HARVEY TOOL
Speeds & Feeds

**Product Table:** Picatinny Form Cutters - Picatinny Recoil Groove End Mills
**Characteristics:** 3 Flutes
**Series:** 8626xx, 8648xx, 8744xx

| MATERIAL | SFM | Hardness: ≤ 28 Rc (≤ 271 HBn) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Chip Load (IPT) By Cutter Diameter | | | | | | | | | | Depth of Cut | |
| | | | 0.047 | 0.062 | 0.078 | 0.093 | 0.125 | 0.187 | 0.250 | 0.312 | 0.375 | 0.500 | Radial | Axial |
| **ALUMINUM ALLOYS** Casting (2xx, 5xx, 7xx, 8xx) | 750 | Slotting | .00056 | .00074 | .00093 | .00110 | .00149 | .00222 | .00297 | .00371 | .00446 | .00594 | 1 x Dia | .50 x Dia |
| Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx) | 1000 | Finishing | .00088 | .00116 | .00146 | .00175 | .00235 | .00351 | .00469 | .00586 | .00704 | .00939 | .25 x Dia | .50 x Dia |
| Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx) | 750 | Slotting | .00050 | .00066 | .00083 | .00099 | .00134 | .00200 | .00267 | .00334 | .00401 | .00535 | 1 x Dia | .50 x Dia |
| Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx) | 700 | | | | | | | | | | | | | |
| Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx) | 650 | Finishing | .00079 | .00105 | .00132 | .00157 | .00211 | .00316 | .00422 | .00527 | .00634 | .00845 | .25 x Dia | .50 x Dia |
| 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 | Slotting | .00056 | .00074 | .00093 | .00110 | .00149 | .00222 | .00297 | .00371 | .00446 | .00594 | 1 x Dia | .50 x Dia |
| **ZINC ALLOYS** | 800 | Finishing | .00088 | .00116 | .00146 | .00175 | .00235 | .00351 | .00469 | .00586 | .00704 | .00939 | .25 x Dia | .50 x Dia |
| **COPPER ALLOYS** High Coppers - 90%+ (C1xxxx) | 225 | Slotting | .00045 | .00059 | .00074 | .00088 | .00119 | .00178 | .00238 | .00297 | .00356 | .00475 | 1 x Dia | .50 x Dia |
| 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 | Finishing | .00071 | .00093 | .00117 | .00140 | .00188 | .00281 | .00375 | .00469 | .00563 | .00751 | .25 x Dia | .50 x Dia |
| 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 | | | | | | | | | | | | | |

| MATERIAL | SFM | Hardness: 29-37 Rc (279-344 HBn) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Chip Load (IPT) By Cutter Diameter | | | | | | | | | | Depth of Cut | |
| | | | 0.047 | 0.062 | 0.078 | 0.093 | 0.125 | 0.187 | 0.250 | 0.312 | 0.375 | 0.500 | Radial | Axial |
| **CARBON STEELS** Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx | 600 | Slotting | .00019 | .00025 | .00032 | .00038 | .00051 | .00076 | .00102 | .00127 | .00153 | .00204 | 1 x Dia | .50 x Dia |
| | | Finishing | .00028 | .00036 | .00046 | .00055 | .00073 | .00110 | .00147 | .00183 | .00220 | .00293 | .25 x Dia | .50 x Dia |
| 1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx | 200 | Slotting | .00018 | .00023 | .00029 | .00035 | .00047 | .00070 | .00093 | .00116 | .00140 | .00187 | 1 x Dia | .50 x Dia |
| | | Finishing | .00025 | .00033 | .00042 | .00050 | .00067 | .00100 | .00134 | .00167 | .00201 | .00268 | .25 x Dia | .50 x Dia |
| **STAINLESS STEELS** 203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe | 450 | Slotting | .00019 | .00025 | .00032 | .00038 | .00051 | .00076 | .00102 | .00127 | .00153 | .00204 | 1 x Dia | .50 x Dia |
| | | Finishing | .00028 | .00036 | .00046 | .00055 | .00073 | .00110 | .00147 | .00183 | .00220 | .00293 | .25 x Dia | .50 x Dia |
| 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 | Slotting | .00018 | .00023 | .00029 | .00035 | .00047 | .00070 | .00093 | .00116 | .00140 | .00187 | 1 x Dia | .50 x Dia |
| | | Finishing | .00025 | .00033 | .00042 | .00050 | .00067 | .00100 | .00134 | .00167 | .00201 | .00268 | .25 x Dia | .50 x Dia |
| 414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7 | 150 | Slotting | .00011 | .00014 | .00018 | .00022 | .00029 | .00044 | .00058 | .00073 | .00087 | .00117 | 1 x Dia | .50 x Dia |
| | | Finishing | .00016 | .00021 | .00026 | .00031 | .00042 | .00063 | .00084 | .00105 | .00126 | .00168 | .25 x Dia | .50 x Dia |
| **TOOL STEELS** A, L, O, P, W series | 200 | Slotting | .00018 | .00023 | .00029 | .00035 | .00047 | .00070 | .00093 | .00116 | .00140 | .00187 | 1 x Dia | .50 x Dia |
| | | Finishing | .00025 | .00033 | .00042 | .00050 | .00067 | .00100 | .00134 | .00167 | .00201 | .00268 | .25 x Dia | .50 x Dia |
| D, H, M, T, S series | 150 | Slotting | .00011 | .00014 | .00018 | .00022 | .00029 | .00044 | .00058 | .00073 | .00087 | .00117 | 1 x Dia | .50 x Dia |
| | | Finishing | .00016 | .00021 | .00026 | .00031 | .00042 | .00063 | .00084 | .00105 | .00126 | .00168 | .25 x Dia | .50 x Dia |
| **TITANIUM ALLOYS** | 150 | Slotting | .00011 | .00014 | .00018 | .00022 | .00029 | .00044 | .00058 | .00073 | .00087 | .00117 | 1 x Dia | .50 x Dia |
| | | Finishing | .00016 | .00021 | .00026 | .00031 | .00042 | .00063 | .00084 | .00105 | .00126 | .00168 | .25 x Dia | .50 x Dia |
| **HIGH TEMP ALLOYS** Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy | 70 | Slotting | .00011 | .00014 | .00018 | .00022 | .00029 | .00044 | .00058 | .00073 | .00087 | .00117 | 1 x Dia | .50 x Dia |
| | | Finishing | .00016 | .00021 | .00026 | .00031 | .00042 | .00063 | .00084 | .00105 | .00126 | .00168 | .25 x Dia | .50 x Dia |

| SFM | Hardness: 38-45 Rc (353-421 HBn) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Chip Load (IPT) By Cutter Diameter | | | | | | | | | | | Depth of Cut | |
| | | 0.047 | 0.062 | 0.078 | 0.093 | 0.125 | 0.187 | 0.250 | 0.312 | 0.375 | 0.500 | Radial | Axial |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 100 | Slotting | .00009 | .00012 | .00015 | .00017 | .00023 | .00035 | .00047 | .00058 | .00070 | .00093 | 1 x Dia | .50 x Dia |
| | Finishing | .00013 | .00017 | .00021 | .00025 | .00034 | .00051 | .00068 | .00084 | .00101 | .00135 | .25 x Dia | .50 x Dia |
| 90 | Slotting | .00005 | .00007 | .00009 | .00011 | .00015 | .00022 | .00029 | .00036 | .00044 | .00058 | 1 x Dia | .50 x Dia |
| | Finishing | .00008 | .00010 | .00013 | .00016 | .00021 | .00032 | .00042 | .00053 | .00063 | .00085 | .25 x Dia | .50 x Dia |
| 100 | Slotting | .00009 | .00012 | .00015 | .00017 | .00023 | .00035 | .00047 | .00058 | .00070 | .00093 | 1 x Dia | .50 x Dia |
| | Finishing | .00013 | .00017 | .00021 | .00025 | .00034 | .00051 | .00068 | .00084 | .00101 | .00135 | .25 x Dia | .50 x Dia |
| 90 | Slotting | .00005 | .00007 | .00009 | .00011 | .00015 | .00022 | .00029 | .00036 | .00044 | .00058 | 1 x Dia | .50 x Dia |
| | Finishing | .00008 | .00010 | .00013 | .00016 | .00021 | .00032 | .00042 | .00053 | .00063 | .00085 | .25 x Dia | .50 x Dia |
| 75 | Slotting | .00005 | .00007 | .00009 | .00011 | .00015 | .00022 | .00029 | .00036 | .00044 | .00058 | 1 x Dia | .50 x Dia |
| | Finishing | .00008 | .00010 | .00013 | .00016 | .00021 | .00032 | .00042 | .00053 | .00063 | .00085 | .25 x Dia | .50 x Dia |
| 50 | Slotting | .00005 | .00007 | .00009 | .00011 | .00015 | .00022 | .00029 | .00036 | .00044 | .00058 | 1 x Dia | .50 x Dia |
| | Finishing | .00008 | .00010 | .00013 | .00016 | .00021 | .00032 | .00042 | .00053 | .00063 | .00085 | .25 x Dia | .50 x Dia |

**Product notes:**

For cutter diameter .206", increase chip load (IPT) of .187" Cutter Diameter by 10%.
Cutting transition is meant for slight edge breaks and deburring, use finishing chip loads.

**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