



Curing Adhesive on Steel Motor Shaft for Bonding

Objective Cure adhesives on the internal wall of a steel motor shaft to bond electronic stress/strain gauges into place.

Material Steel shaft measuring 6.65" (168.9mm) OD, 5.5"(139.7mm) ID and 70" (1.8m) long. Aluminum shield plate and two end guide plates.

Temperature 285°F(140.6°C) > 300°F(148.9°C)

Frequency 160 kHz

Equipment

- Ambrell 1kW induction heating system equipped with a remote workhead enclosure for double capacitor/buss modules. Zone 1 needs a 0.25 µF capacitor, while Zone 2 requires 0.66 µF
- An induction heating coil designed and developed specifically for this application.

Process A complex two coil system, shield and stud systems used to provide proper axial alignments of the shaft & coil while allowing the fixture to be open for removal of the shaft. The aluminum shield separates the two required heat zones. An average temperature of 290°F(143.3°C) is maintained for 1.5 hours.

Results/Benefits Induction heating provide:

- Precise, accurate control of heat placement
- Minimized coating defects
- Repeatable results

