



# 2021

Cable glands and electrical fittings for electrical plants









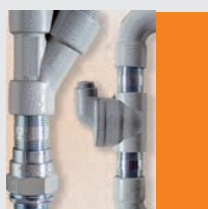
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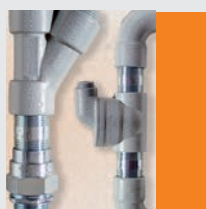
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# PRODUCT





# INTRODUCTION

## FROM CABLE GLANDS TO ELECTRICAL FITTINGS FOR ELECTRICAL PLANTS

1

Elfit S.p.a.:  
the value of  
experience



**Fig.1e 2** Elfit's plant at the beginning of 80's

**D**uring the '70s, Elfit company was established in order to carry out some strategic internal processes of Cortem and to provide the market with complementary lighting products, such as electrical equipment, cable glands and junction boxes. Thanks to its reliability and the service offered, it becomes an important player of Oil&Gas field with a highly qualified brand, both in Italy and internationally. Due to a continuous improvement of technology and investments, Elfit is specialized in foundry, mechanical workshop and in the manufacturing of explosion and weather proof cable glands, junction boxes and electrical fitting.

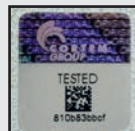




Today Elfit, along with Cortem and Fondisonzo brands, forms **Cortem Group**, one of the main international leader of Oil&Gas for the explosion-protected field. The peculiarity of Cortem Group is the experience gained in almost 50 years of activity in the Ex field which results not only in the supply of simple Ex-products, but also in customized solutions.

Cortem Group's products are available in different executions, "Ex d", "Ex e", "Ex de", "Ex i", "Ex n", "Ex t", and are manufactured using low copper aluminium alloy, stainless steel and plastic materials which ensure strength and duration over the time.

Their authenticity is guaranteed by the application of an adhesive label with a 3D matrix, an alphanumeric code and a QR code for smartphone readers, that protect the product from fakes. The alphanumeric code can be verified on the [www.cortemgroup.com](http://www.cortemgroup.com) website.



To be sure to be safe.



**Fig.3**

Above, Cortem Group's plant today

**Fig.4 e 5**

Above and on the left, the modern production technologies of Cortem Group





# 1 ELFIT S.P.A.: THE VALUE OF EXPERIENCE



**Fig.6**  
Products' certificates



Cortem Group electrical equipment are certified in accordance with the European standard ATEX, the International regulation IEC Ex, also obtained the regulatory compliance to INMETRO standard for Brazil and TR CU standards for the Eurasian Customs Union. Respecting these strict international construction rules, guarantees the safety of people and environment.

Cortem Group manufactures its products using modern processes, plants and qualified personnel. The quality management system conforms to UNI EN ISO 9001:2015 standard.

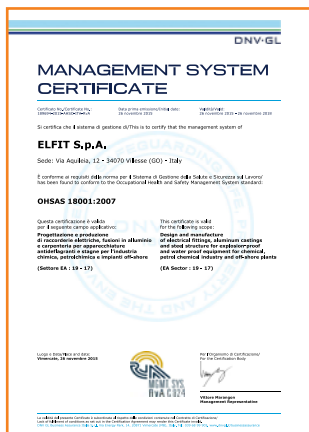
Furthermore, Cortem Group has developed an Occupational Safety and Health Management System certified according to OHSAS 18001:2015 Standard.

The Elfit production included in this catalogue can be summarized in the following macro-categories:

1. Ex-proof cable glands with compression ring and barrier cable glands for armoured and non-armoured cable; plastic cable glands for non-armoured cables and other applications.
2. Electrical fittings: three pieces unions, adaptors, closing plugs, available with different threads and methods of protection, 90°elbows, open elbows, couplings, sealing fittings and pulling fittings, rigid and flexible conduits.
3. Ex-proof junction boxes and pulling boxes.
4. Weather-proof pulling boxes and cable glands.



**Fig.7**  
Management system certificates



If we go back in time to the end of the first half of the last century, electrical systems suitable for hazardous areas were mainly realized in conduit "Freez moon" type and the ending on the input/output of flameproof enclosures were realized with sealing fittings next to the boxes (the old standard CEI 64-2 said that sealing fittings had to be positioned at a maximum distance of 450mm and only one joint was allowed between two enclosures with a distance not higher than 900mm).

This technique, still required today for some particular cases, except that distances have to be in compliance with the current standard EN 60079-1, had the disadvantage of having to cut the cable in case of reinstatement, with economical increases due to the impossibility to recover the cable because it is sealed into the sealing fitting.

The coming of cable gland has radically changed the plant approach, firstly simplifying the installation (image the difficult to align input/output conduits with entry/exit from junction boxes) and then giving the possibility to recover the cable in case of reinstatement.

Since the beginning of its activity, Elfit has been realizing products in compliance to current standards and in order to be used with a wide range of cables both armoured and non-armoured.

The cables usually used in on-shore and off-shore plants are divided in:

- non-armoured cables in PVC, for fixed sediment, with insulation class 0,6/1kV;
- insulated cables with wireframe ethylene propylene (EPR) or (XLPE), insulation class 0,6/1kV;
- armoured steel wire (SWA) or armoured aluminium wire (AWA).

In a first production phase, cable glands were realized with a sealing rings kit due to manufacturing characteristic of these cables with different diameters that change from manufacturer to manufacturer.

Anyway, this solution caused a waste of spare materials because the exact diameters of cables are not usually available during the design phase.

To avoid the unused and the consequent waste of sealing rings, Elfit focuses its research activity towards the optimization of those gaskets.

The cable glands series features only one sealing ring suitable to the variables of cables size, both armoured and non-armoured. Moreover, it provides only one opening key that simplifies the assembly.

This new series has successfully got the product certification by international licensed authority.

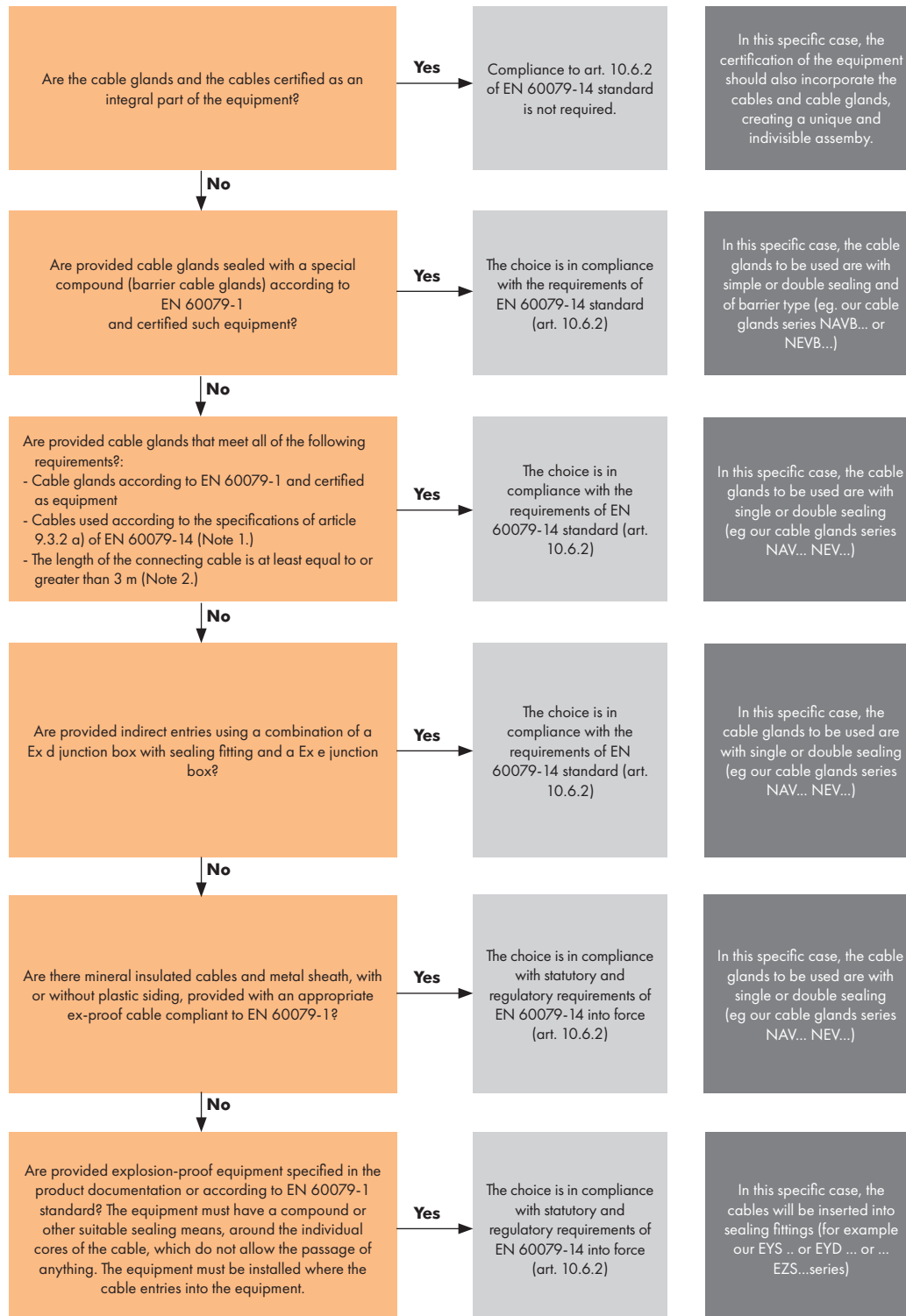
Current standards relevant to products suitable to be installed in hazardous areas have settled a method to carry out plants that simplifies mounting and maintenance operations, always respecting what is defined by the standards.

## **2.1 THE SELECTION OF CABLE ENTRY SYSTEMS IN EXPLOSION-PROOF JUNCTION BOXES**

The selection of the cable entry in explosion-proof junction boxes must comply with the requirements of EN 60079-14 standard and in particular:

- Cables with sheaths with low tensile strength, known as "easy tear", must not be used in areas with risk of explosion if not installed in protective conduit. Thermoplastic wire of the type in polyvinyl chloride (PVC) with a tensile strength of 2.5 N / mm<sup>2</sup>; in polyethylene with a tensile strength of 15.0 N / mm<sup>2</sup> and cables in elastomeric polychloroprene or chlorosulfonated or polyethylene or similar polymers with a tensile strength of 15.0 N / mm<sup>2</sup>, are commonly classified as "easy tear".
- The cables for fixed installations must be suitable to the environmental conditions and must be sheathed in thermoplastic, thermosetting or elastomeric material and mineral insulated metal sheathed.
- When there is the possibility of gas or vapour transfer through the interstices between the conductors of a cable, to a non-hazardous area or to a different hazardous area, the construction and the use of the cable must be designed so that to avoid the flame propagation (See Note 2 in Figure 8).
- When it is not applicable as described in paragraph above, must be used mineral insulated cables, with sealing, for example our barrier cable glands series NEVB ...
- The cable glands must be properly selected depending on the specific cable diameter. It is not allowed the use of sealing tapes, thermo-tightening sheath or other materials such as fillers for the achievement of the sealing diameter on the cable gland.
- The choice of the cable glands must comply with the provisions of Section 10.6.2 of EN 60079-14 which are summarized in the flow, in Figure 8.





**FIG.8** Flow chart for the correct selection of the cable entry in Ex d junction boxes

## 2.2 A COMPLETE RANGE OF SOLUTIONS FOR OIL&GAS APPLICATIONS

**INDUSTRIAL PLANTS WITH RISK OF EXPLOSION: CABLE GLANDS WITH COMPRESSION RING FOR ARMoured AND NON-ARMoured CABLE**



**NAV, NEV, NAVF, NAVN, NEVP SERIES**



For armoured and non-armoured cable, protection method flame-proof "Ex db", increased safety "Ex eb", dusts protection "Ex tb", 'Ex nR' restricted breathing, Zone 1, 21, 2, 22, Gas group IIC, Dusts group IIIC, IP 66/67. They have only one sealing ring that guarantees explosion and IP protection, they are available with male and female threaded hub for armoured cables with lead sheath and for non-armoured flat/heating cables, optical fiber cables.

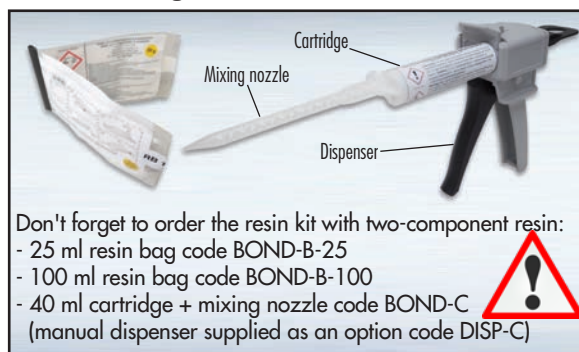
**INDUSTRIAL PLANTS WITH RISK OF EXPLOSION: BARRIER CABLE GLANDS FOR ARMoured AND NON-ARMoured CABLE**



**NAVB, NAVBF, NAVBN, NEVB SERIES**



For armoured and non-armoured cable, protection method explosion-proof "Ex d", increased safety "Ex e", protection against dusts "Ex tb", intrinsically safe "Ex i", Zone 1, 21, 2, 22, Gas group IIC, Dusts group IIIC, IP66/67. Barrier cable glands are supplied with a resin finishing kit:



# INDUSTRIAL PLANTS WITH RISK OF EXPLOSION: CABLE GLANDS FOR NON-ARMoured CABLES IN HIGH RESISTANCE POLYAMIDE



**NAVP SERIES**



For non-armoured cables, protection method increased safety "Ex e", "Ex tb" for dusts, "Ex i" intrinsically safe, Zone 1, 21, 2, 22, Gas group IIC, Dusts group IIIC, IP66/68, ISO and PG threads. Cable glands are easy to install, impact resistant until 7J and guarantee Ex and IP protection on to the external sheath of the cable.

# WEATHER PROOF SERIES FOR INDUSTRIAL AND NAVAL APPLICATION, ENERGY PRODUCTION PLANTS, MOTORS, BOARD MACHINERY



**NAVI, NEVI SERIES**



For armoured and non-armoured cable, IP66/67. They have only one sealing ring that guarantees watertight sealing. They are provided with high-tech and high mechanical performance compression rings and gaskets with high-temperature resistance.



### 2.3 THE MARKING OF THE CABLE GLAND BY LASER ENGRAVING

Metal cable glands, whether they are simply sealed for unarmoured cables, whether they are double-sealed for armored cables or barrier-type, are marked by Cortem Group through laser engraving.

The use of laser marking on metals allows extremely rapid and precise processing to guarantee a greater visibility and a constant traceability of the products over time, also thanks to the constant and continuous technological updating of the machinery.

The laser marking process on metals offers significant advantages:

- it is an extremely precise and clean method realized through a non-contact procedure that does not require preventive or subsequent processing;
- guarantees the identification and the traceability of products with a very high resolution finish;
- ensures acids and chemicals resistant working;

In our laboratories all the necessary verification tests have been carried out: aging cycles, aimed at checking the permanence of the marking, resistance to changing ambient temperatures, from -60 ° C to + 150° C, tests in wet saline environment, seal tests to chemical and petrochemical agents with presence of hydrocarbons.



## 2.4 CABLE INSTALLATION AND CONDUIT INSTALLATION

It is important to check the match system between different enclosures that, contrary to industrial equipment (concerning standards EN 61439), requires to install specific sealed fittings between two junction boxes, so as to avoid the spread of a possible explosion that could accidentally occur in one of those enclosures.

As it is shown in the images sequence below reported, the lack of sealed fittings causes not only the passage of the explosion to the next enclosure, but it even generates an increase of the pressure originated from that explosion, with a consequent greater risk of damages to people.

The standard EN 60079-1, section 13.2.2, says "The distance from the face of the seal closest to the enclosure (or intended end-use enclosure), and the



outside wall of the enclosure (or intended end-use enclosure) shall be as small as practical, but in no case more than the size of the conduit or 50 mm, whichever is the lesser", so the sealed fitting should be installed next to the junction box, to give the right functional warranty, as specified on section 10.5 of Standard EN 60079-14 which says "A conduit sealing device is considered as fitted immediately at the entry of the flameproof enclosure when the device is fixed to the enclosure either directly or through an accessory necessary for coupling according to the manufacturer's instructions".

In the conduit installation, the electric cables run in a system of rigid conduits and enter explosion-proof boxes by means of sealed fittings. This avoids possible explosions to expand and spread inside the housings (Fig. 9). The outlet of every "Ex d" box features a sealed fitting which prevents explosions from spreading to other sections, delimits the volume of the "Ex d" electrical construction to a value close to that for which it has been proven, and separates the conduit installation from a possible part made with external cables.

In conduit installations, wires pass inside a threaded conduit "free moon"

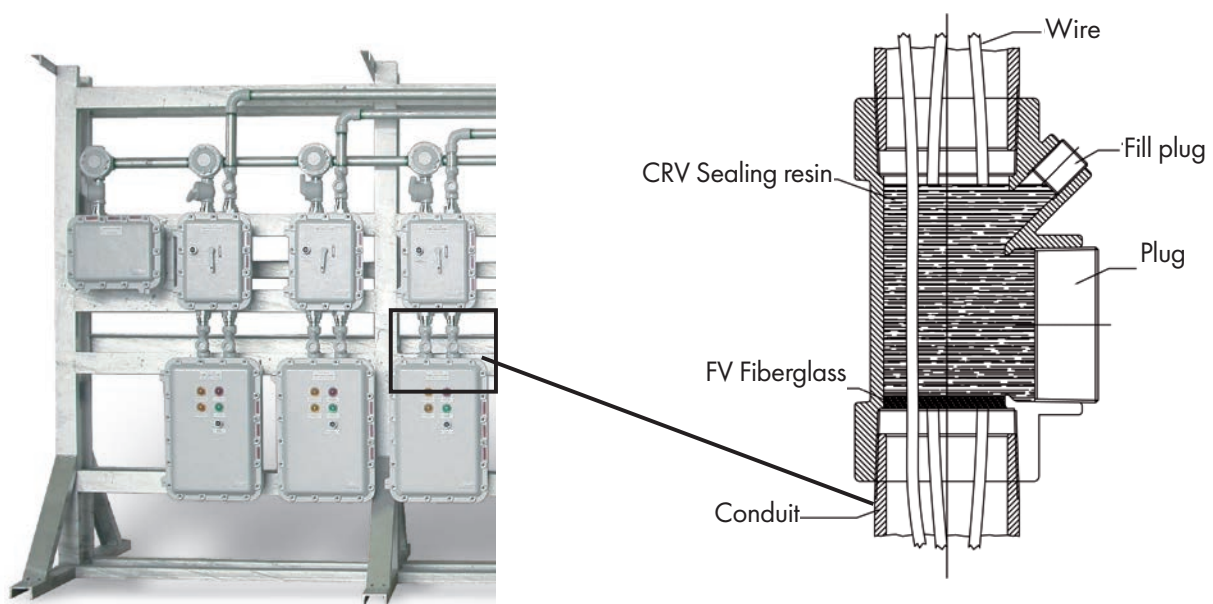
and though a sealed fitting; these sealed fitting must be filled with the right mixture of bi-component resin. This method effectively protects cables against mechanical and chemical damage. One disadvantage is that it is difficult to change the wiring later on.

On Fig. 9 there is an example of cable installation with mounting of sealing joints.

Cable installation, with use of specific cable glands, can be realized both with direct and indirect entry.

In the cable installation with direct entry, (Fig. 10) cable glands are restricted

**FIG.9** Example conduit installation. Between the enclosures, EYS series sealing fittings are visible

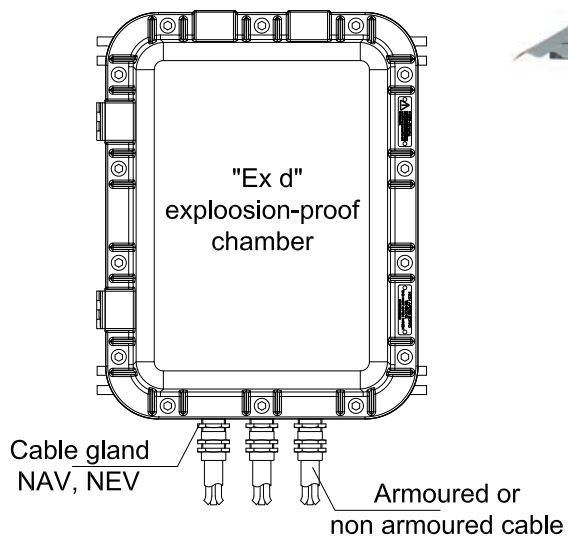


directly on one or more sides of the "Ex d" enclosure and, thanks to their peculiarity, they realize the same segregation degree of the sealed fitting with the advantage of being inspect (possible cable replacement).

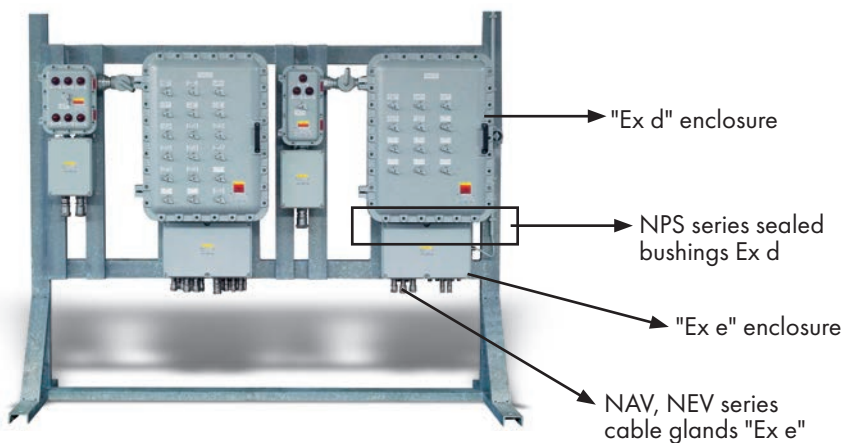
In the cable installation with indirect entry, (Fig. 11) cable glands are increased safety "Ex e" type and tested on one or more sides of the enclosure in "Ex e" execution. By means of sealed bushings, the "Ex e" box is connected to the "Ex d" box.



**FIG.10** Example of directly cable entry



**FIG.11** Example of indirect cable entry

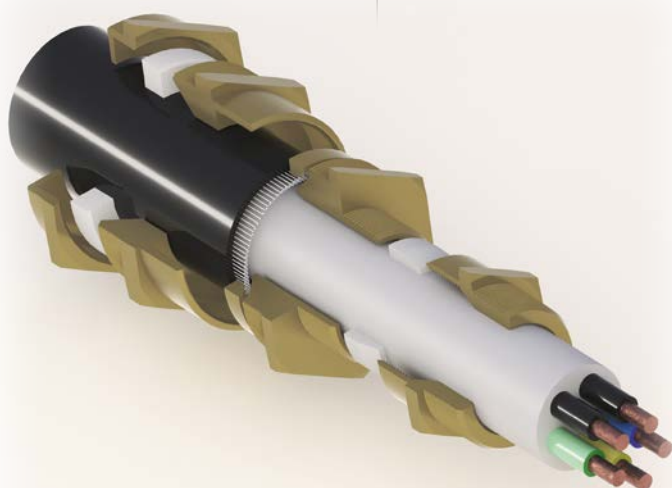


## Type of electrical cables

**E**lectrical cables can be of two types: copper and aluminium made. When electrical cables and/or conductors are constructed of ropes or wire of aluminium, the terminal connections such as terminals or attacks of equipment, must be suitable for the coupling with aluminium in order to avoid electrolyte corrosion effects resulting from couplings with brass/aluminium or copper/aluminium.

Such aluminium cables and/or conductors, with the exception of intrinsically safe systems and with limited energy, must usually have a section not less than 16mm<sup>2</sup> and the connections must ensure that the distances of surface insulation and in the air are not reduced by the additional means required for connection.

Must not be used cables with traction strength of internal and external sheath less than 8.5 MPa. Cables with traction resistance lower to 8.5 MPa are commonly known as "easy tear" cables.



Cables used for fixed installations in dangerous areas, under operating conditions (hot cables) must be suitable for the environmental conditions and must have the following features:

- be made of thermoplastic, thermosetting or elastomeric material, they must be circular and compact, any padding and sheaths must be extruded and any fillers must be of non-hygroscopic material;
- or they must be made with mineral insulation under metal sheath;
- or they must be of a special type, such as flat cables that must be coupled with cable glands suitable for such types of cables, having however the same constructive features as described above.

When there is a probability of gas or vapour transferring through the interstices between the individual cable cores and the cable leads to a non-dangerous

place or in zones with a different explosion hazard, the intended construction and use of the cable falls in the provision of paragraph 10.6.2, paragraph b) of

Flexible cables used for fixed installations in dangerous areas, with the exception of intrinsically safe cables, must be suitable for the environmental conditions and must have one of the following features:

IEC/EN 60079-14.

- be made of hard rubber sheath for ordinary use;
- be made of polychloroprene sheath for ordinary use;
- be made of hard rubber sheath for heavy use;
- be made of polychloroprene sheath for heavy use;
- be made with thermoplastic insulation and of robust construction equivalent to the one of flexible cable with hard rubber sheaths for heavy use.

The cable temperature must never exceed the value of temperature relative to the specific Temperature Class assigned to the installation area for such cables.

All cables for fixed installation must have the characteristics of non-propagation of the flame, in agreement to IEC 60332-1 or IEC 60332-3-22 standard or to other kind of protection such as laying in sand filled tubs or using flame retardant barriers installed at the entrance of the cables in the classified area, in order to prevent the propagation of the flame and, consequently, an explosion.



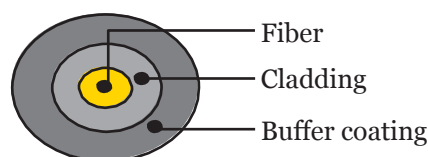
### 3.1 TYPICAL COMPOSITION OF ELECTRICAL CABLES

#### Premise

Here below we'll explain the typical cable formation, without getting into specifics of the constructive form which, referring to the paragraph 9 of 60079-14 standard, may be of different form and function, in relation to specific plant requirements. ELFIT, aware of these necessity, has created a series of specific accessories for the installation of cables such as:

- Flat cables, specific for handling and lifting systems of and suitable for transport systems for use in lifting systems, automated logistics and vertical storage systems, also suitable for use in cable chains for moving machines. (Source LAPP GROUP).

- Cables for transporting light signals (optical fibers). The transmission of a signal in fiber optic cables takes place through the principles of reflection and refraction of the light beam obtained by converting an electrical signal or pulse. The light beam that passes through the conductor, plastic or glass, is reflected (rebounds) with a certain angle of incidence on the cladding of the conductor called "cladding", inside the optical fiber. The goodness of the transmission over long distances will depend on the transparency and purity of the material constituting the optical fiber, hence the lesser refraction along the transmission line. In a time where the demand of fast and secure data networks is constantly growing, fiber optic cables are indispensable and irreplaceable (Source LAPP GROUP). This type of cable is in fact better than the classic cables as it does not have the strand formation but it is like a single conductor.



## a) Primary insulation

### *Cables with primary insulation in Polyvinyl Chloride (PVC)*

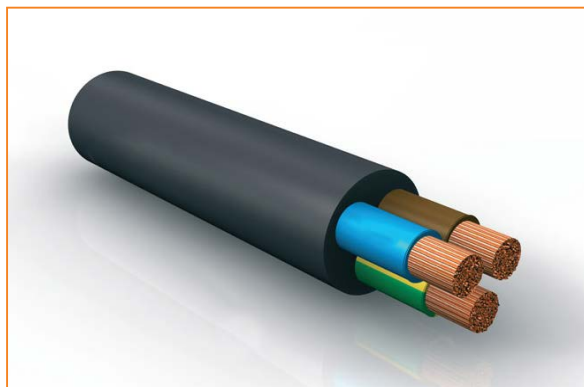
PVC is a versatile material that allows multiple content and different needs and it is the most commonly used for primary isolation in cables installed in generalized environments such as power supply utilities, signalling, lighting and, in general, all industrial electrical equipment.

Its operating temperature can range from 70° C to 125° C, depending on the different formulation of the compound used. The addition of special additives and plasticizers increases the strength of the compound at high temperature.

Special PVC with a higher oxygen index, are used in the case of compliance with non-propagating fire tests in accordance with standards CEI 20-22/2, CEI 20-2 /3, IEC 332.3A, IEC 332.3C.

### *Cables with primary insulation in Polyethylene (PE)*

Polyethylene (PE) is the most commonly used material for primary insulation of coaxial radiofrequency cables, which, due to its low dielectric constant ( $\epsilon_r = 2.3$ ), it allows to produce low-capacity cables with speed of signal transmission which can also reach 0.8c (c = light speed)

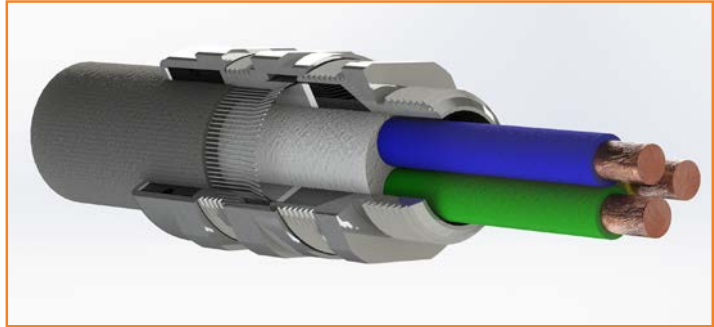




in the case of cellular polyethylene. Furthermore, the dielectric constant and the factor of loss are largely independent from temperature and frequency.

#### *Cables with primary insulation in cross-linked polyethylene (XLPE)*

The crosslinked polyethylene (XLPE) is used for the primary insulation of cables of low, medium and high voltage, for signalling and control cables. The crosslinking process improves the cracking resistance under stress, the cold resistance and, as it does not melt like an elastomer, it is able to withstand thermal loads up to 120° C.



#### *Cables with primary insulation in polypropylene (PP)*

Polypropylene (PP) is used for the primary insulation of telecommunication cables, telephony, data transmission which, as mentioned for cables in PE, thanks to its low dielectric constant ( $\epsilon_r = 2.3$ ), allows to realize low-capacity cables, with signal transmission speeds that can reach up to  $0.75 \div 0.8c$  ( $c$  = light speed), in the case of cellular polypropylene.

Furthermore, the dielectric constant and the loss factor are largely independent from temperature and frequency and, in comparison to polyethylene, the polypropylene is more rigid.

#### *Cables with primary insulation in Thermoplastic Rubber (TPE-O)*

Thermoplastic rubber (TPE-O) is used for primary insulation for cables installed in generalized environments such as power supply, signalling, lighting and, in general, for all the electrical equipment of industrial type, combining the performance of vulcanized rubbers such as heat and low deformation resistance and the ease of processing of thermoplastic materials.

This type of cable finds particular use as primary insulation for spiral and extensible cables, particularly in the automation sector where the flexibility is a key requirement.

#### *Cables with primary insulation in thermoplastic elastomer with polyester base (TPE-E)*

Polyester (TPE-E) is used for primary insulation of cables installed in generalized environments such as power supply, signalling, lighting and, in general, all industrial electrical equipment, when it is required good resistance to flex, abrasion, impact, even at very low temperatures, temperature peaks and to chemical and atmospheric agents.

### **b) Secondary coating (sheaths)**

With regard to PVC coating material, TPE-O and TPE-E, it's worth what written for primary isolation.

#### *Cables with polyethylene sheath (PE)*

Polyethylene is used as a secondary cable coating when it is required to lay it outdoors or in wet environments; in fact, this material has excellent resistance to water and salt solutions.

## *Cables with polyurethane sheath (TPE-U)*

Polyurethane is used as a secondary coating for cables when flexibility features are required in a wide range of temperatures, ranging from  $-40^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$ , toughness, resistance to chemicals and oils, hydrolysis resistance (Polyether polyurethanes), resistance to atmospheric agents and microbial (Polyether polyurethane), low coefficient friction (special polyurethane matte and silk surface: matte finish/low gloss compound), elastic memory.

It is used for spiral and extensible cables, in the automation sector, automotive, in electronics cables, for geophysical research, power supply of equipment, tools and industrial machines, signaling and command when it is required good resistance to flex for, abrasion, impact, very low temperatures and chemical and weather agents.

### c) Conductors

The material used is mainly bare copper or tinned copper or aluminium.

Tinned copper is recommended when welding is required in the shortest possible time.

The conductors used may be of the type:

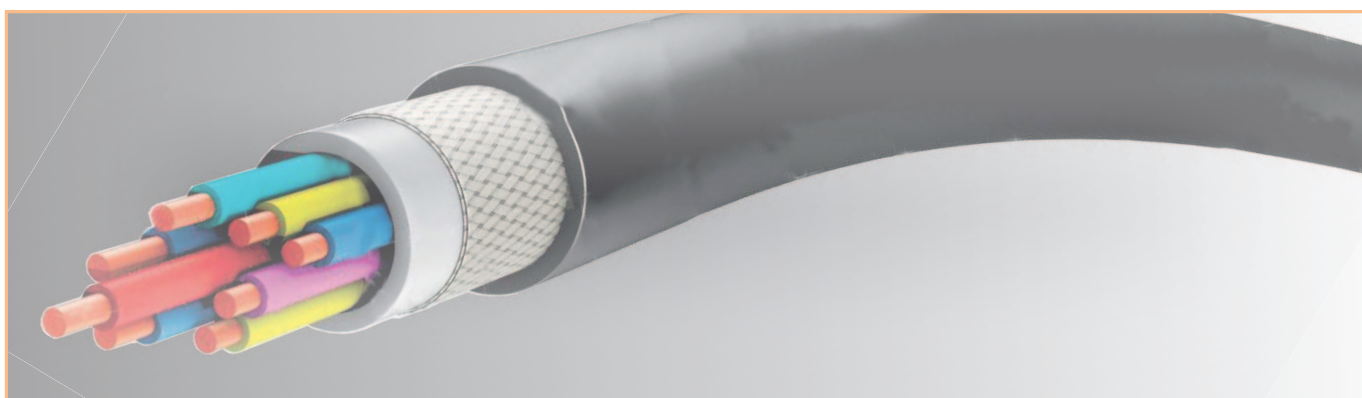
- *solid conductors*
- *bunched stranded conductors*
- *concentric stranded conductors*

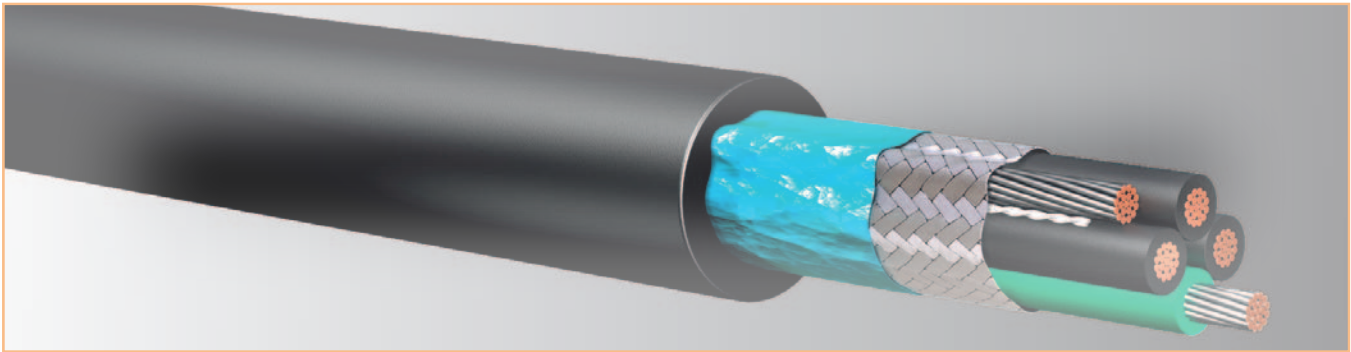
or of different flexibility depending on the application requested.

### d) Armour

Typical types of armour used are:

- *smooth aluminium sheath, or metal braid armour (sock)*
- *lead alloy sheath*
- *non-alloy lead sheath*
- *cylindrical reinforcement wire, normally in steel*
- *steel reinforced reinforcement*
- *steel plate reinforcement*





### e) Shielding

Typical types of shields used are:

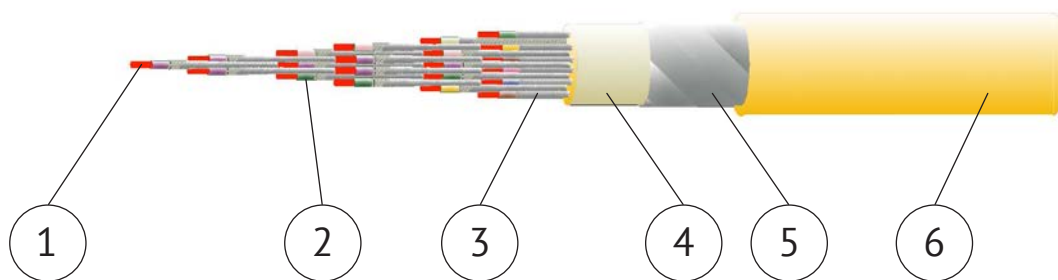
- *metallic paper or charcoal or aluminium tape screen*
- *strip or strip screen or copper wire*
- *braid or copper sleeve*
- *double braid or double copper braid*
- *longitudinal strip of corrugated steel*
- *coated aluminium longitudinal tape screen*

### 3.2 TYPICAL CHARACTERISTICS OF THE MATERIALS USED FOR THE INSULATION OF THE CABLES

| Acronym       | Material                                   | Operating temperature °C | Density (g/cm <sup>3</sup> ) | Halogen content (%) | Dielectric constant (1MHz) | Dielectric strength (kV/mm) |
|---------------|--------------------------------------------|--------------------------|------------------------------|---------------------|----------------------------|-----------------------------|
| PVC           | Polyvinylchloride                          | 15 ÷ 90                  | 1,25 ÷ 1,5                   | 35                  | 4,5                        | > 12                        |
| PVC (spec.)   | Polyvinylchloride                          | -40 ÷ +125               | 1,25 ÷ 1,5                   | 35                  | 4,5                        | > 12                        |
| PE            | Polyethylene                               | -50 ÷ +80                | 0,92 ÷ 0,96                  | 0                   | 2,3                        | > 22                        |
| XLPE          | Crosslinked polyethylene                   | -60 ÷ +120               | 0,91 ÷ 0,92                  | 0                   | 2,3                        | > 22                        |
| PP            | Polypropylene                              | +40 ÷ +105               | 0,9                          | 0                   | 2,3                        | > 22                        |
| TPE-O         | Thermoplastic rubber                       | -40 ÷ +125               | 0,95 ÷ 0,98                  | 0                   | 2,7                        | > 20                        |
| TPE-E         | Thermoplastic elastomer based on polyester | -40 ÷ +105               | 1,20 ÷ 1,25                  | 0                   | -                          | > 10                        |
| TPE-U         | Polyurethane                               | -40 ÷ +90                | 1,12                         | 0                   | -                          | > 10                        |
| TPE-U (spec.) | Polyurethane                               | -40 ÷ +105               | 1,12                         | 0                   | -                          | > 10                        |

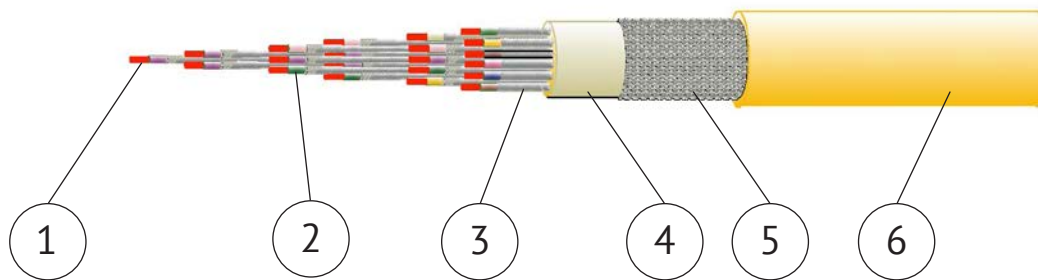
## Some examples of electro-instrument cable

### Instrumentation cables with shielding on individual core and total shielding



|   |              |                                                                  |
|---|--------------|------------------------------------------------------------------|
| 1 | Conductor    | Concentric copper conductor                                      |
| 2 | Insulation   | Synthetic rubber or ethylenepropylene rubber                     |
| 3 | Screen       | Copper braid shield on individual cores                          |
| 4 | Filling      | Non-hydrous material mixture                                     |
| 5 | Shielding    | Shielding tapes, wires or copper strips on the set of wire cores |
| 6 | Outer sheath | Common PVC, synthetic rubber or ethylenepropylene rubber         |

### Instrumentation cables, with shielding on the individual core and outer armour



|   |              |                                                                  |
|---|--------------|------------------------------------------------------------------|
| 1 | Conductor    | Concentric copper conductor                                      |
| 2 | Insulation   | Synthetic rubber or ethylenepropylene rubber                     |
| 3 | Screen       | Copper braid shield on individual cores                          |
| 4 | Filling      | Non-hydrous material mixture                                     |
| 5 | Armour       | Braid armour made of steel wires or steel plates or steel strips |
| 6 | Outer sheath | Common PVC, synthetic rubber or ethylenepropylene rubber         |

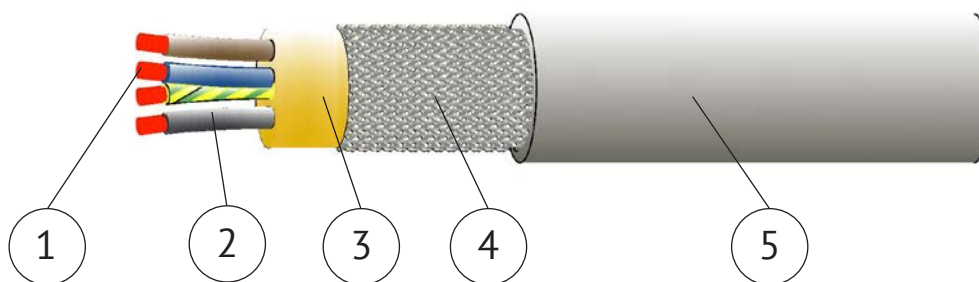


### Common PVC, synthetic rubber or ethylenepropylene rubber



|   |              |                                                          |
|---|--------------|----------------------------------------------------------|
| 1 | Conductor    | Concentric copper conductor                              |
| 2 | Insulation   | Synthetic rubber or ethylenepropylene rubber             |
| 3 | Outer sheath | Common PVC, synthetic rubber or ethylenepropylene rubber |

### Instrumentation cables, with shielding on the individual core and outer armour



|   |              |                                                                  |
|---|--------------|------------------------------------------------------------------|
| 1 | Conductor    | Concentric copper conductor                                      |
| 2 | Insulation   | Synthetic rubber or ethylenepropylene rubber                     |
| 3 | Filling      | Non-hydrous material mixture                                     |
| 4 | Armour       | Braid armour made of steel wires or steel plates or steel strips |
| 5 | Outer sheath | Common PVC, synthetic rubber or ethylenepropylene rubber         |

Due to the wide variety of low and medium voltage cables and the different coding systems at international level, we provide a brief description of the coding criterion below.

Cable designation coding according to Italian standard CEI 20-27.

|                                          |    |                                                                  |                                    |                                                                                  |                                                                                  |
|------------------------------------------|----|------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reference to Standards                   | H  | Cable conforming to harmonized standards                         | Conductor material                 | -                                                                                | Copper                                                                           |
|                                          | A  | Authorized national type cable                                   |                                    | A                                                                                | Aluminium                                                                        |
|                                          | N  | Other type of national cable                                     | Natura del materiale dell'isolante | V                                                                                | Common PVC                                                                       |
| Rated Voltage U <sub>0</sub> /U          | 01 | 100/100V                                                         |                                    | V2                                                                               | PVC for a temperature of 90° C                                                   |
|                                          | 03 | 300/300V                                                         |                                    | R                                                                                | Synthetic rubber for a temperature of 60° C                                      |
|                                          | 05 | 300/500V                                                         |                                    | B                                                                                | Ethylene propylene rubber                                                        |
|                                          | 07 | 450/750V                                                         |                                    | N2                                                                               | Polychloroprene for welding cables                                               |
|                                          | 1  | 0,6/1Kv                                                          |                                    | Z                                                                                | Cross-linked polyolefins with low-emission of toxic and corrosive gas and fumes  |
| Metallic covering (shielding and armour) | C  | Concentric copper conductor                                      | Z1                                 | Thermoplastic polyolefins with low-emission of toxic and corrosive gas and fumes |                                                                                  |
|                                          | C4 | Copper braid shield on the set of cores                          |                                    |                                                                                  |                                                                                  |
|                                          | C5 | Copper braid shield on individual cores                          | Materiale della guaina             | V                                                                                | Common PVC                                                                       |
|                                          | C7 | Trips, plates or copper wires protection on the set of the cores |                                    | V2                                                                               | PVC for a temperature of 90° C                                                   |
|                                          | Z2 | Round steel wire armour                                          |                                    | V5                                                                               | PVC oil-resistant                                                                |
|                                          | Z3 | Steel plates armour                                              |                                    | R                                                                                | Synthetic rubber                                                                 |
|                                          | Z4 | Steel strips armour                                              |                                    | B                                                                                | Ethylene propylene rubber                                                        |
|                                          | Z5 | Steel wire braid armour                                          |                                    | N                                                                                | Polychloroprene                                                                  |
|                                          |    |                                                                  |                                    | N8                                                                               | Water-resistant polychloroprene                                                  |
| Cable shape                              | H2 | Flat cables "not divisible"                                      |                                    | Q                                                                                | Polyurethane                                                                     |
|                                          | H6 | Flat cable with three or more cores                              |                                    | N4                                                                               | Polyethylene chlorosulfonate or chlorinated polyethylene                         |
| Conductor shape                          | H7 | Cables with double layer insulation applied for extrusion        |                                    | Z                                                                                | Cross-linked polyolefins with low-emission of toxic and corrosive gas and fumes  |
|                                          | U  | Rigid single wire                                                |                                    | Z1                                                                               | Thermoplastic polyolefins with low-emission of toxic and corrosive gas and fumes |
|                                          | R  | Rigid with round rope                                            |                                    |                                                                                  |                                                                                  |
|                                          | F  | Flexible for mobile laying                                       |                                    |                                                                                  |                                                                                  |
|                                          | K  | Flexible for fixing laying                                       |                                    |                                                                                  |                                                                                  |
|                                          | D  | Flexible for welding cables                                      |                                    |                                                                                  |                                                                                  |
|                                          | E  | Very flexible for welding cables                                 |                                    |                                                                                  |                                                                                  |

Cable designation coding according to Italian standard UNEL 35011-2000

|                                  |     |                                                                                                                                                    |                                                      |                                                                                                |                                                                                              |
|----------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Nature and quality of insulation | E4  | Crosslinked polyethylene compound having a characteristic temperature of 85°C                                                                      | Degree of flexibility of the conductor               | A                                                                                              | Aluminum conductor                                                                           |
|                                  | G   | Natural and/or synthetic rubber compound having a characteristic temperature of 60°C                                                               |                                                      | F                                                                                              | Flexible rope conductor of round shape                                                       |
|                                  | G4  | Silicone rubber compound having a characteristic temperature of 180°C                                                                              |                                                      | FF                                                                                             | Very flexible rope conductor of round shape                                                  |
|                                  | G7  | High modulus ethylene-propylene rubber compound having a characteristic temperature of 90°C                                                        |                                                      | R                                                                                              | Rigid string-shaped conductor of round shape, normally compact                               |
|                                  | G8  | Ethylene propylene rubber compound suitable also for cables without protective covering having a characteristic temperature of 85°C                |                                                      | U                                                                                              | Single thread conductor, with round shape                                                    |
|                                  | G9  | Smooth, corrosive, flame retardant elastomeric compound, suitable for cables without protective covering with a characteristic temperature of 90°C | Metal covering (shield and armour)                   | E                                                                                              | Thermoplastic polyethylene based mixture                                                     |
|                                  | G10 | Crosslinked elastomeric mixture with low-development of fumes and toxic/corrosive gases having a characteristic temperature of 90°C                |                                                      | A                                                                                              | Smooth aluminum sheath, or metal braid armour (sleeve)                                       |
|                                  | G19 | Crosslinked elastomeric mixture with low-development of fumes and toxic/corrosive gases having a characteristic temperature of 90° C               |                                                      | F                                                                                              | Cylindrical wires armour, normally made of steel                                             |
|                                  | G20 | Crosslinked elastomeric mixture with low-development of fumes and toxic/corrosive gases having a characteristic temperature of 90° C               |                                                      | H5                                                                                             | Coated aluminum longitudinal tape screen                                                     |
|                                  | M9  | Crosslinked elastomeric mixture with low-development of fumes and toxic/corrosive gases having a characteristic temperature of 90° C               |                                                      | L                                                                                              | Coated aluminum longitudinal tape screen                                                     |
|                                  | R   | Polyvinylchloride-based mixture having a temperature of 70° C, T11 and T12 quality                                                                 | Concentric shields and conductors                    | N                                                                                              | Steel reinforcement armour                                                                   |
|                                  | R2  | Polyvinylchloride-based mixture having a temperature of 70° C, R2 quality                                                                          |                                                      | P                                                                                              | Non-alloy lead sheath                                                                        |
|                                  | R4  | Polyamide resin compound                                                                                                                           |                                                      | Z                                                                                              | Steel plate armour                                                                           |
|                                  | R5  | Fluorocarbon resin mixture                                                                                                                         |                                                      | C                                                                                              | Copper concentric conductor                                                                  |
|                                  | R5F | Fluorocarbon-copolymer based resin mixture tetrafluoroethylene-hexafluoropropylene (FEP)                                                           |                                                      | H                                                                                              | Metallic paper or charcoal or aluminum tape protection                                       |
|                                  | R5M | Fluorocarbon-copolymer based resin mixture tetrafluoroethylene-hexafluoropropylene                                                                 | H1                                                   | Protection with ribbons or strips or copper wires                                              |                                                                                              |
|                                  | R5P | Fluorocarbon-copolymer based resin mixture tetrafluoroethylene-hexafluoropropylene                                                                 | H2                                                   | Braid or copper sleeve                                                                         |                                                                                              |
|                                  | R7  | Polyvinylchloride compound having a characteristic temperature of 90° C, T13 quality                                                               | H3                                                   | Double braid or double copper sleeve                                                           |                                                                                              |
|                                  | T4  | One or more strips of molten glass or closed glass braid                                                                                           | H4                                                   | Longitudinal strip of corrugated steel                                                         |                                                                                              |
|                                  | V   | Glass impregnated canvas                                                                                                                           | H5                                                   | Covered aluminum longitudinal tape screen                                                      |                                                                                              |
|                                  | T   | One or more strips of molten glass or closed glass braid                                                                                           | Sheaths (non-metallic covering)                      | E                                                                                              | Ez-quality thermoplastic sheath                                                              |
| Cable shape                      | O   | Cores, possibly with its own covering, combined with or without fillers, to form a round cable                                                     |                                                      | E4                                                                                             | E4M quality cross-linked polyethylene sheath                                                 |
|                                  | D   | Cores, possibly with its own covering, combined with or without fillers, parallel flanked to form a flattened cable                                |                                                      | G                                                                                              | Natural and/or Synthetic Rubber Sheath Gy quality                                            |
|                                  | X   | Cores, possibly with its own covering, combined with or without fillers, combined in a visible helix                                               |                                                      | G6                                                                                             | High quality polyethylene chlorosulfonate base compound G6M                                  |
|                                  | W   | Parallel joined cores, with an intermediate groove                                                                                                 |                                                      | K                                                                                              | Basic sheath of polypropylchloroprene or equivalent quality products Ky, Kn and Kz           |
|                                  | W1  | Parallel joined cores with an intermediate insulating strip                                                                                        |                                                      | R                                                                                              | Basic quality polyvinylchloride sheath Tm1 , Tm2 and Rz                                      |
|                                  |     |                                                                                                                                                    |                                                      | R4                                                                                             | Polyamide resin base sheath                                                                  |
|                                  |     |                                                                                                                                                    |                                                      | M1                                                                                             | Low-temperature thermoplastic sheath with low-development of fumes and toxic/corrosive gases |
|                                  |     |                                                                                                                                                    |                                                      | M2                                                                                             | Elastomeric sheath with low development of fumes, toxic and corrosive gases of quality M2    |
|                                  |     |                                                                                                                                                    |                                                      | M3                                                                                             | Elastomeric sheath with low development of fumes, toxic and corrosive gases of quality M3    |
|                                  |     |                                                                                                                                                    | M4                                                   | Elastomeric sheath with low development of fumes, toxic and corrosive gases of quality M4      |                                                                                              |
|                                  |     | T                                                                                                                                                  | Flexible braid (possibly impregnated) of normal type |                                                                                                |                                                                                              |
|                                  |     | T1                                                                                                                                                 | Glass strip bandage                                  |                                                                                                |                                                                                              |
|                                  |     | T2                                                                                                                                                 | Flexible braid special type (possibly impregnated)   |                                                                                                |                                                                                              |
|                                  |     | Supporting element                                                                                                                                 | S                                                    | Supporting element, generally with metal body, incorporated in the non-metallic sheath         |                                                                                              |
|                                  |     |                                                                                                                                                    | Y                                                    | Supporting element, textile or metallic, included among the cores or bounded outside the cable |                                                                                              |

Cable designation according to the European CEI 20-27 / CENELEC HD361 system

|                                    |    |                                                                                                                       |                                                      |    |                                                                                                                                      |
|------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------|
| Reference to Standards             | H  | Cable conforming to harmonized standards                                                                              | Metallic covering (concentric conductor and screens) | C  | Concentric copper conductor                                                                                                          |
|                                    | A  | Recognized national type cable                                                                                        |                                                      | C4 | Copper protection in the form of braid on the set of cores                                                                           |
|                                    | N  | National type cable non-conforming to IEC Standard                                                                    |                                                      | C5 | Copper braid shield on individual cores                                                                                              |
| Rated Voltage U <sub>0</sub> /U    | 03 | 300/300V                                                                                                              |                                                      | C7 | Strips, plates or copper wires protection                                                                                            |
|                                    | 05 | 300/500V                                                                                                              |                                                      | A7 | Aluminum protection                                                                                                                  |
|                                    | 07 | 450/750V                                                                                                              | Special shapes and constructions                     | Z2 | Steel wires armour                                                                                                                   |
|                                    | 1  | 600/1000V                                                                                                             |                                                      | Z3 | Steel plates armour                                                                                                                  |
| Insulating materials for sheathing | B  | Ethylene propylene rubber for a continuous working temperature of 60° C                                               |                                                      | Z4 | Steel strips armour                                                                                                                  |
|                                    | G  | Ethylene-vinyl acetate                                                                                                |                                                      | Z5 | Steel wire braid                                                                                                                     |
|                                    | J  | Glass fiber trace                                                                                                     | Special shapes and constructions                     | H  | "Divisible" flat cables with or without sheath                                                                                       |
|                                    | M  | Mineral                                                                                                               |                                                      | H2 | Flat cables "not divisible"                                                                                                          |
|                                    | N  | Polychloroprene                                                                                                       |                                                      | H6 | Flat cable with three cores, according to HD 359 or EN 50214                                                                         |
|                                    | N2 | Special polychloroprene compound for cable covering for welders                                                       |                                                      | H7 | Double layer insulating cable applied for extrusion                                                                                  |
|                                    | N4 | Polyethylene chlorosulfonate or polyethylene chlorate                                                                 | Degree of flexibility of the conductor               | H8 | Extensible rope                                                                                                                      |
|                                    | N8 | Special polychloroprene compound water-resistant                                                                      |                                                      | D  | Flexible conductor for use in cables for arc welders, according to HD 22 part 6 (different flexibility of the Class 5 of HD 383)     |
|                                    | Q  | Polyurethane                                                                                                          |                                                      | E  | Flexible conductor for use in cables for arc welders, according to HD 22 part 6 (different flexibility of the Class 5 of HD 383)     |
|                                    | Q4 | Polyamide                                                                                                             |                                                      | F  | Flexible conductor of a flexible cable (flexibility according to Class 5 of HB 383)                                                  |
|                                    | R  | Ordinary ethylenepropylene rubber and synthetic equivalent elastomer for a continuous operating temperature of 0°C.   |                                                      | H  | Very flexible conductor of a flexible cable (flexibility according to Class 6 of HB 383)                                             |
|                                    | S  | Silicon rubber                                                                                                        |                                                      | K  | Flexible conductor of a cable for fixed installations (if not differently specified, flexibility according to the Class 5 of HD 383) |
|                                    | T  | Textile braid, impregnated or not, on the cores as a whole                                                            |                                                      | R  | Sturdy, round, rope conductor                                                                                                        |
|                                    | T6 | Textile braid, impregnated or not, on the single core of a multipolar cable                                           |                                                      | U  | Sturdy, round conductor with one wire                                                                                                |
|                                    | V  | Commonly used polyvinyl chloride (or PVC)                                                                             |                                                      | Y  | Conductor made of similar copper                                                                                                     |
|                                    | V2 | PVC compound for a continuous operating temperature of 90°C                                                           |                                                      |    |                                                                                                                                      |
|                                    | V3 | PVC compound for cables installed at low temperature                                                                  |                                                      |    |                                                                                                                                      |
|                                    | V4 | Cross-linked PVC                                                                                                      |                                                      |    |                                                                                                                                      |
|                                    | V5 | Special PVC compound oil resistant                                                                                    |                                                      |    |                                                                                                                                      |
|                                    | Z  | Crosslinked polyolefinic compound that in case of combustion emits a low amount of fumes, toxic and corrosive gases   |                                                      |    |                                                                                                                                      |
|                                    | Z1 | Thermoplastic polyolefinic compound that in case of combustion emits a low amount of fumes, toxic and corrosive gases |                                                      |    |                                                                                                                                      |

As can be understood from the identification and cable formation tables, which vary in function of the applied regulations, who designs and produces cable glands has a considerable amount of selections to do in order to be able to satisfy the needs of the designer of electro-instrumental equipment and, last but not least, a careful analysis of the dimensioning of the mechanical seals according to the diameters below armour (Inner) and max. external cable diameter (outer).

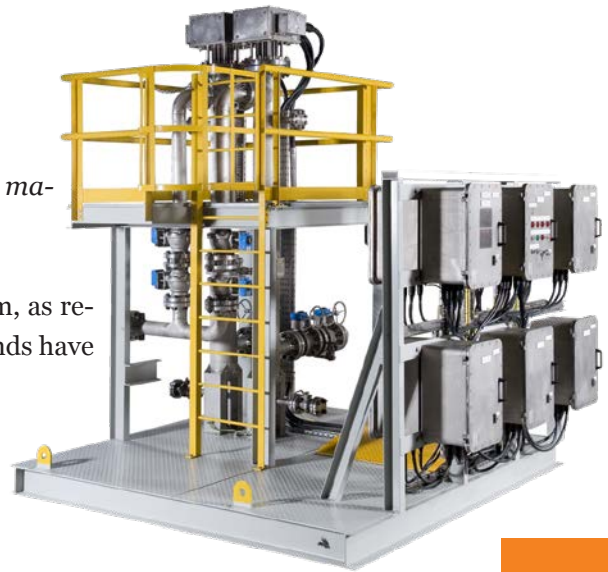
In addition to the above, the plant technician must also pay close attention to the method to be adopted for the design and choice of cable gland, always keeping in mind the requirements of IEC/EN 60079-14 para. 10.6.2 (see Figure 8 in the previous paragraph).



### 3.3 TYPICAL EXAMPLES OF PLANT DESIGN

#### 1. Process skids, with control panels command placed on board the machine

In this case, since the distances of the connections are below the 3m, as required by IEC/EN 60079-14 paragraph 10.6.2. Sub b), the cable glands have to be of the barrier type.



#### 2. Typical plant with motor power supply and local control columns

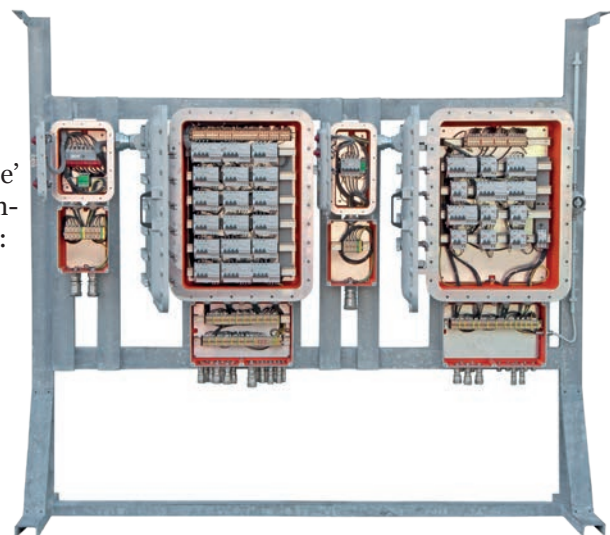


In these cases, the distances of the connections above 3m, as required by IEC/EN 60079-14 paragraph 10.6.2. Sub b), the cable glands must be of the Ex-certified type, simple or double sealing (if the cable is armoured or not armoured), respecting all the conditions of sub b), that is:

- cable glands conforming to IEC/EN 60079-1 and certified as equipment.
- cables with thermoplastic, thermosetting or elastomeric sheath, of compact circular shape, with extruded padding or sleeves and non-hygroscopic material.
- the length of the connected cable is equal to or greater than 3m, making sure that the test are in accordance with the requirements of Annex I (Limited Breathing Ventilation Test) of IEC/EN 60079-14

#### 3. Distribution 'Ex de' panel boards

In these cases, as the way of protection is of "Indirect" entry through 'Ex e' box and sealed passage between 'Ex e' and 'Ex d' junction box, the concept expressed in the standard IEC/EN 60079-14, para 10.6.2 sub. C), is respected: the cable glands can be of the Ex-certified type and with simple or double sealing (if the cable is armoured or not armoured).



4.

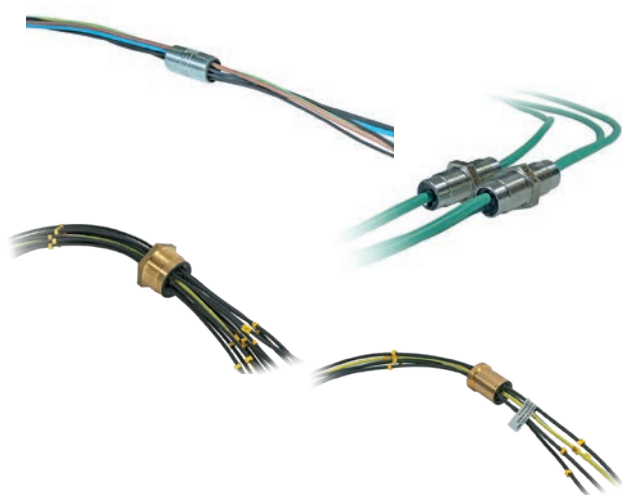
## Electrical fittings, explosion proof and weather proof junction and pulling boxes

Considering the difficulty for designers to forecast the development of a plant since the first phases of its project and until the conclusion of the engineering, there are devices specifically thought to simplify the designer's job.

Elfit offers a wide range of electrical fittings which enables the realization of a complete electrical plant: three pieces unions, adaptors, closing plugs available in different threads and executions, 90° elbows, open elbows, couplings, sealing and pulling fittings, rigid and flexible conduits.



Moreover, Elfit manufactures explosion proof and weather proof junction boxes. The ex-proof junction boxes are available in different models, size and threads and can be used for the pulling or also for the junction of conductors. Weather proof junction boxes in aluminium, stainless steel and polyester can contain electrical and electronic instruments and be installed in any industrial environment.





5.

## Elfit foundry: Aluminium customized die-casting items



**FIG.12 e 13**

The working process of aluminium in Elfit foundry

**E**lfit foundry is able to realize aluminium customized die-casting items using primary and secondary alloys in various fields: electro-mechanical, hydraulic, transports, food, lighting and furniture. The service includes the feasibility study of product, die making with filling simulation package and the production of particular customized solutions.





NAV series cable glands are suitable for use in hazardous areas with danger of explosion to enable direct insertion of non-armoured cables into explosion-proof junction boxes, lighting fixtures, plugs and sockets, etc. Thanks to their structure, they are particularly suitable both in harsh application, such as marine one, and places subjected to stress and mechanical shock as it often happens in all those places of the "heavy" industry where safety is a top priority. They are provided with one sealing ring which tightens the incoming cable ensuring the anti-loosening and the 'Ex d' way of protection and the IP 66/68. The result is a cable gland which provides maximum performance in terms of reliability and safety over time, is compatible with a wide range of the main, commercially available cables, and complies with the most recent applicable regulations.



Interactive Point



[NAV.. assembly instructions video](#)

**Classification:**  
2014/34/EU

Group II

Category 2GD/3G

**Installation:**  
EN 60079-14

zone 1 - zone 2 (Gas)

zone 21 - zone 22 (Dust)

**Marking:**

CE 0722 Ex II 2 GD - Ex db IIC Gb - Ex eb IIC Gb  
II 2 D - Ex tb IIIC Db  
II 3G Ex nR IIC Gc - IP66/68

**Certification:**

ATEX (category 2): IMQ 17 ATEX 016X

ATEX (category 3): IMQ 17 ATEX 017X

IEC Ex IECEx IMQ 17.0010X

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

TR CU AVAILABLE

**Standards:**

CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016, EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015 and EUROPEAN DIRECTIVE 2014/34/EU  
IEC60079-0: 2011 IEC60079-1: 2014 IEC60079-7: 2015  
IEC60079-15: 2015 IEC60079-31: 2013  
RoHS Directive 2002/95/EC

**Operating temperature:**

-60 °C +130 °C

**Protection rating:**

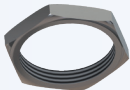
IP66/68 (30 meters - 12 hours)

**Design**

BS 6121: Part 1:1989, IEC 62444, EN 62444

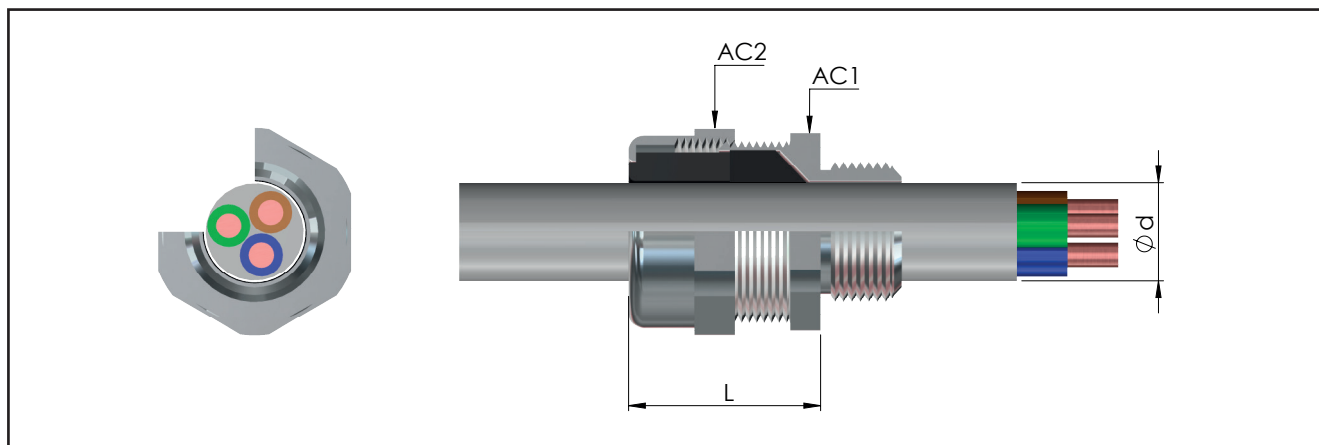
Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### ACCESSORIES UPON REQUEST

|                                                                                     |            |           |                     |                                                                                     |                 |                                                                                       |             |          |                         |
|-------------------------------------------------------------------------------------|------------|-----------|---------------------|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|-------------|----------|-------------------------|
| Locknuts                                                                            | ISO thread |           | Nickel-plated brass | Galvanized steel                                                                    | Stainless steel | Black TPV protector                                                                   | Cableglands |          | Code                    |
|  | M16x1,5    |           | DL01IB              | DL01IG                                                                              | DL01IS          |  | NAV01NB     | NAV16IB  | PGA1F                   |
|                                                                                     | M20x1,5    |           | DL1IB               | DL1IG                                                                               | DL1IS           |                                                                                       | NAV1SNB     | NAV20SIB | PGA1N                   |
|                                                                                     | M25x1,5    |           | DL2IB               | DL2IG                                                                               | DL2IS           |                                                                                       | NAV1NB      | NAV20IB  | PGA1                    |
|                                                                                     | M32x1,5    |           | DL3IB               | DL3IG                                                                               | DL3IS           |                                                                                       | NAV2NB      | NAV25IB  | PGA2N                   |
|                                                                                     | M40x1,5    |           | DL4IB               | DL4IG                                                                               | DL4IS           |                                                                                       | NAV3NB      | NAV32IB  | PGA4                    |
|                                                                                     | M50x1,5    |           | DL5IB               | DL5IG                                                                               | DL5IS           |                                                                                       | NAV4NB      | NAV40IB  | PGA4                    |
|                                                                                     | M63x1,5    |           | DL6IB               | DL6IG                                                                               | DL6IS           |                                                                                       | NAV5SNB     | NAV50SIB | PGA5                    |
|                                                                                     | M75x1,5    |           | DL7IB               | DL7IG                                                                               | DL7IS           |                                                                                       | NAV5NB      | NAV50IB  | PGA5N                   |
|                                                                                     | M90x1,5    |           | DL8IB               | DL8IG                                                                               | DL8IS           |                                                                                       | NAV6SNB     | NAV63SIB | PGA6                    |
| M100x1,5                                                                            |            | DL10IB    | DL10IG              | DL10IS                                                                              | NAV6NB          |                                                                                       | NAV63IB     | PGA6     |                         |
| M115x1,5                                                                            |            | DL115IB   | DL115IG             | DL115IS                                                                             | NAV7SNB         | NAV75SIB                                                                              | PGA7        |          |                         |
|  | M16x1,5    | A0131B    | A0131S              |  | RD101IS/A4      |   | NAV7NB      | NAV75IB  | GTR7<br>Heat shrinkable |
|                                                                                     | M20x1,5    | A1311IB   | A1311IS             |                                                                                     | RD11IS/A4       |                                                                                       | NAV8NB      | NAV90IB  |                         |
|                                                                                     | M25x1,5    | A2312IB   | A2312IS             |                                                                                     | RD12IS/A4       |                                                                                       | NAV9NB      | NAV100IB |                         |
|                                                                                     | M32x1,5    | A3313IB   | A3313IS             |                                                                                     | RD13IS/A4       |                                                                                       | NAV10NB     | NAV115IB |                         |
|                                                                                     | M40x1,5    | A4314IB   | A4314IS             |                                                                                     | RD14IS/A4       |                                                                                       |             |          |                         |
|                                                                                     | M50x1,5    | A5315IB   | A5315IS             |                                                                                     | RD15IS/A4       |                                                                                       |             |          |                         |
|                                                                                     | M63x1,5    | A6316IB   | A6316IS             |                                                                                     | RD16IS/A4       |                                                                                       |             |          |                         |
|                                                                                     | M75x1,5    | A731B     | A731S               |                                                                                     |                 |                                                                                       |             |          |                         |
|                                                                                     | M90x1,5    | A831B     | A831S               |                                                                                     |                 |                                                                                       |             |          |                         |
|                                                                                     | M100x1,5   | A103110IB | A103110IS           |                                                                                     |                 |                                                                                       |             |          |                         |
|                                                                                     | M115x1.5   | A1031B    | A1031S              |                                                                                     |                 |                                                                                       |             |          |                         |

\* For different threads, contact the sales department.

\* For different threads, contact the sales department.



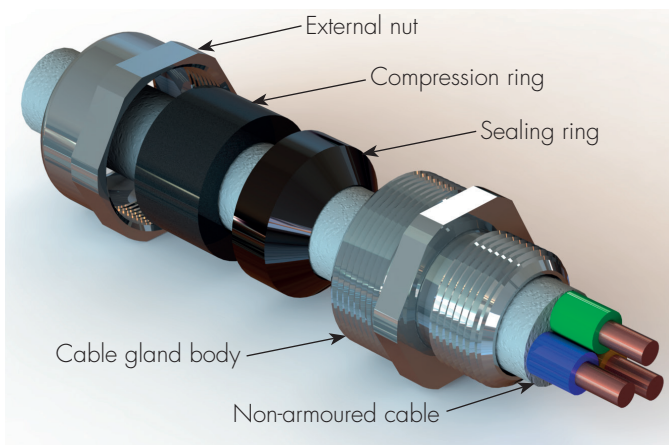
**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |    | Range<br>Ød min-max<br>Outer sheath of the cable | Weight<br>Kg |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|----|--------------------------------------------------|--------------|
|                                |            |                                |          | AC1              | AC2 | L  |                                                  |              |
| NAV01NB                        | 3/8" NPT   | NAV16IB                        | M16x1,5  | 24               | 24  | 34 | 3.5 - 8.6                                        | 0,086        |
| NAV1SNB                        | 1/2" NPT   | NAV20SIB                       | M20x1,5  | 24               | 26  | 34 | 6.3 - 11.6                                       | 0,093        |
| NAV1NB                         | 1/2" NPT   | NAV20IB                        | M20x1,5  | 30               | 32  | 37 | 6.5 - 14                                         | 0,126        |
| NAV2NB                         | 3/4" NPT   | NAV25IB                        | M25x1,5  | 36               | 38  | 37 | 11 - 20                                          | 0,153        |
| NAV3NB                         | 1" NPT     | NAV32IB                        | M32x1,5  | 45               | 47  | 40 | 17 - 27                                          | 0,232        |
| NAV4NB                         | 1 1/4" NPT | NAV40IB                        | M40x1,5  | 50               | 52  | 40 | 22 - 32                                          | 0,295        |
| NAV5SNB                        | 1 1/2" NPT | NAV50SIB                       | M50x1,5  | 55               | 57  | 43 | 29.5 - 38                                        | 0,374        |
| NAV5NB                         | 2" NPT     | NAV50IB                        | M50x1,5  | 62/60*           | 62  | 43 | 35.5 - 44                                        | 0,329        |
| NAV6SNB                        | 2" NPT     | NAV63SIB                       | M63x1,5  | 68               | 77  | 51 | 40 - 50                                          | 0,753        |
| NAV6NB                         | 2 1/2" NPT | NAV63IB                        | M63x1,5  | 75/73*           | 77  | 52 | 47 - 56                                          | 0,732        |
| NAV7SNB                        | 2 1/2" NPT | NAV75SIB                       | M75x1,5  | 80               | 82  | 55 | 53 - 62                                          | 0,714        |
| NAV7NB                         | 3" NPT     | NAV75IB                        | M75x1,5  | 90/85*           | 90  | 56 | 59 - 68                                          | 0,627        |
| NAV8NB                         | 3" NPT     | NAV90IB                        | M90x1,5  | 100              | 110 | 59 | 66 - 79                                          | 1,384        |
| NAV9NB                         | 3 1/2" NPT | NAV100IB                       | M100x1,5 | 115              | 120 | 62 | 76 - 91                                          | 1,316        |
| NAV10NB                        | 4" NPT     | NAV115IB                       | M115x1,5 | 120              | 130 | 62 | 86 - 98                                          | 1,937        |

\* Dimensions with threaded: NPT / ISO

### Sample order code

|            |          |          |          |
|------------|----------|----------|----------|
| <b>NAV</b> | <b>6</b> | <b>N</b> | <b>B</b> |
| MODEL      | SIZE     | THREAD   | MATERIAL |



### TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland
- The ISO7/1 thread version is available upon request (sample code NAV1B)
- Also available in stainless steel AISI 316 (sample code NAV1S)
- Other materials on request
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NAV1IA)

NAVF series cable glands, with a female threaded outlet fitting, are suitable for use in areas with the risk of explosion, allowing the direct insertion of non-armoured cables in explosion proof enclosures, light fixtures, outlets, plugs, etc. Their structure makes them suitable for environments which are particularly difficult, such as marine environments, or where there are subjected to the mechanical stresses and impacts which often occur in heavy industry, where safety is the utmost priority. They are supplied with a sealing ring which is stretched over the cable at the inlet ensuring the anti-loosening, the 'Ex d' execution and an IP66/68 protection rating. The result is a cable gland which provides maximum performance, long-term reliability and safety, is compatible with a wide range of the main, commercially available cables, and complies with the most recent applicable regulations.


**Classification:**  
 2014/34/EU

**Group II**
**Category 2GD/3G**
**Installation:**  
 EN 60079-14

**zone 1 - zone 2 (Gas)**
**zone 21 - zone 22 (Dust)**
**Marking:**
**CE 0722 Ex** II 2 GD - Ex db IIC Gb - Ex eb IIC Gb  
 II 2 D - Ex tb IIC Db  
 II 3G Ex nR IIC Gc - IP66/68

**Certification:**
**ATEX (category 2):** IMQ 17 ATEX 016X

**ATEX (category 3):** IMQ 17 ATEX 017X

**IEC Ex** IECEx IMQ 17.0010X

 All IEC Ex and TR CU  
 certification data can be  
 downloaded at  
[www.cortemgroup.com](http://www.cortemgroup.com)
**TR CU** AVAILABLE

**Standards:**

 CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016, EN  
 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015 and  
 EUROPEAN DIRECTIVE 2014/34/EU  
 IEC60079-0: 2011 IEC60079-1: 2014 IEC60079-7: 2015  
 IEC60079-15: 2015 IEC60079-31: 2013  
 RoHS Directive 2002/95/EC

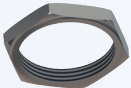
**Operating temperature:**
**-60 °C +130 °C**
**Protection rating:**
**IP66/68 (30 meters - 12 hours)**
**Design**
**BS 6121: Part 1:1989, IEC 62444, EN 62444**

 Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

Interactive Point


[NAVF.. assembly instructions video](#)

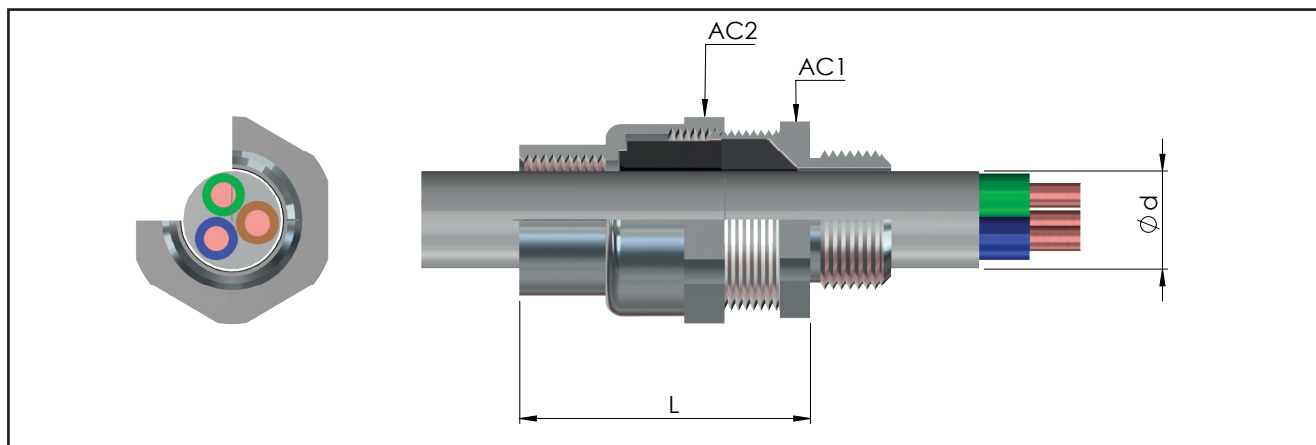
### ACCESSORIES UPON REQUEST

| Locknuts                                                                            |         | ISO thread | Nickel-plated brass | Galvanized steel                                | Stainless steel                                                                       | Sealing ring for flat/healing cables |
|-------------------------------------------------------------------------------------|---------|------------|---------------------|-------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------|
|  | M16x1,5 | DL01IB     | DL01IG              | DL01IS                                          |  |                                      |
|                                                                                     | M20x1,5 | DL1IB      | DL1IG               | DL1IS                                           |                                                                                       |                                      |
|                                                                                     | M25x1,5 | DL2IB      | DL2IG               | DL2IS                                           |                                                                                       |                                      |
|                                                                                     | M32x1,5 | DL3IB      | DL3IG               | DL3IS                                           |                                                                                       |                                      |
|                                                                                     | M40x1,5 | DL4IB      | DL4IG               | DL4IS                                           |                                                                                       |                                      |
|                                                                                     | M50x1,5 | DL5IB      | DL5IG               | DL5IS                                           |                                                                                       |                                      |
|                                                                                     | M63x1,5 | DL6IB      | DL6IG               | DL6IS                                           |                                                                                       |                                      |
|                                                                                     | M75x1,5 | DL7IB      | DL7IG               | DL7IS                                           |                                                                                       |                                      |
|                                                                                     | M90x1,5 | DL8IB      | DL8IG               | DL8IS                                           |                                                                                       |                                      |
| M100x1,5                                                                            | DL10IB  | DL10IG     | DL10IS              | Code and dimensions are in the page pagina A.12 |                                                                                       |                                      |
| M115x1,5                                                                            | DL115IB | DL115IG    | DL115IS             |                                                 |                                                                                       |                                      |

| Nickel-plated brass earthing rings                                                  | ISO thread | Nickel-plated brass | Stainless steel | Serrated stainless steel lock washers                                               | Code       | Adapters and reducers of the RE... series                                             |
|-------------------------------------------------------------------------------------|------------|---------------------|-----------------|-------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------|
|  | M16x1,5    | A0131B              | A0131S          |  | RD101IS/A4 |  |
|                                                                                     | M20x1,5    | A1311IB             | A1311IS         |                                                                                     | RD11IS/A4  |                                                                                       |
|                                                                                     | M25x1,5    | A2312IB             | A2312IS         |                                                                                     | RD12IS/A4  |                                                                                       |
|                                                                                     | M32x1,5    | A3313IB             | A3313IS         |                                                                                     | RD13IS/A4  |                                                                                       |
|                                                                                     | M40x1,5    | A4314IB             | A4314IS         |                                                                                     | RD14IS/A4  |                                                                                       |
|                                                                                     | M50x1,5    | A5315IB             | A5315IS         |                                                                                     | RD15IS/A4  |                                                                                       |
|                                                                                     | M63x1,5    | A6316IB             | A6316IS         |                                                                                     | RD16IS/A4  |                                                                                       |
|                                                                                     | M75x1,5    | A731B               | A731S           |                                                                                     |            |                                                                                       |
|                                                                                     | M90x1,5    | A831B               | A831S           |                                                                                     |            |                                                                                       |
|                                                                                     | M100x1,5   | A103110IB           | A103110IS       |                                                                                     |            |                                                                                       |
| M115x1,5                                                                            | A1031B     | A1031S              |                 |                                                                                     |            |                                                                                       |

\* For different threads, contact the sales department.

\* For different threads,  
 contact the sales  
 department.



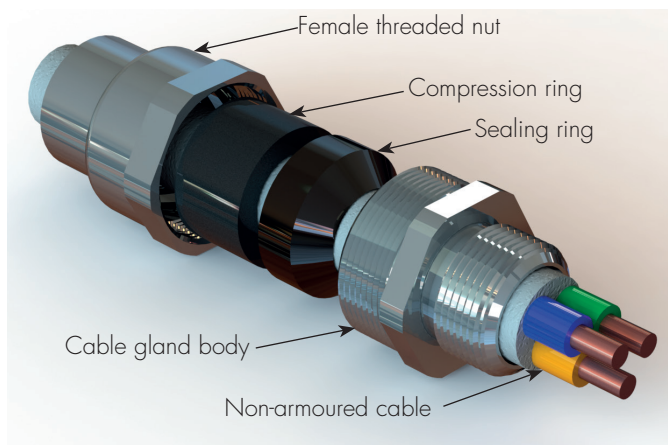
**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |    | Range<br>Ød min-max<br>Outer sheath of the cable | Weight<br>Kg |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|----|--------------------------------------------------|--------------|
|                                |            |                                |          | AC1              | AC2 | L  |                                                  |              |
| NAVF01NB                       | 3/8" NPT   | NAVF16IB                       | M16x1,5  | 24               | 24  | 53 | 3.5 - 8.6                                        | 0,107        |
| NAVF1SNB                       | 1/2" NPT   | NAVF20SIB                      | M20x1,5  | 24               | 26  | 53 | 6.3 - 11.6                                       | 0,120        |
| NAVF1NB                        | 1/2" NPT   | NAVF20IB                       | M20x1,5  | 30               | 32  | 56 | 6.5 - 14                                         | 0,155        |
| NAVF2NB                        | 3/4" NPT   | NAVF25IB                       | M25x1,5  | 36               | 38  | 56 | 11 - 20                                          | 0,212        |
| NAVF3NB                        | 1" NPT     | NAVF32IB                       | M32x1,5  | 45               | 47  | 59 | 17 - 27                                          | 0,276        |
| NAVF4NB                        | 1 1/4" NPT | NAVF40IB                       | M40x1,5  | 50               | 52  | 59 | 22 - 32                                          | 0,365        |
| NAVF5SNB                       | 1 1/2" NPT | NAVF50SIB                      | M50x1,5  | 55               | 57  | 63 | 29.5 - 38                                        | 0,482        |
| NAVF5NB                        | 2" NPT     | NAVF50IB                       | M50x1,5  | 62/60*           | 62  | 63 | 35.5 - 44                                        | 0,428        |
| NAVF6SNB                       | 2" NPT     | NAVF63SIB                      | M63x1,5  | 68               | 77  | 74 | 40 - 50                                          | 0,981        |
| NAVF6NB                        | 2 1/2" NPT | NAVF63IB                       | M63x1,5  | 75/73*           | 77  | 75 | 47 - 56                                          | 0,741        |
| NAVF7SNB                       | 2 1/2" NPT | NAVF75SIB                      | M75x1,5  | 80               | 82  | 77 | 53 - 62                                          | 0,835        |
| NAVF7NB                        | 3" NPT     | NAVF75IB                       | M75x1,5  | 90/85*           | 90  | 78 | 59 - 68                                          | 0,934        |
| NAVF8NB                        | 3" NPT     | NAVF90IB                       | M90x1,5  | 100              | 110 | 88 | 66 - 79                                          | 1,883        |
| NAVF9NB                        | 3 1/2" NPT | NAVF100IB                      | M100x1,5 | 115              | 120 | 92 | 76 - 91                                          | 1,993        |
| NAVF10NB                       | 4" NPT     | NAVF115IB                      | M115x1,5 | 120              | 130 | 92 | 86 - 98                                          | 2,332        |

\* Dimensions with threaded: NPT / ISO

### Sample order code

|             |          |          |          |
|-------------|----------|----------|----------|
| <b>NAVF</b> | <b>6</b> | <b>N</b> | <b>B</b> |
| MODEL       | SIZE     | THREAD   | MATERIAL |



### TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland
- The ISO7/1 thread version is available upon request (sample code NAVF1B)
- Also available in stainless steel AISI 316 (sample code NAVF1S)
- Other materials on request
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NAVF1IA)



NAVN series cable glands, with a male outlet fitting, are suitable for use in areas with the risk of explosion, allowing the direct insertion of non-armoured cables in explosion proof enclosures, light fixtures, outlets, plugs, etc. Their structure makes them suitable for environments which are particularly difficult, such as marine environments, or where there are subjected to the mechanical stresses and impacts which often occur in heavy industry, where safety is the utmost priority. They are supplied with a sealing ring which is stretched over the cable at the inlet, ensuring the anti-loosening, 'Ex d' execution and an IP66/68 protection rating. The result is a cable gland which provides maximum performance, long-term reliability and safety, is compatible with a wide range of the main, commercially available cables, and complies with the most recent applicable regulations.



Interactive Point


[NAV assembly instructions video](#)
**Classification:**  
 2014/34/EU

Group II

Category 2GD/3G

**Installation:**  
 EN 60079-14

zone 1 - zone 2 (Gas)

zone 21 - zone 22 (Dust)

**Marking:**

 CE 0722 Ex II 2 GD - Ex db IIC Gb - Ex eb IIC Gb  
 II 2 D - Ex tb IIC Db  
 II 3G Ex nR IIC Gc - IP66/68

**Certification:**

ATEX (category 2): IMQ 17 ATEX 016X

ATEX (category 3): IMQ 17 ATEX 017X

IEC Ex IECEx IMQ 17.0010X

 All IEC Ex and TR CU  
 certification data can be  
 downloaded at  
[www.cortemgroup.com](http://www.cortemgroup.com)

TR CU AVAILABLE

**Standards:**

 CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016, EN  
 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015 and  
 EUROPEAN DIRECTIVE 2014/34/EU  
 IEC60079-0: 2011 IEC60079-1: 2014 IEC60079-7: 2015  
 IEC60079-15: 2015 IEC60079-31: 2013  
 RoHS Directive 2002/95/EC

**Operating temperature:**

-60 °C +130 °C

**Protection rating:**

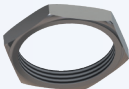
IP66/68 (30 meters - 12 hours)

**Design**

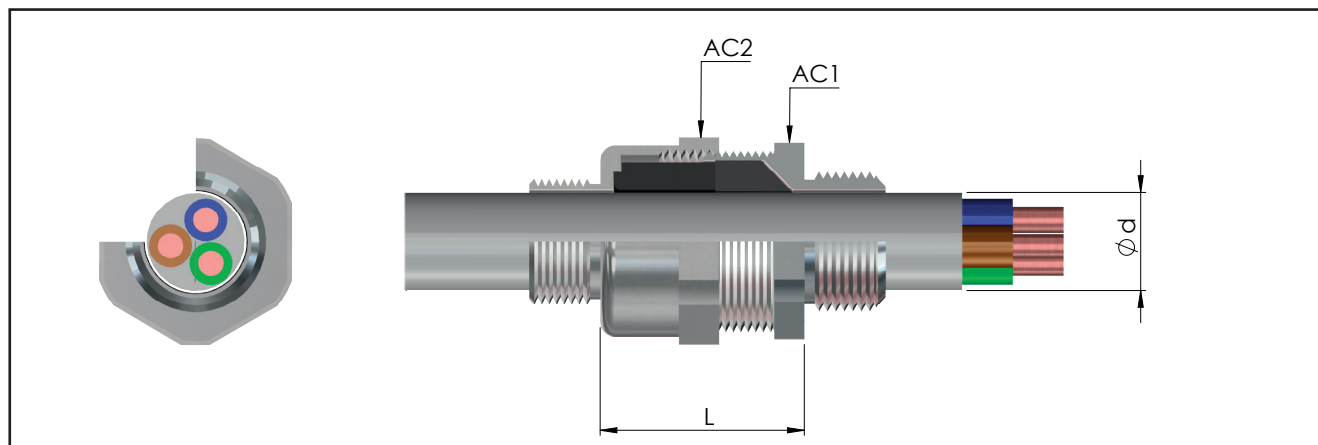
BS 6121: Part 1:1989, IEC 62444, EN 62444

 Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

### ACCESSORIES UPON REQUEST

| Accessories of CR-REOL                                                              |            |                     |                  |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|------------|---------------------|------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Locknuts                                                                            | ISO thread | Nickel-plated brass | Galvanized steel | Stainless steel                                                                     | Sealing ring for flat/healing cables                                                  |                                                                                       |
|  | M16x1,5    | DL01IB              | DL01IG           | DL01IS                                                                              |  |                                                                                       |
|                                                                                     | M20x1,5    | DL11IB              | DL11IG           | DL11IS                                                                              |                                                                                       |                                                                                       |
|                                                                                     | M25x1,5    | DL21IB              | DL21IG           | DL21IS                                                                              |                                                                                       |                                                                                       |
|                                                                                     | M32x1,5    | DL31IB              | DL31IG           | DL31IS                                                                              |                                                                                       |                                                                                       |
|                                                                                     | M40x1,5    | DL41IB              | DL41IG           | DL41IS                                                                              |                                                                                       |                                                                                       |
|                                                                                     | M50x1,5    | DL51IB              | DL51IG           | DL51IS                                                                              |                                                                                       |                                                                                       |
|                                                                                     | M63x1,5    | DL61IB              | DL61IG           | DL61IS                                                                              |                                                                                       |                                                                                       |
|                                                                                     | M75x1,5    | DL71IB              | DL71IG           | DL71IS                                                                              |                                                                                       |                                                                                       |
|                                                                                     | M90x1,5    | DL81IB              | DL81IG           | DL81IS                                                                              | Code and dimensions are in the page pagina A.12                                       |                                                                                       |
| M100x1,5                                                                            | DL101IB    | DL101IG             | DL101IS          |                                                                                     |                                                                                       |                                                                                       |
| M115x1,5                                                                            | DL115IB    | DL115IG             | DL115IS          |                                                                                     |                                                                                       |                                                                                       |
| Nickel-plated brass earthing rings                                                  | ISO thread | Nickel-plated brass | Stainless steel  | Serrated stainless steel lock washers                                               | Code                                                                                  | Adapters and reducers of the RE... series                                             |
|  | M16x1,5    | A0131B              | A0131S           |  | RD101IS/A4                                                                            |  |
|                                                                                     | M20x1,5    | A1311IB             | A1311IS          |                                                                                     | RD11IS/A4                                                                             |                                                                                       |
|                                                                                     | M25x1,5    | A2312IB             | A2312IS          |                                                                                     | RD12IS/A4                                                                             |                                                                                       |
|                                                                                     | M32x1,5    | A3313IB             | A3313IS          |                                                                                     | RD13IS/A4                                                                             |                                                                                       |
|                                                                                     | M40x1,5    | A4314IB             | A4314IS          |                                                                                     | RD14IS/A4                                                                             |                                                                                       |
|                                                                                     | M50x1,5    | A5315IB             | A5315IS          |                                                                                     | RD15IS/A4                                                                             |                                                                                       |
|                                                                                     | M63x1,5    | A6316IB             | A6316IS          |                                                                                     | RD16IS/A4                                                                             |                                                                                       |
|                                                                                     | M75x1,5    | A731B               | A731S            |                                                                                     |                                                                                       |                                                                                       |
|                                                                                     | M90x1,5    | A831B               | A831S            |                                                                                     |                                                                                       |                                                                                       |
|                                                                                     | M100x1,5   | A103110IB           | A103110IS        |                                                                                     |                                                                                       |                                                                                       |
| M115x1,5                                                                            | A1031B     | A1031S              |                  |                                                                                     |                                                                                       |                                                                                       |
| * <u>For different threads, contact the sales department.</u>                       |            |                     |                  |                                                                                     |                                                                                       |                                                                                       |

\* For different threads,  
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 department.



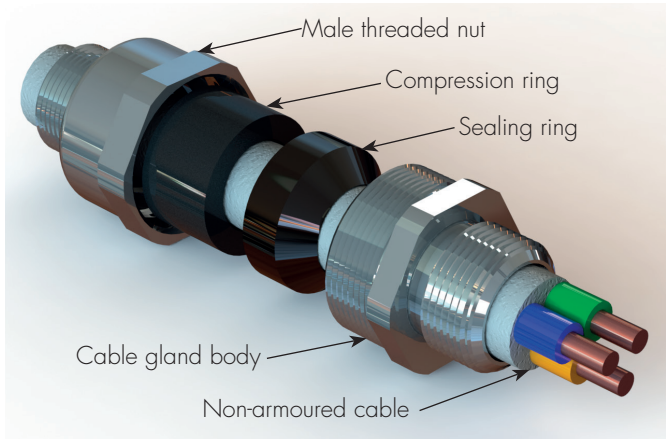
**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread   | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |    | Range                                   | Weight |
|--------------------------------|----------|--------------------------------|----------|------------------|-----|----|-----------------------------------------|--------|
|                                |          |                                |          | AC1              | AC2 | L  | Ød min-max<br>Outer sheath of the cable | Kg     |
| NAVN01NB                       | 3/8" NPT | NAVN16IB                       | M16x1,5  | 24               | 24  | 53 | 3.5 - 8.6                               | 0,105  |
| NAVN1SNB                       | 1/2" NPT | NAVN20SIB                      | M20x1,5  | 24               | 26  | 53 | 6.3 - 11.6                              | 0,122  |
| NAVN1NB                        | 1/2" NPT | NAVN20IB                       | M20x1,5  | 30               | 32  | 56 | 6.5 - 14                                | 0,150  |
| NAVN2NB                        | 3/4" NPT | NAVN25IB                       | M25x1,5  | 36               | 38  | 56 | 11 - 20                                 | 0,192  |
| NAVN3NB                        | 1" NPT   | NAVN32IB                       | M32x1,5  | 45               | 47  | 59 | 17 - 27                                 | 0,264  |
| NAVN4NB                        | 1 ¼" NPT | NAVN40IB                       | M40x1,5  | 50               | 52  | 59 | 22 - 32                                 | 0,360  |
| NAVN5SNB                       | 1 ½" NPT | NAVN50SIB                      | M50x1,5  | 55               | 57  | 63 | 29.5 - 38                               | 0,486  |
| NAVN5NB                        | 2" NPT   | NAVN50IB                       | M50x1,5  | 62/60*           | 62  | 63 | 35.5 - 44                               | 0,392  |
| NAVN6SNB                       | 2" NPT   | NAVN63SIB                      | M63x1,5  | 68               | 77  | 74 | 40 - 50                                 | 1,034  |
| NAVN6NB                        | 2 ½" NPT | NAVN63IB                       | M63x1,5  | 75/73*           | 77  | 75 | 47 - 56                                 | 0,715  |
| NAVN7SNB                       | 2 ½" NPT | NAVN75SIB                      | M75x1,5  | 80               | 82  | 77 | 53 - 62                                 | 0,984  |
| NAVN7NB                        | 3" NPT   | NAVN75IB                       | M75x1,5  | 90/85*           | 90  | 78 | 59 - 68                                 | 0,948  |
| NAVN8NB                        | 3" NPT   | NAVN90IB                       | M90x1,5  | 100              | 110 | 88 | 66 - 79                                 | 1,804  |
| NAVN9NB                        | 3 ½" NPT | NAVN100IB                      | M100x1,5 | 115              | 120 | 92 | 76 - 91                                 | 1,858  |
| NAVN10NB                       | 4" NPT   | NAVN115IB                      | M115x1,5 | 120              | 130 | 92 | 86 - 98                                 | 2,779  |

\* Dimensions with threaded: NPT / ISO

### Sample order code

|             |          |          |          |
|-------------|----------|----------|----------|
| <b>NAVN</b> | <b>6</b> | <b>N</b> | <b>B</b> |
| MODEL       | SIZE     | THREAD   | MATERIAL |



### TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland
- The ISO7/1 thread version is available upon request (sample code NAVN1B)
- Also available in stainless steel AISI 316 (sample code NAVN1S)
- Other materials on request
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NAVN1IA)

NEV series cable glands are suitable for use in areas with the risk of explosion, allowing the direct insertion of armoured cables in explosion proof enclosures. They are supplied with a sealing ring which is stretched over the cable at the inlet ensuring the anti-loosening, 'Ex d' execution, and a second compression ring which is stretched over the cable armour at the outlet to guarantee an IP 66/68 protection rating. The result is a cable gland which provides maximum performance in terms of reliability and safety over time, is compatible with a wide range of the main, commercially available cables, and complies with the most recent applicable regulations. Their structure makes them suitable for environments which are particularly difficult, such as marine environments, or where there are subjected to the mechanical stresses and impacts which often occur in heavy industry, where safety is the utmost priority.



|                                                                                                                                          |                                                                                                                                                                                                                                                                      |                                 |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/EU                                                                                                     | <b>Group II</b>                                                                                                                                                                                                                                                      | <b>Category 2GD/3G</b>          |
| <b>Installation:</b><br>EN 60079-14                                                                                                      | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                                                         | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                                                                                                                          | <b>CE 0722 Ex</b> II 2 GD - Ex db IIC Gb - Ex eb IIC Gb<br>II 2 D - Ex tb IIC Db<br>II 3G Ex nR IIC Gc - IP66/68                                                                                                                                                     |                                 |
| <b>Certification:</b>                                                                                                                    | <b>ATEX (category 2):</b> IMQ 17 ATEX 016X                                                                                                                                                                                                                           |                                 |
|                                                                                                                                          | <b>ATEX (category 3):</b> IMQ 17 ATEX 017X                                                                                                                                                                                                                           |                                 |
|                                                                                                                                          | <b>IEC Ex</b>                                                                                                                                                                                                                                                        | <b>IECEx IMQ 17.0010X</b>       |
|                                                                                                                                          | <b>TR CU</b>                                                                                                                                                                                                                                                         | <b>AVAILABLE</b>                |
| <small>All IEC Ex and TR CU certification data can be downloaded at <a href="http://www.cortemgroup.com">www.cortemgroup.com</a></small> |                                                                                                                                                                                                                                                                      |                                 |
| <b>Standards:</b>                                                                                                                        | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016, EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015 and EUROPEAN DIRECTIVE 2014/34/EU<br>IEC60079-0: 2011 IEC60079-1: 2014 IEC60079-7: 2015 IEC60079-15: 2015 IEC60079-31: 2013<br>RoHS Directive 2002/95/EC |                                 |
| <b>Operating temperature:</b>                                                                                                            | <b>-60 °C +130 °C</b>                                                                                                                                                                                                                                                |                                 |
| <b>Protection rating:</b>                                                                                                                | <b>IP66/68 (30 meters - 12 hours)</b>                                                                                                                                                                                                                                |                                 |
| <b>Design</b>                                                                                                                            | <b>BS 6121: Part 1:1989, IEC 62444, EN 62444</b>                                                                                                                                                                                                                     |                                 |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

Interactive Point

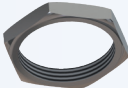


See Video with assembly instructions for NEV.. (light armoured)



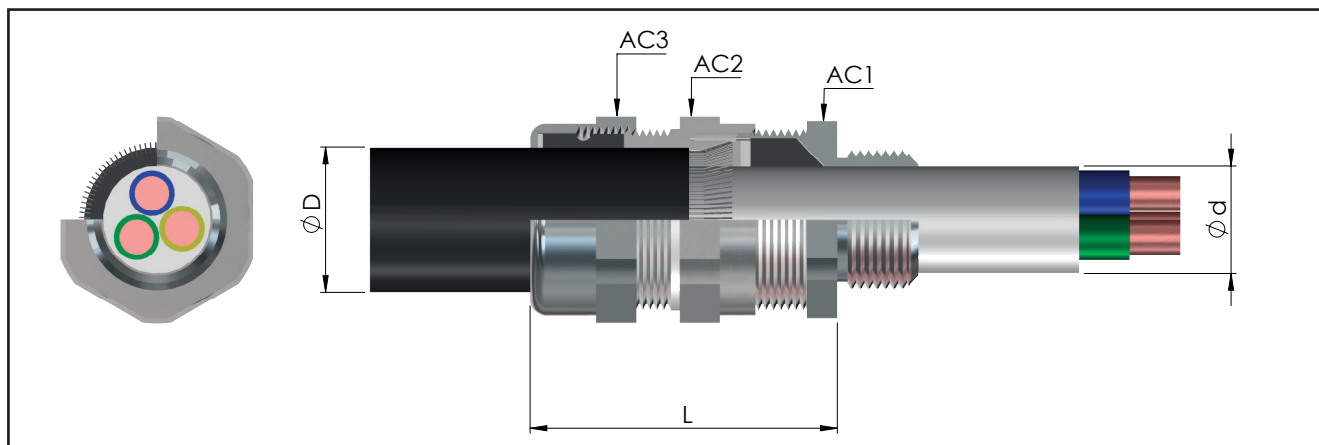
See Video with assembly instructions for NEV.. (heavy armoured)

ACCESSORIES UPON REQUEST

| Locknuts                                                                            | ISO thread | Nickel-plated brass | Galvanized steel | Stainless steel                                                                     | Sealing ring for flat/healing cables                                                 | Black TPV protector                                                                   | Cableglands                                                                          | Code     |          |
|-------------------------------------------------------------------------------------|------------|---------------------|------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------|----------|
|  | M16x1,5    | DL01IB              | DL01IG           | DL01IS                                                                              |  |  | NEV01NB                                                                              | NEV16IB  | PGA1F    |
|                                                                                     | M20x1,5    | DL11IB              | DL11IG           | DL11IS                                                                              |                                                                                      |                                                                                       | NEV1SNB                                                                              | NEV20SIB | PGA1N    |
|                                                                                     | M25x1,5    | DL21IB              | DL21IG           | DL21IS                                                                              |                                                                                      |                                                                                       | NEV1NB                                                                               | NEV20IB  | PGA1     |
|                                                                                     | M32x1,5    | DL31IB              | DL31IG           | DL31IS                                                                              |                                                                                      |                                                                                       | NEV2NB                                                                               | NEV25IB  | PGA2N    |
|                                                                                     | M40x1,5    | DL41IB              | DL41IG           | DL41IS                                                                              |                                                                                      |                                                                                       | NEV3NB                                                                               | NEV32IB  | PGA4     |
|                                                                                     | M50x1,5    | DL51IB              | DL51IG           | DL51IS                                                                              |                                                                                      |                                                                                       | NEV4NB                                                                               | NEV40IB  | PGA4     |
|                                                                                     | M63x1,5    | DL61IB              | DL61IG           | DL61IS                                                                              |                                                                                      |                                                                                       | NEV5SNB                                                                              | NEV50SIB | PGA5     |
|                                                                                     | M75x1,5    | DL71IB              | DL71IG           | DL71IS                                                                              |                                                                                      |                                                                                       | NEV5NB                                                                               | NEV50IB  | PGA5N    |
|                                                                                     | M90x1,5    | DL81IB              | DL81IG           | DL81IS                                                                              |                                                                                      |                                                                                       | NEV6SNB                                                                              | NEV63SIB | PGA6     |
|                                                                                     | M100x1,5   | DL10IB              | DL10IG           | DL10IS                                                                              |                                                                                      |                                                                                       | Code and dimensions are in the page pagina A.12                                      | NEV6NB   | NEV63IB  |
| M115x1,5                                                                            | DL115IB    | DL115IG             | DL115IS          | NEV7SNB                                                                             | NEV75SIB                                                                             | GTR7<br>Heat shrinkable                                                               |                                                                                      |          |          |
|  | M16x1,5    | A0131B              | A0131S           |  | RD101IS/A4                                                                           |                                                                                       |  | NEV7NB   | NEV75IB  |
|                                                                                     | M20x1,5    | A1311IB             | A1311IS          |                                                                                     | RD11IS/A4                                                                            |                                                                                       |                                                                                      | NEV8NB   | NEV90IB  |
|                                                                                     | M25x1,5    | A2312IB             | A2312IS          |                                                                                     | RD12IS/A4                                                                            |                                                                                       |                                                                                      | NEV9NB   | NEV100IB |
|                                                                                     | M32x1,5    | A3313IB             | A3313IS          |                                                                                     | RD13IS/A4                                                                            |                                                                                       |                                                                                      | NEV10NB  | NEV115IB |
|                                                                                     | M40x1,5    | A4314IB             | A4314IS          |                                                                                     | RD14IS/A4                                                                            |                                                                                       |                                                                                      |          |          |
|                                                                                     | M50x1,5    | A5315IB             | A5315IS          |                                                                                     | RD15IS/A4                                                                            |                                                                                       |                                                                                      |          |          |
|                                                                                     | M63x1,5    | A6316IB             | A6316IS          |                                                                                     | RD16IS/A4                                                                            |                                                                                       |                                                                                      |          |          |
|                                                                                     | M75x1,5    | A731B               | A731S            |                                                                                     |                                                                                      |                                                                                       |                                                                                      |          |          |
|                                                                                     | M90x1,5    | A831B               | A831S            |                                                                                     |                                                                                      |                                                                                       |                                                                                      |          |          |
|                                                                                     | M100x1,5   | A103110IB           | A103110IS        |                                                                                     |                                                                                      |                                                                                       |                                                                                      |          |          |
|                                                                                     | M115x1,5   | A1031B              | A1031S           |                                                                                     |                                                                                      |                                                                                       |                                                                                      |          |          |

\* For different threads, contact the sales department.

\* For different threads, contact the sales department.



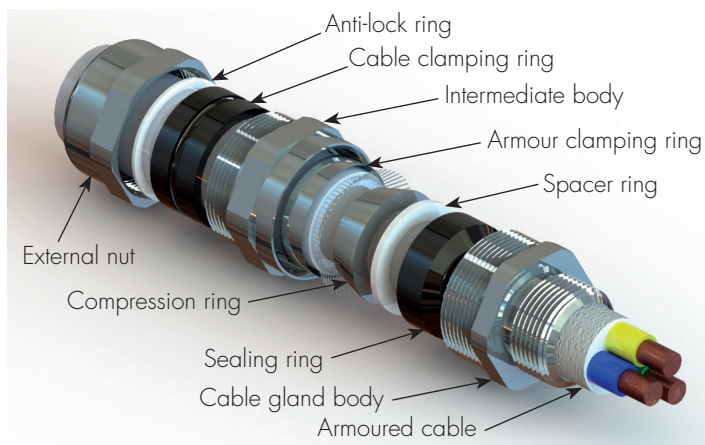
**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |     |     | Range                                            |                                                      | Armour<br>thickness | Weight<br>Kg |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|-----|-----|--------------------------------------------------|------------------------------------------------------|---------------------|--------------|
|                                |            |                                |          | AC1              | AC2 | AC3 | L   | $\varnothing d$ min-max<br>Internal cable sheath | $\varnothing D$ min-max<br>Outer sheath of the cable |                     |              |
| NEV01NB                        | 3/8" NPT   | NEV16IB                        | M16x1,5  | 24               | 24  | 24  | 59  | 3.5 - 8.6                                        | 6 - 13.2                                             | 0.2 - 1.3           | 0,145        |
| NEV1SNB                        | 1/2" NPT   | NEV20SIB                       | M20x1,5  | 24               | 26  | 26  | 59  | 6.3 - 11.6                                       | 9.5 - 16                                             | 0.2 - 1.3           | 0,157        |
| NEV1NB                         | 1/2" NPT   | NEV20IB                        | M20x1,5  | 30               | 32  | 32  | 61  | 6.5 - 14                                         | 12.5 - 21                                            | 0.2 - 1.4           | 0,215        |
| NEV2NB                         | 3/4" NPT   | NEV25IB                        | M25x1,5  | 36               | 38  | 38  | 61  | 11 - 20                                          | 20 - 27.5                                            | 0.2 - 1.6           | 0,261        |
| NEV3NB                         | 1" NPT     | NEV32IB                        | M32x1,5  | 45               | 47  | 47  | 72  | 17 - 27                                          | 23.5 - 34                                            | 0.2 - 2.0           | 0,433        |
| NEV4NB                         | 1 1/4" NPT | NEV40IB                        | M40x1,5  | 50               | 52  | 52  | 73  | 22 - 32                                          | 26 - 40                                              | 0.2 - 2.2           | 0,514        |
| NEV5SNB                        | 1 1/2" NPT | NEV50SIB                       | M50x1,5  | 55               | 57  | 57  | 80  | 29.5 - 38                                        | 35 - 46.5                                            | 0.2 - 2.5           | 0,610        |
| NEV5NB                         | 2" NPT     | NEV50IB                        | M50x1,5  | 62/60*           | 62  | 62  | 81  | 35.5 - 44                                        | 38 - 53                                              | 0.2 - 2.5           | 0,562        |
| NEV6SNB                        | 2" NPT     | NEV63SIB                       | M63x1,5  | 68               | 75  | 77  | 91  | 40 - 50                                          | 45.5 - 59.5                                          | 0.2 - 2.5           | 1,151        |
| NEV6NB                         | 2 1/2" NPT | NEV63IB                        | M63x1,5  | 75/73*           | 80  | 82  | 93  | 47 - 56                                          | 54.5 - 66                                            | 0.2 - 2.5           | 1,100        |
| NEV7SNB                        | 2 1/2" NPT | NEV75SIB                       | M75x1,5  | 80               | 85  | 90  | 97  | 53 - 62                                          | 57 - 72                                              | 0.2 - 2.8           | 1,308        |
| NEV7NB                         | 3" NPT     | NEV75IB                        | M75x1,5  | 90/85*           | 95  | 100 | 99  | 59 - 68                                          | 66.5 - 78.5                                          | 0.2 - 2.8           | 1,538        |
| NEV8NB                         | 3" NPT     | NEV90IB                        | M90x1,5  | 100              | 105 | 110 | 104 | 66 - 79                                          | 76.5 - 90                                            | 0.2 - 2.8           | 2,000        |
| NEV9NB                         | 3 1/2" NPT | NEV100IB                       | M100x1,5 | 115              | 120 | 120 | 111 | 76 - 91                                          | 86 - 101                                             | 0.2 - 3.3           | 2,381        |
| NEV10NB                        | 4" NPT     | NEV115IB                       | M115x1,5 | 120              | 125 | 130 | 112 | 86 - 98                                          | 100 - 110                                            | 0.2 - 3.5           | 2,783        |

\* Dimensions with threaded: NPT / ISO

### Sample order code

|            |          |          |          |
|------------|----------|----------|----------|
| <b>NEV</b> | <b>6</b> | <b>N</b> | <b>B</b> |
| MODEL      | SIZE     | THREAD   | MATERIAL |



### TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland
- The ISO7/1 thread version is available upon request (sample code NEV1B)
- Also available in stainless steel AISI 316 (sample code NEV1S)
- Other materials on request
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NEV1SIA)
- Internal ring for armoured cables with larger cross-section



NEVP series cable glands are suitable for use in areas with the risk of explosion, allowing the direct insertion of armoured cables in explosion proof enclosures and the installation of lead sheathed cables. They are supplied with a sealing ring which is stretched over the cable at the inlet ensuring the anti-loosening, 'Ex d' execution, and a second compression ring which is stretched over the cable armour at the outlet to guarantee an IP 66/68 protection rating, and a metal ring which affixes to the outer surface of the lead sheath as it is wound, fastening it in place. Their structure makes them suitable for environments which are particularly difficult, such as marine environments, or where there are subjected to the mechanical stresses and impacts which often occur in heavy industry, where safety is the utmost priority.



Interactive Point


[Safety, use and maintenance instructions](#)

|                                                                                                                           |                                                                                                                                                                                                                                                                      |                                 |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/EU                                                                                      | <b>Group II</b>                                                                                                                                                                                                                                                      | <b>Category 2GD/3G</b>          |
| <b>Installation:</b><br>EN 60079-14                                                                                       | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                                                         | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                                                                                                           | CE 0722 Ex II 2 GD - Ex db IIC Gb - Ex eb IIC Gb<br>II 2 D - Ex tb IIC Db<br>II 3G Ex nR IIC Gc - IP66/68                                                                                                                                                            |                                 |
| <b>Certification:</b>                                                                                                     | <b>ATEX (category 2):</b>                                                                                                                                                                                                                                            | <b>IMQ 17 ATEX 016X</b>         |
|                                                                                                                           | <b>ATEX (category 3):</b>                                                                                                                                                                                                                                            | <b>IMQ 17 ATEX 017X</b>         |
|                                                                                                                           | <b>IEC Ex</b>                                                                                                                                                                                                                                                        | <b>IECEx IMQ 17.0010X</b>       |
|                                                                                                                           | <b>TR CU</b>                                                                                                                                                                                                                                                         | <b>AVAILABLE</b>                |
| All IEC Ex and TR CU certification data can be downloaded at <a href="http://www.cortemgroup.com">www.cortemgroup.com</a> |                                                                                                                                                                                                                                                                      |                                 |
| <b>Standards:</b>                                                                                                         | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016, EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015 and EUROPEAN DIRECTIVE 2014/34/EU<br>IEC60079-0: 2011 IEC60079-1: 2014 IEC60079-7: 2015 IEC60079-15: 2015 IEC60079-31: 2013<br>RoHS Directive 2002/95/EC |                                 |
| <b>Operating temperature:</b>                                                                                             | <b>-60 °C +130 °C</b>                                                                                                                                                                                                                                                |                                 |
| <b>Protection rating:</b>                                                                                                 | <b>IP66/68 (30 meters - 12 hours)</b>                                                                                                                                                                                                                                |                                 |
| <b>Design</b>                                                                                                             | <b>BS 6121: Part 1:1989, IEC 62444, EN 62444</b>                                                                                                                                                                                                                     |                                 |

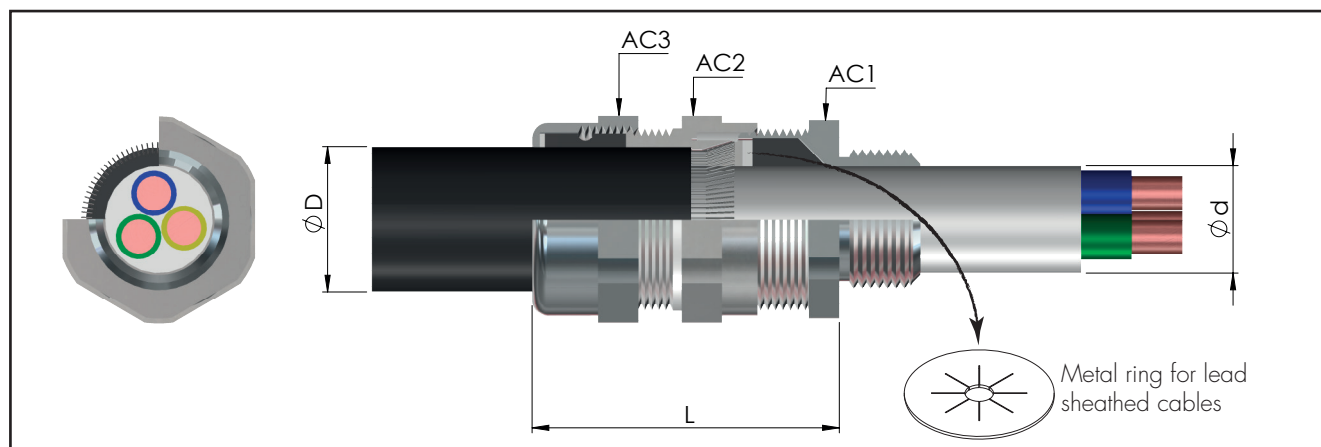
Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

### ACCESSORIES UPON REQUEST

| Accessories of CAT 10101                                                            |            |                     |                 |                                                                                     |                 |                                                                                       |                                                                                       |          |       |
|-------------------------------------------------------------------------------------|------------|---------------------|-----------------|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------|-------|
| Locknuts                                                                            | ISO thread | Nickel-plated brass |                 | Galvanized steel                                                                    | Stainless steel | Sealing ring for flat/healing cables                                                  | Black TPV protector                                                                   | CG       | Code  |
|  | M16x1,5    | DL01IB              |                 | DL01IG                                                                              | DL01IS          |  |  | NEVP01NB | PGA1F |
|                                                                                     | M20x1,5    | DL1IB               |                 | DL1IG                                                                               | DL1IS           |                                                                                       |                                                                                       | NEVP1SNB | PGA1N |
|                                                                                     | M25x1,5    | DL2IB               |                 | DL2IG                                                                               | DL2IS           |                                                                                       |                                                                                       | NEVP1NB  | PGA1  |
|                                                                                     | M32x1,5    | DL3IB               |                 | DL3IG                                                                               | DL3IS           |                                                                                       |                                                                                       | NEVP2NB  | PGA2N |
|                                                                                     | M40x1,5    | DL4IB               |                 | DL4IG                                                                               | DL4IS           |                                                                                       |                                                                                       | NEVP3NB  | PGA4  |
|                                                                                     | M50x1,5    | DL5IB               |                 | DL5IG                                                                               | DL5IS           |                                                                                       |                                                                                       | NEVP4NB  | PGA5  |
|                                                                                     | M63x1,5    | DL6IB               |                 | DL6IG                                                                               | DL6IS           |                                                                                       |                                                                                       | NEVP5SNB | PGA5  |
|                                                                                     | M75x1,5    | DL7IB               |                 | DL7IG                                                                               | DL7IS           |                                                                                       |                                                                                       | NEVP5NB  | PGA5N |
|                                                                                     | M90x1,5    | DL8IB               |                 | DL8IG                                                                               | DL8IS           |                                                                                       |                                                                                       | NEVP6SNB | PGA6  |
|                                                                                     | M100x1,5   | DL10IB              |                 | DL10IG                                                                              | DL10IS          |                                                                                       |                                                                                       | NEVP6NB  | PGA7  |
| M115x1,5                                                                            | DL115IB    |                     | DL115IG         | DL115IS                                                                             | NEVP7SNB        | GTR<br>Heat shrinkable                                                                |                                                                                       |          |       |
| Code and dimensions are in the page pagina A.12                                     |            |                     |                 |                                                                                     |                 |                                                                                       | NEVP7NB                                                                               |          |       |
|                                                                                     |            |                     |                 |                                                                                     |                 |                                                                                       | NEVP8NB                                                                               |          |       |
|                                                                                     |            |                     |                 |                                                                                     |                 |                                                                                       | NEVP9NB                                                                               |          |       |
|                                                                                     |            |                     |                 |                                                                                     |                 |                                                                                       | NEVP10NB                                                                              |          |       |
| Nickel-plated brass earthing rings                                                  | ISO thread | Nickel-plated brass | Stainless steel | Serrated stainless steel lock washers                                               | Code            | Adapters and reducers of the RE... series                                             |                                                                                       |          |       |
|  | M16x1,5    | A0131B              | A0131S          |  | RDI01IS/A4      |  |                                                                                       |          |       |
|                                                                                     | M20x1,5    | A1311B              | A1311S          |                                                                                     | RD11IS/A4       |                                                                                       |                                                                                       |          |       |
|                                                                                     | M25x1,5    | A2312B              | A2312S          |                                                                                     | RDI2IS/A4       |                                                                                       |                                                                                       |          |       |
|                                                                                     | M32x1,5    | A3313B              | A3313S          |                                                                                     | RDI3IS/A4       |                                                                                       |                                                                                       |          |       |
|                                                                                     | M40x1,5    | A4314B              | A4314S          |                                                                                     | RDI4IS/A4       |                                                                                       |                                                                                       |          |       |
|                                                                                     | M50x1,5    | A5315B              | A5315S          |                                                                                     | RDI5IS/A4       |                                                                                       |                                                                                       |          |       |
|                                                                                     | M63x1,5    | A6316B              | A6316S          |                                                                                     | RDI6IS/A4       |                                                                                       |                                                                                       |          |       |
|                                                                                     | M75x1,5    | A731B               | A731S           |                                                                                     |                 |                                                                                       |                                                                                       |          |       |
|                                                                                     | M90x1,5    | A831B               | A831S           |                                                                                     |                 |                                                                                       |                                                                                       |          |       |
|                                                                                     | M100x1,5   | A103110B            | A103110IS       |                                                                                     |                 |                                                                                       |                                                                                       |          |       |
|                                                                                     | M115x1,5   | A1031B              | A1031S          |                                                                                     |                 |                                                                                       |                                                                                       |          |       |

\* For different threads, contact the sales department.

\* For different threads, contact the sales department.



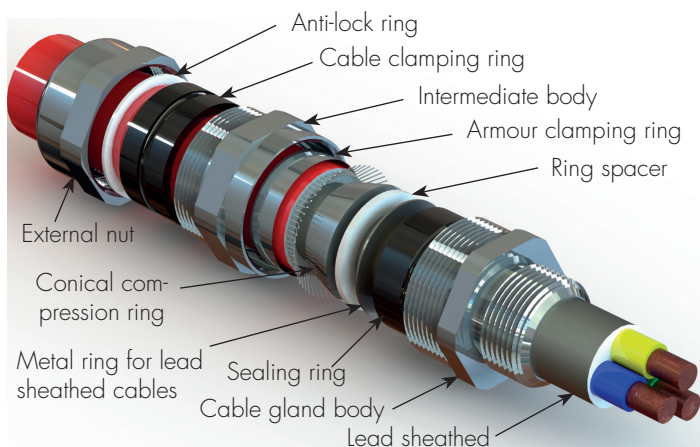
**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |     |     | Range                               |                                         | Armour<br>thickness | Weight<br>Kg |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|-----|-----|-------------------------------------|-----------------------------------------|---------------------|--------------|
|                                |            |                                |          | AC1              | AC2 | AC3 | L   | Ød min-max<br>Internal cable sheath | ØD min-max<br>Outer sheath of the cable |                     |              |
| NEVP01NB                       | 3/8" NPT   | NEVP16IB                       | M16x1,5  | 24               | 24  | 24  | 59  | 3.5 - 8.6                           | 6 - 13.2                                | 0.2 - 1.3           | 0,145        |
| NEVP1SNB                       | 1/2" NPT   | NEVP20SIB                      | M20x1,5  | 24               | 26  | 26  | 59  | 6.3 - 11.6                          | 9.5 - 16                                | 0.2 - 1.3           | 0,157        |
| NEVP1NB                        | 1/2" NPT   | NEVP20IB                       | M20x1,5  | 30               | 32  | 32  | 61  | 6.5 - 14                            | 12.5 - 21                               | 0.2 - 1.4           | 0,215        |
| NEVP2NB                        | 3/4" NPT   | NEVP25IB                       | M25x1,5  | 36               | 38  | 38  | 61  | 11 - 20                             | 20 - 27.5                               | 0.2 - 1.6           | 0,261        |
| NEVP3NB                        | 1" NPT     | NEVP32IB                       | M32x1,5  | 45               | 47  | 47  | 72  | 17 - 27                             | 23.5 - 34                               | 0.2 - 2.0           | 0,433        |
| NEVP4NB                        | 1 1/4" NPT | NEVP40IB                       | M40x1,5  | 50               | 52  | 52  | 73  | 22 - 32                             | 26 - 40                                 | 0.2 - 2.2           | 0,514        |
| NEVP5SNB                       | 1 1/2" NPT | NEVP50SIB                      | M50x1,5  | 55               | 57  | 57  | 80  | 29.5 - 38                           | 35 - 46.5                               | 0.2 - 2.5           | 0,610        |
| NEVP5NB                        | 2" NPT     | NEVP50IB                       | M50x1,5  | 62/60*           | 62  | 62  | 81  | 35.5 - 44                           | 38 - 53                                 | 0.2 - 2.5           | 0,562        |
| NEVP6SNB                       | 2" NPT     | NEVP63SIB                      | M63x1,5  | 68               | 75  | 77  | 91  | 40 - 50                             | 45.5 - 59.5                             | 0.2 - 2.5           | 1,151        |
| NEVP6NB                        | 2 1/2" NPT | NEVP63IB                       | M63x1,5  | 75/73*           | 80  | 82  | 93  | 47 - 56                             | 54.5 - 66                               | 0.2 - 2.5           | 1,100        |
| NEVP7SNB                       | 2 1/2" NPT | NEVP75SIB                      | M75x1,5  | 80               | 85  | 90  | 97  | 53 - 62                             | 57 - 72                                 | 0.2 - 2.8           | 1,308        |
| NEVP7NB                        | 3" NPT     | NEVP75IB                       | M75x1,5  | 90/85*           | 95  | 100 | 99  | 59 - 68                             | 66.5 - 78.5                             | 0.2 - 2.8           | 1,538        |
| NEVP8NB                        | 3" NPT     | NEVP90IB                       | M90x1,5  | 100              | 105 | 110 | 104 | 66 - 79                             | 76.5 - 90                               | 0.2 - 2.8           | 2,000        |
| NEVP9NB                        | 3 1/2" NPT | NEVP100IB                      | M100x1,5 | 115              | 120 | 120 | 111 | 76 - 91                             | 86 - 101                                | 0.2 - 3.3           | 2,381        |
| NEVP10NB                       | 4" NPT     | NEVP115IB                      | M115x1,5 | 120              | 125 | 130 | 112 | 86 - 98                             | 100 - 110                               | 0.2 - 3.5           | 2,783        |

\* Dimensions with threaded: NPT / ISO

### Sample order code

|             |          |          |          |
|-------------|----------|----------|----------|
| <b>NEVP</b> | <b>6</b> | <b>N</b> | <b>B</b> |
| MODEL       | SIZE     | THREAD   | MATERIAL |



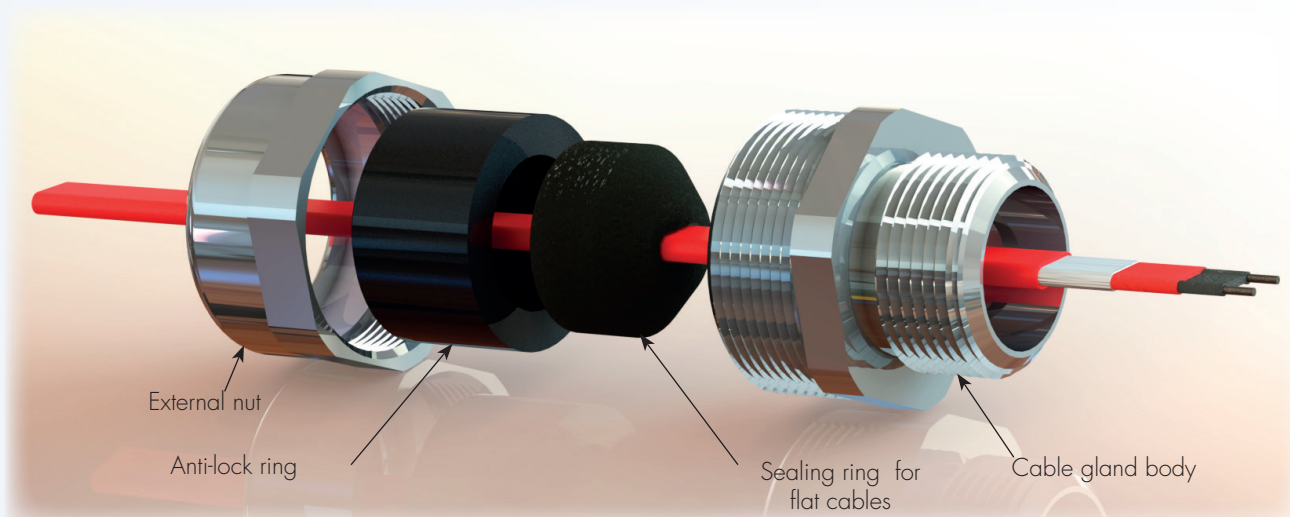
### TECHNICAL NOTES:

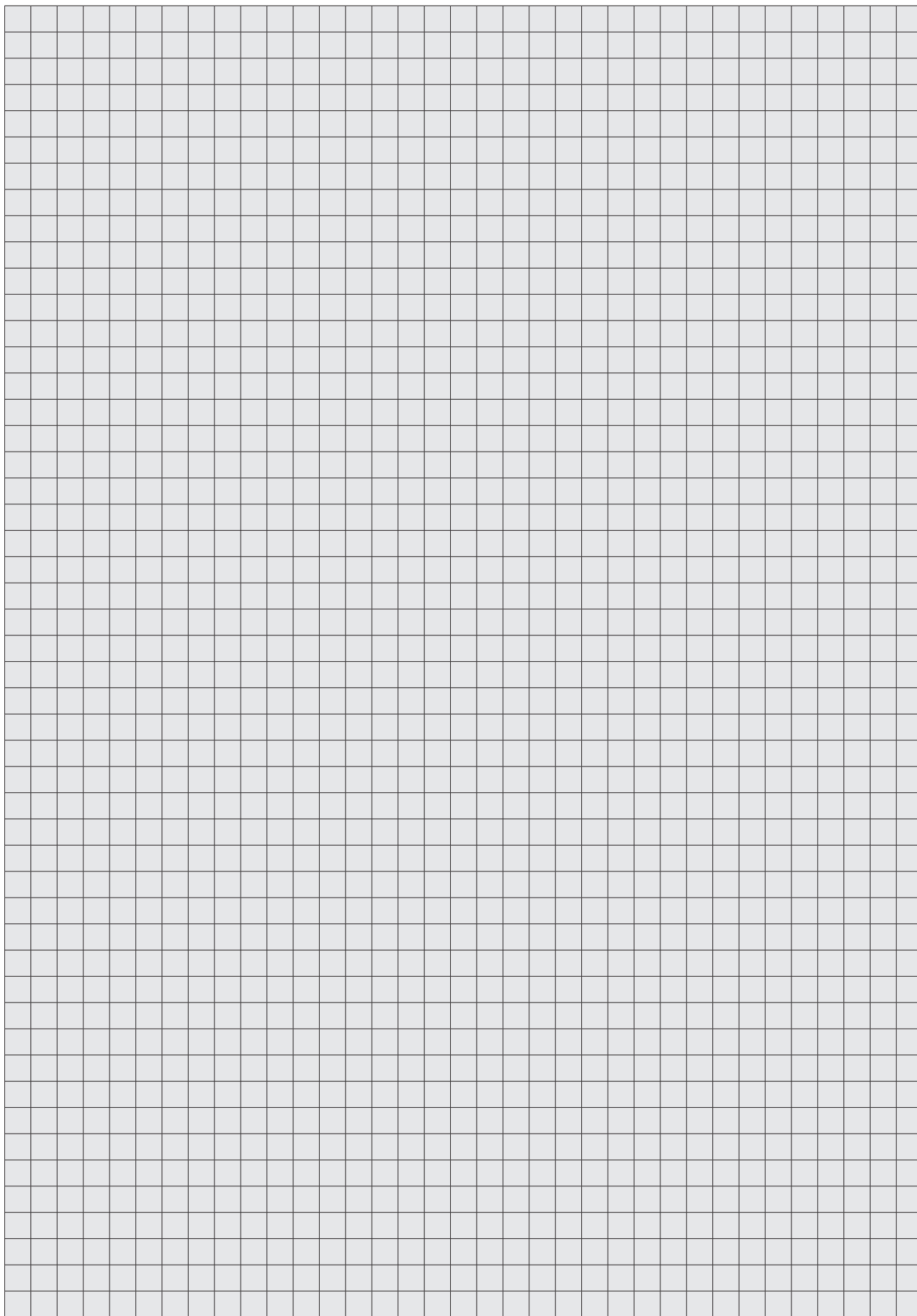
- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland
- The ISO7/1 thread version is available upon request (sample code NEVP1B)
- Also available in stainless steel AISI 316 (sample code NEVP1S)
- Other materials on request
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NEVP1SIA)
- Internal ring for armoured cables with larger cross-section

**Cable glands for non-armoured cables: Sealing ring for flat / heating cables**



| Cable gland type |             | E    | F   | Code             |
|------------------|-------------|------|-----|------------------|
| NAV..01N..       | NAV..16I..  | 7.7  | 5.5 | <b>H01-567</b>   |
| NAV..1SN..       | NAV..20SI.. | 7.7  | 5.5 | <b>H1S-567/1</b> |
| NAV..1SN..       | NAV..20SI.. | 8.7  | 3.5 | <b>H1S-567/2</b> |
| NAV..1SN..       | NAV..20SI.. | 9.7  | 4.1 | <b>H1S-567/3</b> |
| NAV..1SN..       | NAV..20SI.. | 10.2 | 4.1 | <b>H1S-567/4</b> |
| NAV..1SN..       | NAV..20SI.. | 10.7 | 4.6 | <b>H1S-567/5</b> |
| NAV..1SN..       | NAV..20SI.. | 10.7 | 5.1 | <b>H1S-567/6</b> |
| NAV..1SN..       | NAV..20SI.. | 10.7 | 6.1 | <b>H1S-567/7</b> |
| NAV..1N..        | NAV..20I..  | 7.7  | 5.5 | <b>H1-567/1</b>  |
| NAV..1N..        | NAV..20I..  | 8.7  | 3.5 | <b>H1-567/2</b>  |
| NAV..1N..        | NAV..20I..  | 9.7  | 4.1 | <b>H1-567/3</b>  |
| NAV..1N..        | NAV..20I..  | 10.2 | 4.1 | <b>H1-567/4</b>  |
| NAV..1N..        | NAV..20I..  | 10.7 | 4.6 | <b>H1-567/5</b>  |
| NAV..1N..        | NAV..20I..  | 10.7 | 5.1 | <b>H1-567/6</b>  |
| NAV..1N..        | NAV..20I..  | 10.7 | 6.1 | <b>H1-567/7</b>  |
| NAV..1N..        | NAV..20I..  | 11.7 | 5.6 | <b>H1-567/8</b>  |
| NAV..2N..        | NAV..25I..  | 7.7  | 5.5 | <b>H2-567/1</b>  |
| NAV..2N..        | NAV..25I..  | 8.7  | 3.5 | <b>H2-567/2</b>  |
| NAV..2N..        | NAV..25I..  | 9.7  | 4.1 | <b>H2-567/3</b>  |
| NAV..2N..        | NAV..25I..  | 10.2 | 4.1 | <b>H2-567/4</b>  |
| NAV..2N..        | NAV..25I..  | 10.7 | 4.6 | <b>H2-567/5</b>  |
| NAV..2N..        | NAV..25I..  | 10.7 | 5.1 | <b>H2-567/6</b>  |
| NAV..2N..        | NAV..25I..  | 10.7 | 6.1 | <b>H2-567/7</b>  |
| NAV..2N..        | NAV..25I..  | 11.7 | 5.6 | <b>H2-567/8</b>  |



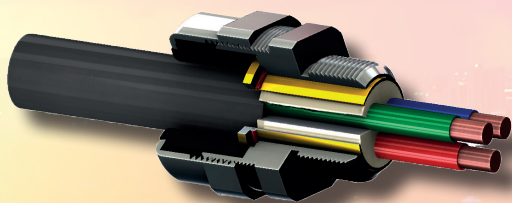




Illustration

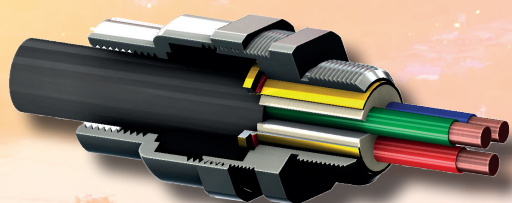
Code

Description



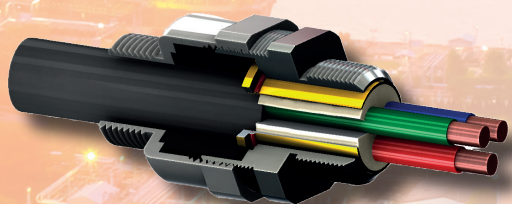
NAVB

Cable gland for non-armoured cables from 3/8" to 4"



NAVBF

Cable gland for non-armoured cables from 3/8" to 4" with a female threaded outlet fitting



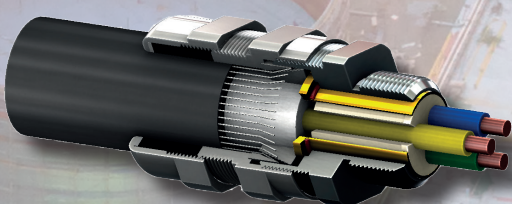
NAVBN

Cable gland for non-armoured cables from 3/8" to 4" with a male threaded outlet fitting



NAVGB

Cable gland for non-armoured cables from 3/8" to 4"  
Provides a cable retention seal onto the cables outer sheath



NEVB

Cable gland for armoured cables from 3/8" to 4"



1



### SCD system

Cartridge system with resin plus mixer for use with manual dispenser supplied as an option. The best and most comfortable solution for the resin coating of large quantities of cable glands.

Order code cartridge + mixer: BOND-C

Order code dispenser: DISP-C

2



### SBR system

Resin bag system. The most economical way of resin coating for small quantities of cable glands.

Order code 25 ml bag: BOND-B-25

Order code 100 ml bag: BOND-B-100

3



### SAD system

The system with adapters for the use of normal silicone guns (not included) together with resin cartridges and KC mixers.

Order code adapters: ADAP-C

## No resin waste!

Thanks to the exclusive software internally developed, it is possible to receive the exact quantity of resin for the required cable glands supply without incurring the risk of resin waste.

The NAVB series barrier cable glands for non-armoured cable are designed to guarantee the IP66/67 protection and the explosion protection 'Ex db IIC; Ex eb IIC' in applications where installation requirements are needed in accordance with the EN - IEC 60079-14: 2015 standard. The barrier is shaped around the conductors thanks to the particular mixture that flows through them in the special bushing ensuring a complete seal. The liquid resin used prevents the formation of air pockets or voids between the conductors and the bushing (typical problems found with malleable resins). Resin kit available separately.



|                                      |                                                                                                                                                                                                                                                                                      |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/EU | <b>Group II</b>                                                                                                                                                                                                                                                                      | <b>Category 2GD/3G</b>          |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                                                                         | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722</b> II 2 GD - Ex db IIC Gb - Ex eb IIC Gb<br>II 2 D - Ex tb IIC Db<br>II 3G Ex nR IIC Gc                                                                                                                                                                                  |                                 |
| <b>Certification:</b>                | <b>ATEX (category 2):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 019X</b>         |
|                                      | <b>ATEX (category 3):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 020X</b>         |
|                                      | <b>IEC Ex</b>                                                                                                                                                                                                                                                                        | <b>IECEX IMQ 19.0003X</b>       |
|                                      | <b>TR CU</b>                                                                                                                                                                                                                                                                         | <b>DISPONIBLE</b>               |
| <b>Standards:</b>                    | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016,<br>EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015<br>ed alla DIRETTIVA EUROPEA 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2014, IEC60079-7: 2015,<br>IEC60079-15: 2015, IEC60079-31: 2013<br>Direttiva RoHS 2002/95/CE |                                 |
| <b>Operating temperature:</b>        | <b>-60°C +100°C</b>                                                                                                                                                                                                                                                                  |                                 |
| <b>Protection rating:</b>            | <b>IP66/67</b>                                                                                                                                                                                                                                                                       |                                 |
| <b>Design</b>                        | <b>BS 6121: Part 1:1989, IEC 62444, EN 62444</b>                                                                                                                                                                                                                                     |                                 |

All IEC Ex certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

[Safety, maintenance and mounting instructions](#)

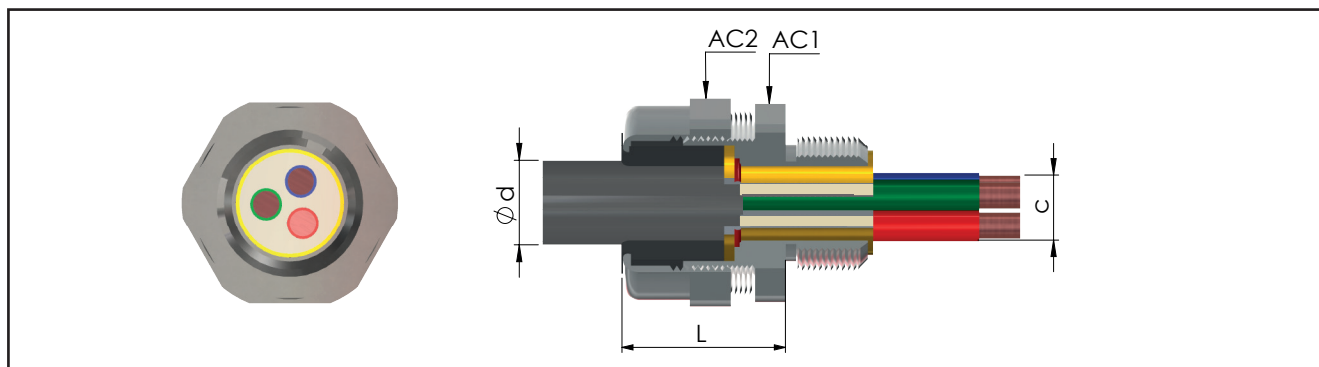
Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### ACCESSORIES UPON REQUEST

| Locknuts | ISO thread | Nickel-plated brass | Galvanized steel | Stainless steel | Black TPV protector | Cableglands        | Code                           |
|----------|------------|---------------------|------------------|-----------------|---------------------|--------------------|--------------------------------|
|          | M16x1,5    | <b>DL01IB</b>       | <b>DL01IG</b>    | <b>DL01IS</b>   |                     | NAVB01NB NAVB16IB  | <b>PGA1F</b>                   |
|          | M20x1,5    | <b>DL11IB</b>       | <b>DL11IG</b>    | <b>DL11IS</b>   |                     | NAVB1SNB NAVB20SIB | <b>PGA1N</b>                   |
|          | M25x1,5    | <b>DL21IB</b>       | <b>DL21IG</b>    | <b>DL21IS</b>   |                     | NAVB1NB NAVB20IB   | <b>PGA1</b>                    |
|          | M32x1,5    | <b>DL31IB</b>       | <b>DL31IG</b>    | <b>DL31IS</b>   |                     | NAVB2NB NAVB25IB   | <b>PGA2N</b>                   |
|          | M40x1,5    | <b>DL41IB</b>       | <b>DL41IG</b>    | <b>DL41IS</b>   |                     | NAVB3NB NAVB32IB   | <b>PGA4</b>                    |
|          | M50x1,5    | <b>DL51IB</b>       | <b>DL51IG</b>    | <b>DL51IS</b>   |                     | NAVB4NB NAVB40IB   | <b>PGA4</b>                    |
|          | M63x1,5    | <b>DL61IB</b>       | <b>DL61IG</b>    | <b>DL61IS</b>   |                     | NAVB5SNB NAVB50SIB | <b>PGA5</b>                    |
|          | M75x1,5    | <b>DL71IB</b>       | <b>DL71IG</b>    | <b>DL71IS</b>   |                     | NAVB5NB NAVB50IB   | <b>PGA5N</b>                   |
|          | M90x1,5    | <b>DL81IB</b>       | <b>DL81IG</b>    | <b>DL81IS</b>   |                     | NAVB6SNB NAVB63SIB | <b>PGA6</b>                    |
|          | M100x1,5   | <b>DL10IB</b>       | <b>DL10IG</b>    | <b>DL10IS</b>   |                     | NAVB6NB NAVB63IB   | <b>PGA6</b>                    |
|          | M115x1,5   | <b>DL115IB</b>      | <b>DL115IG</b>   | <b>DL115IS</b>  |                     | NAVB7SNB NAVB75SIB | <b>PGA7</b>                    |
|          | M16x1,5    | <b>A0131B</b>       | <b>A0131S</b>    |                 |                     | NAVB7NB NAVB75IB   | <b>GTR7</b><br>Heat shrinkable |
|          | M20x1,5    | <b>A1311IB</b>      | <b>A1311IS</b>   |                 |                     | NAVB8NB NAVB90IB   |                                |
|          | M25x1,5    | <b>A2312IB</b>      | <b>A2312IS</b>   |                 |                     | NAVB9NB NAVB100IB  |                                |
|          | M32x1,5    | <b>A3313IB</b>      | <b>A3313IS</b>   |                 |                     | NAVB10NB NAVB115IB |                                |
|          | M40x1,5    | <b>A4314IB</b>      | <b>A4314IS</b>   |                 |                     |                    |                                |
|          | M50x1,5    | <b>A5315IB</b>      | <b>A5315IS</b>   |                 |                     |                    |                                |
|          | M63x1,5    | <b>A6316IB</b>      | <b>A6316IS</b>   |                 |                     |                    |                                |
|          | M75x1,5    | <b>A731B</b>        | <b>A731S</b>     |                 |                     |                    |                                |
|          | M90x1,5    | <b>A831B</b>        | <b>A831S</b>     |                 |                     |                    |                                |
|          | M100x1,5   | <b>A10310IB</b>     | <b>A10310IS</b>  |                 |                     |                    |                                |
|          | M115x1,5   | <b>A1031B</b>       | <b>A1031S</b>    |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |
|          |            |                     |                  |                 |                     |                    |                                |

\* For different threads, contact the sales department.





**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |        | Range           |                  |                    | Weight<br>Kg | Q.ty of<br>resin<br>ml *** |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|--------|-----------------|------------------|--------------------|--------------|----------------------------|
|                                |            |                                |          | AC1              | AC2 | L      | Ød<br>cable max | Øc<br>over cores | n. max<br>cable ** |              |                            |
| NAVB01NB                       | 3/8" NPT   | NAVB16IB                       | M16x1,5  | 24               | 24  | 29.5   | 7.1             | 5.5              | 11                 | 0,094        | 1.3                        |
| NAVB1SNB                       | 1/2" NPT   | NAVB20SIB                      | M20x1,5  | 24               | 26  | 30     | 11.6            | 10               | 11                 | 0,093        | 3.7                        |
| NAVB1NB                        | 1/2" NPT   | NAVB20IB                       | M20x1,5  | 30               | 32  | 33     | 13.2            | 11               | 11                 | 0,126        | 4.2                        |
| NAVB2NB                        | 3/4" NPT   | NAVB25IB                       | M25x1,5  | 36               | 38  | 32     | 18.6            | 15               | 21                 | 0,153        | 8.3                        |
| NAVB3NB                        | 1" NPT     | NAVB32IB                       | M32x1,5  | 45               | 47  | 33     | 25              | 21               | 38                 | 0,232        | 15                         |
| NAVB4NB                        | 1 1/4" NPT | NAVB40IB                       | M40x1,5  | 50               | 52  | 34     | 31.8            | 27               | 59                 | 0,295        | 24                         |
| NAVB5SNB                       | 1 1/2" NPT | NAVB50SIB                      | M50x1,5  | 55               | 57  | 36     | 38              | 33               | 89                 | 0,374        | 36                         |
| NAVB5NB                        | 2" NPT     | NAVB50IB                       | M50x1,5  | 62/60*           | 62  | 36     | 42              | 35               | 89                 | 0,329        | 41                         |
| NAVB6SNB                       | 2" NPT     | NAVB63SIB                      | M63x1,5  | 68               | 77  | 46.5   | 50              | 43               | 115                | 0,753        | 65                         |
| NAVB6NB                        | 2 1/2" NPT | NAVB63IB                       | M63x1,5  | 75/73*           | 77  | 47.5   | 54              | 45               | 115                | 0,732        | 70                         |
| NAVB7SNB                       | 2 1/2" NPT | NAVB75SIB                      | M75x1,5  | 80               | 82  | 65/51* | 62              | 53               | 140                | 0,714        | 98                         |
| NAVB7NB                        | 3" NPT     | NAVB75IB                       | M75x1,5  | 90/85*           | 90  | 51     | 65              | 55               | 140                | 0,627        | 101                        |
| NAVB8NB                        | 3" NPT     | NAVB90IB                       | M90x1,5  | 100              | 110 | 53.5   | 78.1            | 65               | 200                | 1,384        | 145                        |
| NAVB9NB                        | 3 1/2" NPT | NAVB100IB                      | M100x1,5 | 115              | 120 | 58     | 86              | 72               | 200                | 1,316        | 188                        |
| NAVB10NB                       | 4" NPT     | NAVB115IB                      | M115x1,5 | 120              | 130 | 57.5   | 98              | 85               | 200                | 1,937        | 254                        |

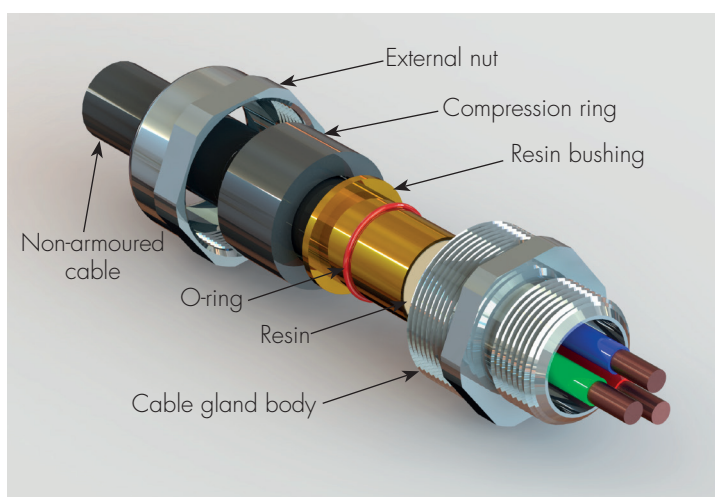
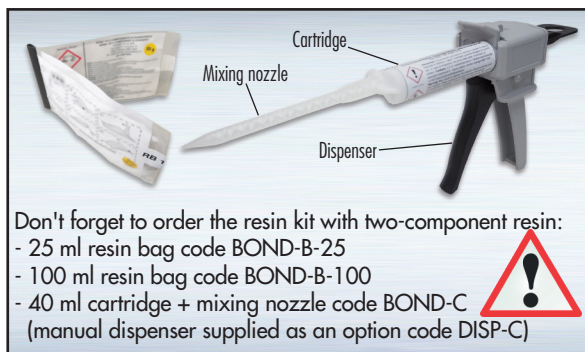
\* Dimensions with threaded: NPT / ISO.

\*\* At least 20% of the internal section of the bushing must be filled with resin.

\*\*\* Maximum quantity of resin calculated with completely empty bushing.

## Sample order code of the cable gland

|             |           |          |          |
|-------------|-----------|----------|----------|
| <b>NAVB</b> | <b>6S</b> | <b>N</b> | <b>B</b> |
| MODEL       | SIZE      | THREAD   | MATERIAL |



## TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland.
- The ISO7/1 thread version is available upon request (sample code NAVB1B).
- Also available in stainless steel AISI 316 (sample code NAVB1S).
- Other materials on request.
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NAVB1IA).



The NAVBF series barrier cable glands for non-armoured cable, with a female threaded outlet fitting, are designed to guarantee the IP66/67 protection and the explosion protection 'Ex db IIC; Ex eb IIC' in applications where installation requirements are needed in accordance with the EN - IEC 60079-14: 2015 standard. The barrier is shaped around the conductors thanks to the particular mixture that flows through them in the special bushing ensuring a complete seal. The liquid resin used prevents the formation of air pockets or voids between the conductors and the bushing (typical problems found with malleable resins). Resin kit available separately.



|                                      |                                                                                                                                                                                                                                                                                   |                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/EU | <b>Group II</b>                                                                                                                                                                                                                                                                   | <b>Category 2GD/3G</b>          |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                                                                      | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | CE 0722 Ex II 2 GD - Ex db IIC Gb - Ex eb IIC Gb<br>II 2 D - Ex tb IIC Db<br>II 3G Ex nR IIC Gc                                                                                                                                                                                   |                                 |
| <b>Certification:</b>                | <b>ATEX (category 2):</b>                                                                                                                                                                                                                                                         | <b>IMQ 19 ATEX 019X</b>         |
|                                      | <b>ATEX (category 3):</b>                                                                                                                                                                                                                                                         | <b>IMQ 19 ATEX 020X</b>         |
|                                      | <b>IEC Ex</b>                                                                                                                                                                                                                                                                     | <b>IECEx IMQ 19.0003X</b>       |
|                                      | <b>TR CU</b>                                                                                                                                                                                                                                                                      | <b>DISPONIBLE</b>               |
| <b>Standards:</b>                    | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016,<br>EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015<br>and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2014, IEC60079-7: 2015,<br>IEC60079-15: 2015, IEC60079-31: 2013<br>RoHS Directive 2002/95/CE |                                 |
| <b>Operating temperature:</b>        | <b>-60°C +100°C</b>                                                                                                                                                                                                                                                               |                                 |
| <b>Protection rating:</b>            | <b>IP66/67</b>                                                                                                                                                                                                                                                                    |                                 |
| <b>Design</b>                        | <b>BS 6121: Part 1:1989, IEC 62444, EN 62444</b>                                                                                                                                                                                                                                  |                                 |

All IEC Ex certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

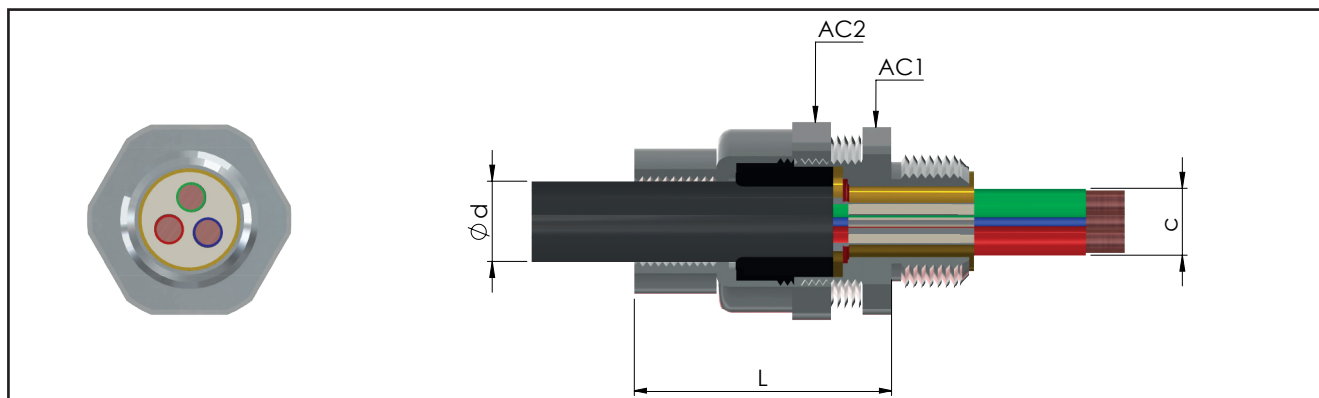
[Safety, maintenance and mounting instructions](#)

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### ACCESSORIES UPON REQUEST

| Locknuts                           | ISO thread | Nickel-plated brass | Galvanized steel | Stainless steel                       | Black TPV protector | Cableglands                               | Code                           |
|------------------------------------|------------|---------------------|------------------|---------------------------------------|---------------------|-------------------------------------------|--------------------------------|
|                                    | M16x1,5    | <b>DL01IB</b>       | <b>DL01IG</b>    | <b>DL01IS</b>                         |                     | NAVBF01NB NAVBF16IB                       | <b>PGA1F</b>                   |
|                                    | M20x1,5    | <b>DL11IB</b>       | <b>DL11IG</b>    | <b>DL11IS</b>                         |                     | NAVBF1SNB NAVBF20SIB                      | <b>PGA1N</b>                   |
|                                    | M25x1,5    | <b>DL21IB</b>       | <b>DL21IG</b>    | <b>DL21IS</b>                         |                     | NAVBF1NB NAVBF20IB                        | <b>PGA1</b>                    |
|                                    | M32x1,5    | <b>DL31IB</b>       | <b>DL31IG</b>    | <b>DL31IS</b>                         |                     | NAVBF2NB NAVBF25IB                        | <b>PGA2N</b>                   |
|                                    | M40x1,5    | <b>DL41IB</b>       | <b>DL41IG</b>    | <b>DL41IS</b>                         |                     | NAVBF3NB NAVBF32IB                        | <b>PGA4</b>                    |
|                                    | M50x1,5    | <b>DL51IB</b>       | <b>DL51IG</b>    | <b>DL51IS</b>                         |                     | NAVBF4NB NAVBF40IB                        | <b>PGA4</b>                    |
|                                    | M63x1,5    | <b>DL61IB</b>       | <b>DL61IG</b>    | <b>DL61IS</b>                         |                     | NAVBF5SNB NAVBF50SIB                      | <b>PGA5</b>                    |
|                                    | M75x1,5    | <b>DL71IB</b>       | <b>DL71IG</b>    | <b>DL71IS</b>                         |                     | NAVBF5NB NAVBF50IB                        | <b>PGA5N</b>                   |
|                                    | M90x1,5    | <b>DL81IB</b>       | <b>DL81IG</b>    | <b>DL81IS</b>                         |                     | NAVBF6SNB NAVBF63SIB                      | <b>PGA6</b>                    |
|                                    | M100x1,5   | <b>DL10IB</b>       | <b>DL10IG</b>    | <b>DL10IS</b>                         |                     | NAVBF6NB NAVBF63IB                        | <b>PGA6</b>                    |
|                                    | M115x1,5   | <b>DL115IB</b>      | <b>DL115IG</b>   | <b>DL115IS</b>                        |                     | NAVBF7SNB NAVBF75SIB                      | <b>PGA7</b>                    |
|                                    | M16x1,5    | <b>A0131B</b>       | <b>A0131S</b>    |                                       |                     | NAVBF7NB NAVBF75IB                        | <b>GTR7</b><br>Heat shrinkable |
|                                    | M20x1,5    | <b>A1311IB</b>      | <b>A1311IS</b>   |                                       |                     | NAVBF8NB NAVBF90IB                        |                                |
|                                    | M25x1,5    | <b>A2312IB</b>      | <b>A2312IS</b>   |                                       |                     | NAVBF9NB NAVBF100IB                       |                                |
|                                    | M32x1,5    | <b>A3313IB</b>      | <b>A3313IS</b>   |                                       |                     | NAVBF10NB NAVBF115IB                      |                                |
|                                    | M40x1,5    | <b>A4314IB</b>      | <b>A4314IS</b>   |                                       |                     |                                           |                                |
|                                    | M50x1,5    | <b>A5315IB</b>      | <b>A5315IS</b>   |                                       |                     |                                           |                                |
|                                    | M63x1,5    | <b>A6316IB</b>      | <b>A6316IS</b>   |                                       |                     |                                           |                                |
|                                    | M75x1,5    | <b>A731B</b>        | <b>A731S</b>     |                                       |                     |                                           |                                |
|                                    | M90x1,5    | <b>A831B</b>        | <b>A831S</b>     |                                       |                     |                                           |                                |
|                                    | M100x1,5   | <b>A103110IB</b>    | <b>A103110IS</b> |                                       |                     |                                           |                                |
|                                    | M115x1,5   | <b>A1031B</b>       | <b>A1031S</b>    |                                       |                     |                                           |                                |
| Nickel-plated brass earthing rings | ISO thread | Nickel-plated brass | Stainless steel  | Serrated stainless steel lock washers | Code                | Adapters and reducers of the RE... series |                                |
|                                    | M16x1,5    | <b>A0131B</b>       | <b>A0131S</b>    |                                       | <b>RD101S/A4</b>    |                                           |                                |
|                                    | M20x1,5    | <b>A1311IB</b>      | <b>A1311IS</b>   |                                       | <b>RD11S/A4</b>     |                                           |                                |
|                                    | M25x1,5    | <b>A2312IB</b>      | <b>A2312IS</b>   |                                       | <b>RD12S/A4</b>     |                                           |                                |
|                                    | M32x1,5    | <b>A3313IB</b>      | <b>A3313IS</b>   |                                       | <b>RD13S/A4</b>     |                                           |                                |
|                                    | M40x1,5    | <b>A4314IB</b>      | <b>A4314IS</b>   |                                       | <b>RD14S/A4</b>     |                                           |                                |
|                                    | M50x1,5    | <b>A5315IB</b>      | <b>A5315IS</b>   |                                       | <b>RD15S/A4</b>     |                                           |                                |
|                                    | M63x1,5    | <b>A6316IB</b>      | <b>A6316IS</b>   |                                       | <b>RD16S/A4</b>     |                                           |                                |
|                                    | M75x1,5    | <b>A731B</b>        | <b>A731S</b>     |                                       |                     |                                           |                                |
|                                    | M90x1,5    | <b>A831B</b>        | <b>A831S</b>     |                                       |                     |                                           |                                |
|                                    | M100x1,5   | <b>A103110IB</b>    | <b>A103110IS</b> |                                       |                     |                                           |                                |
|                                    | M115x1,5   | <b>A1031B</b>       | <b>A1031S</b>    |                                       |                     |                                           |                                |

\* For different threads, contact the sales department.



**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |      | Range           |                  |                    | Weight<br>Kg | Q.ty of<br>resin<br>ml *** |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|------|-----------------|------------------|--------------------|--------------|----------------------------|
|                                |            |                                |          | AC1              | AC2 | L    | Ød<br>cable max | Øc<br>over cores | n. max<br>cable ** |              |                            |
| NAVBF01NB                      | 3/8" NPT   | NAVBF16IB                      | M16x1,5  | 24               | 24  | 48.5 | 8.6             | 5.5              | 11                 | 0,117        | 1.3                        |
| NAVBF1SNB                      | 1/2" NPT   | NAVBF20SIB                     | M20x1,5  | 24               | 26  | 49   | 11.6            | 10               | 11                 | 0,130        | 3.7                        |
| NAVBF1NB                       | 1/2" NPT   | NAVBF20IB                      | M20x1,5  | 30               | 32  | 52.5 | 14              | 11               | 11                 | 0,170        | 4.2                        |
| NAVBF2NB                       | 3/4" NPT   | NAVBF25IB                      | M25x1,5  | 36               | 38  | 51.5 | 20              | 15               | 21                 | 0,233        | 8.3                        |
| NAVBF3NB                       | 1" NPT     | NAVBF32IB                      | M32x1,5  | 45               | 47  | 52.5 | 27              | 21               | 38                 | 0,303        | 15                         |
| NAVBF4NB                       | 1 1/4" NPT | NAVBF40IB                      | M40x1,5  | 50               | 52  | 53.5 | 32              | 27               | 59                 | 0,401        | 24                         |
| NAVBF5SNB                      | 1 1/2" NPT | NAVBF50SIB                     | M50x1,5  | 55               | 57  | 56.5 | 38              | 33               | 89                 | 0,530        | 36                         |
| NAVBF5NB                       | 2" NPT     | NAVBF50IB                      | M50x1,5  | 62/60*           | 62  | 56.5 | 44              | 35               | 89                 | 0,470        | 41                         |
| NAVBF6SNB                      | 2" NPT     | NAVBF63SIB                     | M63x1,5  | 68               | 77  | 69   | 50              | 43               | 115                | 1,079        | 65                         |
| NAVBF6NB                       | 2 1/2" NPT | NAVBF63IB                      | M63x1,5  | 75/73*           | 77  | 70   | 56              | 45               | 115                | 0,815        | 70                         |
| NAVBF7SNB                      | 2 1/2" NPT | NAVBF75SIB                     | M75x1,5  | 80               | 82  | 73.5 | 62              | 53               | 140                | 0,918        | 98                         |
| NAVBF7NB                       | 3" NPT     | NAVBF75IB                      | M75x1,5  | 90/85*           | 90  | 73.5 | 68              | 55               | 140                | 1,027        | 101                        |
| NAVBF8NB                       | 3" NPT     | NAVBF90IB                      | M90x1,5  | 100              | 110 | 82   | 79              | 65               | 200                | 2,071        | 145                        |
| NAVBF9NB                       | 3 1/2" NPT | NAVBF100IB                     | M100x1,5 | 115              | 120 | 88   | 91              | 72               | 200                | 2,192        | 188                        |
| NAVBF10NB                      | 4" NPT     | NAVBF115IB                     | M115x1,5 | 120              | 130 | 87.5 | 98              | 85               | 200                | 2,565        | 254                        |

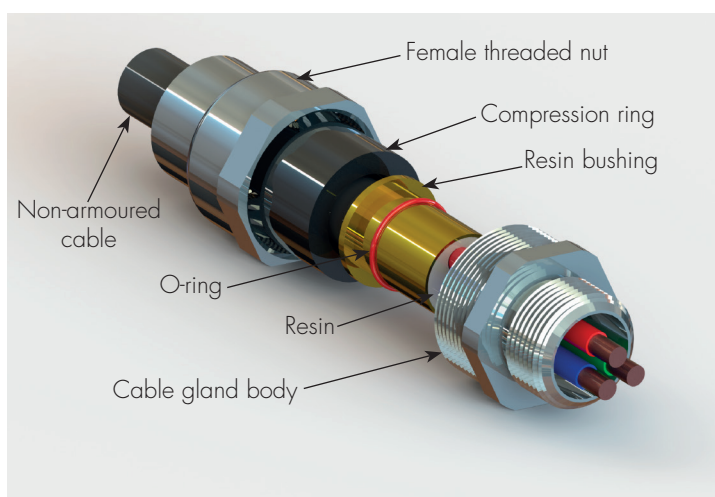
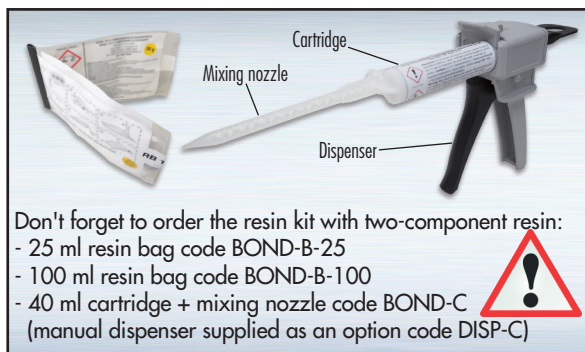
\* Dimensions with threaded: NPT / ISO.

\*\* At least 20% of the internal section of the bushing must be filled with resin.

\*\*\* Maximum quantity of resin calculated with completely empty bushing.

## Sample order code of the cable gland

|              |           |          |          |
|--------------|-----------|----------|----------|
| <b>NAVBF</b> | <b>6S</b> | <b>N</b> | <b>B</b> |
| MODEL        | SIZE      | THREAD   | MATERIAL |



## TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland.
- The ISO7/1 thread version is available upon request (sample code NAVBF1B).
- Also available in stainless steel AISI 316 (sample code NAVBF1S).
- Other materials on request.
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NAVBF1IA).

The NAVBN series barrier cable glands for non-armoured cable, with a male threaded outlet fitting, are designed to guarantee the IP66/67 protection and the explosion protection 'Ex db IIC; Ex eb IIC' in applications where installation requirements are needed in accordance with the EN - IEC 60079-14: 2015 standard. The barrier is shaped around the conductors thanks to the particular mixture that flows through them in the special bushing ensuring a complete seal. The liquid resin used prevents the formation of air pockets or voids between the conductors and the bushing (typical problems found with malleable resins). Resin kit available separately.



|                                      |                                                                                                                                                                                                                                                                                      |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/EU | <b>Group II</b>                                                                                                                                                                                                                                                                      | <b>Category 2GD/3G</b>          |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                                                                         | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722</b> <b>II 2 GD - Ex db IIC Gb - Ex eb IIC Gb</b><br><b>II 2 D - Ex tb IIIC Db</b><br><b>II 3G Ex nR IIC Gc</b>                                                                                                                                                            |                                 |
| <b>Certification:</b>                | <b>ATEX (category 2):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 019X</b>         |
|                                      | <b>ATEX (category 3):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 020X</b>         |
|                                      | <b>IEC Ex</b>                                                                                                                                                                                                                                                                        | <b>IECEX IMQ 19.0003X</b>       |
|                                      | <b>TR CU</b>                                                                                                                                                                                                                                                                         | <b>DISPONIBLE</b>               |
| <b>Standards:</b>                    | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016,<br>EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015<br>ed alla DIRETTIVA EUROPEA 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2014, IEC60079-7: 2015,<br>IEC60079-15: 2015, IEC60079-31: 2013<br>Direttiva RoHS 2002/95/CE |                                 |
| <b>Operating temperature:</b>        | <b>-60°C +100°C</b>                                                                                                                                                                                                                                                                  |                                 |
| <b>Protection rating:</b>            | <b>IP66/67</b>                                                                                                                                                                                                                                                                       |                                 |
| <b>Design</b>                        | <b>BS 6121: Part 1:1989, IEC 62444, EN 62444</b>                                                                                                                                                                                                                                     |                                 |

All IEC Ex certification data  
can be downloaded at  
[www.cortemgroup.com](http://www.cortemgroup.com)



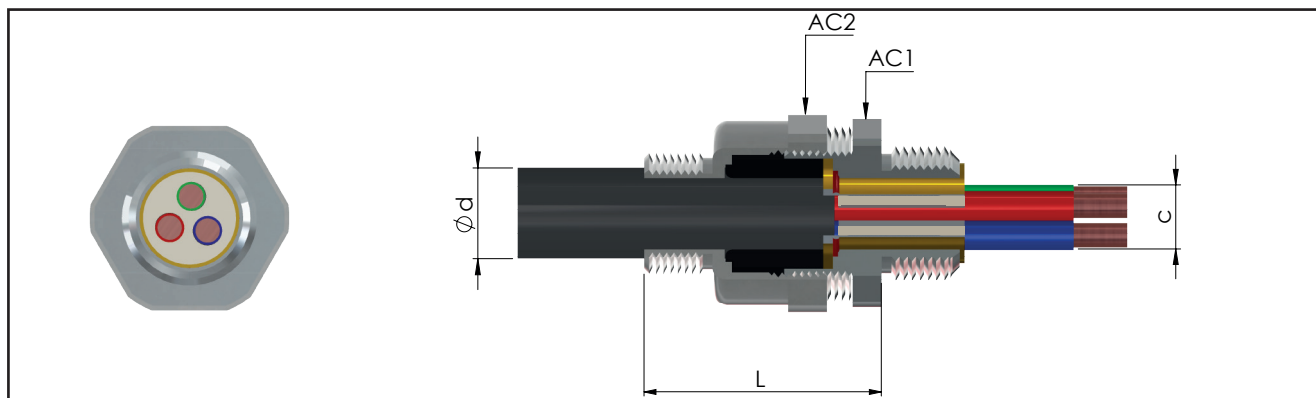
[Safety, maintenance and  
mounting instructions](#)

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### ACCESSORIES UPON REQUEST

| Locknuts | ISO thread | Nickel-plated brass | Galvanized steel | Stainless steel | Black TPV protector | Cableglands          | Code                           |
|----------|------------|---------------------|------------------|-----------------|---------------------|----------------------|--------------------------------|
|          | M16x1,5    | <b>DL01IB</b>       | <b>DL01IG</b>    | <b>DL01IS</b>   |                     | NAVBN01NB NAVBN16IB  | <b>PGA1F</b>                   |
|          | M20x1,5    | <b>DL11IB</b>       | <b>DL11IG</b>    | <b>DL11IS</b>   |                     | NAVBN1SNB NAVBN20SIB | <b>PGA1N</b>                   |
|          | M25x1,5    | <b>DL21IB</b>       | <b>DL21IG</b>    | <b>DL21IS</b>   |                     | NAVBN1NB NAVBN20IB   | <b>PGA1</b>                    |
|          | M32x1,5    | <b>DL31IB</b>       | <b>DL31IG</b>    | <b>DL31IS</b>   |                     | NAVBN2NB NAVBN25IB   | <b>PGA2N</b>                   |
|          | M40x1,5    | <b>DL41IB</b>       | <b>DL41IG</b>    | <b>DL41IS</b>   |                     | NAVBN3NB NAVBN32IB   | <b>PGA4</b>                    |
|          | M50x1,5    | <b>DL51IB</b>       | <b>DL51IG</b>    | <b>DL51IS</b>   |                     | NAVBN4NB NAVBN40IB   | <b>PGA4</b>                    |
|          | M63x1,5    | <b>DL61IB</b>       | <b>DL61IG</b>    | <b>DL61IS</b>   |                     | NAVBN5SNB NAVBN50SIB | <b>PGA5</b>                    |
|          | M75x1,5    | <b>DL71IB</b>       | <b>DL71IG</b>    | <b>DL71IS</b>   |                     | NAVBN5NB NAVBN50IB   | <b>PGA5N</b>                   |
|          | M90x1,5    | <b>DL81IB</b>       | <b>DL81IG</b>    | <b>DL81IS</b>   |                     | NAVBN6SNB NAVBN63SIB | <b>PGA6</b>                    |
|          | M100x1,5   | <b>DL10IB</b>       | <b>DL10IG</b>    | <b>DL10IS</b>   |                     | NAVBN6NB NAVBN63IB   | <b>PGA6</b>                    |
|          | M115x1,5   | <b>DL115IB</b>      | <b>DL115IG</b>   | <b>DL115IS</b>  |                     | NAVBN7SNB NAVBN75SIB | <b>PGA7</b>                    |
|          | M16x1,5    | <b>A0131B</b>       | <b>A0131S</b>    |                 |                     | NAVBN7NB NAVBN75IB   | <b>GTR7</b><br>Heat shrinkable |
|          | M20x1,5    | <b>A1311IB</b>      | <b>A1311IS</b>   |                 |                     | NAVBN8NB NAVBN90IB   |                                |
|          | M25x1,5    | <b>A2312IB</b>      | <b>A2312IS</b>   |                 |                     | NAVBN9NB NAVBN100IB  |                                |
|          | M32x1,5    | <b>A3313IB</b>      | <b>A3313IS</b>   |                 |                     | NAVBN10NB NAVBN115IB |                                |
|          | M40x1,5    | <b>A4314IB</b>      | <b>A4314IS</b>   |                 |                     |                      |                                |
|          | M50x1,5    | <b>A5315IB</b>      | <b>A5315IS</b>   |                 |                     |                      |                                |
|          | M63x1,5    | <b>A6316IB</b>      | <b>A6316IS</b>   |                 |                     |                      |                                |
|          | M75x1,5    | <b>A731B</b>        | <b>A731S</b>     |                 |                     |                      |                                |
|          | M90x1,5    | <b>A831B</b>        | <b>A831S</b>     |                 |                     |                      |                                |
|          | M100x1,5   | <b>A103110IB</b>    | <b>A103110IS</b> |                 |                     |                      |                                |
|          | M115x1,5   | <b>A1031B</b>       | <b>A1031S</b>    |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |

\* For different threads, contact the  
sales department.



**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |      | Range           |                  |                    | Weight<br>Kg | Q.ty of<br>resin<br>ml *** |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|------|-----------------|------------------|--------------------|--------------|----------------------------|
|                                |            |                                |          | AC1              | AC2 | L    | Ød<br>cable max | Øc<br>over cores | n. max<br>cable ** |              |                            |
| NAVBN01NB                      | 3/8" NPT   | NAVBN16IB                      | M16x1,5  | 24               | 24  | 47.5 | 8.6             | 5.5              | 11                 | 0,115        | 1.3                        |
| NAVBN1SNB                      | 1/2" NPT   | NAVBN20SIB                     | M20x1,5  | 24               | 26  | 48   | 11.6            | 10               | 11                 | 0,134        | 3.7                        |
| NAVBN1NB                       | 1/2" NPT   | NAVBN20IB                      | M20x1,5  | 30               | 32  | 51.5 | 14              | 11               | 11                 | 0,165        | 4.2                        |
| NAVBN2NB                       | 3/4" NPT   | NAVBN25IB                      | M25x1,5  | 36               | 38  | 50.5 | 20              | 15               | 21                 | 0,211        | 8.3                        |
| NAVBN3NB                       | 1" NPT     | NAVBN32IB                      | M32x1,5  | 45               | 47  | 51.5 | 27              | 21               | 38                 | 0,290        | 15                         |
| NAVBN4NB                       | 1 1/4" NPT | NAVBN40IB                      | M40x1,5  | 50               | 52  | 52.5 | 32              | 27               | 59                 | 0,396        | 24                         |
| NAVBN5SNB                      | 1 1/2" NPT | NAVBN50SIB                     | M50x1,5  | 55               | 57  | 54.5 | 38              | 33               | 89                 | 0,534        | 36                         |
| NAVBN5NB                       | 2" NPT     | NAVBN50IB                      | M50x1,5  | 62/60*           | 62  | 54.5 | 44              | 35               | 89                 | 0,431        | 41                         |
| NAVBN6SNB                      | 2" NPT     | NAVBN63SIB                     | M63x1,5  | 68               | 77  | 67   | 50              | 43               | 115                | 1,137        | 65                         |
| NAVBN6NB                       | 2 1/2" NPT | NAVBN63IB                      | M63x1,5  | 75/73*           | 77  | 68   | 56              | 45               | 115                | 0,786        | 70                         |
| NAVBN7SNB                      | 2 1/2" NPT | NAVBN75SIB                     | M75x1,5  | 80               | 82  | 71.5 | 62              | 53               | 140                | 1,082        | 98                         |
| NAVBN7NB                       | 3" NPT     | NAVBN75IB                      | M75x1,5  | 90/85*           | 90  | 71.5 | 68              | 55               | 140                | 1,042        | 101                        |
| NAVBN8NB                       | 3" NPT     | NAVBN90IB                      | M90x1,5  | 100              | 110 | 80   | 79              | 65               | 200                | 1,984        | 145                        |
| NAVBN9NB                       | 3 1/2" NPT | NAVBN100IB                     | M100x1,5 | 115              | 120 | 86   | 91              | 72               | 200                | 2,043        | 188                        |
| NAVBN10NB                      | 4" NPT     | NAVBN115IB                     | M115x1,5 | 120              | 130 | 85.5 | 98              | 85               | 200                | 3,056        | 254                        |

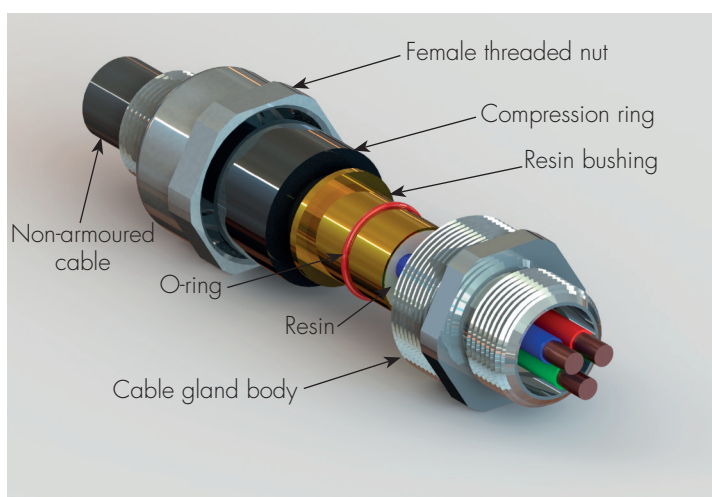
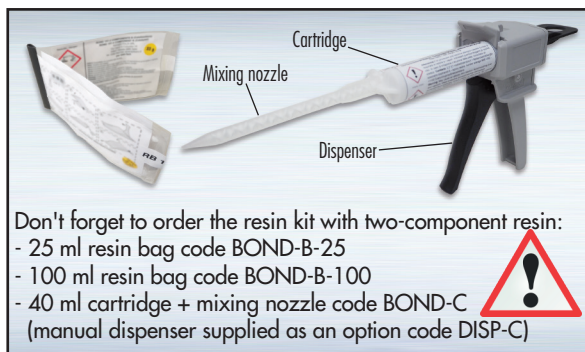
\* Dimensions with threaded: NPT / ISO.

\*\* At least 20% of the internal section of the bushing must be filled with resin.

\*\*\* Maximum quantity of resin calculated with completely empty bushing.

## Sample order code of the cable gland

|              |           |          |          |
|--------------|-----------|----------|----------|
| <b>NAVBN</b> | <b>6S</b> | <b>N</b> | <b>B</b> |
| MODEL        | SIZE      | THREAD   | MATERIAL |



## TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland.
- The ISO7/1 thread version is available upon request (sample code NAVBN1B).
- Also available in stainless steel AISI 316 (sample code NAVBN1S).
- Other materials on request.
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NAVBN1IA).



The NAVGB series barrier cable glands for non-armoured cable are designed to guarantee the IP66/67 protection and the explosion protection 'Ex db IIC; Ex eb IIC' in applications where installation requirements are needed in accordance with the EN - IEC 60079-14: 2015 standard. The NAVGB cable glands are equipped with an additional gasket to tighten the cable inside the cable gland.

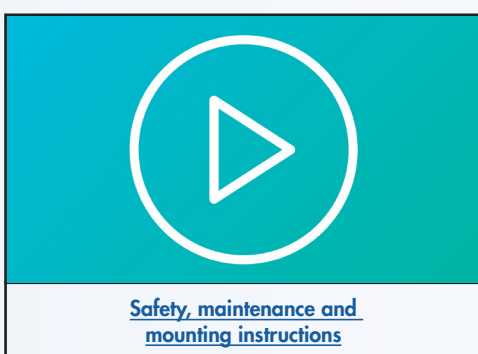
The barrier is shaped around the conductors thanks to the particular mixture that flows through them in the special bushing ensuring a complete seal. The liquid resin used prevents the formation of air pockets or voids between the conductors and the bushing (typical problems found with malleable resins). Resin kit available separately.



|                                      |                                                                                                                                                                                                                                                                                      |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/EU | <b>Group II</b>                                                                                                                                                                                                                                                                      | <b>Category 2GD/3G</b>          |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                                                                         | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex</b> II 2 GD - Ex db IIC Gb - Ex eb IIC Gb<br>II 2 D - Ex tb IIC Db<br>II 3G Ex nR IIC Gc                                                                                                                                                                               |                                 |
| <b>Certification:</b>                | <b>ATEX (category 2):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 019X</b>         |
|                                      | <b>ATEX (category 3):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 020X</b>         |
|                                      | <b>IEC Ex</b>                                                                                                                                                                                                                                                                        | <b>IECEx IMQ 19.0003X</b>       |
|                                      | <b>TR CU</b>                                                                                                                                                                                                                                                                         | <b>DISPONIBLE</b>               |
| <b>Standards:</b>                    | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016,<br>EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015<br>ed alla DIRETTIVA EUROPEA 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2014, IEC60079-7: 2015,<br>IEC60079-15: 2015, IEC60079-31: 2013<br>Direttiva RoHS 2002/95/CE |                                 |
| <b>Operating temperature:</b>        | <b>-60°C +100°C</b>                                                                                                                                                                                                                                                                  |                                 |
| <b>Protection rating:</b>            | <b>IP66/67</b>                                                                                                                                                                                                                                                                       |                                 |
| <b>Design</b>                        | <b>BS 6121: Part 1:1989, IEC 62444, EN 62444</b>                                                                                                                                                                                                                                     |                                 |

All IEC Ex certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

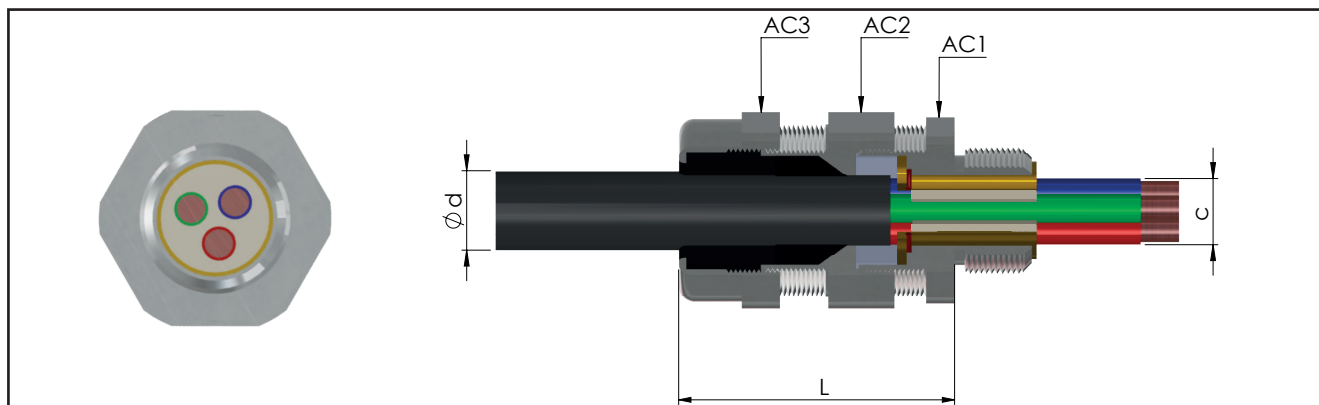
Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



#### ACCESSORIES UPON REQUEST

| Locknuts | ISO thread | Nickel-plated brass | Galvanized steel | Stainless steel | Black TPV protector | Cableglands          | Code                           |
|----------|------------|---------------------|------------------|-----------------|---------------------|----------------------|--------------------------------|
|          | M16x1,5    | <b>DL01IB</b>       | <b>DL01IG</b>    | <b>DL01IS</b>   |                     | NAVGB01NB NAVGB16IB  | <b>PGA1F</b>                   |
|          | M20x1,5    | <b>DL11IB</b>       | <b>DL11IG</b>    | <b>DL11IS</b>   |                     | NAVGB1SNB NAVGB20SIB | <b>PGA1N</b>                   |
|          | M25x1,5    | <b>DL21IB</b>       | <b>DL21IG</b>    | <b>DL21IS</b>   |                     | NAVGB1NB NAVGB20IB   | <b>PGA1</b>                    |
|          | M32x1,5    | <b>DL31IB</b>       | <b>DL31IG</b>    | <b>DL31IS</b>   |                     | NAVGB2NB NAVGB25IB   | <b>PGA2N</b>                   |
|          | M40x1,5    | <b>DL41IB</b>       | <b>DL41IG</b>    | <b>DL41IS</b>   |                     | NAVGB3NB NAVGB32IB   | <b>PGA4</b>                    |
|          | M50x1,5    | <b>DL51IB</b>       | <b>DL51IG</b>    | <b>DL51IS</b>   |                     | NAVGB4NB NAVGB40IB   | <b>PGA4</b>                    |
|          | M63x1,5    | <b>DL61IB</b>       | <b>DL61IG</b>    | <b>DL61IS</b>   |                     | NAVGB5SNB NAVGB50SIB | <b>PGA5</b>                    |
|          | M75x1,5    | <b>DL71IB</b>       | <b>DL71IG</b>    | <b>DL71IS</b>   |                     | NAVGB5NB NAVGB50IB   | <b>PGA5N</b>                   |
|          | M90x1,5    | <b>DL81IB</b>       | <b>DL81IG</b>    | <b>DL81IS</b>   |                     | NAVGB6SNB NAVGB63SIB | <b>PGA6</b>                    |
|          | M100x1,5   | <b>DL10IB</b>       | <b>DL10IG</b>    | <b>DL10IS</b>   |                     | NAVGB6NB NAVGB63IB   | <b>PGA7</b>                    |
|          | M115x1,5   | <b>DL115IB</b>      | <b>DL115IG</b>   | <b>DL115IS</b>  |                     | NAVGB7SNB NAVGB75SIB | <b>GTR7</b><br>Heat shrinkable |
|          | M16x1,5    | <b>A0131B</b>       | <b>A0131S</b>    |                 |                     | NAVGB7NB NAVGB75IB   |                                |
|          | M20x1,5    | <b>A1311IB</b>      | <b>A1311IS</b>   |                 |                     | NAVGB8NB NAVGB90IB   |                                |
|          | M25x1,5    | <b>A2312IB</b>      | <b>A2312IS</b>   |                 |                     | NAVGB9NB NAVGB100IB  |                                |
|          | M32x1,5    | <b>A3313IB</b>      | <b>A3313IS</b>   |                 |                     | NAVGB10NB NAVGB115IB |                                |
|          | M40x1,5    | <b>A4314IB</b>      | <b>A4314IS</b>   |                 |                     |                      |                                |
|          | M50x1,5    | <b>A5315IB</b>      | <b>A5315IS</b>   |                 |                     |                      |                                |
|          | M63x1,5    | <b>A6316IB</b>      | <b>A6316IS</b>   |                 |                     |                      |                                |
|          | M75x1,5    | <b>A731B</b>        | <b>A731S</b>     |                 |                     |                      |                                |
|          | M90x1,5    | <b>A831B</b>        | <b>A831S</b>     |                 |                     |                      |                                |
|          | M100x1,5   | <b>A103110IB</b>    | <b>A103110IS</b> |                 |                     |                      |                                |
|          | M115x1,5   | <b>A1031B</b>       | <b>A1031S</b>    |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |
|          |            |                     |                  |                 |                     |                      |                                |

\* For different threads, contact the sales department.



**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |     |      | Range           |                  |                    | Peso<br>Kg | Q.ty of<br>resin<br>ml *** |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|-----|------|-----------------|------------------|--------------------|------------|----------------------------|
|                                |            |                                |          | AC1              | AC2 | AC3 | L    | Ød<br>cable max | Øc<br>over cores | n. max<br>cable ** |            |                            |
| NAVGB01NB                      | 3/8" NPT   | NAVGB16IB                      | M16x1,5  | 24               | 24  | 24  | 54   | 3.5 - 8.6       | 5.5              | 11                 | 0,130      | 1.3                        |
| NAVGB1SNB                      | 1/2" NPT   | NAVGB20SIB                     | M20x1,5  | 24               | 26  | 26  | 54   | 6.3 - 11.6      | 10               | 11                 | 0,141      | 3.7                        |
| NAVGB1NB                       | 1/2" NPT   | NAVGB20IB                      | M20x1,5  | 30               | 32  | 32  | 57   | 6.5 - 14        | 11               | 11                 | 0,193      | 4.2                        |
| NAVGB2NB                       | 3/4" NPT   | NAVGB25IB                      | M25x1,5  | 36               | 38  | 38  | 57   | 11 - 20         | 15               | 21                 | 0,234      | 8.3                        |
| NAVGB3NB                       | 1" NPT     | NAVGB32IB                      | M32x1,5  | 45               | 47  | 47  | 62   | 17 - 27         | 21               | 38                 | 0,389      | 15                         |
| NAVGB4NB                       | 1 1/4" NPT | NAVGB40IB                      | M40x1,5  | 50               | 52  | 52  | 62   | 22 - 32         | 27               | 59                 | 0,462      | 24                         |
| NAVGB5SNB                      | 1 1/2" NPT | NAVGB50SIB                     | M50x1,5  | 55               | 57  | 57  | 65   | 29.5 - 38       | 33               | 89                 | 0,549      | 36                         |
| NAVGB5NB                       | 2" NPT     | NAVGB50IB                      | M50x1,5  | 62/60*           | 62  | 62  | 65   | 35.5 - 44       | 35               | 89                 | 0,505      | 41                         |
| NAVGB6SNB                      | 2" NPT     | NAVGB63SIB                     | M63x1,5  | 68               | 75  | 77  | 77.5 | 40 - 50         | 43               | 115                | 1,035      | 65                         |
| NAVGB6NB                       | 2 1/2" NPT | NAVGB63IB                      | M63x1,5  | 75/73*           | 80  | 82  | 78.5 | 47 - 56         | 45               | 115                | 0,990      | 70                         |
| NAVGB7SNB                      | 2 1/2" NPT | NAVGB75SIB                     | M75x1,5  | 80               | 85  | 90  | 84   | 53 - 62         | 53               | 140                | 1,177      | 98                         |
| NAVGB7NB                       | 3" NPT     | NAVGB75IB                      | M75x1,5  | 90/85*           | 95  | 100 | 85   | 59 - 68         | 55               | 140                | 1,384      | 101                        |
| NAVGB8NB                       | 3" NPT     | NAVGB90IB                      | M90x1,5  | 100              | 105 | 110 | 91   | 66 - 79         | 65               | 200                | 1,800      | 145                        |
| NAVGB9NB                       | 3 1/2" NPT | NAVGB100IB                     | M100x1,5 | 115              | 120 | 120 | 94   | 76 - 91         | 72               | 200                | 2,142      | 188                        |
| NAVGB10NB                      | 4" NPT     | NAVGB115IB                     | M115x1,5 | 120              | 125 | 130 | 93.5 | 86 - 98         | 85               | 200                | 2,504      | 254                        |

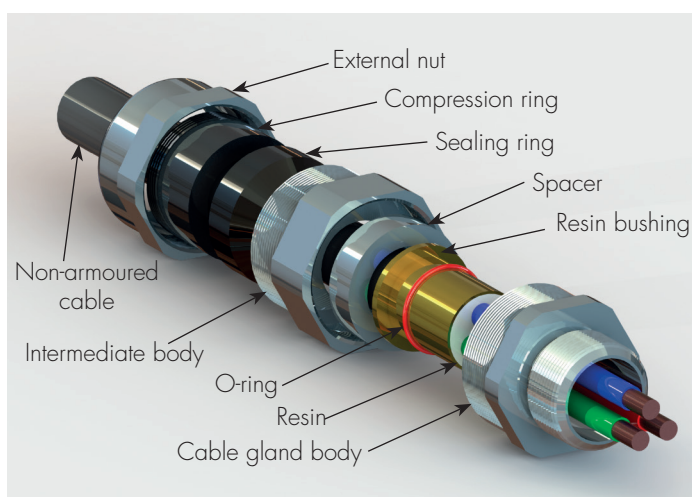
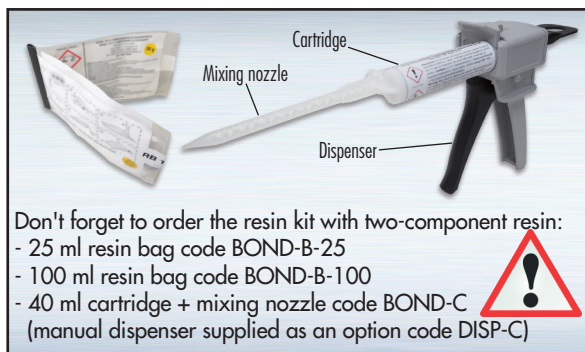
\* Dimensions with threaded: NPT / ISO

\*\* At least 20% of the internal section of the bushing must be filled with resin.

\*\*\* Maximum quantity of resin calculated with completely empty bushing.

## Sample order code of the cable gland

|              |           |          |          |
|--------------|-----------|----------|----------|
| <b>NAVGB</b> | <b>6S</b> | <b>N</b> | <b>B</b> |
| MODEL        | SIZE      | THREAD   | MATERIAL |



## TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland.
- The ISO7/1 thread version is available upon request (sample code NAVGB1B).
- Also available in stainless steel AISI 316 (sample code NAVGB1S).
- Other materials on request.

The NEVB series barrier cable glands for armored cable are designed to guarantee the IP66/67 protection and the explosion protection 'Ex db IIC; Ex eb IIC' in applications where installation requirements are needed in accordance with the EN - IEC 60079-14: 2015 standard. The barrier is shaped around the conductors thanks to the particular mixture that flows through them in the special bushing ensuring a complete seal. The liquid resin used prevents the formation of air pockets or voids between the conductors and the bushing (typical problems found with malleable resins). Resin kit available separately.



[Safety, maintenance and mounting instructions](#)

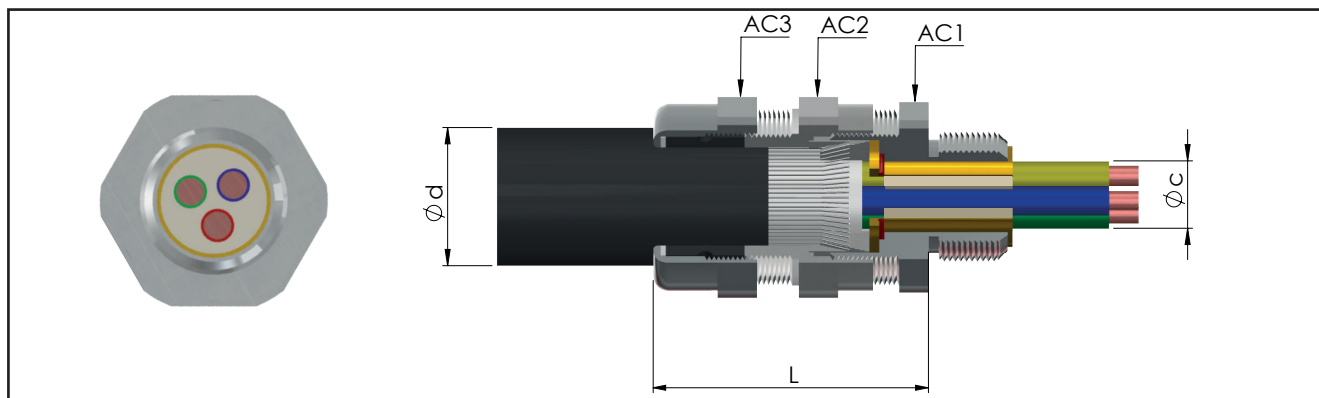
|                                      |                                                                                                                                                                                                                                                                                      |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/EU | <b>Group II</b>                                                                                                                                                                                                                                                                      | <b>Category 2GD/3G</b>          |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                                                                         | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | CE 0722 Ex II 2 GD - Ex db IIC Gb - Ex eb IIC Gb<br>II 2 D - Ex tb IIC Db<br>II 3G Ex nR IIC Gc                                                                                                                                                                                      |                                 |
| <b>Certification:</b>                | <b>ATEX (category 2):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 019X</b>         |
|                                      | <b>ATEX (category 3):</b>                                                                                                                                                                                                                                                            | <b>IMQ 19 ATEX 020X</b>         |
|                                      | <b>IEC Ex</b>                                                                                                                                                                                                                                                                        | <b>IECEx IMQ 19.0003X</b>       |
|                                      | <b>TR CU</b>                                                                                                                                                                                                                                                                         | <b>DISPONIBLE</b>               |
| <b>Standards:</b>                    | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2016,<br>EN 60079-7: 2015, EN 60079-15: 2012, EN 60079-31: 2015<br>ed alla DIRETTIVA EUROPEA 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2014, IEC60079-7: 2015,<br>IEC60079-15: 2015, IEC60079-31: 2013<br>Direttiva RoHS 2002/95/CE |                                 |
| <b>Operating temperature:</b>        | <b>-60°C +100°C</b>                                                                                                                                                                                                                                                                  |                                 |
| <b>Protection rating:</b>            | <b>IP66/67</b>                                                                                                                                                                                                                                                                       |                                 |
| <b>Design</b>                        | <b>BS 6121: Part 1:1989, IEC 62444, EN 62444</b>                                                                                                                                                                                                                                     |                                 |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### ACCESSORIES UPON REQUEST

| Locknuts | ISO thread | Nickel-plated brass | Galvanized steel | Stainless steel  | Black TPV protector | Cableglands        | Code                           |
|----------|------------|---------------------|------------------|------------------|---------------------|--------------------|--------------------------------|
|          | M16x1,5    | <b>DL01IB</b>       | <b>DL01IG</b>    | <b>DL01IS</b>    |                     | NEVB01NB NEVB16IB  | <b>PGA1F</b>                   |
|          | M20x1,5    | <b>DL11IB</b>       | <b>DL11IG</b>    | <b>DL11IS</b>    |                     | NEVB1SNB NEVB20SIB | <b>PGA1N</b>                   |
|          | M25x1,5    | <b>DL21IB</b>       | <b>DL21IG</b>    | <b>DL21IS</b>    |                     | NEVB1NB NEVB20IB   | <b>PGA1</b>                    |
|          | M32x1,5    | <b>DL31IB</b>       | <b>DL31IG</b>    | <b>DL31IS</b>    |                     | NEVB2NB NEVB25IB   | <b>PGA2N</b>                   |
|          | M40x1,5    | <b>DL41IB</b>       | <b>DL41IG</b>    | <b>DL41IS</b>    |                     | NEVB3NB NEVB32IB   | <b>PGA4</b>                    |
|          | M50x1,5    | <b>DL51IB</b>       | <b>DL51IG</b>    | <b>DL51IS</b>    |                     | NEVB4NB NEVB40IB   | <b>PGA4</b>                    |
|          | M63x1,5    | <b>DL61IB</b>       | <b>DL61IG</b>    | <b>DL61IS</b>    |                     | NEVB5SNB NEVB50SIB | <b>PGA5</b>                    |
|          | M75x1,5    | <b>DL71IB</b>       | <b>DL71IG</b>    | <b>DL71IS</b>    |                     | NEVB5NB NEVB50IB   | <b>PGA5N</b>                   |
|          | M90x1,5    | <b>DL81IB</b>       | <b>DL81IG</b>    | <b>DL81IS</b>    |                     | NEVB6SNB NEVB63SIB | <b>PGA6</b>                    |
|          | M100x1,5   | <b>DL10IB</b>       | <b>DL10IG</b>    | <b>DL10IS</b>    |                     | NEVB6NB NEVB63IB   | <b>PGA7</b>                    |
|          | M115x1,5   | <b>DL115IB</b>      | <b>DL115IG</b>   | <b>DL115IS</b>   |                     | NEVB7SNB NEVB75SIB | <b>GTR7</b><br>Heat shrinkable |
|          | M16x1,5    | <b>A0131B</b>       | <b>A0131S</b>    | <b>RD101S/A4</b> |                     | NEVB7NB NEVB75IB   |                                |
|          | M20x1,5    | <b>A1311B</b>       | <b>A1311S</b>    | <b>RD11S/A4</b>  |                     | NEVB8NB NEVB90IB   |                                |
|          | M25x1,5    | <b>A2312B</b>       | <b>A2312S</b>    | <b>RD12S/A4</b>  |                     | NEVB9NB NEVB100IB  |                                |
|          | M32x1,5    | <b>A3313B</b>       | <b>A3313S</b>    | <b>RD13S/A4</b>  |                     | NEVB10NB NEVB115IB |                                |
|          | M40x1,5    | <b>A4314B</b>       | <b>A4314S</b>    | <b>RD14S/A4</b>  |                     |                    |                                |
|          | M50x1,5    | <b>A5315B</b>       | <b>A5315S</b>    | <b>RD15S/A4</b>  |                     |                    |                                |
|          | M63x1,5    | <b>A6316B</b>       | <b>A6316S</b>    | <b>RD16S/A4</b>  |                     |                    |                                |
|          | M75x1,5    | <b>A731B</b>        | <b>A731S</b>     |                  |                     |                    |                                |
|          | M90x1,5    | <b>A831B</b>        | <b>A831S</b>     |                  |                     |                    |                                |
|          | M100x1,5   | <b>A10310IB</b>     | <b>A10310IS</b>  |                  |                     |                    |                                |
|          | M115x1,5   | <b>A1031B</b>       | <b>A1031S</b>    |                  |                     |                    |                                |

\* For different threads, contact the sales department.



**CABLE GLAND SELECTION TABLE**

| Code<br>Nickel-plated<br>brass | Thread     | Code<br>Nickel-plated<br>brass | Thread   | Dimensions in mm |     |     |     | Range           |                  |                    | Peso<br>Kg | Q.ty of<br>resin<br>ml *** |
|--------------------------------|------------|--------------------------------|----------|------------------|-----|-----|-----|-----------------|------------------|--------------------|------------|----------------------------|
|                                |            |                                |          | AC1              | AC2 | AC3 | L   | Ød<br>cable max | Øc<br>over cores | n. max<br>cable ** |            |                            |
| NEVB01NB                       | 3/8" NPT   | NEVB16IB                       | M16x1,5  | 24               | 24  | 24  | 52  | 6 - 13.2        | 5.5              | 11                 | 0,159      | 1.3                        |
| NEVB1SNB                       | 1/2" NPT   | NEVB20SIB                      | M20x1,5  | 24               | 26  | 26  | 53  | 9.5 - 16        | 10               | 11                 | 0,172      | 3.7                        |
| NEVB1NB                        | 1/2" NPT   | NEVB20IB                       | M20x1,5  | 30               | 32  | 32  | 59  | 12.5 - 21       | 11               | 11                 | 0,236      | 4.2                        |
| NEVB2NB                        | 3/4" NPT   | NEVB25IB                       | M25x1,5  | 36               | 38  | 38  | 55  | 20 - 27.5       | 15               | 21                 | 0,287      | 8.3                        |
| NEVB3NB                        | 1" NPT     | NEVB32IB                       | M32x1,5  | 45               | 47  | 47  | 63  | 23.5 - 34       | 21               | 38                 | 0,476      | 15                         |
| NEVB4NB                        | 1 1/4" NPT | NEVB40IB                       | M40x1,5  | 50               | 52  | 52  | 65  | 26 - 40         | 27               | 59                 | 0,565      | 24                         |
| NEVB5SNB                       | 1 1/2" NPT | NEVB50SIB                      | M50x1,5  | 55               | 57  | 57  | 69  | 35 - 46.5       | 33               | 89                 | 0,671      | 36                         |
| NEVB5NB                        | 2" NPT     | NEVB50IB                       | M50x1,5  | 60               | 62  | 62  | 69  | 38 - 53         | 35               | 89                 | 0,618      | 41                         |
| NEVB6SNB                       | 2" NPT     | NEVB63SIB                      | M63x1,5  | 68               | 75  | 77  | 81  | 45.5 - 59.5     | 43               | 115                | 1,266      | 65                         |
| NEVB6NB                        | 2 1/2" NPT | NEVB63IB                       | M63x1,5  | 73               | 80  | 82  | 83  | 54.5 - 66       | 45               | 115                | 1,210      | 70                         |
| NEVB7SNB                       | 2 1/2" NPT | NEVB75SIB                      | M75x1,5  | 80               | 85  | 90  | 87  | 57 - 72         | 53               | 140                | 1,438      | 98                         |
| NEVB7NB                        | 3" NPT     | NEVB75IB                       | M75x1,5  | 85               | 95  | 100 | 88  | 66.5 - 78.5     | 55               | 140                | 1,691      | 101                        |
| NEVB8NB                        | 3" NPT     | NEVB90IB                       | M90x1,5  | 100              | 105 | 110 | 92  | 76.5 - 90       | 65               | 200                | 2,200      | 145                        |
| NEVB9NB                        | 3 1/2" NPT | NEVB100IB                      | M100x1,5 | 115              | 120 | 120 | 100 | 86 - 101        | 72               | 200                | 2,619      | 188                        |
| NEVB10NB                       | 4" NPT     | NEVB115IB                      | M115x1,5 | 120              | 125 | 130 | 100 | 100 - 110       | 85               | 200                | 3,061      | 254                        |

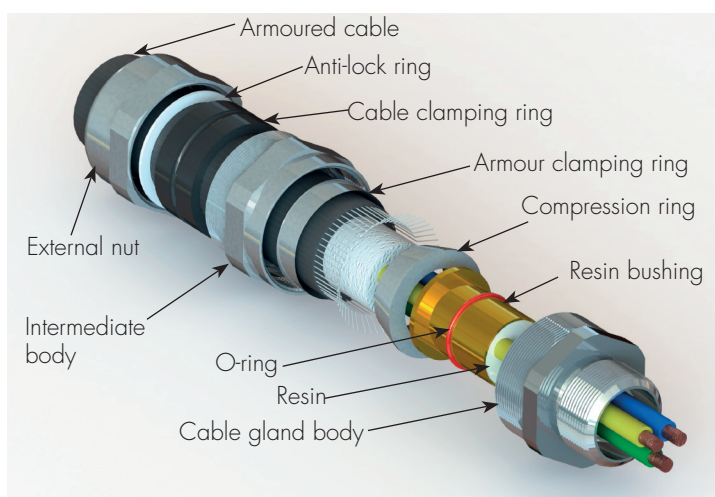
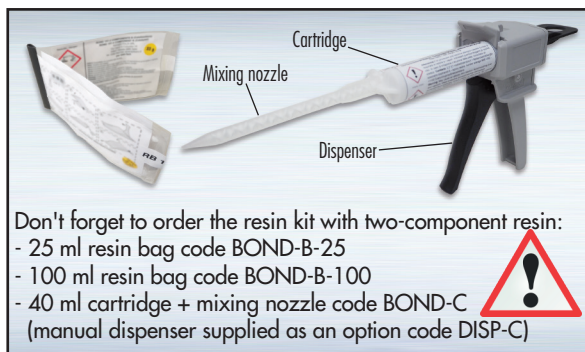
\* Dimensions with threaded: NPT / ISO.

\*\* At least 20% of the internal section of the bushing must be filled with resin.

\*\*\* Maximum quantity of resin calculated with completely empty bushing.

## Sample order code of the cable gland

|             |           |          |          |
|-------------|-----------|----------|----------|
| <b>NEVB</b> | <b>6S</b> | <b>N</b> | <b>B</b> |
| MODEL       | SIZE      | THREAD   | MATERIAL |



## TECHNICAL NOTES:

- Silicone o-rings are supplied for cylindrical threads (ISO metric) for the pre-assembled IP seal on the cable gland.
- The ISO7/1 thread version is available upon request (sample code NEVB1B).
- Also available in stainless steel AISI 316 (sample code NEVB1S).
- Other materials on request.
- For "Ex i" intrinsic safety version, RAL 5015 blue nut (sample code NEVB1IA).



NAVP series cable glands in polyamide with ISO thread are used in hazardous areas to allow direct insertions of non-armoured cables into Ex e (NAVP..IXE) or Ex i (NAVP..IXI) equipment or junction boxes. They can be installed easily, they are strikes resistant until 7J and they ensure Ex e and IP protection on the cable external sheath.



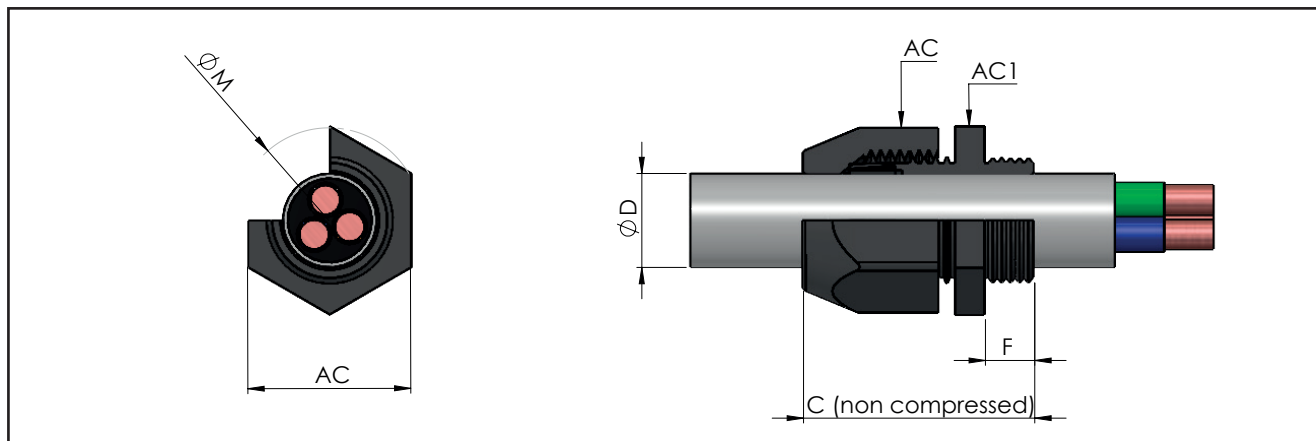
[Safety, maintenance and mounting instructions](#)

|                                      |                                                                                                                                                                                                                                       |                                 |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                                                                                                                                                                                       | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                                                                                                                          | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD - Ex eb IIC Gb Ex tb IIIC Db IP66/68*</b>                                                                                                                                                                       |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                                                                                                                                                                                           | <b>IMQ 16 ATEX 005X</b>         |
|                                      | <b>IECEX</b>                                                                                                                                                                                                                          | <b>IECEX IMQ 15.0009X</b>       |
| <b>Standards:</b>                    | CENELEC EN 60079-0: 2012/13, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-31: 2014 ed alla DIRETTIVA EUROPEA 2014/34/UE<br>IEC 60079-0: 2011, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-31: 2013<br>Direttiva RoHS 2002/95/CE |                                 |
| <b>Operating temperature:</b>        | <b>-60°C +70°C</b>                                                                                                                                                                                                                    |                                 |
| <b>Degree of protection:</b>         | <b>IP66/68 (50 meters - 30 minutes)</b>                                                                                                                                                                                               |                                 |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

\* Ex e IIC cable glands can be used with Ex i circuits. The nut of these cable gland shall be painted blue and marking will not be changed. The nut of these cable gland shall be painted blue and marking will not be changed.

| Accessories upon request                                                            |            |                 |           |                                                                                      |            |              |
|-------------------------------------------------------------------------------------|------------|-----------------|-----------|--------------------------------------------------------------------------------------|------------|--------------|
| Locknut                                                                             | ISO thread | Code            | Material  | Plugs for IP protection                                                              | ISO thread | Code         |
|  | M12x1,5    | <b>DL02IXEP</b> | Polyamide |  | M12x1,5    | <b>PT02</b>  |
|                                                                                     | M16x1,5    | <b>DL01IXEP</b> |           |                                                                                      | M16x1,5    | <b>PT01N</b> |
|                                                                                     | M20x1,5    | <b>DL1IXEP</b>  |           |                                                                                      | M20x1,5    | <b>PT1N</b>  |
|                                                                                     | M25x1,5    | <b>DL2IXEP</b>  |           |                                                                                      | M25x1,5    | <b>PT2N</b>  |
|                                                                                     | M32x1,5    | <b>DL3IXEP</b>  |           |                                                                                      | M32x1,5    | <b>PT3N</b>  |
|                                                                                     | M40x1,5    | <b>DL4IXEP</b>  |           |                                                                                      | M40x1,5    | <b>PT4N</b>  |
|                                                                                     | M50x1,5    | <b>DL5IXEP</b>  |           |                                                                                      | M50x1,5    | <b>PT5N</b>  |
|                                                                                     | M63x1,5    | <b>DL6IXEP</b>  |           |                                                                                      | M63x1,5    | <b>PT6N</b>  |



**CABLE GLANDS SELECTION TABLE**

| Code<br><b>Polyamide</b> | Method of protection | Thread  | Dimensions in mm |     |    |    |      | Range      | Weight |
|--------------------------|----------------------|---------|------------------|-----|----|----|------|------------|--------|
|                          |                      |         | AC               | AC1 | ØM | F  | C    | ØD min-max | Kg     |
| NAVP12IXE                | Ex e                 | M12x1,5 | 15               | 15  | 17 | 10 | 32   | 4 - 6,5    | 0,004  |
| NAVP16IXE                |                      | M16x1,5 | 22               | 22  | 25 | 15 | 44,5 | 6 - 10     | 0,006  |
| NAVP20IXE                |                      | M20x1,5 | 24               | 24  | 28 | 15 | 45   | 7 - 12     | 0,010  |
| NAVP25IXE-X6DS           |                      | M25x1,5 | 33               | 33  | 38 | 15 | 50   | 10 - 18    | 0,016  |
| NAVP25IXE                |                      | M25x1,5 | 33               | 33  | 38 | 15 | 50   | 14 - 18    | 0,016  |
| NAVP32IXE                |                      | M32x1,5 | 42               | 42  | 48 | 15 | 55,5 | 19 - 25    | 0,042  |
| NAVP40IXE                |                      | M40x1,5 | 53               | 53  | 60 | 18 | 68   | 23 - 32    | 0,074  |
| NAVP50IXE                |                      | M50x1,5 | 60               | 60  | 69 | 18 | 72   | 31 - 38    | -      |
| NAVP63IXE                |                      | M63x1,5 | 65               | 65  | 75 | 18 | 72   | 35 - 44    | -      |
| NAVP12IXI                | Ex i                 | M12x1,5 | 15               | 15  | 17 | 10 | 32   | 4 - 6,5    | 0,004  |
| NAVP16IXI                |                      | M16x1,5 | 22               | 22  | 25 | 15 | 44,5 | 6 - 10     | 0,006  |
| NAVP20IXI                |                      | M20x1,5 | 24               | 24  | 28 | 15 | 45   | 7 - 12     | 0,010  |
| NAVP25IXI                |                      | M25x1,5 | 33               | 33  | 38 | 15 | 50   | 14 - 18    | 0,016  |
| NAVP32IXI                |                      | M32x1,5 | 42               | 42  | 48 | 15 | 55,5 | 19 - 25    | 0,042  |
| NAVP40IXI                |                      | M40x1,5 | 53               | 53  | 60 | 18 | 68   | 23 - 32    | 0,074  |
| NAVP50IXI                |                      | M50x1,5 | 60               | 60  | 69 | 18 | 72   | 31 - 38    | -      |
| NAVP63IXI                |                      | M63x1,5 | 65               | 65  | 75 | 18 | 72   | 35 - 44    | -      |

### Example of Order Code

|             |           |                  |                                 |
|-------------|-----------|------------------|---------------------------------|
| <b>NAVP</b> | <b>16</b> | <b>I</b>         | <b>XE</b>                       |
| MODEL       | SIZE      | ISO<br>THREADING | METHOD OF<br>PROTECTION<br>Ex e |

### TECHNICAL NOTES:

- Silicone gaskets
- Color of cable gland black RAL 9005 (Ex e) or blue RAL 5015 (Ex i)
- Strikes resistant 7J



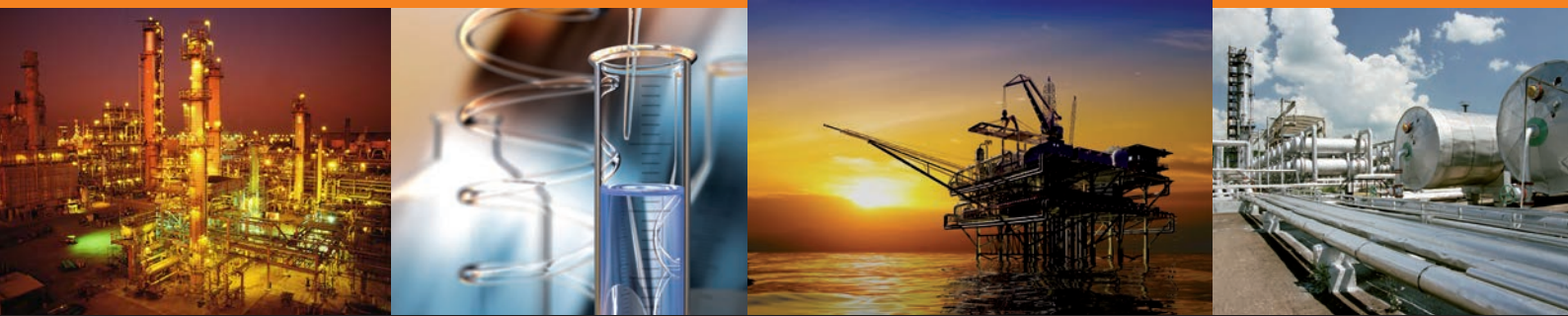






# Electrical fittings for electrical plants

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BMF series three pieces unions for IIB gas group enable an independent rotation and the connection between pipes, enclosures or different equipment.



|                                      |                                                                    |                                 |
|--------------------------------------|--------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                    | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                       | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIB Gb Ex tb IIIC Db IP66/67 (B..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                        | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEX</b>                                                       | <b>IECEX CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                       | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

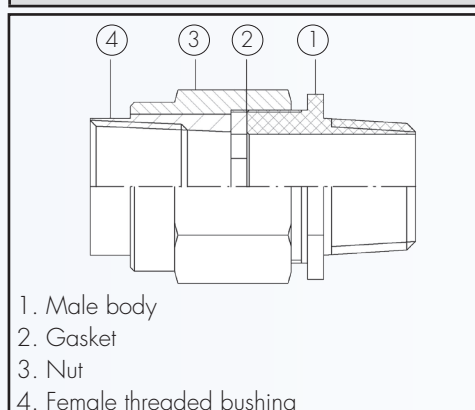


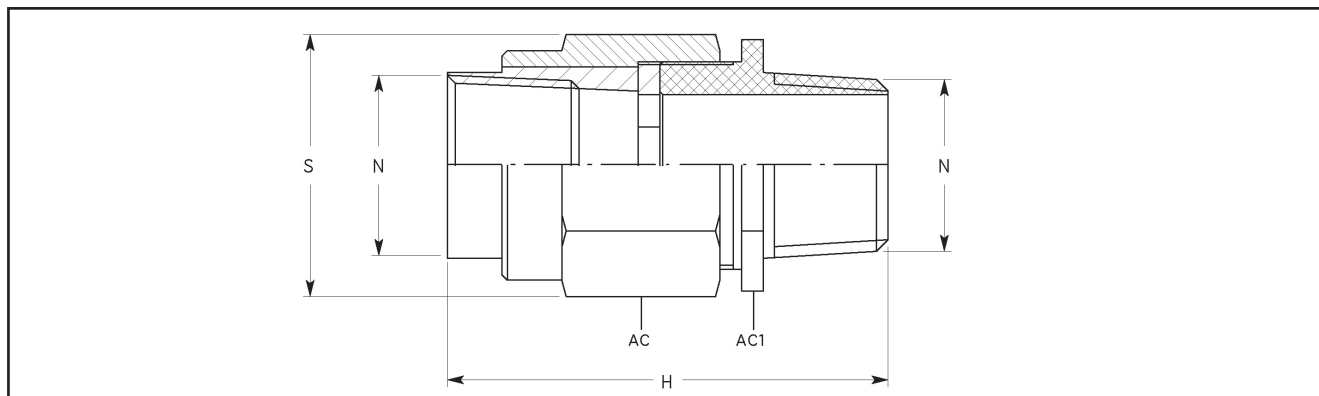
**Operating temperature:**

| Three pieces unions series | Materials                                                       | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------------------------|----------|---------------------|
| <b>BMF...</b>              | Galvanised steel ( <b>G</b> ), Nickel-plated brass ( <b>B</b> ) | Silicone | -20°C +60°C         |
| <b>BMF...S</b>             | Stainless steel ( <b>S</b> )                                    | Silicone | -60°C +60°C         |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### COMPOSITION OF STANDARD UNION

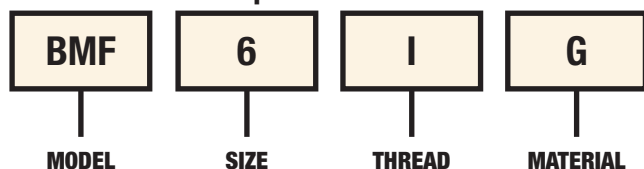




### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight<br>Kg |
|--------------------------------|---------------|------------------|-----|-----|-----|--------------|
|                                |               | H                | S   | AC  | AC1 |              |
| BMF1G                          | 1/2" ISO7/1   | 60               | 35  | 30  | 27  | 0,150        |
| BMF2G                          | 3/4" ISO7/1   | 61               | 40  | 35  | 32  | 0,185        |
| BMF3G                          | 1" ISO7/1     | 71,5             | 48  | 42  | 40  | 0,300        |
| BMF4G                          | 1 1/4" ISO7/1 | 86               | 60  | 55  | 59  | 0,760        |
| BMF5G                          | 1 1/2" ISO7/1 | 86,5             | 75  | 70  | 67  | 1,000        |
| BMF6G                          | 2" ISO7/1     | 88               | 90  | 84  | 77  | 1,400        |
| BMF7G                          | 2 1/2" ISO7/1 | 107              | 117 | 108 | 99  | 2,350        |
| BMF8G                          | 3" ISO7/1     | 109              | 132 | 121 | 108 | 2,800        |
| BMF10G                         | 4" ISO7/1     | 116,5            | 152 | 145 | 135 | 4,160        |
| BMF1NG                         | 1/2" NPT      | 60               | 35  | 30  | 27  | 0,150        |
| BMF2NG                         | 3/4" NPT      | 61               | 40  | 35  | 32  | 0,185        |
| BMF3NG                         | 1" NPT        | 71,5             | 48  | 42  | 40  | 0,300        |
| BMF4NG                         | 1 1/4" NPT    | 86               | 60  | 55  | 59  | 0,760        |
| BMF5NG                         | 1 1/2" NPT    | 86,5             | 75  | 70  | 67  | 1,000        |
| BMF6NG                         | 2" NPT        | 88               | 90  | 84  | 77  | 1,400        |
| BMF7NG                         | 2 1/2" NPT    | 107              | 117 | 108 | 99  | 2,350        |
| BMF8NG                         | 3" NPT        | 109              | 132 | 121 | 108 | 2,800        |
| BMF10NG                        | 4" NPT        | 116,5            | 152 | 145 | 135 | 4,160        |
| BMF1IG                         | M20x1,5       | 60               | 35  | 30  | 27  | 0,150        |
| BMF2IG                         | M25x1,5       | 61               | 40  | 35  | 32  | 0,185        |
| BMF3IG                         | M32x1,5       | 71,5             | 48  | 42  | 40  | 0,300        |
| BMF4IG                         | M40x1,5       | 86               | 60  | 55  | 59  | 0,760        |
| BMF5IG                         | M50x1,5       | 86,5             | 75  | 70  | 67  | 1,000        |
| BMF6IG                         | M63x1,5       | 88               | 90  | 84  | 77  | 1,400        |
| BMF7IG                         | M75x1,5       | 107              | 117 | 108 | 99  | 2,350        |
| BMF8IG                         | M90x1,5       | 109              | 132 | 121 | 108 | 2,800        |
| BMF10IG                        | M100x1,5      | 116,5            | 152 | 145 | 135 | 4,160        |

### Order code example



### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code **BMF1S**)
- Available also upon request in nickel-plated brass (example code **BMF1B**)
- It is possible supply mixed thread, of the same equivalence, adding code for female thread (sample code for fitting in galvanised steel Male 1"NPT - Female M32x1,5: **BMF3NIG**)

BFF series three pieces unions for IIB gas group enable an independent rotation and connection between pipes, enclosures or different equipment.



|                                      |                                                                    |                                 |
|--------------------------------------|--------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                    | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                       | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIB Gb Ex tb IIIC Db IP66/67 (B..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                        | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEx</b>                                                       | <b>IECEx CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                       | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

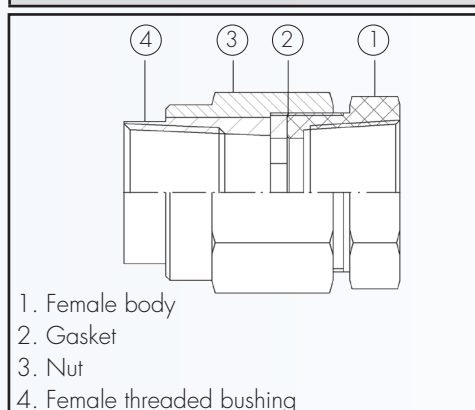


**Operating temperature:**

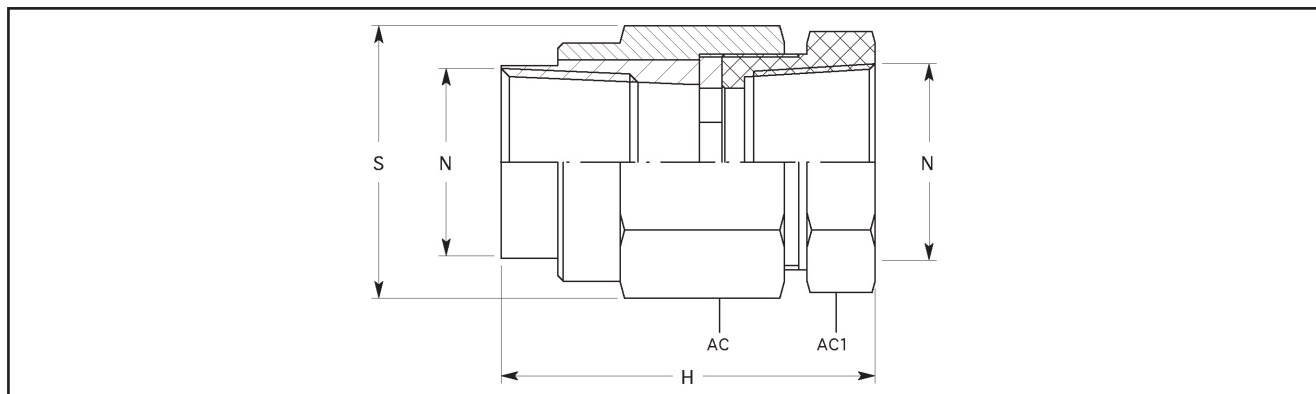
| Three pieces unions series | Materials                                     | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------|----------|---------------------|
| <b>BFF...</b>              | Galvanised steel (G), Nickel-plated brass (B) | Silicone | -20°C +60°C         |
| <b>BFF...S</b>             | Stainless steel (S)                           | Silicone | -60°C +60°C         |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### COMPOSITION OF STANDARD UNION



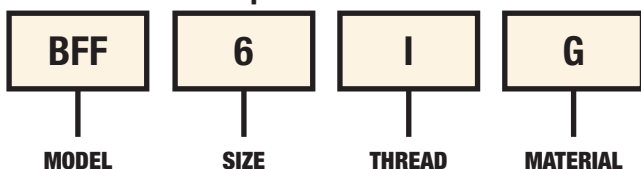




## UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight<br>Kg |
|--------------------------------|---------------|------------------|-----|-----|-----|--------------|
|                                |               | H                | S   | AC  | AC1 |              |
| BFF1G                          | 1/2" ISO7/1   | 57               | 35  | 30  | 27  | 0,125        |
| BFF2G                          | 3/4" ISO7/1   | 57               | 40  | 35  | 32  | 0,150        |
| BFF3G                          | 1" ISO7/1     | 67               | 48  | 42  | 40  | 0,235        |
| BFF4G                          | 1 1/4" ISO7/1 | 63               | 60  | 55  | 59  | 0,640        |
| BFF5G                          | 1 1/2" ISO7/1 | 63               | 75  | 70  | 67  | 0,960        |
| BFF6G                          | 2" ISO7/1     | 64               | 90  | 84  | 77  | 1,220        |
| BFF7G                          | 2 1/2" ISO7/1 | 71               | 117 | 108 | 99  | 2,240        |
| BFF8G                          | 3" ISO7/1     | 71               | 132 | 121 | 108 | 2,600        |
| BFF10G                         | 4" ISO7/1     | 77               | 152 | 145 | 135 | 3,700        |
| BFF1NG                         | 1/2" NPT      | 57               | 35  | 30  | 27  | 0,125        |
| BFF2NG                         | 3/4" NPT      | 57               | 40  | 35  | 32  | 0,150        |
| BFF3NG                         | 1" NPT        | 67               | 48  | 42  | 40  | 0,235        |
| BFF4NG                         | 1 1/4" NPT    | 63               | 60  | 55  | 59  | 0,640        |
| BFF5NG                         | 1 1/2" NPT    | 63               | 75  | 70  | 67  | 0,960        |
| BFF6NG                         | 2" NPT        | 64               | 90  | 84  | 77  | 1,220        |
| BFF7NG                         | 2 1/2" NPT    | 71               | 117 | 108 | 99  | 2,240        |
| BFF8NG                         | 3" NPT        | 71               | 132 | 121 | 108 | 2,600        |
| BFF10NG                        | 4" NPT        | 77               | 152 | 145 | 135 | 3,700        |
| BFF1IG                         | M20x1,5       | 57               | 35  | 30  | 27  | 0,125        |
| BFF2IG                         | M25x1,5       | 57               | 40  | 35  | 32  | 0,150        |
| BFF3IG                         | M32x1,5       | 67               | 48  | 42  | 40  | 0,235        |
| BFF4IG                         | M40x1,5       | 63               | 60  | 55  | 59  | 0,640        |
| BFF5IG                         | M50x1,5       | 63               | 75  | 70  | 67  | 0,960        |
| BFF6IG                         | M63x1,5       | 64               | 90  | 84  | 77  | 1,220        |
| BFF7IG                         | M75x1,5       | 71               | 117 | 108 | 99  | 2,240        |
| BFF8IG                         | M90x1,5       | 71               | 132 | 121 | 108 | 2,600        |
| BFF10IG                        | M100x1,5      | 77               | 152 | 145 | 135 | 3,700        |

### Order code example



### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code BFF1S)
- Available also upon request in nickel-plated brass (example code BFF1B)

BMM series three pieces unions for IIB gas group enable an independent rotation and connection between pipes, enclosures or different equipment.



|                                      |                                                                    |                                 |
|--------------------------------------|--------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                    | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                       | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIB Gb Ex tb IIIC Db IP66/67 (B..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                        | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEX</b>                                                       | <b>IECEX CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                       | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

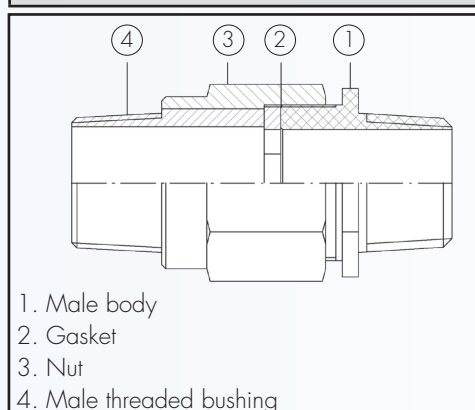


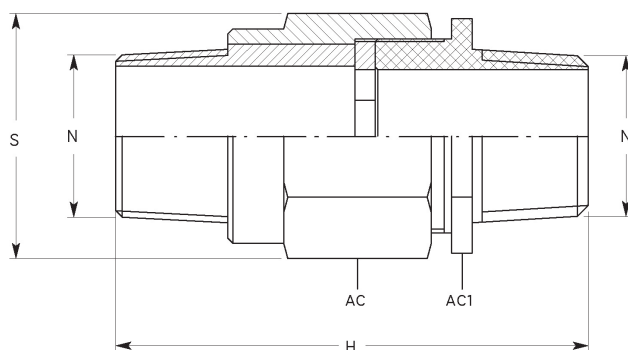
**Operating temperature:**

| Three pieces unions series | Materials                                     | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------|----------|---------------------|
| <b>BMM...</b>              | Galvanised steel (G), Nickel-plated brass (B) | Silicone | -20°C +60°C         |
| <b>BMM...S</b>             | Stainless steel (S)                           | Silicone | -60°C +60°C         |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### COMPOSITION OF STANDARD UNION

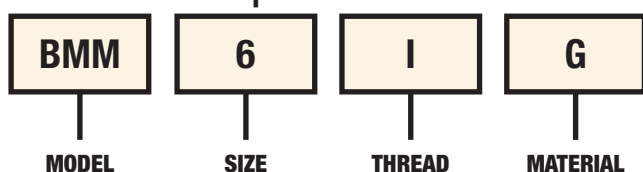




### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight<br>Kg |
|--------------------------------|---------------|------------------|-----|-----|-----|--------------|
|                                |               | H                | S   | AC  | AC1 |              |
| BMM1G                          | 1/2" ISO7/1   | 89               | 35  | 30  | 27  | 0,125        |
| BMM2G                          | 3/4" ISO7/1   | 87,5             | 40  | 35  | 32  | 0,150        |
| BMM3G                          | 1" ISO7/1     | 100,5            | 48  | 42  | 40  | 0,235        |
| BMM4G                          | 1 1/4" ISO7/1 | 111              | 60  | 55  | 59  | 0,640        |
| BMM5G                          | 1 1/2" ISO7/1 | 115              | 75  | 70  | 67  | 0,960        |
| BMM6G                          | 2" ISO7/1     | 113              | 90  | 84  | 77  | 1,220        |
| BMM7G                          | 2 1/2" ISO7/1 | 128              | 117 | 108 | 99  | 2,240        |
| BMM8G                          | 3" ISO7/1     | 130              | 132 | 121 | 108 | 2,600        |
| BMM10G                         | 4" ISO7/1     | 144              | 152 | 145 | 135 | 3,700        |
| BMM1NG                         | 1/2" NPT      | 89               | 35  | 30  | 27  | 0,125        |
| BMM2NG                         | 3/4" NPT      | 87,5             | 40  | 35  | 32  | 0,150        |
| BMM3NG                         | 1" NPT        | 100,5            | 48  | 42  | 40  | 0,235        |
| BMM4NG                         | 1 1/4" NPT    | 111              | 60  | 55  | 59  | 0,640        |
| BMM5NG                         | 1 1/2" NPT    | 115              | 75  | 70  | 67  | 0,960        |
| BMM6NG                         | 2" NPT        | 113              | 90  | 84  | 77  | 1,220        |
| BMM7NG                         | 2 1/2" NPT    | 128              | 117 | 108 | 99  | 2,240        |
| BMM8NG                         | 3" NPT        | 130              | 132 | 121 | 108 | 2,600        |
| BMM10NG                        | 4" NPT        | 144              | 152 | 145 | 135 | 3,700        |
| BMM1IG                         | M20x1,5       | 89               | 35  | 30  | 27  | 0,125        |
| BMM2IG                         | M25x1,5       | 87,5             | 40  | 35  | 32  | 0,150        |
| BMM3IG                         | M32x1,5       | 100,5            | 48  | 42  | 40  | 0,235        |
| BMM4IG                         | M40x1,5       | 111              | 60  | 55  | 59  | 0,640        |
| BMM5IG                         | M50x1,5       | 115              | 75  | 70  | 67  | 0,960        |
| BMM6IG                         | M63x1,5       | 113              | 90  | 84  | 77  | 1,220        |
| BMM7IG                         | M75x1,5       | 128              | 117 | 108 | 99  | 2,240        |
| BMM8IG                         | M90x1,5       | 130              | 132 | 121 | 108 | 2,600        |
| BMM10IG                        | M100x1,5      | 144              | 152 | 145 | 135 | 3,700        |

### Order code example



### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code **BMM1S**)
- Available also upon request in nickel-plated brass (example code **BMM1B**)

RBMF series three pieces unions suitable for IIB gas group and extreme temperatures enable an independent rotation and connection between pipes, enclosures or different equipment.



|                                      |                                                              |                          |
|--------------------------------------|--------------------------------------------------------------|--------------------------|
| <b>Classification:</b><br>2014/34/UE | Group II                                                     | Category 2GD             |
| <b>Installation:</b><br>EN 60079-14  | zone 1 - zone 2 (Gas)                                        | zone 21 - zone 22 (Dust) |
| <b>Marking:</b>                      | CE 0722 Ex II 2 GD Ex db IIB Gb Ex tb IIIC Db IP66/67 (RB..) |                          |
| <b>Certification:</b>                | ATEX                                                         | CESI 99 ATEX 034U        |
|                                      | IECEx                                                        | IECEx CES 10.0002U       |
|                                      | TR CU                                                        | AVAILABLE                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | IP66/67                                                                                                                                                                                        |

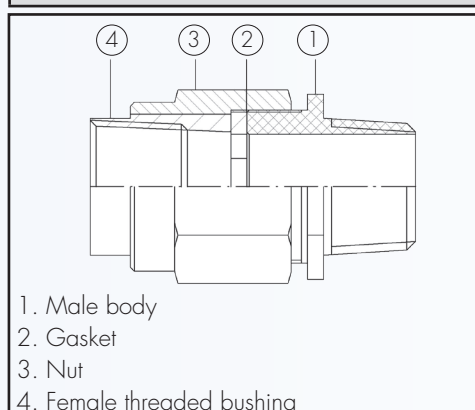


**Operating temperature:**

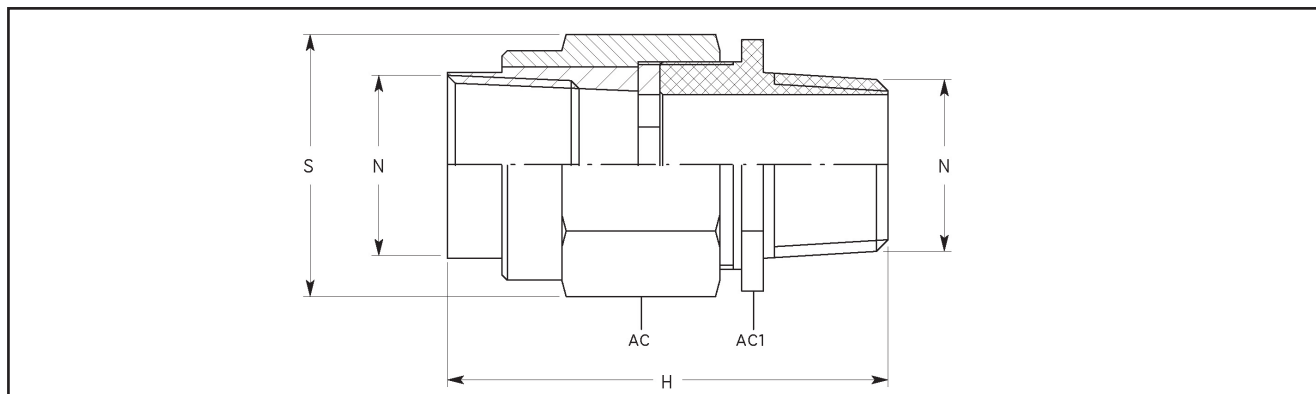
| Three pieces unions series | Materials                                     | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------|----------|---------------------|
| RBMF...                    | Galvanised steel (G), Nickel-plated brass (B) | Silicone | -20°C +150°C        |
| RBMF...S                   | Stainless steel (S)                           | Silicone | -60°C +150°C        |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### COMPOSITION OF STANDARD UNION







### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight |
|--------------------------------|---------------|------------------|-----|-----|-----|--------|
|                                |               | H                | S   | AC  | AC1 | Kg     |
| RBMF1G                         | 1/2" ISO7/1   | 71               | 35  | 30  | 27  | 0,150  |
| RBMF2G                         | 3/4" ISO7/1   | 72               | 40  | 35  | 32  | 0,185  |
| RBMF3G                         | 1" ISO7/1     | 82,5             | 48  | 42  | 40  | 0,300  |
| RBMF4G                         | 1 1/4" ISO7/1 | 86               | 60  | 55  | 59  | 0,760  |
| RBMF5G                         | 1 1/2" ISO7/1 | 86,5             | 75  | 70  | 67  | 1,000  |
| RBMF6G                         | 2" ISO7/1     | 88               | 90  | 84  | 77  | 1,400  |
| RBMF7G                         | 2 1/2" ISO7/1 | 107              | 117 | 108 | 99  | 2,350  |
| RBMF8G                         | 3" ISO7/1     | 109              | 132 | 121 | 108 | 2,800  |
| RBMF10G                        | 4" ISO7/1     | 116,5            | 152 | 145 | 135 | 4,160  |
| RBMF1NG                        | 1/2" NPT      | 71               | 35  | 30  | 27  | 0,150  |
| RBMF2NG                        | 3/4" NPT      | 72               | 40  | 35  | 32  | 0,185  |
| RBMF3NG                        | 1" NPT        | 82,5             | 48  | 42  | 40  | 0,300  |
| RBMF4NG                        | 1 1/4" NPT    | 86               | 60  | 55  | 59  | 0,760  |
| RBMF5NG                        | 1 1/2" NPT    | 86,5             | 75  | 70  | 67  | 1,000  |
| RBMF6NG                        | 2" NPT        | 88               | 90  | 84  | 77  | 1,400  |
| RBMF7NG                        | 2 1/2" NPT    | 107              | 117 | 108 | 99  | 2,350  |
| RBMF8NG                        | 3" NPT        | 109              | 132 | 121 | 108 | 2,800  |
| RBMF10NG                       | 4" NPT        | 116,5            | 152 | 145 | 135 | 4,160  |
| RBMF1IG                        | M20x1,5       | 71               | 35  | 30  | 27  | 0,150  |
| RBMF2IG                        | M25x1,5       | 72               | 40  | 35  | 32  | 0,185  |
| RBMF3IG                        | M32x1,5       | 82,5             | 48  | 42  | 40  | 0,300  |
| RBMF4IG                        | M40x1,5       | 86               | 60  | 55  | 59  | 0,760  |
| RBMF5IG                        | M50x1,5       | 86,5             | 75  | 70  | 67  | 1,000  |
| RBMF6IG                        | M63x1,5       | 88               | 90  | 84  | 77  | 1,400  |
| RBMF7IG                        | M75x1,5       | 107              | 117 | 108 | 99  | 2,350  |
| RBMF8IG                        | M90x1,5       | 109              | 132 | 121 | 108 | 2,800  |
| RBMF10IG                       | M100x1,5      | 116,5            | 152 | 145 | 135 | 4,160  |

### Order code example

|             |          |          |          |
|-------------|----------|----------|----------|
| <b>RBMF</b> | <b>6</b> | <b>I</b> | <b>G</b> |
| MODEL       | SIZE     | THREAD   | MATERIAL |

### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code RBMF1S)
- Available also in nickel-plated brass (example code RBMF1B)
- It is possible supply mixed thread, of the same equivalence (sample code for fitting in galvanised steel Male 1"NPT - Female M32x1,5: RBMF3NG)

RBFF series three pieces unions suitable for IIB gas group and extreme temperatures enable an independent rotation and connection between pipes, enclosures or different instruments.



|                                      |                                                                     |                                 |
|--------------------------------------|---------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                     | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                        | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIB Gb Ex tb IIIC Db IP66/67 (RB..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                         | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEx</b>                                                        | <b>IECEx CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                        | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

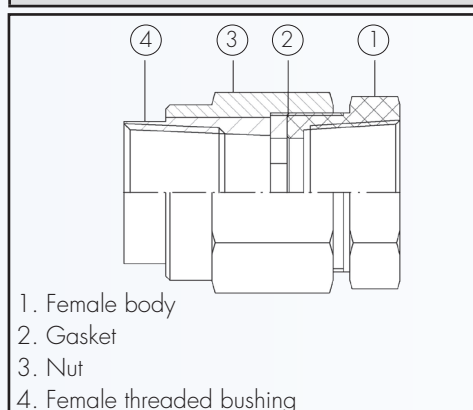


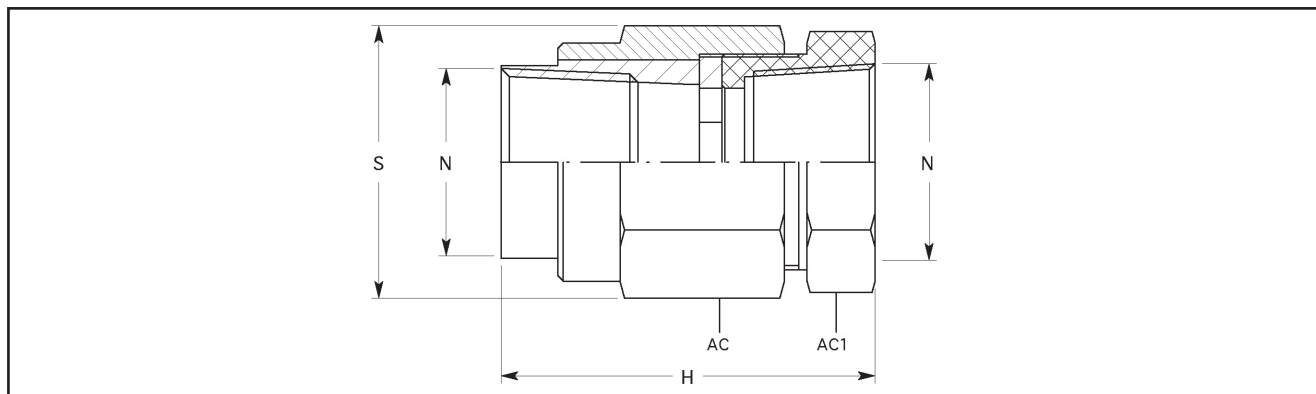
**Operating temperature:**

| Three pieces unions series | Materials                                     | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------|----------|---------------------|
| <b>RBFF...</b>             | Galvanised steel (G), Nickel-plated brass (B) | Silicone | -20°C +150°C        |
| <b>RBFF...S</b>            | Stainless steel (S)                           | Silicone | -60°C +150°C        |

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#### COMPOSITION OF STANDARD UNION

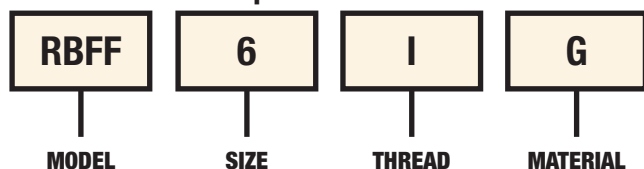




### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight<br>Kg |
|--------------------------------|---------------|------------------|-----|-----|-----|--------------|
|                                |               | H                | S   | AC  | AC1 |              |
| RBFF1G                         | 1/2" ISO7/1   | 57               | 35  | 30  | 27  | 0,125        |
| RBFF2G                         | 3/4" ISO7/1   | 57               | 40  | 35  | 32  | 0,150        |
| RBFF3G                         | 1" ISO7/1     | 67               | 48  | 42  | 40  | 0,235        |
| RBFF4G                         | 1 1/4" ISO7/1 | 63               | 60  | 55  | 59  | 0,640        |
| RBFF5G                         | 1 1/2" ISO7/1 | 63               | 75  | 70  | 67  | 0,960        |
| RBFF6G                         | 2" ISO7/1     | 64               | 90  | 84  | 77  | 1,220        |
| RBFF7G                         | 2 1/2" ISO7/1 | 71               | 117 | 108 | 99  | 2,240        |
| RBFF8G                         | 3" ISO7/1     | 71               | 132 | 121 | 108 | 2,600        |
| RBFF10G                        | 4" ISO7/1     | 77               | 152 | 145 | 135 | 3,700        |
| RBFF1NG                        | 1/2" NPT      | 57               | 35  | 30  | 27  | 0,125        |
| RBFF2NG                        | 3/4" NPT      | 57               | 40  | 35  | 32  | 0,150        |
| RBFF3NG                        | 1" NPT        | 67               | 48  | 42  | 40  | 0,235        |
| RBFF4NG                        | 1 1/4" NPT    | 63               | 60  | 55  | 59  | 0,640        |
| RBFF5NG                        | 1 1/2" NPT    | 63               | 75  | 70  | 67  | 0,960        |
| RBFF6NG                        | 2" NPT        | 64               | 90  | 84  | 77  | 1,220        |
| RBFF7NG                        | 2 1/2" NPT    | 71               | 117 | 108 | 99  | 2,240        |
| RBFF8NG                        | 3" NPT        | 71               | 132 | 121 | 108 | 2,600        |
| RBFF10NG                       | 4" NPT        | 77               | 152 | 145 | 135 | 3,700        |
| RBFF1IG                        | M20x1,5       | 57               | 35  | 30  | 27  | 0,125        |
| RBFF2IG                        | M25x1,5       | 57               | 40  | 35  | 32  | 0,150        |
| RBFF3IG                        | M32x1,5       | 67               | 48  | 42  | 40  | 0,235        |
| RBFF4IG                        | M40x1,5       | 63               | 60  | 55  | 59  | 0,640        |
| RBFF5IG                        | M50x1,5       | 63               | 75  | 70  | 67  | 0,960        |
| RBFF6IG                        | M63x1,5       | 64               | 90  | 84  | 77  | 1,220        |
| RBFF7IG                        | M75x1,5       | 71               | 117 | 108 | 99  | 2,240        |
| RBFF8IG                        | M90x1,5       | 71               | 132 | 121 | 108 | 2,600        |
| RBFF10IG                       | M100x1,5      | 77               | 152 | 145 | 135 | 3,700        |

### Order code example



### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code **RBFF1S**)
- Available also in nickel-plated brass (example code **RBFF1B**)

RBMM series three pieces unions suitable for IIB gas group and extreme temperatures enable an independent rotation and connection between pipes, enclosures or different instruments.



|                                      |                                                                     |                                 |
|--------------------------------------|---------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                     | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                        | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIB Gb Ex tb IIIC Db IP66/67 (RB..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                         | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEx</b>                                                        | <b>IECEx CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                        | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

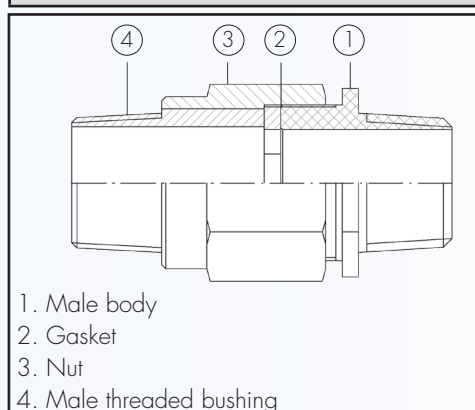


**Operating temperature:**

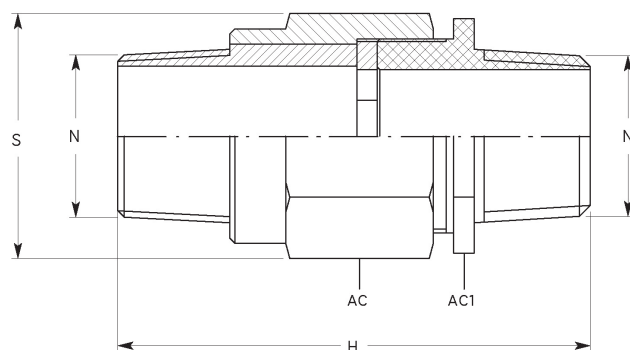
| Three pieces unions series | Materials                                     | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------|----------|---------------------|
| <b>RBMM...</b>             | Galvanised steel (G), Nickel-plated brass (B) | Silicone | -20°C +150°C        |
| <b>RBMM...S</b>            | Stainless steel (S)                           | Silicone | -60°C +150°C        |

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#### COMPOSITION OF STANDARD UNION



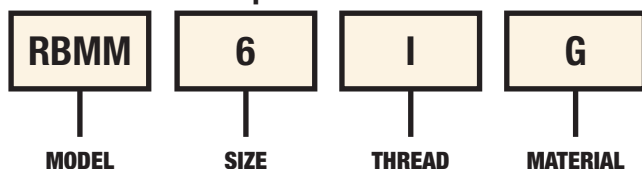




### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight |
|--------------------------------|---------------|------------------|-----|-----|-----|--------|
|                                |               | H                | S   | AC  | AC1 | Kg     |
| RBMM1G                         | 1/2" ISO7/1   | 99               | 35  | 30  | 27  | 0,125  |
| RBMM2G                         | 3/4" ISO7/1   | 97,5             | 40  | 35  | 32  | 0,150  |
| RBMM3G                         | 1" ISO7/1     | 110,5            | 48  | 42  | 40  | 0,235  |
| RBMM4G                         | 1 1/4" ISO7/1 | 121              | 60  | 55  | 59  | 0,640  |
| RBMM5G                         | 1 1/2" ISO7/1 | 125              | 75  | 70  | 67  | 0,960  |
| RBMM6G                         | 2" ISO7/1     | 123              | 90  | 84  | 77  | 1,220  |
| RBMM7G                         | 2 1/2" ISO7/1 | 143              | 117 | 108 | 99  | 2,240  |
| RBMM8G                         | 3" ISO7/1     | 145              | 132 | 121 | 108 | 2,600  |
| RBMM10G                        | 4" ISO7/1     | 144              | 152 | 145 | 135 | 3,700  |
| RBMM1NG                        | 1/2" NPT      | 99               | 35  | 30  | 27  | 0,125  |
| RBMM2NG                        | 3/4" NPT      | 97,5             | 40  | 35  | 32  | 0,150  |
| RBMM3NG                        | 1" NPT        | 110,5            | 48  | 42  | 40  | 0,235  |
| RBMM4NG                        | 1 1/4" NPT    | 121              | 60  | 55  | 59  | 0,640  |
| RBMM5NG                        | 1 1/2" NPT    | 125              | 75  | 70  | 67  | 0,960  |
| RBMM6NG                        | 2" NPT        | 123              | 90  | 84  | 77  | 1,220  |
| RBMM7NG                        | 2 1/2" NPT    | 143              | 117 | 108 | 99  | 2,240  |
| RBMM8NG                        | 3" NPT        | 145              | 132 | 121 | 108 | 2,600  |
| RBMM10NG                       | 4" NPT        | 144              | 152 | 145 | 135 | 3,700  |
| RBMM1IG                        | M20x1,5       | 99               | 35  | 30  | 27  | 0,125  |
| RBMM2IG                        | M25x1,5       | 97,5             | 40  | 35  | 32  | 0,150  |
| RBMM3IG                        | M32x1,5       | 110,5            | 48  | 42  | 40  | 0,235  |
| RBMM4IG                        | M40x1,5       | 121              | 60  | 55  | 59  | 0,640  |
| RBMM5IG                        | M50x1,5       | 125              | 75  | 70  | 67  | 0,960  |
| RBMM6IG                        | M63x1,5       | 123              | 90  | 84  | 77  | 1,220  |
| RBMM7IG                        | M75x1,5       | 143              | 117 | 108 | 99  | 2,240  |
| RBMM8IG                        | M90x1,5       | 145              | 132 | 121 | 108 | 2,600  |
| RBMM10IG                       | M100x1,5      | 144              | 152 | 145 | 135 | 3,700  |

### Order code example



### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code **RBMM1S**)
- Available also in nickel-plated brass (example code **RBMM1B**)

RMF series three pieces unions for IIC gas group enable an independent rotation and connection between pipes, enclosures or different instruments.



|                                      |                                                                    |                                 |
|--------------------------------------|--------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                    | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                       | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67 (R..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                        | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEx</b>                                                       | <b>IECEx CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                       | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

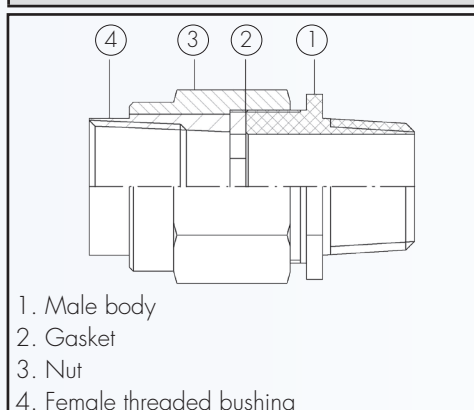


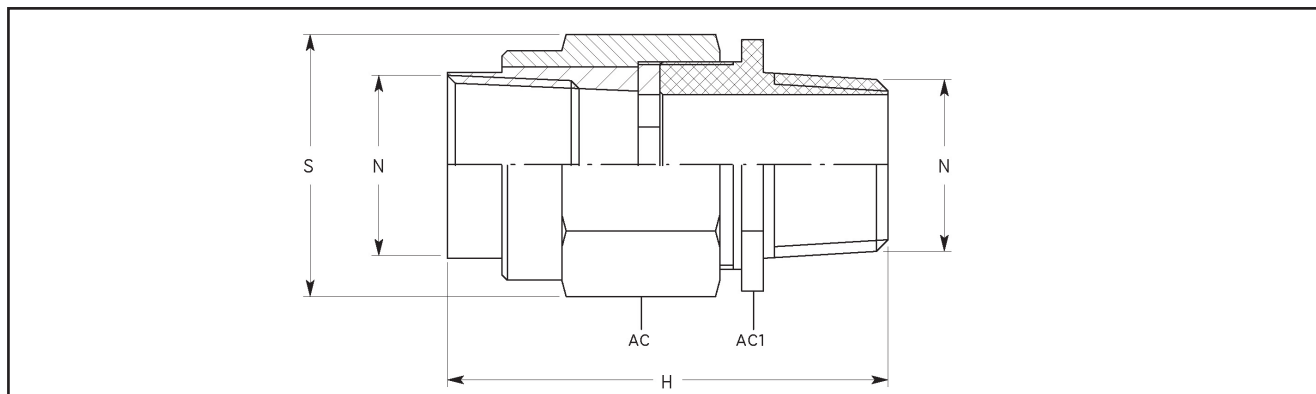
**Operating temperature:**

| Three pieces unions series | Materials                                     | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------|----------|---------------------|
| <b>RMF...</b>              | Galvanised steel (G), Nickel-plated brass (B) | Silicone | -20°C +60°C         |
| <b>RMF...S</b>             | Stainless steel (S)                           | Silicone | -60°C +60°C         |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### COMPOSITION OF STANDARD UNION





### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight |
|--------------------------------|---------------|------------------|-----|-----|-----|--------|
|                                |               | H                | S   | AC  | AC1 | Kg     |
| RMF1G                          | 1/2" ISO7/1   | 71               | 35  | 30  | 27  | 0,200  |
| RMF2G                          | 3/4" ISO7/1   | 71               | 40  | 35  | 32  | 0,230  |
| RMF3G                          | 1" ISO7/1     | 82               | 48  | 42  | 40  | 0,380  |
| RMF4G                          | 1 1/4" ISO7/1 | 87               | 60  | 55  | 59  | 0,940  |
| RMF5G                          | 1 1/2" ISO7/1 | 87               | 75  | 70  | 67  | 1,125  |
| RMF6G                          | 2" ISO7/1     | 87               | 90  | 84  | 77  | 1,540  |
| RMF7G                          | 2 1/2" ISO7/1 | 98               | 117 | 108 | 99  | 3,125  |
| RMF8G                          | 3" ISO7/1     | 98               | 132 | 121 | 108 | 3,990  |
| RMF10G                         | 4" ISO7/1     | 112              | 152 | 145 | 135 | 4,160  |
| RMF1NG                         | 1/2" NPT      | 71               | 35  | 30  | 27  | 0,200  |
| RMF2NG                         | 3/4" NPT      | 71               | 40  | 35  | 32  | 0,230  |
| RMF3NG                         | 1" NPT        | 82               | 48  | 42  | 40  | 0,380  |
| RMF4NG                         | 1 1/4" NPT    | 87               | 60  | 55  | 59  | 0,940  |
| RMF5NG                         | 1 1/2" NPT    | 87               | 75  | 70  | 67  | 1,125  |
| RMF6NG                         | 2" NPT        | 87               | 90  | 84  | 77  | 1,540  |
| RMF7NG                         | 2 1/2" NPT    | 98               | 117 | 108 | 99  | 3,125  |
| RMF8NG                         | 3" NPT        | 98               | 132 | 121 | 108 | 3,990  |
| RMF10NG                        | 4" NPT        | 112              | 152 | 145 | 135 | 4,160  |
| RMF1IG                         | M20x1,5       | 71               | 35  | 30  | 27  | 0,200  |
| RMF2IG                         | M25x1,5       | 71               | 40  | 35  | 32  | 0,230  |
| RMF3IG                         | M32x1,5       | 82               | 48  | 42  | 40  | 0,380  |
| RMF4IG                         | M40x1,5       | 87               | 60  | 55  | 59  | 0,940  |
| RMF5IG                         | M50x1,5       | 87               | 75  | 70  | 67  | 1,125  |
| RMF6IG                         | M63x1,5       | 87               | 90  | 84  | 77  | 1,540  |
| RMF7IG                         | M75x1,5       | 98               | 117 | 108 | 99  | 3,125  |
| RMF8IG                         | M90x1,5       | 98               | 132 | 121 | 108 | 3,990  |
| RMF10IG                        | M100x1,5      | 112              | 152 | 145 | 135 | 4,160  |

### Order code example

|            |          |          |          |
|------------|----------|----------|----------|
| <b>RMF</b> | <b>6</b> | <b>I</b> | <b>G</b> |
| MODEL      | SIZE     | THREAD   | MATERIAL |

### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code RMF1S)
- Available also in nickel-plated brass (example code RMF1B)
- It is possible supply mixed thread, of the same equivalence (sample code for fitting in galvanised steel Male 1"NPT - Female M32x1,5: RMF3NIG)

RFF series three pieces unions for IIC gas group enable an independent rotation and connection between pipes, enclosures or different equipment.



|                                      |                                                                    |                                 |
|--------------------------------------|--------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                    | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                       | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67 (R..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                        | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEx</b>                                                       | <b>IECEx CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                       | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

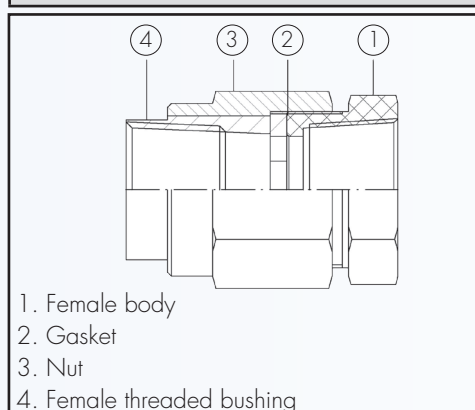


**Operating temperature:**

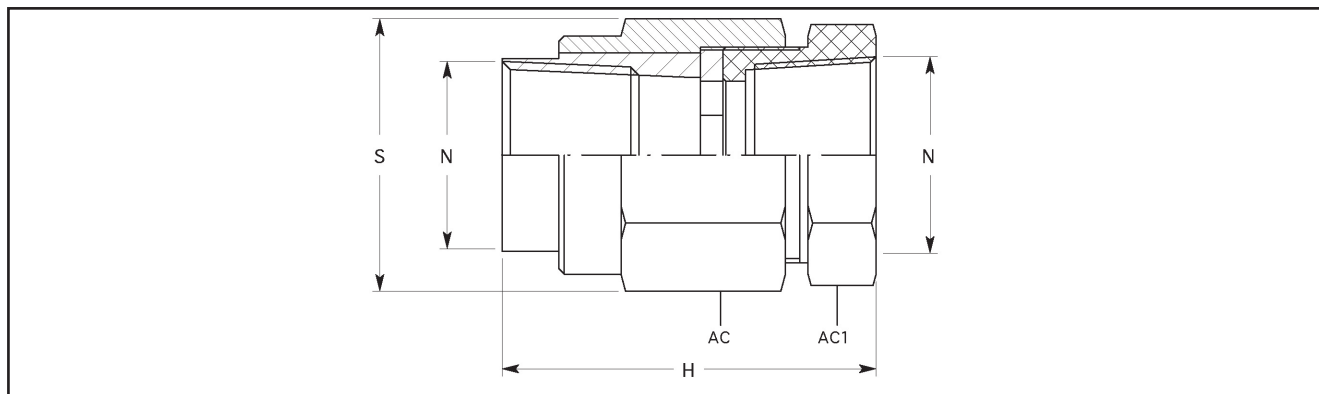
| Three pieces unions series | Materials                                                       | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------------------------|----------|---------------------|
| <b>RFF...</b>              | Galvanised steel ( <b>G</b> ), Nickel-plated brass ( <b>B</b> ) | Silicone | -20°C +60°C         |
| <b>RFF...S</b>             | Stainless steel ( <b>S</b> )                                    | Silicone | -60°C +60°C         |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### COMPOSITION OF STANDARD UNION



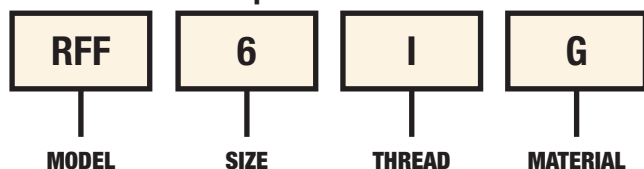




### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight |
|--------------------------------|---------------|------------------|-----|-----|-----|--------|
|                                |               | H                | S   | AC  | AC1 | Kg     |
| RFF1G                          | 1/2" IS07/1   | 58               | 35  | 30  | 27  | 0,170  |
| RFF2G                          | 3/4" IS07/1   | 58               | 40  | 35  | 32  | 0,200  |
| RFF3G                          | 1" IS07/1     | 68               | 48  | 42  | 40  | 0,315  |
| RFF4G                          | 1 1/4" IS07/1 | 63               | 60  | 55  | 59  | 0,820  |
| RFF5G                          | 1 1/2" IS07/1 | 66               | 75  | 70  | 67  | 1,020  |
| RFF6G                          | 2" IS07/1     | 66               | 90  | 84  | 77  | 1,390  |
| RFF7G                          | 2 1/2" IS07/1 | 71               | 117 | 108 | 99  | 2,520  |
| RFF8G                          | 3" IS07/1     | 71               | 132 | 121 | 108 | 2,900  |
| RFF10G                         | 4" IS07/1     | 86               | 152 | 145 | 135 | 3,700  |
| RFF1NG                         | 1/2" NPT      | 58               | 35  | 30  | 27  | 0,170  |
| RFF2NG                         | 3/4" NPT      | 58               | 40  | 35  | 32  | 0,200  |
| RFF3NG                         | 1" NPT        | 68               | 48  | 42  | 40  | 0,315  |
| RFF4NG                         | 1 1/4" NPT    | 63               | 60  | 55  | 59  | 0,820  |
| RFF5NG                         | 1 1/2" NPT    | 66               | 75  | 70  | 67  | 1,020  |
| RFF6NG                         | 2" NPT        | 66               | 90  | 84  | 77  | 1,390  |
| RFF7NG                         | 2 1/2" NPT    | 71               | 117 | 108 | 99  | 2,520  |
| RFF8NG                         | 3" NPT        | 71               | 132 | 121 | 108 | 2,900  |
| RFF10NG                        | 4" NPT        | 86               | 152 | 145 | 135 | 3,700  |
| RFF1IG                         | M20x1,5       | 58               | 35  | 30  | 27  | 0,170  |
| RFF2IG                         | M25x1,5       | 58               | 40  | 35  | 32  | 0,200  |
| RFF3IG                         | M32x1,5       | 68               | 48  | 42  | 40  | 0,315  |
| RFF4IG                         | M40x1,5       | 63               | 60  | 55  | 59  | 0,820  |
| RFF5IG                         | M50x1,5       | 66               | 75  | 70  | 67  | 1,020  |
| RFF6IG                         | M63x1,5       | 66               | 90  | 84  | 77  | 1,390  |
| RFF7IG                         | M75x1,5       | 71               | 117 | 108 | 99  | 2,520  |
| RFF8IG                         | M90x1,5       | 71               | 132 | 121 | 108 | 2,900  |
| RFF10IG                        | M100x1,5      | 86               | 152 | 145 | 135 | 3,700  |

### Order code example



### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code RFF1**S**)
- Available also in nickel-plated brass (example code RFF1**B**)

RMM series three pieces unions for IIC gas group enable an independent rotation and connection between pipes, enclosures or different equipment.



|                                      |                                                                    |                                 |
|--------------------------------------|--------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                    | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                       | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67 (R..)</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                        | <b>CESI 99 ATEX 034U</b>        |
|                                      | <b>IECEx</b>                                                       | <b>IECEx CES 10.0002U</b>       |
|                                      | <b>TR CU</b>                                                       | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                 |

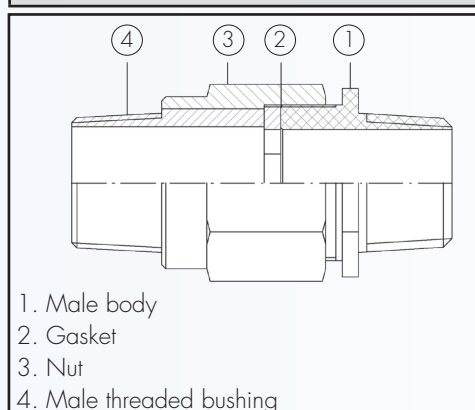


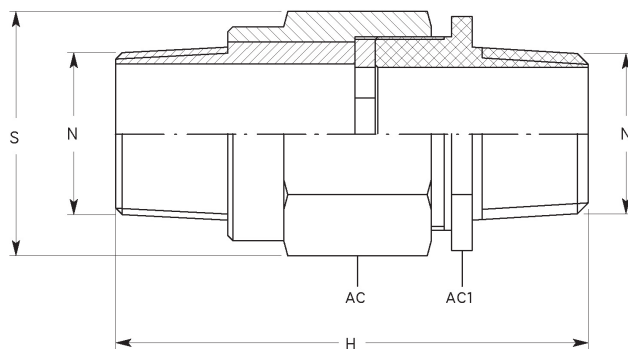
**Operating temperature:**

| Three pieces unions series | Materials                                     | Gaskets  | Ambient temperature |
|----------------------------|-----------------------------------------------|----------|---------------------|
| <b>RMM...</b>              | Galvanised steel (G), Nickel-plated brass (B) | Silicone | -20°C +60°C         |
| <b>RMM...S</b>             | Stainless steel (S)                           | Silicone | -60°C +60°C         |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### COMPOSITION OF STANDARD UNION

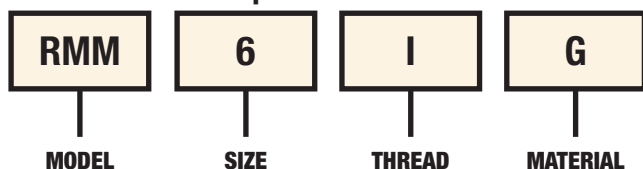




### UNIONS SELECTION TABLE

| Code<br>In galvanised<br>steel | Thread N      | Dimensions in mm |     |     |     | Weight |
|--------------------------------|---------------|------------------|-----|-----|-----|--------|
|                                |               | H                | S   | AC  | AC1 | Kg     |
| RMM1G                          | 1/2" ISO7/1   | 97               | 35  | 30  | 27  | 0,220  |
| RMM2G                          | 3/4" ISO7/1   | 97               | 40  | 35  | 32  | 0,290  |
| RMM3G                          | 1" ISO7/1     | 110              | 48  | 42  | 40  | 0,425  |
| RMM4G                          | 1 1/4" ISO7/1 | 125              | 60  | 55  | 59  | 1,200  |
| RMM5G                          | 1 1/2" ISO7/1 | 125              | 75  | 70  | 67  | 1,500  |
| RMM6G                          | 2" ISO7/1     | 125              | 90  | 84  | 77  | 1,900  |
| RMM7G                          | 2 1/2" ISO7/1 | 142              | 117 | 108 | 99  | 4,000  |
| RMM8G                          | 3" ISO7/1     | 142              | 132 | 121 | 108 | 4,000  |
| RMM10G                         | 4" ISO7/1     | 150              | 152 | 145 | 135 | 5,160  |
| RMM1NG                         | 1/2" NPT      | 97               | 35  | 30  | 27  | 0,220  |
| RMM2NG                         | 3/4" NPT      | 97               | 40  | 35  | 32  | 0,290  |
| RMM3NG                         | 1" NPT        | 110              | 48  | 42  | 40  | 0,425  |
| RMM4NG                         | 1 1/4" NPT    | 125              | 60  | 55  | 59  | 1,200  |
| RMM5NG                         | 1 1/2" NPT    | 125              | 75  | 70  | 67  | 1,500  |
| RMM6NG                         | 2" NPT        | 125              | 90  | 84  | 77  | 1,900  |
| RMM7NG                         | 2 1/2" NPT    | 142              | 117 | 108 | 99  | 4,000  |
| RMM8NG                         | 3" NPT        | 142              | 132 | 121 | 108 | 4,000  |
| RMM10NG                        | 4" NPT        | 150              | 152 | 145 | 135 | 5,160  |
| RMM1IG                         | M20x1,5       | 97               | 35  | 30  | 27  | 0,220  |
| RMM2IG                         | M25x1,5       | 97               | 40  | 35  | 32  | 0,290  |
| RMM3IG                         | M32x1,5       | 110              | 48  | 42  | 40  | 0,425  |
| RMM4IG                         | M40x1,5       | 125              | 60  | 55  | 59  | 1,200  |
| RMM5IG                         | M50x1,5       | 125              | 75  | 70  | 67  | 1,500  |
| RMM6IG                         | M63x1,5       | 125              | 90  | 84  | 77  | 1,900  |
| RMM7IG                         | M75x1,5       | 142              | 117 | 108 | 99  | 4,000  |
| RMM8IG                         | M90x1,5       | 142              | 132 | 121 | 108 | 4,000  |
| RMM10IG                        | M100x1,5      | 150              | 152 | 145 | 135 | 5,160  |

### Order code example



### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled on the union
- Available also in stainless steel (example code RMM1S)
- Available also in nickel-plated brass (example code RMM1B)

Reducers and adaptors are used to join instruments, enclosures, pipes and hubs of different diameter and threads.



|                                      |                                                       |                                 |
|--------------------------------------|-------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                       | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                          | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67 |                                 |
|                                      | CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67 |                                 |
| <b>Certification:</b>                | ATEX CESI 02 ATEX 049X                                |                                 |
|                                      | IECEX                                                 | IECEX CES 10.0001X              |
|                                      | TR CU                                                 | AVAILABLE                       |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

**Standards:**

CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
 IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-7: 2006-07, IEC60079-31: 2008 Directive RoHS 2002/95/CE

**Degree of protection:**

IP66/67

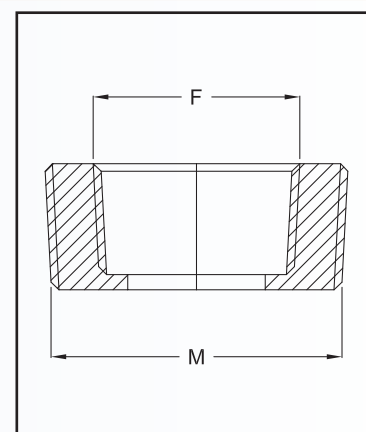
**Operating temperature:**

| Adaptors | Material                                        | Ambient temperature |
|----------|-------------------------------------------------|---------------------|
| RE...    | Galvanised steel (G)                            | -20°C +80°C         |
| RE...    | Nickel-plated brass (B),<br>Aluminium alloy (A) | -40°C +150°C        |
| RE...    | Stainless steel (S)                             | -60°C +150°C        |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

**SELECTION TABLE OF STANDARD ADAPTORS**

| Thread<br>ISO7/1 |      | Ø FEMALE F |       |      |      |      |      |      |      |      |
|------------------|------|------------|-------|------|------|------|------|------|------|------|
|                  |      | 1/4"       | 3/8"  | 1/2" | 3/4" | 1 "  | 1 ¼" | 1 ½" | 2"   | 2 ½" |
| Ø MALE M         | 3/8" | RE3814     |       |      |      |      |      |      |      |      |
|                  | 1/2" | RE114      | RE138 |      |      |      |      |      |      |      |
|                  | 3/4" | RE214      | RE238 | RE21 |      |      |      |      |      |      |
|                  | 1 "  | RE314      | RE338 | RE31 | RE32 |      |      |      |      |      |
|                  | 1 ¼" | RE414      | RE438 | RE41 | RE42 | RE43 |      |      |      |      |
|                  | 1 ½" | RE514      | RE538 | RE51 | RE52 | RE53 | RE54 |      |      |      |
|                  | 2"   | RE614      | RE638 | RE61 | RE62 | RE63 | RE64 | RE65 |      |      |
|                  | 2 ½" |            |       | RE71 | RE72 | RE73 | RE74 | RE75 | RE76 |      |
|                  | 3"   |            |       | RE81 | RE82 | RE83 | RE84 | RE85 | RE86 | RE87 |

**Order code example of standard adaptors**

|       |      |          |
|-------|------|----------|
| RE    | 31   | G        |
| MODEL | SIZE | MATERIAL |

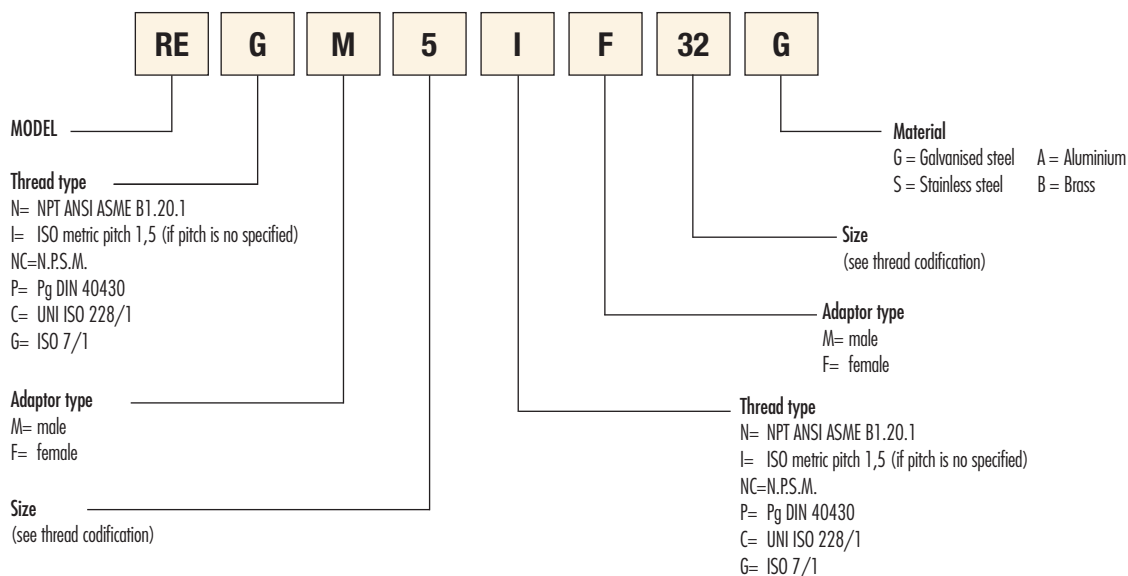
**TECHNICAL NOTES:**

- Available with other threads (example code RE31NG)
- Available in different materials (example code RE31A)
- Size over 3" upon request



**SPECIAL ADAPTORS (MIXED THREADS)**
**Order code example**

(Adaptor type RE, male 1 1/2" Gk, female M32x1,5, galvanised steel)


**THREAD CODIFICATION**
**NPT, N.P.S.M., UNI ISO 228/1, ISO 7/1**

| 02   | 01   | 1    | 2    | 3  | 4      | 5      | 6 | 7      | 8  | 9      | 10 | 12 | 14 |
|------|------|------|------|----|--------|--------|---|--------|----|--------|----|----|----|
| 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2 | 2 1/2" | 3" | 3 1/2" | 4" | 5" | 6" |

**ISO Metric**

| 12      | 16      | 20      | 25      | 32      | 40      | 50      | 63      | 75      | 90      | 100      | 63X2  | 75X2  | 90X2  |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|-------|-------|-------|
| M12x1,5 | M16x1,5 | M20x1,5 | M25x1,5 | M32x1,5 | M40x1,5 | M50x1,5 | M63x1,5 | M75x1,5 | M90x1,5 | M100x1,5 | M63x2 | M75x2 | M90x2 |

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| 2   | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   |
|-----|------|--------|------|------|------|------|------|------|
| PG9 | PG11 | PG13,5 | PG16 | PG21 | PG29 | PG36 | PG42 | PG48 |

Reducers and adaptors are used to join instruments, enclosures, pipes and hubs of different diameter and threads.



|                                      |                                                                                                                              |                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                                                                              | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                 | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67</b><br><b>CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX CESI 02 ATEX 049X</b><br><b>IECEX IECEX CES 10.0001X</b><br><b>TR CU AVAILABLE</b>                                   |                                 |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                   |                                                                                                                                                                                                                                        |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-7: 2006-07, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                              |                |
|------------------------------|----------------|
| <b>Degree of protection:</b> | <b>IP66/67</b> |
|------------------------------|----------------|



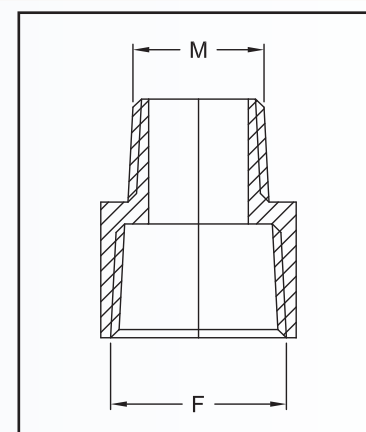
**Operating temperature:**

| Adaptors      | Material                                                          | Ambient temperature |
|---------------|-------------------------------------------------------------------|---------------------|
| <b>REB...</b> | Galvanised steel ( <b>G</b> )                                     | -20°C +80°C         |
| <b>REB...</b> | Nickel-plated brass ( <b>B</b> ),<br>Aluminium alloy ( <b>A</b> ) | -40°C +150°C        |
| <b>REB...</b> | Stainless steel ( <b>S</b> )                                      | -60°C +150°C        |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

## SELECTION TABLE OF STANDARD ADAPTORS

| Thread<br>ISO7/1 |        | Ø MALE M |        |       |       |       |        |        |       |        |
|------------------|--------|----------|--------|-------|-------|-------|--------|--------|-------|--------|
|                  |        | 1/4"     | 3/8"   | 1/2"  | 3/4"  | 1"    | 1 1/4" | 1 1/2" | 2"    | 2 1/2" |
| Ø FEMALE F       | 3/8"   | REB3814  |        |       |       |       |        |        |       |        |
|                  | 1/2"   | REB114   | REB138 |       |       |       |        |        |       |        |
|                  | 3/4"   | REB214   | REB238 | REB21 |       |       |        |        |       |        |
|                  | 1"     | REB314   | REB338 | REB31 | REB32 |       |        |        |       |        |
|                  | 1 1/4" | REB414   | REB438 | REB41 | REB42 | REB43 |        |        |       |        |
|                  | 1 1/2" | REB514   | REB538 | REB51 | REB52 | REB53 | REB54  |        |       |        |
|                  | 2"     | REB614   | REB638 | REB61 | REB62 | REB63 | REB64  | REB65  |       |        |
|                  | 2 1/2" |          |        | REB71 | REB72 | REB73 | REB74  | REB75  | REB76 |        |
|                  | 3"     |          |        | REB81 | REB82 | REB83 | REB84  | REB85  | REB86 | REB87  |



**Order code example of standard adaptors**

|              |             |                 |
|--------------|-------------|-----------------|
| <b>REB</b>   | <b>31</b>   | <b>G</b>        |
| <b>MODEL</b> | <b>SIZE</b> | <b>MATERIAL</b> |

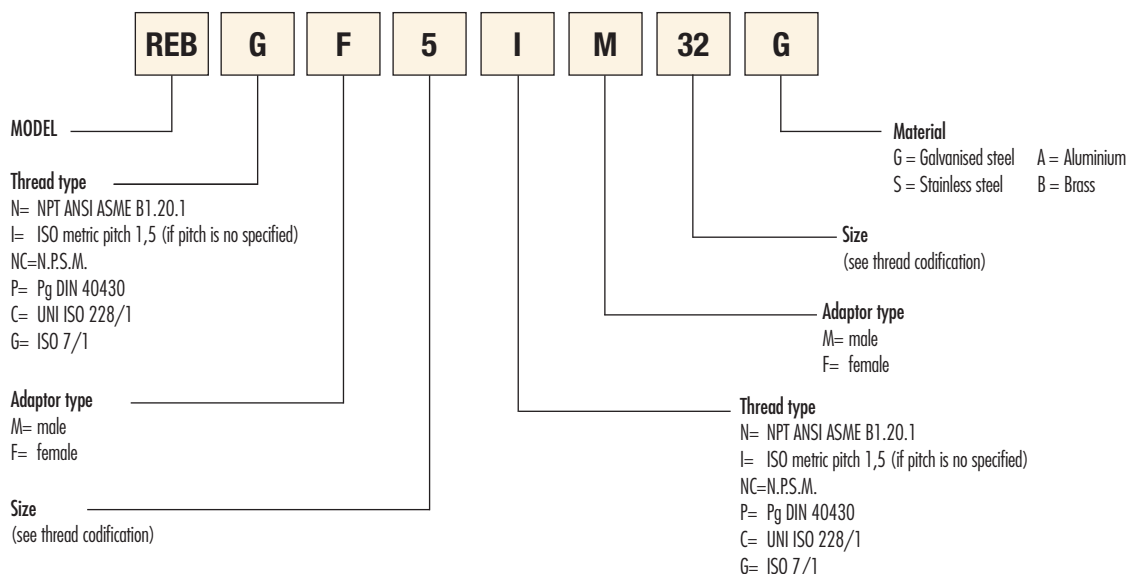
### TECHNICAL NOTES:

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled
- Available with other threads (example code REB31**NG**)
- Available in different materials (example code REB31**A**)

### SPECIAL ADAPTORS (MIXED THREADS)

#### Order code example

(Adaptor type REB, female 1 1/2" Gk, male M32x1,5, galvanised steel)



### THREAD CODIFICATION

#### NPT, N.P.S.M., UNI ISO 228/1, ISO 7/1

| 02   | 01   | 1    | 2    | 3  | 4      | 5      | 6 | 7      | 8  | 9      | 10 | 12 | 14 |
|------|------|------|------|----|--------|--------|---|--------|----|--------|----|----|----|
| 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2 | 2 1/2" | 3" | 3 1/2" | 4" | 5" | 6" |

#### ISO Metric

| 12      | 16      | 20      | 25      | 32      | 40      | 50      | 63      | 75      | 90      | 100      | 63X2  | 75X2  | 90X2  |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|-------|-------|-------|
| M12x1,5 | M16x1,5 | M20x1,5 | M25x1,5 | M32x1,5 | M40x1,5 | M50x1,5 | M63x1,5 | M75x1,5 | M90x1,5 | M100x1,5 | M63x2 | M75x2 | M90x2 |

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| 2   | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   |
|-----|------|--------|------|------|------|------|------|------|
| PG9 | PG11 | PG13,5 | PG16 | PG21 | PG29 | PG36 | PG42 | PG48 |

Reducers and adaptors are used to join instruments, enclosures, pipes and hubs of different diameter and threads.



|                                      |                                                                                                                              |                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                                                                              | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                 | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67</b><br><b>CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX CESI 02 ATEX 049X</b><br><b>IECEX IECEX CES 10.0001X</b><br><b>TR CU AVAILABLE</b>                                   |                                 |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

**Standards:**

CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-7: 2006-07, IEC60079-31: 2008 Directive RoHS 2002/95/CE

**Degree of protection:**

IP66/67

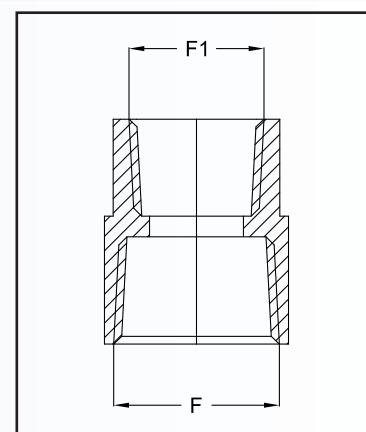

**Operating temperature:**

| Adaptors | Material                                                          | Ambient temperature |
|----------|-------------------------------------------------------------------|---------------------|
| REM...   | Galvanised steel ( <b>G</b> )                                     | -20°C +80°C         |
| REM...   | Nickel-plated brass ( <b>B</b> ),<br>Aluminium alloy ( <b>A</b> ) | -40°C +150°C        |
| REM...   | Stainless steel ( <b>S</b> )                                      | -60°C +150°C        |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

**SELECTION TABLE OF STANDARD ADAPTORS**

| Thread<br>ISO7/1 |        | Ø FEMALE F1 |        |       |       |       |        |        |       |        |
|------------------|--------|-------------|--------|-------|-------|-------|--------|--------|-------|--------|
|                  |        | 1/4"        | 3/8"   | 1/2"  | 3/4"  | 1"    | 1 1/4" | 1 1/2" | 2"    | 2 1/2" |
| Ø FEMALE F       | 3/8"   | REM3814     |        |       |       |       |        |        |       |        |
|                  | 1/2"   | REM114      | REM138 |       |       |       |        |        |       |        |
|                  | 3/4"   | REM214      | REM238 | REM21 |       |       |        |        |       |        |
|                  | 1"     | REM314      | REM338 | REM31 | REM32 |       |        |        |       |        |
|                  | 1 1/4" | REM414      | REM438 | REM41 | REM42 | REM43 |        |        |       |        |
|                  | 1 1/2" | REM514      | REM538 | REM51 | REM52 | REM53 | REM54  |        |       |        |
|                  | 2"     | REM614      | REM638 | REM61 | REM62 | REM63 | REM64  | REM65  |       |        |
|                  | 2 1/2" |             |        | REM71 | REM72 | REM73 | REM74  | REM75  | REM76 |        |
|                  | 3"     |             |        | REM81 | REM82 | REM83 | REM84  | REM85  | REM86 | REM87  |


**Order code example of standard adaptors**

|            |           |          |
|------------|-----------|----------|
| <b>REM</b> | <b>31</b> | <b>G</b> |
| MODEL      | SIZE      | MATERIAL |

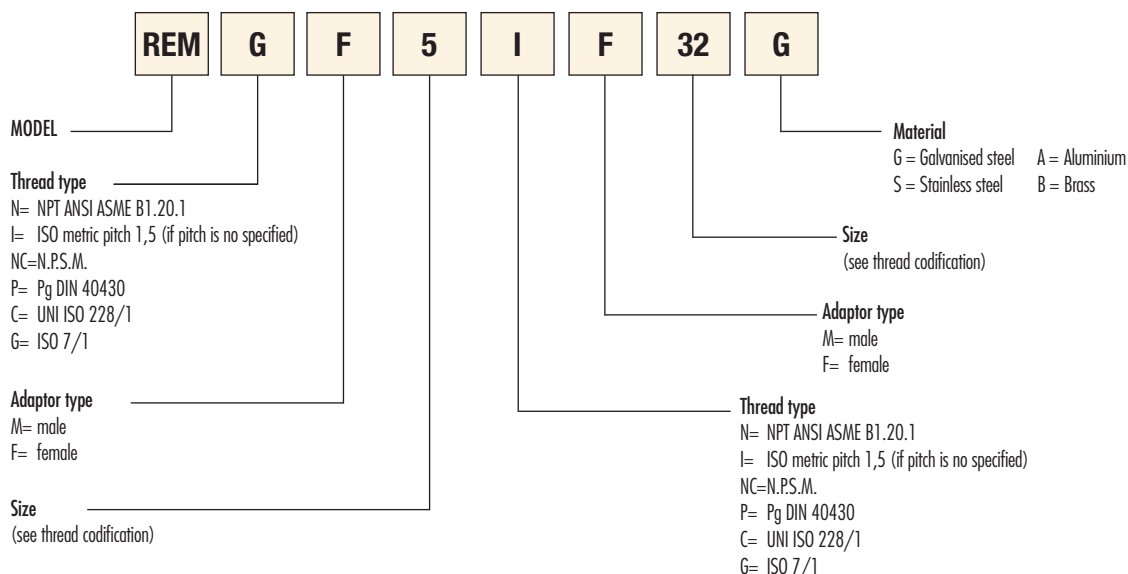
**TECHNICAL NOTES:**

- Available with other threads (example code REM31**NG**)
- Available in different materials (example code REM31**A**)



**SPECIAL ADAPTORS (MIXED THREADS)**
**Order code example**

(Adaptor type REM, female 1 1/2" Gk, female M32x1,5, galvanised steel)


**THREAD CODIFICATION**
**NPT, N.P.S.M., UNI ISO 228/1, ISO 7/1**

| 02   | 01   | 1    | 2    | 3  | 4      | 5      | 6 | 7      | 8  | 9      | 10 | 12 | 14 |
|------|------|------|------|----|--------|--------|---|--------|----|--------|----|----|----|
| 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2 | 2 1/2" | 3" | 3 1/2" | 4" | 5" | 6" |

**ISO Metric**

| 12      | 16      | 20      | 25      | 32      | 40      | 50      | 63      | 75      | 90      | 100      | 63X2  | 75X2  | 90X2  |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|-------|-------|-------|
| M12x1,5 | M16x1,5 | M20x1,5 | M25x1,5 | M32x1,5 | M40x1,5 | M50x1,5 | M63x1,5 | M75x1,5 | M90x1,5 | M100x1,5 | M63x2 | M75x2 | M90x2 |

**Pg DIN 40430**

| 2   | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   |
|-----|------|--------|------|------|------|------|------|------|
| PG9 | PG11 | PG13,5 | PG16 | PG21 | PG29 | PG36 | PG42 | PG48 |

Reducers and adaptors are used to join instruments, enclosures, pipes and hubs of different diameter and threads.



|                                      |                                                                                                                              |                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                                                                              | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                 | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67</b><br><b>CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX CESI 02 ATEX 049X</b><br><b>IECEX IECEX CES 10.0001X</b><br><b>TR CU AVAILABLE</b>                                   |                                 |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

**Standards:**

CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-7: 2006-07, IEC60079-31: 2008 Directive RoHS 2002/95/CE

**Degree of protection:**
**IP66/67**

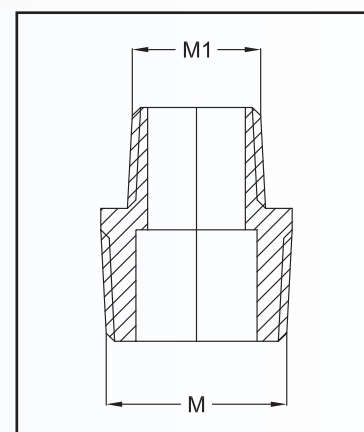
**Operating temperature:**

| Adaptors      | Material                                                          | Ambient temperature |
|---------------|-------------------------------------------------------------------|---------------------|
| <b>REN...</b> | Galvanised steel ( <b>G</b> )                                     | -20°C +80°C         |
| <b>REN...</b> | Nickel-plated brass ( <b>B</b> ),<br>Aluminium alloy ( <b>A</b> ) | -40°C +150°C        |
| <b>REN...</b> | Stainless steel ( <b>S</b> )                                      | -60°C +150°C        |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

**SELECTION TABLE OF STANDARD ADAPTORS**

| Thread<br>ISO7/1 |        | Ø MALE M1      |               |              |              |              |              |              |              |              |
|------------------|--------|----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                  |        | 1/4"           | 3/8"          | 1/2"         | 3/4"         | 1"           | 1 1/4"       | 1 1/2"       | 2"           | 2 1/2"       |
| Ø MALE M         | 3/8"   | <b>REN3814</b> |               |              |              |              |              |              |              |              |
|                  | 1/2"   | <b>REN114</b>  | <b>REN138</b> |              |              |              |              |              |              |              |
|                  | 3/4"   | <b>REN214</b>  | <b>REN238</b> | <b>REN21</b> |              |              |              |              |              |              |
|                  | 1"     | <b>REN314</b>  | <b>REN338</b> | <b>REN31</b> | <b>REN32</b> |              |              |              |              |              |
|                  | 1 1/4" | <b>REN414</b>  | <b>REN438</b> | <b>REN41</b> | <b>REN42</b> | <b>REN43</b> |              |              |              |              |
|                  | 1 1/2" | <b>REN514</b>  | <b>REN538</b> | <b>REN51</b> | <b>REN52</b> | <b>REN53</b> | <b>REN54</b> |              |              |              |
|                  | 2"     | <b>REN614</b>  | <b>REN638</b> | <b>REN61</b> | <b>REN62</b> | <b>REN63</b> | <b>REN64</b> | <b>REN65</b> |              |              |
|                  | 2 1/2" |                |               | <b>REN71</b> | <b>REN72</b> | <b>REN73</b> | <b>REN74</b> | <b>REN75</b> | <b>REN76</b> |              |
|                  | 3"     |                |               | <b>REN81</b> | <b>REN82</b> | <b>REN83</b> | <b>REN84</b> | <b>REN85</b> | <b>REN86</b> | <b>REN87</b> |


**Order code example of standard adaptors**

|              |             |                 |
|--------------|-------------|-----------------|
| <b>REN</b>   | <b>31</b>   | <b>G</b>        |
| <b>MODEL</b> | <b>SIZE</b> | <b>MATERIAL</b> |

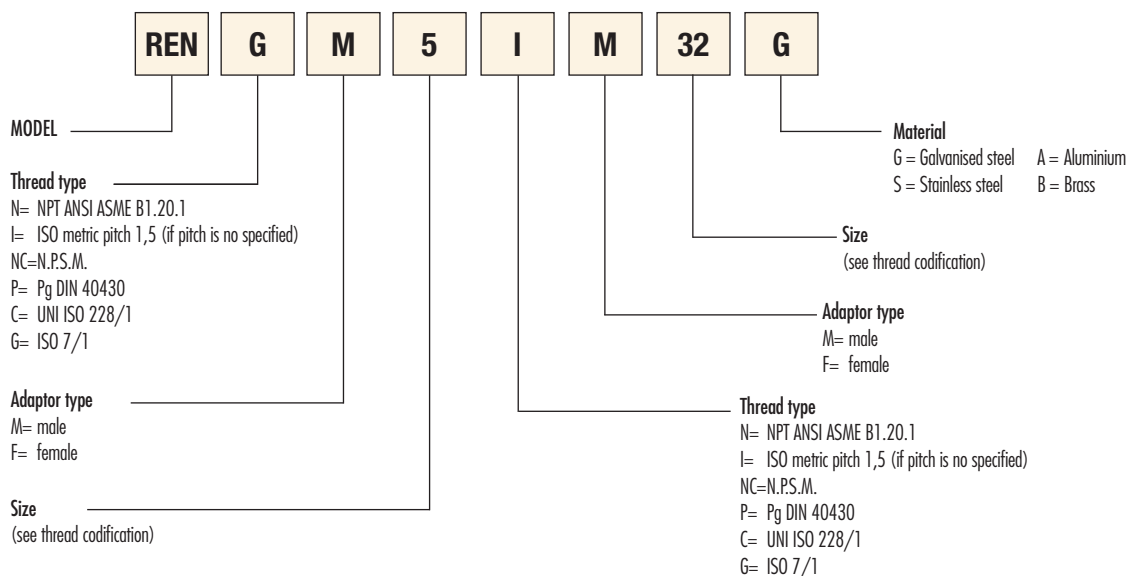
**TECHNICAL NOTES:**

- The silicone O-ring for the IP protection for cylindrical threads (ISO metric) is supplied already assembled
- Available with other threads (example code **REN31NG**)
- Available in different materials (example code **REN31A**)

### SPECIAL ADAPTORS (MIXED THREADS)

#### Order code example

(Adaptor type REN, male 1 1/2" Gk, male M32x1,5, galvanised steel)



### THREAD CODIFICATION

#### NPT, N.P.S.M., UNI ISO 228/1, ISO 7/1

| 02   | 01   | 1    | 2    | 3  | 4      | 5      | 6 | 7      | 8  | 9      | 10 | 12 | 14 |
|------|------|------|------|----|--------|--------|---|--------|----|--------|----|----|----|
| 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2 | 2 1/2" | 3" | 3 1/2" | 4" | 5" | 6" |

#### ISO Metric

| 12      | 16      | 20      | 25      | 32      | 40      | 50      | 63      | 75      | 90      | 100      | 63X2  | 75X2  | 90X2  |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|-------|-------|-------|
| M12x1,5 | M16x1,5 | M20x1,5 | M25x1,5 | M32x1,5 | M40x1,5 | M50x1,5 | M63x1,5 | M75x1,5 | M90x1,5 | M100x1,5 | M63x2 | M75x2 | M90x2 |

#### Pg DIN 40430

| 2   | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   |
|-----|------|--------|------|------|------|------|------|------|
| PG9 | PG11 | PG13,5 | PG16 | PG21 | PG29 | PG36 | PG42 | PG48 |

PLG series plugs are used for close-up unused entries. They feature a hexagonal recessed-type head to ensure the opening with proper tools only.



|                                      |                                                       |                          |
|--------------------------------------|-------------------------------------------------------|--------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                       | <b>Category 2GD</b>      |
| <b>Installation:</b><br>EN 60079.14  | zone 1 - zone 2 (Gas)                                 | zone 21 - zone 22 (Dust) |
| <b>Marking:</b>                      | CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67 |                          |
|                                      | CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67 |                          |
| <b>Certification:</b>                | ATEX CESI 02 ATEX 049X                                |                          |
|                                      | IECEX                                                 | IECEX CES 10.0001X       |
|                                      | TR CU                                                 | AVAILABLE                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                   |                                                                                                                                                                                                                                        |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-7: 2006-07, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                              |         |
|------------------------------|---------|
| <b>Degree of protection:</b> | IP66/67 |
|------------------------------|---------|

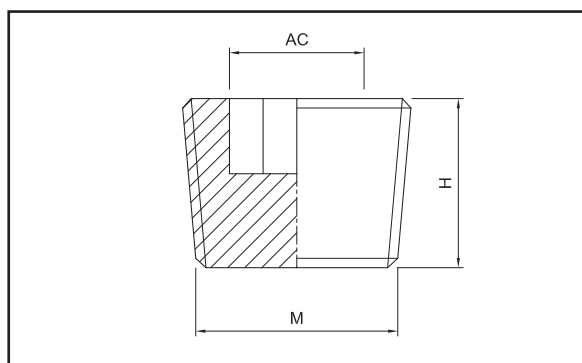


**Operating temperature:**

| Close-up plugs | Material                                        | Ambient temperature |
|----------------|-------------------------------------------------|---------------------|
| PLG...         | Galvanised steel (G)                            | -20°C +80°C         |
| PLG...         | Nickel-plated brass (B),<br>Aluminium alloy (A) | -40°C +150°C        |
| PLG...         | Stainless steel (S)                             | -60°C +150°C        |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)




**SELECTION TABLE FOR PLUGS WITH STANDARD CONICAL THREAD**

| Code    | Thread<br>M    | Dimensions in mm |    | Material         | Weight |
|---------|----------------|------------------|----|------------------|--------|
|         |                | AC               | H  |                  | Kg     |
| PLG02NG | 1/4" NPT       | 8                | 23 | Galvanised steel | 0,014  |
| PLG01NG | 3/8" NPT       | 8                | 14 | Galvanised steel | 0,024  |
| PLG1NG  | 1/2" NPT       | 13               | 18 | Galvanised steel | 0,034  |
| PLG2NG  | 3/4" NPT       | 17               | 18 | Galvanised steel | 0,054  |
| PLG3NG  | 1" NPT         | 19               | 24 | Galvanised steel | 0,124  |
| PLG4NA  | 1 1/4" NPT     | 24               | 24 | Aluminium        | 0,061  |
| PLG5NA  | 1 1/2" NPT     | 35               | 24 | Aluminium        | 0,063  |
| PLG6NA  | 2" NPT         | 36               | 24 | Aluminium        | 0,109  |
| PLG7NA  | 2 1/2" NPT     | 50               | 30 | Aluminium        | 0,169  |
| PLG8NA  | 3" NPT         | 50               | 30 | Aluminium        | 0,242  |
| PLG10NA | 4" NPT         | 85               | 30 | Aluminium        | 0,489  |
| PLG12NA | 5" NPT         | 102              | 32 | Aluminium        | 0,735  |
| PLG14NA | 6" NPT         | 119              | 32 | Aluminium        | 1,00   |
| PLG02G  | 1/4" ISO 7/1   | 8                | 23 | Galvanised steel | 0,014  |
| PLG01G  | 3/8" ISO 7/1   | 8                | 14 | Galvanised steel | 0,024  |
| PLG1G   | 1/2" ISO 7/1   | 13               | 18 | Galvanised steel | 0,034  |
| PLG2G   | 3/4" ISO 7/1   | 17               | 18 | Galvanised steel | 0,054  |
| PLG3G   | 1" ISO 7/1     | 19               | 24 | Galvanised steel | 0,124  |
| PLG4A   | 1 1/4" ISO 7/1 | 24               | 24 | Aluminium        | 0,061  |
| PLG5A   | 1 1/2" ISO 7/1 | 35               | 24 | Aluminium        | 0,063  |
| PLG6A   | 2" ISO 7/1     | 36               | 24 | Aluminium        | 0,109  |
| PLG7A   | 2 1/2" ISO 7/1 | 50               | 30 | Aluminium        | 0,169  |
| PLG8A   | 3" ISO 7/1     | 50               | 30 | Aluminium        | 0,242  |
| PLG10A  | 4" ISO 7/1     | 85               | 30 | Aluminium        | 0,489  |
| PLG12A  | 5" ISO 7/1     | 102              | 32 | Aluminium        | 0,735  |
| PLG14A  | 6" ISO 7/1     | 119              | 32 | Aluminium        | 1,00   |

**Order code example**

|            |           |          |          |
|------------|-----------|----------|----------|
| <b>PLG</b> | <b>10</b> | <b>N</b> | <b>B</b> |
| MODEL      | SIZE      | THREAD   | MATERIAL |

**TECHNICAL NOTES:**

- Available also in stainless steel (example code **PLG3S**)
- Available also in nickel plated brass (example code **PLG1B**)
- Available also in aluminium (example code **PLG2A**)
- Available also in galvanized steel (example code **PLG6G**)

PLG series plugs are used for close-up unused entries. They feature a hexagonal external head to ensure the opening with proper tools only.



|                                      |                                                                                                                              |                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                                                                              | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                 | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67</b><br><b>CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX CESI 02 ATEX 049X</b><br><b>IECEX IECEX CES 10.0001X</b><br><b>TR CU AVAILABLE</b>                                   |                                 |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                   |                                                                                                                                                                                                            |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-7: 2006-07, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                              |                |
|------------------------------|----------------|
| <b>Degree of protection:</b> | <b>IP66/67</b> |
|------------------------------|----------------|



**Operating temperature:**

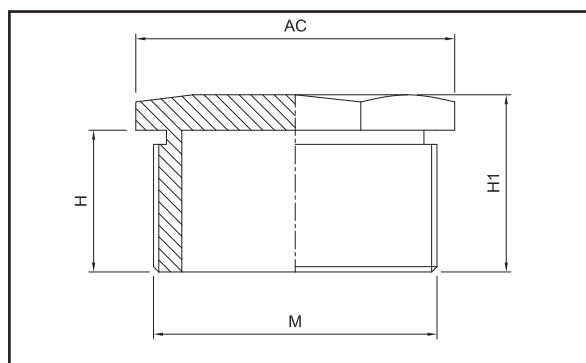
| Close-up plugs | Material                                                          | Gaskets  | Ambient temperature |
|----------------|-------------------------------------------------------------------|----------|---------------------|
| <b>PLG...</b>  | Galvanised steel ( <b>G</b> )                                     | Silicone | -20°C +80°C         |
| <b>PLG...</b>  | Nickel-plated brass ( <b>B</b> ),<br>Aluminium alloy ( <b>A</b> ) | Silicone | -40°C +150°C        |
| <b>PLG...</b>  | Stainless steel ( <b>S</b> )                                      | Silicone | -60°C +150°C        |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

#### ACCESSORIES OPON REQUEST

| Lock nuts *                                                                         | Thread ISO228 | Code         | Material         | ISO metric thread | Code   | Material            |
|-------------------------------------------------------------------------------------|---------------|--------------|------------------|-------------------|--------|---------------------|
|  | 1/4"          | <b>DL02G</b> | Galvanised steel | M12x1,5           | DL02IB | Nickel-plated brass |
|                                                                                     | 3/8"          | <b>DL01G</b> | Galvanised steel | M16x1,5           | DL01IB | Nickel-plated brass |
|                                                                                     | 1/2"          | <b>DL1G</b>  | Galvanised steel | M20x1,5           | DL1IB  | Nickel-plated brass |
|                                                                                     | 3/4"          | <b>DL2G</b>  | Galvanised steel | M25x1,5           | DL2IB  | Nickel-plated brass |
|                                                                                     | 1"            | <b>DL3G</b>  | Galvanised steel | M32x1,5           | DL3IB  | Nickel-plated brass |
|                                                                                     | 1 1/4"        | <b>DL4G</b>  | Galvanised steel | M40x1,5           | DL4IB  | Nickel-plated brass |
|                                                                                     | 1 1/2"        | <b>DL5A</b>  | Aluminium        | M50x1,5           | DL5IB  | Nickel-plated brass |
|                                                                                     | 2"            | <b>DL6A</b>  | Aluminium        | M63x1,5           | DL6IB  | Nickel-plated brass |
|                                                                                     | 2 1/2"        | <b>DL7A</b>  | Aluminium        | M75x1,5           | DL7IB  | Nickel-plated brass |
|                                                                                     | 3"            | <b>DL8A</b>  | Aluminium        | M90x1,5           | DL8IB  | Nickel-plated brass |
|                                                                                     | 3 1/2"        | <b>DL9A</b>  | Aluminium        | -                 | -      | -                   |
|                                                                                     | 4"            | <b>DL10A</b> | Aluminium        | M100x1,5          | DL10IB | Nickel-plated brass |

\* For different material contact the sales office.



### SELECTION TABLE FOR PLUGS WITH CYLINDRICAL THREAD

| Code      | Thread<br>M          | Dimensions in mm |    |    | Material   | Weight |
|-----------|----------------------|------------------|----|----|------------|--------|
|           |                      | AC               | H  | H1 |            | Kg     |
| PLG02C... | 1/4" UNI ISO 228/1   | 17               | 16 | 21 | On request | 0,014  |
| PLG01C... | 3/8" UNI ISO 228/1   | 22               | 16 | 21 |            | 0,024  |
| PLG1C...  | 1/2" UNI ISO 228/1   | 25               | 20 | 25 |            | 0,034  |
| PLG2C...  | 3/4" UNI ISO 228/1   | 32               | 20 | 25 |            | 0,054  |
| PLG3C...  | 1" UNI ISO 228/1     | 38               | 24 | 29 |            | 0,124  |
| PLG4C...  | 1 1/4" UNI ISO 228/1 | 45               | 24 | 29 |            | 0,061  |
| PLG5C...  | 1 1/2" UNI ISO 228/1 | 55               | 24 | 29 |            | 0,063  |
| PLG6C...  | 2" UNI ISO 228/1     | 65               | 24 | 29 |            | 0,109  |
| PLG7C...  | 2 1/2" UNI ISO 228/1 | 85               | 24 | 29 |            | 0,169  |
| PLG8C...  | 3" UNI ISO 228/1     | 100              | 24 | 29 |            | 0,242  |
| PLG10C... | 4" UNI ISO 228/1     | 120              | 24 | 29 |            | 0,489  |
| PLG01I... | M16x1,5              | 20               | 16 | 21 | On request | 0,014  |
| PLG1I...  | M20x1,5              | 24               | 16 | 21 |            | 0,024  |
| PLG2I...  | M25x1,5              | 30               | 16 | 21 |            | 0,034  |
| PLG3I...  | M32x1,5              | 36               | 16 | 21 |            | 0,054  |
| PLG4I...  | M40x1,5              | 46               | 16 | 21 |            | 0,124  |
| PLG5I...  | M50x1,5              | 55               | 16 | 21 |            | 0,061  |
| PLG6I...  | M63x1,5              | 70               | 18 | 23 |            | 0,063  |
| PLG7I...  | M75x1,5              | 85               | 18 | 23 |            | 0,109  |
| PLG8I...  | M90x1,5              | 95               | 18 | 23 |            | 0,169  |
| PLG10I... | M100x1,5             | 105              | 18 | 23 |            | 0,242  |

### Order code example

|            |          |          |          |
|------------|----------|----------|----------|
| <b>PLG</b> | <b>8</b> | <b>I</b> | <b>G</b> |
| MODEL      | SIZE     | THREAD   | MATERIAL |

### TECHNICAL NOTES:

- Available also in stainless steel (example code **PLG3I**S****)
- Available also in nickel plated brass (example code **PLG1I**B****)
- Available also in aluminium (example code **PLG2I**A****)
- Available also in galvanized steel (example code **PLG2I**G****)
- Available also with PG thread (example code **PLG5**PA****)

### THREAD CODIFICATION

#### Pg DIN 40430

| 2   | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   |
|-----|------|--------|------|------|------|------|------|------|
| PG9 | PG11 | PG13,5 | PG16 | PG21 | PG29 | PG36 | PG42 | PG48 |

PLG series plugs are used for close-up unused entries. They feature a hexagonal external head to ensure the opening with proper tools only.


**Classification:**  
 2014/34/UE

**Group II**
**Category 2GD**
**Installation:**  
 EN 60079.14

**zone 1 - zone 2 (Gas)**
**zone 21 - zone 22 (Dust)**
**Marking:**
**CE 0722 Ex II 2 GD - Ex e IIC Gb Ex tb IIIC Db IP66/68**
**Certification:**
**ATEX IMQ 16 ATEX 005X**
**IECEX IECEX IMQ 15.0009X**
**Standards:**

CENELEC EN 60079-0: 2012, EN 60079-7: 2007, EN 60079-11: 2012, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
 IEC 60079-0: 2011, IEC 60079-7: 2006, IEC 60079-11: 2012, IEC 60079-31: 2014  
 Directive RoHS 2002/95/CE

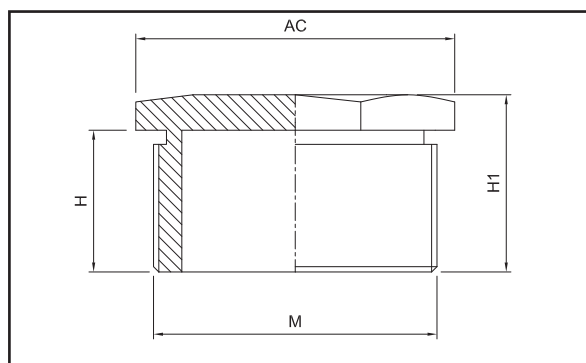

**Ambient Temp.:**
**-60°C +70°C**
**Degree of protection:**
**IP66/68**

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

**ACCESSORIES OPON REQUEST**

| Lock nuts                                                                           | ISO metric thread | Code            | Material  |
|-------------------------------------------------------------------------------------|-------------------|-----------------|-----------|
|  | M12x1,5           | <b>DL02IXEP</b> | polyamide |
|                                                                                     | M16x1,5           | <b>DL01IXEP</b> |           |
|                                                                                     | M20x1,5           | <b>DL1IXEP</b>  |           |
|                                                                                     | M25x1,5           | <b>DL2IXEP</b>  |           |
|                                                                                     | M32x1,5           | <b>DL3IXEP</b>  |           |
|                                                                                     | M40x1,5           | <b>DL4IXEP</b>  |           |
|                                                                                     | M50x1,5           | <b>DL5IXEP</b>  |           |
|                                                                                     | M63x1,5           | <b>DL6IXEP</b>  |           |



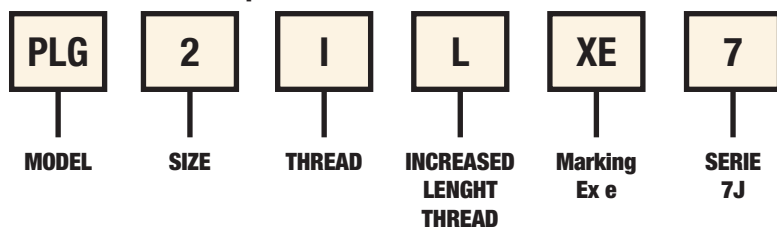


### SELECTION TABLE FOR PLUGS WITH CYLINDRICAL THREAD

| Code<br>polyamide | Thread<br>M | Dimensions in mm |     |      | Weight |
|-------------------|-------------|------------------|-----|------|--------|
|                   |             | AC               | H   | H1   | Kg     |
| PLG02IXE7         | M12x1,5     | 15               | 10  | 15   | 0,002  |
| PLG01ILXE7        | M16x1,5     | 19               | 15* | 19,3 | 0,003  |
| PLG1ILXE7         | M20x1,5     | 23               | 15* | 21   | 0,005  |
| PLG2ILXE7         | M25x1,5     | 28               | 15* | 20,8 | 0,007  |
| PLG3IXE7          | M32x1,5     | 36               | 15  | 22,8 | 0,012  |
| PLG4IXE7          | M40x1,5     | 46               | 18  | 26,5 | 0,024  |
| PLG5IXE7          | M50x1,5     | 55               | 18  | 27,5 | 0,035  |
| PLG6IXE7          | M63x1,5     | 69               | 18  | 27,5 | 0,051  |

\* reduced length thread (10mm) upon request.

### Order code example



### TECHNICAL NOTES:

- Silicone gaskets
- Black color plug RAL 9005 (Ex e)
- Impact resistance 7J

Elbows with ELF series female-female hubs, ELMF series male-female hubs and ELM series male-male hubs enable the 90° deviations of pipes.



|                                      |                                                                                                                              |                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                                                                              | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                 | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67</b><br><b>CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                                                                                  | <b>CESI 01 ATEX 104U</b>        |
|                                      | <b>IECEX</b>                                                                                                                 | <b>IECEX CES 15.0005U</b>       |
|                                      | <b>TR CU</b>                                                                                                                 | <b>AVAILABLE</b>                |
|                                      | <b>CCoE</b>                                                                                                                  | <b>AVAILABLE</b>                |

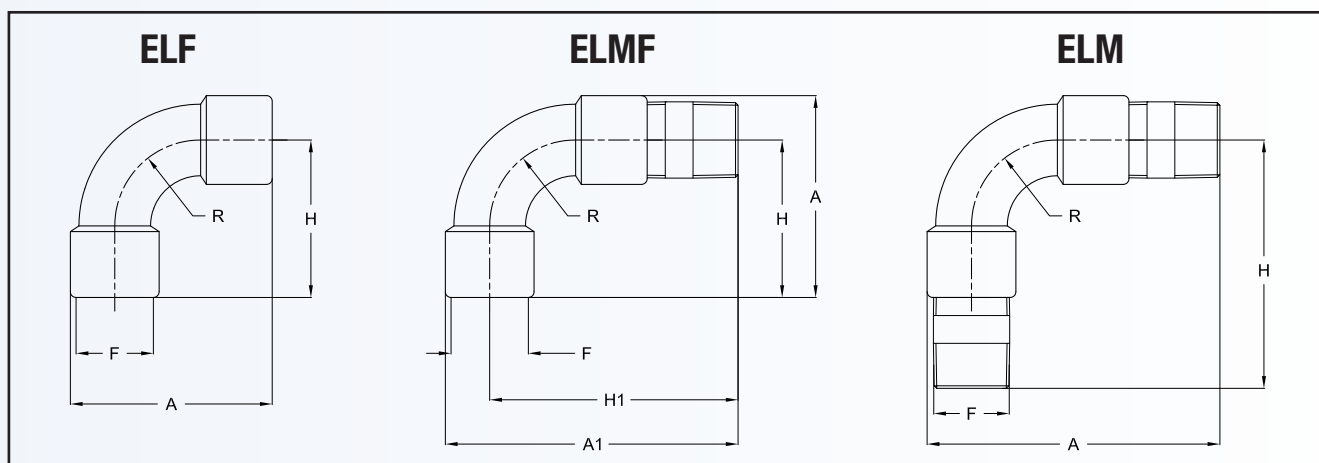
All IEC Ex, TR CU and CCoE certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                   |                                                                                                                                                                                                                                    |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2013, IEC60079-1: 2009, IEC60079-7: 2008, IEC60079-31: 2011<br>Directive RoHS 2002/95/CE |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                         |                     |
|-------------------------|---------------------|
| <b>Operating temp.:</b> | <b>-60°C +150°C</b> |
|-------------------------|---------------------|

|                              |                |
|------------------------------|----------------|
| <b>Degree of protection:</b> | <b>IP66/67</b> |
|------------------------------|----------------|

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



#### THREAD CODIFICATION

NPT, N.P.S.M., UNI ISO 228/1

| 02   | 01   | 1    | 2    | 3  | 4      | 5      | 6 | 7      | 8  | 9      | 10 | 12 | 14 |
|------|------|------|------|----|--------|--------|---|--------|----|--------|----|----|----|
| 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2 | 2 1/2" | 3" | 3 1/2" | 4" | 5" | 6" |

ISO Metric

| 12      | 16      | 20      | 25      | 32      | 40      | 50      | 63      | 75      | 90      | 100      | 63X2  | 75X2  | 90X2  |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|-------|-------|-------|
| M12x1,5 | M16x1,5 | M20x1,5 | M25x1,5 | M32x1,5 | M40x1,5 | M50x1,5 | M63x1,5 | M75x1,5 | M90x1,5 | M100x1,5 | M63x2 | M75x2 | M90x2 |

**SELECTION TABLE OF ELF 90° ELBOWS**

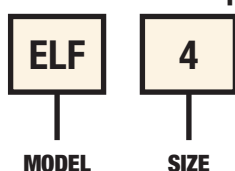
| Code<br>In aluminium | Thread<br>F    | Dimensions in mm |     |     | Weight |
|----------------------|----------------|------------------|-----|-----|--------|
|                      |                | A                | H   | R   | Kg     |
| ELF02                | 1/4" ISO 7/1   | 41               | 55  | 30  | 0,09   |
| ELF01                | 3/8" ISO 7/1   | 41               | 55  | 30  | 0,08   |
| ELF1                 | 1/2" ISO 7/1   | 60               | 45  | 30  | 0,12   |
| ELF2                 | 3/4" ISO 7/1   | 75               | 55  | 30  | 0,10   |
| ELF3                 | 1" ISO 7/1     | 85               | 65  | 35  | 0,20   |
| ELF4                 | 1 1/4" ISO 7/1 | 100              | 75  | 50  | 0,39   |
| ELF5                 | 1 1/2" ISO 7/1 | 110              | 87  | 50  | 0,37   |
| ELF6                 | 2" ISO 7/1     | 135              | 98  | 60  | 0,62   |
| ELF7                 | 2 1/2" ISO 7/1 | 175              | 135 | 65  | 0,88   |
| ELF8                 | 3" ISO 7/1     | 210              | 160 | 85  | 1,48   |
| ELF10                | 4" ISO 7/1     | 270              | 200 | 150 | 3,00   |

**SELECTION TABLE OF ELMF 90° ELBOWS**

| Code<br>In aluminium | Thread<br>F    | Dimensions in mm |     |     |     |     | Weight |
|----------------------|----------------|------------------|-----|-----|-----|-----|--------|
|                      |                | A                | A1  | H   | H1  | R   | Kg     |
| ELMF02               | 1/4" ISO 7/1   | 41               | 51  | 55  | 65  | 30  | 0,09   |
| ELMF01               | 3/8" ISO 7/1   | 41               | 51  | 55  | 65  | 30  | 0,08   |
| ELMF1                | 1/2" ISO 7/1   | 60               | 97  | 45  | 85  | 30  | 0,17   |
| ELMF2                | 3/4" ISO 7/1   | 75               | 107 | 55  | 95  | 30  | 0,17   |
| ELMF3                | 1" ISO 7/1     | 85               | 130 | 65  | 110 | 35  | 0,29   |
| ELMF4                | 1 1/4" ISO 7/1 | 100              | 145 | 75  | 125 | 50  | 0,52   |
| ELMF5                | 1 1/2" ISO 7/1 | 110              | 153 | 87  | 125 | 50  | 0,50   |
| ELMF6                | 2" ISO 7/1     | 135              | 180 | 98  | 143 | 60  | 0,79   |
| ELMF7                | 2 1/2" ISO 7/1 | 175              | 220 | 135 | 185 | 65  | 1,43   |
| ELMF8                | 3" ISO 7/1     | 210              | 255 | 160 | 205 | 85  | 2,20   |
| ELMF10               | 4" ISO 7/1     | 270              | 300 | 200 | 245 | 150 | 3,93   |

**SELECTION TABLE OF ELM 90° ELBOWS**

| Code<br>In aluminium | Thread<br>F    | Dimensions in mm |     |     | Weight |
|----------------------|----------------|------------------|-----|-----|--------|
|                      |                | A                | H   | R   | Kg     |
| ELM02                | 1/4" ISO 7/1   | 51               | 65  | 25  | 0,09   |
| ELM01                | 3/8" ISO 7/1   | 51               | 65  | 25  | 0,08   |
| ELM1                 | 1/2" ISO 7/1   | 97               | 56  | 30  | 0,21   |
| ELM2                 | 3/4" ISO 7/1   | 107              | 56  | 30  | 0,22   |
| ELM3                 | 1" ISO 7/1     | 130              | 70  | 35  | 0,38   |
| ELM4                 | 1 1/4" ISO 7/1 | 145              | 85  | 50  | 0,64   |
| ELM5                 | 1 1/2" ISO 7/1 | 153              | 85  | 50  | 0,64   |
| ELM6                 | 2" ISO 7/1     | 180              | 143 | 60  | 0,96   |
| ELM7                 | 2 1/2" ISO 7/1 | 220              | 185 | 65  | 1,99   |
| ELM8                 | 3" ISO 7/1     | 255              | 205 | 85  | 2,92   |
| ELM10                | 4" ISO 7/1     | 300              | 245 | 150 | 4,86   |

**Order code example**

**TECHNICAL NOTES:**

- Available also with NPT thread (example code **ELF3N**)
- Available upon request with ISO metric thread (example code **ELF4I**)

EM series couplings with female-female hubs, enable the connection between male hubs.



|                                      |                                                       |                          |
|--------------------------------------|-------------------------------------------------------|--------------------------|
| <b>Classification:</b><br>2014/34/UE | Group II                                              | Category 2GD             |
| <b>Installation:</b><br>EN 60079-14  | zone 1 - zone 2 (Gas)                                 | zone 21 - zone 22 (Dust) |
| <b>Marking:</b>                      | CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67 |                          |
|                                      | CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67 |                          |
| <b>Certification:</b>                | ATEX                                                  | CESI 01 ATEX 104U        |
|                                      | IECEX                                                 | IECEX CES 15.0005U       |
|                                      | TR CU                                                 | AVAILABLE                |
|                                      | CCoE                                                  | AVAILABLE                |

All ATEX, IEC Ex, TR CU and CCoE certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

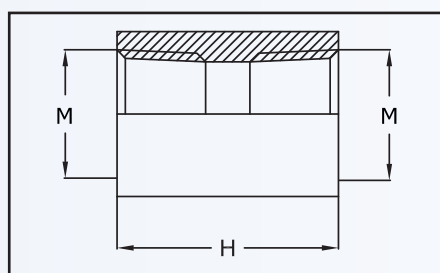
|                   |                                                                                                                                                                                                                                    |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2013, IEC60079-1: 2009, IEC60079-7: 2008, IEC60079-31: 2011<br>Directive RoHS 2002/95/CE |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



|                         |                                                    |
|-------------------------|----------------------------------------------------|
| <b>Operating temp.:</b> | -20°C +80°C (-60°C +150°C only in stainless steel) |
|-------------------------|----------------------------------------------------|

|                              |         |
|------------------------------|---------|
| <b>Degree of protection:</b> | IP66/67 |
|------------------------------|---------|

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



### Order code example

|           |          |          |
|-----------|----------|----------|
| <b>EM</b> | <b>4</b> | <b>G</b> |
| MODEL     | SIZE     | MATERIAL |

### SELECTION TABLE OF EM COUPLINGS

| Code<br>In galvanised steel | Thread<br>F    | Dimensions in mm | Weight |
|-----------------------------|----------------|------------------|--------|
|                             |                | H                | Kg     |
| EM1G                        | 1/2" ISO 7/1   | 39               | 0,090  |
| EM2G                        | 3/4" ISO 7/1   | 39               | 0,080  |
| EM3G                        | 1" ISO 7/1     | 51               | 0,150  |
| EM4G                        | 1 1/4" ISO 7/1 | 51               | 0,270  |
| EM5G                        | 1 1/2" ISO 7/1 | 51               | 0,270  |
| EM6G                        | 2" ISO 7/1     | 51               | 0,450  |
| EM7G                        | 2 1/2" ISO 7/1 | 65               | 0,650  |
| EM8G                        | 3" ISO 7/1     | 65               | 0,800  |
| EM10G                       | 4" ISO 7/1     | 65               | 1,000  |
| EM12G                       | 5" ISO 7/1     | 65               | 2,300  |
| EM14G                       | 6" ISO 7/1     | 65               | 2,800  |

### TECHNICAL NOTES:

- Available also with NPT thread (example code EM3NG)
- Available also with UNI ISO228/1 thread (example code EM2CG)
- Available also with ISO METRIC thread (example code EM4IG)
- Available also in stainless steel (example code EM2S)
- Available also in aluminium (example code EM2A)
- Available also in nickel plated brass (example code EM2B)
- For threads equivalence have a look at the correlation table in the last page



NP series nipples with male-male hubs, enable the connection between two female hubs.



**Classification:**  
2014/34/UE

Group II

Category 2GD

**Installation:**  
EN 60079-14

zone 1 - zone 2 (Gas)

zone 21 - zone 22 (Dust)

**Marking:**

CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67

CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66/67

**Certification:**

ATEX CESI 01 ATEX 104U

IECEx IECEx CES 15.0005U

TR CU AVAILABLE

CCoE AVAILABLE

All ATEX, IEC Ex, TR CU and CCoE certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

**Standards:**

CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2013, IEC60079-1: 2009, IEC60079-7: 2008, IEC60079-31: 2011  
Directive RoHS 2002/95/CE



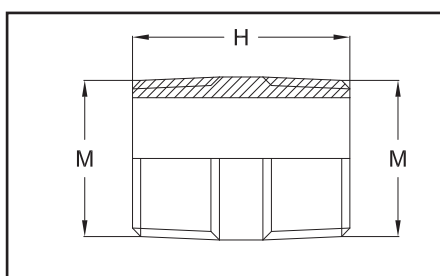
**Operating temp.:**

-20°C +80°C (-60°C +150°C only in stainless steel)

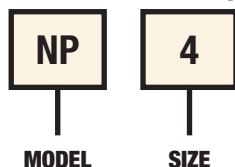
**Degree of protection:**

IP66/67

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



**Order code example**



## SELECTION TABLE OF NP NIPPLES

| Code<br><b>In galvanised steel</b> | Thread<br>F    | Dimensions in mm | Weight |
|------------------------------------|----------------|------------------|--------|
|                                    |                | H                | Kg     |
| NP1G                               | 1/2" ISO 7/1   | 48               | 0,05   |
| NP2G                               | 3/4" ISO 7/1   | 48               | 0,06   |
| NP3G                               | 1" ISO 7/1     | 60               | 0,10   |
| NP4G                               | 1 1/4" ISO 7/1 | 55               | 0,14   |
| NP5G                               | 1 1/2" ISO 7/1 | 55               | 0,15   |
| NP6G                               | 2" ISO 7/1     | 55               | 0,20   |
| NP7G                               | 2 1/2" ISO 7/1 | 68               | 0,45   |
| NP8G                               | 3" ISO 7/1     | 68               | 0,70   |
| NP10G                              | 4" ISO 7/1     | 68               | 1,0    |
| NP12G                              | 5" ISO 7/1     | 68               | 1,25   |
| NP14G                              | 6" ISO 7/1     | 68               | 1,27   |

### TECHNICAL NOTES:

- Available also with NPT thread (example code NP3NG)
- Available also with UNI ISO228/1 thread (example code NP2CG)
- Available also with ISO METRIC thread (example code NP4IG)
- Available also in stainless steel (example code NP2S)
- Available also in aluminium (example code NP2A)
- Available also in nickel plated brass (example code NP2B)
- For threads equivalence have a look at the correlation table in the last page

Our resin-filled sealing fittings can be divided into two different categories: sealing fittings and sealing bushing. The sealing fittings prevent gases, vapours or flames from spreading through the system of pipes in the electrical system. Such products can be divided into:

**EYS** vertical sealing fitting;

**EZS** horizontal sealing fitting;

**EYD** vertical sealing fitting complete of drain valve to breath a possible condensation developed inside the pipes;

The multicable sealing bushings are suitable to be assembled on junction boxes, electrical motors, panel boards and other electrical devices built in accordance to the Ex d IIC method of protection.

The standard sealing bushings are:

**TP** threaded sealing bushing;

**CP** sealing bushing with cylindrical joint;

**NPS** sealing nipple.

The **ECD** drain and breather valves are used both on our EYD and EZD series sealing fittings and in any type of equipment for draining the inner condensation or for breathing out possible inner vapours.

## CRV420 sealing compound

Two-component polyurethan resin for sealing bushing and sealing fittings

CRV 420 resin is an exclusive Elfit product. Its chemical composition has been improved after countless sealing tests, made in collaboration with CESI laboratory. CRV 420 resin has been certified along with the sealing fittings type EYS and EZS, so they need to be sold together and never separated. Sealings have to be made perfectly, in order to block the passage of gases, vapours or flames through pipes systems.



 **Ambient Temp.:**

**-20°C +100°C**

| Quantity of resin for each sealing fitting |                           |                           |
|--------------------------------------------|---------------------------|---------------------------|
| Dimensions                                 | EYS/EYD quantity of resin | EZS/EZD quantity of resin |
| 1/2"                                       | 35 g                      | 140 g                     |
| 3/4"                                       | 50 g                      | 140 g                     |
| 1"                                         | 100 g                     | 140 g                     |
| 1 1/4"                                     | 240 g                     | 390 g                     |
| 1 1/2"                                     | 240 g                     | 390 g                     |
| 2"                                         | 380 g                     | 570 g                     |
| 2 1/2"                                     | 1250 g                    | 1000 g                    |
| 3"                                         | 1250 g                    | 1000 g                    |

## SELECTION TABLE OF RESIN PACKAGE

| Code               | Component A | Component B |
|--------------------|-------------|-------------|
| <b>CRV420/100</b>  | 100 g       | 20 g        |
| <b>CRV420/300</b>  | 300 g       | 60 g        |
| <b>CRV420/400</b>  | 400 g       | 80 g        |
| <b>CRV420/1000</b> | 1000 g      | 200 g       |

For further details about the resin compound preparation and safety information, look the instructions supplied with CRV420 resin.

## PREPARATION OF THE RESIN COMPOUND

### Characteristics

Polyuretan black resin (after mixing the two components)  
Hardening time: around 4 hours  
Cathalizing time: 24 hours  
Code: CRV 420

### RESIN (Component A)

- Black compound
- Code: CRV420H71
- Mixing ratio: 100%

### CATALYST AGENT (Component B)

- Brown compound
- Code: CRV420H72
- Mixing ratio: 25%

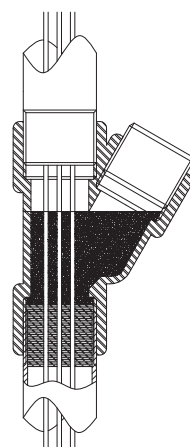
### Ratio of compounds to be mixed

Ratio 100g (Compound A) with 20g (Compound B)  
when ready to be used

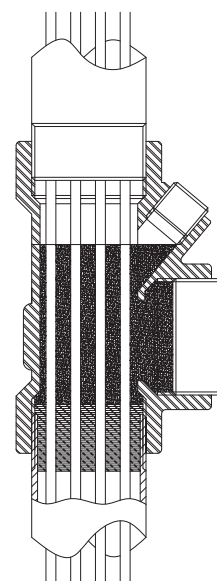
### Time of use for the mixed up compound

- Ambient temperature equal to 20°C within 30 minutes from the mixing
- Ambient temperature of 15°C within 45 minutes from the mixing

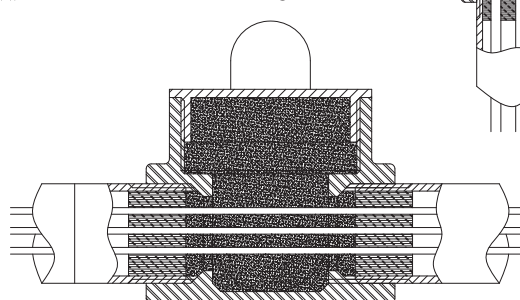
EYS - EYD



EYS - EYD



EZS



## FV... Glass fiber

The glass fiber is inserted within sealing fittings to avoid that the sealing resin runs into the underlying connection pipe.



### SELECTION TABLE OF GLASS FIBER

| Code  | Weight |
|-------|--------|
| FV-1  | 250 g  |
| FV-5  | 500 g  |
| FV-10 | 1000 g |



EYS series sealing fittings prevent the passage of gas, vapours or flames through the pipe system in the electrical installation.

They are used for vertical mounting and available in two different shapes, the first for dimensions less than 1", and the second up to 3" with an additional lateral opening for an easy introduction of the fiber. The sealing fittings must be installed as close as possible to the Ex d junction box and in accordance with the standard EN60079-1. They must be filled only with CRV420 resin that has to be requested in the amount indicated in the table. It is not allowed the use of other types of sealing compound.



**Classification:**  
2014/34/UE

Group II

Category 2GD

**Installation:**  
EN 60079.14

zone 1 - zone 2 (Gas)

zone 21 - zone 22 (Dust)

**Marking:**

CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66

**Certification:**

ATEX CESI 03 ATEX 085X

IECEX IECEX CES 14.0019X

TR CU AVAILABLE

CCoE AVAILABLE

All IEC Ex, TR CU, CCoE certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

**Standards:**

CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2011, IEC60079-1: 2015-06, IEC60079-31: 2013 Directive RoHS 2002/95/CE



**Ambient Temp. (EYS):**

-20°C +100°C



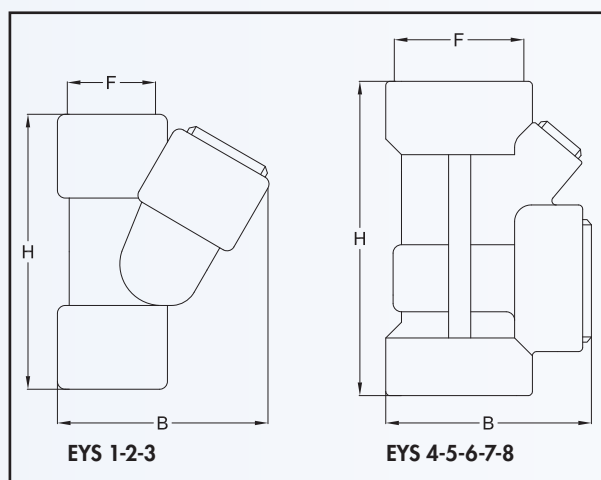
**Operating temperature:**

-20°C +100°C

**Degree of protection:**

IP66

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



## SELECTION TABLE OF EYS VERTICAL SEALING FITTINGS

| Code<br>In<br>aluminium | Thread         | Dimensions in mm |     | Amount<br>of resin | Weight |
|-------------------------|----------------|------------------|-----|--------------------|--------|
|                         | F              | H                | B   | gr                 | Kg     |
| EYS1                    | 1/2" ISO 7/1   | 77               | 56  | 35                 | 0,097  |
| EYS2                    | 3/4" ISO 7/1   | 87               | 66  | 50                 | 0,147  |
| EYS3                    | 1" ISO 7/1     | 105              | 82  | 100                | 0,242  |
| EYS4                    | 1 1/4" ISO 7/1 | 145              | 84  | 240                | 0,576  |
| EYS5                    | 1 1/2" ISO 7/1 | 145              | 84  | 240                | 0,528  |
| EYS6                    | 2" ISO 7/1     | 150              | 95  | 380                | 0,643  |
| EYS7                    | 2 1/2" ISO 7/1 | 200              | 134 | 1250               | 1,580  |
| EYS8                    | 3" ISO 7/1     | 200              | 134 | 1250               | 1,480  |

### TECHNICAL NOTES:

- Available also with NPT thread (example code EYS2N)
- Available upon request in stainless steel. Contact our Sales Office for availability.

EYD series sealing fittings are equipped with ECD valve to drain the possible condensation inside the conduits. They are used for vertical mounting and available in two different shapes, the first for dimensions less than 1", and the second up to 3" with an additional lateral opening for easy introduction of the fiber. The sealing fittings have to be installed as close as possible to the Ex d junction box and in accordance with the standard EN60079-1. They must be filled only with CRV420 resin that has to be requested in the amount indicated in the table. It is not allowed the use of other types of sealing compound.

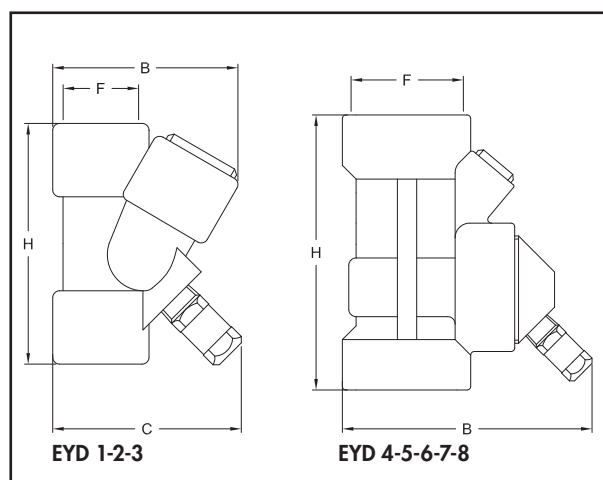


|                                      |                                      |                           |
|--------------------------------------|--------------------------------------|---------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                      | <b>Category 2G</b>        |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>         |                           |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 G Ex d IIC Gb</b> |                           |
| <b>Certification</b>                 | <b>ATEX</b>                          | <b>CESI 03 ATEX 085X</b>  |
|                                      | <b>IECEx</b>                         | <b>IECEx CES 14.0019X</b> |
|                                      | <b>TR CU</b>                         | <b>AVAILABLE</b>          |
|                                      | <b>CCoE</b>                          | <b>AVAILABLE</b>          |

All IEC Ex, TR CU, CCoE certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                               |                                                                                                                                                                                       |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>             | CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2015-06, IEC60079-31: 2013 Directive RoHS 2002/95/CE |
| <b>Ambient Temp. (EYD):</b>   | -20°C +60°C                                                                                                                                                                           |
| <b>Operating temperature:</b> | -20°C +100°C                                                                                                                                                                          |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



### SELECTION TABLE OF EYD VERTICAL SEALING FITTINGS

| Code<br>In<br>aluminium | Thread         | Dimensions in mm |     |     | Amount<br>of resin | Weight |
|-------------------------|----------------|------------------|-----|-----|--------------------|--------|
|                         | F              | H                | B   | C   | gr                 | Kg     |
| EYD1                    | 1/2" ISO 7/1   | 88               | 63  | 67  | 35                 | 0,280  |
| EYD2                    | 3/4" ISO 7/1   | 100              | 72  | 78  | 50                 | 0,310  |
| EYD3                    | 1" ISO 7/1     | 117              | 85  | 85  | 100                | 0,430  |
| EYD4                    | 1 1/4" ISO 7/1 | 145              | 120 | 120 | 240                | 0,720  |
| EYD5                    | 1 1/2" ISO 7/1 | 145              | 120 | 120 | 240                | 0,600  |
| EYD6                    | 2" ISO 7/1     | 150              | 131 | 131 | 380                | 0,820  |
| EYD7                    | 2 1/2" ISO 7/1 | 200              | 165 | 165 | 1250               | 1,580  |
| EYD8                    | 3" ISO 7/1     | 200              | 165 | 165 | 1250               | 1,480  |

#### TECHNICAL NOTES:

- Available also with NPT thread (example code EYD2N)
- Available upon request in stainless steel. Contact our Sales Office for availability.



EZS series horizontal fittings prevent the passage of gas, vapours or flames through the pipe system in the electrical installation.

EZS series can be used both for horizontal and vertical mounting. The sealing fittings have to be installed as close as possible to the Ex d junction box and in accordance with the standard EN60079-1. They must be filled only with CRV420 resin that has to be requested in the amount indicated in the table. It is not allowed the use of other types of sealing compound.

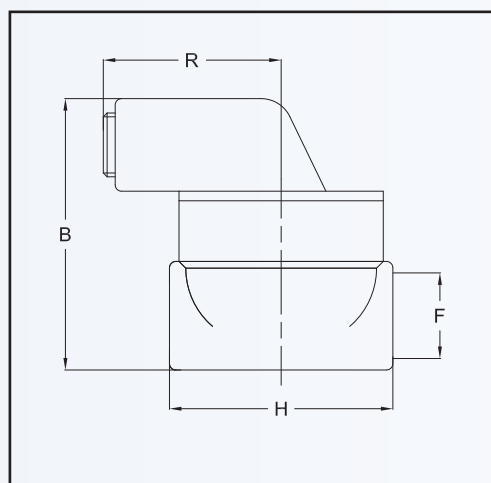


|                                      |                                                    |                          |
|--------------------------------------|----------------------------------------------------|--------------------------|
| <b>Classification:</b><br>2014/34/UE | Group II                                           | Category 2GD             |
| <b>Installation:</b><br>EN 60079-14  | zone 1 - zone 2 (Gas)                              | zone 21 - zone 22 (Dust) |
| <b>Marking:</b>                      | CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66 |                          |
| <b>Certification:</b>                | ATEX                                               | CESI 03 ATEX 085X        |
|                                      | IECEX                                              | IECEX CES 14.0019X       |
|                                      | TR CU                                              | AVAILABLE                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                               |                                                                                                                                                                                       |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>             | CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2015-06, IEC60079-31: 2013 Directive RoHS 2002/95/CE |
| <b>Ambient Temp. (EZS):</b>   | -20°C +100°C                                                                                                                                                                          |
| <b>Operating temperature:</b> | -20°C +100°C                                                                                                                                                                          |
| <b>Degree of protection:</b>  | IP66                                                                                                                                                                                  |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



### SELECTION TABLE OF EZS HORIZONTAL SEALING FITTINGS

| Code<br>In<br>aluminium | Thread       | Dimensions in mm |     |    | Amount<br>of resin | Weight |
|-------------------------|--------------|------------------|-----|----|--------------------|--------|
|                         | F            | H                | B   | R  | gr                 | Kg     |
| EZS1                    | 1/2" ISO 7/1 | 72               | 83  | 50 | 150                | 0,26   |
| EZS2                    | 3/4" ISO 7/1 | 72               | 83  | 50 | 140                | 0,25   |
| EZS3                    | 1" ISO 7/1   | 74               | 92  | 50 | 140                | 0,27   |
| EZS4                    | 1 ¼" ISO 7/1 | 98               | 110 | 80 | 390                | 0,52   |
| EZS5                    | 1 ½" ISO 7/1 | 98               | 110 | 80 | 390                | 0,48   |
| EZS6                    | 2" ISO 7/1   | 130              | 120 | 80 | 570                | 0,70   |
| EZS7                    | 2 ½" ISO 7/1 | 142              | 160 | 90 | 1000               | 1,50   |
| EZS8                    | 3" ISO 7/1   | 142              | 160 | 90 | 1000               | 1,74   |

#### TECHNICAL NOTES:

- Available also with NPT thread (example code EZS2N)
- Available upon request in stainless steel



Drain and breather valves are suitable for use in any type of explosion proof enclosure to drain the condensation and vapours developed inside the enclosure.

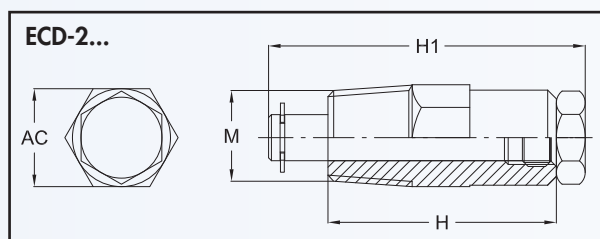
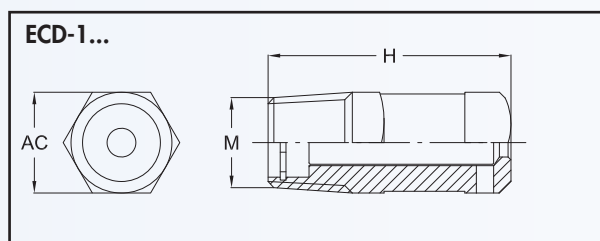


|                                      |                                                                     |                          |                                                                                                                           |
|--------------------------------------|---------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Classification:</b><br>2014/34/UE | Group II                                                            | Category 2GD             |                                                                                                                           |
| <b>Installation:</b><br>EN 60079.14  | zone 1 - zone 2 (Gas)                                               |                          | ECD-1...                                                                                                                  |
|                                      | zone 1 - zone 2 (Gas)                                               | zone 21 - zone 22 (Dust) | ECD-2...                                                                                                                  |
| <b>Marking:</b>                      | CE 0722 Ex II 2 G Ex d IIC/IIB Gb                                   |                          | ECD-1...                                                                                                                  |
|                                      | CE 0722 Ex II 2 GD Ex d IIC/IIB - Ex e IIC Gb<br>Ex tb IIIC Db IP66 |                          | ECD-2...                                                                                                                  |
| <b>Certification:</b>                | ATEX                                                                | CESI 01 ATEX 081U        |                                                                                                                           |
|                                      | IECEX                                                               | IECEX CES 14.0016U       | All IEC Ex and TR CU certification data can be downloaded at <a href="http://www.cortemgroup.com">www.cortemgroup.com</a> |
|                                      | TR CU                                                               | AVAILABLE                |                                                                                                                           |

|                   |                                                                                                                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2014, IEC 60079-7: 2015, IEC60079-31: 2013 Directive RoHS 2002/95/CE |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                               |              |
|-------------------------------|--------------|
| <b>Operating temp. (IIC):</b> | -50°C +60°C  |
| <b>Operating temp. (IIB):</b> | -50°C +150°C |
| <b>Degree of protection:</b>  | IP66         |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



## SELECTION TABLE OF ECD VALVES

| Code<br>In stainless<br>steel AISI 316 | Thread      | Dimensions in mm |    |    | Use      | Weight<br>Kg |
|----------------------------------------|-------------|------------------|----|----|----------|--------------|
|                                        |             | F                | H  | H1 |          |              |
| ECD-110S                               | 3/8" IS07/1 | 42               | -  | 17 | Drain    | 0,08         |
| ECD-115S                               | 1/2" IS07/1 | 43               | -  | 22 | Drain    | 0,08         |
| ECDS-110S                              | 3/8" IS07/1 | 42               | -  | 17 | Breather | 0,10         |
| ECD-210S                               | 3/8" IS07/1 | 40               | 55 | 17 | Drain    | 0,11         |
| ECD-215S                               | 1/2" IS07/1 | 40               | 55 | 22 | Drain    | 0,20         |

### TECHNICAL NOTES:

- Available also in aluminium (example code ECD110)
- Available also with NPT thread (example code ECD110NS)
- Available also with ISO METRIC thread

Automatic drainage and breather valves ECDE series are suitable to be used on increased safety, intrinsically safety or watertight enclosures to facilitate the elimination of condensation or vapors developed inside. Thanks to a precise mechanism, it is possible to obtain a continuous drainage and breathing of the junction box, protecting it from the possible formations of internal condensation and thus avoiding the periodic manual discharge, while ensuring a suitable IP degree of protection.

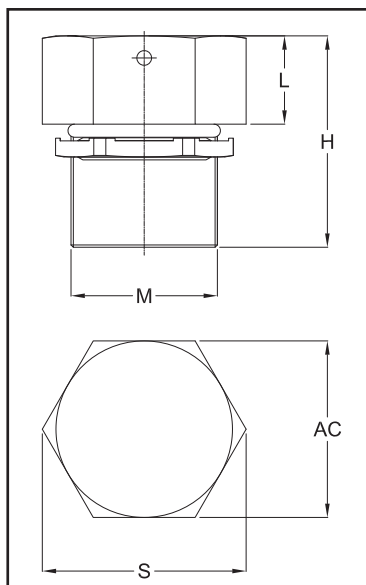


|                                      |                                                           |                                 |
|--------------------------------------|-----------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                           | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                              | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db IP66</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                               | <b>CML 16 ATEX 1351X</b>        |
|                                      | <b>IECEX</b>                                              | <b>IECEX CML16.0124X</b>        |

All IEC Ex certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                              |                                                                                                                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC 60079-7: 2015, IEC60079-31: 2013 Directive RoHS 2002/95/CE |
| <b>Ambient temp.:</b>        | -60°C +150°C                                                                                                                                                                        |
| <b>Degree of protection:</b> | IP66                                                                                                                                                                                |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



## SELECTION TABLE OF ECDE VALVES

| Code<br>In stainless<br>steel AISI 316 | Code<br>In nickel-<br>plated brass | Thread<br>M | Dimensions in mm |    |    |    | Use            |
|----------------------------------------|------------------------------------|-------------|------------------|----|----|----|----------------|
|                                        |                                    |             | H*               | L  | S  | AC |                |
| ECDE-B1S                               | ECDE-B1B                           | M20x1,5     | 26               | 13 | 28 | 24 | Breather       |
| ECDE-B2S                               | ECDE-B2B                           | M25x1,5     | 26               | 13 | 35 | 30 | Breather       |
| ECDE-D1S**                             | ECDE-D1B**                         | M20x1,5     | 26               | 13 | 28 | 24 | Breather/Drain |
| ECDE-D2S**                             | ECDE-D2B**                         | M25x1,5     | 26               | 13 | 35 | 30 | Breather/Drain |

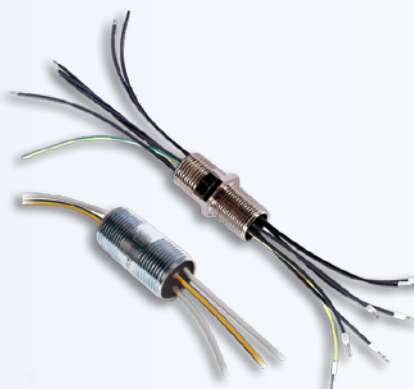
### TECHNICAL NOTES:

- \* Different lengths for thick junction boxes upon request.
- \*\* When the ECDE are intended for use as a drain, they must be installed at the bottom of the enclosure



The sealed nipples are used to connect explosion-proof enclosures. The cables are sealed through a two-component resin set around each conductor.

Note: Please refer to the Sales Office for the available cables arrangements.



|                                      |                                                             |                                 |
|--------------------------------------|-------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                             | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex d IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                 | <b>CESI 01 ATEX 080U</b>        |
|                                      | <b>IECEX</b>                                                | <b>IECEX CES 10.0003U</b>       |
|                                      | <b>TR CU</b>                                                | <b>AVAILABLE</b>                |

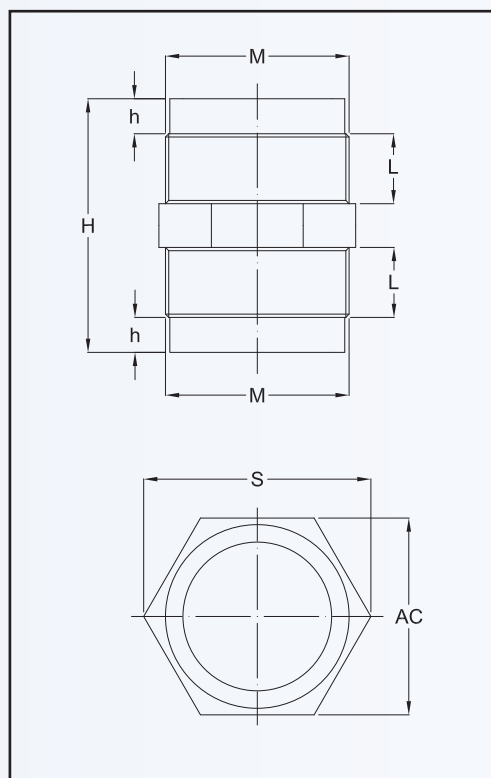
All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

|                   |                                                                                                                                                                                       |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2014-06, IEC60079-31: 2013 Directive RoHS 2002/95/CE |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                               |                     |
|-------------------------------|---------------------|
| <b>Operating temperature:</b> | <b>-50°C +110°C</b> |
|-------------------------------|---------------------|

|                              |                |
|------------------------------|----------------|
| <b>Degree of protection:</b> | <b>IP66/67</b> |
|------------------------------|----------------|

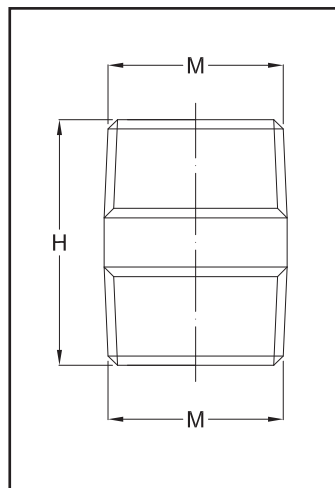
Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



### SELECTION TABLE OF ISO METRIC SEALED NIPPLES

| Code<br>In brass | ISO METRIC<br>thread | Dimensions in mm |    |    |   |    |
|------------------|----------------------|------------------|----|----|---|----|
|                  |                      | M                | H  | L  | h | AC |
| NPS10            | M10x1,5              |                  | 54 | 16 | 8 | 14 |
| NPS12            | M12x1,5              |                  |    |    |   | 16 |
| NPS16            | M16x1,5              |                  |    |    |   | 20 |
| NPS20            | M20x1,5              |                  |    |    |   | 24 |
| NPS24            | M24x1,5              |                  |    |    |   | 30 |
| NPS25            | M25x1,5              |                  |    |    |   | 30 |
| NPS32            | M32x1,5              |                  |    |    |   | 36 |
| NPS33            | M33x1,5              |                  |    |    |   | 36 |
| NPS36            | M36x1,5              |                  |    |    |   | 40 |
| NPS38            | M38x1,5              |                  |    |    |   | 42 |
| NPS40            | M40x1,5              |                  |    |    |   | 45 |
| NPS42            | M42x1,5              |                  |    |    |   | 45 |





**SELECTION TABLE OF ISO 7/1 SEALED NIPPLES**

| Code<br>In galvani-<br>sed steel | Thread         | Dimensions<br>mm |
|----------------------------------|----------------|------------------|
|                                  | M              | H                |
| NPS1                             | 1/2" ISO 7/1   | 48               |
| NPS2                             | 3/4" ISO 7/1   | 48               |
| NPS3                             | 1" ISO 7/1     | 60               |
| NPS4                             | 1 1/4" ISO 7/1 | 55               |
| NPS5                             | 1 1/2" ISO 7/1 | 55               |

**SELECTION TABLE OF NPT SEALED NIPPLES**

| Code<br>In galvani-<br>sed steel | Thread     | Dimensions<br>mm |
|----------------------------------|------------|------------------|
|                                  | M          | H                |
| NPS1N                            | 1/2" NPT   | 48               |
| NPS2N                            | 3/4" NPT   | 48               |
| NPS3N                            | 1" NPT     | 60               |
| NPS4N                            | 1 1/4" NPT | 55               |
| NPS5N                            | 1 1/2" NPT | 55               |

### Order method for sealing nipples

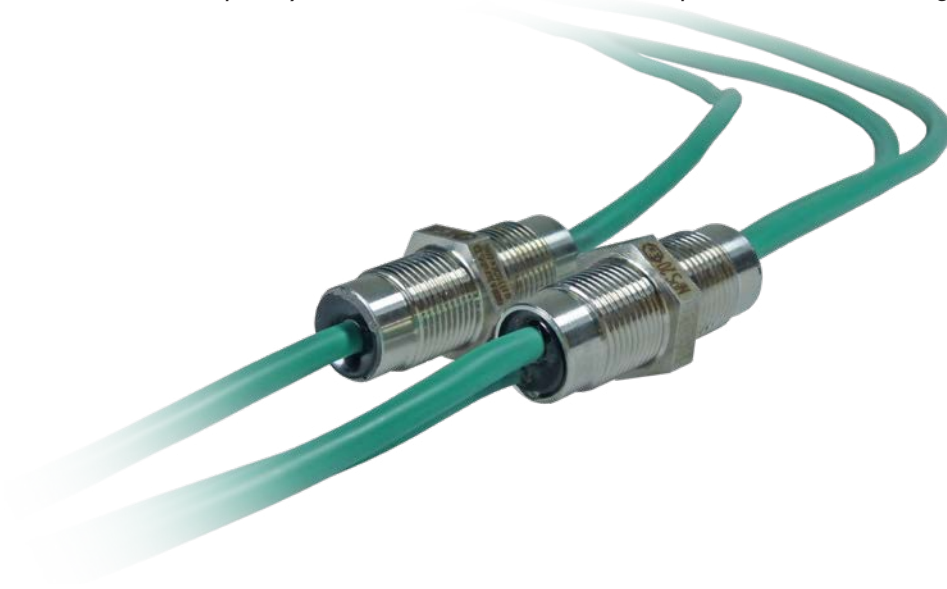
- 1 Indicate the NPS model based on the necessary thread type
- 2 Indicate amount, section, color of cables to be sealed in the nipple
- 3 Indicate the cables lenght on the two sides
- 4 Indicate the total amount of necessary sealed nipples

### TECHNICAL NOTES:

- The maximum quantity as well as the kind of usable cables are specified on "Maximum quantity and wires type tables" in the following pages
- Available the installation of terminals or connectors
- Possible numeration of cables
- Possible to strip the cables' extremities
- Available also in stainless steel
- Available also in galvanised steel
- It is possible to supply sealing nipples with mixed thread
- Request the lock nuts for the sealing nipples with ISO metric thread

### Upon request it's possible to supply sealing nipples with cables for thermocouples K type

- The maximum quantity and the kind of usable wires are specified on the following pages



The sealing bushings are used to connect explosion-proof enclosures. The cables are sealed through a two-component resin set around each conductor.



**Classification:**  
2014/34/UE

**Group II**

**Category 2GD**

**Installation:**  
EN 60079.14

**zone 1 - zone 2 (Gas)**

**Marking:**

**CE 0722 Ex II 2 G Ex d IIC Gb**

**Certification:**

**ATEX CESI 01 ATEX 080U**

**IECEX IECEX CES 10.0003U**

**TR CU AVAILABLE**

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

**Standards:**

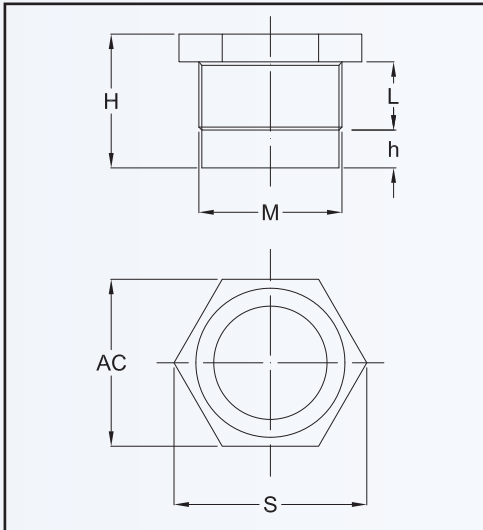
CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2011, IEC60079-1: 2014-06, IEC60079-31: 2013 Directive RoHS 2002/95/CE



**Operating temperature:**

**-50°C +110°C**

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



## SELECTION TABLE OF SEALING BUSHINGS WITH THREADED JOINT

| Code<br>In brass | ISO METRIC<br>thread | Dimensions in mm |    |    |   |         |
|------------------|----------------------|------------------|----|----|---|---------|
|                  |                      | M                | H  | L  | h | AC S    |
| TP               | 10                   |                  | 30 | 15 | 9 | 14 16,5 |
| TP               | 12                   |                  |    |    |   | 16 19   |
| TP               | 16                   |                  |    |    |   | 20 23,5 |
| TP               | 24                   |                  |    |    |   | 28 32,5 |
| TP               | 25                   |                  |    |    |   | 30 34,5 |
| TP               | 33                   |                  |    |    |   | 36 42   |
| TP               | 36                   |                  |    |    |   | 40 46,5 |
| TP               | 38                   |                  |    |    |   | 42 48,5 |
| TP               | 42                   |                  |    |    |   | 45 52   |

## Order method for sealing bushings

- 1 Indicate the TP model based on the necessary thread type
- 2 Indicate amount, section, color of cables to be sealed in the nipple
- 3 Indicate cable length on the two sides
- 4 Indicate the total amount of necessary sealing nipples

## TECHNICAL NOTES:

- The maximum quantity as well as the kind of usable cables are specified on "Maximum quantity and wires type tables" in the following pages
- Possible to strip the cables' extremities
- Available also in stainless steel
- Request the lock nuts for the block of the sealing bushings

The sealing bushings are used to connect explosion-proof enclosures. The cables are sealed through a two-component resin set around each conductor.



**Classification:**  
2014/34/UE

**Group II**

**Category 2GD**

**Installation:**  
EN 60079.14

**zone 1 - zone 2 (Gas)**

**Marking:**

**CE 0722 Ex II 2 G Ex d IIC Gb**

**Certification:**

**ATEX CESI 01 ATEX 080U**

**IECEX IECEX CES 10.0003U**

**TR CU AVAILABLE**

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

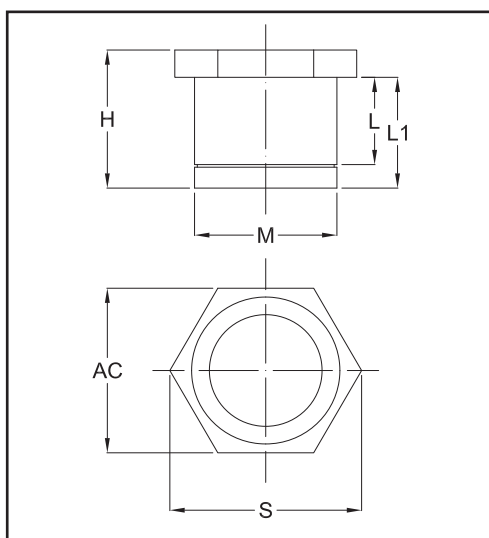
**Standards:**

CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2011, IEC60079-1: 2014-06, IEC60079-31: 2013 Directive RoHS 2002/95/CE

**Operating temperature:**

**-50°C +110°C**

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



## SELECTION TABLE OF SEALING BUSHINGS WITH CYLINDRICAL JOINT

| Code<br>In brass | ISO METRIC<br>thread | Dimensions in mm |      |    |    |      |
|------------------|----------------------|------------------|------|----|----|------|
|                  | M                    | H                | L    | L1 | AC | S    |
| CP               | 10                   | 35               | 25,5 | 29 | 14 | 16,5 |
| CP               | 12                   |                  |      |    | 16 | 19   |
| CP               | 16                   |                  |      |    | 20 | 23,5 |
| CP               | 24                   |                  |      |    | 28 | 32,5 |
| CP               | 29                   |                  |      |    | 32 | 37   |
| CP               | 33                   |                  |      |    | 36 | 42   |
| CP               | 36                   |                  |      |    | 40 | 46,5 |
| CP               | 38                   |                  |      |    | 42 | 48,5 |
| CP               | 42                   |                  |      |    | 45 | 52   |

## Order method for sealing bushings

- 1 Indicate the TP model based on the necessary thread type
- 2 Indicate amount, section, color of cables to be sealed in the nipple
- 3 Indicate cable length on the two sides
- 4 Indicate the total amount of necessary sealing nipples

## TECHNICAL NOTES:

- The maximum quantity as well as the kind of usable cables are specified on "Maximum quantity and wires type tables" in the following pages
- Possible to strip the cables' extremities
- Available also in stainless steel
- Request the lock nuts for the block of the sealing bushings

| Max. N. of wires                                        | Wires size mm <sup>2</sup> | Rated current for continuous usage for max. temperature of 40°C | Rated Voltage | Thread size for TP - NPS                                                                                        |                                                                                   | CP cylindrical Joint size                                                         |
|---------------------------------------------------------|----------------------------|-----------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 1<br>1<br>3<br>5<br>6<br>6<br>8<br>12<br>15<br>15<br>48 | 0,75                       | 10 A                                                            | 750 V         | M10x1,5<br>M12x1,5<br>M16x1,5<br>M20x1,5<br>M24x1,5<br>M25x1,5<br>-<br>M33x1,5<br>M36x1,5<br>M38x1,5<br>M42x1,5 | 1/8"<br>1/4"<br>3/8"<br>1/2"<br>-<br>3/4"<br>-<br>1"<br>-<br>-<br>1 1/4" - 1 1/2" | Ø 10<br>Ø 12<br>Ø 16<br>-<br>Ø 24<br>Ø 25<br>Ø 29<br>Ø 33<br>Ø 36<br>Ø 38<br>Ø 42 |
| 1<br>1<br>3<br>5<br>6<br>6<br>8<br>12<br>15<br>15<br>21 | 1                          | 12 A                                                            | 1000 V        | M10x1,5<br>M12x1,5<br>M16x1,5<br>M20x1,5<br>M24x1,5<br>M25x1,5<br>-<br>M33x1,5<br>M36x1,5<br>M38x1,5<br>M42x1,5 | 1/8"<br>1/4"<br>3/8"<br>1/2"<br>-<br>3/4"<br>-<br>1"<br>-<br>-<br>1 1/4" - 1 1/2" | Ø 10<br>Ø 12<br>Ø 16<br>-<br>Ø 24<br>Ø 25<br>Ø 29<br>Ø 33<br>Ø 36<br>Ø 38<br>Ø 42 |
| 1<br>1<br>3<br>5<br>6<br>6<br>8<br>12<br>15<br>36       | 1,5                        | 15 A                                                            |               | M10x1,5<br>M12x1,5<br>M16x1,5<br>M20x1,5<br>M24x1,5<br>M25x1,5<br>-<br>M33x1,5<br>M38x1,5<br>M42x1,5            | 1/8"<br>1/4"<br>3/8"<br>1/2"<br>-<br>3/4"<br>-<br>1"<br>-<br>1 1/4" - 1 1/2"      | Ø 10<br>Ø 12<br>Ø 16<br>-<br>Ø 24<br>Ø 25<br>Ø 29<br>Ø 33<br>Ø 38<br>Ø 42         |
| 1<br>3<br>3<br>3<br>5<br>12<br>12<br>21<br>24           | 2,5                        | 20 A                                                            |               | M16x1,5<br>M20x1,5<br>M24x1,5<br>M25x1,5<br>-<br>M33x1,5<br>M38x1,5<br>M42x1,5                                  | 3/8"<br>1/2"<br>-<br>3/4"<br>-<br>1"<br>-<br>1 1/4" - 1 1/2"                      | Ø 16<br>-<br>Ø 24<br>Ø 25<br>Ø 29<br>Ø 33<br>Ø 38<br>Ø 42                         |
| 1<br>2<br>3<br>3<br>5<br>6<br>8<br>8<br>18              | 4                          | 27 A                                                            |               | M16x1,5<br>M20x1,5<br>M24x1,5<br>M25x1,5<br>-<br>M33x1,5<br>M36x1,5<br>M38x1,5<br>M42x1,5                       | 3/8"<br>1/2"<br>-<br>3/4"<br>-<br>1"<br>-<br>-<br>1 1/4" - 1 1/2"                 | Ø 16<br>-<br>Ø 24<br>Ø 25<br>Ø 29<br>Ø 33<br>Ø 36<br>Ø 38<br>Ø 42                 |
| 1<br>2<br>2<br>2<br>4<br>6<br>6<br>6<br>12              | 6                          | 35 A                                                            |               | M16x1,5<br>M20x1,5<br>M24x1,5<br>M25x1,5<br>-<br>M33x1,5<br>M38x1,5<br>M42x1,5                                  | 3/8"<br>1/2"<br>-<br>3/4"<br>-<br>1"<br>-<br>1 1/4" - 1 1/2"                      | Ø 16<br>-<br>Ø 24<br>Ø 25<br>Ø 29<br>Ø 33<br>Ø 38<br>Ø 42                         |
| 1<br>3<br>6<br>6<br>6                                   | 10                         | 49 A                                                            |               | M24x1,5<br>M33x1,5<br>M36x1,5<br>M38x1,5<br>M42x1,5                                                             | 3/4"<br>1"<br>-<br>-<br>1 1/4" - 1 1/2"                                           | Ø 24<br>Ø 33<br>Ø 36<br>Ø 38<br>Ø 42                                              |

| Max. N. of wires           | Wires size mm <sup>2</sup> | Rated current for continuous usage for max. temperature of 40°C | Rated Voltage | Thread size for TP - NPS                                                                     | CP cylindrical Joint size                    |
|----------------------------|----------------------------|-----------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------|----------------------------------------------|
| 1<br>1<br>3<br>6<br>6<br>6 | 16                         | 65 A                                                            | 1000 V        | M24x1,5 -<br>M25x1,5 3/4"<br>M33x1,5 1"<br>M36x1,5 -<br>M38x1,5 -<br>M42x1,5 1 1/4" - 1 1/2" | Ø 24<br>Ø 25<br>Ø 33<br>Ø 36<br>Ø 38<br>Ø 42 |
| 1<br>1<br>3                | 25                         | 86 A                                                            |               | M24x1,5 -<br>M25x1,5 3/4"<br>M42x1,5 1 1/4" - 1 1/2"                                         | Ø 24<br>Ø 25<br>Ø 42                         |
| 1<br>1<br>3                | 35                         | 107 A                                                           |               | M24x1,5 -<br>M25x1,5 3/4"<br>M42x1,5 1 1/4" - 1 1/2"                                         | Ø 24<br>Ø 25<br>Ø 42                         |
| 1<br>1<br>1                | 50                         | 132 A                                                           |               | M24x1,5 -<br>M25x1,5 3/4"<br>M33x1,5 1"                                                      | Ø 24<br>Ø 25<br>Ø 33                         |
| 1<br>1<br>1                | 70                         | 165 A                                                           |               | M33x1,5 1"<br>M36x1,5 -                                                                      | Ø 33<br>Ø 36                                 |

| Rated voltage 750V                                          |                            |                                                                 |                                                                                                                                                                   |                                                     |                                                                                   |
|-------------------------------------------------------------|----------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------|
| Max. N. of wires                                            | Wires size mm <sup>2</sup> | Rated current for continuous usage for max. temperature of 40°C | Thread size for TP - NPS                                                                                                                                          |                                                     | CP cylindrical joint size                                                         |
| 3<br>3<br>8<br>12<br>16<br>16<br>20<br>20<br>25<br>35<br>45 | 0,5                        | 5 A                                                             | M10x1,5 1/8"<br>M12x1,5 1/4"<br>M16x1,5 3/8"<br>M20x1,5 1/2"<br>M24x1,5 -<br>M25x1,5 3/4"<br>-<br>M33x1,5 1"<br>M36x1,5 -<br>M38x1,5 -<br>M42x1,5 1 1/4" - 1 1/2" | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | Ø 10<br>Ø 12<br>Ø 16<br>-<br>Ø 24<br>Ø 25<br>Ø 29<br>Ø 33<br>Ø 36<br>Ø 38<br>Ø 42 |

| Wire capacity range with cables for thermocouples K type - Rated current 100/100V |                                  |                       |                                          |   |                                      |
|-----------------------------------------------------------------------------------|----------------------------------|-----------------------|------------------------------------------|---|--------------------------------------|
| Max. N. of wires                                                                  | Wires size mm <sup>2</sup>       | Operating temperature | Thread size for TP - NPS                 |   | CP cylindrical joint size            |
| 1<br>1<br>2<br>2<br>5<br>5<br>7<br>7<br>9                                         | 2 x 0,22<br>2 x 0,50<br>2 x 0,80 | 110°C                 | M12x1,5<br>M16x1,5<br>M24x1,5<br>M25x1,5 | - | Ø 12<br>Ø 16<br>Ø 24<br>Ø 25<br>Ø 29 |
| 5<br>7<br>7<br>9                                                                  | 2 x 0,80                         |                       | M33x1,5<br>M36x1,5<br>M38x1,5<br>M42x1,5 | - | Ø 33<br>Ø 36<br>Ø 38<br>Ø 42         |
| 1<br>2<br>2<br>4<br>5<br>7<br>7<br>9                                              | 2 x 1,00                         |                       | M16x1,5<br>M24x1,5<br>M25x1,5            | - | Ø 16<br>Ø 24<br>Ø 25<br>Ø 29         |
| 5<br>7<br>7<br>9                                                                  | 2 x 1,00                         |                       | M33x1,5<br>M36x1,5<br>M38x1,5<br>M42x1,5 | - | Ø 33<br>Ø 36<br>Ø 38<br>Ø 42         |
| 1<br>2<br>2<br>4<br>5<br>7<br>7<br>9                                              | 2 x 1,30<br>2 x 1,50             |                       | M16x1,5<br>M24x1,5<br>M25x1,5            | - | Ø 16<br>Ø 24<br>Ø 25<br>Ø 29         |
| 5<br>7<br>7<br>9                                                                  | 2 x 1,30<br>2 x 1,50             |                       | M33x1,5<br>M36x1,5<br>M38x1,5<br>M42x1,5 | - | Ø 33<br>Ø 36<br>Ø 38<br>Ø 42         |

**TECHNICAL NOTES:**

- The rated current specified in the tables refers to a temperature of 40°C
- For other service temperatures up to 110°C, the derating of current must be evaluated by the end user.
- The resin must fill at least 20% of section (60079-1)
- For the type of cable allowed, please refer to the certificate



Flexible conduits are used for connecting misaligned equipments or equipments subjected to vibrations, such as electrical motors. They are suitable for installation of lighting fixtures and in alternative to rigid conduits when they are difficult to install. SP series flexible conduits have a good flexibility and a very good damping effect against vibrations.



|                                      |                                                                                                                              |                                 |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                                                                                              | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>                                                                                                 | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex db IIB Gb Ex tb IIIC Db IP66/67</b><br><b>CE 0722 Ex II 2 GD Ex db IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                                                                                  | <b>CESI 00 ATEX 048U</b>        |
|                                      | <b>IECEx</b>                                                                                                                 | <b>IECEx CES 14.0011U</b>       |
|                                      | <b>TR CU</b>                                                                                                                 | <b>AVAILABLE</b>                |
|                                      | <b>CCoE</b>                                                                                                                  | <b>AVAILABLE</b>                |

All IEC Ex, TR CU and CCoE certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

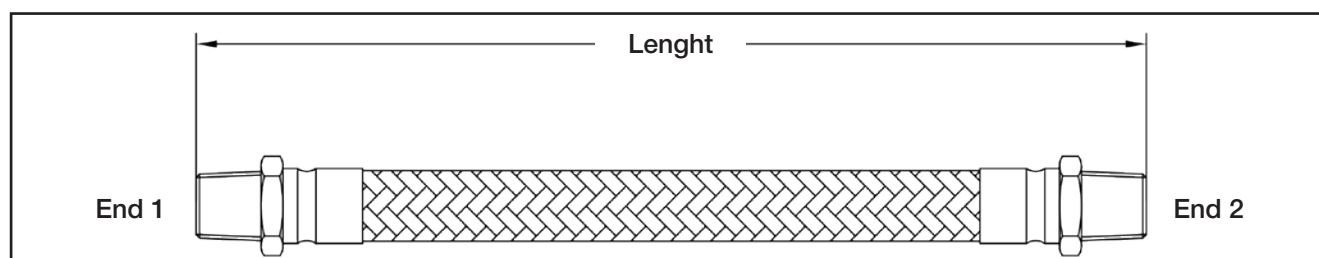
|                              |                                                                                                                                                                                                                    |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b>            | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014, EN ISO 10807: 1996 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
| <b>Degree of protection:</b> | <b>IP66/67</b>                                                                                                                                                                                                     |

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



**Ambient temperature**

|                                                                  | Flexible conduit type                                           | Method of protection | Construction material |                   | Size        | Ambient temperature |
|------------------------------------------------------------------|-----------------------------------------------------------------|----------------------|-----------------------|-------------------|-------------|---------------------|
|                                                                  |                                                                 |                      | Fixed fitting         | Revolving fitting |             |                     |
| <b>Fixed fitting</b>                                             | <b>SPH - SPG - SPZ</b>                                          | Ex d IIC             | Stainless steel       | /                 | 1/2" ÷ 1"   | -20°C +150°C        |
|                                                                  |                                                                 |                      | Galvanized steel      | /                 | 1 1/4" ÷ 4" |                     |
|                                                                  | <b>SPH - SPG - SPZ</b>                                          | Ex d IIC             | Stainless steel       | /                 | 1/2" ÷ 1"   | -60°C +150°C        |
| <b>Revolving fitting</b>                                         | <b>B.:<br/>SPN - SPI - SPY - SPD<br/>SPP - SPE - SPT</b>        | Ex d IIB             | Stainless steel       | Galvanized steel  | 1/2" ÷ 1"   | -20°C +60°C         |
|                                                                  |                                                                 |                      | Galvanized steel      | Galvanized steel  | 1 1/4" ÷ 4" |                     |
|                                                                  | <b>SPN - SPI - SPY - SPD<br/>SPP - SPE - SPT</b>                | Ex d IIB             | Stainless steel       | Stainless steel   | 1/2" ÷ 1"   | -60°C +60°C         |
|                                                                  |                                                                 |                      | Stainless steel       | Stainless steel   | 1/2" ÷ 4"   |                     |
|                                                                  | <b>R.:<br/>SPRN - SPRI - SPRY - SPRD<br/>SPRP - SPRE - SPRT</b> | Ex d IIC             | Stainless steel       | Galvanized steel  | 1/2" ÷ 1"   | -20°C +60°C         |
|                                                                  |                                                                 |                      | Galvanized steel      | Galvanized steel  | 1 1/4" ÷ 4" |                     |
| <b>RB.:<br/>SPRN - SPRI - SPRY - SPRD<br/>SPRP - SPRE - SPRT</b> |                                                                 | Ex d IIC             | Stainless steel       | Stainless steel   | 1/2" ÷ 4"   | -60°C +60°C         |
|                                                                  |                                                                 |                      | Stainless steel       | Stainless steel   | 1/2" ÷ 4"   | -60°C +150°C        |



|                          |                  | Method of protection IIC |              | Method of protection IIB |                  | Method of protection IIC |                  | Method of protection IIB (Ta + 150°C) |                  |
|--------------------------|------------------|--------------------------|--------------|--------------------------|------------------|--------------------------|------------------|---------------------------------------|------------------|
|                          |                  | Fixed male               | Fixed female | Revolving male           | Revolving female | Revolving male           | Revolving female | Revolving male                        | Revolving female |
| Method of protection IIC | Fixed male       | SPH                      | SPG          | SPN                      | SPI              | SPRN                     | SPRI             | SPRN                                  | SPRI             |
|                          | Fixed female     |                          | SPZ          | SPY                      | SPD              | SPRY                     | SPRD             | SPRY                                  | SPRD             |
| Method of protection IIB | Revolving male   |                          |              | SPP                      | SPE              |                          |                  |                                       |                  |
|                          | Revolving female |                          |              |                          | SPT              |                          |                  |                                       |                  |
| Method of protection IIC | Revolving male   |                          |              |                          |                  | SPRP                     | SPRE             |                                       |                  |
|                          | Revolving female |                          |              |                          |                  |                          | SPRT             |                                       |                  |
| Method of protection IIB | Revolving male   |                          |              |                          |                  |                          |                  | SPRP                                  | SPRE             |
|                          | Revolving female |                          |              |                          |                  |                          |                  |                                       | SPRT             |

### Order code example

|            |          |          |          |
|------------|----------|----------|----------|
| <b>SPH</b> | <b>1</b> | <b>6</b> | <b>G</b> |
| MODEL      | SIZE     | LENGHT   | MATERIAL |

| Flexible conduits: lenghts and method of protection |         |                      |
|-----------------------------------------------------|---------|----------------------|
| Lenght (mm)                                         |         | Method of protection |
| from                                                | to      |                      |
| ≥ 300                                               | ≤ 5000  | Ex d IIB ÷ Ex d IIC  |
| ≥ 5000                                              | ≤ 10000 | Ex d IIB             |

| Conduit standard lenght |      |
|-------------------------|------|
| Cod.                    | mm   |
| 3                       | 300  |
| 4                       | 400  |
| 5                       | 500  |
| 6                       | 600  |
| 7                       | 700  |
| 8                       | 800  |
| 9                       | 900  |
| 10                      | 1000 |

### Thread hubs GAS UNI ISO 7/1

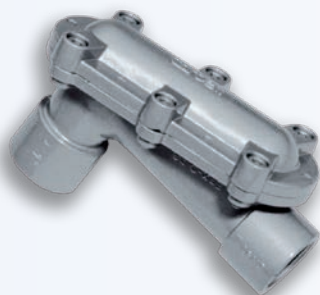
| Size                | 1    | 2    | 3    | 4      | 5      | 6    | 7      | 8    | 9      | 10    |
|---------------------|------|------|------|--------|--------|------|--------|------|--------|-------|
| Thread              | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2    | 2 1/2" | 3"   | 3 1/2" | 4"    |
| Ø min. int.         | 12   | 16   | 25,1 | 32,2   | 38,2   | 50,1 | 63,1   | 73,1 | 73,1   | 100,1 |
| Curving radius min. | 40   | 60   | 75   | 90     | 110    | 150  | 200    | 225  | 225    | 280   |

### TECHNICAL NOTES:

- The flexible conduits and related fittings can be welded only by the manufacturer that certifies the method of protection
- Welded fittings: from 1/2" to 1" stainless steel - from 1 1/4" to 4" galvanized steel
- Revolving fittings: galvanized steel
- Flexible conduit with spiralled sheath : stainless steel
- Standard in galvanised steel (example code SPH56G)
- Available also in stainless steel (example code SPH56S)
- Available also with NPT thread (example code SPH3N10G)
- Available also with ISO thread ISO (example code SPH3I4G)

LBH series open elbows L shaped with small radius are used for the cables insertion in conduit system of electrical installations.

The back opening enables an easy inspection of the installation and easy insertion of electrical cables.



|                                      |                            |                   |
|--------------------------------------|----------------------------|-------------------|
| <b>Classification:</b><br>2014/34/UE | Group II                   | Category 2G       |
| <b>Installation:</b><br>EN 60079-14  | zone 1 - zone 2 (Gas)      |                   |
| <b>Marking:</b>                      | CE 0722 Ex II 2 G Ex d IIB |                   |
| <b>Certification:</b>                | ATEX                       | CESI 03 ATEX 141U |
|                                      | TR CU                      | AVAILABLE         |

All TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

#### Standards:

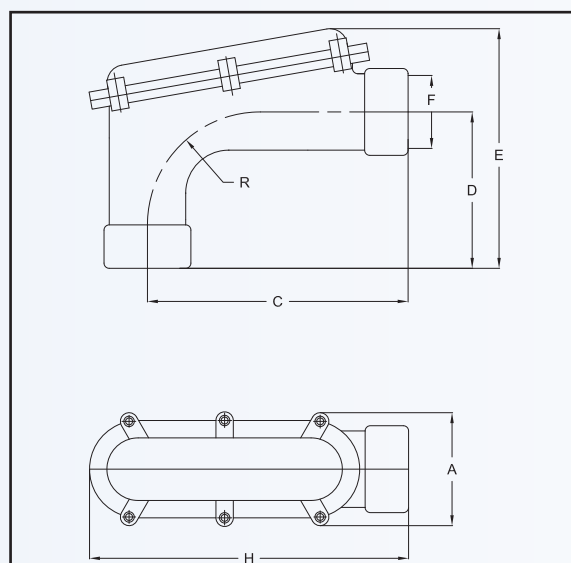
CENELEC EN 60079-0: 2006, EN 60079-1: 2004 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE



#### Ambient Temp.:

-20°C +60°C (Max. operating temperature +80°C)

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



### SELECTION TABLE OF LBH OPEN ELBOWS

| Code<br>In<br>aluminium | Thread         | Dimensions in mm |     |     |     |     |     | Weight<br>Kg |
|-------------------------|----------------|------------------|-----|-----|-----|-----|-----|--------------|
|                         | F              | A                | H   | C   | D   | E   | R   |              |
| LBH1                    | 1/2" ISO 7/1   | 70               | 165 | 132 | 45  | 95  | 21  | 0,434        |
| LBH2                    | 3/4" ISO 7/1   | 70               | 165 | 132 | 45  | 95  | 21  | 0,404        |
| LBH3                    | 1" ISO 7/1     | 70               | 168 | 132 | 60  | 112 | 30  | 0,455        |
| LBH4                    | 1 1/4" ISO 7/1 | 100              | 230 | 175 | 83  | 155 | 50  | 1,277        |
| LBH5                    | 1 1/2" ISO 7/1 | 110              | 265 | 220 | 83  | 132 | 70  | 1,142        |
| LBH6                    | 2" ISO 7/1     | 110              | 265 | 220 | 80  | 132 | 70  | 1,024        |
| LBH7                    | 2 1/2" ISO 7/1 | 136              | 363 | 267 | 140 | 250 | 96  | 3,569        |
| LBH8                    | 3" ISO 7/1     | 136              | 363 | 267 | 140 | 250 | 96  | 3,171        |
| LBH10                   | 4" ISO 7/1     | 181              | 720 | 605 | 175 | 305 | 125 | 10,850       |

#### Order code example



MODEL



SIZE



THREAD

#### TECHNICAL NOTES:

- Available also with NPT thread (example code LBH3N)
- Available also with ISO7/1RP thread (example code LBH2C)
- Available also with ISO METRIC thread (example code LBH4I)
- 1/4" and 3/8" sizes can be obtained by assembling to the 1/2" LBH1 elbow the corresponding **RE114** or **RE138**

LBHS series open elbows with a large radius are used for the cables insertion in conduit system of electrical installations. The back opening enables an easy inspection of the installation and an easy insertion of electrical cables.

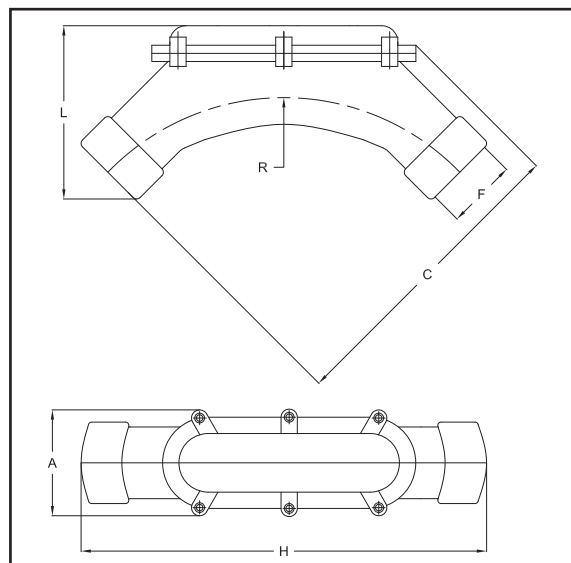


|                                      |                                   |                                                                                                                                                   |
|--------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                   | <b>Category 2G</b>                                                                                                                                |
| <b>Installation:</b><br>EN 60079.14  | <b>zone 1 - zone 2 (Gas)</b>      |                                                                                                                                                   |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 G Ex d IIB</b> |                                                                                                                                                   |
| <b>Certification:</b>                | <b>ATEX</b>                       | <b>CESI 03 ATEX 141U</b>                                                                                                                          |
|                                      | <b>TR CU</b>                      | <b>AVAILABLE</b><br><small>All TR CU certification data can be downloaded at <a href="http://www.cortemgroup.com">www.cortemgroup.com</a></small> |

|                   |                                                                                                                                                                    |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2006, EN 60079-1: 2004 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                       |                                                |
|-----------------------|------------------------------------------------|
| <b>Ambient Temp.:</b> | -20°C +60°C (Max. operating temperature +80°C) |
|-----------------------|------------------------------------------------|

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)



### SELECTION TABLE OF LBHS OPEN ELBOWS

| Code<br>In<br>aluminium | Thread         | Dimensions in mm |     |     |     |     | Weight |
|-------------------------|----------------|------------------|-----|-----|-----|-----|--------|
|                         | F              | A                | H   | C   | L   | R   | Kg     |
| LBHS1                   | 1/2" ISO 7/1   | 70               | 305 | 197 | 110 | 195 | 0,543  |
| LBHS2                   | 3/4" ISO 7/1   | 70               | 305 | 197 | 110 | 195 | 0,467  |
| LBHS3                   | 1" ISO 7/1     | 70               | 300 | 190 | 110 | 195 | 0,629  |
| LBHS4                   | 1 1/4" ISO 7/1 | 105              | 400 | 288 | 145 | 260 | 1,539  |
| LBHS5                   | 1 1/2" ISO 7/1 | 105              | 400 | 288 | 145 | 260 | 1,481  |
| LBHS6                   | 2" ISO 7/1     | 120              | 495 | 348 | 165 | 315 | 2,297  |
| LBHS7                   | 2 1/2" ISO 7/1 | 142              | 565 | 448 | 205 | 350 | 4,473  |
| LBHS8                   | 3" ISO 7/1     | 149              | 688 | 478 | 220 | 445 | 4,914  |
| LBHS10                  | 4" ISO 7/1     | 164              | 910 | 680 | 310 | 574 | 11,110 |

### Order code example

|             |          |          |
|-------------|----------|----------|
| <b>LBHS</b> | <b>4</b> | <b>N</b> |
| MODEL       | SIZE     | THREAD   |

### TECHNICAL NOTES:

- Available also with NPT thread (example code LBHS3N)
- Available also with ISO METRIC thread (example code LBHS4I)

EKC pulling boxes are used in conduit system of electrical plant to facilitate the cables insertion. The back opening enables an easy inspection of the installation and an easy insertion of electrical cables.

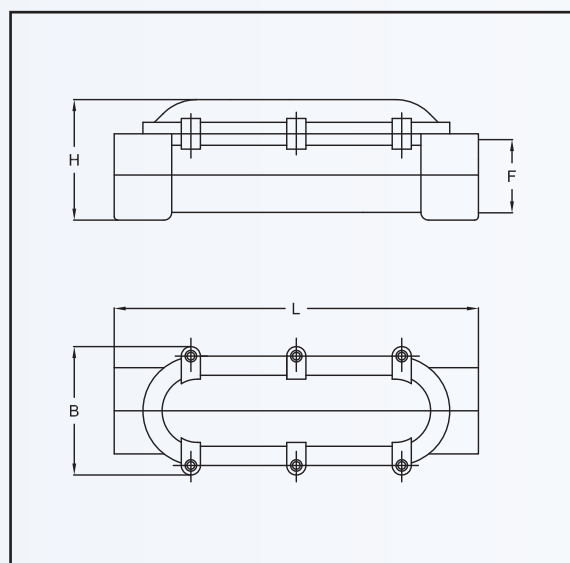


|                                      |                                   |                                                                                                                                                   |
|--------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                   | <b>Category 2G</b>                                                                                                                                |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>      |                                                                                                                                                   |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 G Ex d IIB</b> |                                                                                                                                                   |
| <b>Certification:</b>                | <b>ATEX</b>                       | <b>CESI 03 ATEX 141U</b>                                                                                                                          |
|                                      | <b>TR CU</b>                      | <b>AVAILABLE</b><br><small>All TR CU certification data can be downloaded at <a href="http://www.cortemgroup.com">www.cortemgroup.com</a></small> |

|                   |                                                                                                                                                                    |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards:</b> | CENELEC EN 60079-0: 2006, EN 60079-1: 2004 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|


**Ambient Temp.:**

-20°C +60°C (Max. operating temperature +80°C)

 Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)


### SELECTION TABLE OF EKC PULLING BOXES

| Code<br>In<br>aluminium | Thread         | Dimensions in mm |     |     | Weight |
|-------------------------|----------------|------------------|-----|-----|--------|
|                         | F              | H                | L   | S   | Kg     |
| <b>EKC1</b>             | 1/2" ISO 7/1   | 59               | 171 | 70  | 0,508  |
| <b>EKC2</b>             | 3/4" ISO 7/1   | 59               | 171 | 70  | 0,485  |
| <b>EKC3</b>             | 1" ISO 7/1     | 64               | 181 | 70  | 0,558  |
| <b>EKC4</b>             | 1 1/4" ISO 7/1 | 87               | 240 | 99  | 1,211  |
| <b>EKC5</b>             | 1 1/2" ISO 7/1 | 87               | 240 | 99  | 1,135  |
| <b>EKC6</b>             | 2" ISO 7/1     | 112              | 298 | 105 | 1,745  |
| <b>EKC7</b>             | 2 1/2" ISO 7/1 | 172              | 380 | 138 | 4,003  |
| <b>EKC8</b>             | 3" ISO 7/1     | 172              | 380 | 138 | 3,609  |
| <b>EKC10</b>            | 4" ISO 7/1     | 196              | 755 | 180 | 10,320 |

### Order code example

|              |             |               |
|--------------|-------------|---------------|
| <b>EKC</b>   | <b>4</b>    | <b>N</b>      |
| <b>MODEL</b> | <b>SIZE</b> | <b>THREAD</b> |

### TECHNICAL NOTES:

- Available also with NPT thread (example code **EKC3N**)
- Available also with ISO METRIC thread (example code **EKC4M**)





## BC rigid conduits

Rigid conduits are used in hazardous areas to connect electrical equipment setting up a complete explosion proof system through sealing fittings. The conduits are drawn inside so that all roughness, which could damage the electrical cables, are eliminated.



|                                     |                                                                                                                                |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Installation:</b><br>EN 60079.14 | zone 1 - zone 2 (Gas)                                                                                                          |
| <b>Standards:</b>                   | EN 60079-0, EN 60079-1                                                                                                         |
| <b>Standard construction:</b>       | UNI 7683 galvanized steel conduit<br>Standard bar length: 6 meters<br>Plastic couplings for thread protection<br>ISO7/1 thread |
| <b>Upon request:</b>                | Thread NPT: (example code BC-1N)<br>Bar of 3 m: (example code BC-3/300)                                                        |

## SELECTION TABLE OF RIGID CONDUITS

| Code  | Thread         |
|-------|----------------|
| BC-1  | 1/2" ISO 7/1   |
| BC-2  | 3/4" ISO 7/1   |
| BC-3  | 1" ISO 7/1     |
| BC-4  | 1 1/4" ISO 7/1 |
| BC-5  | 1 1/2" ISO 7/1 |
| BC-6  | 2" ISO 7/1     |
| BC-7  | 2 1/2" ISO 7/1 |
| BC-8  | 3" ISO 7/1     |
| BC-10 | 4" ISO 7/1     |

DB...A series bushings are made in aluminium. They are screwed to the pipe end they work as a cable guard. They prevent the cable from rubbing on any pipe burr/edge which could damage its sheath.



**Standard construction:**

Low copper content aluminium alloy body  
ISO 228 thread

**Upon request:**

Thread NPT: (example code DB3NA)  
Galvanised steel (example code DB3G)  
Stainless steel (example code DB3S)

### SELECTION TABLE ALUMINIUM BUSHINGS

| Code  | Thread         | Weight Kg |
|-------|----------------|-----------|
| DB1A  | 1/2" ISO 7/1   | 0,012     |
| DB2A  | 3/4" ISO 7/1   | 0,014     |
| DB3A  | 1" ISO 7/1     | 0,020     |
| DB4A  | 1 1/4" ISO 7/1 | 0,025     |
| DB5A  | 1 1/2" ISO 7/1 | 0,032     |
| DB6A  | 2" ISO 7/1     | 0,046     |
| DB7A  | 2 1/2" ISO 7/1 | 0,062     |
| DB8A  | 3" ISO 7/1     | 0,071     |
| DB10A | 4" ISO 7/1     | 0,107     |
| DB12A | 5" ISO 7/1     | 0,134     |

### DB...P polypropylene bushings

DB...P series bushings, polypropylene made, are screwed to the pipe end and they work as a cable guard. They prevent the cable from rubbing on any pipe burr/edge which could damage its sheath.



**Standard construction:**

Polypropylene thermoplastic moulding  
ISO 228 thread

### SELECTION TABLE FOR POLYPROPYLENE BUSHING

| Code  | Thread         | Weight Kg |
|-------|----------------|-----------|
| DB1P  | 1/2" ISO 7/1   | 0,012     |
| DB2P  | 3/4" ISO 7/1   | 0,014     |
| DB3P  | 1" ISO 7/1     | 0,020     |
| DB4P  | 1 1/4" ISO 7/1 | 0,025     |
| DB5P  | 1 1/2" ISO 7/1 | 0,032     |
| DB6P  | 2" ISO 7/1     | 0,046     |
| DB7P  | 2 1/2" ISO 7/1 | 0,062     |
| DB8P  | 3" ISO 7/1     | 0,071     |
| DB10P | 4" ISO 7/1     | 0,107     |
| DB12P | 5" ISO 7/1     | 0,134     |

DBT series bushings, aluminium made, are screwed to the pipe end and they work as a cable guard. They prevent the cable from rubbing on any pipe burr/edge which could damage its sheath. They are equipped with earth screw for metal parts grounding.



**Standard construction:**

Low copper content aluminium alloy body  
Stainless steel screw  
ISO 228 thread

**Upon request:**

NPT thread: (example code DBT3NA)  
Galvanised steel (example code DBT3G)  
Stainless steel (example code DBT3S)

### SELECTION TABLE ALUMINIUM BUSHINGS

| Code   | Thread         | Weight Kg |
|--------|----------------|-----------|
| DBT1A  | 1/2" ISO 7/1   | 0,016     |
| DBT2A  | 3/4" ISO 7/1   | 0,018     |
| DBT3A  | 1" ISO 7/1     | 0,024     |
| DBT4A  | 1 1/4" ISO 7/1 | 0,033     |
| DBT5A  | 1 1/2" ISO 7/1 | 0,040     |
| DBT6A  | 2" ISO 7/1     | 0,054     |
| DBT7A  | 2 1/2" ISO 7/1 | 0,070     |
| DBT8A  | 3" ISO 7/1     | 0,079     |
| DBT10A | 4" ISO 7/1     | 0,115     |
| DBT12A | 5" ISO 7/1     | 0,142     |

### MC female closing plugs

MC series female plugs are used to close pipes ends.



**Standard construction:**

Galvanised steel or aluminium  
Standard thread: ISO 7/1 Rp

**Upon request:**

NPT thread: (example code MC3NG)  
Stainless steel (example code MC3S)

### SELECTION TABLE OF FEMALE CLOSING PLUGS

| Code  | Thread         | Material         | Weight Kg |
|-------|----------------|------------------|-----------|
| MC1G  | 1/2" ISO 7/1   | Galvanised steel | 0,035     |
| MC2G  | 3/4" ISO 7/1   | Galvanised steel | 0,039     |
| MC3G  | 1" ISO 7/1     | Galvanised steel | 0,045     |
| MC4G  | 1 1/4" ISO 7/1 | Galvanised steel | 0,052     |
| MC5G  | 1 1/2" ISO 7/1 | Galvanised steel | 0,285     |
| MC6G  | 2" ISO 7/1     | Galvanised steel | 0,335     |
| MC7A  | 2 1/2" ISO 7/1 | Aluminium        | 0,797     |
| MC8A  | 3" ISO 7/1     | Aluminium        | 0,887     |
| MC10A | 4" ISO 7/1     | Aluminium        | 1,119     |

DL series locknuts are used to block cable glands or fittings with cylindrical thread on 'Ex e' or 'Ex i' junction box flange or walls with drilling for cables entry.



**Standard construction:**

Galvanised steel o Aluminium (look at the table below)  
ISO 228/1 thread

**Upon request:**

Other threads  
Other materials

### SELECTION TABLE OF DL LOCKNUTS

| Code  | Thread           | Material         | Weight Kg |
|-------|------------------|------------------|-----------|
| DL1G  | 1/2" ISO 228/1   | Galvanised steel | 0,008     |
| DL2G  | 3/4" ISO 228/1   | Galvanised steel | 0,011     |
| DL3G  | 1" ISO 228/1     | Galvanised steel | 0,013     |
| DL4G  | 1 1/4" ISO 228/1 | Galvanised steel | 0,037     |
| DL5A  | 1 1/2" ISO 228/1 | Aluminium        | 0,027     |
| DL6A  | 2" ISO 228/1     | Aluminium        | 0,034     |
| DL7A  | 2 1/2" ISO 228/1 | Aluminium        | 0,052     |
| DL8A  | 3" ISO 228/1     | Aluminium        | 0,092     |
| DL10A | 4" ISO 228/1     | Aluminium        | 0,132     |
| DL12A | 5" ISO 228/1     | Aluminium        | 0,245     |

### DL...P polyamide locknuts

DL...P series locknuts are used to block polyamide cable glands with cylindrical thread on 'Ex e' or 'Ex i' junction box walls or flange with drilling for cables entry.



**Standard construction:**

Polyamide

**Upon request:**

Marking Ex i: (example code DL02IXIP)

### SELECTION TABLE OF DL LOCKNUTS

| Code     | ISO thread | Weight Kg |
|----------|------------|-----------|
| DL02IXEP | M12x1,5    | 0,004     |
| DL01IXEP | M16x1,5    | 0,005     |
| DL1IXEP  | M20x1,5    | 0,005     |
| DL2IXEP  | M25x1,5    | 0,006     |
| DL3IXEP  | M32x1,5    | 0,006     |
| DL4IXEP  | M40x1,5    | 0,009     |
| DL5IXEP  | M50x1,5    | 0,013     |
| DL6IXEP  | M63x1,5    | 0,019     |

### SELECTION TABLE OF DL LOCKNUTS

| Code     | PG thread | Weight Kg |
|----------|-----------|-----------|
| DL1PXEP  | PG7       | 0,003     |
| DL2PXEP  | PG9       | 0,004     |
| DL3PXEP  | PG11      | 0,005     |
| DL4PXEP  | PG13,5    | 0,005     |
| DL5PXEP  | PG16      | 0,006     |
| DL6PXEP  | PG21      | 0,006     |
| DL7PXEP  | PG29      | 0,009     |
| DL8PXEP  | PG36      | 0,013     |
| DL9PXEP  | PG42      | 0,019     |
| DL10PXEP | PG48      | 0,026     |

MT series conduit clamps are used for mounting of cable conduits perpendicular to the support structure.



**Standard construction:**

Galvanised steel  
Galvanized bolts and nuts.

### SELECTION TABLE OF CONDUIT CLAMPS

| Code | Thread | Weight Kg |
|------|--------|-----------|
| MT1  | 1/2"   | 0,093     |
| MT2  | 3/4"   | 0,129     |
| MT3  | 1"     | 0,150     |
| MT4  | 1 ¼"   | 0,194     |
| MT5  | 1 ½"   | 0,232     |
| MT6  | 2"     | 0,275     |
| MT7  | 2 ½"   | 0,310     |
| MT8  | 3"     | 0,579     |
| MT10 | 4"     | -         |

### UBD U-bolts

U-bolts are used to fix rigid cable conduits to flat surfaces.



**Standard construction:**

Galvanised steel

**Upon request:**

Stainless steel (example code UBD3S)

### SELECTION TABLE OF UBD U-BOLTS

| Code   | Ø cable conduits | Weight Kg |
|--------|------------------|-----------|
| UBD1G  | 1/2"             | 0,035     |
| UBD2G  | 3/4"             | 0,039     |
| UBD3G  | 1"               | 0,045     |
| UBD4G  | 1 ¼"             | 0,052     |
| UBD5G  | 1 ½"             | 0,285     |
| UBD6G  | 2"               | 0,335     |
| UBD7G  | 2 ½"             | 0,797     |
| UBD8G  | 3"               | 0,887     |
| UBD10G | 4"               | 1,119     |
| UBD12G | 5"               | 1,327     |



Saddles are used to fix cable conduits to walls or to flat surfaces.



**Standard construction:**

Galvanised steel or aluminium

**Upon request:**

Stainless steel (example code GF3S)

### SELECTION TABLE OF GF SADDLES

| Code  | Thread | Weight Kg |
|-------|--------|-----------|
| GF1G  | 1/2"   | 0,028     |
| GF2G  | 3/4"   | 0,037     |
| GF3G  | 1"     | 0,045     |
| GF4G  | 1 1/4" | 0,087     |
| GF5G  | 1 1/2" | 0,115     |
| GF6G  | 2"     | 0,156     |
| GF7A  | 2 1/2" | 0,158     |
| GF8A  | 3"     | 0,215     |
| GF10A | 4"     | 0,284     |
| GF12A | 5"     | -         |

### MP conduit clamps

MP clamps are used for mounting cable conduits in parallel to the support structure.



**Standard construction:**

Galvanised steel

**Upon request:**

Stainless steel (example code MP3S)

### SELECTION TABLE OF MP CONDUIT CLAMPS

| Code | Diameter | Weight Kg |
|------|----------|-----------|
| MP1  | 1/2"     | 0,138     |
| MP2  | 3/4"     | 0,145     |
| MP3  | 1"       | 0,198     |
| MP4  | 1 1/4"   | 0,530     |
| MP5  | 1 1/2"   | 0,590     |
| MP6  | 2"       | -         |
| MP7  | 2 1/2"   | -         |
| MP8  | 3"       | -         |
| MP10 | 4"       | -         |

This image shows a full page of blank graph paper. The background is a solid light gray color. Overlaid on this background is a precise grid of thin, dark gray horizontal and vertical lines. These lines intersect to form a series of small, identical squares that cover the entire area of the page, leaving no margins or other markings.







# Junction and pulling boxes

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S series junction boxes are usually installed for the conduit connection and can be used for the insertion of conductors only (empty boxes) or for the derivation of conductors (boxes with terminals). The wide range offered includes several models with different sizes and threads.



### EMPTY ENCLOSURES



|                                      |                                                             |                                 |
|--------------------------------------|-------------------------------------------------------------|---------------------------------|
| <b>Classification:</b><br>2014/34/UE | <b>Group II</b>                                             | <b>Category 2GD</b>             |
| <b>Installation:</b><br>EN 60079-14  | <b>zone 1 - zone 2 (Gas)</b>                                | <b>zone 21 - zone 22 (Dust)</b> |
| <b>Marking:</b>                      | <b>CE 0722 Ex II 2 GD Ex d IIC Gb Ex tb IIIC Db IP66/67</b> |                                 |
| <b>Certification:</b>                | <b>ATEX</b>                                                 | <b>CESI 03 ATEX 032U</b>        |
|                                      | <b>IECEx</b>                                                | <b>IECEx CES 15.0012U</b>       |
|                                      | <b>TR CU</b>                                                | <b>AVAILABLE</b>                |

All IEC Ex and TR CU certification data can be downloaded at [www.cortemgroup.com](http://www.cortemgroup.com)

#### Standards:

CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-31: 2009 e and EUROPEAN DIRECTIVE 2014/34/UE  
IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-31: 2008 Directive RoHS 2002/95/CE

#### Operating temperature:

-40°C (-20°C) +110°C

CESI 03 ATEX 032U

-40°C (-20°C) +160°C

CESI 03 ATEX 059U

#### Degree of protection:

IP66/67

Certificates are available on [www.cortemgroup.com](http://www.cortemgroup.com)

### MECHANICAL FEATURES

|                              |                                                                                                                                                                    |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Body and lid:</b>         | Low copper content aluminium alloy. Screw-on lid with safety fastening grub screw                                                                                  |
| <b>Gasket:</b>               | Acid/hydrocarbon-resistant silicone, located between body and lid                                                                                                  |
| <b>Entries:</b>              | GAS Rp UNI ISO 7/1 thread                                                                                                                                          |
| <b>Certification label:</b>  | Adhesive label located on lid for size 6 and 9 boxes; on body for size 4                                                                                           |
| <b>Bolts and screws:</b>     | Stainless steel                                                                                                                                                    |
| <b>Earth screws:</b>         | Stainless steel. On inside and outside of body complete with anti-rotation brackets                                                                                |
| <b>Corrosion Resistance:</b> | The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN 60068-2-30 (hot/humid cycles) and EN 60068-2-11 (salt mist tests) |

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

AISI 316 L stainless steel boxes (Ex. SC16.1S)  
Electropolished AISI 316 L stainless steel boxes (Ex. SC16.1SE)  
Boxes coated with RAL 7035 paint (Ex. SC16.1V)  
Boxes with different entry diameter

#### Other threads:

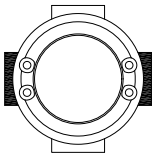
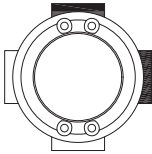
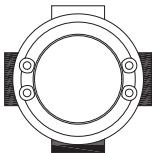
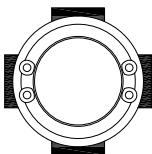
- NPT threads ANSI B1.20.1 (Ex. SC26.1N)
- GAS UNI ISO 228 thread (Ex. SC26.1C)
- Metric threads ISO 261/965 (Ex. SC26.1I)



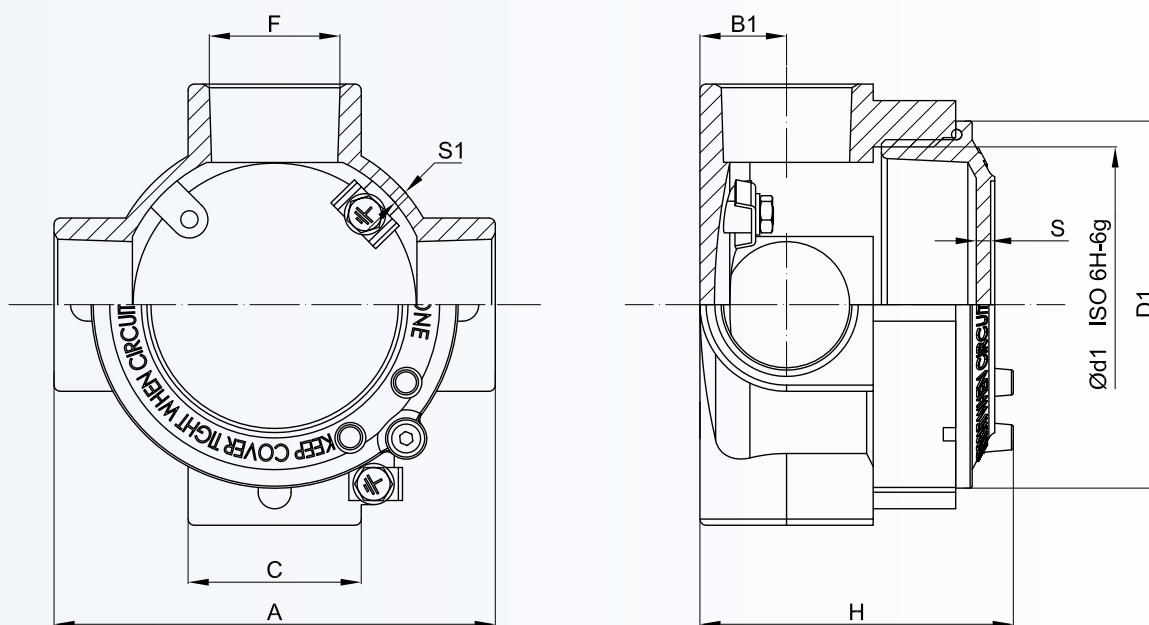
AISI 316 L stainless steel box code SX-36.1SE with electropolished finish



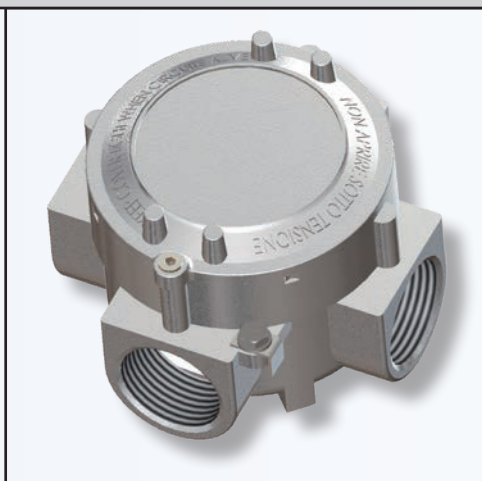
**S SERIES ENCLOSURE SELECTION CHART**

| Code   | Position of entries                                                                 | GAS UNI<br>ISO 7/1 | Model | A   | Outside dimensions mm |     |    |    | Inside dimensions mm |     |     | Weight<br>kg |
|--------|-------------------------------------------------------------------------------------|--------------------|-------|-----|-----------------------|-----|----|----|----------------------|-----|-----|--------------|
|        |                                                                                     |                    |       |     | D1                    | H   | C  | B1 | Ød1                  | S   | S1  |              |
| SC14.1 |    | 2 x 1/2"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 | 0,27         |
| SC24.1 |                                                                                     | 2 x 3/4"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 | 0,25         |
| SC16.1 |                                                                                     | 2 x 1/2"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 | 0,41         |
| SC26.1 |                                                                                     | 2 x 3/4"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 | 0,38         |
| SC36.1 |                                                                                     | 2 x 1"             | A     | 107 | 89                    | 75  | 42 | 21 | 80x2                 | 3,5 | 3,5 | 0,48         |
| SC29.1 |                                                                                     | 2 x 3/4"           | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   |              |
| SC39.1 |                                                                                     | 2 x 1"             | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,30         |
| SC59.1 |                                                                                     | 2 x 1 1/2"         | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   |              |
| SC69.1 |                                                                                     | 2 x 2"             | B     | 190 | 146                   | 110 | 70 | 35 | 130x2                | 4   | 7   | 1,54         |
| SL14.1 |   | 2 x 1/2"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 | 0,28         |
| SL24.1 |                                                                                     | 2 x 3/4"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 | 0,24         |
| SL16.1 |                                                                                     | 2 x 1/2"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 |              |
| SL26.1 |                                                                                     | 2 x 3/4"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 | 0,40         |
| SL36.1 |                                                                                     | 2 x 1"             | A     | 107 | 89                    | 75  | 42 | 21 | 80x2                 | 3,5 | 3,5 | 0,49         |
| SL29.1 |                                                                                     | 2 x 3/4"           | B     | 166 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,61         |
| SL39.1 |                                                                                     | 2 x 1"             | B     | 166 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,20         |
| SL59.1 |                                                                                     | 2 x 1 1/2"         | B     | 166 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,45         |
| SL69.1 |                                                                                     | 2 x 2"             | B     | 166 | 146                   | 110 | 70 | 35 | 130x2                | 4   | 7   | 1,51         |
| ST14.1 |  | 3 x 1/2"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 | 0,27         |
| ST24.1 |                                                                                     | 3 x 3/4"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 | 0,25         |
| ST16.1 |                                                                                     | 3 x 1/2"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 | 0,40         |
| ST26.1 |                                                                                     | 3 x 3/4"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 | 0,38         |
| ST36.1 |                                                                                     | 3 x 1"             | A     | 107 | 89                    | 75  | 42 | 21 | 80x2                 | 3,5 | 3,5 | 0,48         |
| ST29.1 |                                                                                     | 3 x 3/4"           | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,77         |
| ST39.1 |                                                                                     | 3 x 1"             | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,70         |
| ST59.1 |                                                                                     | 3 x 1 1/2"         | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,48         |
| ST69.1 |                                                                                     | 3 x 2"             | B     | 190 | 146                   | 110 | 70 | 35 | 130x2                | 4   | 7   | 1,53         |
| SX14.1 |  | 4 x 1/2"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 | 0,26         |
| SX24.1 |                                                                                     | 4 x 3/4"           | A     | 72  | 65                    | 61  | 34 | 17 | 54x2                 | 3,5 | 3,5 |              |
| SX16.1 |                                                                                     | 4 x 1/2"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 | 0,39         |
| SX26.1 |                                                                                     | 4 x 3/4"           | A     | 100 | 89                    | 67  | 34 | 17 | 80x2                 | 3,5 | 3,5 | 0,36         |
| SX36.1 |                                                                                     | 4 x 1"             | A     | 107 | 89                    | 75  | 42 | 21 | 80x2                 | 3,5 | 3,5 | 0,43         |
| SX29.1 |                                                                                     | 4 x 3/4"           | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,94         |
| SX39.1 |                                                                                     | 4 x 1"             | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,85         |
| SX59.1 |                                                                                     | 4 x 1 1/2"         | B     | 190 | 146                   | 105 | 60 | 30 | 130x2                | 4   | 7   | 1,51         |
| SX69.1 |                                                                                     | 4 x 2"             | B     | 190 | 146                   | 110 | 70 | 35 | 130x2                | 4   | 7   | 1,63         |

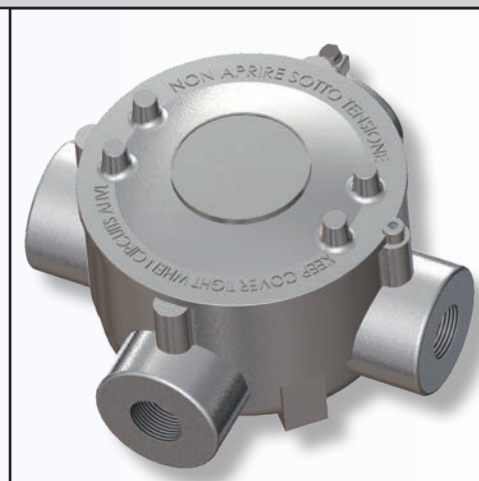
DIMENSIONAL DRAWING



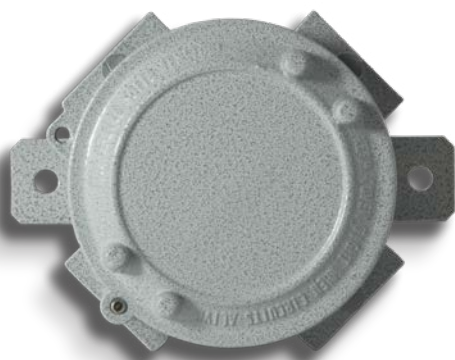
MODEL A



MODEL B



| Code | MODEL | F GAS UNI<br>ISO 7/1 | A   | Outside dimensions mm<br>D1 | H   | C  | B1 | Inside dimensions mm<br>Ød1 | S   | S1  | Weight<br>kg |
|------|-------|----------------------|-----|-----------------------------|-----|----|----|-----------------------------|-----|-----|--------------|
| SB14 |       | 2 x 1/2"             | 90  | 65                          | 90  | 39 | 43 | 54x2                        | 3,5 | 3,5 | 0,34         |
| SB24 |       | 2 x 3/4"             | 90  | 65                          | 90  | 39 | 43 | 54x2                        | 3,5 | 3,5 | 0,34         |
| SB16 |       | 2 x 1/2"             | 110 | 90                          | 90  | 45 | 43 | 80x2                        | 3,5 | 5   |              |
| SB26 |       | 2 x 3/4"             | 110 | 90                          | 90  | 45 | 43 | 80x2                        | 3,5 | 5   | 0,48         |
| SB36 |       | 2 x 1"               | 114 | 90                          | 96  | 45 | 52 | 80x2                        | 3,5 | 5   | 0,54         |
| SB49 |       | 2 x 1 1/4"           | 180 | 150                         | 114 | 60 | 59 | 130x2                       | 4   | 5   |              |
| SB59 |       | 2 x 1 1/2"           | 180 | 150                         | 114 | 60 | 59 | 130x2                       | 4   | 5   |              |
| SB69 |       | 2 x 2"               | 180 | 150                         | 114 | 74 | 71 | 130x2                       | 4   | 5   | 1,58         |


**MODEL SF**

**MODEL SSC**

SF series enclosures (with wall-mounting bracket) and SSC series (with ceiling-mounting bracket) are installed on ducting paths as junction boxes for connecting and branching conductors.

Various different models are available and they can be supplied with multi-pole terminal strips or modular terminals.

### MECHANICAL AND ELECTRICAL FEATURES

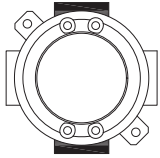
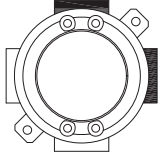
**MOUNTING BRACKETS:** Galvanized steel for SSC. Aluminium for SF.

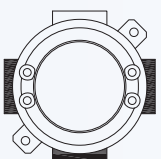
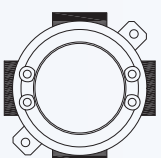
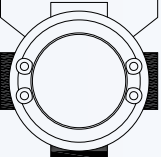
*Other features are identical to S series boxes*

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

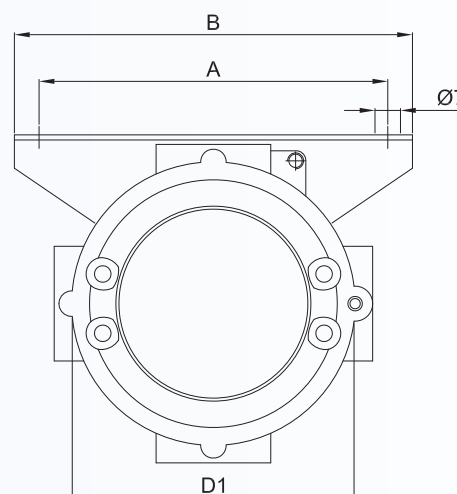
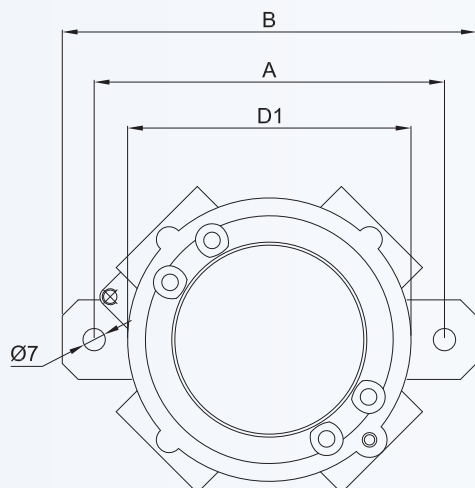
*See S series boxes*

### SF... SSC... SERIES ENCLOSURE SELECTION CHART

| Code    | Position of entries                                                                 | GAS UNI    | ISO 7/1 | Outside dimensions mm |     |     | Weight kg |
|---------|-------------------------------------------------------------------------------------|------------|---------|-----------------------|-----|-----|-----------|
|         |                                                                                     | F          |         | D1                    | A   | B   |           |
| SFC14.1 |  | 2 x 1/2"   |         | 65                    | 75  | 90  | 0,30      |
| SFC24.1 |                                                                                     | 2 x 3/4"   |         | 65                    | 75  | 90  | 0,28      |
| SFC16.1 |                                                                                     | 2 x 1/2"   |         | 89                    | 110 | 130 | 0,45      |
| SFC26.1 |                                                                                     | 2 x 3/4"   |         | 89                    | 110 | 130 | 0,42      |
| SFC36.1 |                                                                                     | 2 x 1"     |         | 89                    | 110 | 130 | 0,52      |
| SFC29.1 |                                                                                     | 2 x 3/4"   |         | 146                   | 160 | 180 | 1,37      |
| SFC39.1 |                                                                                     | 2 x 1"     |         | 146                   | 160 | 180 | 1,35      |
| SFC59.1 |                                                                                     | 2 x 1 1/2" |         | 146                   | 160 | 180 |           |
| SFC69.1 |                                                                                     | 2 x 2"     |         | 146                   | 160 | 180 | 1,59      |
| SFL14.1 |  | 2 x 1/2"   |         | 65                    | 75  | 90  | 0,31      |
| SFL24.1 |                                                                                     | 2 x 3/4"   |         | 65                    | 75  | 90  | 0,27      |
| SFL16.1 |                                                                                     | 2 x 1/2"   |         | 89                    | 110 | 130 | 0,45      |
| SFL26.1 |                                                                                     | 2 x 3/4"   |         | 89                    | 110 | 130 | 0,44      |
| SFL36.1 |                                                                                     | 2 x 1"     |         | 89                    | 110 | 130 | 0,53      |
| SFL29.1 |                                                                                     | 2 x 3/4"   |         | 146                   | 160 | 180 | 1,66      |
| SFL39.1 |                                                                                     | 2 x 1"     |         | 146                   | 160 | 180 | 1,25      |
| SFL59.1 |                                                                                     | 2 x 1 1/2" |         | 146                   | 160 | 180 | 1,50      |
| SFL69.1 |                                                                                     | 2 x 2"     |         | 146                   | 160 | 180 | 1,56      |

| Code    | Position of entries                                                                 | GAS UNI ISO 7/1<br>F | Outside dimensions mm |     |     | Weight<br>kg |
|---------|-------------------------------------------------------------------------------------|----------------------|-----------------------|-----|-----|--------------|
|         |                                                                                     |                      | D1                    | A   | B   |              |
| SFT14.1 |    | 3 x 1/2"             | 65                    | 75  | 90  | 0,30         |
| SFT24.1 |                                                                                     | 3 x 3/4"             | 65                    | 75  | 90  | 0,28         |
| SFT16.1 |                                                                                     | 3 x 1/2"             | 89                    | 110 | 130 | 0,44         |
| SFT26.1 |                                                                                     | 3 x 3/4"             | 89                    | 110 | 130 | 0,42         |
| SFT36.1 |                                                                                     | 3 x 1"               | 89                    | 110 | 130 | 0,52         |
| SFT29.1 |                                                                                     | 3 x 3/4"             | 146                   | 160 | 180 | 1,82         |
| SFT39.1 |                                                                                     | 3 x 1"               | 146                   | 160 | 180 | 1,75         |
| SFT59.1 |                                                                                     | 3 x 1 1/2"           | 146                   | 160 | 180 | 1,53         |
| SFT69.1 |                                                                                     | 3 x 2"               | 146                   | 160 | 180 | 1,58         |
| SFX14.1 |    | 4 x 1/2"             | 65                    | 75  | 90  | 0,29         |
| SFX24.1 |                                                                                     | 4 x 3/4"             | 65                    | 75  | 90  |              |
| SFX16.1 |                                                                                     | 4 x 1/2"             | 89                    | 110 | 130 | 0,43         |
| SFX26.1 |                                                                                     | 4 x 3/4"             | 89                    | 110 | 130 |              |
| SFX36.1 |                                                                                     | 4 x 1"               | 89                    | 110 | 130 | 0,47         |
| SFX29.1 |                                                                                     | 4 x 3/4"             | 146                   | 160 | 180 | 1,98         |
| SFX39.1 |                                                                                     | 4 x 1"               | 146                   | 160 | 180 | 1,90         |
| SFX59.1 |                                                                                     | 4 x 1 1/2"           | 146                   | 160 | 180 | 1,56         |
| SFX69.1 |                                                                                     | 4 x 2"               | 146                   | 160 | 180 | 1,68         |
| SSC14.1 |  | 3 x 1/2"             | 65                    | 65  | 80  | 0,38         |
| SSC24.1 |                                                                                     | 3 x 3/4"             | 65                    | 65  | 80  | 0,36         |
| SSC16.1 |                                                                                     | 3 x 1/2"             | 89                    | 110 | 125 | 0,57         |
| SSC26.1 |                                                                                     | 3 x 3/4"             | 89                    | 110 | 125 | 0,54         |
| SSC36.1 |                                                                                     | 3 x 1"               | 89                    | 110 | 125 | 0,64         |
| SSC29.1 |                                                                                     | 3 x 3/4"             | 146                   | 130 | 150 | 1,94         |
| SSC39.1 |                                                                                     | 3 x 1"               | 146                   | 130 | 150 | 1,91         |
| SSC59.1 |                                                                                     | 3 x 1 1/2"           | 146                   | 130 | 150 |              |
| SSC69.1 |                                                                                     | 3 x 2"               | 146                   | 130 | 150 | 2,15         |

### DIMENSIONAL DRAWING



**TERMINAL BOXES**



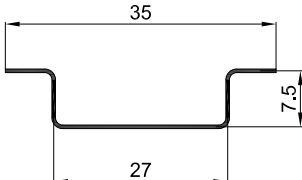
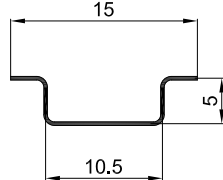
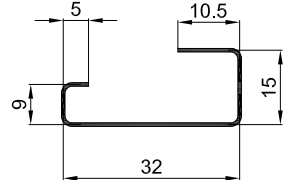
**CHART 1**

| Ex d IIC rated terminal strips |                                         |                   |                             |
|--------------------------------|-----------------------------------------|-------------------|-----------------------------|
| Ambient temperature            | Terminal material                       | Temperature class | Maximum surface temperature |
| -20°C +40°C<br>-40°C +40°C     | Polyamide (PA)                          | T6                | T85°C                       |
| -20°C +65°C<br>-40°C +65°C     | Melamine (KrG)<br>Wemid<br>Stamin (KrS) | T5                | T100°C                      |
| -20°C +150°C<br>-40°C +150°C   | Ceramic (Steatite)                      | T3                | T200°C                      |

**CHART 2**

| Ex e II or Ex i IIC rated terminal strips (ATEX-certified terminals) |                                                      |                   |                             |
|----------------------------------------------------------------------|------------------------------------------------------|-------------------|-----------------------------|
| Ambient temperature                                                  | Terminal material                                    | Temperature class | Maximum surface temperature |
| -20°C +40°C<br>-40°C +40°C                                           | Polyamide (PA)                                       | T6                | T85°C                       |
| -20°C +65°C<br>-40°C +65°C                                           | Melamine (KrG)<br>Wemid<br>Stamin (KrS)              | T5                | T100°C                      |
| -20°C +80°C<br>-40°C +80°C                                           | Melamine (KrG)<br>Stamin (KrS)<br>Ceramic (Steatite) | T4                | T135°C                      |

**MOUNTING RAILS (as per standard IEC 60715)**

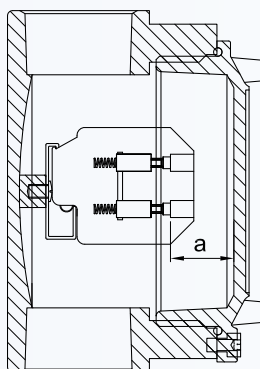
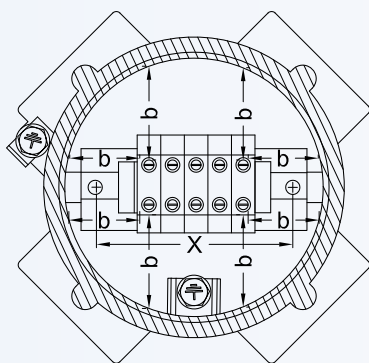
| Terminal manufacturer                                                               | Terminal code | ENCLOSURE TYPE                                                                      |                      |                                                                                       |
|-------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------|
|                                                                                     |               | S.1 - SB<br>14-24                                                                   | S.1 - SB<br>16-26-36 | S.1 - SB<br>29-39-49-59-69                                                            |
|                                                                                     |               | PROFILE TYPE                                                                        |                      |                                                                                       |
| CABUR                                                                               | EDM           | -                                                                                   | -                    | DIN PR/DIN/AC                                                                         |
|                                                                                     | CBD           | -                                                                                   | -                    | PR/3/AC                                                                               |
|                                                                                     | SV            | -                                                                                   | -                    | DIN PR/DIN/AC                                                                         |
|                                                                                     | RN            | -                                                                                   | PR/2/AC              | PR/2/AC                                                                               |
| WEIDMULLER                                                                          | WDU           | -                                                                                   | PR/3/AC              | PR/3/AC                                                                               |
|                                                                                     | SAK           | -                                                                                   | -                    | DIN PR/DIN/AC                                                                         |
|                                                                                     | BK            | Bracket                                                                             | Bracket              | Bracket                                                                               |
|                                                                                     | AKZ           | -                                                                                   | PR/2/AC              | PR/2/AC                                                                               |
| Top hat profile PR/3/AC                                                             |               | Top hat profile PR/2/AC                                                             |                      | DIN profile PR/DIN/AC                                                                 |
|  |               |  |                      |  |



| Ex d IIC rated enclosures                                                                                                                    |             | CROSS-SECTIONAL AREA AND MAXIMUM NUMBER OF TERMINALS |      |    |    |    |    |     |     |     |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------|------|----|----|----|----|-----|-----|-----|
| Enclosure type                                                                                                                               | Size        | 1,5                                                  | 2,5  | 4  | 6  | 10 | 16 | 25  | 35  | 70  |
| S.1 - SB                                                                                                                                     | 14-24       | -                                                    | -    | 3  | -  | -  | -  | -   | -   | -   |
| S.1 - SB                                                                                                                                     | 16-26-36    | 8                                                    | 8    | 6  | -  | -  | -  | -   | -   | -   |
| S.1                                                                                                                                          | 29-39-59-69 | 16                                                   | 16   | 16 | 9  | 7  | 6  | 4   | 4   | 3   |
| SB                                                                                                                                           | 49-59-69    | 16                                                   | 16   | 16 | 10 | 8  | 7  | 5   | 5   | 4   |
| Maximum current (A)                                                                                                                          | at 40°C     | 10                                                   | 12.5 | 20 | 24 | 30 | 48 | 75  | 105 | 175 |
|                                                                                                                                              | at 65°C     | 8                                                    | 10.5 | 17 | 20 | 24 | 40 | 65  | 88  | 150 |
|                                                                                                                                              | at 150°C    |                                                      |      |    |    |    |    |     |     |     |
| Maximum current density (A/mm <sup>2</sup> ) for terminals and cables                                                                        |             | 6.6                                                  | 5    | 5  | 4  | 3  | 3  | 3   | 3   | 2.5 |
| Maximum current (A) referring to 35% of the max. number of terminals as given in the table                                                   | at 40°C     | 13                                                   | 19.5 | 24 | 30 | 50 | 64 | 100 | 140 | 210 |
|                                                                                                                                              | at 65°C     | 10                                                   | 12.5 | 20 | 24 | 30 | 48 | 75  | 105 | 175 |
|                                                                                                                                              | at 150°C    |                                                      |      |    |    |    |    |     |     |     |
| Maximum current density (A/mm <sup>2</sup> ) for terminals and cables referring to 35% of the max. number of terminals as given in the table |             | 8.5                                                  | 7    | 6  | 5  | 5  | 4  | 4   | 4   | 3   |
| Min.-max. rated voltage (V)                                                                                                                  |             | 420 - 750                                            |      |    |    |    |    |     |     |     |

#### Minimum distances for Ex d IIC rated enclosures with terminals

| Enclosure type | Size        | Minimum surface distance |          | S.1  | SB |
|----------------|-------------|--------------------------|----------|------|----|
|                |             | a min.                   | b+b min. |      |    |
| S.1 - SB       | 14-24       | 6                        | 20       | x    | x  |
| S.1 - SB       | 16-26-36    |                          |          | 40   | 40 |
| S.1            | 29-39-59-69 |                          |          | 58.5 | 50 |
| SB             | 49-59-69    |                          |          | 100  | 85 |



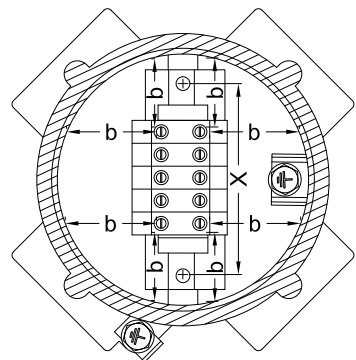
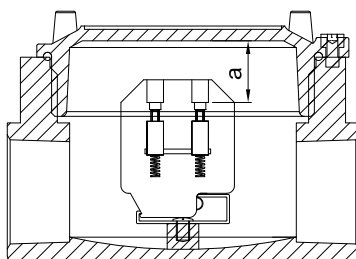
Enclosure code SFL-36.1 with 3 x AKZ-2.5 terminals and 1 x AKE2.5 earth terminal

| Ex e IIC rated enclosures                                |             | CROSS-SECTIONAL AREA AND MAXIMUM NUMBER OF TERMINALS |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |  |  |
|----------------------------------------------------------|-------------|------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|--|--|
| Enclosure type                                           | Size        | 1,5                                                  |       |       | 2,5   |       |       | 4     |       |       | 6     |       |       | 10    |       |       |    |  |  |
|                                                          |             | Tab 1                                                | Tab 2 | Tab 3 | Tab 1 | Tab 2 | Tab 3 | Tab 1 | Tab 2 | Tab 3 | Tab 1 | Tab 2 | Tab 3 | Tab 1 | Tab 2 | Tab 3 |    |  |  |
| S.1 - SB                                                 | 14-24       | -                                                    | -     | -     | -     | -     | -     | 3     | -     | -     | -     | -     | -     | -     | -     | -     |    |  |  |
| S.1 - SB                                                 | 16-26-36    | 8                                                    | 8     | 8     | 8     | 8     | 8     | 6     | 6     | 6     | -     | -     | -     | -     | -     | -     |    |  |  |
| S.1                                                      | 29-39-59-69 | 16                                                   | 16    | 16    | 16    | 16    | 16    | 16    | 14    | 14    | 9     | 9     | 9     | 7     | 7     | 7     |    |  |  |
| SB                                                       | 49-59-69    | 16                                                   | 16    | 16    | 16    | 16    | 16    | 16    | 14    | 14    | 10    | 10    | 9     | 8     | 7     | 7     |    |  |  |
| Maximum current (A)                                      |             | at 40°C                                              |       |       | 8     |       |       | 10,5  |       |       | 17    |       |       | 20    |       |       | 24 |  |  |
|                                                          |             | at 65°C                                              |       |       | 5,5   |       |       | 7,5   |       |       | 12    |       |       | 14    |       |       | 17 |  |  |
|                                                          |             | at 150°C                                             |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |  |  |
| Maximum current density (A/mm²) for terminals and cables |             | 6,6                                                  |       |       | 5     |       |       | 5     |       |       | 4     |       |       | 3     |       |       |    |  |  |
| Min.-max. rated voltage (V)                              |             | 275 - 630                                            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |  |  |

| Ex e IIC rated enclosures                                |             | CROSS-SECTIONAL AREA AND MAXIMUM NUMBER OF TERMINALS |       |       |       |       |       |
|----------------------------------------------------------|-------------|------------------------------------------------------|-------|-------|-------|-------|-------|
| Enclosure type                                           | Size        | 16                                                   |       |       | 25    |       |       |
|                                                          |             | Tab 1                                                | Tab 2 | Tab 3 | Tab 1 | Tab 2 | Tab 3 |
| S.1 - SB                                                 | 14-24       | -                                                    | -     | -     | -     | -     | -     |
| S.1 - SB                                                 | 16-26-36    | -                                                    | -     | -     | -     | -     | -     |
| S.1                                                      | 29-39-59-69 | 6                                                    | 6     | 6     | 4     | 4     | 4     |
| SB                                                       | 49-59-69    | 7                                                    | 6     | 6     | 5     | 4     | 4     |
| Maximum current (A)                                      |             | at 40°C                                              |       |       | 65    |       |       |
|                                                          |             | at 65°C                                              |       |       | 47    |       |       |
|                                                          |             | at 150°C                                             |       |       | 29    |       |       |
| Maximum current density (A/mm²) for terminals and cables |             | 3                                                    |       |       | 3     |       |       |
| Min.-max. rated voltage (V)                              |             | 275 - 630                                            |       |       |       |       |       |



Enclosure code SFL-26.1 with 3 x RP-4 terminals and 1 x TR-2 earth terminal



**NOTES:**

Tab 1 for operating voltage  $U \leq 400$

Tab 2 for operating voltage  $U \leq 500$

Tab 3 for operating voltage  $U \leq 630$

**Minimum distances for Ex e IIC rated enclosures with terminals**

| <b>Tab 1</b> | <b>Enclosure type</b> | <b>Size</b> | <b>Minimum surface distance</b> |          | <b>S.1</b> | <b>SB</b> |
|--------------|-----------------------|-------------|---------------------------------|----------|------------|-----------|
|              |                       |             | a min.                          | b+b min. |            |           |
|              | S.1 - SB              | 14-24       | 6                               | 20       | x          | x         |
|              | S.1 - SB              | 16-26-36    |                                 |          | 40         | 40        |
|              | S.1                   | 29-39-59-69 |                                 |          | 58.5       | 50        |
|              | SB                    | 49-59-69    |                                 |          | 100        | 85        |

| <b>Tab 2</b> | <b>Enclosure type</b> | <b>Size</b> | <b>Minimum surface distance</b> |          | <b>S.1</b> | <b>SB</b> |
|--------------|-----------------------|-------------|---------------------------------|----------|------------|-----------|
|              |                       |             | a min.                          | b+b min. |            |           |
|              | S.1 - SB              | 14-24       | 8                               | 25       | x          | x         |
|              | S.1 - SB              | 16-26-36    |                                 |          | 40         | 40        |
|              | S.1                   | 29-39-59-69 |                                 |          | 58.5       | 50        |
|              | SB                    | 49-59-69    |                                 |          | 100        | 85        |

| <b>Tab 3</b> | <b>Enclosure type</b> | <b>Size</b> | <b>Minimum surface distance</b> |          | <b>S.1</b> | <b>SB</b> |
|--------------|-----------------------|-------------|---------------------------------|----------|------------|-----------|
|              |                       |             | a min.                          | b+b min. |            |           |
|              | S.1 - SB              | 14-24       | 10                              | 32       | x          | x         |
|              | S.1 - SB              | 16-26-36    |                                 |          | 40         | 40        |
|              | S.1                   | 29-39-59-69 |                                 |          | 58.5       | 50        |
|              | SB                    | 49-59-69    |                                 |          | 100        | 85        |

| TERMINAL<br>MANUFACTURER | TERMINAL CODE    | ENCLOSURE TYPE              |                          |                           |                    | CONDUCTOR<br>CROSS-<br>SECTIONAL AREA<br>sq mm |
|--------------------------|------------------|-----------------------------|--------------------------|---------------------------|--------------------|------------------------------------------------|
|                          |                  | SB - S.1<br>14 - 24         | SB - S.1<br>16 - 26 - 36 | S.1<br>29 - 39<br>59 - 69 | SB<br>49 - 59 - 69 |                                                |
|                          |                  | MAXIMUM NUMBER OF TERMINALS |                          |                           |                    |                                                |
| CABUR                    | EDM 2            |                             |                          | 12                        | 10                 | 2.5                                            |
|                          | EDM 4            |                             |                          | 10                        | 8                  | 4                                              |
|                          | EDM 6            |                             |                          | 8                         | 6                  | 6                                              |
|                          | EDM 10           |                             |                          | 7                         | 5                  | 10                                             |
|                          | EDM 16           |                             |                          | 5                         | 4                  | 16                                             |
|                          | EDM 25           |                             |                          | 4                         | 3                  | 25                                             |
|                          | EDM 35           |                             |                          | 3                         | 3                  | 35                                             |
|                          | CBD 2            |                             |                          | 12                        | 15                 | 2.5                                            |
|                          | CBD 4            |                             |                          | 10                        | 12                 | 4                                              |
|                          | CBD 6            |                             |                          | 8                         | 10                 | 6                                              |
|                          | CBD 10           |                             |                          | 7                         | 8                  | 10                                             |
|                          | CBD 16           |                             |                          | 6                         | 7                  | 16                                             |
|                          | CBD 25           |                             |                          | 4                         | 5                  | 25                                             |
|                          | CBD 35           |                             |                          | 3                         | 4                  | 35                                             |
|                          | CBD 70           |                             |                          | 3                         | 4                  | 70                                             |
|                          | SV 2             |                             |                          | 12                        | 10                 | 2.5                                            |
|                          | SV 4             |                             |                          | 10                        | 8                  | 4                                              |
|                          | SV 6             |                             |                          | 8                         | 7                  | 6                                              |
|                          | SV 10            |                             |                          | 6                         | 5                  | 10                                             |
|                          | RP 4             |                             | 6                        | 14                        | 14                 | 4                                              |
| WEIDMULLER               | WDU 1.5/R 3.5/E  |                             | 10                       | 22                        | 22                 | 1.5                                            |
|                          | WDU 2.5N/E       |                             | 5                        | 14                        | 16                 | 2.5                                            |
|                          | WDU 2.5          |                             |                          | 14                        | 16                 | 2.5                                            |
|                          | WDU 4            |                             |                          | 12                        | 14                 | 4                                              |
|                          | WDU 6            |                             |                          | 9                         | 10                 | 6                                              |
|                          | WDU 10           |                             |                          | 7                         | 8                  | 10                                             |
|                          | WDU 16           |                             |                          | 6                         | 7                  | 16                                             |
|                          | WDU 35           |                             |                          | 4                         | 5                  | 35                                             |
|                          | SAK 2.5          |                             |                          | 12                        | 9                  | 2.5                                            |
|                          | SAK 4            |                             |                          | 12                        | 9                  | 4                                              |
|                          | SAK 6            |                             |                          | 8                         | 7                  | 6                                              |
|                          | SAK 10           |                             |                          | 7                         | 5                  | 10                                             |
|                          | SAK 16           |                             |                          | 5                         | 4                  | 16                                             |
|                          | SAK 35           |                             |                          | 4                         | 3                  | 35                                             |
|                          | AKZ 1.5          |                             | 8                        | 14                        | 14                 | 1.5                                            |
|                          | AKZ 2.5          |                             | 8                        | 14                        | 14                 | 2.5                                            |
|                          | AKZ 4            |                             | 6                        | 14                        | 14                 | 4                                              |
|                          | BK 2 (2 poles)   | 1                           | 2                        | 4                         | 3                  | 4                                              |
|                          | BK 3 (3 poles)   | 1                           | 1                        | 2                         | 2                  | 4                                              |
|                          | BK 4 (4 poles)   |                             | 1                        | 2                         | 2                  | 4                                              |
|                          | BK 6 (6 poles)   |                             |                          | 1                         | 1                  | 4                                              |
|                          | BK 12 (12 poles) |                             |                          |                           |                    | 4                                              |





# Weather proof series

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CS... CSG... series junction boxes are made from aluminium alloy and given an electrostatically applied epoxy coating containing stainless steel particles that is then baked at 200°C. This treatment ensures good UV as well as thermal stability, providing mechanical impact resistance and excellent resistance when exposed either to salt mist or to marine and other damp environments. CS and CSG series junction boxes are usually installed in industrial plants and they are mainly used as junction boxes and/or for routing cables to control rooms for analogue or digital signals and for control, monitoring and signalling associated with equipment such as motors, pumps...etc., or for giving physical readings such as flow rate, level, temperature, pressure, etc.... The thickness of its walls (7mm) means the CSG series is suitable for direct connection with pipes and fittings featuring tapered threads. Upon customer's request threaded hubs or bushings, complete with cable glands, plugs and other accessories, can be made.


**Standard construction:**

Low copper content aluminium alloy.  
 Stainless steel screws and bolts.  
 Silicone gasket.  
 Internal/external earth screws.  
 Fixing lugs.  
 RAL 7035 polyester coating.

**Protection degree:**

IP 66

**Mechanical strenght:**

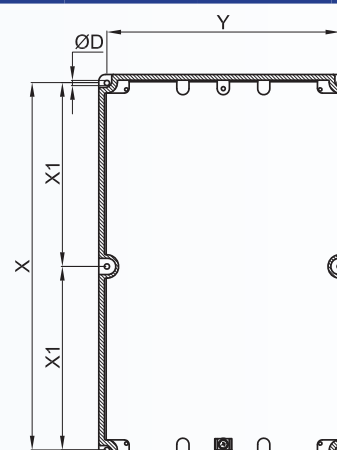
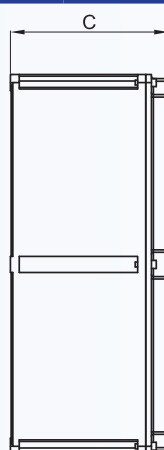
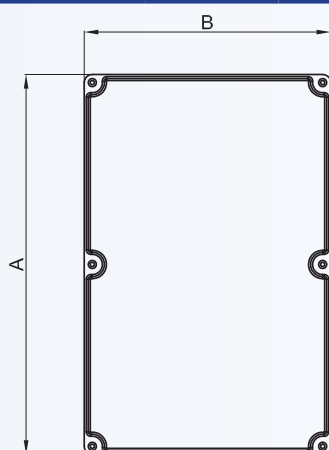
IK10

**Standards:**

IEC 60529

**ALUMINIUM ENCLOSURES SELECTION CHART**

| Code      | Outside dimensions |     |     | Fixing |     |       |     | Weight<br>Kg |
|-----------|--------------------|-----|-----|--------|-----|-------|-----|--------------|
|           | A                  | B   | C   | X      | Y   | X1    | ØD  |              |
| CS090907  | 90                 | 90  | 73  | 74     | 74  | -     | 6,5 | 0,40         |
| CS111108  | 110                | 110 | 83  | 94     | 94  | -     | 6,5 | 0,50         |
| CSG111108 | 110                | 110 | 83  | 94     | 94  | -     | 6,5 | 0,75         |
| CS171108  | 170                | 110 | 83  | 154    | 94  | -     | 6,5 | 0,80         |
| CSG171108 | 170                | 110 | 83  | 154    | 94  | -     | 6,5 | 1,55         |
| CS141410  | 147                | 147 | 100 | 131    | 131 | -     | 6,5 | 0,80         |
| CSG141410 | 147                | 147 | 100 | 131    | 131 | -     | 6,5 | 1,40         |
| CS202012  | 200                | 200 | 120 | 180    | 180 | -     | 6,5 | 1,70         |
| CS301410  | 305                | 147 | 110 | 285    | 127 | -     | 6,5 | 2,00         |
| CSG301410 | 305                | 147 | 110 | 285    | 127 | -     | 6,5 | 2,70         |
| CS302310  | 305                | 230 | 110 | 285    | 210 | -     | 6,5 | 2,80         |
| CSG302310 | 305                | 230 | 100 | 285    | 210 | -     | 6,5 | 3,40         |
| CS302318  | 305                | 230 | 190 | 285    | 210 | -     | 6,5 | 3,50         |
| CSG302318 | 305                | 230 | 190 | 285    | 210 | -     | 6,5 | 5,30         |
| CS473018  | 475                | 305 | 195 | 450    | 285 | 225   | 6,5 | 6,50         |
| CSG473018 | 475                | 305 | 195 | 450    | 285 | 225   | 6,5 | 8,90         |
| CSG623018 | 625                | 305 | 195 | 605    | 285 | 302,5 | 6,5 | 11,3         |
| CSG606018 | 600                | 600 | 205 | 580    | 580 | 290   | 6,5 | 27,0         |





**ACCESSORIES UPON REQUEST**

| ILLUSTRATION                                                                        | DESCRIPTION                                                                                                                                 | MODEL                                                                     | SIZE                         |     | CODE      |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------|-----|-----------|
|    | Internal mounting plates<br><br>Thickness 25/10<br>Aluminium<br><br>Galvanized steel<br>(B...-229AC)<br><br>Stainless steel<br>(B...-229IN) | CS090907                                                                  | 82                           | 48  | B09-229   |
|                                                                                     |                                                                                                                                             | CSG090907                                                                 | 73                           | 48  | B09-229P  |
|                                                                                     |                                                                                                                                             | CS111108                                                                  | 100                          | 68  | B11-229   |
|                                                                                     |                                                                                                                                             | CSG111108                                                                 | 92                           | 68  | B11-229P  |
|                                                                                     |                                                                                                                                             | CS141410                                                                  | 137                          | 105 | B14-229   |
|                                                                                     |                                                                                                                                             | CSG141410                                                                 | 129                          | 105 | B14-229P  |
|                                                                                     |                                                                                                                                             | CS171108                                                                  | 159                          | 67  | B17-229   |
|                                                                                     |                                                                                                                                             | CS202012                                                                  | 186                          | 146 | B20-229   |
|                                                                                     |                                                                                                                                             | CS/CSG301410                                                              | 285                          | 97  | B31-229   |
|                                                                                     |                                                                                                                                             | CS/CSG302310<br>CS/CSG302318                                              | 285                          | 180 | B32-229   |
|                                                                                     |                                                                                                                                             | CS/CSG473018                                                              | 453                          | 254 | B43-229   |
|                                                                                     |                                                                                                                                             | CS/CSG623018                                                              | 603                          | 249 | B63-229   |
|                                                                                     |                                                                                                                                             | CSG606018                                                                 | 532                          | 532 | B60-229   |
| ILLUSTRATION                                                                        | DESCRIPTION                                                                                                                                 | MODEL                                                                     | CHARACTERISTICS              |     | CODE      |
|    | Drain and breather valve                                                                                                                    | Thread<br>ISO M20 or<br>ISO M25                                           | Material:<br>stainless steel |     | ECDE-...S |
|    | Entry blanking plugs<br>and cable glands                                                                                                    | For models and codes, see<br>cable glands and electrical fittings chapter |                              |     |           |
|  | Hinges<br>(2 per enclosure)                                                                                                                 | Low lid enclosures                                                        | Material: stainless steel    |     | B-0105    |
|                                                                                     |                                                                                                                                             | High lid enclosures                                                       |                              |     | B-0106    |
|  | Hinges<br>(2 per enclosure)                                                                                                                 | SAG606018                                                                 | Material: stainless steel    |     | K-0351    |

**CS and CSG series enclosures**
**Models from CS...series (lightweight series)**
**Thinner walls**

The body can only accommodate through holes with no threading


**Models from CSG...series (heavy-duty series)**
**Extra-thick walls**

The body can also accommodate threaded holes



CS/P series junction boxes are made from fibreglass-reinforced polyester. Because they are highly resistant to contamination from fuel oils and mechanical shock, in addition to being lightweight and practical, they can be installed in all industrial plants. The enclosures have special holes made in the base for easy wall mounting. The lid features a silicone gasket that is resistant to low and high temperatures and comes complete with AISI 304 stainless steel screws, which are arranged around the outside of the lid to ensure a tight seal with the IP66 rating. CS/P series enclosures are mainly used as junction boxes for routing cables for analogue or digital signals and/or for control and monitoring associated with equipment such as motors, fans, pumps and/or for giving physical readings such as flow rate, level, pressure, temperature, current, etc..


**Standard construction:**

GRP (glass reinforced polyester resin) in RAL 9017 black coating.  
 Stainless steel screws and bolts.  
 Silicone gasket.  
 Fixing lugs.

**Protection degree:**

IP 66

**Mechanical strenght:**

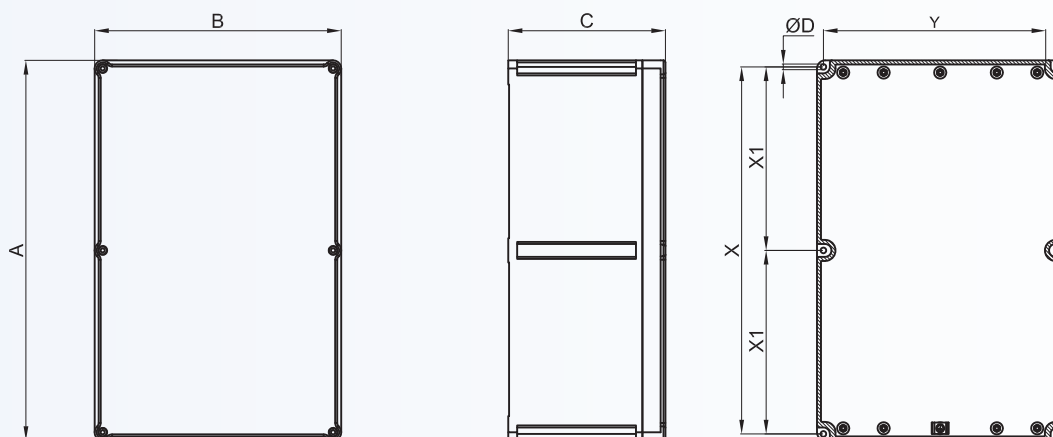
IK10

**Standards:**

IEC 60529

**POLYESTER ENCLOSURES SELECTION CHART**

| Code       | Outside dimension |     |     | Fixing |     |         |     | Weight<br>Kg |
|------------|-------------------|-----|-----|--------|-----|---------|-----|--------------|
|            | A                 | B   | C   | X      | Y   | X1      | ØD  |              |
| CS090907/P | 90                | 90  | 73  | 74     | 74  | -       | 6,5 | 0,30         |
| CS111108/P | 110               | 110 | 83  | 94     | 94  | -       | 6,5 | 0,40         |
| CS171108/P | 170               | 110 | 83  | 154    | 94  | -       | 6,5 | 0,80         |
| CS141410/P | 147               | 147 | 100 | 131    | 131 | -       | 6,5 | 1,00         |
| CS301410/P | 305               | 147 | 110 | 285    | 127 | -       | 6,5 | 1,90         |
| CS302310/P | 305               | 230 | 110 | 285    | 210 | -       | 6,5 | 2,50         |
| CS302318/P | 305               | 230 | 190 | 285    | 210 | -       | 6,5 | 3,10         |
| CS473018/P | 470               | 305 | 195 | 450    | 285 | 225     | 6,5 | 4,70         |
| CS623018/P | 620               | 305 | 185 | 560    | 285 | 260-300 | 8   | 6,30         |



**ACCESSORIES UPON REQUEST**

| ILLUSTRATION                                                                        | DESCRIPTION                              | MODEL                                                                     | SIZE                         |     | CODE             |
|-------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------|------------------------------|-----|------------------|
|                                                                                     |                                          |                                                                           | A                            | B   |                  |
|    | Internal mounting plates                 | CS090907/P                                                                | 82                           | 48  | <b>B09-229</b>   |
|                                                                                     |                                          | CS111108/P                                                                | 100                          | 68  | <b>B11-229</b>   |
|                                                                                     | Thickness 2.5mm Aluminium                | CS141410/P                                                                | 137                          | 105 | <b>B14-229</b>   |
|                                                                                     |                                          | CS171108/P                                                                | 159                          | 67  | <b>B17-229</b>   |
|                                                                                     | Galvanized steel (B...-229AC)            | CS301410/P                                                                | 285                          | 97  | <b>B31-229</b>   |
|                                                                                     |                                          | CS302310/P<br>CS302318/P                                                  | 285                          | 180 | <b>B32-229</b>   |
|                                                                                     | Stainless steel (B...-229IN)             | CS473018/P                                                                | 453                          | 254 | <b>B43-229</b>   |
|                                                                                     |                                          | CS623018/P                                                                | 603                          | 249 | <b>B63-229</b>   |
| ILLUSTRATION                                                                        | DESCRIPTION                              | MODEL                                                                     | CHARACTERISTICS              |     | CODE             |
|    | Drain and breather valve                 | Thread<br>ISO M20 or<br>ISO M25                                           | Material:<br>stainless steel |     | <b>ECDE-...S</b> |
|    | Entry blanking plugs<br>and cable glands | For models and codes, see<br>cable glands and electrical fittings chapter |                              |     |                  |
|   | Hinges<br>(2 per enclosure)              | Low lid enclosures                                                        | Material: stainless steel    |     | <b>B-0105</b>    |
|                                                                                     |                                          | High lid enclosures                                                       |                              |     | <b>B-0106</b>    |
|  | Through earth connection                 | M8                                                                        | Material: stainless steel    |     | <b>K-0307/1</b>  |
|                                                                                     |                                          | M6                                                                        |                              |     | <b>K-0307/2</b>  |
|  | Brass continuity plates for<br>earthing  | For models and codes see<br>the following scheme                          |                              |     | <b>B-...</b>     |

**CONTINUITY PLATES**

| Enclosure  | Plate code | Plate code |            |
|------------|------------|------------|------------|
|            |            | Long side  | Short side |
| SA090907/P | B-388      | B-455      |            |
| SA111108/P | B-389      | B-456      |            |
| SA141410/P | B-390      | B-457      |            |
| SA171108/P | B-391      | B-458      | B-456      |
| SA301410/P | B-392      | B-459      | B-457      |
| SA302310/P | B-393      | B-459      | B-460      |
| SA302318/P | B-394      | B-461      | B-462      |
| SA473018/P | B-395      | (2x) B-462 | B-461      |
| SA623018/P | -          | (2x) B-463 | B-463      |



CS/SS series watertight junction boxes, in stainless steel, are suitable for containing any electrical and electronic equipment.  
 Thanks to the material used and their features, they are particularly indicated for industrial environments with strongly aggressive atmospheres.


**Standard construction:**

Stainless steel AISI 316L  
 Stainless steel bolts and screws  
 Silicone gasket  
 Fixing lugs

**Protection degree:**

IP 66

**Mechanical strenght:**

IK10

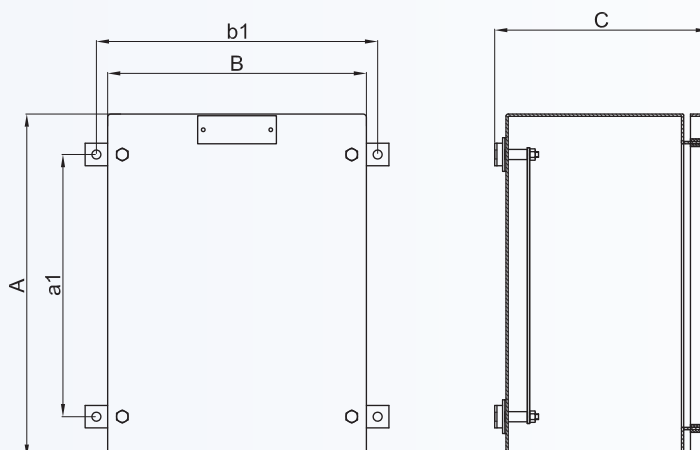
**Standards:**

IEC 60529

**STAINLESS STEEL ENCLOSURES SELECTION CHART**

| Codice     | External dimensions |     |     | Fixing |     | Weight<br>Kg |
|------------|---------------------|-----|-----|--------|-----|--------------|
|            | A                   | B   | C   | a1     | b1  |              |
| CS111108SS | 110                 | 110 | 90  | 38     | 130 | 0,80         |
| CS141410SS | 147                 | 147 | 110 | 75     | 167 | 1,40         |
| CS171108SS | 170                 | 110 | 90  | 98     | 130 | 1,20         |
| CS301410SS | 305                 | 147 | 110 | 233    | 167 | 2,50         |
| CS302310SS | 305                 | 230 | 110 | 233    | 250 | 4,30         |
| CS302318SS | 305                 | 230 | 190 | 233    | 250 | 5,60         |
| CS404020SS | 400                 | 400 | 210 | 328    | 420 | 10,90        |
| CS473018SS | 470                 | 305 | 190 | 398    | 325 | 8,00         |
| CS623018SS | 620                 | 305 | 190 | 548    | 325 | 12,00        |
| CS606020SS | 600                 | 600 | 210 | 528    | 620 | 16,00        |

Other dimensions can be enquired.



**ACCESSORIES UPON REQUEST**

| ILLUSTRATION                                                                      | DESCRIPTION                                 | MODEL                                                                     | SIZE                         |     | CODE             |
|-----------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------|------------------------------|-----|------------------|
|  | Internal mounting plates<br>Stainless steel | CS111108SS                                                                | 50                           | 50  | <b>B11-357</b>   |
|                                                                                   |                                             | CS141410SS                                                                | 87                           | 87  | <b>B14-357</b>   |
|                                                                                   |                                             | CS171108SS                                                                | 110                          | 50  | <b>B17-357</b>   |
|                                                                                   |                                             | CS301410SS                                                                | 245                          | 87  | <b>B301-357</b>  |
|                                                                                   |                                             | CS302310SS<br>CS302318SS                                                  | 245                          | 170 | <b>B302-357</b>  |
|                                                                                   |                                             | CS404020SS                                                                | 340                          | 340 | <b>B40-357</b>   |
|                                                                                   |                                             | CS473018SS                                                                | 410                          | 245 | <b>B47-357</b>   |
|                                                                                   |                                             | CS623018SS                                                                | 560                          | 245 | <b>B62-357</b>   |
|                                                                                   |                                             | CS606020SS                                                                | 540                          | 540 | <b>B603-357</b>  |
| ILLUSTRATION                                                                      | DESCRIPTION                                 | MODEL                                                                     | CHARACTERISTICS              |     | CODE             |
|  | Drain and breather valve                    | Thread<br>ISO M20 or<br>ISO M25                                           | Material:<br>stainless steel |     | <b>ECDE-...S</b> |
|  | Entry blanking plugs<br>and cable glands    | For models and codes, see<br>cable glands and electrical fittings chapter |                              |     |                  |

**SPECIAL REQUEST**

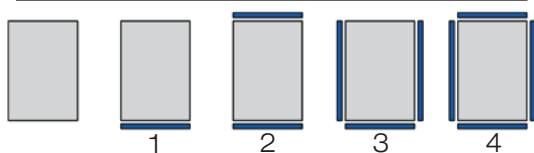
- CS-...SSF...** Junction box with walls with gland plates  
**CS-...SSC...** Junction box with cover fixing by lock system  
**CS-...SSCF...** Junction box with walls with gland plates and cover fixing by lock system

**LOCK SYSTEM**
**Code example**
**1) CS302318SSC**

Stainless steel junction box 305x230x190 with cover fixing by lock system


**CS...SSF.. SERIES ENCLOSURES WITH REMOVABLE GLAND PLATES**

## Removable gland plate position coding


**Code example**
**1) CS302318SSF3**

Stainless steel junction box 305x230x190 with 3 removable gland plates

**2) CS473018SSF1**

Stainless steel junction box 470x305x190 with 1 removable gland plate

| Code                 | SIZE REMOVABLE GLAND PLATES |         |         |         |
|----------------------|-----------------------------|---------|---------|---------|
|                      | Side A                      | Side B  | Side C  | Side D  |
| <b>CS302318SSF..</b> | 130x100                     | 225x100 | 150x100 | 225x100 |
| <b>CS404020SSF..</b> | 300x120                     | 320x120 | 320x120 | 320x120 |
| <b>CS473018SSF..</b> | 205x100                     | 390x100 | 225x100 | 390x100 |
| <b>CS623018SSF..</b> | 205x100                     | 540x100 | 225x100 | 540x100 |
| <b>CS606020SSF..</b> | 500x120                     | 520x120 | 520x120 | 520x120 |



Economic junction boxes, are used as pulling or junction boxes in areas where there is no danger of explosion, but it is required a specific protection to prevent the entry of solids and liquids. They are stainless steel made and can be installed in chemical and off-shore plants and where is a strong external agents'aggression. Upon specific request they can be supplied with terminal blocks and copper rods for earth connections. Upon customer request threaded hubs or bushings, complete with cable glands, plugs and other accessories both on the enclosure's side and on specific removable flanges, can be made.

**Standard construction:**

Stainless steel AISI 316L  
 Stainless steel bolts and screws  
 Silicone gasket  
 Fixing lugs

**Degree of protection:**

IP 66

**Mechanical strenght:**

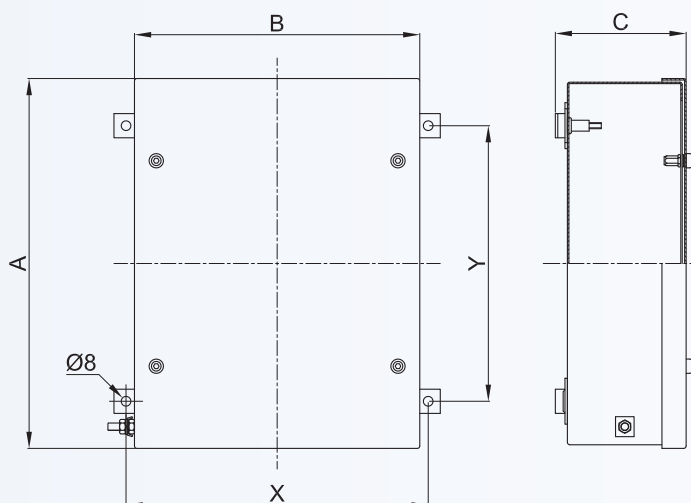
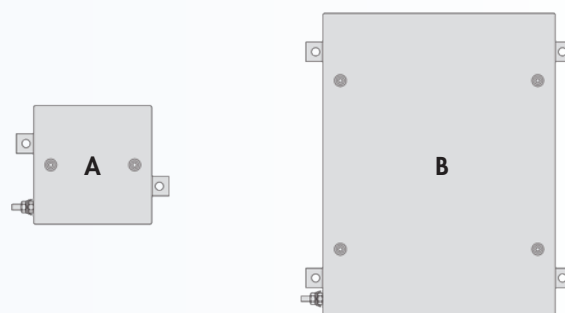
IK10

**Standards:**

IEC 60529

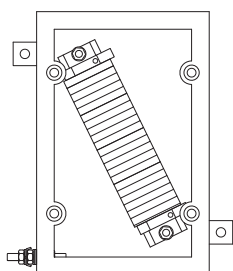
### STAINLESS STEEL ENCLOSURES SELECTION CHART

| Code        | Outside dimensions |     |     | Fixing |     | ØD | Weight Kg |
|-------------|--------------------|-----|-----|--------|-----|----|-----------|
|             | A                  | B   | C   | X      | Y   |    |           |
| CTBEW121208 | 120                | 120 | 90  | 135    | 42  | A  |           |
| CTBEW151208 | 150                | 120 | 90  | 135    | 73  | A  |           |
| CTBEW151509 | 150                | 150 | 100 | 165    | 73  | A  |           |
| CTBEW191509 | 190                | 150 | 100 | 165    | 113 | A  |           |
| CTBEW191910 | 190                | 190 | 100 | 165    | 73  | A  |           |
| CTBEW221513 | 229                | 152 | 140 | 205    | 113 | A  |           |
| CTBEW262610 | 258                | 258 | 110 | 273    | 181 | B  |           |
| CTBEW262616 | 258                | 258 | 170 | 273    | 181 | B  |           |
| CTBEW262620 | 258                | 258 | 210 | 273    | 181 | B  |           |
| CTBEW301410 | 306                | 146 | 110 | 160    | 228 | B  |           |
| CTBEW302310 | 306                | 236 | 110 | 250    | 228 | B  |           |
| CTBEW303010 | 306                | 306 | 110 | 320    | 228 | B  |           |
| CTBEW303016 | 306                | 306 | 170 | 320    | 228 | B  |           |
| CTBEW303020 | 306                | 306 | 210 | 320    | 228 | B  |           |
| CTBEW381612 | 380                | 160 | 130 | 175    | 303 | B  |           |
| CTBEW382610 | 380                | 260 | 110 | 275    | 303 | B  |           |
| CTBEW382616 | 380                | 260 | 170 | 275    | 303 | B  |           |
| CTBEW382620 | 380                | 260 | 210 | 275    | 303 | B  |           |
| CTBEW402513 | 400                | 250 | 140 | 265    | 323 | B  |           |

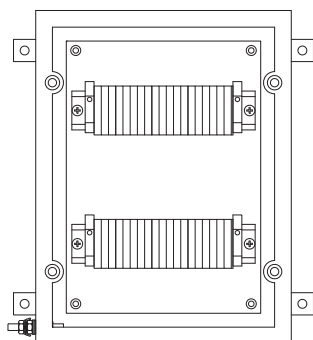
**Type**

**ACCESSORIES UPON REQUEST**

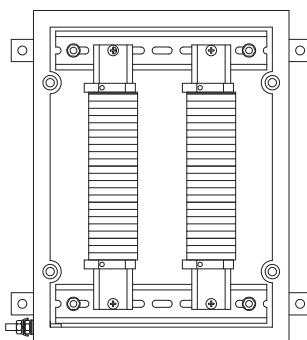
| ILLUSTRATION                                                                       | DESCRIPTION                                 | MODEL                                                                     | SIZE                         |     | CODE             |
|------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------|------------------------------|-----|------------------|
|   | Internal mounting plates<br>Stainless steel | CTBEW121208                                                               | 60                           | 60  | <b>B12-484</b>   |
|                                                                                    |                                             | CTBEW151509                                                               | 90                           | 90  | <b>B15-484</b>   |
|                                                                                    |                                             | CTBEW191910                                                               | 130                          | 130 | <b>B19-484</b>   |
|                                                                                    |                                             | CTBEW221513                                                               | 170                          | 90  | <b>B22-484</b>   |
|                                                                                    |                                             | CTBEW262610<br>CTBEW262616<br>CTBEW262620                                 | 200                          | 200 | <b>B26-484</b>   |
|                                                                                    |                                             | CTBEW301410                                                               | 245                          | 85  | <b>B303-484</b>  |
|                                                                                    |                                             | CTBEW302310                                                               | 145                          | 175 | <b>B302-484</b>  |
|                                                                                    |                                             | CTBEW303010<br>CTBEW303016<br>CTBEW303020                                 | 245                          | 245 | <b>B30-484</b>   |
|                                                                                    |                                             | CTBEW382610<br>CTBEW382616<br>CTBEW382620                                 | 320                          | 200 | <b>B38-484</b>   |
| ILLUSTRATION                                                                       | DESCRIPTION                                 | MODEL                                                                     | CHARACTERISTICS              |     | CODE             |
|   | Entry blanking plugs<br>and cable glands    | For models and codes, see<br>cable glands and electrical fittings chapter |                              |     |                  |
|  | Drain and breather valve                    | Thread<br>ISO M20 or<br>ISO M25                                           | Material:<br>stainless steel |     | <b>ECDE-...S</b> |

**INSTALLATION EXAMPLE OF INSIDE TERMINAL BLOCKS**


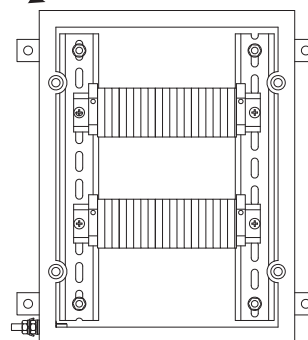
Diagonally and directly  
installed on internal inserts for  
greater amount of terminal  
blocks on small enclosures



Horizontally or vertically, installed  
on mounting plate in order to  
minimize oscillations of terminal  
block in case of external vibrations



Vertically installed on DIN  
guides for greater cheapness

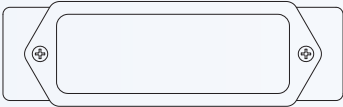
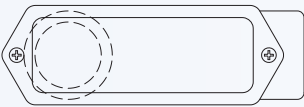
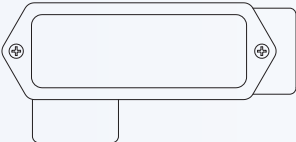
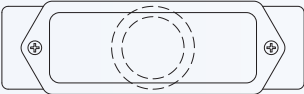
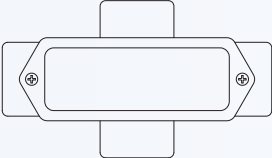
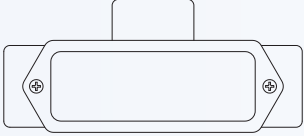
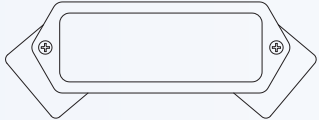


Horizontally installed on DIN  
guides for greater cheapness

Condulet are used as pulling or junction boxes in areas where is no danger of explosion, but it is required a specific protection to prevent the entry of solids and liquids. They are aluminium made and can be installed in chemical and off-shore plants and where is a strong external agents aggression.

|                               |                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------|
| <b>Standard construction:</b> | Body and cover in aluminium alloy<br>Galvanized steel bolts and screws<br>Elastomer gasket |
| <b>Degree of protection</b>   | IP 65                                                                                      |
| <b>Standards:</b>             | IEC 60529                                                                                  |
| <b>On request:</b>            | Other threads<br>Coating<br>Stainless steel screws                                         |

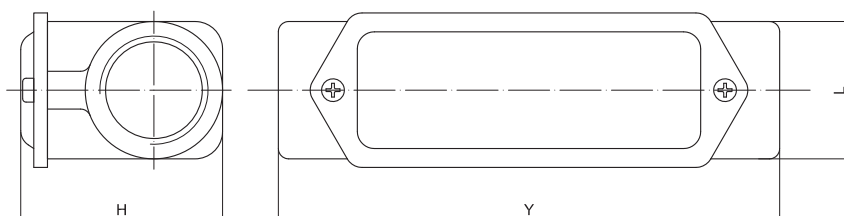


| Box type                                                                            | Code | Description                                                                                               |
|-------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------|
|    | C    | Enclosure with two coaxial hubs                                                                           |
|   | LB   | Enclosure with two hubs arranged at 90°<br>(One hub arranged on the bottom of the enclosure)              |
|  | LL   | Enclosure with two hubs arranged at 90°<br>(One hub arranged on the bottom left side)                     |
|  | LR   | Enclosure with two hubs arranged at 90°<br>(One hub arranged on the right side)                           |
|  | TB   | Enclosure with three hubs, two coaxial and one at 90°<br>arranged on the middle of the enclosure's bottom |
|  | X    | Enclosure with four cross hubs                                                                            |
|  | T    | Enclosure with three hubs, two coaxial and one at 90°<br>arranged on the side                             |
|  | LU   | Enclosure with two 45° hubs with respect to the axis                                                      |



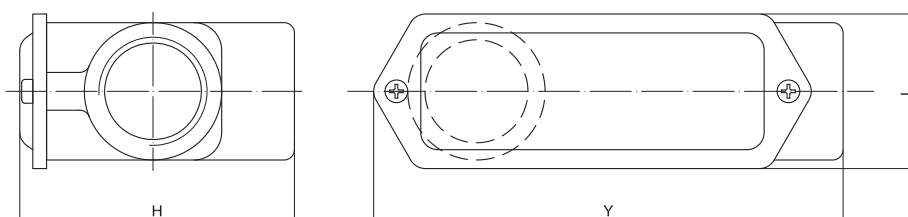
### PULLING BOXES SELECTION CHART

| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| C17      | 1/2" ISO228/1   | 118              | 51  | 42  | 0,168     |
| C27      | 3/4" ISO228/1   | 123              | 40  | 48  | 0,151     |
| C37      | 1" ISO228/1     | 146              | 45  | 57  | 0,234     |
| C47      | 1 1/4" ISO228/1 | 171              | 62  | 71  | 0,417     |
| C57      | 1 1/2" ISO228/1 | 171              | 62  | 71  | 0,372     |
| C67      | 2" ISO228/1     | 204              | 76  | 83  | 0,514     |
| C77      | 2 1/2" ISO228/1 | 315              | 108 | 125 | 1,779     |
| C87      | 3" ISO228/1     | 315              | 108 | 125 | 1,779     |
| C107     | 4" ISO228/1     | 314              | 133 | 148 | 2,606     |



### PULLING BOXES SELECTION CHART

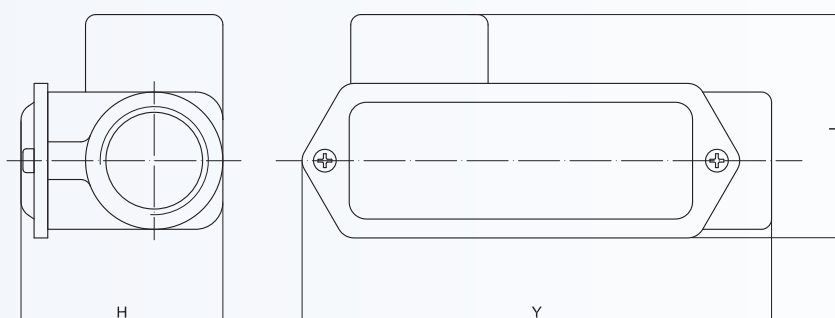
| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| LB17     | 1/2" ISO228/1   | 117              | 40  | 65  | 0,172     |
| LB27     | 3/4" ISO228/1   | 117              | 40  | 65  | 0,159     |
| LB37     | 1" ISO228/1     | 137              | 45  | 78  | 0,236     |
| LB47     | 1 1/4" ISO228/1 | 163              | 62  | 89  | 0,427     |
| LB57     | 1 1/2" ISO228/1 | 163              | 62  | 89  | 0,387     |
| LB67     | 2" ISO228/1     | 190              | 76  | 108 | 0,541     |
| LB77     | 2 1/2" ISO228/1 | 238              | 107 | 150 | 2,121     |
| LB87     | 3" ISO228/1     | 238              | 107 | 150 | 1,785     |
| LB107    | 4" ISO228/1     | 300              | 133 | 185 | 2,658     |





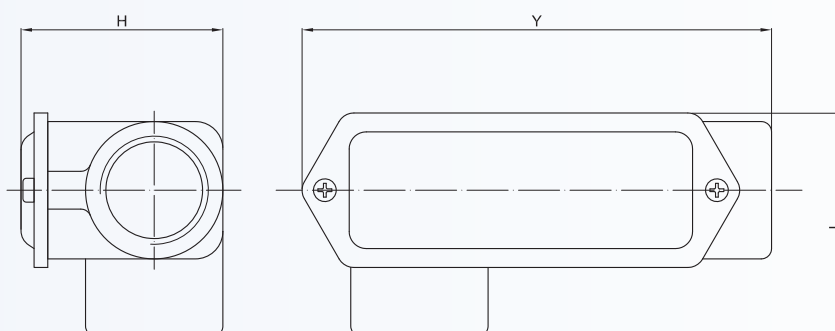
### PULLING BOXES SELECTION CHART

| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| LL17     | 1/2" ISO228/1   | 117              | 51  | 48  | 0,171     |
| LL27     | 3/4" ISO228/1   | 117              | 51  | 48  | 0,150     |
| LL37     | 1" ISO228/1     | 137              | 61  | 57  | 0,238     |
| LL47     | 1 1/4" ISO228/1 | 163              | 76  | 71  | 0,414     |
| LL57     | 1 1/2" ISO228/1 | 163              | 76  | 71  | 0,381     |
| LL67     | 2" ISO228/1     | 190              | 94  | 83  | 0,522     |
| LL77     | 2 1/2" ISO228/1 | 238              | 138 | 122 | 2,084     |
| LL87     | 3" ISO228/1     | 238              | 138 | 122 | 1,748     |
| LL107    | 4" ISO228/1     | 300              | 162 | 148 | 2,666     |



### PULLING BOXES SELECTION CHART

| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| LR17     | 1/2" ISO228/1   | 117              | 51  | 48  | 0,171     |
| LR27     | 3/4" ISO228/1   | 117              | 51  | 48  | 0,150     |
| LR37     | 1" ISO228/1     | 137              | 61  | 57  | 0,238     |
| LR47     | 1 1/4" ISO228/1 | 163              | 76  | 71  | 0,414     |
| LR57     | 1 1/2" ISO228/1 | 163              | 76  | 71  | 0,381     |
| LR67     | 2" ISO228/1     | 190              | 94  | 83  | 0,522     |
| LR77     | 2 1/2" ISO228/1 | 238              | 138 | 122 | 2,084     |
| LR87     | 3" ISO228/1     | 238              | 138 | 122 | 1,748     |
| LR107    | 4" ISO228/1     | 300              | 162 | 148 | 2,666     |

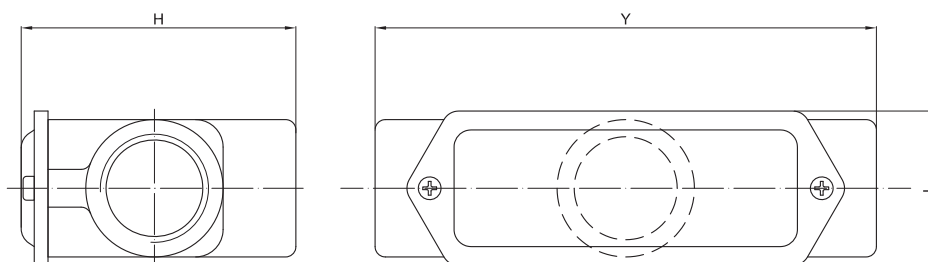






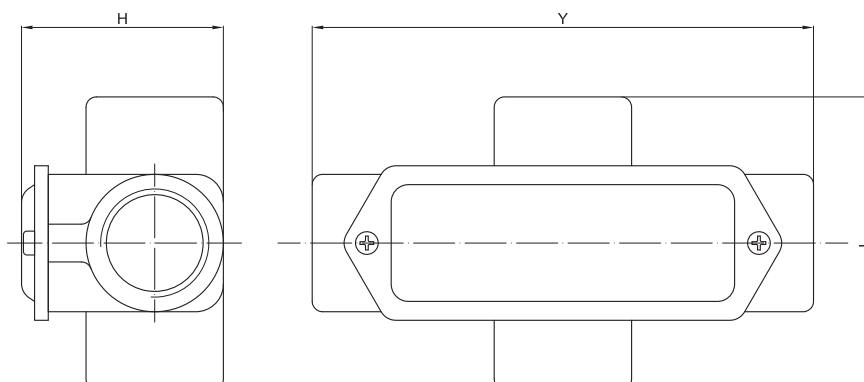
### PULLING BOXES SELECTION CHART

| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| TB17     | 1/2" IS0228/1   | 123              | 40  | 65  | 0,193     |
| TB27     | 3/4" IS0228/1   | 123              | 40  | 65  | 0,168     |
| TB37     | 1" IS0228/1     | 146              | 45  | 78  | 0,254     |
| TB47     | 1 1/4" IS0228/1 | 171              | 62  | 89  | 0,488     |
| TB57     | 1 1/2" IS0228/1 | 171              | 62  | 89  | 0,416     |
| TB67     | 2" IS0228/1     | 204              | 76  | 108 | 0,607     |
| TB77     | 2 1/2" IS0228/1 | 315              | 108 | 163 | 2,492     |
| TB87     | 3" IS0228/1     | 315              | 108 | 163 | 1,996     |
| TB107    | 4" IS0228/1     | 314              | 133 | 185 | 2,747     |



### PULLING BOXES SELECTION CHART

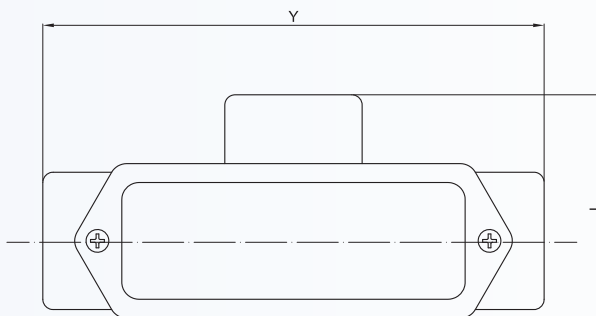
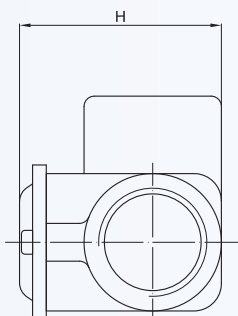
| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| X17      | 1/2" IS0228/1   | 123              | 68  | 48  | 0,217     |
| X27      | 3/4" IS0228/1   | 123              | 68  | 48  | 0,187     |
| X37      | 1" IS0228/1     | 146              | 81  | 57  | 0,289     |
| X47      | 1 1/4" IS0228/1 | 171              | 96  | 71  | 0,532     |
| X57      | 1 1/2" IS0228/1 | 171              | 96  | 71  | 0,428     |
| X67      | 2" IS0228/1     | 204              | 118 | 83  | 0,623     |
| X77      | 2 1/2" IS0228/1 | 315              | 183 | 125 | 2,394     |
| X87      | 3" IS0228/1     | 315              | 183 | 125 | 2,105     |
| X107     | 4" IS0228/1     | 315              | 196 | 148 | 2,881     |





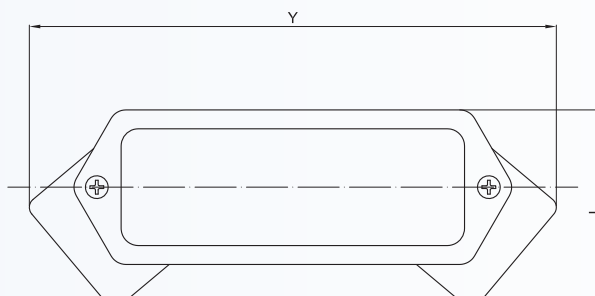
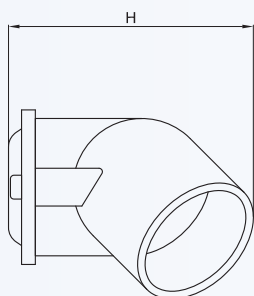
### PULLING BOXES SELECTION CHART

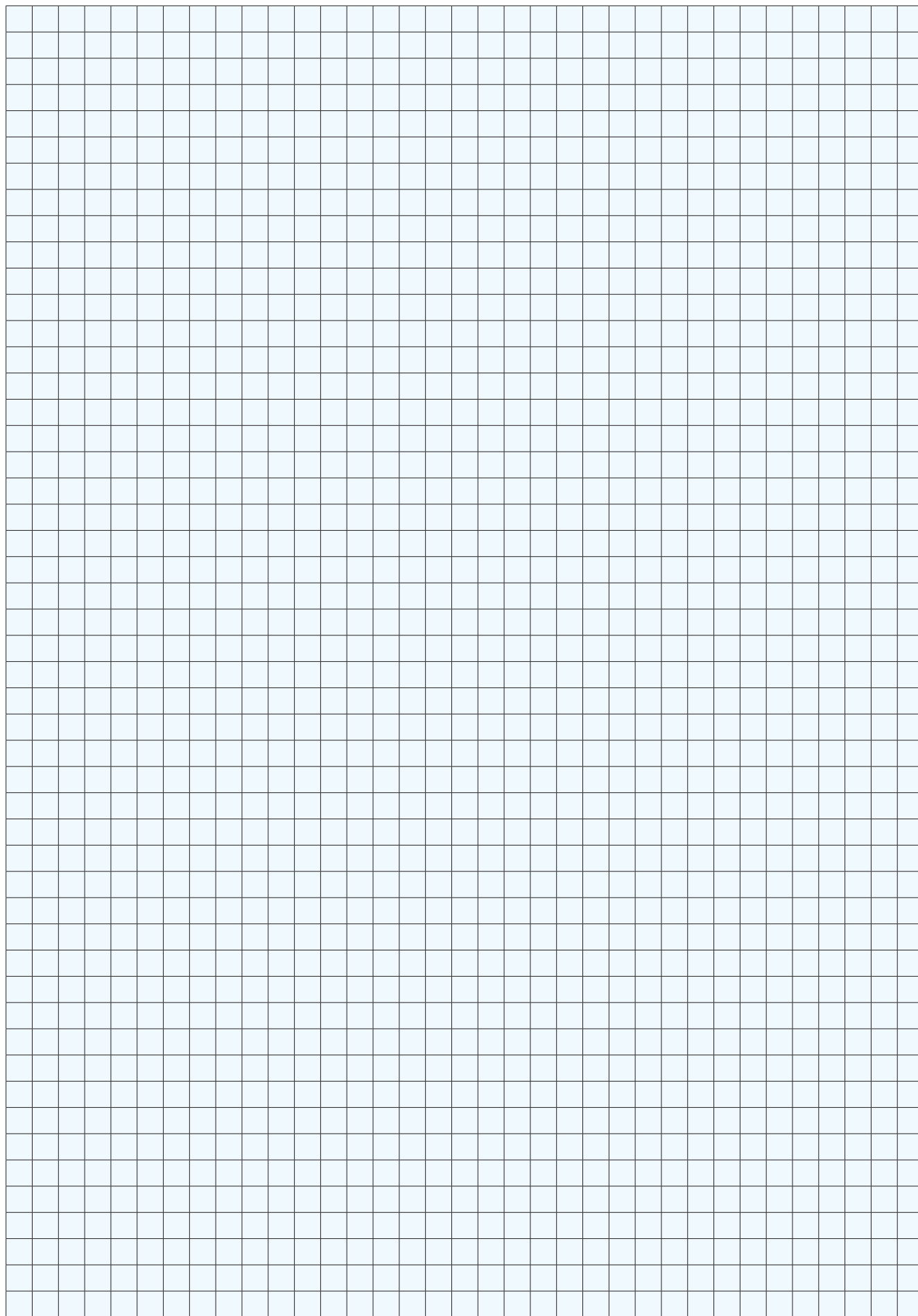
| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| T17      | 1/2" ISO228/1   | 123              | 53  | 48  | 0,191     |
| T27      | 3/4" ISO228/1   | 123              | 53  | 48  | 0,170     |
| T37      | 1" ISO228/1     | 146              | 63  | 57  | 0,264     |
| T47      | 1 1/4" ISO228/1 | 171              | 78  | 71  | 0,473     |
| T57      | 1 1/2" ISO228/1 | 171              | 78  | 71  | 0,410     |
| T67      | 2" ISO228/1     | 204              | 96  | 83  | 0,560     |
| T77      | 2 1/2" ISO228/1 | 315              | 148 | 125 | 2,457     |
| T87      | 3" ISO228/1     | 315              | 148 | 125 | 1,948     |
| T107     | 4" ISO228/1     | 315              | 166 | 148 | 2,725     |



### PULLING BOXES SELECTION CHART

| Box type | Thread          | Dimensions in mm |     |     | Weight Kg |
|----------|-----------------|------------------|-----|-----|-----------|
|          |                 | Y                | L   | H   |           |
| LU17     | 1/2" ISO228/1   | 130              | 64  | 44  | 0,185     |
| LU27     | 3/4" ISO228/1   | 130              | 64  | 44  | 0,167     |
| LU37     | 1" ISO228/1     | 148              | 73  | 50  | 0,217     |
| LU47     | 1 1/4" ISO228/1 | 182              | 103 | 71  | 0,523     |
| LU57     | 1 1/2" ISO228/1 | 182              | 103 | 71  | 0,456     |
| LU67     | 2" ISO228/1     | 211              | 118 | 83  | 0,639     |
| LU77     | 2 1/2" ISO228/1 | 310              | 156 | 115 | 2,498     |
| LU87     | 3" ISO228/1     | 310              | 156 | 115 | 1,961     |





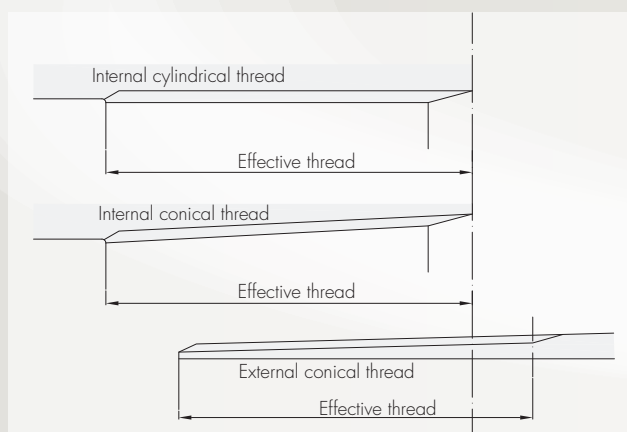
# Appendix

**TABLE OF THREAD CORRELATION**

| Hub size    | "M" and "F" thread hub diameter |                          |                        |             |             |            |
|-------------|---------------------------------|--------------------------|------------------------|-------------|-------------|------------|
|             | GAS UNI<br>ISO 7/1              | Conical<br>equivalent    | Cylindrical equivalent |             |             |            |
|             |                                 | NPT ANSI<br>ASME B1.20.1 | GAS UNI ISO<br>228/1   | NPSM        | PG DIN 4030 | ISO METRIC |
| 1/4"        | 1/4"                            | 1/4"                     | 1/4"                   | 1/4"        | PG9         | M12x1,5    |
| <b>Code</b> | <b>02</b>                       | <b>02N</b>               | <b>02C</b>             | <b>02NC</b> | <b>2P</b>   | <b>02I</b> |
| 3/8"        | 3/8"                            | 3/8"                     | 3/8"                   | 3/8"        | PG11        | M16x1,5    |
| <b>Code</b> | <b>01</b>                       | <b>01N</b>               | <b>01C</b>             | <b>01NC</b> | <b>3P</b>   | <b>01I</b> |
| 1/2"        | 1/2"                            | 1/2"                     | 1/2"                   | 1/2"        | PG13,5      | M20x1,5    |
| <b>Code</b> | <b>1</b>                        | <b>1N</b>                | <b>1C</b>              | <b>1NC</b>  | <b>4P</b>   | <b>1I</b>  |
| 3/4"        | 3/4"                            | 3/4"                     | 3/4"                   | 3/4"        | PG16        | M25x1,5    |
| <b>Code</b> | <b>2</b>                        | <b>2N</b>                | <b>2C</b>              | <b>2NC</b>  | <b>5P</b>   | <b>2I</b>  |
| 1"          | 1"                              | 1"                       | 1"                     | 1"          | PG21        | M32x1,5    |
| <b>Code</b> | <b>3</b>                        | <b>3N</b>                | <b>3C</b>              | <b>3NC</b>  | <b>6P</b>   | <b>3I</b>  |
| 1 1/4"      | 1 1/4"                          | 1 1/4"                   | 1 1/4"                 | 1 1/4"      | PG29        | M40x1,5    |
| <b>Code</b> | <b>4</b>                        | <b>4N</b>                | <b>4C</b>              | <b>4NC</b>  | <b>7P</b>   | <b>4I</b>  |
| 1 1/2"      | 1 1/2"                          | 1 1/2"                   | 1 1/2"                 | 1 1/2"      | PG36        | M50x1,5    |
| <b>Code</b> | <b>5</b>                        | <b>5N</b>                | <b>5C</b>              | <b>5NC</b>  | <b>8P</b>   | <b>5I</b>  |
| 2"          | 2"                              | 2"                       | 2"                     | 2"          | PG42        | M63x1,5    |
| <b>Code</b> | <b>6</b>                        | <b>6N</b>                | <b>6C</b>              | <b>6NC</b>  | <b>9P</b>   | <b>6I</b>  |
| 2 1/2"      | 2 1/2"                          | 2 1/2"                   | 2 1/2"                 | 2 1/2"      | PG48        | M75x1,5    |
| <b>Code</b> | <b>7</b>                        | <b>7N</b>                | <b>7C</b>              | <b>7NC</b>  | <b>10P</b>  | <b>7I</b>  |
| 3"          | 3"                              | 3"                       | 3"                     | 3"          | -           | M90x1,5    |
| <b>Code</b> | <b>8</b>                        | <b>8N</b>                | <b>8C</b>              | <b>8NC</b>  | -           | <b>8I</b>  |
| 4"          | 4"                              | 4"                       | 4"                     | 4"          | -           | M100x1,5   |
| <b>Code</b> | <b>10</b>                       | <b>10N</b>               | <b>10C</b>             | <b>10NC</b> | -           | <b>10I</b> |

## THREADS SIZE (in mm)

| GAS UNI ISO 7/1 Thread |        |        |        |        |        |        |        |        |        |        |         |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Size                   | 1/4"   | 3/8"   | 1/2"   | 3/4"   | 1"     | 1 1/4" | 1 1/2" | 2"     | 2 1/2" | 3"     | 4"      |
| Pitch                  | 1,337  | 1,337  | 1,814  | 1,814  | 2,309  | 2,309  | 2,309  | 2,309  | 2,309  | 2,309  | 2,309   |
| Ø external             | 13,157 | 16,662 | 20,955 | 26,441 | 33,249 | 41,910 | 47,803 | 59,614 | 75,184 | 87,884 | 113,030 |



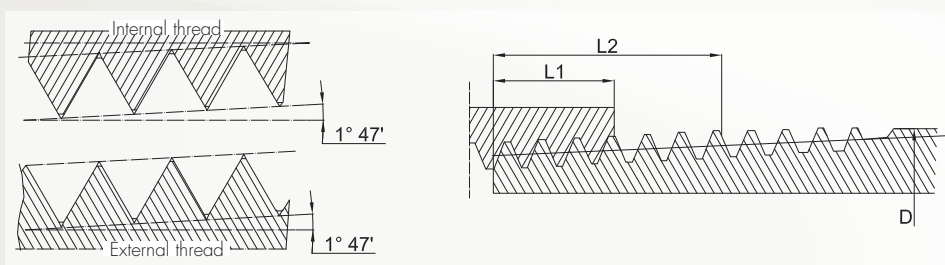
Example of indication in accordance with UNI ISO 7/1  
Example with thread from 1 1/4"

|                 |                |                         |
|-----------------|----------------|-------------------------|
| Internal thread | Conical        | UNI ISO 7/1 - Rc 1 1/4" |
|                 | Cylindrical    | UNI ISO 7/1 - Rp 1 1/4" |
| External thread | Always conical | UNI ISO 7/1 - R 1 1/4"  |

Key:

Rp UNI ISO 7/1 internal cylindrical thread  
Rc UNI ISO 7/1 internal conical thread  
R UNI ISO 7/1 external thread (always conical)

| NPT Thread - American standard ANSI B1.20.1 |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Size                                        | 1/4"   | 3/8"   | 1/2"   | 3/4"   | 1"     | 1 1/4" | 1 1/2" | 2"     | 2 1/2" | 3"     | 4"     |
| Pitch                                       | 1,411  | 1,411  | 1,814  | 1,814  | 2,208  | 2,208  | 2,208  | 2,208  | 3,175  | 3,175  | 3,175  |
| Threads per inch                            | 18     | 18     | 14     | 14     | 11,5   | 11,5   | 11,5   | 11,5   | 8      | 8      | 8      |
| External D (of pipe)                        | 13,716 | 17,145 | 21,336 | 26,670 | 33,401 | 42,164 | 48,260 | 60,325 | 73,025 | 88,90  | 114,30 |
| Effective thread L2                         | 10,206 | 10,358 | 13,556 | 13,861 | 17,343 | 17,953 | 18,377 | 19,215 | 28,892 | 30,480 | 33,020 |
| Handtight Engagement L1                     | 5,786  | 6,096  | 8,128  | 8,611  | 10,160 | 10,668 | 10,668 | 11,074 | 17,323 | 19,456 | 21,438 |



| GAS UNI ISO 228/1 Thread |       |       |       |       |       |        |        |       |        |       |        |
|--------------------------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|--------|
| Size                     | 1/4"  | 3/8"  | 1/2"  | 3/4"  | 1"    | 1 1/4" | 1 1/2" | 2"    | 2 1/2" | 3"    | 4"     |
| Pitch                    | 1,34  | 1,34  | 1,81  | 1,81  | 2,31  | 2,31   | 2,31   | 2,31  | 2,31   | 2,31  | 2,31   |
| Threads per inch         | 19    | 19    | 14    | 14    | 11    | 11     | 11     | 11    | 11     | 11    | 11     |
| Ø external               | 13,16 | 16,66 | 20,96 | 26,44 | 33,25 | 41,91  | 47,80  | 59,61 | 75,18  | 87,88 | 113,03 |

| NPSM Thread      |        |        |        |        |        |        |        |        |        |        |        |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Size             | 1/4"   | 3/8"   | 1/2"   | 3/4"   | 1"     | 1 1/4" | 1 1/2" | 2"     | 2 1/2" | 3"     | 4"     |
| Pitch            | 1,411  | 1,411  | 1,814  | 1,814  | 2,209  | 2,209  | 2,209  | 2,209  | 3,175  | 3,175  | 3,175  |
| Threads per inch | 18     | 18     | 14     | 14     | 11,5   | 11,5   | 11,5   | 11,5   | 8      | 8      | 8      |
| Ø external       | 13,716 | 17,145 | 21,336 | 26,670 | 33,401 | 42,164 | 48,260 | 60,325 | 73,025 | 88,900 | 114,30 |

| PG DIN 4030 Thread |       |       |        |       |       |       |       |       |       |
|--------------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|
| Size               | PG9   | PG11  | PG13,5 | PG16  | PG21  | PG29  | PG36  | PG42  | PG48  |
| Pitch              | 1,410 | 1,410 | 1,410  | 1,410 | 1,588 | 1,588 | 1,588 | 1,588 | 1,588 |
| Threads per inch   | 18    | 18    | 18     | 18    | 16    | 16    | 16    | 16    | 16    |
| Ø external         | 15,2  | 18,6  | 20,4   | 22,5  | 28,3  | 37,0  | 47,0  | 54,0  | 59,3  |

| ISO METRIC Thread |     |     |     |     |     |     |     |     |     |     |      |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Size              | M12 | M16 | M20 | M25 | M32 | M40 | M50 | M63 | M75 | M90 | M100 |
| Pitch             | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5  |
| Ø external        | 12  | 16  | 20  | 25  | 32  | 40  | 50  | 63  | 75  | 90  | 100  |



## Appendix

### EXPLOSION-PROOF OR WEATHER-PROOF EQUIPMENT

Very often, the explosion-proof equipment is confused with water-proof equipment, even in technical environments. This comes from the incorrect belief that it's possible to avoid an explosion preventing an explosive atmosphere to get in touch with the ignition source (spark, arc or hot spot).

This may be partially true if the hazardous substance is a powder suspended in the air, but it's a misconception if the explosive atmosphere is represented by a gas.

This belief may cause an improper use of an enclosure, incorrectly considered as water-proof, in unsuitable conditions to ensure their safety.

To analyse properly the problem, we need to step back and understand what are the principles on which is based the electrical explosion protection.

The principles are three:

- Containment
- Segregation
- Prevention

- **Containment**

'Ex d' method of protection is based on the principle that it's not possible to absolutely prevent a gas from entering into an enclosure.

This is the oldest method of protection, but still today the one that is most commonly used and, consequently, the 'Ex d' products are the most common on the market.

The majority of applications for conventional power plant can be achieved with this type of protection.

- **Segregation**

This principle prevents the explosive atmosphere from coming into contact with an ignition source. Different systems are used: the immersion of the equipment in oil, sand or resin. These systems, respectively 'Ex o', 'Ex q', 'Ex m', are primarily used to protect electrical components.

- **Prevention**

The protection is provided through the over sizing of the equipment that prevents the creation of sparks or electric arcs, even under fault conditions.

These systems ('Ex e', 'Ex i') are used respectively for junction and pulling systems or they are applicable in the case of intrinsically safe instrumentation or to other equipment that operate at very low powers. Nobody would ever think to build an electric panel of a refinery through an intrinsically safe system.

'Ex e' method of protection, the increased safety, is usable alone only for those equipment that, of course, cannot sparkle such as the junction boxes with terminals. But if the system contains equipment that can sparkle, they must be individually protected with another type of protection.

### HAZARDOUS AREAS CLASSIFICATION

Only highly qualified staff should identify and classify hazardous areas in a chemical or petrochemical plant, who decide where there is a permanently or occasionally explosive atmosphere in the plant.

The most hazardous areas are where combustible gas or dusts may be present during normal operation or due to a fault. The classification is based on what type of combustible gas or dust is present in a specific area.

Nevertheless, it is important to underline that there is no uniformity in the classification of hazardous area, so below we have listed European classification, which correspond with international IEC and American categories.

## GAS

|                                                                                                                                                                        |                            |                                                                                                                                                                                         |                          |                                                                                                                                                                                          |                             |                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br> | <b>Zone 0</b>              | Area in which an explosive atmosphere, consisting in a mixture of air and flammable substances in the shape of gas, vapor or mist, is present permanently or for long periods or often. | <b>Zone 1</b>            | Area in which during normal activities the formation of an explosive atmosphere consisting in a mixture of air and flammable substances in the shape of gas, vapor or mist, is possible. | <b>Zone 2</b>               | Area in which during normal activities the formation of an explosive atmosphere consisting in a mixture of air and flammable substances in the shape of gas, vapor or mist, is not possible, and in case it happens, it lasts very shortly. |
| <br> | <b>Class I, Division 1</b> |                                                                                                                                                                                         |                          |                                                                                                                                                                                          | <b>Class I, Division 2</b>  |                                                                                                                                                                                                                                             |
|                                                                                                                                                                        | <b>&gt; 1.000 h/year</b>   |                                                                                                                                                                                         | <b>10 ÷ 1.000 h/year</b> |                                                                                                                                                                                          | <b>Class 0,1 ÷ 10h/year</b> |                                                                                                                                                                                                                                             |

Tab. 1 Comparison between hazardous areas classification for presence of gas based on international standards (IEC Zone System) and according to North American standards

## DUSTS

|                                                                                                                                                                            |                             |                                                                                                                             |                          |                                                                                                                                                                 |                             |                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br> | <b>Zone 20</b>              | Area in which an explosive atmosphere is present permanently or for long periods or often, in the shape of clouds of dusts. | <b>Zone 21</b>           | Area in which occasionally during normal activities the formation of an explosive atmosphere in the shape of cloud of combustible dust in the air, is possible. | <b>Zone 22</b>              | Area in which during normal activities the formation of an explosive atmosphere in the shape of cloud of combustible dust is not possible, and in case it happens, it lasts very shortly. |
| <br> | <b>Class II, Division 1</b> |                                                                                                                             |                          |                                                                                                                                                                 | <b>Class II, Division 2</b> |                                                                                                                                                                                           |
|                                                                                                                                                                            | <b>&gt; 1.000 h/year</b>    |                                                                                                                             | <b>10 ÷ 1.000 h/year</b> |                                                                                                                                                                 | <b>Class 0,1 ÷ 10h/year</b> |                                                                                                                                                                                           |

Tab. 2 Comparison between hazardous areas classification for presence of dusts based on international standards (IEC Zone System) and according to North American standards

## Groups and categories, EPL (Equipment Protection Level)

The 2014/34/UE Directive foresees the following division:

- Group I: products addressed to mines and in their surface systems, where firedamp gas can be present.
- Group II: products addressed to surface sites with the presence of explosive atmosphere.

The products are then divided inside the Groups as follows:

Group I

- category M1: equipment which guarantees a very high protection level; it has to be kept powered in presence of explosive atmosphere.
- category M2: equipment which guarantees a very high protection level; it must be possible to cut the power off in presence of explosive atmosphere.

# Appendix

## Group II

- **category 1:** equipment which guarantees a very high protection level; it is intended to be used in areas in which there is, always or for long periods, the presence of explosive atmosphere.
- **category 2:** equipment which guarantees a very high protection level; it is intended to be used in areas in which the development of explosive atmosphere is most likely.
- **category 3:** equipment which guarantees a normal protection level; it is intended to be used in areas in which the development of explosive atmosphere is slightly possible.

The numbers of the categories of group II (1, 2, 3) are followed by a capital letter:

- G, for gases;
- D, for combustible dusts.

For example: II 2G.

On the basis of group II definitions and by comparing them to those provided by the 99/92/CE "ATEX 137" Directive, a two-way link is established and highlighted in Table 9, between equipment category and installation area.

What we have described above is valid for the EU.

Outside EU, until 2007, the equipment was marked only with the protection method.

Therefore, inspired by the European system, the EPL Equipment Protection Level (Table 10) has been created, replacing the letters "a", "b", "c" to the numbers "1", "2" and "3".

Currently, at a technical standard level, the group III related only to dusts, has been divided in three sub-categories, similarly to what it has already done for gas.

The subgroups are:

- IIIA: flammable particles; solid particles, fibers included, with nominal sizes  $> 500 \mu\text{m}$ ;
- IIIB: non-conductive dust; finely divided solid particles, with nominal sizes  $\leq 500 \mu\text{m}$ , with electrical resistivity  $> 10^3 \Omega\text{m}$ ;
- IIIC: conductive dust; finely divided solid particles, with nominal sizes  $\leq 500 \mu\text{m}$ , with electrical resistivity  $\leq 10^3 \Omega\text{m}$ .

As described above, the "Ex d" protection method is highly probably the oldest protection method and its applicability to multiple types of industrial products has allowed its great spread.

Comparing a normal equipment to an "Ex d" one, the first evident characteristic is the strength of the latter, since it has to resist mechanically, without being deformed plastically, to the internal pressure generated by the explosion. The pressure ranges normally from 5 to 12 bar. Therefore, in this method, which is the only one based on the explosion containment (held at pressure), the protection is given by the junction box.

The sparking electrical components are enclosed inside the junction box, that allows the explosive atmosphere to enter but, in case of contact between this and the ignition source (arc or spark) the consequent explosion remains confined inside the junction box.

Through the flame-paths, the flame cools down and the combustion product is not able to trigger the mixture present outside (held at flame). When choosing the "Ex d" protection method, the following indications have to be considered:

- do not make further holes in the junction boxes than those allowed in the certificate;
- if the cable entry has a parallel thread, the coupling must have at least 5 full threads;
- if the use of gasket is foreseen, the number of threads must be still sufficient after the insertion of the gasket;
- if the thread is conical, the connection must be fully tightened;
- if an adapter is required, it must comply with the "Ex d" (IEC 60079-1) protection method;
- the unused cable entries must be sealed with elements that comply with "Ex d" protection method (IEC 60079-1).

|   | 1       | 2       | 3       |
|---|---------|---------|---------|
| G | Zone 0  | Zone 1  | Zone 2  |
| D | Zone 20 | Zone 21 | Zone 22 |

Tab.3 Correlation between equipment category and installation area for Group II

|  | M1 | M2 | 1G | 2G | 3G |
|--|----|----|----|----|----|
|  |    |    | 1D | 2D | 3D |
|  | Ma | Mb | Ga | Gb | Gc |
|  |    |    | Da | Db | Dc |

Tab.4 Correlation between equipment category and the protection level

## TEMPERATURE CLASSES

The temperature class is one of the parameters to consider in order to choose electrical equipment to be installed in places with danger of explosion.

Very often this parameter is ignored or underestimated while it's one of the main features of the safety equipment.

An electrical device, addressed to classified areas where there might be danger of explosion due to the presence of gases, vapours, mists or dusts, should be chosen considering that, its maximum surface temperature, must not reach, even in case of failure, the ignition temperature of the hazardous substances present in the atmosphere.

### • Temperature classes for Gas

A standard method of classification defines the temperature classes of a gas. This standard, defined by IEC, but also acknowledged by CENELEC, is held in IEC 60079-4 Standard "Method of testing ignition temperatures". According to this method, all gases and vapours are divided into temperature classes. According to these classes, the equipment maximum surface temperature reached is always lower than the ignition temperature.

The Standard defines in detail the maximum values and the necessary safety net for these temperatures.

| Temperature class | Gas group ignition temperature | Equipment max. surface temperature |
|-------------------|--------------------------------|------------------------------------|
| T1                | > 450 °C                       | 400 °C                             |
| T2                | > 300 ... ≤ 450 °C             | 300 °C                             |
| T3                | > 200 ... ≤ 300 °C             | 200 °C                             |
| T4                | > 135 ... ≤ 200 °C             | 135 °C                             |
| T5                | > 100 ... ≤ 135 °C             | 100 °C                             |
| T6                | > 85 ... ≤ 100 °C              | 85 °C                              |

Tab.5 Temperature classes

# Appendix

## IP PROTECTION RATINGS (IEC 529, EN 60529-4, CEI 70-1 ed. 11/92)

The table gives protection ratings in accordance with standard CEI 70-1 ed. 11/92. Ratings are identified by the acronym IP followed by 2 digits, to which 2 letters may be added, indicating the degree to which persons are protected against access or other properties. There is some variation in the application of ratings 7 and 8 relating to the ingress of liquids, with these ratings not always meaning that the item is suitable for lower levels (whereas IP rating x4 also covers the lower levels).

## IMPACT PROTECTION RATINGS

This classification shows the acceptable level of strength, when evaluating a product's safety, and is mainly employed in relation to testing on electromechanical products.

### 1st Digit PROTECTION AGAINST SOLID BODIES

**0** No protection 

**1** Protected against solid bodies greater than 50 [mm] 

**2** Protected against solid bodies greater than 12 [mm] 

**3** Protected against solid bodies greater than 2,5 [mm] 

**4** Protected against solid bodies greater than 1 [mm] 

**5** Protected against dust 

**6** Totally protected against dust 

### ADDITIONAL LETTER\*\*

**A** Protected against access with the back of the hand

**B** Protected against access with a finger

**C** Protected against access with a tool

**D** Protected against access with a wire

### OPTIONAL LETTER

**H** High-voltage device

**M** Tested against the harmful effects of water ingress with the equipment running

**S** Tested against the harmful effects of water ingress with the equipment not running

**W** Suitable for use in specified atmospheric conditions

### 2nd Digit PROTECTION AGAINST LIQUIDS

**0** No protection 

**1** Protected against vertically falling water drops 

**2** Protected against falling water drops with maximum inclination 15° 

**3** Protected against rain 

**4** Protected against sprinkles 

**5** Protected against water splashes from every directions 

**6** Protected against strong water splashes (waves) 

**7** Protected against temporal immersion 

**8** Protected against continuous immersion 

### PROTECTION AGAINST EXTERNAL MECHANICAL IMPACTS \*

**IK00** No protection 

**IK01** 0,25 Kg 5,6 cm  
Protected against impact energy 0,15J 

**IK03** 0,25 Kg 14 cm  
Protected against impact energy 0,35J 

**IK05** 0,25 Kg 28 cm  
Protected against impact energy 0,7J 

**IK06** 0,25 Kg 40 cm  
Protected against impact energy 1J 

**IK07** 0,5 Kg 40 cm  
Protected against impact energy 2J 

**IK08** 1,7 Kg 30 cm  
Protected against impact energy 5J 

**IK09** 5 Kg 20 cm  
Protected against impact energy 10J 

**IK10** 5 Kg 40 cm  
Protected against impact energy 20J 

\* As per IEC EN 50102: 1996-05; IEC EN 60078-2-7-5: 1998-09.

\*\* Optional letter describing protection against access by persons. Only used if protection against access to hazardous parts is greater than that indicated by the first digit, or if only protection against access to hazardous parts is given and an X is used in place of the first digit.



## MATERIAL USED

We use many different materials to produce equipment and components designed for areas with a potentially explosive atmosphere. Despite the careful choice of these materials to be transformed into finished products, we have to take into account the limitations imposed by nature.

All materials, including the ones we use, have three enemies:

- environment;
- temperature;
- time.

Temperature and time are familiar factors, while the environment, where our products are used, is not easy to control. We are not talking about familiar potential hazards caused by an explosive atmosphere (which can be controlled by laboratory tests and guaranteed by certification), but rather deterioration caused by highly aggressive environments like chemical and petrochemical plants.

Corrosion resistance is a relative factor, as it depends on the actual environmental conditions that significantly influence the nature of the attack. Shown below are described the materials mainly used by ELFIT for the production of cable glands and electrical fittings.

### NICKEL-PLATED BRASS

We use this material (leaded brass with Cu 58%, Zn 40% and Pb 2%) exclusively for the construction of Ex cable entry (Cable glands). Besides the traditional copper (Cu) and zinc (Zn) alloy, our material has also a low lead (Pb) percentage on the external part of the bar, which simplifies the turning since it does not create a solution with the alloy Cu-Zn, and since it has a lower solidification temperature than the other two elements. Subsequently, it undergoes a surface treatment of electrolytic nickel plating, to provide the product, more than with an aesthetic aspect, with a higher corrosion-protection level by external agents.

### ALUMINIUM ALLOY

Aluminium alloy is one of the world's most widely used materials in the production of explosion-proof enclosures.

It is highly corrosion-resistant and, therefore, universally known as the most effective and versatile material for most applications.

It is much lighter than cast iron, so it makes the equipment much easier to install and maintain; moreover, it is highly corrosion-resistant and does not require surface protection, unlike cast iron which has to be galvanized or coated.

Aluminium is also much cheaper than stainless steel.

Aluminium and its alloys have generally excellent corrosion resistance in various and different environments.

|                    | Fe       | Si          | Mn       | Ni       | Ti       | Cu       | Pb       | Mg         | Zn       | Sn       | Other                 |
|--------------------|----------|-------------|----------|----------|----------|----------|----------|------------|----------|----------|-----------------------|
| <b>AlSi10Mg(a)</b> | max 0,55 | 9 ÷ 11      | max 0,45 | max 0,05 | max 0,15 | max 0,05 | max 0,05 | 0,2 ÷ 0,45 | max 0,1  | max 0,05 | each 0,05; total 0,15 |
| <b>AlSi12(b)</b>   | max 0,65 | 10,5 ÷ 13,5 | max 0,55 | max 0,1  | max 0,2  | max 0,15 | max 0,1  | max 0,1    | max 0,15 | //       | each 0,05; total 0,15 |

Tab. 6 Chemical composition of aluminum-silicon alloys

Despite of it's a very chemically active metal, its behavior is stabilized by the formation of a protective oxide film on its surface. This film, which in case of breakage is able to reproduce itself immediately, has a thickness, if formed in the air, ranging from 50 to 100 Å.

## Appendix

### STAINLESS STEEL

The stainless steels are iron-, coal- and chrome-based alloys that combine the mechanical properties typical of carbon steels with the corrosion resistance properties, due to a thin and transparent surface layer called "passivation layer". It is formed when the materials of the alloy come into contact with the air or water oxygen.

This phenomenon in stainless steel, in ideal conditions, occurs naturally and immediately.

This protection can also be artificially and optimally induced carrying out a particular chemical treatment by immersing the products in sequence, first in pickling acid and, subsequently, in a passivating acid. This treatment enhances very significantly the corrosion resistance, making this invisible layer, which has the thickness of a few atoms (about 0.002 microns) and which reform spontaneously, an excellent barrier to oxidation and corrosion. Essential condition for the formation of a protective layer is the presence of a sufficient amount of chromium.

The stainless steels are traditionally divided into three big families, depending on their metallographic structure:

- martensitic;
- ferritic;
- austenitic.

Austenitic steels, which are usually used for the construction of electrical equipment, suitable for environments with risk of explosion and in the presence of aggressive substances, are mainly:

- AISI 304 It's a founder of austenitic stainless steels. It has good corrosion resistance and good mechanical characteristics. Used in the pharmaceutical and food industries.
- AISI 304L It differs from AISI 304 for the low carbon content ( $C \leq 0,03\%$ ), which considerably increases the resistance to corrosion. Because of the low carbon content of the mechanical characteristics, they are slightly inferior to AISI 304 ones.
- AISI 316 Compared to AISI 304 contains molybdenum with percentage of about 2,5% and a higher percentage of nickel. These elements give to the steel superior mechanical characteristics and a higher resistance to corrosion at high temperatures. Used in the processes of machining and of installations in contact with seawater.
- AISI 316L It differs from AISI 316 for the low carbon content ( $C \leq 0,03\%$ ). It has a better corrosion resistance maintaining good mechanical characteristics. Used for the construction of electrical equipment and for the construction of distribution panels in environments with explosion risk and the presence of gases or dusts, corrosive agents and high temperatures.

### GALVANIZED STEEL

We use even this type of material, an iron (Fe) carbon (C) alloy, as well as nickel-plated brass, for connection elements of Ex entries. It is a stainless steel, sweet, for general use, with small amounts of lead, bismuth, tellurium or sulfur.

To protect the component from corrosion, at the end of machining it undergoes a galvanizing process.

### SILICONE

The silicone, as well as the neoprene, is one of main materials we use for our seals. Silicones or polysiloxanes (methylvinyl polysiloxane) are inorganic polymers based on a silicon-oxygen chain and organic functional groups (R) linked to the silicon atoms. Typically, the silicone rubbers (VMQ) are remarkably resistant to temperature, chemical attack and oxidation, and are excellent electrical insulators. They are excellent non-stick, flexible, resistant to aging and to high temperatures.





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