

Technical Spotlight

Submitted by Robert Houguin, III

Company: R C Tooling; 11394 James Watt, Suite 312, El Paso, TX 79936

Machine: Sodick A30

Electrode: POCO EDM-3

Application: Core Pins for Mold Repair

Rather than work with individual core pins, we make multiples on each blank. The profile for the eight pins is wire cut into the blank. The ribs are then CNC milled before conventional EDMing. Four electrodes are used to put the detail into the pins.

As with the pins, we repeat the detail to be cut multiple times on one electrode. This allows us to use one electrode as both a rougher and finisher. The leading edge acts as the rougher and the last detail section on the electrode acts as the finisher.

The electrode is positioned at the first pin for the roughing operation. As the electrode moves parallel across the workpiece to the next pin, the next portion of the electrode is put into use. This method saves time and eliminates handling small electrodes and blanks.

Graphite Machining Tip

Grinding

Grinding copper impregnated graphites can cause a few headaches even to the most experienced machinist. The problems occur when the heat generated by the grinding process melts the copper.

Clogging of the wheel is most often caused by a dull wheel. Sharp wheels do not generate as much heat as a dull wheel. Cooling fluids can be combined with sharp wheels to allow the copper impregnated graphites to be machined with minimal melting of the copper.

POCO's machinists use silicon carbide wheels with a grit range of 60-150. Medium open porosity and medium bond hardness work best. Many machinists attempt to use aluminum oxide wheels, but they will need constant sharpening if you are machining POCO materials. Excessive heat

buildup is a problem when using aluminum oxide wheels to grind graphite and copper graphite.

Also, be aware that if a lot of heat is generated by the grinding wheel, the top surface will expand more than the bottom surface, causing the plate to bow up into the wheel. At this point you are only grinding the middle. When the plate cools down, you will have a low spot and probably some warping due to the heat.

This problem is more common with copper graphite than with graphite.