

PASSION FOR THE BEST SOLUTION

# Fire protection solutions for the railway industry



**Certified safety**

acc. to EN 45545-2 and EN 45545-3





To **standardise fire protection requirements in rail vehicles** across Europe, regulators introduced the **EN 45545 standard**, which is also highly regarded worldwide.

## Safety requirements in rail vehicles are extremely high. PFLITSCH solutions fulfil all of them.

The issue of safety in rail transportation is exceedingly complex and sets the most exacting specifications for the materials used, which are defined in strict standards such as EN 45545. As a long-standing expert in fire protection solutions for railways and a member of the VDB, we are very familiar with users' needs. That's why we offer everything under one roof – a coordinated, full

range of certified fire protection solutions: fire protection cable glands, cable entries and corrugated conduit transits, as well as customised cable routing solutions. Thanks to our comprehensive development, consulting and planning expertise, we also realise special customised solutions in line with your specifications.

### Your expectations for rail transport solutions

#### With regard to fire protection

- » Certified products for worldwide application in rail vehicles
- » Minimising the probability of fire and limiting its spread
- » Reducing harmful smoke and gases to a minimum

#### With regard to technical characteristics

- » Full range of durable and robust cable entries and corrugated conduit transits
- » Optimum level of protection with regard to mechanical stress, tightness, UV and weather resistance and EMC
- » Quick, easy, reliable installation and maintenance that saves time and money



#### PFLITSCH GUARD

Our solutions are optimally coordinated and stand for the highest levels of quality and reliability. That's why with **PFLITSCH GUARD**, we can **guarantee you that our products will enjoy a long service life and provide operational safety in your vehicle components and trains** – and give you that great feeling of having made the right decision.





**Bombardier standard SMP 800**

The development of toxic emissions from the sealing inserts of cable glands in the event of fire is tested in accordance with the specifications of the Bombardier standard SMP 800. The two PFLITSCH sealing inserts made of fire protection TPE and fire protection silicone are both well below the threshold values.



**NFPA standard**

The US NFPA standard is also important. The tests examine properties such as heat development and visible smoke release rates. We had these properties tested for our sealing inserts made of fire protection TPE and fire protection silicone: Both passed with flying colours.

# When super-stringent standards are the norm – PFLITSCH fire protection solutions

The two essential fire protection criteria in trains are to control the spread of smoke and fire and to contain the development of harmful smoke and gases, both of which are defined in a series of standards. Among the most important are the globally recognised standards EN 45545-2 covering material testing and EN 45545-3, Fire resistance requirements "Integrity".

Within the scope of these tests, components such as cable glands, cable entries and corrugated conduit transits are thoroughly tested. The oxygen content, smoke gas density and toxicity of

the sealing inserts are considered within the framework of DIN EN 45545-2, the Bombardier standard evaluates the emissions in the event of fire.

With respect to EN 45545-2, PFLITSCH cable glands generally meet the requirements of HL3, the maximum hazard level. In the fire resistance test, PFLITSCH's solutions provide integrity for up to 30 minutes and withstand fire for twice as long as prescribed.

In addition to the legal standards, there are also manufacturer- and association-specific standards that are of great importance.

The right solution for every application – whether on open stretches of track, in tunnels or in stations

Cable gland and cable entry/transit	Material properties in accordance with EN 45545-2		"Integrity" fire resistance test in accordance with EN 45545-3	
	with sealing insert made of fire protection TPE (standard)	with sealing insert made of fire protection silicone (high-temp.)	with sealing insert made of fire protection TPE (standard)	with sealing insert made of fire protection silicone (high-temp.)
blueglobe brass	HL3	HL3	✓	✓
blueglobe polyamide	HL3	HL3	✓	n/a
UNI Dicht brass	HL3	HL3	✓	✓
UNI Dicht polycarbonate	HL2	HL2	✓	n/a
UNI flange polyamide	HL3	–	✓	n/a
UNI flange HD zinc die casting	HL3	–	✓	n/a
UNI Split Gland polycarbonate	HL2	–	✓	n/a

n/a = not in portfolio





Experience & expertise  
for more than  
100 years



QUALITÄT  
MADE IN  
GERMANY

# Good reasons to collaborate closely with PFLITSCH

## PFLITSCH – experience you can build on

As a manufacturer of innovative solutions for cable entry, cable routing and cable protection, we have **decades of experience in the international railway industry**. Our perfectly coordinated portfolio of high-quality products always offers you the **right solution for your particular application**.

In addition to country-specific standards, our products also meet demanding manufacturer- and association-specific standards. They are also regularly awarded certifications and re-certifications. This means you can rest assured that PFLITSCH fire protection solutions are always in line with the latest state of the art and are suitable for worldwide use in all kind of rail vehicles.

## Join forces with us to get your development project off the ground

You're working on groundbreaking mobility solutions of tomorrow? Then there's a high risk of today's components and systems not being up to the task. Take precautions: as your **competent development partner**, we bring our vast know-how and innovative strength to your project. In addition, you benefit from our unique scope of engineering and degree of vertical integration. This puts us in a position to **create special customised solutions for the most stringent of requirements** – as demonstrated by numerous projects

conducted with renowned vehicle, systems and components manufacturers.

What's more, we anticipate the demands of megatrends such as electromobility or hydrogen technology – whether it be on the road or on the tracks. To this end, we develop pioneering solutions that keep pace long-term with the **increasing demands of future technologies in terms of safety, durability and cost-effectiveness**.

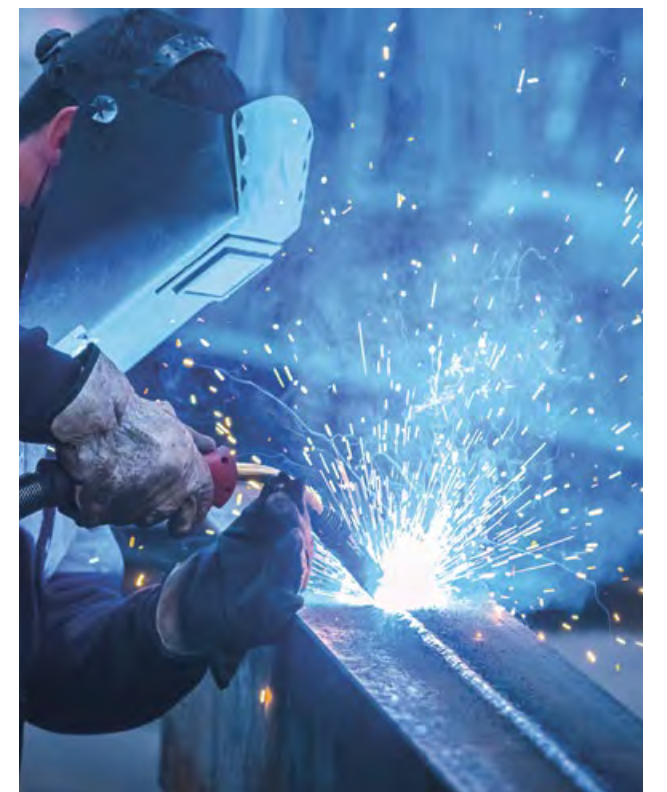
## The security of a strong supply chain

We manufacture our products exclusively in our **plants in Germany**, while relying on upstream suppliers also based in the country. This guarantees you not only **consistently high quality "Made in Germany"**. Given the sensitivities in global supply chains, this independence makes us your reliable partner. That's because you benefit from **guaranteed availability and excellent delivery performance**, which helps to secure your production processes.

## License to weld:

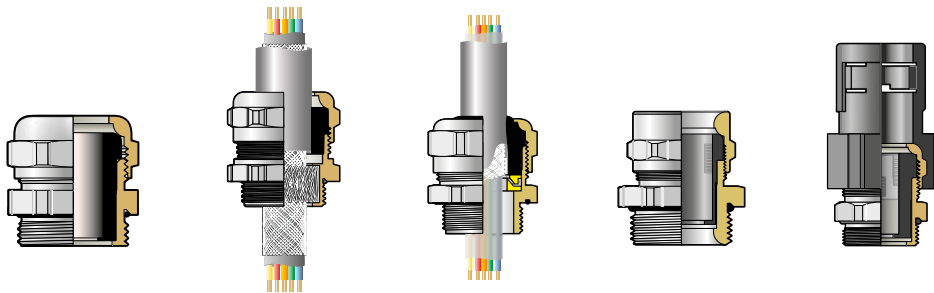
## Certification in accordance with EN 15085-2

As part of our commitment to the rail industry, we have acquired EN 15085-2 certification, which is recognised both throughout Europe and worldwide. This means PFLITSCH is certified to carry out welding work on components used in the rail industry and is authorised to draw up designs for rail vehicles, purchase components and distribute them (classification levels CL1 to CL3).



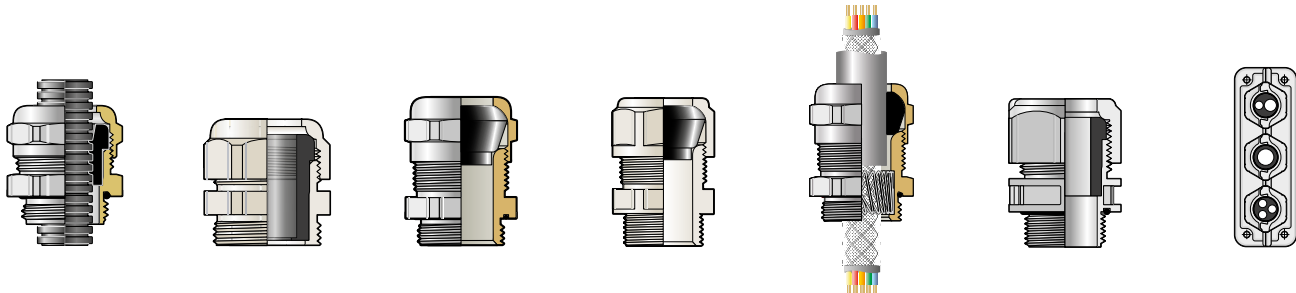
# Find the right fire protection solution for you

Our portfolio includes high-quality cable glands, EMC solutions, corrugated conduit fittings with strain relief, split systems and cable entry solutions, so that you can react flexibly to any requirement that comes along.



	UNI Dicht cable gland	UNI Dicht TRI EMC cable gland	UNI EMC Dicht EMC cable gland	UNI Dicht with enhanced cable protection (trumpet)	UNI Dicht with corrugated conduit fitting
Selection criteria	Standard	EMC cable glands	EMC cable glands	Standard	Standard
Fire protection in rail vehicles in acc. with EN 45545	EN 45545-2 Hazard level HL3 EN 45545-3 Integrity in acc. E30	EN 45545-2 Hazard level HL3	EN 45545-2 Hazard level HL3	EN 45545-2 Hazard level HL3 EN 45545-3 Integrity in acc. E20	EN 45545-2 Hazard level HL2
Gland body					
» Nickel-plated brass	✓	✓	✓	✓	✓
» Stainless steel	✓	on request	✓	✓	✓
» Plastic					Fitting made of PA
» Zinc die casting					
Sealing insert material					
» Fire protection TPE –40 °C to +130 °C	✓	✓	✓	✓	✓
» Fire protection silicone –55 °C to +180 °C	✓	n/a	✓	✓	n/a
Multiple version	✓	✓	n/a	✓	✓
Tightness/protection rating	IP 68	IP 68	IP 68	IP 68	IP 68

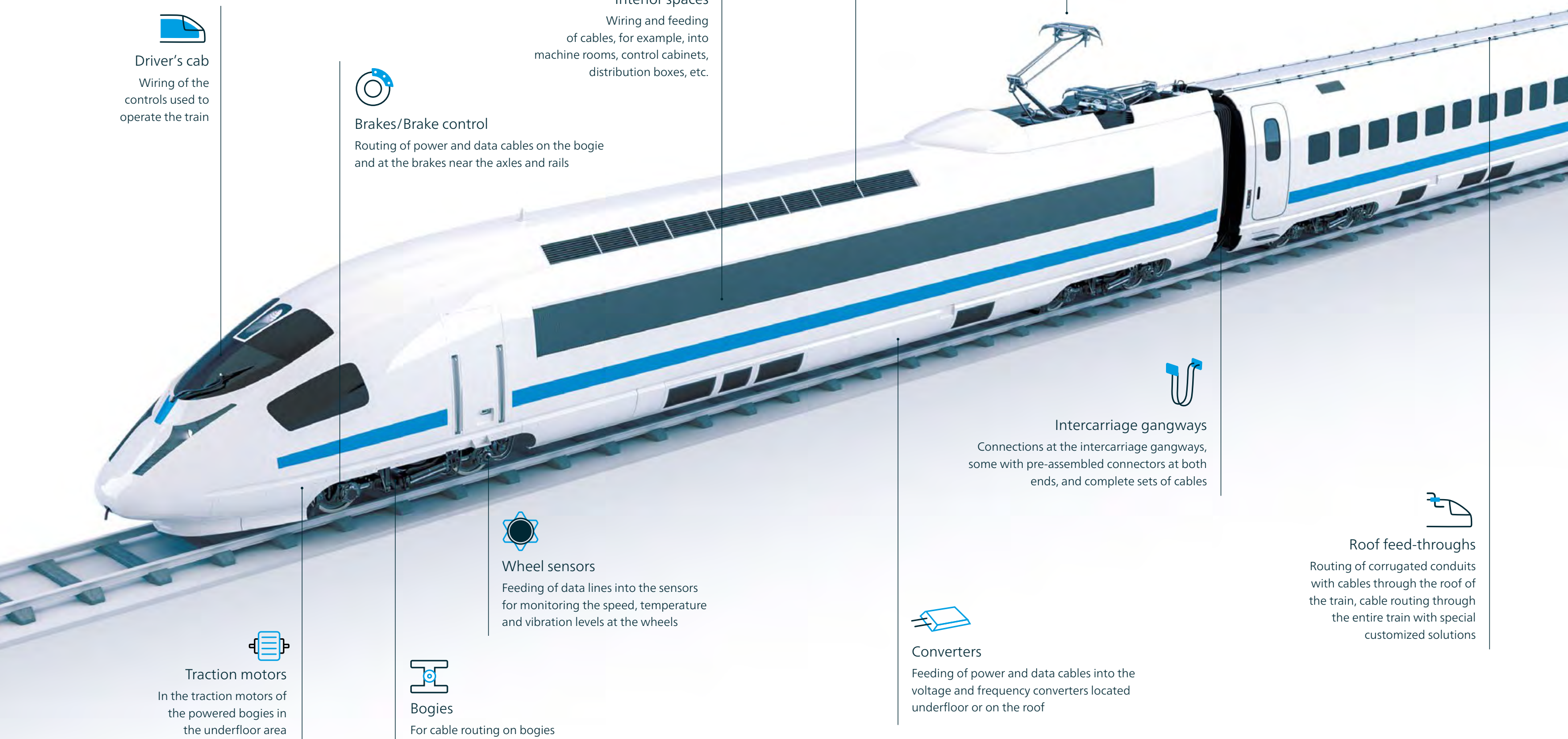
n/a = not in portfolio



UNI Corrugated conduit transit	UNI Dicht PC	blueglobe cable gland	blueglobe PA cable gland	blueglobe TRI EMC cable gland	UNI Split Gland HD splittable cable gland	UNI flange splittable cable gland
Standard	Standard	Standard	Standard	EMC cable glands	Split systems	Split systems
EN 45545-2 Hazard level HL3	EN 45545-2 Hazard level HL2 EN 45545-3 Integrity in acc. E20	EN 45545-2 Hazard level HL3 EN 45545-3 Integrity in acc. E30	EN 45545-2 Hazard level HL3 EN 45545-3 Integrity in acc. E20	EN 45545-2 Hazard level HL3	EN 45545-2 Hazard level HL3	EN 45545-2 Hazard level HL3 EN 45545-3 Integrity in acc. E15
✓		✓		✓		
✓		✓		on request		
	✓		✓		✓	✓
					✓	✓
n/a	✓	✓	✓	✓	✓	✓
✓	✓	✓	n/a	✓	n/a	n/a
n/a	✓	n/a	n/a	n/a	✓	✓
IP 68	IP 68	IP 68, IP 69	IP 68, IP 69	IP 68, IP 69	IP 67	IP 66



# PFLITSCH – always the right products for all train-related applications



## Driver's cab

Wiring of the controls used to operate the train



## Brakes/Brake control

Routing of power and data cables on the bogie and at the brakes near the axles and rails



## Interior spaces

Wiring and feeding of cables, for example, into machine rooms, control cabinets, distribution boxes, etc.



## Air-conditioning units

Feeding of power and data cables into air-conditioning units – for small systems in the driver's cab and large systems for the passenger compartment on the roof of the carriage



## Pantographs

Feeding of cables into control units



## Intercarriage gangways

Connections at the intercarriage gangways, some with pre-assembled connectors at both ends, and complete sets of cables



## Roof feed-throughs

Routing of corrugated conduits with cables through the roof of the train, cable routing through the entire train with special customized solutions



## Converters

Feeding of power and data cables into the voltage and frequency converters located underfloor or on the roof



## Traction motors

In the traction motors of the powered bogies in the underfloor area



## Bogies

For cable routing on bogies



## Wheel sensors

Feeding of data lines into the sensors for monitoring the speed, temperature and vibration levels at the wheels

UNI Dicht fire protection cable gland



Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3/integrity in acc. with EN 45545: E30
Gland body material	Nickel-plated brass or AISI 303 (1.4305) stainless steel, polycarbonate (HL2/E20)
Sealing element material	Fire protection TPE/fire protection silicone
Operating temperature range	–40 °C to +130 °C (fire protection TPE)/–55 °C to +180 °C (fire protection silicone)
Tightness/protection rating	IP 68 up to 10 bar
Strain relief	Up to class A in acc. with EN 62444
Sizes	M10 to M63

Product advantages

- » The fire protection solution from the UNI Dicht cable gland system with high operational safety for indoor and outdoor use
- » The countless components of the system allow users to put together the perfect solution for highly individual requirements
- » The appropriate sealing insert is selected depending on the application
- » Compact design for space-saving installation
- » Quick, easy installation and maintenance that saves time and money
- » Above-average durability and low total costs across the overall life cycle

Common areas of application



blueglobe fire protection cable gland



Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3/integrity in acc. with EN 45545-3: E30
Gland body material	Nickel-plated brass or AISI 303 (1.4305) stainless steel
Sealing element material	Fire protection TPE/fire protection silicone
Operating temperature range	–40 °C to +130 °C (fire protection TPE)/–55 °C to +180 °C (fire protection silicone)
Tightness/protection rating	IP 68 up to 15 bar, IP 69
Strain relief	Up to class B in acc. with EN 62444
Sizes	M12 to M63

Product advantages

- » With its spherical sealing insert, the blueglobe cable gland achieves above-average tightness, maximum strain relief (class B in accordance with EN 62444) and excellent vibration resistance
- » Compact design for space-saving installation
- » Removable inlet to enlarge the sealing range of a rated size by up to 100 %
- » Unmistakeable product marking
- » User-friendly assembly: double nipple and pressure screw have the same spanner width
- » Exemplary cost-effectiveness thanks to above-average durability and simple, time- and cost-saving installation

Common areas of application





UNI Dicht TRI fire protection cable gland



Screening attenuation  
●●●●●●●●

Current-carrying capacity  
●●●●●●●○

Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3
Gland body material	Nickel-plated brass or AISI 303 (1.4305) stainless steel
Sealing element material	Fire protection TPE/fire protection silicone
Contacting	Stainless steel/TRI spring
Operating temperature range	–40 °C to +130 °C (fire protection TPE)/–55 °C to +180 °C (fire protection silicone)
Tightness/protection rating	IP 68 up to 10 bar, Type 4X
Strain relief	Up to class A in acc. with EN 62444
Sizes	M16 to M25

Product advantages

- » The fire protection solution with unique EMC shielding, even for cables with small cross-sections
- » The patented TRI spring ensures long-lasting contacting of the cable shield – even when subject to vibration
- » Excellent performance in terms of universal properties such as tightness and strain relief
- » Above-average screening attenuation and high current-carrying capacity for reliable discharge of undesirably high shield currents
- » Mechanical separation between strain relief and screening
- » Large shielding and sealing range
- » Easy installation and maintenance that saves time and money
- » UL-certified

Common areas of application



Traction motors



Brakes



Air-conditioning units



Converters

UNI EMC Dicht fire protection cable gland



Screening attenuation  
●●●●●●○

Current-carrying capacity  
●●●●●●●●

Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3
Gland body material	Nickel-plated brass
Sealing element material	Fire protection TPE
Contacting	Nickel-plated brass double cone
Operating temperature range	–40 °C to +130 °C (fire protection TPE)
Tightness/protection rating	IP 68 up to 10 bar
Strain relief	Up to class A in acc. with EN 62444
Sizes	M16 to M50

Product advantages

- » The UNI EMC Dicht cable gland guarantees highly resistant and durable EMC shielding
- » The UNI EMC Dicht cable gland guarantees highly resistant and durable EMC shielding
- » Reliable contacting of the cable shield is ensured by pressing together the braided shield between a pair of cones
- » High screening attenuation and current-carrying capacity, even when subject to severe vibration, as long as the cable shield is carefully laid between the cone plates during assembly

Common areas of application



Traction motors



Air-conditioning units



Pantographs



# UNI Dicht fire protection cable gland with cable protection



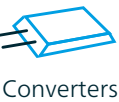
### Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3/integrity in acc. with EN 45545: E20
Gland body material	Nickel-plated brass or AISI 303 (1.4305) stainless steel
Sealing element material	Fire protection TPE/fire protection silicone
Operating temperature range	–40 °C to +130 °C (fire protection TPE)/–55 °C to +180 °C (fire protection silicone)
Tightness/protection rating	IP 68 up to 10 bar
Strain relief	Up to class A in acc. with EN 62444
Sizes	M16 to M50

### Product advantages

- » UNI Dicht fire protection cable gland that is additionally equipped with special rounded cable protection (trumpet) on the pressure screw at the top and on the double nipple at the bottom
- » Effective protection of cables and lines with tight bends

### Common area of application



# UNI Dicht with corrugated conduit fitting



### Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3
Gland body material	Nickel-plated brass/fitting made of PA
Sealing element material	Fire protection silicone
Operating temperature range	–40 °C to +105 °C
Tightness/protection rating	IP 68 up to 10 bar
Strain relief	Up to class A in acc. with EN 62444
Sizes	M16 to M63

### Product advantages

- » UNI Dicht fire protection cable gland with PMA cap for feeding in cables that are routed in corrugated conduits with medium-sized corrugated conduit profiles
- » Pressure screw with injection-moulded sheath made of PA for quick and easy assembly of the corresponding corrugated conduit
- » Corrugated conduit adapter with integrated strain relief

### Common area of application



# UNI Multiple fire protection cable gland



### Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3/integrity in acc. with EN 45545: E20
Gland body material	Nickel-plated brass or AISI 303 (1.4305) stainless steel
Sealing element material	Fire protection TPE/fire protection silicone
Operating temperature range	–40 °C to +130 °C (fire protection TPE)
Tightness/protection rating	IP 65, IP 68 up to 10 bar (if cable cross-section = hole diameter)
Strain relief	Up to class A in acc. with EN 62444
Sizes	M16 to M63

### Product advantages

- » Variant for the safe and efficient feed-in of several cables using a single cable gland with multiple sealing inserts, e.g. for spatial or handling reasons
- » Sealing inserts with different hole patterns are available to seal cables with differing cross-sections
- » We offer both split and “side-slotted” multiple sealing inserts to enable simple and secure installation of cables that are already pre-assembled with connectors and sensors

### Common areas of application

  
Air-conditioning units

  
Converters

  
Pantographs

  
Brakes

# blueglobe fire protection cable gland PA



### Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3/integrity in acc. with EN 45545-3: E20
Gland body material	PA
Sealing element material	Fire protection TPE
Operating temperature range	–20°C to +120°C
Tightness/protection rating	IP 68 up to 15 bar, IP 69 Type 4X (IP 68/IP 69 protection ratings only in conjunction with separately available flat gasket)
Strain relief	Up to class B in acc. with EN 62444
Sizes	M12 to M40

### Product advantages

- » blueglobe variant made of polyamide for cost-sensitive applications where temperature resistance is not a priority
- » Compared to metal cable glands, the blueglobe made of PA scores points for its particularly low weight without compromising on excellent technical properties

### Common areas of application

  
Air-conditioning units

  
Interior spaces/control cabinets



blueglobe TRI fire protection cable gland



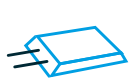
Technical features at a glance


Fire protection standard	Hazard level EN 455445-2: HL3
Gland body material	Nickel-plated brass or AISI 303 (1.4305) stainless steel, on request
Sealing element material	Fire protection TPE, fire protection silicone on request
Contacting	Stainless steel/bronze TRI spring
Operating temperature range	–40 °C to +130 °C (sealing insert made of fire protection silicone on request)
Tightness/protection rating	IP 68 up to 15 bar, IP 69
Strain relief	Up to class B in acc. with EN 62444
Sizes	M16 to M63


Product advantages

- » The fire protection solution from the blueglobe series with unique EMC shielding, even for cables with small cross-sections
- » The patented TRI spring ensures long-lasting contact with the cable shield over a large area, even when subject to vibration
- » Above-average screening attenuation and high current-carrying capacity for reliable discharge of undesirably high shield currents
- » Excellent all-round properties and very good strain relief (class B in accordance with EN 62444)
- » Mechanical separation between strain relief and screening
- » Large sealing range thanks to a removable inlet (can be enlarged by up to 100% in some cases)
- » Having to strip the cable sheath only at the actual contact point means shielding can be continued uninterrupted
- » Great economy thanks to simple, fast and reliable installation and maintenance
- » UL-certified, complies with VG standard 88846

Common areas of application

  
Converters

  
Traction motors

  
Air-conditioning units

UNI Corrugated conduit transit



Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3
Gland body material	Nickel-plated brass
Sealing element material	Fire protection silicone
Operating temperature range	–55°C to +180°C
Tightness/protection rating	IP 68 up to 10 bar
Strain relief	Up to class A in acc. with EN 62444
Sizes	M20 to M63

Product advantages

- » Customised solutions can be realised with the fire protection-certified corrugated conduit transit from the UNI Dicht modular system
- » For easy, safe and efficient feeding of corrugated conduits into and out of the roofs and walls of rail vehicles and continuing to run them through the vehicles
- » Designed for installing pre-assembled corrugated conduits with fine and coarse profile variants
- » PFLITSCH offers two corrugated conduit models with high tread resistance, weather resistance and long-term stability for adequate protection of cable installations

Common areas of application

  
For feeding through roofs and walls

  
Intercarriage gangways

# UNI flange HD



## Technical features at a glance

Fire protection standard	Hazard level EN 45545-2: HL3/integrity in acc. with EN 45545-3: E15
Gland body material	Zinc die casting, galvanised, PA version on request
Sealing element material	Fire protection TPE
Operating temperature range	–40 °C to +130°C
Tightness/protection rating	IP 66, Type Rating 4
Strain relief	Up to class A in acc. with EN 62444
Outer dimensions	149 mm x 50 mm
Cut-out dimensions	112 mm x 36 mm

## Product advantages

- » Splittable and space-saving flange solution with three integrated cable glands for inserting pre-assembled cables – including different cross-sections – into existing holes in enclosures
- » The only solution on the market based on the superior sealing principle of a cable gland
- » Very robust and durable design
- » Retrofit possible
- » On request, we can manufacture sealing inserts with your own specific hole patterns
- » Sealing inserts for flat or special cables available
- » Simple, convenient, cost- and time-saving installation that can even be carried out without interrupting operation

## Common area of application



Interior space/control cabinets

# UNI Split Gland



## Technical features at a glance

Fire protection standard	Hazard level EN 455445-2: HL3
Gland body material	Zinc die casting (should be preferred; polycarbonate version (HL2) also available)
Sealing element material	Fire protection TPE
Operating temperature range	–20 °C to +80 °C
Tightness/protection rating	IP 67
Strain relief	Strain relief up to class A to EN 62444
Sizes	M25

## Product advantages

- » For feeding single or multiple pre-assembled cables into an enclosure
- » Time and cost savings, as only a few parts need to be assembled
- » Good for temporary repairs

## Common area of application



Interior space/control cabinets



# Aluminium Industrial-Trunking



### Technical features at a glance

Cross-sections	13
Material	Aluminium
No. of accessory fittings	80
Dimensions (W x H)	50 mm x 50 mm to 600 mm x 150 mm

### Product advantages

- » Lightweight yet very sturdy design made of aluminium for enclosed cable routing
- » Safe routing of large cable volumes
- » Various types of cover for optimum cable protection and all applications
- » Comprehensive edge protection, safe equipotential bonding, low and burr design
- » Extensive range of tools, machines and assembly accessories
- » PFLITSCH assembly service for precisely-fitting, ready-to-install solutions that guarantee an efficient process

### Common area of application



Inside rail vehicles

# PIK-Trunking



### Technical features at a glance

Cross-sections	10
Material	Zinc-plated, primed and painted steel; AISI 304L stainless steel
No. of accessory fittings	18
Dimensions (W x H)	15 mm x 15 mm to 200 mm x 60 mm

### Product advantages

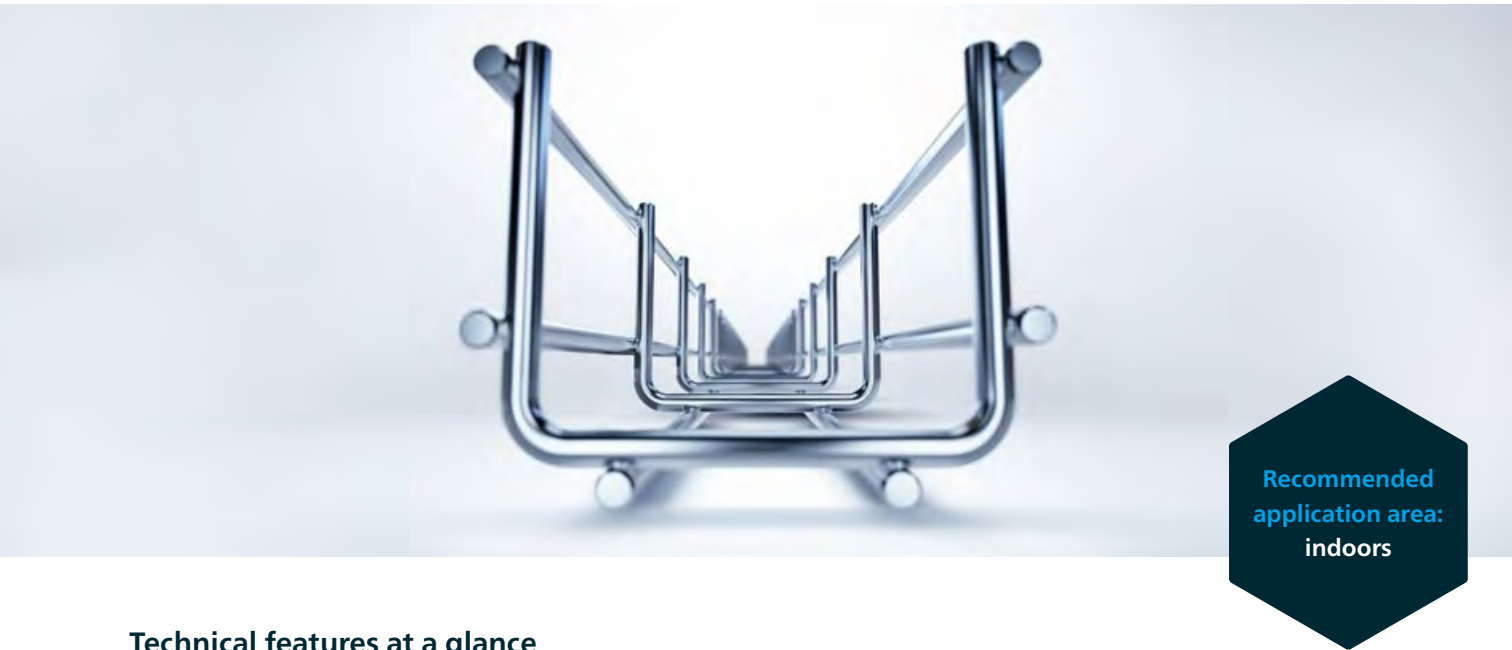
- » Sturdy closed design with minimal space requirement for routing a small number of cables
- » For routing cables where installation space is limited and down to the lowest installation level
- » Compatible with Industrial-Trunking
- » Available in high-quality steel, stainless steel versions and in RAL colours of your choice
- » Extensive range of tools, machines and assembly accessories
- » Simple assembly
- » PFLITSCH assembly service for precisely-fitting, ready-to-install solutions that guarantee an efficient process

### Common area of application



Inside rail vehicles

# Wire-tray Trunking



### Technical features at a glance

Cross-sections	46
Material	Zinc-plated or hot-dip galvanized steel AISI 304L or AISI 316L stainless steel
No. of accessories	161
Dimensions (W x H)	40 mm x 20 mm to 620 mm x 110 mm

### Product advantages

- » Sturdy yet lightweight PFLITSCH Wire-tray Trunking made of steel and stainless steel for ideal protection in non-enclosed cable routing
- » Tailored customer-specific solutions (e.g. Wire-tray Trunking with welded-in partition)
- » Wire-tray Trunking available in a variety of materials and shapes for maximum cable routing flexibility
- » Non-enclosed design ensures adequate air circulation and prevents heat build-up
- » Corrosion-resistant and easy to clean
- » Specially designed tools and machines for cutting and installing trunking yourself
- » PFLITSCH assembly service for precisely-fitting, ready-to-install solutions that guarantee an efficient process
- » Ideal for routing of signal lines, power, energy and control cables

### Common area of application



Inside rail vehicles

# Component assembly service



### Your component assembly service project – the process



### Product advantages

- » Complete service on request – from technical advice on site, planning and production through to delivery and, if required, installation
- » Manufacture of ready-to-install component assemblies with delivery times and fixed prices you can rely on
- » Production, delivery and assembly all from a single source optimises your production planning
- » Relieve your employees of routine tasks to increase your productivity
- » Component assemblies can be reproduced at the touch of a button to minimise the level of work and cost involved in ordering
- » Integration of drawings into your CAD system, including perfect documentation
- » Transparent, low overall costs with potential savings of between 20 % and 50 %



**PFLITSCH GmbH & Co. KG**

Ernst-Pflitsch-Straße 1 · 42499 Hückeswagen · Germany

T +49 2192 911-0 · [info@pflitsch.de](mailto:info@pflitsch.de) · [www.pflitsch.de](http://www.pflitsch.de)

Subject to technical modifications without notice. Errors excepted.

Some of the product names used in this brochure are registered trademarks. You can find an overview of the trademarks owned by PFLITSCH GmbH & Co. KG and that apply at least within Germany at [www.pflitsch.de/en/imprint](http://www.pflitsch.de/en/imprint).

All previous and older versions shall cease to be valid upon publication of this brochure. We invite anyone interested in our products to contact us. Should you do so via the communication channels cited in this brochure and on our website, such as our telephone number or e-mail address, we ask you to take note of our declaration on data protection under the header "Privacy Policy" on our website [www.pflitsch.de/en](http://www.pflitsch.de/en).