



King Plastic Corporation

General CNC

When routing, how deep should I engrave?

Normally we cut or engrave .075" deep.

What tooling should I use when working with King Plastic Polymer?

Most common CNC tooling will work, but we recommend a high quality solid carbide bit. Tool manufacturers will usually refer to HDPE material as a "soft plastic" and advertise their tooling respectively. 30° and 60° engraving v-bits can be used to produce a quality, carved effect. If you want straight tooling, double o-flute bits work well. Make sure you are using sharp bits to prevent excessive "fuzzing" and cleanup. A v-bit will also create less swirl marks in the bottom of an engraving and further prevent "fuzzing". A finish pass on the inside edge of an engraved sign with a down spiral bit can help remove "fuzzing". A small radius in corners will also help reduce "fuzzing" and cleanup time.

What are the optimal speed rates for engraving?

We have found that running v-bits at 20,000 RPMs, 150" per minute and a maximum of 0.1" of an inch deep per cut produces a quality engraving. For double o-flute bits 1/16" in diameter, we run at speeds of 15,000 RPM, 60" per minute and no deeper than 0.1" deep per cut. Bits 1/8" in size we run at 16,000 RPMs, 80" per minute and a maximum of 0.125" deep per cut. Most larger bits can be ran at normal operating speeds of 18,000 to 20,000 RPMs and 150" to 250" per minute at depths equal to the diameter of the bit. Bits smaller than 1/16" may be used with the proper speeds and shallow maximum depths by an experienced CNC operator.



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Is there any way to prevent chips from wrapping up on the bit?

A correctly aimed air blast will help prevent chip wrap-up on the bit. Fine-tuning the speeds for your machine will also help prevent this. Lubricants can be used as desired but are not necessary.

How do I reduce tool marks at the bottom of an engraved surface?

If tool marks in the bottom of an engraving are an issue you can media blast the finished product. We have used a Zendex Speed Blaster with medium grain glass beads. The blaster is held 8-10" from the surface. Testing on a piece of scrap first is advised. The blasting should not be intense enough to remove the texture on the surface, but should help disguise the tooling marks in the engraving.