

# REPORT

Safe cable seals for  
efficient expansion



Roxtec cable seals play an important role for safety and profitability in the expansion of the Fujian refinery and petrochemical complex in southern China. The sealing

system does not only protect control rooms against heavy rains and risks of explosion. Its flexibility also ensures quick installations as well as capacity for further expansion.

"We are very satisfied with Roxtec. And the owner is very satisfied too," says Zhao Xiao, senior instrument engineer at the managing contractor SEI.

**Roxtec team reports on site**  
– from oil refinery in Quanzhou, China

**We Seal Your World™**

# Minimizing risks

The fire brigade in full practice and the eager safety inspector on the bicycle reflect the same search for maximum safety on the vast plant area. Roxtec seals are installed in ten facilities – ensuring the demand for water-tightness and protection against fire and blasts.



*Thanks to Roxtec, the refinery can expand without digging cable trenches or making new holes.*



The Fujian Petrochemical Complex and Refinery Expansion is an international joint venture. Investing massively to upgrade the refinery within crude oil refining, the Fujian Petrochemical Company, Exxon-Mobil and Saudi Aramco triple its capacity to 12 million metric tons per year. The expansion adds new petrochemical facilities, including an ethylene steam cracker and polyethylene and polypropylene units as well as China's biggest P-xylene

(PX) plant. All oil products of the refinery will meet Euro III emission standards.

## **Reliability is the key**

Multi-billion dollar oil and gas projects require secure solutions against fire and risks of explosion, and in this region all sealing components must withstand the sometimes disastrous tropical rains. SEI selected Roxtec cable seals to be able to increase long-term protec-

tion of the equipment and save considerable amounts of money during construction.

## **Needed a solution**

The previously used sealing compounds did not meet all safety regulations without a lot of extra work. In order to avoid the risk of explosion, all cables had to enter the control room from underground. The installers had to dig deep cable trenches. But the rain water



Ray Zhang and Steven Zhai of Roxtec China and Zhao Xiao of SEI.



Roxtec G frame combinations protect the PX plant control room against fire and water.

and salt in the trenches damaged cables and enforced frequent and costly changes and maintenance. And even worse: every expansion required the same job done all over again.

### Simple and direct

The certified system from Roxtec, however, was easily installed above ground, directly in the openings of the explosion-proof walls of the control rooms. Instead of digging trenches and fearing floods, installers just routed the cables straight from the cabletray.

“This is much better,” says Zhao Xiao. “Since we started with Roxtec, we have no problems.”

### Multidiameter™ by Roxtec

The Roxtec invention for adaptability, based on modules with removable layers, is also beneficial. According to Zhao Xiao, cables of up to 30 different dimensions are used and covered by just three

sizes of sealing modules. Another benefit is the improved cable management. There are 6 000 input points and 90 cabinets only in the PX control room!

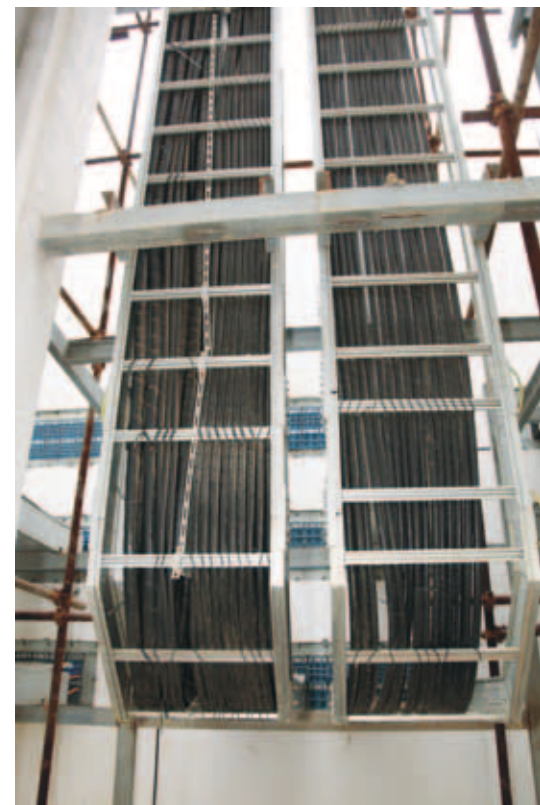
### Ready for further expansion

Each Roxtec cable seal provides built-in spare capacity for additional cables. It is very economical, since the openings are already there – properly sealed but easy to open up. This also simplifies the construction process, as installations can be made in advance.

“The owner requires 20 percent spare capacity for future needs,” says Zhao Xiao.

Owners often specify Roxtec from the start. In this project, the designers chose the Roxtec solution out of their experience of the seals.

“Roxtec is a much better solution”



Roxtec seals ensure easy maintenance and ability for upgrades.

### Benefits

- Watertight
- Fire-proof
- Explosion-proof
- Cost-efficient installation
- Built-in spare capacity



# Facts

**Project type:** Expansion of refinery and petrochemical complex

**Involved companies:** ExxonMobil, Saudi Aramco, Fujian Petrochemical Company Ltd (owners)  
SEI (Sinopec Engineering Inc), SSEC, SNEC (design and engineering)  
SEI (contractor)  
China Petroleum Engineering & Construction Corporation (installations)

**Applications:** Cable entries in explosion-proof control room walls

**Requirements:** Watertight  
Fire-proof  
Explosion-proof  
IP 67

**Roxtec products:** Roxtec G frames  
Roxtec wedges  
Roxtec adaptable sealing modules

**Reasons for choosing Roxtec:** Sealing solutions for increased safety  
Easy and cost-effective installation  
Spare capacity for further expansion  
Multidiameter™ by Roxtec – adaptability to cables of different sizes

**Roxtec oil & gas references:** Agip ENI, BP, Chevron, ConocoPhillips, CNOOC, ExxonMobil, Fluor, Foster Wheeler, Technomare, Shell, Statoil, Daewoo Heavy Industries, Samsung Heavy Industries, Hyundai Heavy Industries, Keppel Fels, Kvaerner, Raffels Shipyard, SINOPEC, CNPC.



Roxtec International AB  
Box 540, SE-371 23 Karlskrona, SWEDEN  
PHONE +46 455 36 67 00, FAX +46 455 820 12  
EMAIL [info@roxtec.com](mailto:info@roxtec.com), [www.roxtec.com](http://www.roxtec.com)