



FEEDS AND SPEEDS

Use these settings for RPM and IPM as well as “stepover” and “stepdown” values for all cuts. These values will be entered when using VCarve Pro to program cuts. “Stepover” refers to the distance between horizontal cut passes and “stepdown” refers to the distance between vertical cut passes. All of the percentages refer to the percentage of the diameter of the bit being used.

For a more detailed description of these values or to calculate values for a material not on the list - refer to the chipload page in the CNC Basics Guide on the website.

	soft plastic	hardwood	MDF	plywood	foam
1/8" flat/ball	80 IPM 10,000 RPM 25% stepdown 25% stepover	100 IPM 14,000 RPM 25% stepdown 25% stepover	100 IPM 14,000 RPM 25% stepdown 25% stepover	100 IPM 14,000 RPM 25% stepdown 25% stepover	200 IPM 16,000 RPM 50% stepdown 50% stepover
1/4" flat/ball	100 IPM 12,000 RPM 40% stepdown 40% stepover	150 IPM 18,000 RPM 35% stepdown 40% stepover	150 IPM 18,000 RPM 35% stepdown 40% stepover	150 IPM 18,000 RPM 35% stepdown 40% stepover	200 IPM 16,000 RPM 90% stepdown 80% stepover
3/8" flat/ball	100 IPM 12,000 RPM 40% stepdown 40% stepover	150 IPM 14,000 RPM 35% stepdown 40% stepover	150 IPM 18,000 RPM 35% stepdown 40% stepover	180 IPM 18,000 RPM 35% stepdown 40% stepover	200 IPM 16,000 RPM 90% stepdown 80% stepover
1/2" flat/ball	100 IPM 12,000 RPM 40% stepdown 40% stepover	150 IPM 16,000 RPM 35% stepdown 40% stepover	150 IPM 18,000 RPM 35% stepdown 40% stepover	150 IPM 18,000 RPM 35% stepdown 40% stepover	200 IPM 16,000 RPM 90% stepdown 80% stepover

CUTTING NOTES

Use the correct bit! Flat endmills are different than ball endmills. Spiral flutes are different than straight flutes. Compression bits are different than upcut or down cut bits. Different types of cuts require different bits. Refer to the CNC Basics Guide on the website before choosing a bit. Every material/cut combination has properties that need to be considered.

Generally use 2 flute bits. The above calculations are based on that assumption and two flute bits create the best results in the shortest time. 2 flute bits allow for enough space between the flutes to remove material efficiently, this keeps the bit and the material from overheating.

The above values are intended for “ROUGHING” cuts. For finishing values the stepover should be around 20% of the diameter of the bit.