

Technical Spotlight

Submitted by Manfred Heumann

Company: Delta Tech Mold, Inc.; 3733 Ventura Drive;
Arlington Heights, IL 60004

Machine: Charmilles Roboform 40

Electrode: POCO EDM-3

Application: Core Insertion

Twelve 0.012" ribs at a Z depth of 0.974" were cut around a 0.998" diameter core. The angle of the cut ranged from 21.533° to 345°. Nine cores were produced and a total of 108 cuts were made.

The Roboform 40 was programmed to move from the center of the core to the first location, moving the X, Y, and C axis. The electrode cleared the core by 0.100", then the Z axis would move down to the programmed depth. The cutting cycle was started, cutting along the X and Y axis. Double-sided electrodes were used on one side, then rotated 180° using the C axis. This sequence was repeated to make the twelve burns. Two electrodes were used for the first core. A fresh electrode was added per core for a total of 12 electrodes to complete the job. The corner breakdown was kept to 0.003". A VDI 24 (63 Ra uin) surface finish was required.

The operator used the Roboform 40 generator technology to select proper settings for the job. Minor adjustments were made to ensure steady burning conditions. EDM time per core was 22 minutes.

Graphite Machining Tip

Milling

Conventional milling of graphite can cause chipping because the rotation of the cutter tends to pull the material out in a ripping action. Climb milling creates a shoving or pushing action into the graphite. Climb milling produces less chipping than conventional milling techniques.

Long On-Times

EDMers often use a long on-time to increase their cutting speed. This works just fine until the optimum metal removal rate is reached. At this point, extending the on-time actually slows down the cutting speed. The

chart shows the metal removal rate curve declining as the on-time is increased past the optimum point.