WJM Technologies
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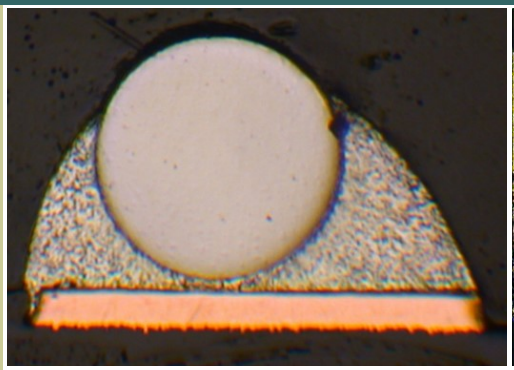
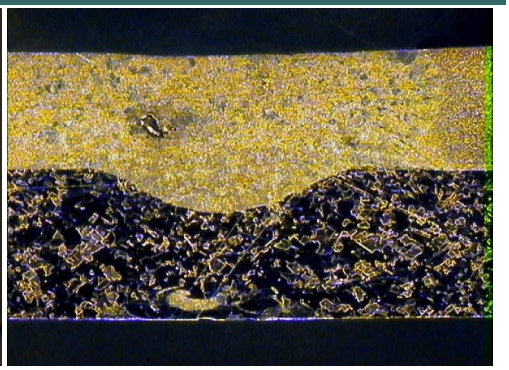
One-day Course

Small-Scale Resistance Welding

Course Contents:

1. Introduction
2. Fundamentals
3. Configurations
4. Heat Balance
5. Equipment
6. Weld Metallurgy
7. Process Control
8. Operational Issues
9. Testing and Defect Analysis
10. Process Development
11. Case Study





This course is designed for technical personnel who routinely deal with the resistance welding of small components typically used in medical devices, sensors, lighting, solar panels, and electrical connectors. The course starts with fundamentals of resistance welding including discussion of contact and bulk resistance. Section on configurations looks at various options for part geometry such as opposed, step, seam, and projection. The section on heat balance presents various options to improve weld quality by proper selection of electrodes and materials. In the equipment section, we discuss functioning of weld heads, power supplies, and electrodes. The various options available on formation of the bond such as solid-state, reflow, and fusion weld are presented in the weld metallurgy section; option to make three different types of bonds is unique to the resistance welding process. Section on process control discusses methods to improve process yields by proper selection of welding modes (current, voltage, and power) that are available in the newer power supplies. Day-to-day issues that affect weld quality are discussed in the operational issues section followed by discussion on weld testing and defects. Section on process development brings all the above aspects together to conduct a successful design review and setup for a robust process. In the last section we review a case study which will help attendees gain confidence in the development process.

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