



DATRON DYNAMICS, INC.
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Application Notes

Part:..... Three Dimensional Die
Material: 3" x 4" S7 Tool Steel
Machine Used:..... M9
Features Utilized: High frequency spindle, automatic tool change with tool length sensor and Micro Jet oil mister
Software Used: Type 3 Engraving Software
Total Cycle Time: 30 Hours



Machining Details:

Tool 1: 30 degree carbide engraving tool x .020" tip in 3 passes for a total roughing depth of approximately .100"

Feed & Speed: 20,000 rpm at 10 inches per minute

Tool 2: 20 degree carbide engraving tool x .003" tip in one finishing pass removing approximately .005" with a true spiral cut from the center outward.

Part was fixtured in a Chick vice. Vegetable grade oil mist coolant was used.

Application Summary:

Due to the fine detail required in the design, an extremely small engraving tool was used. The high speed spindle was critical for reducing tool wear and breakage. This was especially critical for the final spiral finishing pass, which needed to be completed with a consistent finish. The cast steel construction offered superior stability and provided optimum surface finishes. The automatic tool change unit allowed an automated solution without user interfacing. The tool length sensor also provided the ability to check for tool for wear and breakage during the cycle time. The integrated and efficient oil mister gave superb results in maintaining the tool life. The compact and power efficient (220 volts, single phase at approx. 7 amps) machining system offers easy installation to industrial and non-industrial environments. The modular design and construction provides for easy service and maintenance to the system. Different approaches in the tool path also could dramatically reduce the cycle with minimal compromise to the detail. The seamless integration between Type 3 and the Datron control, along with a sophisticated post processor for the Datron, make the combination a professional, turn-key solution.