

REPORT

Airport installations



Airports and airfields are good examples of advanced infrastructure in which safety and reliability are key issues. For

the equipment handling electrical wiring and piping, this is reflected in strict requirements for secure and reliable

cable and pipe seals. As a result the Roxtec cable and pipe transits are used at a growing number of airports.

Roxtec team reports on site

From international airports in Sweden, Germany, the Netherlands and Finland

We Seal Your World



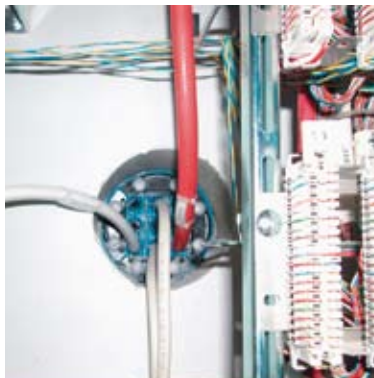
Roxtec brings safety and reliability to Swedish airports

Where the traditional solutions for cable and pipe sealing could limit designers and builders of airports, Roxtec enables customers at Swedish airports to achieve important specifications - and on top of that, appreciated added value.



K 30 Power Supply, Arlanda

Roxtec G 4, 6 and 8 units installed in K30 to seal power cables and signal cables. In the cable entry room some were shielded with Roxtec G 4x3 and PE modules.



ATCT equipment room, Arlanda

Roxtec G 4x2, G 4x3 and R 125, some with PE modules for electromagnetically shielded installations, to seal cables passing through walls and floors in the upper equipment room.

In the recent years several million euros have been invested in Swedish airports. Roxtec has become involved in several projects because the Swedish Air Traffic Authorities, Luftfartsverket, approved the Roxtec seals to meet the demands of fire resistance and EMC protection, as well as to be flexible and easy to adapt. Since the airport people involved in the projects did not know exactly what the buildings would look like, or how they would function in the future, there was an outspoken desire to be open to last minute changes and later upgrades. The building assembly was prepared in several stages, so there had to be options for easy re-routing of cables.

ATCC inlet room, Arlanda

Roxtec G 4x3 to G 4+4x5 units seal cable routing in the Air Traffic Control Centre inlet room. Roxtec sealing modules of type RM and PE are used.



“The installations at Arlanda and Sturup are divided into different electrical zones. Roxtec RM, PE and ES systems were chosen as a standard,” says Fredrik Timonen, Sales Engineer at Roxtec.

Adaptability and flexibility

The flexibility of the Roxtec sealing system was one of the major reasons why Luftfartsverket chose Roxtec to seal the cable penetrations in the new air traffic control centers (ATCC’s). “Roxtec is installed in both ATCC Sturup and ATCC Arlanda. Later we delivered to the new air traffic control tower at Arlanda,” Fredrik Timonen continues.

“When we were starting to build the new ATCC installations in Malmö and Stockholm we needed EMC seals. When I was looking at different alternatives we got in contact with Roxtec International,” says Krister Persson at Luftfartsverket. “Since I liked the system I made sure it was specified in the documents,” he continues. Lars-Olof Jönsson, at Scandiaconsult electrical engineering adds his comment: “Roxtec helped us with the EMC entries. Many of these had special dimensions and some inlet plates had to be welded in place. I think it is easy to work with Roxtec with its adaptable modules and the ability to add larger cables later. The coopera-

tion with Roxtec International worked out great. They returned our calls very quickly and helped us when we needed special dimensions. When the project begun we needed the material quickly. There were no problems with that.”

Different requirements

The primary needs for cable and pipe seals at the airports are protection against hazards induced by fire and water. Added to this is simplicity of long-term maintenance. Additional needs sometimes involve electro-magnetically shielded entry seals.



ATCT inlet room, Arlanda

The solutions are typically Roxtec G 4, 6 and R 125 units cast or inserted into the concrete in the basement culverts and up throughout the tower and outside on the platform.



Radar and Navigation, Arlanda

Roxtec G 3 transits handle cabling to and from navigation masts in the field. The transits are installed in the shelters.



Typical applications for Roxtec

Roxtec transits are sealing cables and pipes that are routed between different environments, typically room to room and outside to inside. In general, the Roxtec products are found in, or around:

- Cable inlet rooms
- Cable culverts
- Equipment rooms
- Outside platforms
- Power supply units
- Battery and UPS rooms
- In standard electrical zones
- In EMC zones
- In potential equalization zones



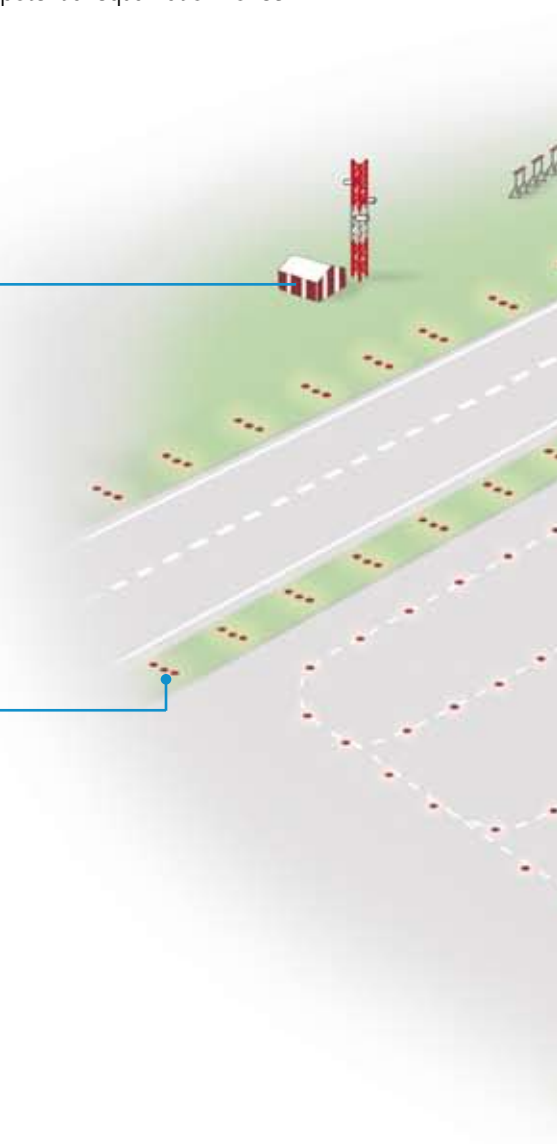
Navigation

Example of Roxtec applications are entry sealing of antenna feeders, power and signal cables to and from radar shelters, instrument landing systems and navigation beacons.



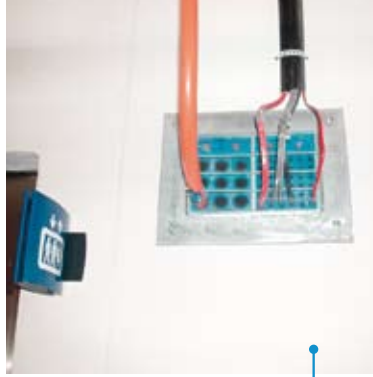
Airfield Ground Lighting (AGL)

A typical Roxtec application for the Airfield Ground Lighting is to seal the cables to and from prefab concrete substations in the ground.



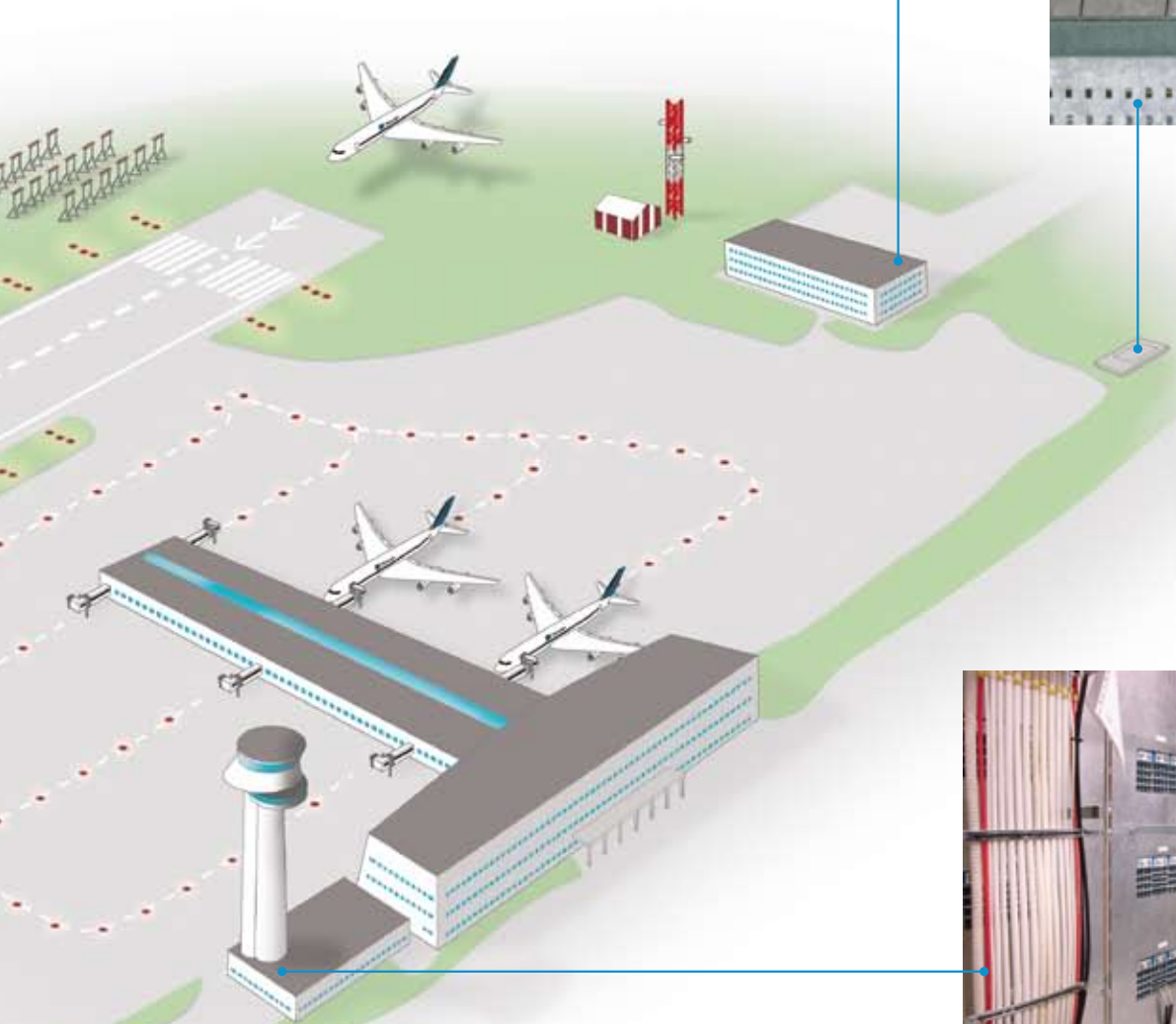
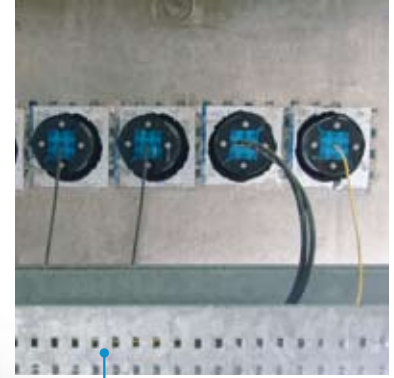
ATCC

Cable routing in Air traffic control centres (ATCC) can be substantial through the floors and from the utility areas. Roxtec transit solutions are often based on Roxtec G and R frames. Roxtec RM modules are for regular electrical zones, and RM ES and RM PE for EMC zones.



Aircraft Ground Services

Aircraft Ground Services can include transformer rooms, utilities in tunnels and, like here, in culvert rooms for fuel transportation. Roxtec round R frame solutions were chosen, thanks to their suitability for drilled holes in concrete and installation in sleeves.

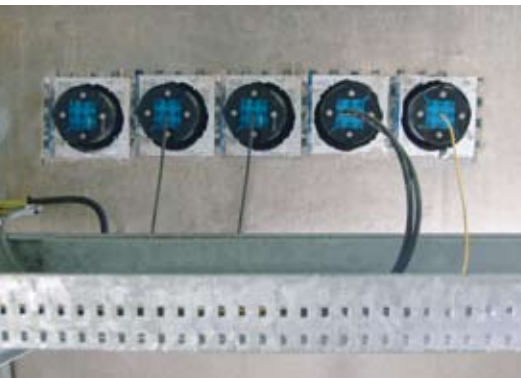


ATCT

Roxtec products for Air traffic control towers (ATCT) often include rectangular frame solutions such as Roxtec G 6x2, used with Roxtec RM solutions, or in EMC zones with RM ES or RM PE.

Safe cable routing in fuel system at Munich airport

The requirements from the Munich airport authorities included above all fire protection. However, the need for flexible maintenance was also desired. Roxtec provided the answer.



Airfield Ground Services, fuel system

Cabling to and from the fuel pipeline utility rooms include power cables and signal cables. For the Munich utility rooms it was decided to use Roxtec R penetration seals. The reasons were certified fire protection and highly flexible maintenance. The Roxtec R sealing is convenient for use in concrete walls. The frames can be installed in drilled holes or in cast sleeves. Further, they utilize the Roxtec flexibility for optimum fit and security.

Airfield Ground Lighting (AGL) at Schiphol airport

When the Dutch authorities at Schiphol airport were planning the extension of the new airfield ground lighting they started looking for reliable solutions. The AGL system is housed in concrete substations and must function 100 per cent. The installer recommended Roxtec.

Easy maintenance and good sealing

The substations were going to be buried in the ground, and cables passing in and out of the concrete boxes needed to be sealed well. At the same time the installers and maintenance people wanted equipment to be easy to install and easy to maintain. Over time changes can be frequent and the seals need to be opened and closed whenever a new cable is routed through the boxes. The final solution came to be Roxtec round R and RS seals.



ATCT and ILS systems in Finland sealed with adaptable Roxtec Seals

In Finland, ten airports are using Roxtec to various degree. The areas of use range from handling cables for TWR COM, to antenna feeders for radio and navigation shelters placed in the field.



ILS systems

The two pictures above left illustrate the use of Roxtec transits in navigation systems. The transits are located in the shelters which handle the beacon and Instrument Landing System (ILS) both for localizer (LLZ) and glide scope (GP). The choice of Roxtec was the result of several requirements, ranging from a good reliable mechanical solution, to the need for precision installation. Antenna feeders and monitor cables passing through the transits must be installed with a

certain distance between the cables. Roxtec is a pre-fabricated modular solution with a grid design, so this is easy to solve. Another technical challenge for the airport was to find a reliable sealing that could be installed in the glass fibre construction of the shelters. Again, the Roxtec sealing system handles this easily since the frames of the transits are available with flanges for bolting and in different materials, all to suit the individual construction and environment.

Facts

Sweden

Airports: Arlanda and Sturup
Areas: ATCC & ATCT, Radar & Navigation, Power Supply
Type of applications: Seals for cable routing through walls, floors in culverts, in rooms and from the outside environment. Roxtec modules for electrical zones: Roxtec RM modules in regular zones, Roxtec RM ES modules and Roxtec RM PE (potential equalization) modules for EMC zones
Requirements: Firestop 1 hour
Roxtec products: G and R frame solutions with standard RM sealing modules and shielded PE modules with Multidiameter™, the Roxtec adaptability technology based on modules with removable layers

Germany

Airport: Munich
Areas: Aircraft Ground Services/Fuel
Type of applications: Seals for cable routing through concrete walls in fuel pipeline rooms to the outside environment. Electrical zones: regular zone (Roxtec RM modules)
Requirements: Firestop 1 hour
Roxtec products: R frame solutions with standard RM sealing modules with Multidiameter™ by Roxtec

Netherlands

Airport: Schiphol
Areas: Airfield Ground Lighting (AGL)
Type of applications: Seals for cable routing through to and from concrete substations. Electrical zones: regular zone (Roxtec RM modules)
Requirements: Watertight environment seal
Roxtec products: R and RS seals with Multidiameter™ by Roxtec

Finland

Airport: Airports at Kemi, Kittilä, Kajaani, Joensuu, Tampere, Kokkola, Vaasa, Helsinki, Oulu and Jyväskylä
Areas: ATCT/TWR COM, ILS Navigation, Radio and Beacon
Type of applications: Seals for cable routing through walls, floors in culverts and in rooms. In ILS glass fibre shelters field equipment. Electrical zones: regular zone (Roxtec RM modules)
Requirements: Firestop 1 hour, watertight
Roxtec products: G, B and R frame solutions with Multidiameter™ by Roxtec



Roxtec General Airport References

Beijing Int Airport, China
Hongkong New Airport, China
Shanghai Pudong Int Airport, China
FCAA, Finland
STNA, France
Munich Airport, Germany
AMS (Alenia Marconi System), Italy
Schiphol Airport, the Netherlands
Arlanda Airport, Sweden
Sturup Airport, Sweden
Swiss Air, Switzerland
Bangkok Int Airport, Thailand



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