

Technical Spotlight

Submitted by Bob Young

Company: Gillette; London, England

Machine: Agie Integral

Electrode: POCO EDM-3

Application: Mould for disposable razor

The International Tech Center produces moulds that are shipped to other Gillette facilities throughout the world. An installer travels with the finished mould and sets it up for the production run. It is important that the moulds be identical because a razor produced in Europe must have the same balance and feel as a razor produced in South America.

From the original design files, the product model is split and cutter paths are produced for making the electrodes. The electrodes are milled 4 up on a Mikron high-speed graphite machining center. The last cut is done with a 1mm cutter that goes over the entire electrode to ensure accuracy. Total machining time is 4 hours.

A series of 4 electrodes is used to complete the cavity. The roughing electrode is .6mm undersize, the semifinisher is .45mm undersize, the finisher is .15mm undersize and the refinisher is .08mm undersize. We use this series of electrodes to get the definition of the ribs. We come off the EDM with a 1 Ra micrometer surface finish. Hand polishing is not done, because the end-to-end dimensions are critical. It is important that the ribs align with no vertical line on the handle. Even a disposable razor has to feel right to our customers. Total EDM time is 36 hours.

New Technology Shaves Production Time

Which came first, the chicken or the egg? A real puzzler!

Gillette's tool room was a copper-tungsten shop for years. Recently, they made a big change. New machines and a new electrode material - graphite. And the puzzler is which came first, because it's hard to think of one without the other.

Gillette installed new equipment in October of 1996 and by January of 1997, they had completed the training and testing stage and were in full production. The new equipment list included a Mikron (Swiss) high-speed graphite machining center. It is the first machine of its type installed in the U.K. The fully-enclosed machine not only removes machining dust efficiently, but also acts as a very efficient sound barrier. The result is a very clean and operator-friendly environment.

Two Agie CNC sinker EDM machines completed their equipment list. The technology on the machines is ideal for EDMing with graphite electrodes.

High-speed production of disposable razor moulds, featured in the technical spotlight, is the reason for the change in their production methods. The project engineer and the team members are very excited about the results they are getting from using this new technology.