

| MATERIAL                                                                                       | Hardness: ≤ 28 Rc (≤ 271 HBn) |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
|------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------|--------|-----------|-----------|
|                                                                                                | SFM                           | Chip Load (IPT) by Cutter Diameter |        |        |        |        |        |        |        |        |        | Depth of Cut |        |           |           |
|                                                                                                |                               | 0.062                              | 0.078  | 0.093  | 0.125  | 0.187  | 0.250  | 0.375  | 0.500  | 0.625  | 0.750  | 1.000        | Radial | Axial     |           |
| ALUMINUM ALLOYS                                                                                |                               |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| Casting (2xx, 5xx, 7xx, 8xx)                                                                   | 750                           | Slotting                           | .00055 | .00069 | .00082 | .00110 | .00165 | .00220 | .00330 | .00440 | .00550 | .00660       | .00880 | 1 x Dia   | .35 x Dia |
|                                                                                                |                               | Roughing                           | .00055 | .00069 | .00082 | .00110 | .00165 | .00220 | .00330 | .00440 | .00550 | .00660       | .00880 | .25 x Dia | 3 x Dia   |
| Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)                                             | 1000                          | Finishing                          | .00069 | .00087 | .00103 | .00139 | .00208 | .00278 | .00417 | .00556 | .00695 | .00834       | .01112 | .15 x Dia | 3 x Dia   |
| Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)                                          | 750                           | Slotting                           | .00049 | .00062 | .00074 | .00099 | .00148 | .00198 | .00297 | .00396 | .00495 | .00594       | .00792 | 1 x Dia   | .35 x Dia |
| Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)                                          | 700                           |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)                                         | 650                           | Roughing                           | .00049 | .00062 | .00074 | .00099 | .00148 | .00198 | .00297 | .00396 | .00495 | .00594       | .00792 | .25 x Dia | 3 x Dia   |
| Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx)                                        | 475                           |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| Wrought - 5%-8% Si (4xxx)                                                                      | 1000                          | Finishing                          | .00062 | .00078 | .00093 | .00125 | .00187 | .00250 | .00375 | .00501 | .00626 | .00751       | .01001 | .15 x Dia | 3 x Dia   |
| Wrought - 8%-12% Si (4xxx)                                                                     | 800                           |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| MAGNESIUM ALLOYS                                                                               | 1500                          | Slotting                           | .00055 | .00069 | .00082 | .00110 | .00165 | .00220 | .00330 | .00440 | .00550 | .00660       | .00880 | 1 x Dia   | .35 x Dia |
|                                                                                                |                               | Roughing                           | .00055 | .00069 | .00082 | .00110 | .00165 | .00220 | .00330 | .00440 | .00550 | .00660       | .00880 | .25 x Dia | 3 x Dia   |
| ZINC ALLOYS                                                                                    | 800                           | Finishing                          | .00069 | .00087 | .00103 | .00139 | .00208 | .00278 | .00417 | .00556 | .00695 | .00834       | .01112 | .15 x Dia | 3 x Dia   |
| COPPER ALLOYS                                                                                  |                               |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| High Coppers - 90%+ (C1xxx)                                                                    | 225                           |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| Brass (Copper Zinc alloys, C2xxx, C3xxx, C4xxx, C6400-C6800)                                   | 500                           | Slotting                           | .00044 | .00055 | .00065 | .00088 | .00132 | .00176 | .00264 | .00352 | .00440 | .00528       | .00704 | 1 x Dia   | .35 x Dia |
| Phosphor Bronzes (Copper Tin alloys, C5xxx)                                                    | 225                           |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200)                                       | 500                           | Roughing                           | .00044 | .00055 | .00065 | .00088 | .00132 | .00176 | .00264 | .00352 | .00440 | .00528       | .00704 | .25 x Dia | 3 x Dia   |
| Silicon Bronzes (Copper Silicon alloys, C64700-C66100)                                         | 500                           |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxx)                                   | 225                           |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
| Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700) | 550                           | Finishing                          | .00055 | .00069 | .00083 | .00111 | .00166 | .00222 | .00334 | .00445 | .00556 | .00667       | .00890 | .15 x Dia | 3 x Dia   |



Speeds & Feeds

**Product Table:** Miniature End Mills - Corner Radius - Stub & Standard - Metric

**Characteristics:** 3x Length of Cut, 4 flutes

**Series:** 7425xx, 7426xx, 7441xx

**Please note:**

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](mailto:Harveytech@harveyperformance.com).

WARNING: Cutting tools may shatter under improper use. Government regulations require use of safety

| MATERIAL                                                                                                                                                                        | Hardness: 29-37 Rc (279-344 HBn) |                                    |        |        |        |        |        |        |        |        |        |              |        |           |           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------|--------|-----------|-----------|
|                                                                                                                                                                                 | SFM                              | Chip Load (IPT) by Cutter Diameter |        |        |        |        |        |        |        |        |        | Depth of Cut |        |           |           |
|                                                                                                                                                                                 |                                  | 0.062                              | 0.078  | 0.093  | 0.125  | 0.187  | 0.250  | 0.375  | 0.500  | 0.625  | 0.750  | 1.000        | Radial | Axial     |           |
| CARBON STEELS                                                                                                                                                                   | 600                              | Slotting                           | .00019 | .00024 | .00028 | .00038 | .00057 | .00076 | .00113 | .00151 | .00189 | .00227       | .00302 | 1 x Dia   | .35 x Dia |
| Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx                                                                     |                                  | Roughing                           | .00017 | .00021 | .00025 | .00034 | .00051 | .00068 | .00102 | .00136 | .00170 | .00204       | .00272 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00022 | .00027 | .00032 | .00043 | .00065 | .00087 | .00130 | .00174 | .00217 | .00261       | .00348 | .15 x Dia | 3 x Dia   |
| 1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxx, 51xxx & 51Lxx, 52xxx & 52Lxx, 6xxx, 8xxx, 9xxx                                     |                                  | Slotting                           | .00017 | .00022 | .00026 | .00035 | .00052 | .00069 | .00104 | .00138 | .00173 | .00207       | .00276 | 1 x Dia   | .35 x Dia |
|                                                                                                                                                                                 |                                  | Roughing                           | .00015 | .00019 | .00023 | .00031 | .00047 | .00062 | .00093 | .00124 | .00156 | .00187       | .00249 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00020 | .00025 | .00030 | .00040 | .00059 | .00079 | .00119 | .00159 | .00199 | .00238       | .00318 | .15 x Dia | 3 x Dia   |
| STAINLESS STEELS                                                                                                                                                                | 450                              | Slotting                           | .00019 | .00024 | .00028 | .00038 | .00057 | .00076 | .00113 | .00151 | .00189 | .00227       | .00302 | 1 x Dia   | .35 x Dia |
| 203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe                                                                                       |                                  | Roughing                           | .00017 | .00021 | .00025 | .00034 | .00051 | .00068 | .00102 | .00136 | .00170 | .00204       | .00272 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00022 | .00027 | .00032 | .00043 | .00065 | .00087 | .00130 | .00174 | .00217 | .00261       | .00348 | .15 x Dia | 3 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 |                                  | Slotting                           | .00017 | .00022 | .00026 | .00035 | .00052 | .00069 | .00104 | .00138 | .00173 | .00207       | .00276 | 1 x Dia   | .35 x Dia |
|                                                                                                                                                                                 |                                  | Roughing                           | .00015 | .00019 | .00023 | .00031 | .00047 | .00062 | .00093 | .00124 | .00156 | .00187       | .00249 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00020 | .00025 | .00030 | .00040 | .00059 | .00079 | .00119 | .00159 | .00199 | .00238       | .00318 | .15 x Dia | 3 x Dia   |
| 414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7                                                                                                                        | 150                              | Slotting                           | .00011 | .00013 | .00016 | .00022 | .00032 | .00043 | .00065 | .00086 | .00108 | .00130       | .00173 | 1 x Dia   | .35 x Dia |
|                                                                                                                                                                                 |                                  | Roughing                           | .00010 | .00012 | .00014 | .00019 | .00029 | .00039 | .00058 | .00078 | .00097 | .00117       | .00156 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00012 | .00016 | .00018 | .00025 | .00037 | .00050 | .00075 | .00099 | .00124 | .00149       | .00199 | .15 x Dia | 3 x Dia   |
| TOOL STEELS                                                                                                                                                                     | 200                              | Slotting                           | .00017 | .00022 | .00026 | .00035 | .00052 | .00069 | .00104 | .00138 | .00173 | .00207       | .00276 | 1 x Dia   | .35 x Dia |
| A, L, O, P, W series                                                                                                                                                            |                                  | Roughing                           | .00015 | .00019 | .00023 | .00031 | .00047 | .00062 | .00093 | .00124 | .00156 | .00187       | .00249 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00020 | .00025 | .00030 | .00040 | .00059 | .00079 | .00119 | .00159 | .00199 | .00238       | .00318 | .15 x Dia | 3 x Dia   |
| D, H, M, T, S series                                                                                                                                                            | 150                              | Slotting                           | .00011 | .00013 | .00016 | .00022 | .00032 | .00043 | .00065 | .00086 | .00108 | .00130       | .00173 | 1 x Dia   | .35 x Dia |
|                                                                                                                                                                                 |                                  | Roughing                           | .00010 | .00012 | .00014 | .00019 | .00029 | .00039 | .00058 | .00078 | .00097 | .00117       | .00156 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00012 | .00016 | .00018 | .00025 | .00037 | .00050 | .00075 | .00099 | .00124 | .00149       | .00199 | .15 x Dia | 3 x Dia   |
| TITANIUM ALLOYS                                                                                                                                                                 | 150                              | Slotting                           | .00011 | .00013 | .00016 | .00022 | .00032 | .00043 | .00065 | .00086 | .00108 | .00130       | .00173 | 1 x Dia   | .35 x Dia |
|                                                                                                                                                                                 |                                  | Roughing                           | .00010 | .00012 | .00014 | .00019 | .00029 | .00039 | .00058 | .00078 | .00097 | .00117       | .00156 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00012 | .00016 | .00018 | .00025 | .00037 | .00050 | .00075 | .00099 | .00124 | .00149       | .00199 | .15 x Dia | 3 x Dia   |
| HIGH TEMP ALLOYS                                                                                                                                                                | 70                               | Slotting                           | .00011 | .00013 | .00016 | .00022 | .00032 | .00043 | .00065 | .00086 | .00108 | .00130       | .00173 | 1 x Dia   | .35 x Dia |
| Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy                                                                                                        |                                  | Roughing                           | .00010 | .00012 | .00014 | .00019 | .00029 | .00039 | .00058 | .00078 | .00097 | .00117       | .00156 | .25 x Dia | 3 x Dia   |
|                                                                                                                                                                                 |                                  | Finishing                          | .00012 | .00016 | .00018 | .00025 | .00037 | .00050 | .00075 | .00099 | .00124 | .00149       | .00199 | .15 x Dia | 3 x Dia   |

| 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  | 0.375  | 0.500  | 0.625  | 0.750  | 1.000        | Radial    | Axial     |
| -                                | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
|                                  | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
|                                  | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
| -                                | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
|                                  | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
|                                  | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
| -                                | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
|                                  | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
|                                  | -                                  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -            | -         | -         |
| 100                              | Slotting                           | .00009 | .00011 | .00013 | .00017 | .00026 | .00035 | .00052 | .00069 | .00086 | .00104 | .00138       | 1 x Dia   | .35 x Dia |
|                                  | Roughing                           | .00008 | .00010 | .00012 | .00016 | .00023 | .00031 | .00047 | .00062 | .00078 | .00093 | .00124       | .25 x Dia | 3 x Dia   |
|                                  | Finishing                          | .00010 | .00013 | .00015 | .00020 | .00030 | .00040 | .00060 | .00080 | .00100 | .00120 | .00160       | .15 x Dia | 3 x Dia   |
| 90                               | Slotting                           | .00005 | .00007 | .00008 | .00011 | .00016 | .00022 | .00032 | .00043 | .00054 | .00065 | .00086       | 1 x Dia   | .35 x Dia |
|                                  | Roughing                           | .00005 | .00006 | .00007 | .00010 | .00015 | .00019 | .00029 | .00039 | .00049 | .00058 | .00078       | .25 x Dia | 3 x Dia   |
|                                  | Finishing                          | .00006 | .00008 | .00009 | .00013 | .00019 | .00025 | .00038 | .00050 | .00063 | .00075 | .00100       | .15 x Dia | 3 x Dia   |
| 100                              | Slotting                           | .00009 | .00011 | .00013 | .00017 | .00026 | .00035 | .00052 | .00069 | .00086 | .00104 | .00138       | 1 x Dia   | .35 x Dia |
|                                  | Roughing                           | .00008 | .00010 | .00012 | .00016 | .00023 | .00031 | .00047 | .00062 | .00078 | .00093 | .00124       | .25 x Dia | 3 x Dia   |
|                                  | Finishing                          | .00010 | .00013 | .00015 | .00020 | .00030 | .00040 | .00060 | .00080 | .00100 | .00120 | .00160       | .15 x Dia | 3 x Dia   |
| 90                               | Slotting                           | .00005 | .00007 | .00008 | .00011 | .00016 | .00022 | .00032 | .00043 | .00054 | .00065 | .00086       | 1 x Dia   | .35 x Dia |
|                                  | Roughing                           | .00005 | .00006 | .00007 | .00010 | .00015 | .00019 | .00029 | .00039 | .00049 | .00058 | .00078       | .25 x Dia | 3 x Dia   |
|                                  | Finishing                          | .00006 | .00008 | .00009 | .00013 | .00019 | .00025 | .00038 | .00050 | .00063 | .00075 | .00100       | .15 x Dia | 3 x Dia   |
| 75                               | Slotting                           | .00005 | .00007 | .00008 | .00011 | .00016 | .00022 | .00032 | .00043 | .00054 | .00065 | .00086       | 1 x Dia   | .35 x Dia |
|                                  | Roughing                           | .00005 | .00006 | .00007 | .00010 | .00015 | .00019 | .00029 | .00039 | .00049 | .00058 | .00078       | .25 x Dia | 3 x Dia   |
|                                  | Finishing                          | .00006 | .00008 | .00009 | .00013 | .00019 | .00025 | .00038 | .00050 | .00063 | .00075 | .00100       | .15 x Dia | 3 x Dia   |
| 50                               | Slotting                           | .00005 | .00007 | .00008 | .00011 | .00016 | .00022 | .00032 | .00043 | .00054 | .00065 | .00086       | 1 x Dia   | .35 x Dia |
|                                  | Roughing                           | .00005 | .00006 | .00007 | .00010 | .00015 | .00019 | .00029 | .00039 | .00049 | .00058 | .00078       | .25 x Dia | 3 x Dia   |
|                                  | Finishing                          | .00006 | .00008 | .00009 | .00013 | .00019 | .00025 | .00038 | .00050 | .00063 | .00075 | .00100       | .15 x Dia | 3 x Dia   |