

REPORT

Maximized safety
in motorway tunnels



The tunnels of Roermond and Swalmen in the Netherlands are impressive examples of infrastructure projects focusing on safety. In order to meet the extreme cable and pipe sealing

requirements in a smooth and cost-effective way the construction company, Volker Wessels Tunneltechniek, once again chose the unique and flexible sealing solutions provided by

Roxtec. "We have worked with Roxtec in various projects for ten years. Their sealing solutions are outstanding", says Albert Heldoorn, project leader at Volker Wessels Tunneltechniek.

Roxtec team reports on site
– from two Dutch motorway A73 tunnels

We Seal Your World



The Roxtec system is used for camera cables as well as water mist system pipes.



The pipes for the water mist system are sealed with the Roxtec RS 68.



Flexible sealing for cables and pipes

Volker Wessels Tunneltechniek designed and constructed the motorway A73 tunnels by order of Rijkswaterstaat, the agency for road construction of the Dutch Ministry of Transportation and Water Management. The Roxtec modular-based sealing system is being used successfully to seal pipe penetrations for the water mist system as well as for power, radio and supervision camera cables.

Higher level of safety

The Roertunnel in Roermond measures 2.4 kilometers and the tunnel of Swalmen 700 meters. Both tunnels were opened for traffic in February 2008. The safety

“ We can count on Roxtec for local service and support

requirements in the two tunnels are very high because of the intensive circulation of vehicles carrying explosive and hazardous fluids across the region. One of the most challenging requirements when it comes to cable and pipe transits is the demand for extraordinary fire resistance. The water mist system seals in the ceiling must withstand 1350 °C for 120 minutes – twice the period that is usually required. The Roxtec RS seal proved to be the optimal solution as it meets

the requirements. It is also easy to install and possible to use with a wide range of pipes.

Cost-effective all the way

There are several reasons for using Roxtec when building tunnels. Thanks to the flexible sealing system, installers can handle all types of cables and pipes of different diameters and materials without bringing spare parts. Multidiameter™ is the Roxtec technology based on modules with removable layers.

At an early stage of the construction, openings in the concrete for pipes and cables can be made and fully sealed until installation. During construction, there is no risk for the contractor being too dependent on cable suppliers or delivery times. After construction, maintenance is quick and easy, and there is no problem modifying or adding cables as future capacity is built-in. “It is also good to know that we can count on Roxtec for local service



Theo Meeuwse of Volker Wessels Tunneltechniek, and Oscar Heesen, sales engineer at Roxtec BV.



Cables of different sizes entering through Roxtec G frames.



Three sealed cables – and one spare yet to use!



Safety is ensured in the technical tunnel in the middle section.

and support”, says Theo Meeuwse, in charge of the installers at Volker Wessels Tunneltechniek.

One product, many solutions

The Roxtec sealing system tightens and seals each cable in the transit frame separately for maximum protection. The system is practical and area efficient. It is used by Volker Wessels Tunneltechniek in various safety applications. It is, for example, important that the electrical installation of the supervision cameras is securely sealed and easy to inspect, as the main task for the cameras is to register sudden changes in circulation to notify drivers in case of danger.

A supplier to trust

All along the tunnel of Swalmen, the cable entries at the top of the emergency cabinets with fire extinguishers and emergency phones are sealed with the Roxtec G frame and modules. The Roxtec system is used

“ The quality of the Roxtec products is very convincing

for both sealing and cable retention. “The quality of the Roxtec products is very convincing”, says Albert Heldoorn. “We have used Roxtec not only in tunnels, but also in waste water plants and other constructions. Our installers are familiar with the Roxtec sealing system, and they know that it makes it a lot easier to work.”

Benefits:

- Fire-proof sealing system
- Area efficient equipment
- No need for large stock
- Easy to install and modify
- Cost-effective maintenance
- Future capacity included



Facts

- Project type:** Motorway tunnel
- Customer:** Volker Wessels Tunneltechniek, the Netherlands (design, construction, electrical installations)
- Applications:** Cable and pipe penetration seals in technical areas and motorway tunnel walls
- Requirements:** Fire protection for 1350 °C for 120 minutes
Watertight
Gas-tight
Easy installation and maintenance
Adaptability to different cable dimensions
- Roxtec products:** Over 1300 pcs of RS seals for
- the water mist system pipes
- the radio signal coax cables
- Over 130 pcs of Roxtec R frame transits for
- the cables to the supervision cameras
- Various types of Roxtec GHM frames in stainless steel for
- power cables, HPDE tubes and optic fiber cables
- Reasons for choosing Roxtec:** High safety demands
Quality products, applicable for different cables and pipes
Multidiameter™ – flexibility, easy installation and future included
Good experience from previous projects
On-time delivery and local support on site

Construction references

Oresund link, BASF, Boston Central Artery Tunnel, Clinical Center Jena, CNOOC, ConocoPhillips, COVRA, Dow Chemical, Gas District Woikoski, GlaxoSmithKline (GSK), Main Station Berlin, Max-Planck-Institut, Merck, Mining Germany GmbH, New York Times, Pfizer, Printing House Sanomala, Royal Alex Hospital, SECCO, SEI, St John's Waste Water Treatment Plant, ST Microelectronics, Winnipeg Int Airport.



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