



# Fire protection seals for rolling stock



# Outstanding fire protection

Do you want to improve passenger safety and reduce the risk for equipment failure? Use Roxtec seals for cables, metal pipes and plastic conduits.

We offer a portfolio of solutions for your sealing and clamping needs across walls, floors and roofs. You can avoid water leakage and inconsistency in sealing quality by using seals designed for each specific application area, as well as for sealing around cables, conduits and pipes. Add fire protection, ease of specification and installation friendliness.

**All leading rail business companies  
use Roxtec fire-proof seals.**

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# Proven quality assurance

To make sure that the integrity of your dedicated fire barriers does not get compromised, Roxtec seals are tested and approved according to rigorous standards and testing procedures.

The Roxtec fire test lab plays a key role in the material and product development as well as in the pre-certification process. We test the sample as a system in a realistic environment, and perform shockwave and vibration tests as well as ingress protection tests to be able to combine E15 to E60 fire protection with high IP and UL/NEMA ratings.

## Officially safe and sound

Our seals are approved according to the standard EN 45545 part 2 and 3 by renowned testing and certification centers. We also perform special tests for specific needs. This enables us to guarantee the performance level of our tailor-made solutions and materials. Our gaskets, for example, are V-0 rated, and all our sealing components enter the LSOH, low smoke zero halogen, classification. We help you cover all requirements within flammability, smoke emission and toxicity.

## Meeting the highest demands

Thanks to our frequent testing, we can guarantee that our seals meet the highest hazard level, HL3, and the fire integrity requirement up to E60. You can also rest assured we can manufacture our welded frames according to the EN 15085 quality control and inspection standard and supply them with all necessary documentation.

With Roxtec seals, you ensure the required time for evacuation regardless of your train's design or operation category. You can rely on our solutions also for trains operating in tunnels or elevated sections where side evacuation is impossible.



## Roxtec fire rated solutions

The undercarriage houses inverters, compressors, battery boxes and other power components. We have solutions engineered to fit these application areas and cramped spaces, where you need seals with good fire and temperature resistant properties, with a small footprint and of low weight.

### Seals for hydraulic pipes

Our extensive range of round seals can help you save installation time as you can install them from one side. They are an excellent choice for sealing around hydraulic, pneumatic and metal water pipes on the undercarriage. You can bolt the mounting sleeve for the seal to the structure to avoid hot work. The range includes openable seals for pipes for one-way installation in thin walls. Use them where welding is not possible or desired.

### Seals for high temperature

Roxtec sealing modules are made of Roxylon™, a rubber compound that is an efficient heat insulator and a great vibration damper. For applications where the temperature exceeds +80°C, we provide sealing solutions in other materials for efficient handling of hot hydraulic pipes and cables that heat up.

### Conduit seals

As rolling stock gets more advanced, the use of wires and cables is growing. This drives the need for plastic conduits, for which we offer sealing modules with up to E60 ratings. With our conduit seals, fire is prevented from further propagation in case the conduit melts.

# The excellence of openable seals

Our compact, openable solutions are a flexible sealing concept for most fire rated application areas around the railway vehicle. They provide value to manufacturers and railway operators challenged by a complex supply chain all the way from design to retrofit and modernization.

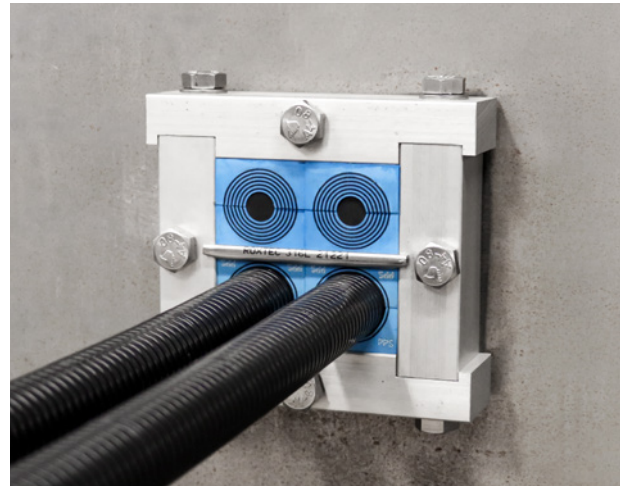
Given the variety in cable schedule design, a wider range of frame sizes to choose from has become the norm for the electrical design departments.

In addition, the fact that narrow areas are commonplace where cables enter and exit makes the frame size imperative.

## Roxtec CRF transit

The Roxtec CRF transit is ideal for cables and conduits on the roof-top and in end walls and floors. It has an openable aluminum frame to simplify installation and retrofit. One-sided installation is possible using rivet nut fasteners. Use Roxtec CM and CM PPS sealing modules with Multidiameter™ or Roxtec CRF and CRF PPS modules. CM modules have removable layers for adaption to cable sizes while CRF modules are ideal for serial production with known cable, pipe and conduit diameters. The PPS versions provide fire protection for plastic conduits.

- Lightweight and area efficient
- One-sided installation
- Fire rated



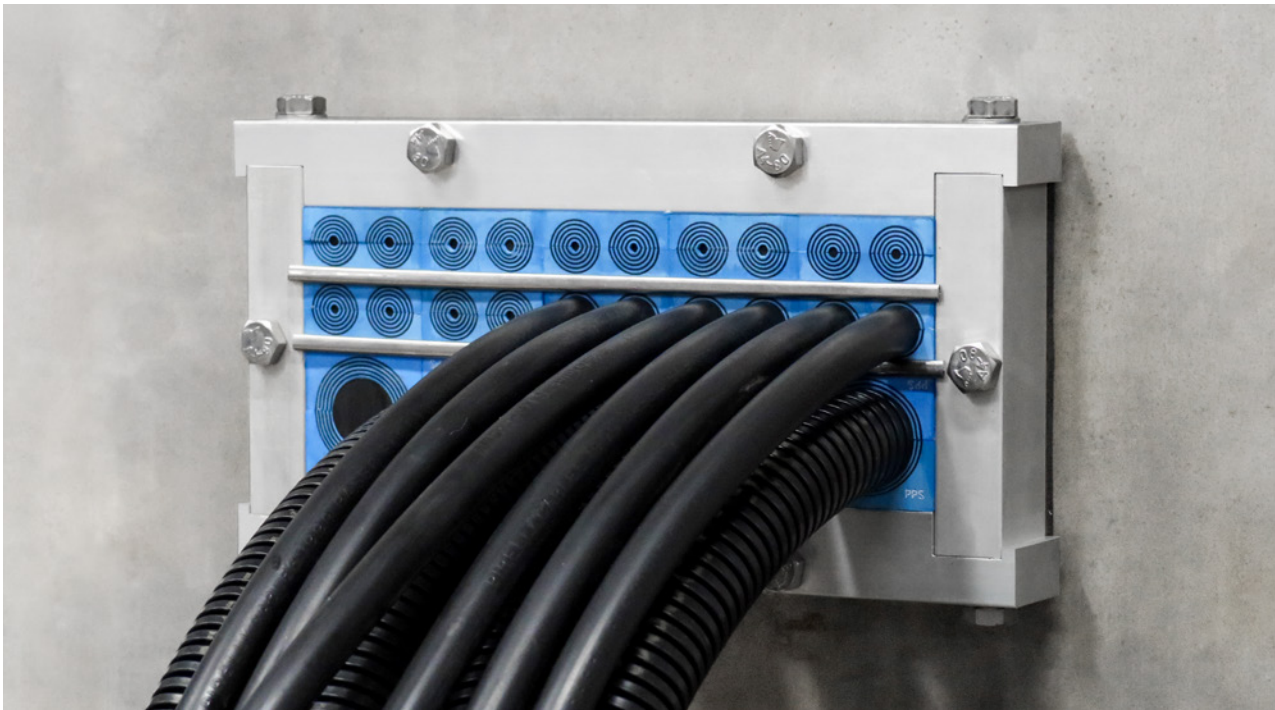
## Roxtec CF 24 transit

The Roxtec CF 24 transit frame can be installed around cables in preparation of sub-assemblies and is easy to open up for retrofit of new cables. It is used for cabinets and enclosures also when there are requirements for a fire rating.

- Lightweight and area efficient
- Openable
- Perfect for retrofit



For more product information, visit [roxtec.com/rollingstock](http://roxtec.com/rollingstock)



# Roxtec sealing solutions for bolted and welded structures

Our portfolio of rolling stock solutions contains products that can either be bolted or welded to the car body walls, floors and roof. Despite manufacturing preference, you can have a solution fit to the application either out of the standard rolling stock range or customized to the exact design requirements for the application.

**Roxtec RS with SL RS** is a seal with metal sleeve for single cables or pipes. The entry seal has two halves with removable layers making it adaptable to cables and pipes of different sizes.

**Roxtec S** is a multi-cable and conduit transit available in different materials and with a single or various combinations of openings.

**Roxtec SF** is a cable and conduit transit with metal frame and flange. It is available in different materials and with a single or various combinations of openings.

**Roxtec SK** is a cable and conduit transit with extra deep metal frame. It can accommodate stiff cables that do not pass in a straight angle.

**Roxtec RM sealing modules** are 60 mm deep and easy to adapt to cables and pipes of many sizes.

**Roxtec R with SL R** is a cable and pipe transit with sleeve for use in round holes. The compression is integrated in the transit frame.

**Roxtec RS PPS** is a sealing kit for large single plastic conduits. It consists of two Roxtec RS seals and an intumescent-based sealing strip that wraps around the plastic conduit in between.

**Roxtec CF 24** is an openable entry seal for cabinets and enclosures. It has an aluminum frame with integrated compression.

## Product portfolio for rolling stock

Geometry	Rectangular		Compact rectangular			Round			
Solution	GH/GHM	S/SF/SK	CF 24	CRF	ComSeal	R	RS PPS/S	RS/C RS	C RS T
Module	RM	RM	CM	CM/CRF	CM	RM	-	-	-
Approvals	Fire EN 45545-2	HL3	HL3	HL3	HL3	HL3	HL3	HL3	HL3
	Fire EN 45545-3	E60	E60	E30	E30	E15	E30	E60	E30
	IP IEC 60529*	66/67	66/67	66/67	66	55	66/67	66/67	66/67
	Vibration IEC 61373	Cat 2	Cat 2	Cat 2	Cat 2	Cat 2	Cat 2	Cat 2	Cat 2
Application	Cables	⊙	⊙	⊙	⊙	⊙		⊙	⊙
	Pipes			⊙	⊙		⊙	⊙	⊙
	Plastic conduits**	⊙	⊙	⊙	⊙		⊙		
Installation	Mount	NW	W	NW	NW	NW	NW/W	NW/W	NW/W
	Sleeve						⊙	⊙	⊙
	Capacity	M	M	M	M	M	M	S	S

\* Plastic conduits installed in rectangular frames meet IP66

\*\* PPS modules required for fire protection of plastic conduit installation

NW = Non weld, W = Weld, S = Single pass-through, M = Multiple pass-through

Customized versions of the transits and seals can be supplied upon request to fit specific footprint and cable schedule.

**Roxtec CM PPS modules** for efficient fire protection of plastic conduits. CM PPS is used in combination with selected compact frames.

**Roxtec CRF** is a lightweight sealing solution for cables, pipes and plastic conduits with space saving design.

**Roxtec CM sealing modules** are up to 40 mm deep and adapt to cables and pipes of many sizes.

**Roxtec GH** is a cable and conduit transit for bolting onto steel or sandwich walls/floors. It allows for high cable or conduit density.

**Roxtec ComSeal™** Roxtec ComSeal™ is a low profile solution for electrical cabinets and can accommodate up to

32 cables. The sealing solution is available also in versions for high temperature and for bonding and grounding.

**Roxtec RS/C RS + CSLO** is an openable round seal for pipes. It is available in several sizes and supplied in complete kits.

**Roxtec RM PPS modules** are sealing modules for plastic conduits. They are used with Roxtec regular frames and include intumescent material that expands in case of fire.

Visit [roxtec.com/rollingstock](http://roxtec.com/rollingstock) for more product information, or contact us if you want to discuss or order a tailor-made seal. Find details about your nearest Roxtec representative on [roxtec.com](http://roxtec.com).

# Protecting life and assets

Roxtec is the world leader within flexible cable and pipe transits. Since the start in Sweden in 1990 we have grown successfully to cover all continents. Our passion is innovative sealing solutions, and our goal is to make our world a safer place.

- Extensive R&D resources and advanced test facilities
- Inventor of Multidiameter™
- Customers in more than 80 markets

## Contact us and learn more online

On [roxtec.com](http://roxtec.com) you can find information about your nearest Roxtec representative. You can also find our product selector and useful information such as certificates, installation instructions and educational videos on our fire protection seals. Enjoy videos from our test and fire labs, learn from success stories and gain access to our free, web-based engineering tool Roxtec Transit Designer™.