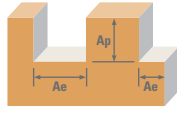


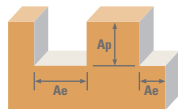
FRACTIONAL Series 27



| Series 27 Fractional | | | Vc (sfm) | DC • in | | | | |
|---|-------------|-------------|-------------|------------|--------|--------|--------|--------|
| | Ae x DC | Ap x DC | | 1/4 | 3/8 | 1/2 | 3/4 | |
| CFRP, AFRP (CARBON FIBER, ARAMID FIBER) | Slot | 1 ≤ 1 | 400 | RPM | 6112 | 4075 | 3056 | 2037 |
| | | | (320-480) | Fz | 0.0016 | 0.0030 | 0.0040 | 0.0048 |
| | | | | Feed (ipm) | 39 | 49 | 49 | 39 |
| | Profile | ≤ 0.5 ≤ 1.5 | 500 | RPM | 7640 | 5093 | 3820 | 2547 |
| | | | (400-600) | Fz | 0.0016 | 0.0030 | 0.0040 | 0.0048 |
| | | | | Feed (ipm) | 49 | 61 | 61 | 49 |
| | HSM | ≤ 0.5 ≤ 2 | 825 | RPM | 12606 | 8404 | 6303 | 4202 |
| | | | (660-990) | Fz | 0.0037 | 0.0069 | 0.0092 | 0.0110 |
| | | | | Feed (ipm) | 187 | 232 | 232 | 185 |
| GFRP (FIBERGLASS) | Slot | 1 ≤ 1 | 320 | RPM | 4890 | 3260 | 2445 | 1630 |
| | | | (256-384) | Fz | 0.0016 | 0.0030 | 0.0040 | 0.0048 |
| | | | | Feed (ipm) | 31 | 39 | 39 | 31 |
| | Profile | ≤ 0.5 ≤ 1.5 | 400 | RPM | 6112 | 4075 | 3056 | 2037 |
| | | | (320-480) | Fz | 0.0016 | 0.0030 | 0.0040 | 0.0048 |
| | | | | Feed (ipm) | 39 | 49 | 49 | 39 |
| | HSM | ≤ 0.5 ≤ 2 | 660 | RPM | 10085 | 6723 | 5042 | 3362 |
| | | | (528-792) | Fz | 0.0037 | 0.0069 | 0.0092 | 0.0110 |
| | | | | Feed (ipm) | 149 | 186 | 186 | 148 |
| N CARBON, GRAPHITE | Slot | 1 ≤ 1 | 480 | RPM | 7334 | 4890 | 3667 | 2445 |
| | | | (384-576) | Fz | 0.0020 | 0.0038 | 0.0050 | 0.0060 |
| | | | | Feed (ipm) | 59 | 74 | 73 | 59 |
| | Profile | ≤ 0.5 ≤ 1.5 | 600 | RPM | 9168 | 6112 | 4584 | 3056 |
| | | | (480-720) | Fz | 0.0020 | 0.0038 | 0.0050 | 0.0060 |
| | | | | Feed (ipm) | 73 | 93 | 92 | 73 |
| | HSM | ≤ 0.5 ≤ 2 | 990 | RPM | 15127 | 10085 | 7564 | 5042 |
| | | | (792-1188) | Fz | 0.0046 | 0.0086 | 0.0115 | 0.0138 |
| | | | | Feed (ipm) | 278 | 347 | 348 | 278 |
| PLASTICS | Slot | 1 ≤ 1 | 800 | RPM | 12224 | 8149 | 6112 | 4075 |
| | | | (640-690) | Fz | 0.0020 | 0.0038 | 0.0050 | 0.0060 |
| | | | | Feed (ipm) | 98 | 124 | 122 | 98 |
| | Profile | ≤ 0.5 ≤ 1.5 | 1000 | RPM | 15280 | 10187 | 7640 | 5093 |
| | | | (800-1200) | Fz | 0.0020 | 0.0038 | 0.0050 | 0.0060 |
| | | | | Feed (ipm) | 122 | 155 | 153 | 122 |
| | HSM | ≤ 0.5 ≤ 2 | 1650 | RPM | 25212 | 16808 | 12606 | 8404 |
| | | | (1320-1980) | Fz | 0.0046 | 0.0086 | 0.0115 | 0.0138 |
| | | | | Feed (ipm) | 464 | 578 | 580 | 464 |
| MACHINABLE CERAMICS MACHINABLE GLASS | Slot | 1 ≤ 1 | 40 | RPM | 611 | 407 | 306 | 204 |
| | | | (32-48) | Fz | 0.0008 | 0.0015 | 0.0020 | 0.0024 |
| | | | | Feed (ipm) | 2.0 | 2.4 | 2.4 | 2.0 |
| | Profile | ≤ 0.5 ≤ 1.5 | 50 | RPM | 764 | 509 | 382 | 255 |
| | | | (40-60) | Fz | 0.0008 | 0.0015 | 0.0020 | 0.0024 |
| | | | | Feed (ipm) | 2.4 | 3.1 | 3.1 | 2.4 |
| | HSM | ≤ 0.5 ≤ 2 | 85 | RPM | 1299 | 866 | 649 | 433 |
| | | | (68-102) | Fz | 0.0018 | 0.0034 | 0.0046 | 0.0055 |
| | | | | Feed (ipm) | 9.4 | 11.8 | 11.9 | 9.5 |

HSM (High Speed Machining)
 $rpm = Vc \times 3.82 / DC$
 $ipm = Fz \times 4 \times rpm$
 adjust parameters based on resin type and fiber structure
 reduce speed when overheating causes melting or damage to resin
 reduce feed if delamination or fraying occur
 finish cuts typically required reduced feed and cutting depths

rates shown are for use without coolant; rates may be increased with coolant
 dust collection is vital when machining dry
 diamond coating will increase tool life in graphite and composite materials
 feed rates listed have chip thinning adjustments included where applicable
 refer to the SGS Tool Wizard® for complete technical information
 (www.kyocera-sgstool.com)



| Series 27M Metric | Ae x DC | Ap x DC | Vc (m/min) | DC • mm | | | | | | |
|---|-------------|---------|---------------|---------------|-------|-------|-------|-------|-------|-------|
| | | | | 6 | 8 | 10 | 12 | 16 | | |
| CFRP, AFRP (CARBON FIBER, ARAMID FIBER) | Slot | 1 | ≤ 1 | 120 | RPM | 6361 | 4771 | 3817 | 3181 | 2385 |
| | | | | (96-164) | Fz | 0.040 | 0.065 | 0.075 | 0.100 | 0.120 |
| | | | | Feed (mm/min) | 1018 | 1240 | 1145 | 1272 | 1145 | |
| | Profile | ≤ 0.5 | ≤ 1.5 | 150 | RPM | 7951 | 5963 | 4771 | 3976 | 2982 |
| | | | | (120-180) | Fz | 0.040 | 0.065 | 0.075 | 0.100 | 0.120 |
| | | | | Feed (mm/min) | 1272 | 1550 | 1431 | 1590 | 1431 | |
| | HSM | ≤ 0.5 | ≤ 2 | 250 | RPM | 13252 | 9939 | 7951 | 6626 | 4970 |
| | | | | (200-300) | Fz | 0.095 | 0.145 | 0.175 | 0.235 | 0.280 |
| | | | | Feed (mm/min) | 5036 | 5765 | 5566 | 6228 | 5566 | |
| GFRP (FIBERGLASS) | Slot | 1 | ≤ 1 | 100 | RPM | 5301 | 3976 | 3181 | 2650 | 1988 |
| | | | | (80-120) | Fz | 0.040 | 0.065 | 0.075 | 0.100 | 0.120 |
| | | | | Feed (mm/min) | 848 | 1034 | 954 | 1060 | 954 | |
| | Profile | ≤ 0.5 | ≤ 1.5 | 120 | RPM | 6361 | 4771 | 3817 | 3181 | 2385 |
| | | | | (96-164) | Fz | 0.040 | 0.065 | 0.075 | 0.100 | 0.120 |
| | | | | Feed (mm/min) | 1018 | 1240 | 1145 | 1272 | 1145 | |
| | HSM | ≤ 0.5 | ≤ 2 | 200 | RPM | 10602 | 7951 | 6361 | 5301 | 3976 |
| | | | | (160-240) | Fz | 0.095 | 0.145 | 0.175 | 0.235 | 0.280 |
| | | | | Feed (mm/min) | 4029 | 4612 | 4453 | 4983 | 4453 | |
| N CARBON, GRAPHITE | Slot | 1 | ≤ 1 | 145 | RPM | 7686 | 5765 | 4612 | 3843 | 2882 |
| | | | | (116-174) | Fz | 0.050 | 0.080 | 0.095 | 0.125 | 0.150 |
| | | | | Feed (mm/min) | 1537 | 1845 | 1752 | 1922 | 1729 | |
| | Profile | ≤ 0.5 | ≤ 1.5 | 185 | RPM | 9807 | 7355 | 5884 | 4903 | 3677 |
| | | | | (148-222) | Fz | 0.050 | 0.080 | 0.095 | 0.125 | 0.150 |
| | | | | Feed (mm/min) | 1961 | 2354 | 2236 | 2452 | 2206 | |
| | HSM | ≤ 0.5 | ≤ 2 | 300 | RPM | 15903 | 11927 | 9542 | 7951 | 5963 |
| | | | | (240-360) | Fz | 0.115 | 0.185 | 0.220 | 0.290 | 0.350 |
| | | | | Feed (mm/min) | 7315 | 8826 | 8397 | 9223 | 8349 | |
| PLASTICS | Slot | 1 | ≤ 1 | 245 | RPM | 12987 | 9740 | 7792 | 6494 | 4870 |
| | | | | (196-294) | Fz | 0.050 | 0.080 | 0.095 | 0.125 | 0.150 |
| | | | | Feed (mm/min) | 2597 | 3117 | 2961 | 3247 | 2922 | |
| | Profile | ≤ 0.5 | ≤ 1.5 | 305 | RPM | 16168 | 12126 | 9701 | 8084 | 6063 |
| | | | | (244-366) | Fz | 0.050 | 0.080 | 0.095 | 0.125 | 0.150 |
| | | | | Feed (mm/min) | 3234 | 3880 | 3686 | 4042 | 3638 | |
| | HSM | ≤ 0.5 | ≤ 2 | 505 | RPM | 26769 | 20077 | 16062 | 13385 | 10038 |
| | | | | (404-606) | Fz | 0.115 | 0.185 | 0.220 | 0.290 | 0.350 |
| | | | | Feed (mm/min) | 12314 | 14857 | 14134 | 15526 | 14054 | |
| MACHINABLE CERAMICS MACHINABLE GLASS | Slot | 1 | ≤ 1 | 10 | RPM | 530 | 398 | 318 | 265 | 199 |
| | | | | (8-12) | Fz | 0.020 | 0.035 | 0.045 | 0.050 | 0.060 |
| | | | | Feed (mm/min) | 42 | 56 | 57 | 53 | 48 | |
| | Profile | ≤ 0.5 | ≤ 1.5 | 15 | RPM | 795 | 596 | 477 | 398 | 298 |
| | | | | (12-18) | Fz | 0.020 | 0.035 | 0.045 | 0.050 | 0.060 |
| | | | | Feed (mm/min) | 64 | 83 | 86 | 80 | 72 | |
| | HSM | ≤ 0.5 | ≤ 2 | 25 | RPM | 1325 | 994 | 795 | 663 | 497 |
| | | | | (20-30) | Fz | 0.045 | 0.075 | 0.085 | 0.115 | 0.140 |
| | | | | Feed (mm/min) | 239 | 298 | 270 | 305 | 278 | |

HSM (High Speed Machining)
 $rpm = Vc \times 3.82 / DC$
 $mm/min = Fz \times 4 \times rpm$
 adjust parameters based on resin type and fiber structure
 reduce speed when overheating causes melting or damage to resin
 reduce feed if delamination or fraying occur
 finish cuts typically require reduced feed and cutting depths

rates shown are for use without coolant; rates may be increased with coolant
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 refer to the SGS Tool Wizard® for complete technical information
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