



HEAT SHRINK TECHNOLOGY FACING HARSH ENVIRONMENT

33 kV heat shrink terminations in Omani desert

Oil and gas production is the pillar of the Sultanate of Oman's economy. In this harsh environment, the equipments must withstand to high temperature, UV radiation and heavy pollution conditions.

The challenge

Oil production takes place in the Omani desert where the electrical components are facing harsh environments. Any failure can cause an electrical breakdown which would result in the stoppage of the oil production. Besides, the risks of failures are augmented due to:

- Temperatures up to 60°C
- High UV level
- Sulphur from diesel vehicle emissions
- Sand damages

Combined together, this factors can cause spot punctures which lead with time to severe and erosion of the stress control and insulation materials of the terminations and the cable screen wire.

An Omani oil and gas exploration and production company that mainly contributes to the oil crude and gas supply of the Sultanate was equipped with hundreds of heat shrink terminations all over its large concession area. This production company exports its hydrocarbons worldwide and couldn't afford an electrical outage in its hundreds producing fields and thousands producing wells.

After facing electrical breakdowns due to 33 kV heat shrink terminations' failures that were only 2 or 3 years in service, the Omani company was looking for products able to withstand extreme environmental conditions for several years. Efficiency, safety and reliability of the installations are critical priorities for the company.

Region:

Middle East

Industry:

Energy

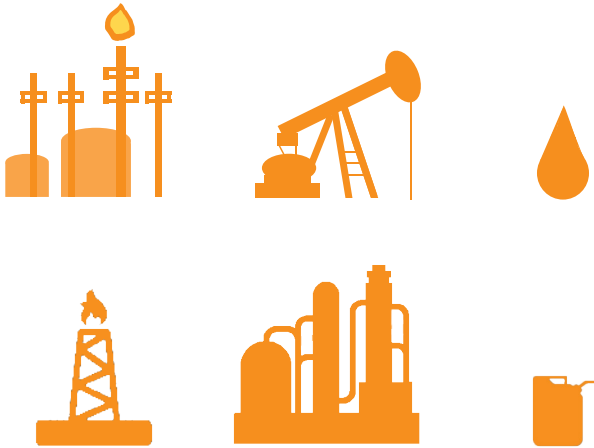
Key figures:

- Thousands producing fields
- Hundreds producing wells
- 33 kV heat shrink terminations

The solution

TE Connectivity (TE)'s engineers worked closely with the customer's team to design a new 33 kV heat shrink termination in EVA (Ethylene Vinyl Acetate) material that would ideally meet challenges. The result of this cooperation is an innovative heat shrink termination with an extra layer of insulation. It allows the increase of the wall thickness of the insulation tube at the bottom end of the terminations, resulting in the significant risk reduction of pin holes.

TE's experience in design has been combined with Raychem material expertise. Our specially formulated EVA material has been used into the heat shrink terminations production because it exhibits a high UV radiation resistivity and a very low degree of surface cracking, it was the ideal solution to withstand harsh environment like a desert.



The outcome



In oil and gas production environment, electrical products undergo extreme environmental conditions. Any unintended outage caused production stop for an undefined time and impacts the company's organization and activity. We're talking about million dollars in potential losses in case of such incident.

With an experience of more than 60 years in material science and cable accessories design, TE demonstrated its know-how and adaptability by designing a tailor-made solution for a harsh environment application.

TE's ruggedized products are able to withstand temperature up to 60°C, pollution and high UV level while being efficient, reliable and long lasting.

WE WERE AWARE OF TE'S PRODUCTS GOOD REPUTATION IN HARSH ENVIRONMENTS FOR DECADES AND THIS IS WHY WE TRUSTED THEM FOR THIS CHALLENGE. TE DEMONSTRATED THEIR STRENGTH BY PROVIDING US TAILOR MADE HEAT SHRINK TERMINATIONS ABLE TO REMAIN EFFICIENT FOR YEARS WITH COMBINATION OF ENVIRONMENTAL STRESSES.

TE's engineers are experts in solution providing, especially for harsh environment applications. From the choice of material to the technical support during the installation in the field, they guided the customer all the way to its goal.

By delivering a tailor-made solution to its customer, TE reinforced its position of solution provider and became a key supplier for this oil and gas company which adopted TE's products based on EVA material into its specification. A key supplier status for 33 kV heat shrink terminations, insulators and surge arresters has been awarded to TE.

TE Connectivity (NYSE: TEL) is a \$12 billion global technology leader. Our connectivity and sensor solutions are essential in today's increasingly connected world. We collaborate with engineers to transform their concepts into creations – redefining what's possible using intelligent, efficient and high-performing TE products and solutions proven in harsh environments. Our 72,000 people, including over 7,000 engineers, partner with customers in close to 150 countries across a wide range of industries. We believe EVERY CONNECTION COUNTS – www.TE.com.

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