	.00204	.00245	.00327	1
ZINC ALLOYS	800	Full Chamfer	.00007	.00015	.00023	.00030	.00038	.00046	.00061	.00092	.00123	.00153	.00184	.00245	2
COPPER ALLOYS															
High Coppers - 90%+ (C1xxxx)	225														
Brass (Copper Zinc alloys, C2xxxx, C3xxxx, C4xxxx, C66400-C69800)	500	Deburr	.00009	.00019	.00030	.00039	.00049	.00058	.00079	.00117	.00157	.00196	.00236	.00314	1
Phosphor Bronzes (Copper Tin alloys, C5xxxx)	225														
Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200)	500														
Silicon Bronzes (Copper Silicon alloys, C64700-C66100)	500	Edge Break	.00008	.00016	.00025	.00032	.00041	.00049	.00065	.00098	.00131	.00163	.00196	.00262	1
Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxxx)	225														
Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700)	550	Full Chamfer	.00006	.00012	.00018	.00024	.00031	.00037	.00049	.00073	.00098	.00123	.00147	.00196	2

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

MATERIAL	SFM		Chip Load (IPT) By Effective Cutter Diameter												Depth of Cut
			0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	Passes
CARBON STEELS		Deburr	.00005	.00010	.00016	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00127	.00169	1
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	600	Edge Break	.00004	.00009	.00013	.00017	.00022	.00026	.00035	.00053	.00070	.00088	.00105	.00141	1
		Full Chamfer	.00003	.00007	.00010	.00013	.00016	.00020	.00026	.00039	.00053	.00066	.00079	.00105	3
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx	200	Deburr	.00005	.00010	.00014	.00019	.00024	.00029	.00039	.00058	.00077	.00096	.00116	.00154	1
		Edge Break	.00004	.00008	.00012	.00016	.00020	.00024	.00032	.00048	.00064	.00080	.00096	.00129	1
		Full Chamfer	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	3
STAINLESS STEELS		Deburr	.00005	.00010	.00016	.00021	.00026	.00031	.00042	.00063	.00084	.00105	.00127	.00169	1
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	Edge Break	.00004	.00009	.00013	.00017	.00022	.00026	.00035	.00053	.00070	.00088	.00105	.00141	1
		Full Chamfer	.00003	.00007	.00010	.00013	.00016	.00020	.00026	.00039	.00053	.00066	.00079	.00105	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	.00014	.00019	.00024	.00029	.00039	.00058	.00077	.00096	.00116	.00154	1
		Edge Break	.00004	.00008	.00012	.00016	.00020	.00024	.00032	.00048	.00064	.00080	.00096	.00129	1
		Full Chamfer	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	3
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
		Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	1
		Full Chamfer	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	3
TOOL STEELS		Deburr	.00005	.00010	.00014	.00019	.00024	.00029	.00039	.00058	.00077	.00096	.00116	.00154	1
A, L, O, P, W series	200	Edge Break	.00004	.00008	.00012	.00016	.00020	.00024	.00032	.00048	.00064	.00080	.00096	.00129	1
		Full Chamfer	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	3
D, H, M, T, S series	150	Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
		Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	1
		Full Chamfer	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	3
TITANIUM ALLOYS	150	Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
		Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	1
		Full Chamfer	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	3
HIGH TEMP ALLOYS		Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	1
		Full Chamfer	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	3

Hardness: 38-45 Rc (353-421 HBn)

SFM		Chip Load (IPT) By Effective Cutter Diameter												Depth of Cut
		0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	Passes
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	Deburr	.00005	.00010	.00014	.00019	.00024	.00029	.00039	.00058	.00077	.00096	.00116	.00154	1
	Edge Break	.00004	.00008	.00012	.00016	.00020	.00024	.00032	.00048	.00064	.00080	.00096	.00129	2
	Full Chamfer	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	4
90	Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
	Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	2
	Full Chamfer	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	4
100	Deburr	.00005	.00010	.00014	.00019	.00024	.00029	.00039	.00058	.00077	.00096	.00116	.00154	1
	Edge Break	.00004	.00008	.00012	.00016	.00020	.00024	.00032	.00048	.00064	.00080	.00096	.00129	2
	Full Chamfer	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	4
90	Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
	Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	2
	Full Chamfer (< 25°)F	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	4
75	Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
	Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	2
	Full Chamfer	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	4
50	Deburr	.00003	.00006	.00009	.00012	.00015	.00018	.00024	.00036	.00048	.00060	.00072	.00096	1
	Edge Break	.00002	.00005	.00008	.00010	.00013	.00015	.00020	.00030	.00040	.00050	.00060	.00080	2
	Full Chamfer	.00002	.00004	.00006	.00007	.00009	.00011	.00015	.00023	.00030	.00038	.00045	.00060	4