HARVEY TOOL

Speeds & Feeds

**Product Table:** Drill/End Mills - Helical Tip - 4 Flute
**Characteristics:** 60°-120° Included Angle, 4 Flutes
**Series:** 7882xx-C6, 8239xx-C6, 8240xx-C6, 8242xx-C6, 8244xx-C6, 8246xx-C6, 8262xx-C6, 8654xx-C6, 8811xx-C6, 8992xx-C6

## Product Notes:

Milling - Presented data reflects slotting application using OD of cutter up to .5x Dia Axial DOC
- Use OD of cutter for Chip Load selection and RPM calculation
- If Axial DOC exceeds .5x Dia, Chip Load and/or Radial DOC must be reduced

Chamfering - Presented data reflects full chamfer engagement on one side of workpiece
- Due to a varying tip diameter, an Effective Cutter Diameter is needed for Chip Load selection and RPM calculation. Consider the major and minor diameters along the actual contact length and average them: (Major Diameter + Minor Diameter)/2
- Depth of Cut is shown as number of Passes with each made using a descending stepover
- Feed rates may be increased (or number of passes decreased) when creating traditional edge breaks

## General Notes:

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. 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: 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 | 0.500 | 0.625 | 0.750 | 1.000 | Radial | Axial |
| **CARBON STEELS** | 600 | Milling | .00023 | .00029 | .00035 | .00047 | .00071 | .00095 | .00118 | .00142 | .00189 | .00236 | .00284 | .00378 | 1x Dia | .5x Dia |
| Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx | | Chamfering | .00027 | .00034 | .00040 | .00054 | .00081 | .00109 | .00136 | .00163 | .00217 | .00272 | .00326 | .00435 | 3 passes | |
| 1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx | 200 | Milling | .00021 | .00027 | .00032 | .00043 | .00065 | .00086 | .00108 | .00130 | .00173 | .00216 | .00259 | .00346 | 1x Dia | .5x Dia |
| | | Chamfering | .00025 | .00031 | .00037 | .00050 | .00074 | .00099 | .00124 | .00149 | .00199 | .00248 | .00298 | .00397 | 3 passes | |
| **STAINLESS STEELS** | 450 | Milling | .00023 | .00029 | .00035 | .00047 | .00071 | .00095 | .00118 | .00142 | .00189 | .00236 | .00284 | .00378 | 1x Dia | .5x Dia |
| 203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe | | Chamfering | .00027 | .00034 | .00040 | .00054 | .00081 | .00109 | .00136 | .00163 | .00217 | .00272 | .00326 | .00435 | 3 passes | |
| 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 | Milling | .00021 | .00027 | .00032 | .00043 | .00065 | .00086 | .00108 | .00130 | .00173 | .00216 | .00259 | .00346 | 1x Dia | .5x Dia |
| | | Chamfering | .00025 | .00031 | .00037 | .00050 | .00074 | .00099 | .00124 | .00149 | .00199 | .00248 | .00298 | .00397 | 3 passes | |
| 414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7 | 150 | Milling | .00013 | .00017 | .00020 | .00027 | .00040 | .00054 | .00067 | .00081 | .00108 | .00135 | .00162 | .00216 | 1x Dia | .5x Dia |
| | | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 3 passes | |
| **TOOL STEELS** | 200 | Milling | .00021 | .00027 | .00032 | .00043 | .00065 | .00086 | .00108 | .00130 | .00173 | .00216 | .00259 | .00346 | 1x Dia | .5x Dia |
| A, L, O, P, W series | | Chamfering | .00025 | .00031 | .00037 | .00050 | .00074 | .00099 | .00124 | .00149 | .00199 | .00248 | .00298 | .00397 | 3 passes | |
| D, H, M, T, S series | 150 | Milling | .00013 | .00017 | .00020 | .00027 | .00040 | .00054 | .00067 | .00081 | .00108 | .00135 | .00162 | .00216 | 1x Dia | .5x Dia |
| | | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 3 passes | |
| **TITANIUM ALLOYS** | 150 | Milling | .00013 | .00017 | .00020 | .00027 | .00040 | .00054 | .00067 | .00081 | .00108 | .00135 | .00162 | .00216 | 1x Dia | .5x Dia |
| | | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 3 passes | |
| **HIGH TEMP ALLOYS** | 70 | Milling | .00013 | .00017 | .00020 | .00027 | .00040 | .00054 | .00067 | .00081 | .00108 | .00135 | .00162 | .00216 | 1x Dia | .5x Dia |
| Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy | | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 3 passes | |

### 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 | 0.500 | 0.625 | 0.750 | 1.000 | Radial | Axial |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 100 | Milling | .00011 | .00013 | .00016 | .00022 | .00032 | .00043 | .00054 | .00065 | .00086 | .00108 | .00130 | .00173 | 1x Dia | .5x Dia |
| | Chamfering | .00025 | .00031 | .00037 | .00050 | .00074 | .00099 | .00124 | .00149 | .00199 | .00248 | .00298 | .00397 | 4 passes | |
| 90 | Milling | .00007 | .00008 | .00010 | .00014 | .00020 | .00027 | .00034 | .00041 | .00054 | .00068 | .00081 | .00108 | 1x Dia | .5x Dia |
| | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 4 passes | |
| 100 | Milling | .00011 | .00013 | .00016 | .00022 | .00032 | .00043 | .00054 | .00065 | .00086 | .00108 | .00130 | .00173 | 1x Dia | .5x Dia |
| | Chamfering | .00025 | .00031 | .00037 | .00050 | .00074 | .00099 | .00124 | .00149 | .00199 | .00248 | .00298 | .00397 | 4 passes | |
| 90 | Milling | .00007 | .00008 | .00010 | .00014 | .00020 | .00027 | .00034 | .00041 | .00054 | .00068 | .00081 | .00108 | 1x Dia | .5x Dia |
| | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 4 passes | |
| 75 | Milling | .00007 | .00008 | .00010 | .00014 | .00020 | .00027 | .00034 | .00041 | .00054 | .00068 | .00081 | .00108 | 1x Dia | .5x Dia |
| | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 4 passes | |
| 50 | Milling | .00007 | .00008 | .00010 | .00014 | .00020 | .00027 | .00034 | .00041 | .00054 | .00068 | .00081 | .00108 | 1x Dia | .5x Dia |
| | Chamfering | .00015 | .00019 | .00023 | .00031 | .00046 | .00062 | .00078 | .00093 | .00124 | .00155 | .00186 | .00248 | 4 passes | |