



Speeds & Feeds

Product Table: Variable Helix End Mills for Aluminum Alloys - Square

Characteristics: 3x Length of Cut

Series: 9004xx, 9422xx, 9423xx, 9004xx-C8, 9422xx-C8, 9422xx-C8, 9004xx-C4, 9422xx-C4, 9423xx-C4

| Cutter Series | MATERIAL | SFM | Chip Load (IPT) By 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 | Radial | Axial | |
| Uncoated | ALUMINUM ALLOYS | | | | | | | | | | | | | | | | |
| | Casting (2xx, 5xx, 7xx, 8xx) | 750 | Slotting | .00020 | .00041 | .00062 | .00082 | .00103 | .00123 | .00165 | .00247 | .00330 | .00432 | .00520 | .00693 | 1x Dia | .5x Dia |
| | Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx) | 1000 | Roughing | .00023 | .00048 | .00072 | .00095 | .00120 | .00143 | .00193 | .00288 | .00385 | .00505 | .00606 | .00809 | .5x Dia | .5x - 1x Dia |
| | MAGNESIUM ALLOYS | 1500 | Finishing | .00025 | .00051 | .00078 | .00102 | .00129 | .00153 | .00206 | .00309 | .00413 | .00541 | .00650 | .00866 | .1x Dia | .5x - 1x Dia |
| | ZINC ALLOYS | 800 | Max | .00026 | .00055 | .00083 | .00109 | .00137 | .00164 | .00220 | .00329 | .00440 | .00577 | .00693 | .00924 | - | - |
| | COPPER ALLOYS | | | | | | | | | | | | | | | | |
| | High Coppers - 90%+ (C1xxxx) | 225 | Slotting | .00016 | .00033 | .00050 | .00065 | .00082 | .00098 | .00132 | .00197 | .00264 | .00346 | .00416 | .00554 | 1x Dia | .5x Dia |
| | Brass (Copper Zinc alloys, C2xxxx, C3xxxx, C4xxxx, C66400-C69800) | 500 | Roughing | .00018 | .00038 | .00058 | .00076 | .00096 | .00115 | .00154 | .00230 | .00308 | .00404 | .00485 | .00647 | .5x Dia | .5x - 1x Dia |
| | Phosphor Bronzes (Copper Tin alloys, C5xxxx) | 225 | | | | | | | | | | | | | | | |
| | Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200) | 500 | | | | | | | | | | | | | | | |
| Silicon Bronzes (Copper Silicon alloys, C64700-C66100) | 500 | Finishing | .00020 | .00041 | .00062 | .00082 | .00103 | .00123 | .00165 | .00247 | .00330 | .00432 | .00520 | .00693 | .1x Dia | .5x - 1x Dia | |
| Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxxx) | 225 | Max | .00021 | .00044 | .00066 | .00087 | .00110 | .00131 | .00176 | .00263 | .00352 | .00461 | .00554 | .00739 | - | - | |
| Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700) | 550 | | | | | | | | | | | | | | | | |
| TiB2 | ALUMINUM ALLOYS | | | | | | | | | | | | | | | | |
| | Casting (2xx, 5xx, 7xx, 8xx) | 1000 | Slotting | .00026 | .00053 | .00081 | .00106 | .00134 | .00160 | .00215 | .00321 | .00429 | .00562 | .00676 | .00901 | 1x Dia | .5x Dia |
| | Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx) | 1400 | Roughing | .00030 | .00062 | .00094 | .00124 | .00156 | .00186 | .00250 | .00374 | .00501 | .00656 | .00788 | .01051 | .5x Dia | .5x - 1x Dia |
| | MAGNESIUM ALLOYS | 2000 | Finishing | .00032 | .00066 | .00101 | .00133 | .00167 | .00199 | .00268 | .00401 | .00536 | .00703 | .00845 | .01126 | .1x Dia | .5x - 1x Dia |
| ZINC ALLOYS | 1100 | Max | .00034 | .00071 | .00108 | .00142 | .00178 | .00213 | .00286 | .00428 | .00572 | .00750 | .00901 | .01201 | | | |
| Amorphous Diamond | ALUMINUM (High Silicon) | | | | | | | | | | | | | | | | |
| | Casting - 3%-5% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx) | 2500 | Slotting | .00022 | .00045 | .00068 | .00090 | .00113 | .00135 | .00182 | .00272 | .00363 | .00476 | .00572 | .00762 | 1x Dia | .4x Dia |
| | Casting - 5%-8% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx) | 2000 | Roughing | .00025 | .00053 | .00080 | .00105 | .00132 | .00158 | .00212 | .00317 | .00424 | .00555 | .00667 | .00889 | .4x Dia | .3x - .8x Dia |
| | Casting - 8%-12% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx) | 1500 | | | | | | | | | | | | | | | |
| | Casting - 12%-16% Si (3xx, A3xx, C3xx, 4xx, A4xx, B4xx) | 1000 | Finishing | .00027 | .00056 | .00085 | .00113 | .00142 | .00169 | .00227 | .00339 | .00454 | .00595 | .00715 | .00953 | .1x Dia | .5x - 1x Dia |
| | Wrought - 5%-8% Si (4xxx) | 2200 | Max | .00029 | .00060 | .00091 | .00120 | .00151 | .00180 | .00242 | .00362 | .00484 | .00634 | .00762 | .01016 | - | - |
| | Wrought - 8%-12% Si (4xxx) | 1700 | | | | | | | | | | | | | | | |
| | COPPER ALLOYS | | | | | | | | | | | | | | | | |
| | High Coppers - 90%+ (C1xxxx) | 800 | Slotting | .00017 | .00036 | .00055 | .00072 | .00091 | .00108 | .00145 | .00217 | .00290 | .00381 | .00457 | .00610 | 1x Dia | .4x Dia |
| | Brass (Copper Zinc alloys, C2xxxx, C3xxxx, C4xxxx, C66400-C69800) | 1500 | Roughing | .00020 | .00042 | .00064 | .00084 | .00106 | .00126 | .00169 | .00253 | .00339 | .00444 | .00534 | .00711 | .4x Dia | .3x - .8x Dia |
| Phosphor Bronzes (Copper Tin alloys, C5xxxx) | 800 | | | | | | | | | | | | | | | | |
| Aluminum Bronzes (Copper Aluminum alloys, C60600-C64200) | 1000 | | | | | | | | | | | | | | | | |
| Silicon Bronzes (Copper Silicon alloys, C64700-C66100) | 1000 | Finishing | .00022 | .00045 | .00068 | .00090 | .00113 | .00135 | .00182 | .00272 | .00363 | .00476 | .00572 | .00762 | .1x Dia | .5x - 1x Dia | |
| Copper Nickels, Nickel Silvers (Copper Nickel alloys, C7xxxx) | 800 | | | | | | | | | | | | | | | | |
| Cast Copper Alloys (C80100-C82800, C86300, C90200-C91700, C96200-C96600, C99300) | 150 | Max | .00023 | .00048 | .00073 | .00096 | .00121 | .00144 | .00194 | .00290 | .00387 | .00507 | .00610 | .00813 | - | - | |
| Cast Copper Alloys (C83300-C86200, C86400-C87900, C92200-C95800, C97300-C97800, C99400-C99700) | 750 | | | | | | | | | | | | | | | | |

Please note: All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. If less than minimum Axial or Radial DOC values are used, increased feed rates are possible. If greater than maximum Axial or Radial DOC values are used, decreased feed rates may be needed. 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.