

# GARR TOOL Reaming Guide

| Type                                                             | Rc<br>Hardness | Recommended<br>SFM | Chipload Per Flute (Fz)              |                                      |                                      |                                       |
|------------------------------------------------------------------|----------------|--------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
|                                                                  |                | Series<br>4100     | .0590" - .1250"<br>(1.499 - 3.175mm) | .1251" - .2500"<br>(3.178 - 6.350mm) | .2501" - .3750"<br>(6.353 - 9.525mm) | .3751" - .5020"<br>(9.528 - 12.750mm) |
| COBALT BASE ALLOYS                                               |                |                    |                                      |                                      |                                      |                                       |
| Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605      | < 35<br>> 35   | 80-120<br>60-80    | .0003"-0.0008"                       | .0005"-0.0010"                       | .0008"-0.0012"                       | .0010"-0.0015"                        |
| NICKEL BASE ALLOYS                                               |                |                    |                                      |                                      |                                      |                                       |
| Invar, Kovar, Inconel-625/718, Waspalloy, Rene, Hastalloy, A286  | < 35<br>> 35   | 100-125<br>80-110  | .0003"-0.0008"                       | .0005"-0.0010"                       | .0008"-0.0012"                       | .0010"-0.0015"                        |
| IRON BASE ALLOYS                                                 |                |                    |                                      |                                      |                                      |                                       |
| Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3 | < 35<br>> 35   | 150-175<br>120-150 | .0004"-0.0009"                       | .0006"-0.0012"                       | .0009"-0.0013"                       | .0010"-0.0017"                        |
| MONEL                                                            |                |                    |                                      |                                      |                                      |                                       |
| Monel - 65% Nickel                                               |                | 75-110             | .0003"-0.0008"                       | .0005"-0.0010"                       | .0008"-0.0012"                       | .0010"-0.0015"                        |
| TITANIUM ALLOYS                                                  |                |                    |                                      |                                      |                                      |                                       |
| Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si        |                | 120-150            | .0004"-0.0009"                       | .0006"-0.0012"                       | .0009"-0.0013"                       | .0010"-0.0017"                        |
| STAINLESS STEELS                                                 |                |                    |                                      |                                      |                                      |                                       |
| (Precipitation)<br>13/8, 15/5, 17-4, pH Types                    | < 35<br>> 35   | 100-125<br>80-110  | .0004"-0.0009"                       | .0006"-0.0012"                       | .0009"-0.0013"                       | .0010"-0.0017"                        |
| (Austenitic)<br>Inox, 200 Series, 300 Series                     | < 35<br>> 35   | 100-125<br>80-110  | .0004"-0.0009"                       | .0006"-0.0012"                       | .0009"-0.0013"                       | .0010"-0.0017"                        |
| (Austenitic)<br>304L, 316L, Nitronic 50, Inox                    | < 35<br>> 35   | 80-100<br>60-80    | .0003"-0.0008"                       | .0005"-0.0010"                       | .0008"-0.0012"                       | .0010"-0.0015"                        |
| (Martensitic)<br>400 Series                                      | < 35<br>> 35   | 100-125<br>80-110  | .0004"-0.0009"                       | .0006"-0.0012"                       | .0009"-0.0013"                       | .0010"-0.0017"                        |
| HIGH STRENGTH TOOL STEELS                                        |                |                    |                                      |                                      |                                      |                                       |
| 4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1            | < 35<br>> 35   | 100-125<br>80-110  | .0003"-0.0008"                       | .0005"-0.0010"                       | .0008"-0.0012"                       | .0010"-0.0015"                        |
| MEDIUM ALLOY TOOL STEELS                                         |                |                    |                                      |                                      |                                      |                                       |
| 200, 250, 300, 8620                                              | < 35<br>> 35   | 100-125<br>80-110  | .0004"-0.0009"                       | .0006"-0.0012"                       | .0009"-0.0013"                       | .0010"-0.0017"                        |
| CARBON STEELS                                                    |                |                    |                                      |                                      |                                      |                                       |
| Platinum, A36, 12L14, 1000's, 1100's, 1300's                     | < 35<br>> 35   | 100-125<br>80-110  | .0004"-0.0009"                       | .0006"-0.0012"                       | .0009"-0.0013"                       | .0010"-0.0017"                        |
| CAST MATERIAL                                                    |                |                    |                                      |                                      |                                      |                                       |
| Steel                                                            |                | 125-150            | .0003"-0.0008"                       | .0005"-0.0010"                       | .0008"-0.0012"                       | .0010"-0.0015"                        |
| Ductile Iron                                                     |                | 150-225            | .0005"-0.0010"                       | .0007"-0.0012"                       | .0010"-0.0015"                       | .0010"-0.0018"                        |
| Gray Iron                                                        |                | 125-200            | .0005"-0.0010"                       | .0007"-0.0012"                       | .0010"-0.0015"                       | .0010"-0.0018"                        |
| Aluminum                                                         |                | 150-225            | .0005"-0.0010"                       | .0007"-0.0012"                       | .0010"-0.0015"                       | .0010"-0.0018"                        |
| ALUMINUM                                                         |                |                    |                                      |                                      |                                      |                                       |
| Aircraft Grade (6061, 7075)                                      |                | 225                | .0005"-0.0010"                       | .0007"-0.0012"                       | .0010"-0.0015"                       | .0010"-0.0018"                        |
| MAGNESIUM                                                        |                |                    |                                      |                                      |                                      |                                       |
|                                                                  |                | 225                | .0005"-0.0010"                       | .0007"-0.0012"                       | .0010"-0.0015"                       | .0010"-0.0018"                        |
| COPPER                                                           |                |                    |                                      |                                      |                                      |                                       |
| Copper Alloys                                                    |                | 225                | .0005"-0.0010"                       | .0007"-0.0012"                       | .0010"-0.0015"                       | .0010"-0.0018"                        |
| BRASS, BRONZE                                                    |                |                    |                                      |                                      |                                      |                                       |
| Brass, Aluminum/Bronze, Low Silicon Bronze                       |                | 125-200            | .0005"-0.0010"                       | .0007"-0.0012"                       | .0010"-0.0015"                       | .0010"-0.0018"                        |
| COMPOSITE MATERIAL                                               |                |                    |                                      |                                      |                                      |                                       |
| Glass Epoxy, Fiberglass, Plastics, Graphite, G10                 |                | 150                | .0003"-0.0008"                       | .0005"-0.0010"                       | .0008"-0.0012"                       | .0010"-0.0015"                        |

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