EDM solutions for diverse needs and large workpieces

EDM Drilling – The first EDM drilling units that Heun Funkenerosion offered were all-purpose modules with an adaptable eroding head with a servo-unit and a mobile generator equipped with a high-pressure pump.

Today, these modules are still available, but they now feature several improvements, Heun says. The modules are used for special tasks, for example, to remove rivets from the outer plating of airplanes during maintenance, relief drilling activities and also to machine bleeder holes. Other areas covered include drilling cooling holes in metallic moulds, drilling holes in injection nozzles as well as EDM drilling jobs with highly pointed angles.

Heun explains that its eroding units have high EDM drilling speeds and can be applied in many different fields of EDM drilling.

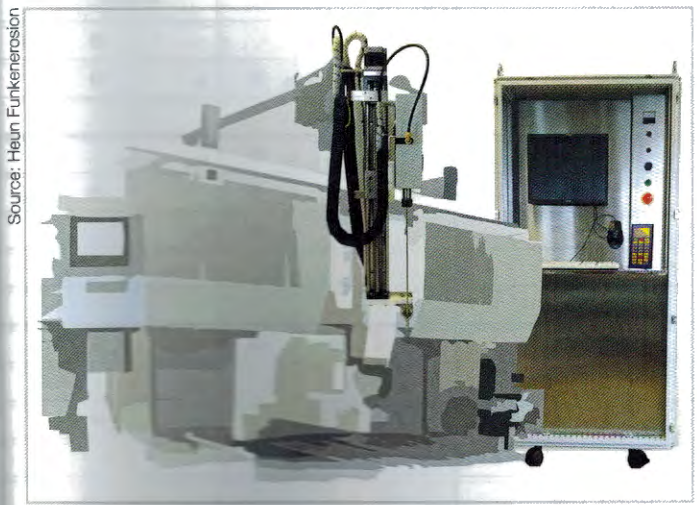
Every kind of conductive material can be machined, be it soft or hard. The drilling unit is compact and good for machining big workpieces as well. Its generator and monitor are located in the solid, mobile control cabinet. It has a water-cooled generator, which runs at up to 80 ampere. The self-explanatory operating interface is controlled by a touch-screen terminal. While the eroding head can be attached to machining centres or tooling robots, independent mounting on a stand or drill rig is also possible. The electrode materials used include brass, copper and graphite and different ceramic guides can also be installed.

This enables a range of electrode diameters, from 0.3 – 3.0 mm. Furthermore, with special collet chucks, electrodes diameters of 0.1 – 6 mm can be clamped. Optionally machining with electrodes of up to 50 mm is also possible. Every electro-conductive component can be machined. Eroding heads of different lengths are offered with a maximum travel distance of 3,000 mm.

The head-generator unit has an analysis tool to control the drilling process. It is also possible to connect the unit to another machine and pass signals to it.

The Heun unit has functions of a standard EDM drilling machine with a special feature – its spindle can be locked in place to carry out die-sinking or cut off parts, such as threaded bolts and sheet-metal parts. The most common application is, however, to remove broken taps. Normally, through-holes are machined, while blind holes must be machined manually – all of this is made easy with the use of Heun's units.

heun-gmbh.de



Source: Heun Funkenerosion

The eroding head can be attached to existing machining centres or to tooling robots.

Source: Zimmer&Kreim

ZK also organises visits to its office in Brensbach, Germany, for those who wish to witness the Genius machine in action on-site.

Erosion winner at comprehensive competition

EDM Machining – At a comparison competition, the Genius 900 emerged as the clear winner, Zimmer & Kreim (ZK) said.

The company presented a new generation of eroding machines, the Genius 900 Nova at the AMB 2018 in Stuttgart, Germany. The goal of the developers was to bring a machine on the market that would be the best in its class in reference to speed, precision and availability, according to the engineering company that supplies cutting-edge technology products to an international portfolio of customers in the fields including EDM machines, handling systems and software solutions.

Simultaneous to the market launch, ZK took part in a comprehensive benchmark competition organised by the WZA (Werkzeugbau Akademie Aachen) in Germany. Among the tests done at the competition was the comparison of industrially implemented programming strategies and machine parameters in order to identify the best practices for the entire eroding process.

The following parameters were evaluated: production time, idle time, surface quality as well as the precision of slot and edges. The benchmark geometry was also determined by a neutral body. Decisive for the choice of geometry was that erosion poses a great challenge similarly for both users and machines. At the same time, the processing had to be completed within a day. The complete process chain, which included milling, determining offset data, machine setup, quality control etc., was also taken into account.

"Difficult geometries or different materials are not a problem for our eroding machines at all," Michael Huth, Head of Marketing and Sales at ZK noted. He explained that all machines in the Genius series have the same level of performance and are available with different table sizes and designs. Furthermore, Huth noted that the Genius machines were the only ones to achieve the required targets during the test. In addition to outstanding precision landing, the researchers also detected signs of the irregularities by other participants. Thus, large differences in measured roughness at various points in the electrode indicate a poorly adjusted deflection strategy at the finishing stages.

Among all evaluated results of all participating machines, the Genius 900 Nova was the only machine to reach the specified target corridor for the required roughness of Ra=1,1µm – VDI 21, which the company is very proud of.

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