



Implant Coating System

Challenge

A medical device manufacturer needed a system to automate the batch processing of dental implants through a proprietary electrolytic plating process.

Solution

The automatic process begins after an operator loads a tray of 48 dental implants into a drawer. A robot equipped with a custom, three-jaw gripper transfers the implants from the user-installed trays onto studs in two internal custom-process cassettes. The studs within the cassette retracts, pulling the implants against sealing washers to form a seal before the cassette is pressurized and tested for leakage.

Once tested, a loading arm transfers the loaded cassette into the electrolyte bath, which is electrically charged while an actuator pushes the cassette into the bath for a recipe-prescribed amount of time. While one cassette is immersed in the electrolyte bath, the robot begins placing implants on the second cassette for simultaneous processing.

When the plating is completed, the actuator extracts the first cassette from the electrolyte bath and the loading arm moves the cassette from the bath to a rinse and dry process.

Once the implants are dry, pressure is released on the cassette and the studs extend for the robot to transfer the implants onto the unload tray. The operator opens the drawer and removes the processed implants.

Result

The system automates component handling during the proprietary coating process, enabling the production of 240 implants per hour.



About DWFritz Automation

Established in 1973, DWFritz Automation designs, builds, and supports engineer-to-order automation systems and high-speed, non-contact metrology and inspection platforms, as well as providing world-class build-to-print manufacturing capabilities to clients.

