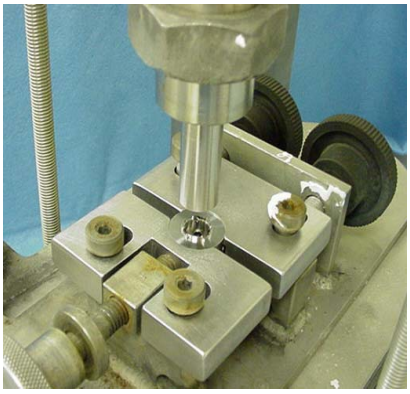
Edge Finishing of an Inconel® Specialty Part Using the FARADAYIC® Process

Objective:



This project demonstrated the capability of the patented FARADAYIC® Process for removal of internal and external burrs on specialty INCONEL® (IN718) parts.

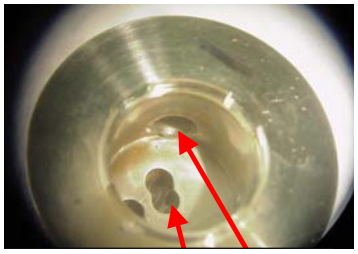
Summary:

The top edges and inside holes of an Inconel® 718 production part were edge finished using the FARADAYIC® Process. The edge finishing process removed the burrs on the part edges without any change of part size and adjacent area appearance using the optimal electrolyte and electrically mediated process parameters. Parts can be individually fixtured, as shown, or fixtured in a tray for processing multiple parts simultaneously.

Before Deburring

After Deburring

Background:



Finishing of interior edges

The patented FARADAYIC® Process is an electrochemical manufacturing technique that utilizes a controlled electric field to either polish or shape a metallic work piece. Since the FARADAYIC® Process is electrically mediated, it does not require aggressive chemicals to facilitate the metal removal as needed in conventional chemical processes (e.g. chemical etching). The material removal rate is determined by the applied electric field, which is user-defined and computer controlled. This provides the means for precise control of the length of the process and the total material removed. Additionally, the use of neutral salt solutions (e.g. sodium chloride and sodium nitrate) as the electrolyte makes the process both worker and environmentally safe.

The FARADAYIC® Process technology illustrated above is protected by a substantial patent portfolio including issued, allowed, and pending patent actions.

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