



## A CASE STUDY: TRANSFORMER CUSTOMIZATION FOR AN EXTREME ENVIRONMENT

### THE CHALLENGE

Jenkins sold a Jenkins Motor Test System into Oman, where temperatures can exceed 120°F. While Jenkins Motor Test Systems are built tough and for industrial environments, this specific location required customizations to be the most effective in an extremely hot environment. Locations near large bodies of water or tropical environments can also cause problems as the humidity in the air will cause the copper wiring in the transformer to oxidize over time. Although Jenkins designs its equipment to operate for long periods of time, some applications for customer environments require specific customizations.

### THE SOLUTION

Jenkins engineers and winders worked together to develop a custom solution for this harsh climate, particularly paying close attention to temperature and water resistance. In order to customize the transformer for this environment, the Jenkins team made the following modifications.

- Doubling the spacing between winding layers to increase airflow
- Encasing the transformer first in a high tolerance epoxy varnish, and then in a polyester over-dip that prevents the application from rust, dust and harmful materials
- Utilizing expanded metal at the base of the MTS enclosure, allowing heat to escape, reducing the internal temperature
- Installing temperature sensitive cooling fans (set to 100°F) atop the enclosure to prevent overheating

### THE RESULTS

Jenkins technicians checked insulation for 10,000 volts (resistance to ground), checked each voltage leg, high-voltage potential to ground, and ensured the taps are in the correct place. Voltage was confirmed to operate up to 20% above normal operation, ensuring maximum efficiency and longevity of the transformer. These modifications have resulted in prolonged use of the Jenkins Motor Test System in harsh environments and ultimately another customer satisfied.

