



Speeds & Feeds - Face Grooving Tools

Speeds & Feeds listed are based on a tool that has a reach 3X the min. bore diameter. These are considered safe starting parameters and will vary by application. To achieve optimal Speeds & Feeds please contact Micro 100 tech support at 800-421-8065.

Quick Change

QFG Face Grooving - Square
 QFGC Face Grooving - Corner Radius
 QFGF Face Grooving - Full Radius
 QFGI Face Grooving - Internal Tooth - Square
 QFGIC Face Grooving - Internal Tooth - Corner Radius
 QFGIF Face Grooving - Internal Tooth - Full Radius

Standard

FG Face Grooving - Square
 FGC Face Grooving - Corner Radius
 FGF Face Grooving - Full Radius
 FGI Face Grooving - Internal Tooth - Square
 FGIC Face Grooving - Internal Tooth - Corner Radius
 FGIF Face Grooving - Internal Tooth - Full Radius

| Material Guide | | Hardness | SFM | FEED RATE IN INCHES PER REVOLUTION BY GROOVE WIDTH | | | | | |
|--|--|---|----------------------------|--|-------------|-------------|-------------|-------------|--------|
| | | | | .015 - .025 | .026 - .035 | .036 - .050 | .051 - .080 | .081 - .150 | > .151 |
| WROUGHT ALUMINUM ALLOY | 2014, 5062, 6061, 7050, 7075, 7475 | <75 HRB | 600 | 0.0005 | 0.0009 | 0.0013 | 0.0025 | 0.003 | 0.004 |
| CAST ALUMINUM ALLOY | 319.0, 328.0, 355.0, 360.0, 380.0, 383.0, 390.0, 520.0, 535.0 | <75 HRB | 400 | | | | | | |
| COPPER ALLOY | Cu-ETP, CuBe2, CuZn30, CuZn36Pb3, CuZn10, CuSn5 | <75 HRB | 450 | 0.0005 | 0.0009 | 0.0013 | 0.002 | 0.0025 | 0.003 |
| CARBON STEEL | 10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36 | <75 HRB 75 - 98 HRB 21 - 36 HRC | 200 | 0.0004 | 0.0008 | 0.0011 | 0.0017 | 0.0021 | 0.0026 |
| LOW ALLOY STEEL | 13XX, 41XX, 43XX, 51XX, 86XX, 93XX | 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC >50 HRC | 150 150 100 60 | 0.0004 | 0.0008 | 0.0011 | 0.0017 | 0.0021 | 0.0026 |
| TOOL STEEL | A2, H13, L6, P20, S7 | 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC >50 HRC | 100 80 65 35 | | | | | | |
| SPECIALTY STEEL | 300M, Invar 36, Kovar, Maraging 200, Maraging 250, Maraging 300, Maraging 350 | <75 HRB 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC >50 HRC | 75 65 50 40 35 | 0.0004 | 0.0008 | 0.0011 | 0.0017 | 0.0021 | 0.0026 |
| AUSTENITIC STAINLESS STEEL | Nitronic 50, Nitronic 60, 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347 | 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC | 140 110 50 | | | | | | |
| MARTENSITIC & FERRITIC STAINLESS STEEL | 403, 410, 416, 420, 440, 430, 446 | 75 - 98 HRB 21 - 36 HRC | 160 115 | 0.0002 | 0.0003 | 0.0007 | 0.0014 | 0.0017 | 0.002 |
| PH STAINLESS STEEL | 15-5, 17-4, Carpenter 450, Carpenter 465 | 21 - 36 HRC 36 - 50 HRC | 100 73 | | | | | | |
| GRAY CAST IRON | AE J431, ASTM A48 | 75 - 98 HRB 21 - 36 HRC | 205 185 | 0.0005 | 0.0009 | 0.0012 | 0.0019 | 0.0024 | 0.0038 |
| MALLEABLE CAST IRON | ASTM A47, ASTM A220, ASTM A602 | 75 - 98 HRB 21 - 36 HRC | 173 168 | | | | | | |
| NODULAR (DUCTILE) CAST IRON | ASTM A536, ASTM 897 | 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC | 155 130 68 | 0.0005 | 0.0009 | 0.0012 | 0.0019 | 0.0024 | 0.0038 |
| PURE NICKEL | Nickel 200, Nickel 201 | <75 HRB 75 - 98 HRB | 143 125 | | | | | | |
| NICKEL ALLOY | Hastelloy C-22, Inconel 625, Waspaloy, René 41, Inconel 718, Incoloy 20 | 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC | 55 38 35 | 0.0002 | 0.0005 | 0.0008 | 0.0011 | 0.0015 | 0.0019 |
| PURE TITANIUM | Ti Grade 1, Ti Grade 2, Ti Grade 3, Ti Grade 4, Ti Grade 7, Ti Grade 12 | <75 HRB 75 - 98 HRB 21 - 36 HRC | 150 138 125 | | | | | | |
| TITANIUM ALLOY | Ti 3Al-2.5V, Ti 6Al-4V, Ti 10V-2Fe-3Al | 21 - 28 HRC 29 - 36 HRC | 100 75 | 0.0004 | 0.0007 | 0.0010 | 0.0015 | 0.0019 | 0.0023 |
| COBALT ALLOY | ASTM F562, ASTM F90, ASTM F75, ASTM F799 | 75 - 98 HRB 21 - 36 HRC 36 - 50 HRC | 105 85 33 | | | | | | |

Helpful Hints

- Program in G96 (Constant Surface Footage On) in conjunction with G50 (Maximum Spindle Speed) to achieve best part finish
- Calculate RPM by part diameter being cut
- When using coated tools, increase SFM 5% - 10%
- Peck feed may be required to break chip on some materials and can be achieved by two different methods:
 - » Dwell Method: Programming in a short dwell to allow the chip to break and evacuate
 - » Retract Method: Retracting the tool at a distance equal to 1/2 the feed rate, and then resuming the cut. Example: if your feed rate is .006, retract by .003 and then resume feed to avoid chip pinching