

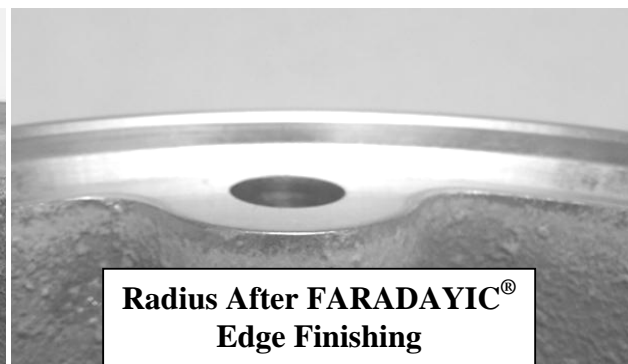
Edge Finishing an Aluminum Alloy Helicopter Wheel using the FARADAYIC[®] Process

Objective:

This project demonstrated the feasibility of using the patented FARADAYIC[®] Process to remove a burr from a helicopter wheel component edge.

Summary:

FARADAYIC[®] Edge Finishing successfully deburred the edges of cast aluminum aircraft wheels where the top surface requires a radiused edge for mating two halves together. The best edge finishing process should only remove the burrs on the part edge without any change of part size and adjacent area appearance. The wheels were processed in 17 seconds in Faraday's 3-axis ECM positioning system.



Background:

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.