**Bit Speeds:**

0 - 0.25 Dia bits 22,000 - 24,000rpm

0.25 - 0.5 Dia bits 18,000 - 22,000rpm

0.5 - 1.0 Dia bits 17,000 - 20,000rpm

1.0 – 1.5 Dia Bits 16,000 - 18,000rpm

Anything larger than 1.5 Dia 15,000rpm

Drill Bits 3,000rpm

**Feed Rates based on Process:**

**Pockets, Profiles, 3D machining, Texturing and Flutes**

0 - 0.25 Dia bits 100 - 130ipm

0.25 - 0.5 Dia bits 80 - 120ipm

0.5 - 1.0 Dia bits 60 - 100ipm

1.0 – 1.5 Dia Bits 50 - 70ipm

Anything larger than 1.5 Dia 60-80ipm

**V-Carve, Engraving Prism and Inlay**

0 - 0.25 Dia bits 100 -110ipm

0.25 - 0.5 Dia bits 80 -100ipm

0.5 - 1.0 Dia bits 60 - 80ipm
**Drilling**

0 - 0.25 Dia bits 30 - 50ipm

0.25 - 0.5 Dia bits 20 - 35ipm

**Exceptions to this include:**

Surfacing bits – This depends on the hardness of the material that you will be working on.

Specialty bits such as fret cutters, glass etching, Donek drag knife etc...

**Step Over**

Step over is the percentage of the bit that is shifted over to cut new material each horizontal pass. Step over on all cutters should be at the maximum 40% of the bits diameter.

Step over on 3D carving bits should range between 8% and 10% depending upon your personal preference and time allotted for the project.

Step over on large diameter bits can be adjusted to a percentage smaller than 40 based upon your needs.