


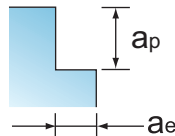


CUTTING CONDITION - ISE/ISB SERIES

FRACTIONAL

| Side Milling  | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | | | | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100 | | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | | | | | |
|---|---|---------|---|----------|---|--------|---|------------|---|----------|---|---------|---|----------|---|-------|---------|------------|----------|----------|
| | ≧ 175 | | | | ≧ 275 | | | | ≧ 375 | | | | ≧ 375 | | | | | | | |
| Hardness BRINELL | ≧ 175 | | | | ≧ 275 | | | | ≧ 375 | | | | ≧ 375 | | | | | | | |
| HRC | ≧ 6.4 | | | | ≧ 28 | | | | ≧ 39.8 | | | | ≧ 39.8 | | | | | | | |
| Vc (SFM) | 437 (350-525) | | | | 318 (255-382) | | | | 320 (256-384) | | | | 166 (133-199) | | | | | | | |
| ae/ap | ae(2)=0.05D ae(4)=0.25D ap(3)=1.5D | | ae(3)=0.25D ap(2)=1.5D ap(4)=1.5D | | ae(2)=0.05D ae(4)=0.25D ap(3)=1.5D | | ae(3)=0.25D ap(2)=1.5D ap(4)=1.5D | | ae(2)=0.05D ae(4)=0.25D ap(3)=1.5D | | ae(3)=0.25D ap(2)=1.5D ap(4)=1.5D | | ae(2)=0.05D ae(4)=0.25D ap(3)=1.5D | | ae(3)=0.25D ap(2)=1.5D ap(4)=1.5D | | | | | |
| MILL DIA. (inch) | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | |
| | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes |
| 1/64 | 106,838 | 0.00003 | 6.4 | 9.6 | 12.8 | 77,806 | 0.00002 | 3.11 | 4.67 | 6.22 | 77992 | 0.00003 | 4.7 | 7.0 | 9.4 | 40598 | 0.00002 | 1.6 | 2.4 | 3.2 |
| 1/32 | 53,419 | 0.00006 | 6.4 | 9.6 | 12.8 | 38,903 | 0.00005 | 3.89 | 5.84 | 7.78 | 38996 | 0.00006 | 4.7 | 7.0 | 9.4 | 20299 | 0.00005 | 2.0 | 3.0 | 4.1 |
| 3/64 | 35,613 | 0.00010 | 7.1 | 10.7 | 14.2 | 25,935 | 0.00007 | 3.63 | 5.45 | 7.26 | 25997 | 0.00010 | 5.2 | 7.8 | 10.4 | 13533 | 0.00007 | 1.9 | 2.8 | 3.8 |
| 1/16 | 26,709 | 0.00013 | 6.9 | 10.4 | 13.9 | 19,451 | 0.00009 | 3.50 | 5.25 | 7.00 | 19498 | 0.00013 | 5.1 | 7.6 | 10.1 | 10150 | 0.00009 | 1.8 | 2.7 | 3.7 |
| 5/64 | 21,368 | 0.00018 | 7.7 | 11.5 | 15.4 | 15,561 | 0.00012 | 3.66 | 5.49 | 7.31 | 15598 | 0.00018 | 5.6 | 8.4 | 11.2 | 8120 | 0.00012 | 1.9 | 2.9 | 3.8 |
| 3/32 | 17,806 | 0.00023 | 8.2 | 12.3 | 16.4 | 12,968 | 0.00015 | 3.76 | 5.64 | 7.52 | 12999 | 0.00023 | 6.0 | 9.0 | 12.0 | 6766 | 0.00015 | 2.0 | 2.9 | 3.9 |
| 7/64 | 15,263 | 0.00027 | 8.2 | 12.4 | 16.5 | 11,115 | 0.00017 | 3.83 | 5.75 | 7.67 | 11142 | 0.00027 | 6.0 | 9.0 | 12.0 | 5800 | 0.00017 | 2.0 | 3.0 | 4.0 |
| 1/8 | 13,355 | 0.00030 | 8.0 | 12.0 | 16.0 | 9,726 | 0.00020 | 3.89 | 5.84 | 7.78 | 9749 | 0.00030 | 5.8 | 8.8 | 11.7 | 5075 | 0.00020 | 2.0 | 3.0 | 4.1 |
| 9/64 | 11,871 | 0.00036 | 8.6 | 12.9 | 17.2 | 8,645 | 0.00025 | 4.32 | 6.48 | 8.65 | 8666 | 0.00036 | 6.3 | 9.4 | 12.6 | 4511 | 0.00025 | 2.3 | 3.4 | 4.5 |
| 5/32 | 10,684 | 0.00043 | 9.1 | 13.6 | 18.2 | 7,781 | 0.00030 | 4.67 | 7.00 | 9.34 | 7799 | 0.00043 | 6.6 | 9.9 | 13.3 | 4060 | 0.00030 | 2.4 | 3.7 | 4.9 |
| 11/64 | 9,713 | 0.00049 | 9.5 | 14.2 | 18.9 | 7,073 | 0.00035 | 4.95 | 7.43 | 9.90 | 7090 | 0.00049 | 6.9 | 10.4 | 13.8 | 3691 | 0.00035 | 2.6 | 3.9 | 5.2 |
| 3/16 | 8,903 | 0.00055 | 9.8 | 14.7 | 19.6 | 6,484 | 0.00040 | 5.19 | 7.78 | 10.37 | 6499 | 0.00055 | 7.1 | 10.7 | 14.3 | 3383 | 0.00040 | 2.7 | 4.1 | 5.4 |
| 13/64 | 8,218 | 0.00061 | 10.1 | 15.1 | 20.1 | 5,985 | 0.00045 | 5.39 | 8.08 | 10.77 | 5999 | 0.00061 | 7.3 | 11.0 | 14.7 | 3123 | 0.00045 | 2.8 | 4.2 | 5.6 |
| 7/32 | 7,631 | 0.00068 | 10.3 | 15.5 | 20.6 | 5,558 | 0.00050 | 5.56 | 8.34 | 11.12 | 5571 | 0.00068 | 7.5 | 11.3 | 15.0 | 2900 | 0.00050 | 2.9 | 4.3 | 5.8 |
| 15/64 | 7,123 | 0.00074 | 10.5 | 15.8 | 21.0 | 5,187 | 0.00055 | 5.71 | 8.56 | 11.41 | 5199 | 0.00074 | 7.7 | 11.5 | 15.3 | 2707 | 0.00055 | 3.0 | 4.5 | 6.0 |
| 1/4 | 6,677 | 0.00080 | 10.7 | 16.0 | 21.4 | 4,863 | 0.00060 | 5.84 | 8.75 | 11.67 | 4874 | 0.00080 | 7.8 | 11.7 | 15.6 | 2537 | 0.00060 | 3.0 | 4.6 | 6.1 |
| 17/64 | 6,285 | 0.00089 | 11.2 | 16.7 | 22.3 | 4,577 | 0.00066 | 6.06 | 9.10 | 12.13 | 4588 | 0.00089 | 8.1 | 12.2 | 16.3 | 2388 | 0.00066 | 3.2 | 4.7 | 6.3 |
| 9/32 | 5,935 | 0.00098 | 11.6 | 17.4 | 23.1 | 4,323 | 0.00073 | 6.27 | 9.40 | 12.54 | 4333 | 0.00098 | 8.4 | 12.7 | 16.9 | 2255 | 0.00073 | 3.3 | 4.9 | 6.5 |
| 19/64 | 5,623 | 0.00106 | 11.9 | 17.9 | 23.9 | 4,095 | 0.00079 | 6.45 | 9.67 | 12.90 | 4105 | 0.00106 | 8.7 | 13.1 | 17.4 | 2137 | 0.00079 | 3.4 | 5.0 | 6.7 |
| 5/16 | 5,342 | 0.00115 | 12.3 | 18.4 | 24.6 | 3,890 | 0.00085 | 6.61 | 9.92 | 13.23 | 3900 | 0.00115 | 9.0 | 13.5 | 17.9 | 2030 | 0.00085 | 3.5 | 5.2 | 6.9 |
| 21/64 | 5,088 | 0.00124 | 12.6 | 18.9 | 25.2 | 3,705 | 0.00091 | 6.76 | 10.14 | 13.52 | 3714 | 0.00124 | 9.2 | 13.8 | 18.4 | 1933 | 0.00091 | 3.5 | 5.3 | 7.1 |
| 11/32 | 4,856 | 0.00133 | 12.9 | 19.3 | 25.7 | 3,537 | 0.00098 | 6.90 | 10.34 | 13.79 | 3545 | 0.00133 | 9.4 | 14.1 | 18.8 | 1845 | 0.00098 | 3.6 | 5.4 | 7.2 |
| 23/64 | 4,645 | 0.00141 | 13.1 | 19.7 | 26.2 | 3,383 | 0.00104 | 7.02 | 10.53 | 14.04 | 3391 | 0.00141 | 9.6 | 14.4 | 19.2 | 1765 | 0.00104 | 3.7 | 5.5 | 7.3 |
| 3/8 | 4,452 | 0.00150 | 13.4 | 20.0 | 26.7 | 3,242 | 0.00110 | 7.13 | 10.70 | 14.26 | 3250 | 0.00150 | 9.7 | 14.6 | 19.5 | 1692 | 0.00110 | 3.7 | 5.6 | 7.4 |
| 25/64 | 4,274 | 0.00156 | 13.4 | 20.0 | 26.7 | 3,112 | 0.00115 | 7.16 | 10.74 | 14.32 | 3120 | 0.00156 | 9.7 | 14.6 | 19.5 | 1624 | 0.00115 | 3.7 | 5.6 | 7.5 |
| 13/32 | 4,109 | 0.00163 | 13.4 | 20.0 | 26.7 | 2,993 | 0.00120 | 7.18 | 10.77 | 14.36 | 3000 | 0.00163 | 9.7 | 14.6 | 19.5 | 1561 | 0.00120 | 3.7 | 5.6 | 7.5 |
| 27/64 | 3,957 | 0.00169 | 13.4 | 20.0 | 26.7 | 2,882 | 0.00125 | 7.20 | 10.81 | 14.41 | 2889 | 0.00169 | 9.7 | 14.6 | 19.5 | 1504 | 0.00125 | 3.8 | 5.6 | 7.5 |
| 7/16 | 3,816 | 0.00175 | 13.4 | 20.0 | 26.7 | 2,779 | 0.00130 | 7.22 | 10.84 | 14.45 | 2785 | 0.00175 | 9.7 | 14.6 | 19.5 | 1450 | 0.00130 | 3.8 | 5.7 | 7.5 |
| 29/64 | 3,684 | 0.00181 | 13.4 | 20.0 | 26.7 | 2,683 | 0.00135 | 7.24 | 10.87 | 14.49 | 2689 | 0.00181 | 9.7 | 14.6 | 19.5 | 1400 | 0.00135 | 3.8 | 5.7 | 7.6 |
| 15/32 | 3,561 | 0.00188 | 13.4 | 20.0 | 26.7 | 2,594 | 0.00140 | 7.26 | 10.89 | 14.52 | 2600 | 0.00188 | 9.7 | 14.6 | 19.5 | 1353 | 0.00140 | 3.8 | 5.7 | 7.6 |
| 31/64 | 3,446 | 0.00194 | 13.4 | 20.0 | 26.7 | 2,510 | 0.00145 | 7.28 | 10.92 | 14.56 | 2516 | 0.00194 | 9.7 | 14.6 | 19.5 | 1310 | 0.00145 | 3.8 | 5.7 | 7.6 |
| 1/2 | 3,339 | 0.00200 | 13.4 | 20.0 | 26.7 | 2,431 | 0.00150 | 7.29 | 10.94 | 14.59 | 2437 | 0.00200 | 9.7 | 14.6 | 19.5 | 1269 | 0.00150 | 3.8 | 5.7 | 7.6 |
| 9/16 | 2,968 | 0.00210 | 12.5 | 18.7 | 24.9 | 2,161 | 0.00158 | 6.81 | 10.21 | 13.62 | 2166 | 0.00210 | 9.1 | 13.6 | 18.2 | 1128 | 0.00158 | 3.6 | 5.3 | 7.1 |
| 5/8 | 2,671 | 0.00220 | 11.8 | 17.6 | 23.5 | 1,945 | 0.00165 | 6.42 | 9.63 | 12.84 | 1950 | 0.00220 | 8.6 | 12.9 | 17.2 | 1015 | 0.00165 | 3.3 | 5.0 | 6.7 |
| 11/16 | 2,428 | 0.00230 | 11.2 | 16.8 | 22.3 | 1,768 | 0.00173 | 6.10 | 9.15 | 12.20 | 1773 | 0.00230 | 8.2 | 12.2 | 16.3 | 923 | 0.00173 | 3.2 | 4.8 | 6.4 |
| 3/4 | 2,226 | 0.00240 | 10.7 | 16.0 | 21.4 | 1,621 | 0.00180 | 5.84 | 8.75 | 11.67 | 1625 | 0.00240 | 7.8 | 11.7 | 15.6 | 846 | 0.00180 | 3.0 | 4.6 | 6.1 |
| 7/8 | 1,908 | 0.00260 | 9.9 | 14.9 | 19.8 | 1,389 | 0.00195 | 5.42 | 8.13 | 10.84 | 1393 | 0.00260 | 7.2 | 10.9 | 14.5 | 725 | 0.00195 | 2.8 | 4.2 | 5.7 |
| 1 | 1,669 | 0.00280 | 9.3 | 14.0 | 18.7 | 1,216 | 0.00210 | 5.11 | 7.66 | 10.21 | 1219 | 0.00280 | 6.8 | 10.2 | 13.6 | 634 | 0.00210 | 2.7 | 4.0 | 5.3 |


Depth of cut



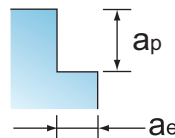
rpm=sfm×3.82/D1
ipm=(inch/flute)×4×rpm

CUTTING CONDITION - ISE/ISB SERIES

FRACTIONAL

| Side Milling  | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | | CAST IRONS Gray, Malleable, Ductile | | | | STAINLESS STEELS (Free Machining) 303, 416, 420F, 430F 440F | | | | STAINLESS STEELS (Difficult) 304, 304L, 316, 316L | | | | | | | |
|--|--|---------|------------|--|--|--------|---------|--|---|----------|--------|--|---|----------|----------|--------|---------|------------|----------|----------|
| | Hardness BRINELL V 475 ≡ 655 | | | | ≡ 220 | | | | ≡ 275 | | | | ≡ 275 | | | | | | | |
| HRC V 50 ≡ 65 | | | | ≡ 18.8 | | | | ≡ 28 | | | | ≡ 28 | | | | | | | | |
| Vc (SFM) 71 (57-85) | | | | 335 (255-382) | | | | 318 (281-422) | | | | 242 (194-290) | | | | | | | | |
| ae/ap ae(2)=0.05D ae(3)=0.25D ae(4)=0.25D ap(2)=1.5D ap(3)=1.5D ap(4)=1.5D | | | | ae(2)=0.05D ae(3)=0.25D ae(4)=0.25D ap(2)=1.5D ap(3)=1.5D ap(4)=1.5D | | | | ae(2)=0.05D ae(3)=0.25D ae(4)=0.25D ap(2)=1.5D ap(3)=1.5D ap(4)=1.5D | | | | ae(2)=0.05D ae(3)=0.25D ae(4)=0.25D ap(2)=1.5D ap(3)=1.5D ap(4)=1.5D | | | | | | | | |
| MILL DIA. (inch) | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | |
| | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes |
| 1/64 | 17094 | 0.00001 | 0.3 | 0.5 | 0.7 | 77,806 | 0.00003 | 4.7 | 7.0 | 9.3 | 85,935 | 0.00002 | 3.4 | 5.2 | 6.9 | 59,225 | 0.00002 | 2.4 | 3.6 | 4.7 |
| 1/32 | 8547 | 0.00003 | 0.4 | 0.6 | 0.8 | 38,903 | 0.00006 | 4.7 | 7.0 | 9.3 | 42,967 | 0.00005 | 4.3 | 6.4 | 8.6 | 29,613 | 0.00004 | 2.4 | 3.6 | 4.7 |
| 3/64 | 5698 | 0.00004 | 0.4 | 0.6 | 0.8 | 25,935 | 0.00010 | 5.2 | 7.8 | 10.4 | 28,645 | 0.00007 | 4.0 | 6.0 | 8.0 | 19,742 | 0.00006 | 2.4 | 3.6 | 4.7 |
| 1/16 | 4274 | 0.00005 | 0.4 | 0.6 | 0.8 | 19,451 | 0.00013 | 5.1 | 7.6 | 10.1 | 21,484 | 0.00009 | 3.9 | 5.8 | 7.7 | 14,806 | 0.00008 | 2.4 | 3.6 | 4.7 |
| 5/64 | 3419 | 0.00006 | 0.4 | 0.6 | 0.8 | 15,561 | 0.00018 | 5.6 | 8.4 | 11.2 | 17,187 | 0.00012 | 4.0 | 6.1 | 8.1 | 11,845 | 0.00011 | 2.6 | 3.9 | 5.2 |
| 3/32 | 2849 | 0.00007 | 0.4 | 0.6 | 0.8 | 12,968 | 0.00023 | 6.0 | 8.9 | 11.9 | 14,322 | 0.00015 | 4.2 | 6.2 | 8.3 | 9,871 | 0.00014 | 2.8 | 4.1 | 5.5 |
| 7/64 | 2442 | 0.00009 | 0.4 | 0.6 | 0.8 | 11,115 | 0.00027 | 6.0 | 9.0 | 12.0 | 12,276 | 0.00017 | 4.2 | 6.4 | 8.5 | 8,461 | 0.00017 | 2.9 | 4.3 | 5.8 |
| 1/8 | 2137 | 0.00010 | 0.4 | 0.6 | 0.9 | 9,726 | 0.00030 | 5.8 | 8.8 | 11.7 | 10,742 | 0.00020 | 4.3 | 6.4 | 8.6 | 7,403 | 0.00020 | 3.0 | 4.4 | 5.9 |
| 9/64 | 1899 | 0.00013 | 0.5 | 0.7 | 0.9 | 8,645 | 0.00036 | 6.3 | 9.4 | 12.5 | 9,548 | 0.00025 | 4.8 | 7.2 | 9.5 | 6,581 | 0.00024 | 3.1 | 4.7 | 6.3 |
| 5/32 | 1709 | 0.00015 | 0.5 | 0.8 | 1.0 | 7,781 | 0.00043 | 6.6 | 9.9 | 13.2 | 8,593 | 0.00030 | 5.2 | 7.7 | 10.3 | 5,923 | 0.00028 | 3.3 | 4.9 | 6.5 |
| 11/64 | 1554 | 0.00018 | 0.5 | 0.8 | 1.1 | 7,073 | 0.00049 | 6.9 | 10.3 | 13.8 | 7,812 | 0.00035 | 5.5 | 8.2 | 10.9 | 5,384 | 0.00031 | 3.4 | 5.0 | 6.7 |
| 3/16 | 1425 | 0.00020 | 0.6 | 0.9 | 1.1 | 6,484 | 0.00055 | 7.1 | 10.7 | 14.3 | 7,161 | 0.00040 | 5.7 | 8.6 | 11.5 | 4,935 | 0.00035 | 3.5 | 5.2 | 6.9 |
| 13/64 | 1315 | 0.00023 | 0.6 | 0.9 | 1.2 | 5,985 | 0.00061 | 7.3 | 11.0 | 14.7 | 6,610 | 0.00045 | 5.9 | 8.9 | 11.9 | 4,556 | 0.00039 | 3.5 | 5.3 | 7.1 |
| 7/32 | 1221 | 0.00025 | 0.6 | 0.9 | 1.2 | 5,558 | 0.00068 | 7.5 | 11.3 | 15.0 | 6,138 | 0.00050 | 6.1 | 9.2 | 12.3 | 4,230 | 0.00043 | 3.6 | 5.4 | 7.2 |
| 15/64 | 1140 | 0.00028 | 0.6 | 0.9 | 1.3 | 5,187 | 0.00074 | 7.7 | 11.5 | 15.3 | 5,729 | 0.00055 | 6.3 | 9.5 | 12.6 | 3,948 | 0.00046 | 3.7 | 5.5 | 7.3 |
| 1/4 | 1068 | 0.00030 | 0.6 | 1.0 | 1.3 | 4,863 | 0.00080 | 7.8 | 11.7 | 15.6 | 5,371 | 0.00060 | 6.4 | 9.7 | 12.9 | 3,702 | 0.00050 | 3.7 | 5.6 | 7.4 |
| 17/64 | 1006 | 0.00033 | 0.7 | 1.0 | 1.3 | 4,577 | 0.00089 | 8.1 | 12.2 | 16.2 | 5,055 | 0.00066 | 6.7 | 10.0 | 13.4 | 3,484 | 0.00055 | 3.8 | 5.7 | 7.7 |
| 9/32 | 950 | 0.00036 | 0.7 | 1.0 | 1.4 | 4,323 | 0.00098 | 8.4 | 12.6 | 16.9 | 4,774 | 0.00073 | 6.9 | 10.4 | 13.8 | 3,290 | 0.00060 | 3.9 | 5.9 | 7.9 |
| 19/64 | 900 | 0.00039 | 0.7 | 1.1 | 1.4 | 4,095 | 0.00106 | 8.7 | 13.1 | 17.4 | 4,523 | 0.00079 | 7.1 | 10.7 | 14.2 | 3,117 | 0.00065 | 4.1 | 6.1 | 8.1 |
| 5/16 | 855 | 0.00043 | 0.7 | 1.1 | 1.5 | 3,890 | 0.00115 | 8.9 | 13.4 | 17.9 | 4,297 | 0.00085 | 7.3 | 11.0 | 14.6 | 2,961 | 0.00070 | 4.1 | 6.2 | 8.3 |
| 21/64 | 814 | 0.00046 | 0.7 | 1.1 | 1.5 | 3,705 | 0.00124 | 9.2 | 13.8 | 18.3 | 4,092 | 0.00091 | 7.5 | 11.2 | 14.9 | 2,820 | 0.00075 | 4.2 | 6.3 | 8.5 |
| 11/32 | 777 | 0.00049 | 0.8 | 1.1 | 1.5 | 3,537 | 0.00133 | 9.4 | 14.1 | 18.7 | 3,906 | 0.00098 | 7.6 | 11.4 | 15.2 | 2,692 | 0.00080 | 4.3 | 6.5 | 8.6 |
| 23/64 | 743 | 0.00052 | 0.8 | 1.2 | 1.5 | 3,383 | 0.00141 | 9.6 | 14.3 | 19.1 | 3,736 | 0.00104 | 7.8 | 11.6 | 15.5 | 2,575 | 0.00085 | 4.4 | 6.6 | 8.8 |
| 3/8 | 712 | 0.00055 | 0.8 | 1.2 | 1.6 | 3,242 | 0.00150 | 9.7 | 14.6 | 19.5 | 3,581 | 0.00110 | 7.9 | 11.8 | 15.8 | 2,468 | 0.00090 | 4.4 | 6.7 | 8.9 |
| 25/64 | 684 | 0.00058 | 0.8 | 1.2 | 1.6 | 3,112 | 0.00156 | 9.7 | 14.6 | 19.5 | 3,437 | 0.00115 | 7.9 | 11.9 | 15.8 | 2,369 | 0.00094 | 4.4 | 6.7 | 8.9 |
| 13/32 | 657 | 0.00060 | 0.8 | 1.2 | 1.6 | 2,993 | 0.00163 | 9.7 | 14.6 | 19.5 | 3,305 | 0.00120 | 7.9 | 11.9 | 15.9 | 2,278 | 0.00098 | 4.4 | 6.7 | 8.9 |
| 27/64 | 633 | 0.00063 | 0.8 | 1.2 | 1.6 | 2,882 | 0.00169 | 9.7 | 14.6 | 19.5 | 3,183 | 0.00125 | 8.0 | 11.9 | 15.9 | 2,194 | 0.00101 | 4.4 | 6.7 | 8.9 |
| 7/16 | 611 | 0.00065 | 0.8 | 1.2 | 1.6 | 2,779 | 0.00175 | 9.7 | 14.6 | 19.5 | 3,069 | 0.00130 | 8.0 | 12.0 | 16.0 | 2,115 | 0.00105 | 4.4 | 6.7 | 8.9 |
| 29/64 | 589 | 0.00068 | 0.8 | 1.2 | 1.6 | 2,683 | 0.00181 | 9.7 | 14.6 | 19.5 | 2,963 | 0.00135 | 8.0 | 12.0 | 16.0 | 2,042 | 0.00109 | 4.4 | 6.7 | 8.9 |
| 15/32 | 570 | 0.00070 | 0.8 | 1.2 | 1.6 | 2,594 | 0.00188 | 9.7 | 14.6 | 19.5 | 2,864 | 0.00140 | 8.0 | 12.0 | 16.0 | 1,974 | 0.00125 | 4.9 | 7.4 | 9.9 |
| 31/64 | 551 | 0.00073 | 0.8 | 1.2 | 1.6 | 2,510 | 0.00194 | 9.7 | 14.6 | 19.5 | 2,772 | 0.00145 | 8.0 | 12.1 | 16.1 | 1,910 | 0.00116 | 4.4 | 6.7 | 8.9 |
| 1/2 | 534 | 0.00075 | 0.8 | 1.2 | 1.6 | 2,431 | 0.00200 | 9.7 | 14.6 | 19.5 | 2,685 | 0.00150 | 8.1 | 12.1 | 16.1 | 1,851 | 0.00120 | 4.4 | 6.7 | 8.9 |
| 9/16 | 475 | 0.00079 | 0.7 | 1.1 | 1.5 | 2,161 | 0.00210 | 9.1 | 13.6 | 18.2 | 2,387 | 0.00158 | 7.5 | 11.3 | 15.0 | 1,645 | 0.00125 | 4.1 | 6.2 | 8.2 |
| 5/8 | 427 | 0.00083 | 0.7 | 1.1 | 1.4 | 1,945 | 0.00220 | 8.6 | 12.8 | 17.1 | 2,148 | 0.00165 | 7.1 | 10.6 | 14.2 | 1,481 | 0.00130 | 3.8 | 5.8 | 7.7 |
| 11/16 | 389 | 0.00086 | 0.7 | 1.0 | 1.3 | 1,768 | 0.00230 | 8.1 | 12.2 | 16.3 | 1,953 | 0.00173 | 6.7 | 10.1 | 13.5 | 1,346 | 0.00135 | 3.6 | 5.5 | 7.3 |
| 3/4 | 356 | 0.00090 | 0.6 | 1.0 | 1.3 | 1,621 | 0.00240 | 7.8 | 11.7 | 15.6 | 1,790 | 0.00180 | 6.4 | 9.7 | 12.9 | 1,234 | 0.00140 | 3.5 | 5.2 | 6.9 |
| 7/8 | 305 | 0.00098 | 0.6 | 0.9 | 1.2 | 1,389 | 0.00260 | 7.2 | 10.8 | 14.4 | 1,535 | 0.00195 | 6.0 | 9.0 | 12.0 | 1,058 | 0.00155 | 3.3 | 4.9 | 6.6 |
| 1 | 267 | 0.00105 | 0.6 | 0.8 | 1.1 | 1,216 | 0.00280 | 6.8 | 10.2 | 13.6 | 1,343 | 0.00210 | 5.6 | 8.5 | 11.3 | 925 | 0.00170 | 3.1 | 4.7 | 6.3 |

Depth of cut




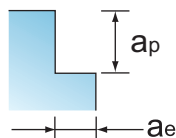
rpm=sfm×3.82/D1
ipm=(inch/flute)×4×rpm



CUTTING CONDITION - ISE/ISB SERIES

FRACTIONAL

| Side Milling  | SUPER ALLOYS (NICKEL, COBALT, IRON, BASE) Inconel 601, 617, 625, 718, Incoloy 800, Monel 400, Rene, Waspalloy | | | | | TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti10Al2Fe3Al, Ti5Al53Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti52 Cr3Sn3Al | | | | | GRAPHITE | | | | |
|---|---|---------------------------|---------------------------|----------|----------|---|---------------------------|---------------------------|----------|----------|---------------------------|---------------------------|---------------------------|----------|----------|
| | ≦ 300 | | | | | ≦ 350 | | | | | | | | | |
| Hardness BRINELL | ≦ 32 | | | | | ≦ 37.9 | | | | | | | | | |
| HRC | | | | | | | | | | | | | | | |
| Vc (SFM) | 62 | (49-74) | | | | 170 | (137-205) | | | | 627 | (502-752) | | | |
| ae/ap | ae(2)=0.05D ap(2)=1.5D | ae(3)=0.25D ap(3)=1.5D | ae(4)=0.25D ap(4)=1.5D | | | ae(2)=0.05D ap(2)=1.5D | ae(3)=0.25D ap(3)=1.5D | ae(4)=0.25D ap(4)=1.5D | | | ae(2)=0.05D ap(2)=1.5D | ae(3)=0.25D ap(3)=1.5D | ae(4)=0.25D ap(4)=1.5D | | |
| MILL DIA. (inch) | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | |
| | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes |
| 1/64 | 15,097 | 0.00002 | 0.6 | 0.9 | 1.2 | 41,806 | 0.00002 | 1.7 | 2.5 | 3.3 | 153,289 | 0.00006 | 18.4 | 27.6 | 36.8 |
| 1/32 | 7,548 | 0.00003 | 0.5 | 0.7 | 0.9 | 20,903 | 0.00004 | 1.7 | 2.5 | 3.3 | 76,644 | 0.00012 | 18.4 | 27.6 | 36.8 |
| 3/64 | 5,032 | 0.00005 | 0.5 | 0.7 | 0.9 | 13,935 | 0.00006 | 1.7 | 2.5 | 3.3 | 51,096 | 0.00020 | 20.4 | 30.7 | 40.9 |
| 1/16 | 3,774 | 0.00006 | 0.5 | 0.7 | 0.9 | 10,452 | 0.00008 | 1.7 | 2.5 | 3.3 | 38,322 | 0.00026 | 19.9 | 29.9 | 39.9 |
| 5/64 | 3,019 | 0.00010 | 0.6 | 0.9 | 1.1 | 8,361 | 0.00011 | 1.8 | 2.8 | 3.7 | 30,658 | 0.00036 | 22.1 | 33.1 | 44.1 |
| 3/32 | 2,516 | 0.00013 | 0.7 | 1.0 | 1.3 | 6,968 | 0.00014 | 2.0 | 2.9 | 3.9 | 25,548 | 0.00046 | 23.5 | 35.3 | 47.0 |
| 7/64 | 2,157 | 0.00017 | 0.7 | 1.1 | 1.4 | 5,972 | 0.00017 | 2.0 | 3.0 | 4.1 | 21,898 | 0.00054 | 23.7 | 35.5 | 47.3 |
| 1/8 | 1,887 | 0.00020 | 0.8 | 1.1 | 1.5 | 5,226 | 0.00020 | 2.1 | 3.1 | 4.2 | 19,161 | 0.00060 | 23.0 | 34.5 | 46.0 |
| 9/64 | 1,677 | 0.00023 | 0.8 | 1.1 | 1.5 | 4,645 | 0.00024 | 2.2 | 3.3 | 4.4 | 17,032 | 0.00073 | 24.7 | 37.0 | 49.4 |
| 5/32 | 1,510 | 0.00025 | 0.8 | 1.1 | 1.5 | 4,181 | 0.00028 | 2.3 | 3.4 | 4.6 | 15,329 | 0.00085 | 26.1 | 39.1 | 52.1 |
| 11/64 | 1,372 | 0.00028 | 0.8 | 1.1 | 1.5 | 3,801 | 0.00031 | 2.4 | 3.6 | 4.8 | 13,935 | 0.00098 | 27.2 | 40.8 | 54.3 |
| 3/16 | 1,258 | 0.00030 | 0.8 | 1.1 | 1.5 | 3,484 | 0.00035 | 2.4 | 3.7 | 4.9 | 12,774 | 0.00110 | 28.1 | 42.2 | 56.2 |
| 13/64 | 1,161 | 0.00033 | 0.8 | 1.1 | 1.5 | 3,216 | 0.00039 | 2.5 | 3.7 | 5.0 | 11,791 | 0.00123 | 28.9 | 43.3 | 57.8 |
| 7/32 | 1,078 | 0.00035 | 0.8 | 1.1 | 1.5 | 2,986 | 0.00043 | 2.5 | 3.8 | 5.1 | 10,949 | 0.00135 | 29.6 | 44.3 | 59.1 |
| 15/64 | 1,006 | 0.00038 | 0.8 | 1.1 | 1.5 | 2,787 | 0.00046 | 2.6 | 3.9 | 5.2 | 10,219 | 0.00148 | 30.1 | 45.2 | 60.3 |
| 1/4 | 944 | 0.00040 | 0.8 | 1.1 | 1.5 | 2,613 | 0.00050 | 2.6 | 3.9 | 5.2 | 9,581 | 0.00160 | 30.7 | 46.0 | 61.3 |
| 17/64 | 888 | 0.00045 | 0.8 | 1.2 | 1.6 | 2,459 | 0.00055 | 2.7 | 4.1 | 5.4 | 9,017 | 0.00178 | 32.0 | 48.0 | 64.0 |
| 9/32 | 839 | 0.00050 | 0.8 | 1.3 | 1.7 | 2,323 | 0.00060 | 2.8 | 4.2 | 5.6 | 8,516 | 0.00195 | 33.2 | 49.8 | 66.4 |
| 19/64 | 795 | 0.00055 | 0.9 | 1.3 | 1.7 | 2,200 | 0.00065 | 2.9 | 4.3 | 5.7 | 8,068 | 0.00213 | 34.3 | 51.4 | 68.6 |
| 5/16 | 755 | 0.00060 | 0.9 | 1.4 | 1.8 | 2,090 | 0.00070 | 2.9 | 4.4 | 5.9 | 7,664 | 0.00230 | 35.3 | 52.9 | 70.5 |
| 21/64 | 719 | 0.00065 | 0.9 | 1.4 | 1.9 | 1,991 | 0.00075 | 3.0 | 4.5 | 6.0 | 7,299 | 0.00248 | 36.1 | 54.2 | 72.3 |
| 11/32 | 686 | 0.00070 | 1.0 | 1.4 | 1.9 | 1,900 | 0.00080 | 3.0 | 4.6 | 6.1 | 6,968 | 0.00265 | 36.9 | 55.4 | 73.9 |
| 23/64 | 656 | 0.00075 | 1.0 | 1.5 | 2.0 | 1,818 | 0.00085 | 3.1 | 4.6 | 6.2 | 6,665 | 0.00283 | 37.7 | 56.5 | 75.3 |
| 3/8 | 629 | 0.00080 | 1.0 | 1.5 | 2.0 | 1,742 | 0.00090 | 3.1 | 4.7 | 6.3 | 6,387 | 0.00300 | 38.3 | 57.5 | 76.6 |
| 25/64 | 604 | 0.00083 | 1.0 | 1.5 | 2.0 | 1,672 | 0.00094 | 3.1 | 4.7 | 6.3 | 6,132 | 0.00313 | 38.3 | 57.5 | 76.6 |
| 13/32 | 581 | 0.00085 | 1.0 | 1.5 | 2.0 | 1,608 | 0.00098 | 3.1 | 4.7 | 6.3 | 5,896 | 0.00325 | 38.3 | 57.5 | 76.6 |
| 27/64 | 559 | 0.00088 | 1.0 | 1.5 | 2.0 | 1,548 | 0.00101 | 3.1 | 4.7 | 6.3 | 5,677 | 0.00338 | 38.3 | 57.5 | 76.6 |
| 7/16 | 539 | 0.00090 | 1.0 | 1.5 | 1.9 | 1,493 | 0.00105 | 3.1 | 4.7 | 6.3 | 5,475 | 0.00350 | 38.3 | 57.5 | 76.6 |
| 29/64 | 521 | 0.00093 | 1.0 | 1.4 | 1.9 | 1,442 | 0.00109 | 3.1 | 4.7 | 6.3 | 5,286 | 0.00363 | 38.3 | 57.5 | 76.6 |
| 15/32 | 503 | 0.00095 | 1.0 | 1.4 | 1.9 | 1,394 | 0.00125 | 3.5 | 5.2 | 7.0 | 5,110 | 0.00375 | 38.3 | 57.5 | 76.6 |
| 31/64 | 487 | 0.00098 | 0.9 | 1.4 | 1.9 | 1,349 | 0.00116 | 3.1 | 4.7 | 6.3 | 4,945 | 0.00388 | 38.3 | 57.5 | 76.6 |
| 1/2 | 472 | 0.00100 | 0.9 | 1.4 | 1.9 | 1,306 | 0.00120 | 3.1 | 4.7 | 6.3 | 4,790 | 0.00400 | 38.3 | 57.5 | 76.6 |
| 9/16 | 419 | 0.00105 | 0.9 | 1.3 | 1.8 | 1,161 | 0.00125 | 2.9 | 4.4 | 5.8 | 4,258 | 0.00420 | 35.8 | 53.7 | 71.5 |
| 5/8 | 377 | 0.00110 | 0.8 | 1.2 | 1.7 | 1,045 | 0.00130 | 2.7 | 4.1 | 5.4 | 3,832 | 0.00440 | 33.7 | 50.6 | 67.4 |
| 11/16 | 343 | 0.00115 | 0.8 | 1.2 | 1.6 | 950 | 0.00135 | 2.6 | 3.8 | 5.1 | 3,484 | 0.00460 | 32.1 | 48.1 | 64.1 |
| 3/4 | 315 | 0.00120 | 0.8 | 1.1 | 1.5 | 871 | 0.00140 | 2.4 | 3.7 | 4.9 | 3,194 | 0.00480 | 30.7 | 46.0 | 61.3 |
| 7/8 | 270 | 0.00155 | 0.8 | 1.3 | 1.7 | 747 | 0.00155 | 2.3 | 3.5 | 4.6 | 2,737 | 0.00520 | 28.5 | 42.7 | 56.9 |
| 1 | 236 | 0.00140 | 0.7 | 1.0 | 1.3 | 653 | 0.00170 | 2.2 | 3.3 | 4.4 | 2,395 | 0.00560 | 26.8 | 40.2 | 53.7 |



rpm=sfm×3.82/D1
ipm=(inch/flute)×4×rpm

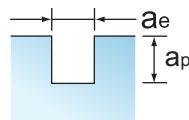
SPEED TIGER

Cutting Condition

CUTTING CONDITION - ISE/ISB SERIES

FRACTIONAL

| Slot Milling | | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | | | | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100 | | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | | | | |
|---------------------|--------|---|------------|------------------------------------|----------|---|---------|------------------------------------|----------|---|--------|------------------------------------|------------|---|----------|------------------------------------|---------|------------|----------|----------|
| Hardness BRINELL | | ≤ 175 | | | | ≤ 275 | | | | ≤ 375 | | | | ≥ 375 ≤ 475 | | | | | | |
| HRC | | ≤ 6.4 | | | | ≤ 28 | | | | ≤ 39.8 | | | | ≥ 39.8 ≤ 49.1 | | | | | | |
| Vc (SFM) | | 350 | | (278-418) | | 255 | | (203-306) | | 256 | | (205-307) | | 133 | | (106-159) | | | | |
| ae/ap | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | | | |
| MILL DIA. (inch) | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | |
| | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes |
| 1/64 | 85,470 | 0.00003 | 5.1 | 7.7 | 10.3 | 62,245 | 0.00002 | 2.49 | 3.73 | 4.98 | 62,393 | 0.00003 | 3.7 | 5.6 | 7.5 | 32,479 | 0.00002 | 1.3 | 1.9 | 2.6 |
| 1/32 | 42,735 | 0.00006 | 5.1 | 7.7 | 10.3 | 31,122 | 0.00005 | 3.11 | 4.67 | 6.22 | 31,197 | 0.00006 | 3.7 | 5.6 | 7.5 | 16,239 | 0.00005 | 1.6 | 2.4 | 3.2 |
| 3/64 | 28,490 | 0.00010 | 5.7 | 8.5 | 11.4 | 20,748 | 0.00007 | 2.90 | 4.36 | 5.81 | 20,798 | 0.00010 | 4.2 | 6.2 | 8.3 | 10,826 | 0.00007 | 1.5 | 2.3 | 3.0 |
| 1/16 | 21,368 | 0.00013 | 5.6 | 8.3 | 11.1 | 15,561 | 0.00009 | 2.80 | 4.20 | 5.60 | 15,598 | 0.00013 | 4.1 | 6.1 | 8.1 | 8,120 | 0.00009 | 1.5 | 2.2 | 2.9 |
| 5/64 | 17,094 | 0.00018 | 6.2 | 9.2 | 12.3 | 12,449 | 0.00012 | 2.93 | 4.39 | 5.85 | 12,479 | 0.00018 | 4.5 | 6.7 | 9.0 | 6,496 | 0.00012 | 1.5 | 2.3 | 3.1 |
| 3/32 | 14,245 | 0.00023 | 6.6 | 9.8 | 13.1 | 10,374 | 0.00015 | 3.01 | 4.51 | 6.02 | 10,399 | 0.00023 | 4.8 | 7.2 | 9.6 | 5,413 | 0.00015 | 1.6 | 2.4 | 3.1 |
| 7/64 | 12,210 | 0.00027 | 6.6 | 9.9 | 13.2 | 8,892 | 0.00017 | 3.07 | 4.60 | 6.14 | 8,913 | 0.00027 | 4.8 | 7.2 | 9.6 | 4,640 | 0.00017 | 1.6 | 2.4 | 3.2 |
| 1/8 | 10,684 | 0.00030 | 6.4 | 9.6 | 12.8 | 7,781 | 0.00020 | 3.11 | 4.67 | 6.22 | 7,799 | 0.00030 | 4.7 | 7.0 | 9.4 | 4,060 | 0.00020 | 1.6 | 2.4 | 3.2 |
| 9/64 | 9,497 | 0.00036 | 6.9 | 10.3 | 13.8 | 6,916 | 0.00025 | 3.46 | 5.19 | 6.92 | 6,933 | 0.00036 | 5.0 | 7.5 | 10.1 | 3,609 | 0.00025 | 1.8 | 2.7 | 3.6 |
| 5/32 | 8,547 | 0.00043 | 7.3 | 10.9 | 14.5 | 6,224 | 0.00030 | 3.73 | 5.60 | 7.47 | 6,239 | 0.00043 | 5.3 | 8.0 | 10.6 | 3,248 | 0.00030 | 1.9 | 2.9 | 3.9 |
| 11/64 | 7,770 | 0.00049 | 7.6 | 11.4 | 15.2 | 5,659 | 0.00035 | 3.96 | 5.94 | 7.92 | 5,672 | 0.00049 | 5.5 | 8.3 | 11.1 | 2,953 | 0.00035 | 2.1 | 3.1 | 4.1 |
| 3/16 | 7,123 | 0.00055 | 7.8 | 11.8 | 15.7 | 5,187 | 0.00040 | 4.15 | 6.22 | 8.30 | 5,199 | 0.00055 | 5.7 | 8.6 | 11.4 | 2,707 | 0.00040 | 2.2 | 3.2 | 4.3 |
| 13/64 | 6,575 | 0.00061 | 8.1 | 12.1 | 16.1 | 4,788 | 0.00045 | 4.31 | 6.46 | 8.62 | 4,799 | 0.00061 | 5.9 | 8.8 | 11.8 | 2,498 | 0.00045 | 2.2 | 3.4 | 4.5 |
| 7/32 | 6,105 | 0.00068 | 8.2 | 12.4 | 16.5 | 4,446 | 0.00050 | 4.45 | 6.67 | 8.89 | 4,457 | 0.00068 | 6.0 | 9.0 | 12.0 | 2,320 | 0.00050 | 2.3 | 3.5 | 4.6 |
| 15/64 | 5,698 | 0.00074 | 8.4 | 12.6 | 16.8 | 4,150 | 0.00055 | 4.56 | 6.85 | 9.13 | 4,160 | 0.00074 | 6.1 | 9.2 | 12.3 | 2,165 | 0.00055 | 2.4 | 3.6 | 4.8 |
| 1/4 | 5,342 | 0.00080 | 8.5 | 12.8 | 17.1 | 3,890 | 0.00060 | 4.67 | 7.00 | 9.34 | 3,900 | 0.00080 | 6.2 | 9.4 | 12.5 | 2,030 | 0.00060 | 2.4 | 3.7 | 4.9 |
| 17/64 | 5,028 | 0.00089 | 8.9 | 13.4 | 17.8 | 3,661 | 0.00066 | 4.85 | 7.28 | 9.70 | 3,670 | 0.00089 | 6.5 | 9.8 | 13.0 | 1,911 | 0.00066 | 2.5 | 3.8 | 5.1 |
| 9/32 | 4,748 | 0.00098 | 9.3 | 13.9 | 18.5 | 3,458 | 0.00073 | 5.01 | 7.52 | 10.03 | 3,466 | 0.00098 | 6.8 | 10.1 | 13.5 | 1,804 | 0.00073 | 2.6 | 3.9 | 5.2 |
| 19/64 | 4,498 | 0.00106 | 9.6 | 14.3 | 19.1 | 3,276 | 0.00079 | 5.16 | 7.74 | 10.32 | 3,284 | 0.00106 | 7.0 | 10.5 | 14.0 | 1,709 | 0.00079 | 2.7 | 4.0 | 5.4 |
| 5/16 | 4,274 | 0.00115 | 9.8 | 14.7 | 19.7 | 3,112 | 0.00085 | 5.29 | 7.94 | 10.58 | 3,120 | 0.00115 | 7.2 | 10.8 | 14.4 | 1,624 | 0.00085 | 2.8 | 4.1 | 5.5 |
| 21/64 | 4,070 | 0.00124 | 10.1 | 15.1 | 20.1 | 2,964 | 0.00091 | 5.41 | 8.11 | 10.82 | 2,971 | 0.00124 | 7.4 | 11.0 | 14.7 | 1,547 | 0.00091 | 2.8 | 4.2 | 5.6 |
| 11/32 | 3,885 | 0.00133 | 10.3 | 15.4 | 20.6 | 2,829 | 0.00098 | 5.52 | 8.28 | 11.03 | 2,836 | 0.00133 | 7.5 | 11.3 | 15.0 | 1,476 | 0.00098 | 2.9 | 4.3 | 5.8 |
| 23/64 | 3,716 | 0.00141 | 10.5 | 15.7 | 21.0 | 2,706 | 0.00104 | 5.62 | 8.42 | 11.23 | 2,713 | 0.00141 | 7.7 | 11.5 | 15.3 | 1,412 | 0.00104 | 2.9 | 4.4 | 5.9 |
| 3/8 | 3,561 | 0.00150 | 10.7 | 16.0 | 21.4 | 2,594 | 0.00110 | 5.71 | 8.56 | 11.41 | 2,600 | 0.00150 | 7.8 | 11.7 | 15.6 | 1,353 | 0.00110 | 3.0 | 4.5 | 6.0 |
| 25/64 | 3,419 | 0.00156 | 10.7 | 16.0 | 21.4 | 2,490 | 0.00115 | 5.73 | 8.59 | 11.45 | 2,496 | 0.00156 | 7.8 | 11.7 | 15.6 | 1,299 | 0.00115 | 3.0 | 4.5 | 6.0 |
| 13/32 | 3,287 | 0.00163 | 10.7 | 16.0 | 21.4 | 2,394 | 0.00120 | 5.75 | 8.62 | 11.49 | 2,400 | 0.00163 | 7.8 | 11.7 | 15.6 | 1,249 | 0.00120 | 3.0 | 4.5 | 6.0 |
| 27/64 | 3,166 | 0.00169 | 10.7 | 16.0 | 21.4 | 2,305 | 0.00125 | 5.76 | 8.65 | 11.53 | 2,311 | 0.00169 | 7.8 | 11.7 | 15.6 | 1,203 | 0.00125 | 3.0 | 4.5 | 6.0 |
| 7/16 | 3,053 | 0.00175 | 10.7 | 16.0 | 21.4 | 2,223 | 0.00130 | 5.78 | 8.67 | 11.56 | 2,228 | 0.00175 | 7.8 | 11.7 | 15.6 | 1,160 | 0.00130 | 3.0 | 4.5 | 6.0 |
| 29/64 | 2,947 | 0.00181 | 10.7 | 16.0 | 21.4 | 2,146 | 0.00135 | 5.80 | 8.69 | 11.59 | 2,151 | 0.00181 | 7.8 | 11.7 | 15.6 | 1,120 | 0.00135 | 3.0 | 4.5 | 6.0 |
| 15/32 | 2,849 | 0.00188 | 10.7 | 16.0 | 21.4 | 2,075 | 0.00140 | 5.81 | 8.71 | 11.62 | 2,080 | 0.00188 | 7.8 | 11.7 | 15.6 | 1,083 | 0.00140 | 3.0 | 4.5 | 6.1 |
| 31/64 | 2,757 | 0.00194 | 10.7 | 16.0 | 21.4 | 2,008 | 0.00145 | 5.82 | 8.73 | 11.65 | 2,013 | 0.00194 | 7.8 | 11.7 | 15.6 | 1,048 | 0.00145 | 3.0 | 4.6 | 6.1 |
| 1/2 | 2,671 | 0.00200 | 10.7 | 16.0 | 21.4 | 1,945 | 0.00150 | 5.84 | 8.75 | 11.67 | 1,950 | 0.00200 | 7.8 | 11.7 | 15.6 | 1,015 | 0.00150 | 3.0 | 4.6 | 6.1 |
| 9/16 | 2,374 | 0.00210 | 10.0 | 15.0 | 19.9 | 1,729 | 0.00158 | 5.45 | 8.17 | 10.89 | 1,733 | 0.00210 | 7.3 | 10.9 | 14.6 | 902 | 0.00158 | 2.8 | 4.3 | 5.7 |
| 5/8 | 2,137 | 0.00220 | 9.4 | 14.1 | 18.8 | 1,556 | 0.00165 | 5.14 | 7.70 | 10.27 | 1,560 | 0.00220 | 6.9 | 10.3 | 13.7 | 812 | 0.00165 | 2.7 | 4.0 | 5.4 |
| 11/16 | 1,943 | 0.00230 | 8.9 | 13.4 | 17.9 | 1,415 | 0.00173 | 4.88 | 7.32 | 9.76 | 1,418 | 0.00230 | 6.5 | 9.8 | 13.0 | 738 | 0.00173 | 2.5 | 3.8 | 5.1 |
| 3/4 | 1,781 | 0.00240 | 8.5 | 12.8 | 17.1 | 1,297 | 0.00180 | 4.67 | 7.00 | 9.34 | 1,300 | 0.00240 | 6.2 | 9.4 | 12.5 | 677 | 0.00180 | 2.4 | 3.7 | 4.9 |
| 7/8 | 1,526 | 0.00260 | 7.9 | 11.9 | 15.9 | 1,112 | 0.00195 | 4.33 | 6.50 | 8.67 | 1,114 | 0.00260 | 5.8 | 8.7 | 11.6 | 580 | 0.00195 | 2.3 | 3.4 | 4.5 |
| 1 | 1,335 | 0.00280 | 7.5 | 11.2 | 15.0 | 973 | 0.00210 | 4.08 | 6.13 | 8.17 | 975 | 0.00280 | 5.5 | 8.2 | 10.9 | 507 | 0.00210 | 2.1 | 3.2 | 4.3 |




rpm=sfm×3.82/D1
ipm=(inch/flute)×4×rpm

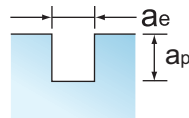


CUTTING CONDITION - ISE/ISB SERIES

FRACTIONAL

| Slot Milling  | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | | | CAST IRONS Gray, Malleable, Ductile | | | | | STAINLESS STEELS (Free Machining) 303, 416, 420F, 430F 440F | | | | | STAINLESS STEELS (Difficult) 304, 304L, 316, 316L | | | | |
|---|---|------------------------------------|------------|------------------------------------|---------------|--|---------|------------------------------------|----------|------------------------------------|---|------------------------------------|------------|------------------------------------|---------------|---|---------|------------|----------|----------|
| | Hardness BRINELL V > 475 ≡ 655 | | | | | ≡ 220 | | | | | ≡ 275 | | | | | ≡ 275 | | | | |
| HRC V > 50 ≡ 65 | | | | | ≡ 18.8 | | | | | ≡ 28 | | | | | ≡ 28 | | | | | |
| Vc (SFM) 57 (46-68) | | | | | 255 (204-306) | | | | | 281 (225-337) | | | | | 194 (154-231) | | | | | |
| ae/ap | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | ae(2)=1D ae(4)=1D ap(3)=0.5D | | ae(3)=1D ap(2)=1D ap(4)=0.4D | | | | |
| MILL DIA. (inch) | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | |
| | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes |
| 1/64 | 13675 | 0.00001 | 0.3 | 0.4 | 0.5 | 62,245 | 0.00003 | 3.7 | 5.6 | 7.5 | 68,748 | 0.00002 | 2.7 | 4.1 | 5.5 | 47,380 | 0.00002 | 1.9 | 2.8 | 3.8 |
| 1/32 | 6838 | 0.00003 | 0.3 | 0.5 | 0.7 | 31,122 | 0.00006 | 3.7 | 5.6 | 7.5 | 34,374 | 0.00005 | 3.4 | 5.2 | 6.9 | 23,690 | 0.00004 | 1.9 | 2.8 | 3.8 |
| 3/64 | 4558 | 0.00004 | 0.3 | 0.5 | 0.6 | 20,748 | 0.00010 | 4.1 | 6.2 | 8.3 | 22,916 | 0.00007 | 3.2 | 4.8 | 6.4 | 15,793 | 0.00006 | 1.9 | 2.8 | 3.8 |
| 1/16 | 3419 | 0.00005 | 0.3 | 0.5 | 0.6 | 15,561 | 0.00013 | 4.0 | 6.1 | 8.1 | 17,187 | 0.00009 | 3.1 | 4.6 | 6.2 | 11,845 | 0.00008 | 1.9 | 2.8 | 3.8 |
| 5/64 | 2735 | 0.00006 | 0.3 | 0.5 | 0.6 | 12,449 | 0.00018 | 4.5 | 6.7 | 9.0 | 13,750 | 0.00012 | 3.2 | 4.8 | 6.5 | 9,476 | 0.00011 | 2.1 | 3.1 | 4.2 |
| 3/32 | 2279 | 0.00007 | 0.3 | 0.5 | 0.7 | 10,374 | 0.00023 | 4.8 | 7.2 | 9.5 | 11,458 | 0.00015 | 3.3 | 5.0 | 6.6 | 7,897 | 0.00014 | 2.2 | 3.3 | 4.4 |
| 7/64 | 1954 | 0.00009 | 0.3 | 0.5 | 0.7 | 8,892 | 0.00027 | 4.8 | 7.2 | 9.6 | 9,821 | 0.00017 | 3.4 | 5.1 | 6.8 | 6,769 | 0.00017 | 2.3 | 3.5 | 4.6 |
| 1/8 | 1709 | 0.00010 | 0.3 | 0.5 | 0.7 | 7,781 | 0.00030 | 4.7 | 7.0 | 9.3 | 8,593 | 0.00020 | 3.4 | 5.2 | 6.9 | 5,923 | 0.00020 | 2.4 | 3.6 | 4.7 |
| 9/64 | 1519 | 0.00013 | 0.4 | 0.6 | 0.8 | 6,916 | 0.00036 | 5.0 | 7.5 | 10.0 | 7,639 | 0.00025 | 3.8 | 5.7 | 7.6 | 5,264 | 0.00024 | 2.5 | 3.8 | 5.0 |
| 5/32 | 1368 | 0.00015 | 0.4 | 0.6 | 0.8 | 6,224 | 0.00043 | 5.3 | 7.9 | 10.6 | 6,875 | 0.00030 | 4.1 | 6.2 | 8.2 | 4,738 | 0.00028 | 2.6 | 3.9 | 5.2 |
| 11/64 | 1243 | 0.00018 | 0.4 | 0.7 | 0.9 | 5,659 | 0.00049 | 5.5 | 8.3 | 11.0 | 6,250 | 0.00035 | 4.4 | 6.6 | 8.7 | 4,307 | 0.00031 | 2.7 | 4.0 | 5.4 |
| 3/16 | 1140 | 0.00020 | 0.5 | 0.7 | 0.9 | 5,187 | 0.00055 | 5.7 | 8.6 | 11.4 | 5,729 | 0.00040 | 4.6 | 6.9 | 9.2 | 3,948 | 0.00035 | 2.8 | 4.1 | 5.5 |
| 13/64 | 1052 | 0.00023 | 0.5 | 0.7 | 0.9 | 4,788 | 0.00061 | 5.9 | 8.8 | 11.7 | 5,288 | 0.00045 | 4.8 | 7.1 | 9.5 | 3,645 | 0.00039 | 2.8 | 4.2 | 5.6 |
| 7/32 | 977 | 0.00025 | 0.5 | 0.7 | 1.0 | 4,446 | 0.00068 | 6.0 | 9.0 | 12.0 | 4,911 | 0.00050 | 4.9 | 7.4 | 9.8 | 3,384 | 0.00043 | 2.9 | 4.3 | 5.8 |
| 15/64 | 912 | 0.00028 | 0.5 | 0.8 | 1.0 | 4,150 | 0.00074 | 6.1 | 9.2 | 12.2 | 4,583 | 0.00055 | 5.0 | 7.6 | 10.1 | 3,159 | 0.00046 | 2.9 | 4.4 | 5.8 |
| 1/4 | 855 | 0.00030 | 0.5 | 0.8 | 1.0 | 3,890 | 0.00080 | 6.2 | 9.3 | 12.4 | 4,297 | 0.00060 | 5.2 | 7.7 | 10.3 | 2,961 | 0.00050 | 3.0 | 4.4 | 5.9 |
| 17/64 | 804 | 0.00033 | 0.5 | 0.8 | 1.1 | 3,661 | 0.00089 | 6.5 | 9.7 | 13.0 | 4,044 | 0.00066 | 5.4 | 8.0 | 10.7 | 2,787 | 0.00055 | 3.1 | 4.6 | 6.1 |
| 9/32 | 760 | 0.00036 | 0.6 | 0.8 | 1.1 | 3,458 | 0.00098 | 6.7 | 10.1 | 13.5 | 3,819 | 0.00073 | 5.5 | 8.3 | 11.1 | 2,632 | 0.00060 | 3.2 | 4.7 | 6.3 |
| 19/64 | 720 | 0.00039 | 0.6 | 0.9 | 1.1 | 3,276 | 0.00106 | 7.0 | 10.4 | 13.9 | 3,618 | 0.00079 | 5.7 | 8.5 | 11.4 | 2,494 | 0.00065 | 3.2 | 4.9 | 6.5 |
| 5/16 | 684 | 0.00043 | 0.6 | 0.9 | 1.2 | 3,112 | 0.00115 | 7.2 | 10.7 | 14.3 | 3,437 | 0.00085 | 5.8 | 8.8 | 11.7 | 2,369 | 0.00070 | 3.3 | 5.0 | 6.6 |
| 21/64 | 651 | 0.00046 | 0.6 | 0.9 | 1.2 | 2,964 | 0.00124 | 7.3 | 11.0 | 14.7 | 3,274 | 0.00091 | 6.0 | 9.0 | 11.9 | 2,256 | 0.00075 | 3.4 | 5.1 | 6.8 |
| 11/32 | 622 | 0.00049 | 0.6 | 0.9 | 1.2 | 2,829 | 0.00133 | 7.5 | 11.2 | 15.0 | 3,125 | 0.00098 | 6.1 | 9.1 | 12.2 | 2,154 | 0.00080 | 3.4 | 5.2 | 6.9 |
| 23/64 | 595 | 0.00052 | 0.6 | 0.9 | 1.2 | 2,706 | 0.00141 | 7.6 | 11.5 | 15.3 | 2,989 | 0.00104 | 6.2 | 9.3 | 12.4 | 2,060 | 0.00085 | 3.5 | 5.3 | 7.0 |
| 3/8 | 570 | 0.00055 | 0.6 | 0.9 | 1.3 | 2,594 | 0.00150 | 7.8 | 11.7 | 15.6 | 2,864 | 0.00110 | 6.3 | 9.5 | 12.6 | 1,974 | 0.00090 | 3.6 | 5.3 | 7.1 |
| 25/64 | 547 | 0.00058 | 0.6 | 0.9 | 1.3 | 2,490 | 0.00156 | 7.8 | 11.7 | 15.6 | 2,750 | 0.00115 | 6.3 | 9.5 | 12.6 | 1,895 | 0.00094 | 3.6 | 5.3 | 7.1 |
| 13/32 | 526 | 0.00060 | 0.6 | 0.9 | 1.3 | 2,394 | 0.00163 | 7.8 | 11.7 | 15.6 | 2,644 | 0.00120 | 6.3 | 9.5 | 12.7 | 1,822 | 0.00098 | 3.6 | 5.3 | 7.1 |
| 27/64 | 506 | 0.00063 | 0.6 | 0.9 | 1.3 | 2,305 | 0.00169 | 7.8 | 11.7 | 15.6 | 2,546 | 0.00125 | 6.4 | 9.5 | 12.7 | 1,755 | 0.00101 | 3.6 | 5.3 | 7.1 |
| 7/16 | 488 | 0.00065 | 0.6 | 1.0 | 1.3 | 2,223 | 0.00175 | 7.8 | 11.7 | 15.6 | 2,455 | 0.00130 | 6.4 | 9.6 | 12.8 | 1,692 | 0.00105 | 3.6 | 5.3 | 7.1 |
| 29/64 | 472 | 0.00068 | 0.6 | 1.0 | 1.3 | 2,146 | 0.00181 | 7.8 | 11.7 | 15.6 | 2,371 | 0.00135 | 6.4 | 9.6 | 12.8 | 1,634 | 0.00109 | 3.6 | 5.3 | 7.1 |
| 15/32 | 456 | 0.00070 | 0.6 | 1.0 | 1.3 | 2,075 | 0.00188 | 7.8 | 11.7 | 15.6 | 2,292 | 0.00140 | 6.4 | 9.6 | 12.8 | 1,579 | 0.00125 | 3.9 | 5.9 | 7.9 |
| 31/64 | 441 | 0.00073 | 0.6 | 1.0 | 1.3 | 2,008 | 0.00194 | 7.8 | 11.7 | 15.6 | 2,218 | 0.00145 | 6.4 | 9.6 | 12.9 | 1,528 | 0.00116 | 3.6 | 5.3 | 7.1 |
| 1/2 | 427 | 0.00075 | 0.6 | 1.0 | 1.3 | 1,945 | 0.00200 | 7.8 | 11.7 | 15.6 | 2,148 | 0.00150 | 6.4 | 9.7 | 12.9 | 1,481 | 0.00120 | 3.6 | 5.3 | 7.1 |
| 9/16 | 380 | 0.00079 | 0.6 | 0.9 | 1.2 | 1,729 | 0.00210 | 7.3 | 10.9 | 14.5 | 1,910 | 0.00158 | 6.0 | 9.0 | 12.0 | 1,316 | 0.00125 | 3.3 | 4.9 | 6.6 |
| 5/8 | 342 | 0.00083 | 0.6 | 0.8 | 1.1 | 1,556 | 0.00220 | 6.8 | 10.3 | 13.7 | 1,719 | 0.00165 | 5.7 | 8.5 | 11.3 | 1,185 | 0.00130 | 3.1 | 4.6 | 6.2 |
| 11/16 | 311 | 0.00086 | 0.5 | 0.8 | 1.1 | 1,415 | 0.00230 | 6.5 | 9.8 | 13.0 | 1,562 | 0.00173 | 5.4 | 8.1 | 10.8 | 1,077 | 0.00135 | 2.9 | 4.4 | 5.8 |
| 3/4 | 285 | 0.00090 | 0.5 | 0.8 | 1.0 | 1,297 | 0.00240 | 6.2 | 9.3 | 12.4 | 1,432 | 0.00180 | 5.2 | 7.7 | 10.3 | 987 | 0.00140 | 2.8 | 4.1 | 5.5 |
| 7/8 | 244 | 0.00098 | 0.5 | 0.7 | 1.0 | 1,112 | 0.00260 | 5.8 | 8.7 | 11.6 | 1,228 | 0.00195 | 4.8 | 7.2 | 9.6 | 846 | 0.00155 | 2.6 | 3.9 | 5.2 |
| 1 | 214 | 0.00105 | 0.4 | 0.7 | 0.9 | 973 | 0.00280 | 5.4 | 8.2 | 10.9 | 1,074 | 0.00210 | 4.5 | 6.8 | 9.0 | 740 | 0.00170 | 2.5 | 3.8 | 5.0 |

Depth of cut




rpm=sfm×3.82/D1
ipm=(inch/flute)×4×rpm

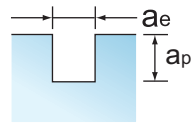
SPEED TIGER

Cutting Condition

CUTTING CONDITION - ISE/ISB SERIES

FRACTIONAL

| Slot Milling  | SUPER ALLOYS (NICKEL, COBALT, IRON, BASE) Inconel 601, 617, 625, 718, Incoloy 800, Monel 400, Rene, Waspalloy | | | | | TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti10Al2Fe3Al, Ti5Al53Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti52 Cr3Sn3Al | | | | | GRAPHITE | | | | |
|---|---|---------|------------------------|----------|------------------------|---|-----------|------------------------|----------|------------------------|----------------------|-----------|------------------------|----------|------------------------|
| | ≦ 300 | | | | | ≦ 350 | | | | | | | | | |
| Hardness BRINELL | ≦ 32 | | | | | ≦ 37.9 | | | | | | | | | |
| HRC | ≦ 32 | | | | | ≦ 37.9 | | | | | | | | | |
| Vc (SFM) | 50 | (37-56) | | | | 137 | (108-162) | | | | 500 | (399-599) | | | |
| ae/ap | ae(2)=1D ap(2)=1D | | ae(3)=1D ap(3)=0.5D | | ae(4)=1D ap(4)=0.4D | ae(2)=1D ap(2)=1D | | ae(3)=1D ap(3)=0.5D | | ae(4)=1D ap(4)=0.4D | ae(2)=1D ap(2)=1D | | ae(3)=1D ap(3)=0.5D | | ae(4)=1D ap(4)=0.4D |
| MILL DIA. (inch) | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | | RPM | Fz | Feed (IPM) | | |
| | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes | | | 2 flutes | 3 flutes | 4 flutes |
| 1/64 | 12,077 | 0.00002 | 0.5 | 0.7 | 1.0 | 33,445 | 0.00002 | 1.3 | 2.0 | 2.7 | 122,631 | 0.00006 | 14.7 | 22.1 | 29.4 |
| 1/32 | 6,039 | 0.00003 | 0.4 | 0.5 | 0.7 | 16,722 | 0.00004 | 1.3 | 2.0 | 2.7 | 61,316 | 0.00012 | 14.7 | 22.1 | 29.4 |
| 3/64 | 4,026 | 0.00005 | 0.4 | 0.5 | 0.7 | 11,148 | 0.00006 | 1.3 | 2.0 | 2.7 | 40,877 | 0.00020 | 16.4 | 24.5 | 32.7 |
| 1/16 | 3,019 | 0.00006 | 0.4 | 0.5 | 0.7 | 8,361 | 0.00008 | 1.3 | 2.0 | 2.7 | 30,658 | 0.00026 | 15.9 | 23.9 | 31.9 |
| 5/64 | 2,415 | 0.00010 | 0.5 | 0.7 | 0.9 | 6,689 | 0.00011 | 1.5 | 2.2 | 2.9 | 24,526 | 0.00036 | 17.7 | 26.5 | 35.3 |
| 3/32 | 2,013 | 0.00013 | 0.5 | 0.8 | 1.0 | 5,574 | 0.00014 | 1.6 | 2.3 | 3.1 | 20,439 | 0.00046 | 18.8 | 28.2 | 37.6 |
| 7/64 | 1,725 | 0.00017 | 0.6 | 0.9 | 1.1 | 4,778 | 0.00017 | 1.6 | 2.4 | 3.2 | 17,519 | 0.00054 | 18.9 | 28.4 | 37.8 |
| 1/8 | 1,510 | 0.00020 | 0.6 | 0.9 | 1.2 | 4,181 | 0.00020 | 1.7 | 2.5 | 3.3 | 15,329 | 0.00060 | 18.4 | 27.6 | 36.8 |
| 9/64 | 1,342 | 0.00023 | 0.6 | 0.9 | 1.2 | 3,716 | 0.00024 | 1.8 | 2.6 | 3.5 | 13,626 | 0.00073 | 19.8 | 29.6 | 39.5 |
| 5/32 | 1,208 | 0.00025 | 0.6 | 0.9 | 1.2 | 3,344 | 0.00028 | 1.8 | 2.8 | 3.7 | 12,263 | 0.00085 | 20.8 | 31.3 | 41.7 |
| 11/64 | 1,098 | 0.00028 | 0.6 | 0.9 | 1.2 | 3,040 | 0.00031 | 1.9 | 2.9 | 3.8 | 11,148 | 0.00098 | 21.7 | 32.6 | 43.5 |
| 3/16 | 1,006 | 0.00030 | 0.6 | 0.9 | 1.2 | 2,787 | 0.00035 | 2.0 | 2.9 | 3.9 | 10,219 | 0.00110 | 22.5 | 33.7 | 45.0 |
| 13/64 | 929 | 0.00033 | 0.6 | 0.9 | 1.2 | 2,573 | 0.00039 | 2.0 | 3.0 | 4.0 | 9,433 | 0.00123 | 23.1 | 34.7 | 46.2 |
| 7/32 | 863 | 0.00035 | 0.6 | 0.9 | 1.2 | 2,389 | 0.00043 | 2.0 | 3.0 | 4.1 | 8,759 | 0.00135 | 23.7 | 35.5 | 47.3 |
| 15/64 | 805 | 0.00038 | 0.6 | 0.9 | 1.2 | 2,230 | 0.00046 | 2.1 | 3.1 | 4.1 | 8,175 | 0.00148 | 24.1 | 36.2 | 48.2 |
| 1/4 | 755 | 0.00040 | 0.6 | 0.9 | 1.2 | 2,090 | 0.00050 | 2.1 | 3.1 | 4.2 | 7,664 | 0.00160 | 24.5 | 36.8 | 49.1 |
| 17/64 | 710 | 0.00045 | 0.6 | 1.0 | 1.3 | 1,967 | 0.00055 | 2.2 | 3.2 | 4.3 | 7,214 | 0.00178 | 25.6 | 38.4 | 51.2 |
| 9/32 | 671 | 0.00050 | 0.7 | 1.0 | 1.3 | 1,858 | 0.00060 | 2.2 | 3.3 | 4.5 | 6,813 | 0.00195 | 26.6 | 39.9 | 53.1 |
| 19/64 | 636 | 0.00055 | 0.7 | 1.0 | 1.4 | 1,760 | 0.00065 | 2.3 | 3.4 | 4.6 | 6,454 | 0.00213 | 27.4 | 41.1 | 54.9 |
| 5/16 | 604 | 0.00060 | 0.7 | 1.1 | 1.4 | 1,672 | 0.00070 | 2.3 | 3.5 | 4.7 | 6,132 | 0.00230 | 28.2 | 42.3 | 56.4 |
| 21/64 | 575 | 0.00065 | 0.7 | 1.1 | 1.5 | 1,593 | 0.00075 | 2.4 | 3.6 | 4.8 | 5,840 | 0.00248 | 28.9 | 43.4 | 57.8 |
| 11/32 | 549 | 0.00070 | 0.8 | 1.2 | 1.5 | 1,520 | 0.00080 | 2.4 | 3.6 | 4.9 | 5,574 | 0.00265 | 29.5 | 44.3 | 59.1 |
| 23/64 | 525 | 0.00075 | 0.8 | 1.2 | 1.6 | 1,454 | 0.00085 | 2.5 | 3.7 | 4.9 | 5,332 | 0.00283 | 30.1 | 45.2 | 60.2 |
| 3/8 | 503 | 0.00080 | 0.8 | 1.2 | 1.6 | 1,394 | 0.00090 | 2.5 | 3.8 | 5.0 | 5,110 | 0.00300 | 30.7 | 46.0 | 61.3 |
| 25/64 | 483 | 0.00083 | 0.8 | 1.2 | 1.6 | 1,338 | 0.00094 | 2.5 | 3.8 | 5.0 | 4,905 | 0.00313 | 30.7 | 46.0 | 61.3 |
| 13/32 | 465 | 0.00085 | 0.8 | 1.2 | 1.6 | 1,286 | 0.00098 | 2.5 | 3.8 | 5.0 | 4,717 | 0.00325 | 30.7 | 46.0 | 61.3 |
| 27/64 | 447 | 0.00088 | 0.8 | 1.2 | 1.6 | 1,239 | 0.00101 | 2.5 | 3.8 | 5.0 | 4,542 | 0.00338 | 30.7 | 46.0 | 61.3 |
| 7/16 | 431 | 0.00090 | 0.8 | 1.2 | 1.6 | 1,194 | 0.00105 | 2.5 | 3.8 | 5.0 | 4,380 | 0.00350 | 30.7 | 46.0 | 61.3 |
| 29/64 | 416 | 0.00093 | 0.8 | 1.2 | 1.5 | 1,153 | 0.00109 | 2.5 | 3.8 | 5.0 | 4,229 | 0.00363 | 30.7 | 46.0 | 61.3 |
| 15/32 | 403 | 0.00095 | 0.8 | 1.1 | 1.5 | 1,115 | 0.00125 | 2.8 | 4.2 | 5.6 | 4,088 | 0.00375 | 30.7 | 46.0 | 61.3 |
| 31/64 | 390 | 0.00098 | 0.8 | 1.1 | 1.5 | 1,079 | 0.00116 | 2.5 | 3.8 | 5.0 | 3,956 | 0.00388 | 30.7 | 46.0 | 61.3 |
| 1/2 | 377 | 0.00100 | 0.8 | 1.1 | 1.5 | 1,045 | 0.00120 | 2.5 | 3.8 | 5.0 | 3,832 | 0.00400 | 30.7 | 46.0 | 61.3 |
| 9/16 | 335 | 0.00105 | 0.7 | 1.1 | 1.4 | 929 | 0.00125 | 2.3 | 3.5 | 4.6 | 3,406 | 0.00420 | 28.6 | 42.9 | 57.2 |
| 5/8 | 302 | 0.00110 | 0.7 | 1.0 | 1.3 | 836 | 0.00130 | 2.2 | 3.3 | 4.3 | 3,066 | 0.00440 | 27.0 | 40.5 | 54.0 |
| 11/16 | 274 | 0.00115 | 0.6 | 0.9 | 1.3 | 760 | 0.00135 | 2.1 | 3.1 | 4.1 | 2,787 | 0.00460 | 25.6 | 38.5 | 51.3 |
| 3/4 | 252 | 0.00120 | 0.6 | 0.9 | 1.2 | 697 | 0.00140 | 2.0 | 2.9 | 3.9 | 2,555 | 0.00480 | 24.5 | 36.8 | 49.1 |
| 7/8 | 216 | 0.00155 | 0.7 | 1.0 | 1.3 | 597 | 0.00155 | 1.9 | 2.8 | 3.7 | 2,190 | 0.00520 | 22.8 | 34.2 | 45.5 |
| 1 | 189 | 0.00140 | 0.5 | 0.8 | 1.1 | 523 | 0.00170 | 1.8 | 2.7 | 3.6 | 1,916 | 0.00560 | 21.5 | 32.2 | 42.9 |



rpm=sfm×3.82/D1
ipm=(inch/flute)×4×rpm