

# solution

CUSTOMER MAGAZINE 01 | 2024

Hygiene requirements in the food and pharmaceutical industries – a challenge and an opportunity at the same time

## Indulging without the side effects

Page 08

### The new Cleanplus cable gland –

The ultimate in hygienic safety

Page 04

### Wire-tray Trunking

Open cable routing for the most stringent hygiene requirements

Page 14

### PFLITSCH LevelEx

Exemplary explosion protection from the expert

Page 22



# Dear reader,

Everything in the pink with you? Current economic data paints a glum picture. But is it really a case of glass half empty?

We've been at trade fairs such as the Anuga FoodTec, all about automation and SPS and experienced a greater feeling of optimism than is often conveyed in the media. With industry giants who are showcasing innovative products and reacting to an unstable economic situation by displaying vision.

We share this optimism. Looking ahead, we have turned our focus to growth markets and have been able to generate momentum in the food and pharmaceutical industries, for example, with our Cleanplus range. This is the first hygienic cable gland to be certified in accordance with the new stricter EHEDG requirements. The issue of hygienic safety is also reflected in our Wire-tray Trunking, as a holistic solution.

We specialise in cross-industry applications that leave no room for error. This is why we see our customers' requirements primarily as opportunities and work continuously to progress our solutions even further.

This issue of solution, our periodic magazine penned specially for you, our customers, covers further current examples that will hopefully get you in the mood for new opportunities and tomorrow's market. But that's not all. We invite you to join us on this journey. Go on, challenge us. Because we always unleash our full innovative strength and potential when it comes to fulfilling your specific needs.

We hope you enjoy reading this latest issue of solution!

*Roland Lenzing and Mathias Stendtke*  
Managing Partners  
PFLITSCH GmbH & Co. KG

Mathias Stendtke  
and Roland Lenzing



## Contents

- 04 The new Cleanplus cable gland –  
The ultimate in hygienic safety
- 08 **Cover story: Indulging without the side effects**  
Hygiene requirements in the food and pharmaceutical  
industries – a challenge and an opportunity at the same time
- 14 PFLITSCH Wire-tray Trunking – Open cable routing  
for the most stringent hygiene requirements
- 18 Recertification of occupational safety –  
Safety without compromise
- 20 An overview of PFLITSCH's trade fair activities in H2 2023
- 22 PFLITSCH LevelEx cable glands –  
Exemplary explosion protection from the expert
- 28 The bible in matters cable gland –  
The new PFLITSCH catalogue
- 30 Best solutions for every application –  
PFLITSCH cable entries have been setting trends for decades



The new Cleanplus cable gland

# The ultimate in hygienic safety

The new PFLITSCH Cleanplus has big shoes to fill. After all, it's the successor to the blueglobe CLEAN Plus, the first cable gland certified in accordance with the EHEDG Hygienic Design Guidelines, and which has set standards in terms of hygienic safety and design. And that at a time when conventional metal and plastic cable glands, which were by no means hygienic, were still frequently being used even in modern plant and machinery in the food industry.

We recognised the need for hygienic products for the food and pharmaceutical industries from a very early stage and drove development forwards with some pioneering solutions. Also in the knowledge that the need for hygienic installations would and will continue to grow significantly.

### Increasing requirements

However, as the level of automation increases, production systems are becoming ever more complex and manufacturing processes ever more intransparent. This also increases the risk of contamination, especially in product contact zones and those areas subject to spray. As a result, food scandals and high-profile recalls threaten to damage the reputation of the producer concerned, in fact, the image of the entire industry. It's not without reason that a whole series of regulations must be taken into account to be able to build and operate systems and their components in accordance with the requirements of the food industry.

The PFLITSCH blueglobe CLEAN Plus has also been certified in accordance with these requirements. Due to the increasing depth of automation in the food industry and the associated growing risk of contamination, the standards for hygienic safety in production facilities had become outdated and had to be amended in line with the new circumstances. As a result, the EHEDG tightened its certification requirements for hygienic design accordingly. This prompted us to design the next generation of hygienic cable glands.





**The new Cleanplus hygienic cable gland**

Inspired by the blueglobe CLEAN Plus, with its exemplary choice of materials, specially rounded pressure screw surfaces and "seamless" design, we have adopted its proven design principle and if award-winning design. One of the focal points of our work to further improve the design was on the hygienic properties, with a view to EHEDG certification. We also took the opportunity to optimise the assembly process. As with the blueglobe CLEAN Plus, the universal properties of the Cleanplus are also impressive: in addition to the above-average tightness of seal guaranteed by protection types IP 66, IP 68 up to 15 bar and IP 69, the new gland also provides high strain relief. With just five different sizes (M12 to M32), it covers the complete sealing range from 4 to 23 mm. And by switching to a silicone sealing insert, we have expanded the temperature range to -55 °C to +180 °C. The upshot: the new Cleanplus offers users genuine plus points in every respect.

**Added hygiene properties**

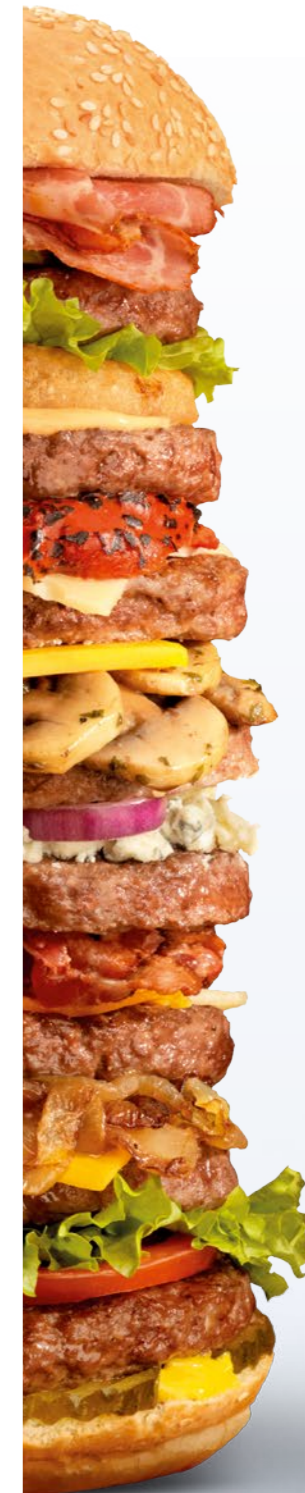
In addition to preventing dirt build-up, the Cleanplus stands above all for easy cleanability. For instance, the silicone sealing elements are resistant to numerous common cleaning agents and are exceptionally durable. The concept of the sealing inserts has been further developed to improve tightness, an important factor when it comes to high-pressure cleaning. And with a mind to EHEDG-compliant assembly, the design of the spanner flats has also been adapted. The exemplary cleanability of the Cleanplus is prerequisite for reliably calculable cleaning cycles that avoid additional cleaning measures. This means long-term planning security and transparency for plant operators – and a reduction in the total cost of ownership (TCO) over the entire life cycle. In short: greater cost effectiveness.

**Greater ease of assembly**

Thanks to some improvements made to certain details, assembly is now even easier and safer – also helping to increase efficiency. Like its predecessor, the Cleanplus impresses with its low overall height, making it suitable for use where installation space is limited. The pressure screw is now screwed on flush, i.e. using the exact same torque every time. No special tools are required for this – however, care should be taken to use quality tools with smooth surfaces. There's no need to use a washer. The sealing element cannot skew – nor can the cable rotate, something made impossible by the interlocking of the sealing insert.

**Serialising hygienic safety**

If it's to follow in the footsteps of its predecessor, the blueglobe CLEAN Plus, the Cleanplus still needs reinforcements. Right now, we're in the process of developing an EMC variant based on the proven and patented TRI spring. A polyamide version is also planned for cost-sensitive applications. We're targeting the end of this year for the market launch of both Cleanplus models.



Treat yourself to an **extra portion!**

With added **installation safety.**

The new **Cleanplus** hygienic cable gland with the first EHEDG certification in accordance with the increased requirements.





# Indulging without the side effects

Hygiene requirements in the food and pharmaceutical industries – a challenge and an opportunity at the same time

People's appreciation of good food has grown noticeably in recent years. This isn't merely reflected in the growing level of interest in cooking and the countless cookery shows on TV. Generally speaking, today's consumers demand greater quality from the food they buy – regardless of whether the products are organically grown or industrially processed. All the more critical and angry is their response to high-profile food scandals and large-scale recalls of contaminated foodstuffs that pose a risk to health.

→







### Efficiency and hygiene in harmony

This poses a particular challenge for all food and beverage manufacturers: on the one hand, they have to create a hygienic production environment in order to produce perfect, untainted products. On the other hand, they're forced to organise their production processes to be as efficient as conceivably possible in order to remain competitive in the long term. This need to establish efficient production processes despite strict safety and hygiene requirements can only be satisfied through the automation and digitalisation of production facilities. In plants with a high degree of automation, however, there's always a certain residual risk of product contamination. In product contact zones and spray zones in particular, machine parts can become contaminated with residues and bacteria can build up. To ensure that machines are as easy to clean as possible and that no contamination such as dirt and bacterial nests can accumulate, all components should be designed to be hygienic – in accordance with the principles of Hygienic Design. But what exactly is Hygienic Design?

### Standard for cleanliness: Hygienic Design

There's a whole host of standards and regulations that must be taken into account if plants and components built for the food industry are to be approved for use. These include, for example, the DIN standards applicable to the Hygienic Design guidelines, the regulations of the German Social Accident Insurance (DGUV) and the regulations of the U.S. Food & Drug Administration (FDA).

### Adapting the Hygienic Design guidelines

To this end, the EHEDG has defined a collection of parameters in the Hygienic Design guidelines, such as the choice of materials, the surface finish and the design features of individual parts and system components that are installed in plant used in the production of food and pharmaceutical products.

→







**PFLITSCH blueglobe CLEAN Plus** – the world’s first hygienic cable gland to be certified in accordance with the EHEDG’s Hygienic Design guidelines.



**Hygienic Design at its best: blueglobe CLEAN Plus**

As an expert in industrial cable management, we became aware of the need for hygienic applications for the food and pharmaceutical industries from a very early stage and have been supporting these sectors with suitable solutions and driving forward developments in Hygienic Design with pioneering innovations ever since. The prime example is the PFLITSCH blueglobe CLEAN Plus. This was the world’s first hygienic cable gland to be certified in accordance with the EHEDG’s Hygienic Design guidelines. It not only meets the highest requirements for a hygienically perfect production environment. In addition to its highly developed hygiene properties, it also impresses with above-average universal properties such as tightness of seal, strain relief and temperature resistance and something that helps every plant operator to operate economically: simple, time- and cost-saving assembly.

**The times they are a-changin’ – hygienic safety remains unchanged**

For many years, the PFLITSCH blueglobe CLEAN Plus was the only hygienic cable gland certified in accordance with the EHEDG guidelines for Hygienic Design. But in view of the growing level of automation in food production, the regulations for a hygienically safe production environment have become much stricter. Accordingly, the EHEDG has had to revise and tighten its guidelines for Hygienic Design. As a driver of innovation, we saw this as a challenge to once again come up with a solution that best meets all requirements. The result is the new PFLITSCH Cleanplus.

**The legacy of the blueglobe CLEAN Plus**

Like its predecessor, the Cleanplus is also the world’s first hygienic cable to be certified in accordance with the EHEDG principles, albeit in accordance with the new, stricter requirements. To achieve this, we have adopted the design principle and iF award-winning design of the blueglobe CLEAN Plus and at the same time further improved its specific hygienic properties, universal product properties and ease of assembly. Further solutions based on the Cleanplus, such as an EMC variant and a polyamide version – a cost-sensitive solution that makes hygienic assembly accessible to a broad market – are currently planned or being implemented.

**Coordinated hygienic range**

In a sense, Cleanplus is just the “tip of the iceberg” of our hygiene range. Ever since Hygienic Design has played a key role in the food and pharmaceutical industries, PFLITSCH has developed a smart system of coordinated solutions designed to meet all the demands of hygienic cable management – and all from a single source. With these solutions, we help food producers secure reliable, reproducible and efficient production processes.

Our highly developed solutions reflect our vast experience, our innovative strength and our unique scope of engineering and degree of vertical integration and make us the ideal development partner for customised hygiene solutions. As a result, we’re able to provide plant engineering companies and plant operators with the best possible support available, to meet the coming challenges in respect of hygiene and to maintain the highest standards so that you can be competitive over the long run.

**Commitment beyond the product development phase**

In addition to developing and manufacturing pioneering hygiene solutions, we are also actively involved in the EHEDG. The company and a number of employees are actively involved in various technical committees and contribute their many years of PFLITSCH expertise. The aim is to further promote the issue of Hygienic Design and to increase food safety by disseminating the relevant know-how and involving everyone involved in food production – from food producers and plant manufacturers to systems and component suppliers. In addition, we regularly take part in congresses and lecture events in order to maintain a regular conversation with customers, experts, scientists and the trade press. These events are the best opportunity to get in touch with Mr Heiko Emde (heiko.emde@pflitsch.de). He is the Market Segment Manager Food & Pharma at PFLITSCH, an expert in Hygienic Design and a member of the EHEDG. He will also be available for consultation on Hygienic Design as part of our presence at the HMI (Hall 12, Booth D67).



**Heiko Emde**

Market Segment Manager Food & Pharma  
heiko.emde@pflitsch.de  
Phone: +49 2192 911210



Treat yourself to an **extra portion!**

With added **installation safety.**

The new **Cleanplus** hygienic cable gland with the first EHEDG certification in accordance with the increased requirements.



**Cleanplus**  
First EHEDG certification according to increased requirements

PFLITSCH Wire-tray Trunking

# Open cable routing for the most stringent hygiene requirements



## Pros of Wire-tray Trunking

- + Easy to clean
- + Sturdy, corrosion-free structure
- + Hygienic cable routing
- + Simple cable laying, pre-assembly and installation
- + Smart and comprehensive range of accessories
- + Component assembly service

If hygienic cable management is required, PFLITSCH offers not only a complete range of solutions for cable entry, but also a sophisticated system for safe and efficient cable routing – Wire-tray Trunking. Thanks to its specific design features and material properties, PFLITSCH Wire-tray Trunking is particularly suitable for use in the food and pharmaceutical industries, with their extremely strict hygiene regulations.

### Cleaning made easy

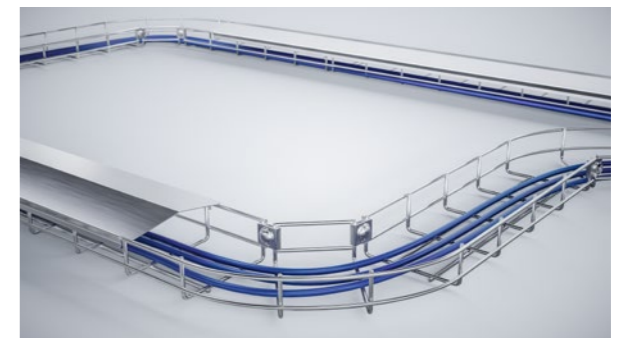
With its open, i.e., non-enclosed, design, Wire-tray Trunking ensures optimum cleanability and good ventilation – a genuine advantage especially when plant has to be cleaned regularly and thoroughly with a high-pressure cleaner and foam. What's more, the wires are made of zinc-plated or stainless steel, both of which are resistant to corrosion and all common cleaning agents. To increase its suitability for plant that demands compliance with strict hygiene regulations, the trunking system also offers roof-shaped covers. These prevent dirt or bacteria from accumulating when the trunking is installed horizontally. In addition, they provide the cables laid in the trunking protection from mechanical stress or from liquids such as cleaning fluids dripping from above.

### It couldn't be simpler: cable laying and installation

PFLITSCH Wire-tray Trunking enables large numbers of cables to be laid safely and clearly over long distances, with highly customised trunking layouts also possible. Depending on the hygiene guidelines, both horizontal and vertical installation is possible. The open cable routing ensures not only easy laying and removal of cables and lines, but also permanent access to them – making any maintenance or repair work necessary much simpler to carry out. The principle of simplicity also applies to time- and cost-saving pre-assembly and assembly work.

### Hygienic cable routing in all dimensions

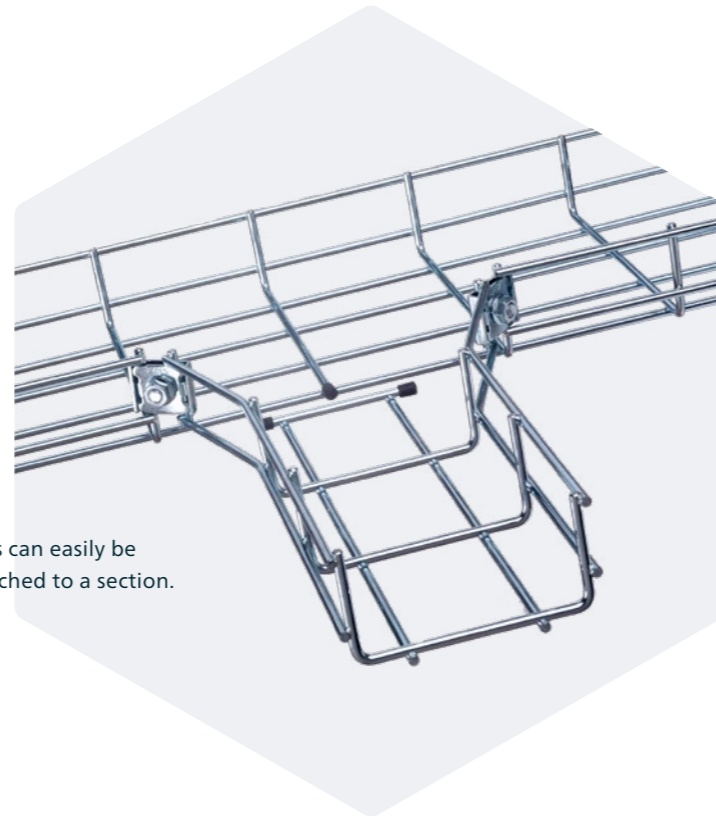
PFLITSCH Wire-tray Trunking is available in a number of high-quality materials, from zinc-plated or hot-dip galvanised steel to a AISI 304L stainless steel variant and an acid-resistant AISI 316L version that is ideal for the food industry. The Wire-tray Trunking is also available in a wide range of sizes and shapes to accommodate the installation of greatly differing numbers of cables. In addition to the standard profile variants such as U-shaped, L-shaped and flat trays, there is also a Z-shaped tray. This is the perfect solution for installing cables vertically without having to fasten them to the trunking, as it reliably holds the cables in place thanks to its special design – even when installed vertically and during high-pressure cleaning. There's no need for cable ties. Another common-sense option is the open and hygienic Single Wire System used for running single cables, since it would be over the top to install full-sized trunking in such cases. →





**Superfast to customise**

The trunking trays are made of up to 6 mm-thick, zinc-plated or stainless steel wire. They offer a high level of stability and are extremely easy to customise: A few simple steps are all it takes to make various bends, corners, offsets, exits and tapers from a straight section of Wire-tray Trunking. The segments are then screwed together with connectors and any open wire ends fitted with end caps. Our mobile, electrohydraulic Wire-tray Trunking shears are ideal for cutting the trunking to length and customising it. Their 330°-rotatable cutting head cuts through the wires effortlessly, making the tool easy to use even on already installed cable trunking. A built-in hydraulic shock absorber, one-handed operation and the LED-illuminated work area make working with the Wire-tray Trunking shears a joy. What's more, the shears are extremely robust, with long maintenance intervals of up to 20,000 cuts.



Exits can easily be attached to a section.

**Thought through from start to finish – the range of accessories**

The technical superiority of our Wire-tray Trunking is underpinned by the smart range of accessories with which users can customise their cable routing precisely to their own specific requirements. Insertable radius limiters and bending plates protect the installed cables at transitions and bends. Separators help route cables in an orderly manner in the Wire-tray Trunking. Universal mounting plates can be supplied for installing components directly at the trunking. Add to these components such as various types of cover, which are also available in full-protection versions with side covers. The covers are simply clipped onto the Wire-tray Trunking and also have the effect of increasing the installation's overall stability.

**Secure fastenings**

To facilitate efficient and secure installation of its Wire-tray Trunking in all environments, PFLITSCH has also developed a comprehensive range of fastenings. The outstanding stability of these tried-and-tested fastenings, which include mounting brackets, suspended cable supports, beams, holders, supporting feet and much more, allows greater spacing between supports, saving time and costs during installation. And with regard to hygienic design, it should be noted that the horizontal surfaces of these fastenings have been kept to a minimum so that dirt and cleaning fluids cannot settle on them.

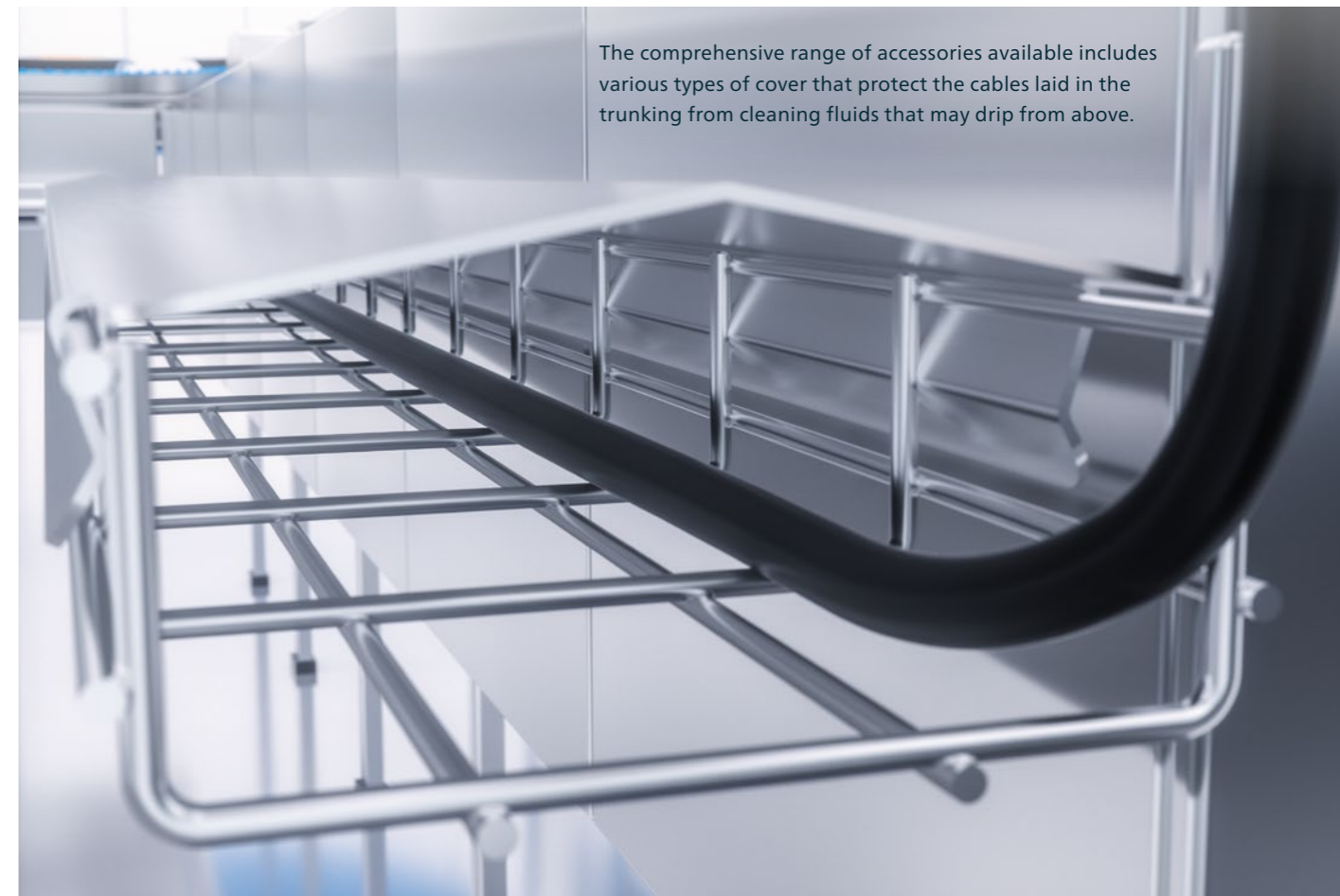
**Component assembly service**

PFLITSCH's component assembly service for its cable trunking systems is becoming increasingly popular. Ready-to-install component assemblies, in this case for Wire-tray Trunking, are supplied pre-assembled and on schedule according to each customer's specifications. This significantly reduces the time you, our customers, spend on design and installation.



Z-shaped trunking for installing cables vertically without the need for additional fastenings.

The mobile electrohydraulic Wire-tray Trunking shears for cutting the trunking to length and customising it.



The comprehensive range of accessories available includes various types of cover that protect the cables laid in the trunking from cleaning fluids that may drip from above.





Recertification of occupational safety

# Safety without compromise

The highest quality is not only evident at product level, but also in optimal framework conditions with comprehensive occupational health and safety measures. PFLITSCH's occupational health and safety management system was audited and certified again in March 2024 in accordance with the procedural principles and implementation of BG ETEM. In addition, BG ETEM confirmed compliance with the requirements of DIN EN ISO 45001:2023 for the sixth time in a row.

“

The perfect interplay of all processes, including occupational safety, makes the difference.

Michael Baudach

This recertification takes place every three years, which not only emphasises the importance of protecting all employees at PFLITSCH, but also helps to ensure the safety of production processes. Since the beginning of 2024, Michael Baudach has been the coordinator responsible for occupational safety and reports directly to the general management. Another step that emphasises the high importance and relevance for overall success. „Progress doesn't just happen at product level. The perfect interplay of all processes, including occupational safety, makes the difference. That is why it is of the utmost importance for us to ensure a working environment in which accidents and hazardous situations do not occur in the first place,“ emphasises Michael Baudach.

### The interplay of safety

The current recertification reflects how well occupational health and safety works in practice. Aspects such as risk assessment, preventive measures and the speed and the sustainability of improvement processes are examined as part of overall occupational health and safety management. Another topic is internal awareness raising for occupational health and safety through regular training and further education measures.

### Thinking ahead in occupational safety

The current recertification at PFLITSCH was carried out by BG ETEM. „We deliberately opted for the BG because, as a statutory accident insurance organisation, it is an established partner that not only assesses the implementation of occupational health and safety, but also has broad expertise when it comes to the further development of occupational health and safety concepts,“ says Baudach.

### Motivation maintained

In fact, the self-assessment of occupational health and safety management also plays a role in the audit. Michael Baudach confirms the high level of self-perception: „We are aware of how important it is to continuously deal with occupational health and safety management. It is part of our integrated management system, which is also about ensuring consistently high safety standards and involving the entire team. If each individual is motivated to deal with the topic of occupational safety, the effects can be seen in lower accident and sickness rates.“

### Works from the inside out

Occupational health and safety is no longer a purely internal issue. More and more clients are demanding appropriate certification from their suppliers. In the automotive industry, for example, DIN EN ISO 45001 is already common practice. And with good reason. This is because health and safety management is directly linked to quality and social responsibility. At PFLITSCH, both aspects are part of the value system that has been in place for over 100 years. This will not change in the future.



Michael Baudach



An overview of PFLITSCH's trade fair activities in H2 2023

# See and be seen

2023 was eagerly awaited by PFLITSCH with regard to its planned trade fair appearances. How fast would the traditional trade fair business recover following the Covid hiatus? A total of four fairs were lined up for H1 and a further four for H2. The degree of success enjoyed in the first half of the year raised legitimate hope – even if exhibitor and visitor numbers didn't yet reach pre-pandemic levels. Besides that, we at PFLITSCH are truly committed to exhibiting our products and services at trade fairs around the globe. It enables us to have direct contact with our customers, which in turn helps us to understand their needs and come up with the right solutions.



## EXPO Ferroviaria

From 3 to 5 October 2023, we celebrated our premiere as an exhibitor at the EXPO Ferroviaria in Milan, Italy's only B2B trade fair specifically for the railway industry. In view of our many years of expertise in the field of railway solutions, this fair is naturally of great importance to us. The EXPO Ferroviaria covers all aspects of railway technology, from rail vehicle technology to signalling technology and communications. So it's no wonder that everybody who is anybody in the rail industry is represented here. The fair was also a good opportunity for us to support our new sales team in the field. In addition to a surprisingly strong response to our splittable CABseal cable entry system, our corrugated conduit and hose solutions also attracted considerable interest. As the visitor numbers at EXPO Ferroviaria are trending upwards and the fair is growing in importance, we're already looking forward to our next visit to Milan.

## Motek

Motek, an exhibition for production and assembly automation systems, was held in Stuttgart between 10 and 13 October 2023. This fair is relevant to PFLITSCH because some of our key target groups, such as the automotive, mechanical engineering and apparatus engineering industries are represented here. It also offers our sales team the opportunity to talk directly to customers face to face. The level of interest visitors showed in our CABseal cable entry system, our standard systems and EMC solutions was extremely positive. And Motek turned out to be a good platform for our cable trunking systems, too.

## all about automation

Small but nice – an apt description of the all about automation (aaa) trade fair held in Wetzlar. The noteworthy feature of the aaa is that it's one of a whole series of trade fairs that take place in various towns in the region. Due to its regional focus, the number of visitors is lower,

EXPO Ferroviaria in Milan

but the contacts made with the trade audience are all the more intensive. Especially as the majority of visitors – practice-oriented users such as design engineers and fitters – usually come with a specific issue on their mind, so that the quality of the contacts made is even more substantive. Aided by an attractive and stimulating booth, we succeeded in presenting our exhibition highlights to great effect. Following this success debut in Wetzlar, we can certainly imagine taking part in future all about automation trade fairs at other locations.

## SPS

The Smart Production Solutions in Nuremberg, with its focus on automation and robotics solutions and its high target group affinity, is an absolute must in PFLITSCH's trade fair calendar. At the centre of PFLITSCH's presentation from 14 to 16 November 2023 was our CABseal splittable cable entry and the topic of EMC, which was duly acknowledged by the new UNI Dicht TRI EMC cable gland. We already made our standing as an innovation and market leader very clear on the way to our booth: on a huge, literally mega banner, the CABseal deliberately laid down a challenge to our competitors by underlining its claim to be the unrivalled ultimate solution. Thanks to its spacious and striking design, our exhibition booth was unmistakably recognisable as PFLITSCH's presence at the fair even from a distance. The double-sided information pillar, shared by our CABseal and UNI Dicht TRI products, played a prominent role – in the truest sense of the word. Here, impressive product animations demonstrated the particular customer benefits of our two ultimate solutions. Despite the wealth of ideas, there was still enough space for a suitable presentation of our cable trunking systems and trunking cutting machines. With floor space of 128,000 m<sup>2</sup> and a total of 50,081 visitors, the SPS is well on the way to recapturing the success of the pre-pandemic era. The fact that the trade fair was able to record increasing visitor numbers had a positive impact for us: both in respect of the general level of interest

shown in our offerings as well as the number of contacts we made and specific inquiries we received. In view of this extremely positive result, there's nothing to hold us back from participating at SPS 2024.



SPS in Nuremberg



Motek in Stuttgart



PFLITSCH LevelEx cable glands

# Exemplary explosion protection from the expert

Whether in the oil or gas industry, in the chemical industry or in the offshore sector – cable entries in potentially explosive atmospheres are subject to strict regulations and are governed by a whole series of standards applicable to the plant and equipment used. No wonder, as it's a matter of protecting human lives and assets. For this challenging task, PFLITSCH offers explosion-proof "Ex" cable glands that raise explosion protection to a new level: the LevelEx series.

→





Comprising the LevelEx, the LevelEx AC for armoured cables and the LevelEx TRI for extra EMC protection, the LevelEx series is a comprehensive and coordinated collection. Featuring all the required certifications in accordance with current standards such as ATEX and IECEx, they guarantee reliable protection in the potentially explosive atmospheres G (gas) and D (dust) and meet the strict requirements of users in the oil, gas and chemical industries, the offshore sector, as well as in the food and pharmaceutical industries, in animal feed production and sawmills.

#### Excellent tightness of seal a matter of principle

The effective level of explosion protection provided by the LevelEx series is founded on the special design of the cable gland: the innovative cascading sealing principle. This principle is performed at two levels, which explains why we have named the product LevelEx. When the pressure screw is tightened, the pressure sleeve deforms the sealing element, which applies full-circumference soft press sealing providing exemplary cable protection and ensures excellent tightness of seal and strain relief to the cable. The wide operating temperature range from  $-60\text{ }^{\circ}\text{C}$  to  $+130\text{ }^{\circ}\text{C}$  is a further advantage.

#### Preventing gas and dust explosions

Special attention was paid when designing the LevelEx to compliance with the exacting protection ratings IP 66 and IP 68 (10 bar, 1 hour). The LevelEx series complies with protection types "Ex-eb" for increased safety, "Ex-db" for flame-proof enclosure and "Ex-ta" for protection by enclosure (dust explosion protection). In the case of increased safety, the aim is to prevent an explosion from entering the enclosure.

The flameproof enclosure in motors, lighting, sensors or measuring devices prevents an explosion inside the enclosure from propagating to the outside, where it would cause further damage in a potentially explosive atmosphere.

And in the case of dust explosion protection, a dust-tight enclosure and limiting the surface temperature of the enclosure to below the smouldering temperature of the dust that occurs prevents an explosion.

#### Easy assembly a matter of principle

Another advantage of all LevelEx models is their ease of assembly. This aspect was paid special attention by PFLITSCH's design engineers as they were developing the LevelEx and achieved by creating large spanner flats, ensuring low tightening torques and realising constant compression that is applied by a metallic stop. In addition, the sealing inserts and cable are prevented from rotating and twisting during assembly.

Even at first glance, it's immediately noticeable that the dimensions of the LevelEx models are significantly smaller than those of comparable models from our rivals. This makes them ideal for space-saving installation, which is an invaluable advantage when installation space is limited. The secret here lies in the clear and compact design comprising just a small number of components (LevelEx = 4, LevelEx TRI = 5 and LevelEx AC = 7) and captive sealing elements. This also has benefits for assembly, which is accordingly simple, quick and safe, saving time and money.

#### Certified with certainty

The LevelEx cable glands feature a range of certifications that allow them to be used in a wide variety of applications worldwide. In the case of LevelEx, these are the following certifications: IEECx, EAC, DNV, CC, KC, UK CA, UL.

The LevelEx AC has IEECx, DNV, CC and UK CA certification.

And if the application requires the use of an EMC cable gland, the LevelEx TRI offers the following certifications: IEECx, EAC, DNV, CC, KC.

PFLITSCH LevelEx AC cable gland for armoured cables



#### LevelEx AC for feeding in armoured cables

The LevelEx AC cable gland is used to feed in armoured cables and is particularly suitable for industrial onshore, offshore and marine applications. To this end, the LevelEx AC has a deluge seal that has been awarded a test certificate confirming that it has successfully passed a water deluge test that simulates the effects of typical marine and offshore conditions.

#### Proven technology meets innovative components

In the case of the LevelEx AC, we have combined the proven cascade sealing principle of the LevelEx with new, innovative components in order to both safely accommodate the armouring of the cables and facilitate quick and easy assembly. With regard to accommodating the cable armouring, we decided in favour of double crimping as this method simply promises greater potential and a wider range of applications. As such, the LevelEx AC is designed for use with SWA cables (steel wire armoured), AWA cables (aluminium wire armoured) as well as SWB cables (steel wire braided).

#### Using armouring for strain relief

The cable armouring is used both to establish the ground connection and to achieve outstanding strain relief by means of 'soft squeezing' and double crimping to clamp the armouring. With the aid of a great innovation for clamping the armouring, the LevelEx AC provides greater clarity and further optimises a product that already offered quick and easy assembly. When assembling conventional AC cable glands, it's very time-consuming having to check that the armouring is correctly positioned. PFLITSCH's solution provides a remedy: two opposing windows inside the gland allow the fitter to see immediately whether the position of the armouring is correct.



An innovative solution: a window for visually checking the armouring is correctly positioned



**LevelEx TRI – EMC shielding and explosion protection on the same level**

PFLITSCH has been a pioneer for many years now when it comes to effective EMC shielding. In view of the growing risks resulting from the increasing depth of automation, PFLITSCH's development engineers very quickly turned their attention to the task of designing reliable EMC shielding. The blueglobe TRI has set new standards in the market for EMC cable glands. What could have been more obvious than to integrate a TRI spring into the LevelEx in order to provide explosion-proof cable glands with effective EMC shielding?

**Patented shielding**

The patented TRI spring has proven to provide excellent EMC shielding as it ensures durable and low-impedance 360° contact with the cable shield over a large area. It is the basis for effective EMC screening attenuation and for the high current-carrying capacity that is crucial for reliable discharge of undesirably high interference currents at the enclosure or control cabinet. The latter is important because an insufficient current-carrying capacity causes the cable gland to overheat, which in turn leads to negative impacts on EMC protection and other kinds of damage. These are not the sole advantages of the TRI spring, which enables more durable contact by paving the way for the mechanical separation between strain relief and sealing on the one hand and screening on the other. And since the cable only needs to be stripped at the contact point, the shielding can be continued uninterrupted, and it is also possible to easily correct the positioning of the cable during installation.



Sensitive drive and sensor technology in potentially explosive environments require reliable explosion and EMC protection.

PFLITSCH LevelEx TRI cable gland with patented TRI spring for effective EMC shielding



The **LevelEx series** from PFLITSCH offers users in the relevant industries a coordinated range of explosion-proof cable glands from which they can select the right solution for each application, a solution that meets the highest safety standards.



# The bible in matters cable gland

The new PFLITSCH catalogue for cable glands, cable entries and cable protection is out



Sometimes you have to change in order to remain true to yourself. To a certain extent, this also applies to PFLITSCH's cable gland, cable entry and cable protection catalogue. Not only does it list and describe the entire range of cable glands and entries offered by PFLITSCH, but it has also come to be regarded as something of a 'bible' or standard work in the industry. As such, this reputation represents an obligation on our part. That's why we are proud of the fact that the new edition of the catalogue has a number of new features in addition to the many tried-and-tested solutions and that we have been able to make it even easier to use and speeded up the product search by incorporating a few new ideas.

#### All new products in one section

We would like to take this opportunity here and now to draw your attention to our new products, to which we have, as always, dedicated a short preview at the beginning of the catalogue. First and foremost, the new CABseal splittable cable entry designed for efficiently feeding large numbers of cables into control cabinets. This is followed by the UNI Dicht TRI, the new EMC variant from the UNI Dicht system. Then we have two new blueglobe TRI models in our portfolio devised specifically to fulfil the high demands of commercial vehicles with alternative drive systems. There are also two new additions to the LevelEx series: the LevelEx AC for armoured cables and the EMC version, the LevelEx TRI. You will also find all lead-free cable glands in the new catalogue, as well as the new UNI corrugated conduit transit, which we have developed for users in the railway industry.

#### Standard work with new standards

The new catalogue once again lives up to its reputation as a standard work by providing you – as you have become accustomed – with a wealth of additional information. This includes installation instructions, standards and certifications as well as a wealth of valuable information to help you with all questions relating to cable entries. As far as actually working with and using the catalogue is concerned, we have made further improvements. To make it even easier for you to find your way around and find the best solution for your application even faster, we have revised the structure and integrated new intuitive selection charts and pictograms. In addition, the key advantages our solutions offer you in particular are highlighted. And finally, numerous QR codes take you directly to our digital services or the product search function for cable glands on our website at [www.pflitsch.de](http://www.pflitsch.de). The new PFLITSCH catalogue for cable glands, cable entries and cable protection guarantees you are fully up to speed. Just remember to throw out the "old bible" and replace it with this new one.



# Best solutions for every application

PFLITSCH cable entries have been setting trends for decades

Tightness and strain relief have traditionally been decisive requirements for cable entries. Today, consideration must also be given to other application-specific criteria such as EMC, explosion protection, ease of assembly, sealing ranges and individuality. PFLITSCH, the inventor of the modern cable gland, has the perfect solution for a variety of industrial applications with its three series.

Whenever data and power cables are inserted into control cabinets and enclosures, the time is ripe for modern cable entries. The challenges to be met are immense: over the decades, PFLITSCH has come up with high-quality metal and plastic cable glands from M4 to M120 to enable thin fibre-optic cables to be sealed just as reliably as large cross-section power cables. They impress with high protection ratings and strain relief values as well as larger sealing ranges, gentle cable handling and much more besides.

Solutions are also available for fire protection in railway technology, hygienic pharmaceutical and food applications with EHEDG certification, EMC for automation or ATEX-certified explosion protection. Splittable cable glands such as the UNI Flange and UNI Split Gland are designed for modular systems in modern industry. Last but not least, the CABseal range provides safety and cost-effectiveness, for example when a large number of cables need to be inserted into control cabinets. This article presents selected product solutions that demonstrate the wide range of potential applications for these cable entries.



## 1 CABseal: Teamwork for up to 40 cables

If multiple cables need to be simply and reliably inserted into control cabinets, for example, users will have to look very hard to find a better solution than PFLITSCH's CABseal range. It impresses with its great flexibility, high IP 66 protection and easy assembly.

This cable entry system consists of four frames in different sizes – precisely matched to the most common standard cut-outs in control cabinets. CABseal frames can be equipped with a variety of cable grommets. Their tongue-and-groove contour ensures error-free assembly and high stability. Up to 40 max. 6 mm cables, for instance, can be reliably sealed using CABseal.

The mounting height of only 20 mm means it is ideal for space-saving installation. Flush grommets result in a completely closed surface with neither creases nor edges. Moulded lugs make it a simple matter to provide additional strain relief.



## 2 Plastic blueglobe: Quality meets quantity

The PFLITSCH blueglobe is the cable gland for the new millennium. Alongside brass and stainless steel variants, our polyamide types score with identical product features at significantly lower prices for standard applications.

The captive blueglobe sealing insert ideally centres the sum of the pressing forces evenly across a broad area of the cable when the pressure screw is tightened. The result: compliance with the exacting IP 66/IP 68/IP 69 protection ratings, excellent strain relief up to EN 62444 class B and a durable seal that provides exemplary cable protection.

Cable glands made from grey or black PA 6.6 are available in sizes from M12 to M63 for cross-sections from 2 to 53 mm. A removable inlet in the sealing insert lies behind this enormous diversity. The advantage for users is that cables with many different diameters can be reliably inserted with just one gland size.





**3 LevelEx: Cost explosion protection**

The PFLITSCH LevelEx is currently the most space-saving, easy-to-assemble solution among Ex-protected cable glands. This new Ex series consists of only 4 system components and convinces with a wide range of potential applications for Group II equipment with the "Ex d", "Ex e" and "Ex t" ignition protection types for gas and dust.

Its sealing elements have a captive design and cannot be lost during assembly. When the pressure screw is tightened, the seal is deformed over a large area and achieves excellent tightness with IP 66 or IP 68 protection. The strain relief values are likewise above average thanks to the PFLITSCH concept.

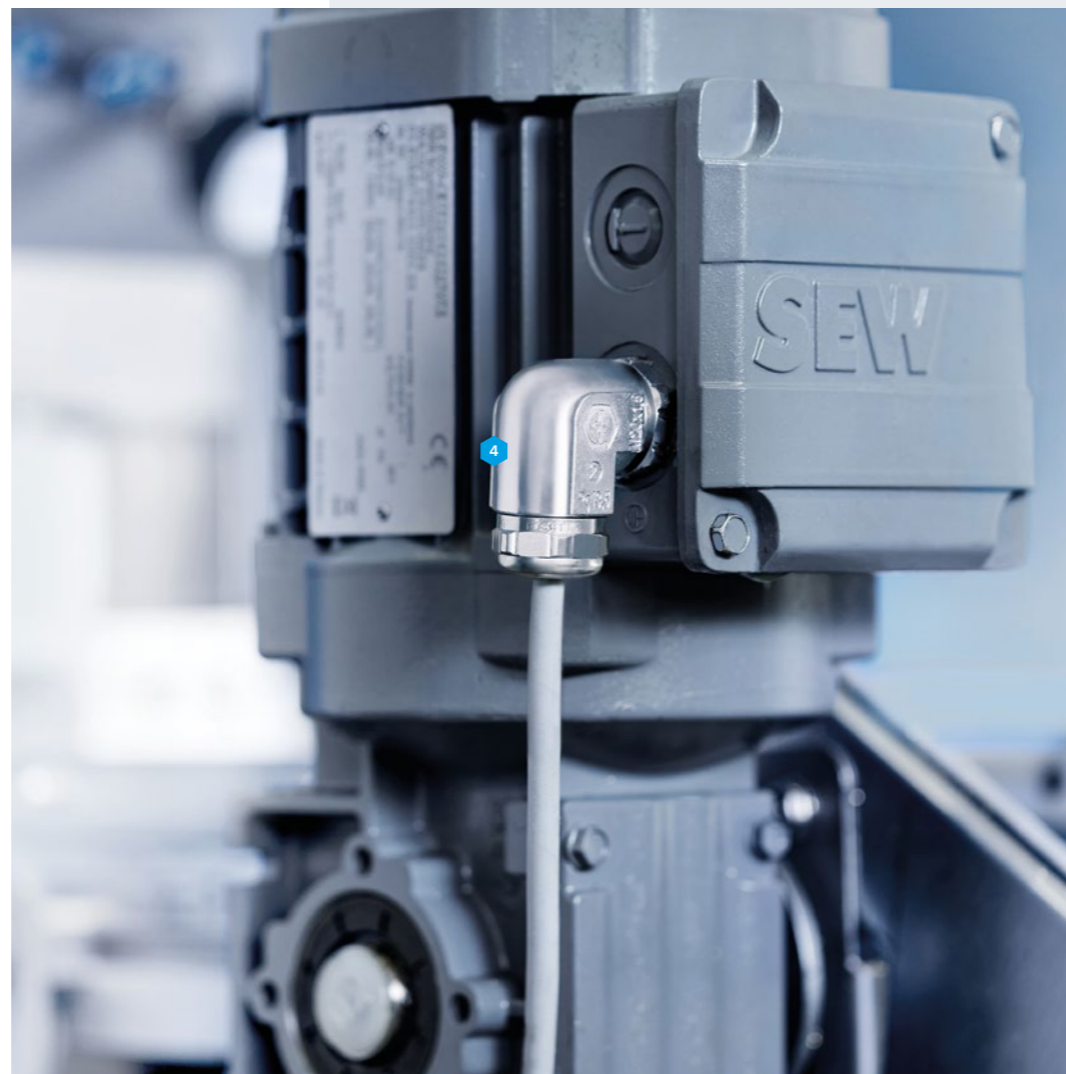
The LevelEx is available in sizes M16 to M75 with NPT threads from 3/8" to 2 1/2". Cables from 7 to 66 mm can be securely sealed. With its large temperature window from -60 °C to +130 °C, the LevelEx is also suited in extreme environments and temperatures, which are the norm in off-shore applications, deserts or the polar regions.



**4 UNI elbow cable glands: The perfect way to negotiate bends**

With its wide range of application-specific sealing inserts, the UNI elbow cable gland belonging to the PFLITSCH UNI Dicht modular system is a simple, safe and reliable solution for inserting cables into an enclosure at a 90° angle. It prevents the cables from kinking, e.g. at terminal boxes.

These right-angled gland bodies made of die-cast zinc or PC plastic are available with a metric or Pg thread. A coupling allows users to turn the angled components through 360° for routing in any direction. The design ensures types of protection up to IP 68 as well as very high strain relief. PFLITSCH offers various standard sizes from M16 to M25 for cables from 4 to 15.5 mm in diameter.



**5 UNI Dicht: Ideal solution with product variants**

Thousands of made-to-measure solutions can be easily put together by users from the UNI Dicht modular system in sizes M4 to M120 and with a metric, Pg, Imperial or NPT thread. A suitable product exists for every application because the brass, stainless steel, zinc or high-quality plastic gland body can be combined with numerous different sealing inserts.

Sealing inserts are available for cable cross-sections from 0.9 to 110 mm. Types are also offered for flat cables and special contours. Multiple inserts allow multiple cables to be routed safely through a single cable gland in order to save space. Split sealing inserts can be supplied for pre-assembled cables. Combinations with various protective hoses and corrugated conduits are possible, as is integrated bending protection, strain relief, EMC and explosion protection.

The UNI Dicht system scores every time with high types of protection up to IP 68 or IP 69 as well as excellent strain relief.





**6 blueglobe: A "plan b" that always fits!**

The PFLITSCH blueglobe allows a broad sealing range to be covered with just one size of cable gland. For users, this means fewer different sizes are required – a considerable advantage in applications where it is not yet clear which cable cross-sections will actually be installed by the customer on site.

The captive, round sealing insert has either a single or a multiple inlet, meaning that the sealing range per size can be significantly increased. Simply remove the excess ring from the sealing insert using a screwdriver to add several valuable millimetres to the sealing range. Substantial savings can be achieved in this way because storage costs, ordering work and assembly time are reduced.

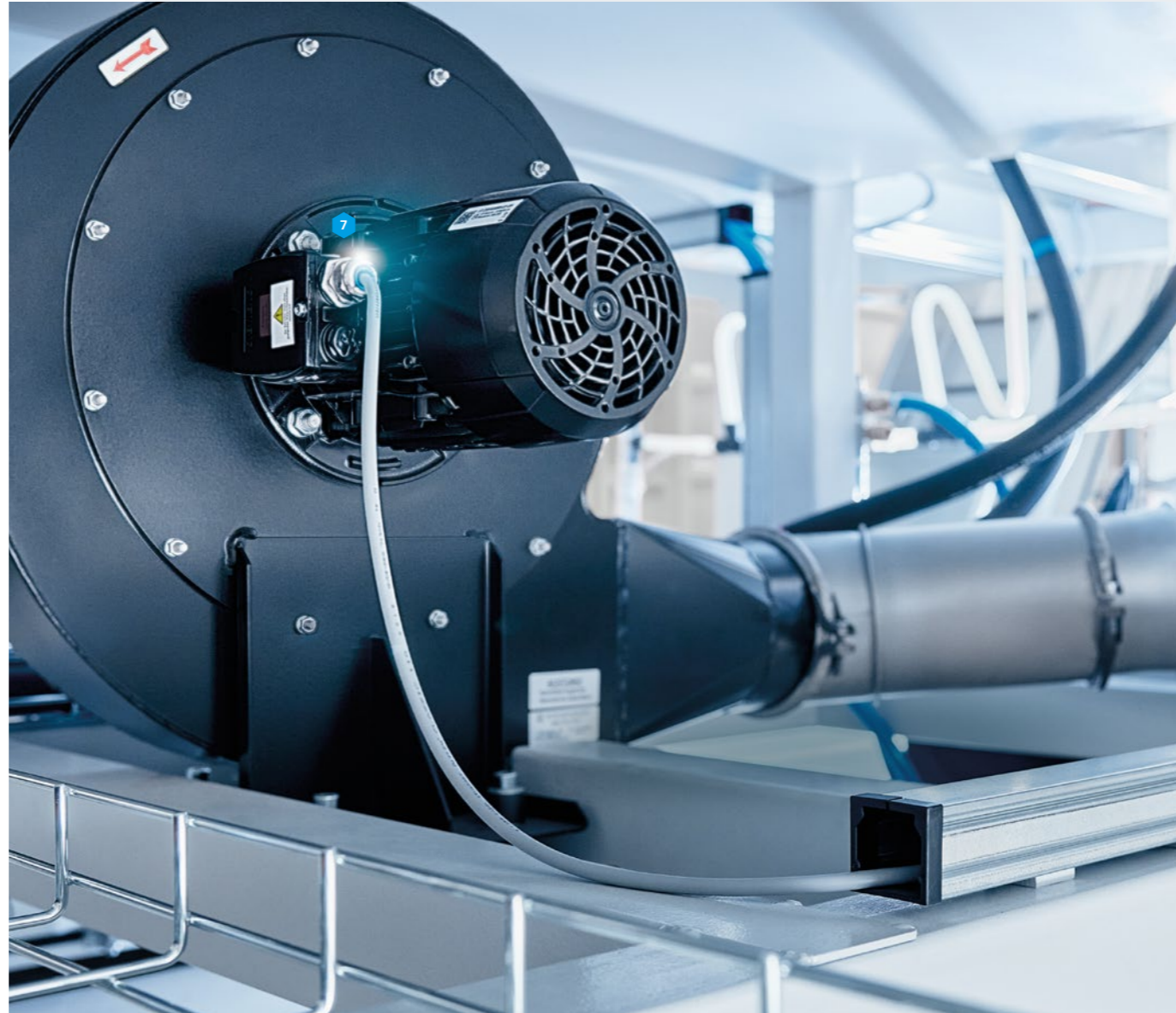
PFLITSCH manufactures the blueglobe from brass, stainless steel or high-quality polyamide in sizes M8 to M85 for cable cross-sections from 3 to 77 mm. Compliance with the very exacting IP 66/IP 68/IP 69 protection ratings, excellent strain relief up to EN 62444 class B and a durable seal that provides exemplary cable protection make this product unique.

**7 blueglobe TRI: Getting along fine!**

The challenge for any shielding concept is to protect sensitive components in complex, interconnected systems from interfering electromagnetic signals. PFLITSCH EMC cable glands with the TRI contact spring are the best solution here. This concept is offered with the PFLITSCH blueglobe, UNI Dicht, LevelEx and Cleanplus series.

The shielding braid only needs to be exposed by the user at the contact point. The braiding itself remains intact and can be routed up to the connection point in the control cabinet. As the cable is pushed into the gland, the TRI spring wraps itself tightly around the braid, ensuring 360° contact – even with out-of-round cables.

The TRI solution provides above-average attenuation values into the GHz range as well as high current-carrying capacities. In other words, users profit from maximum system safety.



**8 UNI Multiple: One more, please!**

PFLITSCH'S UNI Multiple is the perfect solution for routing multiple cables easily and safely through a single cable gland. That saves users a lot of space on enclosures such as industrial connectors.

PFLITSCH can also create the customer-specific hole patterns with different holes at an affordable price. Alternatively, users can request closed sealing inserts that simply have to be drilled out. Any unused holes can be sealed with plugs. Slit versions are likewise available for installing pre-assembled cables.

Multiple sealing inserts are easy to combine with gland bodies in sizes M6 to M120 from the UNI Dicht modular system, depending on the application and requirements. Made from high-quality TPE-V, these inserts are designed for operating temperatures from –40 °C to +135 °C and achieve high types of protection from IP 65 to IP 68.



**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](http://www.pflitsch.de).