

LOCTITE SI 5970, BERGQUIST TGF 3600,
BERGQUIST TGP 1000VOUS

Thermal Management and Gasketing Solution for High-Voltage EV Inverter Module

1 CUSTOMER CHALLENGES

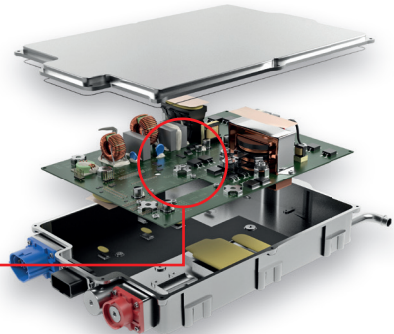
- » A Tier 1 automotive supplier designed a new high-voltage EV inverter, which required reliable thermal management for safe and efficient function over lifetime.
- » Due to this nature of the inverter, which was designed to handle very high voltages, the Thermal Interface Materials (TIM) needed to be electrically insulating to avoid electrical hazards.
- » The compatibility of the gasketing and TIM chemistry was important, as multiple chemistries in the same component can cause contamination issues which could lead to curing and operational issues.

2 RECOMMENDED TECHNOLOGY

- » To fill larger, multi-level gaps, BERGQUIST GAP FILLER® TGF 3600 with 3.6 W/mK and 0.9 to 5.4 g/sec dispense rate was selected, as it was proven to perform reliably for an existing application.
- » Ultra-soft, conformable BERGQUIST GAP PAD® TGP 1000VOUS was chosen as the solution for various components to provide thermal management along with providing high voltage breakdown strength to protect against high voltage surge.
- » LOCTITE SI 5970 was recommended for sealing the inverter, as it is approved by multiple OEMs and Tier 1 Suppliers for its compatibility with other chemistries of gap filler and potting compounds.

Fast liquid gap filler dispense rate of 0.9 – 5.4 g/sec

Supports production of > 500,000 inverters per year



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3 MASS PRODUCTION PROCESS SET-UP

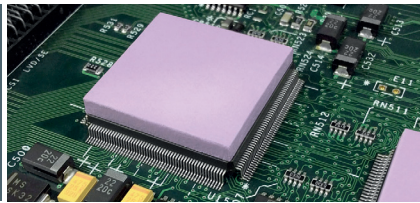
- » Leveraging Henkel’s partnerships with multiple dispensing equipment suppliers, the customer was able to select the best dispensing equipment for the liquid gap filler.
- » To ensure gap pad integrity, Henkel initiated an additional testing phase with a third-party laboratory to verify material cleanliness and purity in order to exclude any possibility of electrical shorts due to particle contamination.
- » This multi-material solution helped bring one of the EV industry’s highest voltage inverters to commercialization, allowing an annual production capacity of > 500,000 inverters.

CUSTOMER BENEFITS

Reliable potting material performance

Complete coverage of the coils and filling of all gaps

Process optimization by removing need for vacuum de-airing



TO FIND OUT MORE ON HOW WE CAN HELP YOU DRIVE E-MOBILITY, VISIT: www.henkel-adhesives.com/emobility

