



# CONNECTING TOMORROW'S AIRPORTS

## MUSCAT INTERNATIONAL AIRPORT, OMAN

TE CONNECTIVITY MEDIUM VOLTAGE JOINTS AND SEPARABLE CONNECTORS 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 the airport's 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 m<sup>2</sup> 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 terminations for their transformers and gas-insulated switchgears to supply their 33 kV outdoor substations
- Outer cone terminations 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



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.

### Featured:

**Country:**  
Sultanate of Oman

**Industry:**  
Energy

### Key Figures:

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

## The Solution

TE Connectivity's (TE) local team provided customized solutions for each need.

### Inner Cone Terminations

For the compact outdoor substations, TE Connectivity selected its 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 terminations 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 Terminations

For the indoor substations, the customer was looking for outer cone terminations compatible with their systems. TE's outer cone terminations 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 and 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

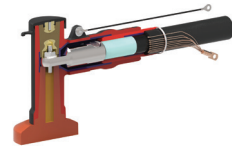
To reduce failure risks caused by incorrect installation, TE offered on-site training by a local team. This allowed them to supervise the installation process and ensure that all cable accessories were installed correctly.



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.

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"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 A 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".

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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.

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