## RECOMMENDED CUTTING CONDITIONS

| ISO | Material | Condition | Tensile Strength Rm (N/mm²) | Hardness (HB) | Matl No. | Cutting Speed Vc (SFM) | Feed vs Drill Diameter | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | D= 26-28.9mm 1.024-1.138" SPGX06 | D= 29-32.9mm 1.142-1.295" SPGX07 | D= 33-36.9mm 1.299-1.453" SPGX09 | D= 37-43.9mm 1.457-1.728" SPGX11 |
| | | | | | | | IPR (inches/rev) | | | |
| P | Non-alloy steel <0.25% C & cast steel, > = 0.25% C free cutting <0.55% C steel > = 0.55% C | Annealed | 420 | 125 | 1 | 390-650 | .008-014 | .010-.014 | .008-.016 | .010-.016 |
| | | Annealed | 650 | 190 | 2 | 390-650 | | | | |
| | | Quenched & Tempered | 850 | 250 | 3 | 425-625 | | | | |
| | | Annealed | 750 | 220 | 4 | 425-625 | | | | |
| | | Quenched & Tempered | 1000 | 300 | 5 | 425-625 | | | | |
| | Low alloy steel & cast steek (less than 5% alloying elements) | Annealed | 600 | 200 | 6 | 325-650 | .008-.013 | .010-.013 | .010-.014 | .010-.014 |
| | | Quenched & Tempered | 930 | 275 | 7 | 325-650 | | | | |
| | | | 1000 | 300 | 8 | 325-650 | | | | |
| | | | 1200 | 350 | 9 | 325-650 | | | | |
| | High alloy steel, cast steel, & tool steel | Annealed | 680 | 200 | 10 | 325-525 | .008-.013 | .010-.013 | .010-.014 | .010-.014 |
| | | Quenched & Tempered | 1100 | 325 | 11 | 325-525 | | | | |
| M | Stainless steel & cast stainless steel | Ferritic/martensitic | 680 | 200 | 12 | 260-460 | .005-.010 | .006-.010 | .006-.010 | .007-.011 |
| | | Martensitic | 820 | 240 | 13 | 260-460 | | | | |
| | | Austenitic | 600 | 180 | 14 | 260-460 | | | | |
| K | GreyCast Iron (GG) | Ferritic | | 160 | 15 | 325-825 | .010-.018 | .010-.018 | .012-.020 | .012-.020 |
| | | Pearlitic | | 250 | 16 | 325-825 | | | | |
| | Cast Iron Nodular (GGG) | Ferritic | | 180 | 17 | 325-825 | | | | |
| | | Pearlitic | | 260 | 18 | 325-825 | | | | |
| | Malleable Cast Iron | Ferritic | | 130 | 19 | 325-825 | | | | |
| | | Pearlitic | | 230 | 20 | 325-825 | | | | |
| N | Aluminum - wrought alloy | Not cureable | | 60 | 21 | 525-850 | .012-.020 | .012-.020 | .014-.022 | .014-.022 |
| | | Cured | | 100 | 22 | 525-850 | | | | |
| | Aluminum - cast, alloyed <=12% Si / >12% Si | Not cureable | | 75 | 23 | 525-850 | | | | |
| | | Cured | | 90 | 24 | 525-850 | | | | |
| | | High temperature | | 130 | 25 | 525-850 | | | | |
| | Copper alloys > 1% Pb | Free cutting | | 110 | 26 | 525-850 | | | | |
| | | Brass | | 90 | 27 | 525-850 | | | | |
| | | Electrolitic copper | | 100 | 28 | 525-850 | | | | |
| | Non-metallic | Duro & fiber plastics | | | 29 | - | - | - | - | - |
| | | Hard rubber | | | 30 | - | - | - | - | - |
| S | High temp alloys Fe based / Ni or Co based | Annealed | | 200 | 31 | 100-200 | .004-.006 | .004-.007 | .006-.008 | .006-.009 |
| | | Cured | | 280 | 32 | 100-265 | | | | |
| | | Annealed | | 250 | 33 | 100-265 | | | | |
| | | Cured | | 350 | 34 | 100-265 | | | | |
| | | Cast | | 320 | 35 | 100-265 | | | | |
| | Titanium, Ti alloys | | Rm 400 | | 36 | 100-265 | .004-.006 | .004-.007 | .006-.008 | .006-.009 |
| | | Alpha+beta alloys cured | Rm 1050 | | 37 | 100-265 | | | | |
| H | Hardened steel | Hardened | | 55 HRC | 38 | 65-165 | .004-.006 | .005-.007 | .006-.008 | .006-.008 |
| | | Hardened | | 60 HRC | 39 | 65-165 | | | | |
| | Chilled cast iron | Cast | | 400 | 40 | - | - | - | - | - |
| | Cast iron nodular | Hardened | | 55 HRC | 41 | - | - | - | - | - |

* Feed Rates are based on Two Effective - DO NOT DOUBLE.