



CONNECTING TOMORROW'S AIRPORTS

MEDIUM VOLTAGE SEPARABLE CONNECTORS AND JOINTS FOR GRID EXPANSION IN EXTREME CONDITIONS

TE Connectivity (TE) medium voltage separable connectors and joints answer to challenges posed by Muscat Airport's humidity, salinity and high temperature conditions.

The Challenge

The Sultanate of Oman initiated an expansion plan of their major airport, the Muscat International Airport, to develop the capacity and functionality of their facilities and address an increase in the total number of passengers. The expansion project included improving the existing terminal building and constructing a new 334,995 m² terminal that would allow the airport to support 12 million passengers each year.

For this project, the engineers responsible for the energy supply structure requested:

- Inner cone connectors for their transformers and gas-insulated switchgears to supply their 33 kV outdoor substations.
- Outer cone connectors for transformers and gas-insulated switchgears to supply their 33 kV indoor substations.
- Medium voltage terminations and joints to distribute the electrical power from the substations to the new terminal.

Country:

Sultanate of Oman

Industry:

Energy

Key figures:

- 70 TE's Raychem Plug-In Terminations (RPIT) inner cone connectors for 83 substations
- 2 RPIT installation tools
- 100 outer cone connectors
- 250 medium voltage joints and terminations, which represent 50 km of cable
- Installer on-site training



Since the airport is next to the Gulf of Oman where temperatures reach 50°C, harsh environment solutions had to be considered. Engineers were looking for products that could ensure reliable performance and withstand extreme conditions, such as salinity, humidity and high temperatures.

They were also looking for a solution that would decrease failures that occur as a result of installation error.

A COMPLETE CONNECTIVITY SOLUTION

The Solution

TE Connectivity local team provided a customized solution for each need:

- Inner Cone Connectors

For the compact outdoor substations, TE engineers selected TE's new Raychem Plug-In Terminations (RPIT) inner cone connectors, which are designed to provide very high performing, reliable cable connections for transformers and switchgears from 12 kV to 52 kV, even in tight spaces.

The RPIT inner cone terminations are metal-enclosed and hermetically-insulated to guarantee permanent sealing of electrical interfaces. This also allows them to withstand UV exposure or salt fog.

For the project, TE's engineers customized the cable length of the inner cone connectors to meet the customer's exact specifications. The additional benefit to the RPIT products was the ease of installation due to their silicone components and an easy-to-handle installation tool.

- Outer Cone Connectors

For the indoor substations, the customer was looking for outer cone connectors compatible with their systems. TE's Raychem Screened Separable Connectors RSTI provided the perfect fit as they are a convenient solution for any type of cable, and their design using silicone material helps to ensure high performance.

- Medium Voltage Terminations & Joints

Since the soils in this area are very humid, joints in the ground needed to be completely sealed. This would prevent water from penetrating the joint and minimize the risk of failure. TE's engineers recommended using heat shrink joints to guarantee the complete sealing and waterproofing of the tubing system.

- On-site Training for Stress-Free Installation

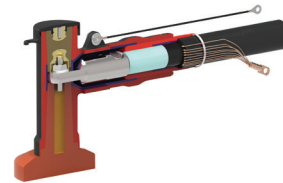
To reduce failure risks caused by incorrect installation, TE offered on-site training by a local team. This allowed them to supervise the installation process and ensure that all cable accessories were installed correctly.



RPIT



RPIT Installation Tool

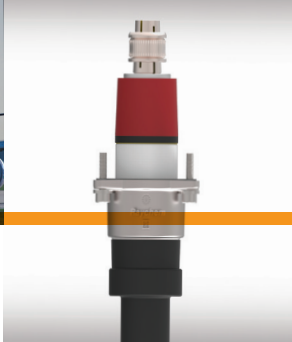


RSTI



MXSU

POWER IN AIRPORTS



The Outcome

Expanding and modernizing infrastructures can be challenging, particularly in the field of energy. With a wide portfolio of Medium Voltage products and accessories, TE Connectivity offered a complete solution of products, which made the expansion project less challenging and more cost-effective. By relying on a unique supplier for electrical parts, project follow-up and organization became much easier and safer.

With more than 60 years of experience in materials science and engineering, TE's ruggedized products were able to deliver the high performance, reliability and long service life the project demanded and were the preferred choice for the extreme conditions they would need to withstand.

"WE WERE LOOKING FOR LONG-LASTING PRODUCTS THAT COULD WITHSTAND EXTREME CONDITIONS AND PREVENT FAILURE IN OUR NETWORK. TE CONNECTIVITY'S LOCAL ENGINEERS UNDERSTOOD OUR CHALLENGE AND DESIGNED A TAILOR-MADE SOLUTION FOR OUR SPECIAL APPLICATION IN HARSH ENVIRONMENT. WITH UNPARALLELED CUSTOMER SUPPORT AND A FULL RANGE OF RELIABLE PRODUCTS, TE BECAME OUR PARTNER OF CHOICE FOR A HIGH PERFORMING CONNECTIVITY NETWORK."

TE supported the major international airport project team by providing day-to-day technical assistance in their local language, from the design through to the installation supervision of materials in the field.

With this project, TE Connectivity reinforced its presence as a key supplier for Medium Voltage cable accessories in the Middle East and demonstrated its capability to design and supply special solutions in harsh environments. TE continues to work with local partners to solve other challenges throughout the region. Currently, TE cable accessories are being used for other demanding projects, such as the expansion of one of the main airports in the United Arab Emirates.

TE Connectivity (NYSE: TEL) is a \$12 billion global technology leader. Our commitment to innovation enables advancements in transportation, industrial applications, medical technology, energy, data communications, and the home. TE's unmatched breadth of connectivity and sensor solutions, proven in the harshest of environments, helps build a safer, greener, smarter and more connected world. With 75,000 people – including more than 7,000 engineers – working alongside customers in nearly 150 countries, we help ensure that EVERY CONNECTION COUNTS – www.TE.com.

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