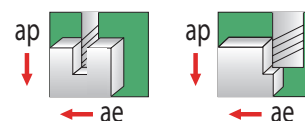


NOTE - DATA DOES NOT REFLECT CHIP THINNING.

SPINDLE INTERFACE MUST BE SCRUTINIZED WHEN USING 16mm DIAMETER AND LARGER END MILLS

| ISO Material         |                                                              | HRC          | M/Min.<br>(Vc)        | CHIPLOAD PER TOOTH (Fz)  |                          |                          |                          |                          |                          |                          |  |
|----------------------|--------------------------------------------------------------|--------------|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
|                      |                                                              |              |                       | 6.0mm                    | 8.0mm                    | 10.0mm                   | 12.0mm                   | 16.0mm                   | 20.0mm                   | 25.0mm                   |  |
| S                    | COBALT BASE ALLOYS                                           |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | Haynes 25/188, Stellite 21,<br>Cobalt Chrome                 | < 40<br>> 40 | 27 - 57<br>25 - 45    | .020 -.038<br>.015 -.033 | .023 -.046<br>.018 -.041 | .028 -.056<br>.023 -.051 | .041 -.076<br>.030 -.066 | .046 -.091<br>.036 -.081 | .056 -.112<br>.046 -.102 | .081 -.152<br>.061 -.132 |  |
|                      | NICKEL BASE ALLOYS                                           |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | Inconel-625/718, Waspalloy, Invar,<br>Rene, Hastelloy, Monel | < 40<br>> 40 | 27 - 57<br>25 - 45    | .020 -.038<br>.015 -.033 | .023 -.046<br>.018 -.041 | .028 -.056<br>.023 -.051 | .041 -.076<br>.030 -.066 | .046 -.091<br>.036 -.081 | .056 -.112<br>.046 -.102 | .081 -.152<br>.061 -.132 |  |
|                      | IRON BASE ALLOYS                                             |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | A286, Discaloy, Haynes 556,<br>Carpenter 22, Greek Ascology  | < 40<br>> 40 | 27 - 57<br>25 - 45    | .020 -.038<br>.015 -.033 | .023 -.046<br>.018 -.041 | .028 -.056<br>.023 -.051 | .041 -.076<br>.030 -.066 | .046 -.091<br>.036 -.081 | .056 -.112<br>.046 -.102 | .081 -.152<br>.061 -.132 |  |
|                      | TITANIUM ALLOYS                                              |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | Commercially Pure, 6Al-4V,<br>Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si |              | 60 - 115              | .023 -.043               | .025 -.051               | .030 -.061               | .046 -.086               | .051 -.102               | .061 -.122               | .091 -.173               |  |
| 5553 / Beta Titanium |                                                              | 45 - 85      | .023 -.038            | .025 -.046               | .030 -.056               | .046 -.076               | .051 -.091               | .061 -.112               | .081 -.152               |                          |  |
| M                    | STAINLESS STEELS                                             |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | 13/8, 15/5, 17-4, pH Types                                   | < 40<br>> 40 | 70 - 115<br>55 - 85   | .020 -.038<br>.015 -.033 | .023 -.046<br>.018 -.041 | .028 -.056<br>.023 -.051 | .041 -.076<br>.030 -.066 | .046 -.091<br>.036 -.081 | .056 -.112<br>.046 -.102 | .081 -.152<br>.061 -.132 |  |
|                      | 300 Series, 304L, Nitronic 50,<br>Duplex, Super-Austenitic   | < 40<br>> 40 | 75 - 120<br>55 - 85   | .020 -.038<br>.015 -.033 | .023 -.046<br>.018 -.041 | .028 -.056<br>.023 -.051 | .041 -.076<br>.030 -.066 | .046 -.091<br>.036 -.081 | .056 -.112<br>.046 -.102 | .081 -.152<br>.061 -.132 |  |
|                      | 400 Series - 403, 405, 420, 455                              | < 40<br>> 40 | 70 - 130<br>55 - 100  | .020 -.041<br>.015 -.036 | .023 -.048<br>.018 -.043 | .028 -.058<br>.023 -.053 | .041 -.081<br>.030 -.071 | .046 -.097<br>.036 -.086 | .056 -.117<br>.046 -.107 | .081 -.163<br>.061 -.142 |  |
|                      | HIGH STRENGTH TOOL STEELS                                    |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
| P                    | A2, D2, P20, H13, S7, O1                                     | < 40<br>> 40 | 70 - 120<br>45 - 100  | .020 -.041<br>.015 -.033 | .028 -.048<br>.025 -.041 | .033 -.058<br>.030 -.051 | .041 -.081<br>.030 -.066 | .056 -.097<br>.051 -.081 | .066 -.142<br>.061 -.102 | .102 -.163<br>.091 -.132 |  |
|                      | MEDIUM ALLOY TOOL STEELS                                     |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | 4140, 4340, 52100, 6150, 8620                                | < 40<br>> 40 | 110 - 150<br>75 - 115 | .020 -.043<br>.015 -.036 | .028 -.051<br>.025 -.043 | .033 -.061<br>.030 -.051 | .041 -.086<br>.030 -.071 | .056 -.102<br>.051 -.086 | .066 -.122<br>.061 -.102 | .102 -.173<br>.091 -.142 |  |
|                      | CARBON STEELS                                                |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | 1000's - 1018, 1020, 12L14                                   | < 40         | 115 - 180             | .025 -.046               | .028 -.053               | .033 -.064               | .051 -.091               | .056 -.107               | .066 -.127               | .102 -.183               |  |
| K                    | CAST MATERIAL                                                |              |                       |                          |                          |                          |                          |                          |                          |                          |  |
|                      | Ductile Iron                                                 |              | 110 - 160             | .025 -.046               | .033 -.056               | .038 -.066               | .051 -.091               | .066 -.112               | .076 -.132               | .102 -.183               |  |
|                      | Gray Iron                                                    |              | 135 - 180             | .028 -.051               | .036 -.058               | .041 -.069               | .056 -.102               | .071 -.117               | .081 -.137               | .112 -.203               |  |

|             | Slotting<br>Pocket Milling | Profiling<br>Side Milling |
|-------------|----------------------------|---------------------------|
| Axial (ap)  | up to 1.5xD                | up to 2xD                 |
| Radial (ae) | 1xD                        | 5% - 15% of Dia.          |



NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.