

CNC Programming System Reduces Programming Time in Micro Machining Medical Device Components

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Die Technology provides precision machining services and specializes in producing dies for materials less than 0.005 inch in thickness. The company prefers to perform operator-intensive jobs during the day and, whenever possible, runs machines unattended at night. Die Technology has made substantial additional time-savings by switching to ESPRIT from DP Technology and utilizing the software's mould capabilities to create computer numerical control (CNC) programs for the production of electric discharge machining (EDM) electrodes. Only about four hours were required to train each of the company's programmers to use the programming software. The programmers have been able to program nearly every part in substantially less time than was required by the software used in the past. For example, it took only 90 minutes to program the first of a family of EDM electrodes for making molds for catheter tips and only 10 minutes to program subsequent parts.

Tight clearances required in forming thin materials

Die Technology Inc was founded in 1988 as a wire EDM contract machining shop focused on building progressive dies and precision stamping dies. The company designs and builds precision stamping dies, tools and fixtures for the medical, electronic, defense and telecommunication industries. It also provides precision wire and sinker EDM machining services for a wide range of manufacturing companies. While Die Technology is still heavily involved in wire EDM, its primary focus in recent years has turned to precision machining and micro machining. At least 95% of the dies and tooling produced by the company are for materials that are 0.005 inch in thickness, or less, and some are below 0.001 inch.

Cutting clearances between the punch and die are typically no more than 10% of the material thickness, which means that clearance on a 0.001-inch thick material is in the neighborhood of 0.0001 inch. A high degree of accuracy is required to guide the punch into the die with such minute clearances. This means that tolerances have to be very tight on all critical components, including dies, punches, guided stripper plates, die plates, die inserts etc. Die Technology uses 4-axis wire EDM to produce the entire die assembly. A high degree of accuracy is required to produce the wire EDM electrodes used by the company.