

# TECHNICAL DATA

## Speed & Feed Guide

### Series 450, 453, 460, 470

#### General Purpose Drills | 2 & 3 FL | Twist | Straight

|          |                  |                                                                                        |            |     | (IPR) Cutting Tool Diameter |        |        |        |        |        |        |        |
|----------|------------------|----------------------------------------------------------------------------------------|------------|-----|-----------------------------|--------|--------|--------|--------|--------|--------|--------|
| Material |                  |                                                                                        | Hardness   | SFM | 1/32                        | 1/16   | 1/8    | 1/4    | 3/8    | 1/2    | 5/8    | 3/4    |
| P        | Steel            | Free Machining & Low Carbon: 10XX, 11XX, 12XX, A36                                     | ≤ 28 Rc    | 175 | 0.0010                      | 0.0020 | 0.0030 | 0.0060 | 0.0080 | 0.0100 | 0.0110 | 0.0120 |
|          | Steel            | Medium/High Carbon Steels, Alloy Steels: 13XX, 41XX, 43XX, 86XX                        | 28-38 Rc   | 165 |                             |        |        |        |        |        |        |        |
|          | Die Steels       | A2, H13, L6, P20, S7                                                                   | 28-44 Rc   | 150 |                             |        |        |        |        |        |        |        |
| M        | Stainless Steels | Easy to Machine, 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F                    | ≤ 28 Rc    | 140 | 0.0010                      | 0.0020 | 0.0030 | 0.0060 | 0.0080 | 0.0100 | 0.0110 | 0.0120 |
|          | Stainless Steels | Moderately Difficult to Machine, Nitronic 50, 301, 303, 304, 304L, 316, 316L, 321, 347 | ≤ 28 Rc    | 60  | 0.0003                      | 0.0005 | 0.0020 | 0.0040 | 0.0050 | 0.0060 | 0.0080 | 0.0100 |
| S        | Super Alloys     | High Temp, Nimonics, Inconel, Monel, Hastelloy                                         | ≤ 42 Rc    | 60  | 0.0003                      | 0.0005 | 0.0020 | 0.0040 | 0.0050 | 0.0060 | 0.0080 | 0.0100 |
|          | Super Alloys     | Titanium: Ti 3Al-2.5V, Ti 6Al-4V Ti 10V-2Fe-3Al                                        | ≤ 42 Rc    | 80  |                             |        |        |        |        |        |        |        |
| H        | Hardened Steels  | 4140H, P20, H13                                                                        | 35-45 Rc   | 50  | 0.0003                      | 0.0010 | 0.0010 | 0.0010 | 0.0020 | 0.0020 | 0.0020 | 0.0030 |
| K        | Cast Iron        | Gray: SAE J431, ASTM A48                                                               | 160-200 HB | 175 | 0.0010                      | 0.0020 | 0.0030 | 0.0060 | 0.0080 | 0.0100 | 0.0110 | 0.0120 |
|          | Cast Iron        | Ductile & Malleable, ASTM A536, ASTM 897, ASTM A47, ASTM A220                          | 200-250 HB | 175 |                             |        |        |        |        |        |        |        |
| N        | Non-Ferrous      | Aluminum, Brass, Bronze, Copper, Plastics                                              | -          | 300 | 0.0003                      | 0.0005 | 0.0020 | 0.0040 | 0.0050 | 0.0060 | 0.0080 | 0.0100 |
|          | Non-Ferrous      | Kevlar/Graphite                                                                        | -          | 375 |                             |        |        |        |        |        |        |        |