Speeds & Feeds

Product Table: Keyseat Cutters - Square
Characteristics: Standard Slotting (Type I), 4x Reach, 8 Flutes
Series: 9331xx

Product notes:

Chip Loads (IPT) within table pertain to applications where the cutter is engaged on one side only and the cutter width is less than .5x diameter.
If the cutter is engaged on both sides, reduce chiploads to 50-60% of posted values.
If the cutter width > .5x diameter, reduce radial step over to 80% of posted values.

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 up to 15% 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 appropriate safety equipment in the vicinity of use.

Hardness: ≤ 28 Rc (≤ 271 HBn)

MATERIAL	SFM	Chip Load (IPT) By Cutter Diameter													Depth of Cut	
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.438	0.500	0.625	0.750	1.000	Radial	Axial
ALUMINUM ALLOYS																
Casting (2xx, 5xx, 7xx, 8xx)	750	.00023	.00029	.00035	.00046	.00069	.00093	.00116	.00139	.00163	.00186	.00232	.00278	.00371	.12 x Dia	Full Width
Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	1000															
Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	750															
Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	700															
Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	650	.00021	.00026	.00031	.00042	.00062	.00084	.00104	.00125	.00146	.00167	.00209	.00251	.00334	.12 x Dia	Full Width
Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)	475															
Wrought - 5%-8% Si (4xxx)	1000															
Wrought - 8%-12% Si (4xxx)	800															
MAGNESIUM ALLOYS	1500	.00023	.00029	.00035	.00046	.00069	.00093	.00116	.00139	.00163	.00186	.00232	.00278	.00371	.12 x Dia	Full Width
ZINC ALLOYS	800															
COPPER ALLOYS																
High Coppers - 90%+ (C1xxxx)	225	.00018	.00023	.00028	.00037	.00056	.00074	.00093	.00111	.00130	.00149	.00186	.00223	.00297	.12 x Dia	Full Width
Brass (Copper Zinc alloys, C2xxxx, C3xxxx, C4xxxx, C66400-C69800)	500															
Phosphor Bronzes (Copper Tin alloys, C5xxxx)	225															
Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200)	500															
Silicon Bronzes (Copper Silicon alloys, C64700-C66100)	500															
Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxxx)	225															
Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700)	550															

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

MATERIAL	SFM	Chip Load (IPT) By Cutter Diameter													Depth of Cut	
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.438	0.500	0.625	0.750	1.000	Radial	Axial
CARBON STEELS																
Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	600	.00008	.00011	.00013	.00017	.00025	.00034	.00042	.00051	.00059	.00068	.00085	.00102	.00136	.08 x Dia	Full Width
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx	200	.00008	.00010	.00012	.00015	.00023	.00031	.00039	.00046	.00054	.00062	.00077	.00093	.00124	.08 x Dia	Full Width
STAINLESS STEELS																
203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	.00008	.00011	.00013	.00017	.00025	.00034	.00042	.00051	.00059	.00068	.00085	.00102	.00136	.08 x Dia	Full Width
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	.00008	.00010	.00012	.00015	.00023	.00031	.00039	.00046	.00054	.00062	.00077	.00093	.00124	.08 x Dia	Full Width
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	.00005	.00006	.00007	.00010	.00014	.00019	.00024	.00029	.00034	.00039	.00048	.00058	.00077	.08 x Dia	Full Width
TOOL STEELS																
A, L, O, P, W series	200	.00008	.00010	.00012	.00015	.00023	.00031	.00039	.00046	.00054	.00062	.00077	.00093	.00124	.08 x Dia	Full Width
D, H, M, T, S series	150	.00005	.00006	.00007	.00010	.00014	.00019	.00024	.00029	.00034	.00039	.00048	.00058	.00077	.08 x Dia	Full Width
TITANIUM ALLOYS	150	.00005	.00006	.00007	.00010	.00014	.00019	.00024	.00029	.00034	.00039	.00048	.00058	.00077	.08 x Dia	Full Width
HIGH TEMP ALLOYS																
Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	.00005	.00006	.00007	.00010	.00014	.00019	.00024	.00029	.00034	.00039	.00048	.00058	.00077	.08 x Dia	Full Width

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

SFM	Chip Load (IPT) By Cutter Diameter													Depth of Cut	
	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.438	0.500	0.625	0.750	1.000	Radial	Axial
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	.00007	.00009	.00010	.00014	.00020	.00027	.00034	.00041	.00048	.00055	.00068	.00082	.00109	.06 x Dia	Full Width
90	.00004	.00005	.00006	.00009	.00013	.00017	.00021	.00026	.00030	.00034	.00043	.00051	.00068	.06 x Dia	Full Width
100	.00007	.00009	.00010	.00014	.00020	.00027	.00034	.00041	.00048	.00055	.00068	.00082	.00109	.06 x Dia	Full Width
90	.00004	.00005	.00006	.00009	.00013	.00017	.00021	.00026	.00030	.00034	.00043	.00051	.00068	.06 x Dia	Full Width
75	.00004	.00005	.00006	.00009	.00013	.00017	.00021	.00026	.00030	.00034	.00043	.00051	.00068	.06 x Dia	Full Width
50	.00004	.00005	.00006	.00009	.00013	.00017	.00021	.00026	.00030	.00034	.00043	.00051	.00068	.06 x Dia	Full Width