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Development of Electrical Discharge Machining Devices for Curved Holes

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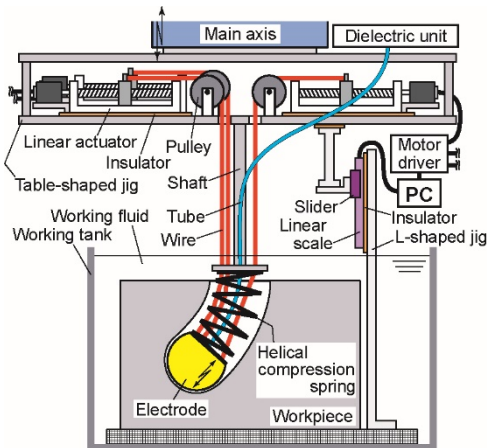


Fig.1 Schematic view of one of curved hole EDM devices



Fig.2 Examples of curved holes machined in this study

Content:

Mechanical engineers have taken it for granted that drilling is to machine a straight hole. Therefore, straight holes have been used even in unsuitable cases. The typical example of the cases appears in fabricating the water channels of molds. The water channels are the pipe lines built in molds and play an important role to properly control the temperature and thermal flow of molds in molding process by regulating the flow rate and temperature of the coolant running through the water channels, which prevents defects from occurring in products. Accordingly, the shapes and positions of the water channels are very important for achieving high productivity. However, the water channels are inevitably formed as the straight or polygonal-line-shaped pipe lines, since they are generally fabricated by drilling.

To solve the problem, the development of a curved hole machining method is strongly desired. Therefore, our laboratory has developed the devices to machine curved holes by means of electrical discharge machining (EDM). Figures 1 and 2 respectively show one of the devices and the curved holes machined by the devices.

Keywords: curved hole, electrical discharge machining (EDM), CAD/CAM

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