



# Junction Boxes

2023

Explosion-protected electrical equipment



To be sure to be safe.





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Since 1968 Cortem S.p.A. has been designing and manufacturing protected electrical equipment intended for installation in areas at risk of explosion and fire. Thanks to constant technological innovation and continuous improvement, today it is a leading company in the industry, able to offer a wide range of solutions suitable for on-shore and off-shore applications.

The special feature of Cortem Group - which includes the Cortem, Elfit e Fondisonzo brands - consists in its long-standing experience accrued in the sector, resulting in the ability to not merely supply Ex products, but custom-made solutions as well. All of our products are designed and manufactured in-house with various protection methods such as 'Ex d' explosion proof, 'Ex e' enhanced safety, 'Ex de' mixed, 'Ex n' no sparking, using aluminium alloy, stainless steel and top quality plastics materials. The aluminium alloy used by Cortem has exceeded the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests). All our aluminium alloy products are protected by RAL 7035 polyester coating. This treatment is a Cortem Group exclusive and ensures long-term protection. Cortem Group's production may be summarised as follows:

- lighting fixtures, obstruction signalling lighting fixtures, portable lamps and projectors.
- Enclosures for shunting and pulling, push button panels.
- Signalling and control equipment, sockets and plugs.
- Cable glands and fittings.
- Special designs: electrical panels and control batteries according to customer's specifications.

90% of our production is intended for the Oil & Gas sector, both off-shore and on-shore, but also chemical and pharmaceutical industries, as well as all those process areas characterised by the presence of explosive atmospheres such as grain silos, wood mills and paper mills. Every year we invest part of our resources in developing innovative products to address the market's needs. That is why our R&D department devises the best solutions considering regulatory, installation, safety and market price aspects. With over 30 agencies, 90 distributors, 7 partners and 3 de-centralised production facilities, Cortem assures a qualified local presence in the world. Cortem deems 'de-localising' does not mean transferring plants, means, know-how and resources to low-cost Countries, but rather replicating a winning model of industrial organisation where environmental





safety, product quality, compliance with standards, technical support and market after-sale support are the foundations of our Corporate Mission. The Pay Off "to be sure to be safe" represents the pride and passion for what we design and produce.

Il Pay Off "to be sure to be safe" rappresenta l'orgoglio e la passione verso ciò che progettiamo e produciamo.

#### **QUALITY AND ENVIRONMENTAL MANAGEMENT SYSTEM**

The unquestionable quality of our explosion proof products and automated production systems is one of the principles that lead the activity of Cortem Group in order to ensure both the safety of persons and of the environment.

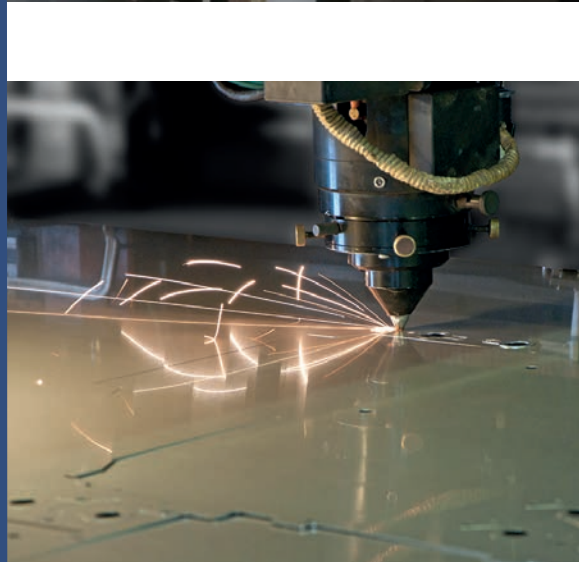
The production process, entirely managed in-house, is controlled by a Certified Quality System according to the requirements of UNI EN 9001:2008 Rule, providing Quality Plans expressly set for the design, production, control and service of such equipment, constantly checked by a well defined body. The production facilities and production procedures also comply with the standards of international Rule UNI EN ISO 14001:2004 on the Environmental Management System.

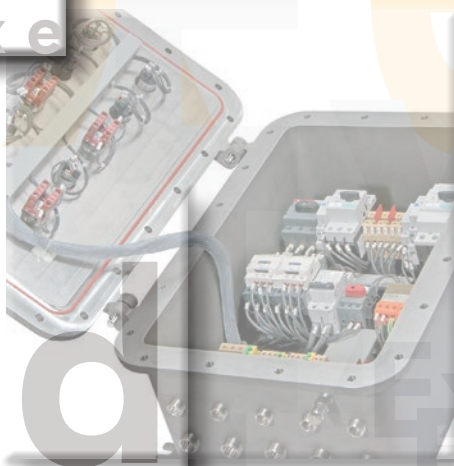
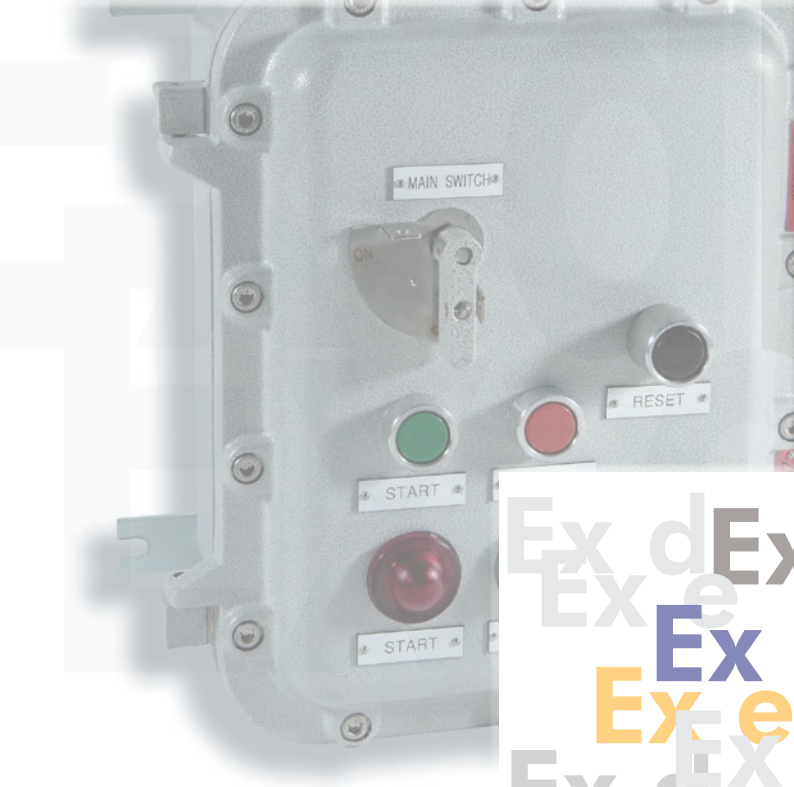
#### **CERTIFICATIONS**

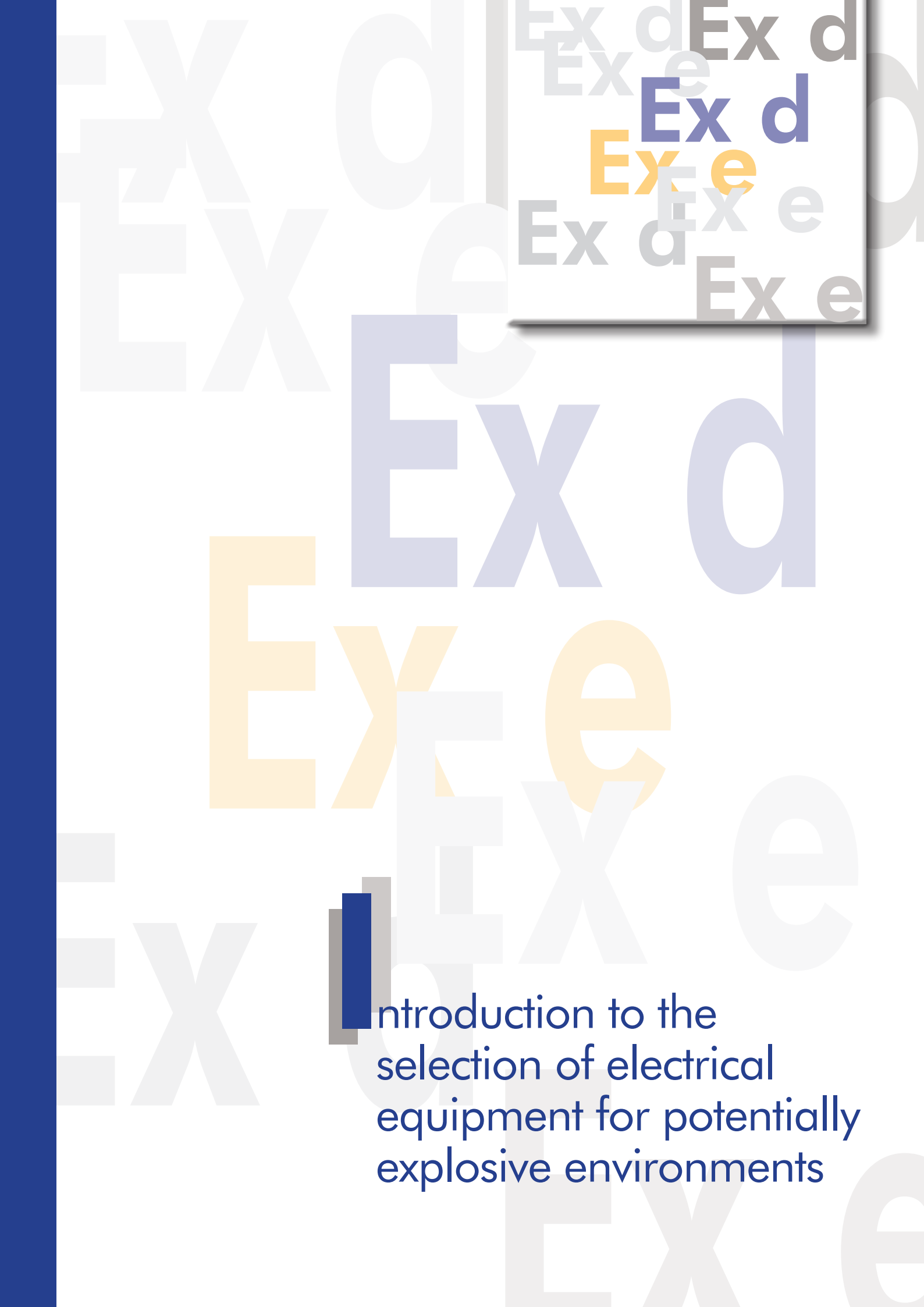
All our products are certified according to European ATEX standards, to international IEC Ex rules and the regulatory process for compliance with the provisions of the Customs Union formed by Belarus, Kazakhstan and the Russian Federation (GOST TR CU) is ongoing. The respect of these strict construction standards guarantee the safety of those who work daily on plants and the environmental protection of the workplace.

#### **THE "NO FAKE" PROJECT**

CORTEM Group ensures the quality and authenticity of its products and fight the distribution of imitations and fakes on the international market through the "No fake" project. The authenticity of the products is guaranteed by the application of an adhesive label that, by 2015, is square in shape, with 3D matrix, alphanumeric code and reading QR code for use with your smart phone. The correctness of the alphanumeric code can be verified on Cortem web-site [www.cortemgroup.com](http://www.cortemgroup.com).







Introduction to the  
selection of electrical  
equipment for potentially  
explosive environments

# 1. The classification of areas at risk of explosion (EN 60079-10)

In industrial plants such as oil, chemical, petrochemical, and generally in places with potentially explosive atmosphere and during storage and processing, it is possible that flammable substances such as gas, gaseous liquids and explosive dusts, are emitted in the atmosphere, generating the "bubbles" that, depending on their specific weight, may deposit on the ground or remain volatile rising upwards, with a concentration in risk of explosion if ignited by an external ignition source such as simple ambient temperature or overheating of the equipment if not properly sized. It is therefore essential to install in such environments suitable metal or non-metal powerboard-fitted equipment, in order to prevent itself, if not properly sized, from being an additional source of ignition for a likely explosion. Think of being in a potentially explosive plant in which you should install suitable devices able to operate even in the presence of gas and/or dust posing the risk of explosion and try to consider what would be the appropriate equipment for the purpose:

1. Understand how to be present and able to fully operate in managing that plant and/or part of it.
2. Optimize the human resources for such a management task.
3. Assess the impact on the maintenance of the equipment that will be installed to operate in the plant.

The above analysis leads us to the logic conclusion that, in order to operate safely, it is essential that the equipment and materials to be installed must be manufactured and tested to withstand, without being subject to permanent



# 1. The classification of areas at risk of explosion (EN 60079-10)

Ex d  
Ex e  
Ex d  
Ex e  
Ex d  
Ex e

Ex d  
Ex e  
Ex d  
Ex e  
Ex d  
Ex e

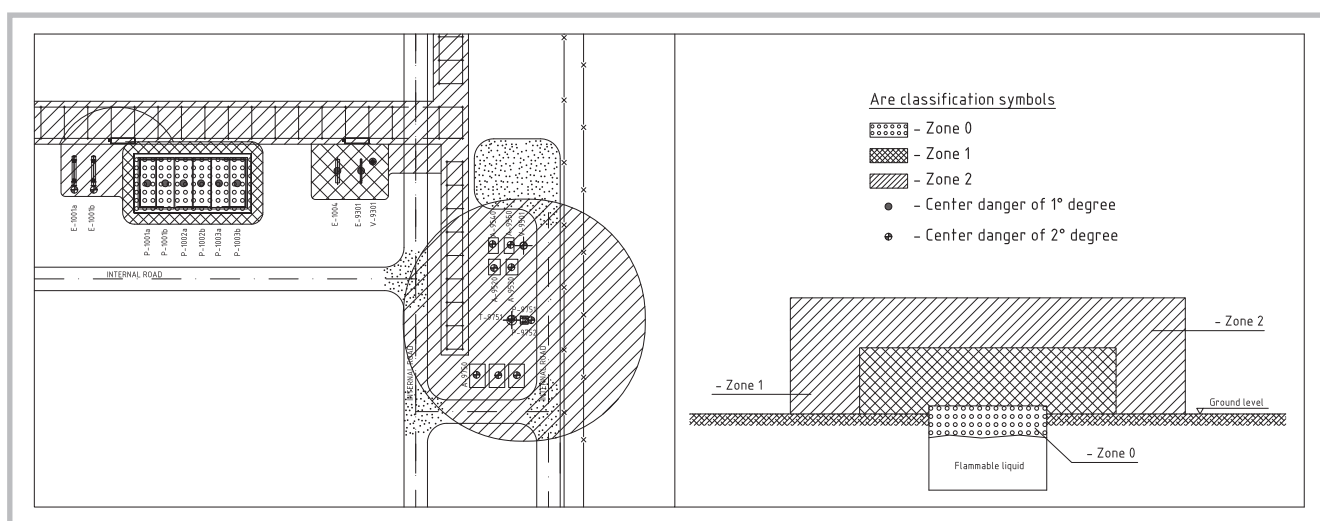


Fig 1. Floor plan example with hazardous zones due to the presence of 1st and 2nd degree hazardous sources.

deformation, electro-mechanical stresses arising not only from explosions, but also from the effects caused by possible short circuits of electrical devices they are fitted with.

Cortem Group, consistently aligned to reference standards, both in the field of explosion-proof products, both in the industrial sector, pays the utmost attention and care in the design and manufacture of its electrical equipment.

## 2. The construction specifications

All equipment suitable for the use above mentioned, should be subject to specific regulations within the EU, such as EN 60079-0, EN 60079-1, EN 60079-7 etc., internationally the IEC 60079-0, IEC 60079-1, IEC 60079-7 and other specific regulations for other Countries such as Russia (GOST TR CU), Brazil (INMETRO), South Korea (COSA) etc...

The construction specifications, possible with our equipment and that are closest to the provisions of the industrial standard EN 61439, are shown below as an example of assembly.

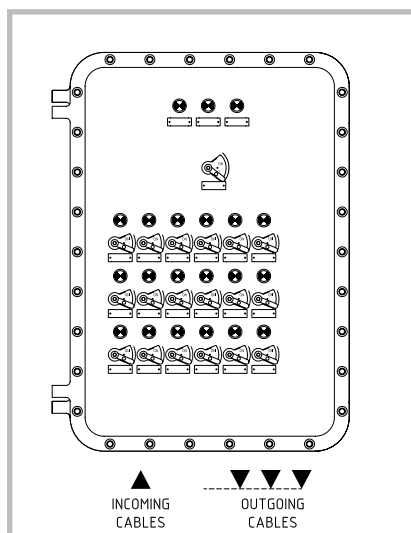
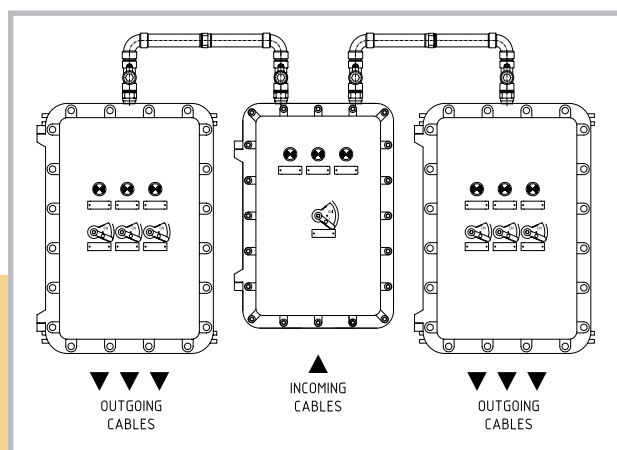


Fig 2. Construction specification comparable to Assembly 1 EN 2-61439 corresponding to the direct input type (Ex d) referred to as "Single device enclosing all features (no internal segregation)"

Fig 3. Construction specification comparable to Assembly 4 EN 61439-2, corresponding to the direct input type (Ex d) referred to as "Terminals installed in the specific board, as connected functional unit"





## 2. The construction specifications

Ex d  
Ex e  
Ex c  
Ex b  
Ex a

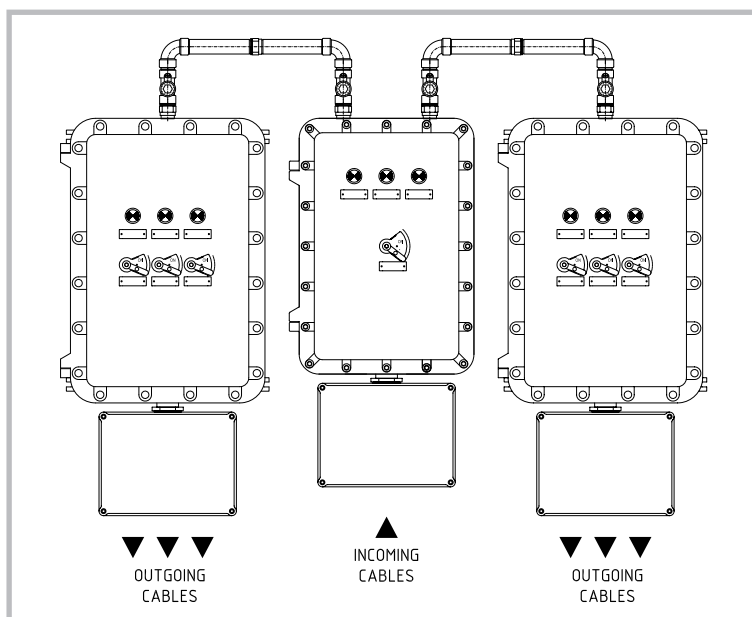
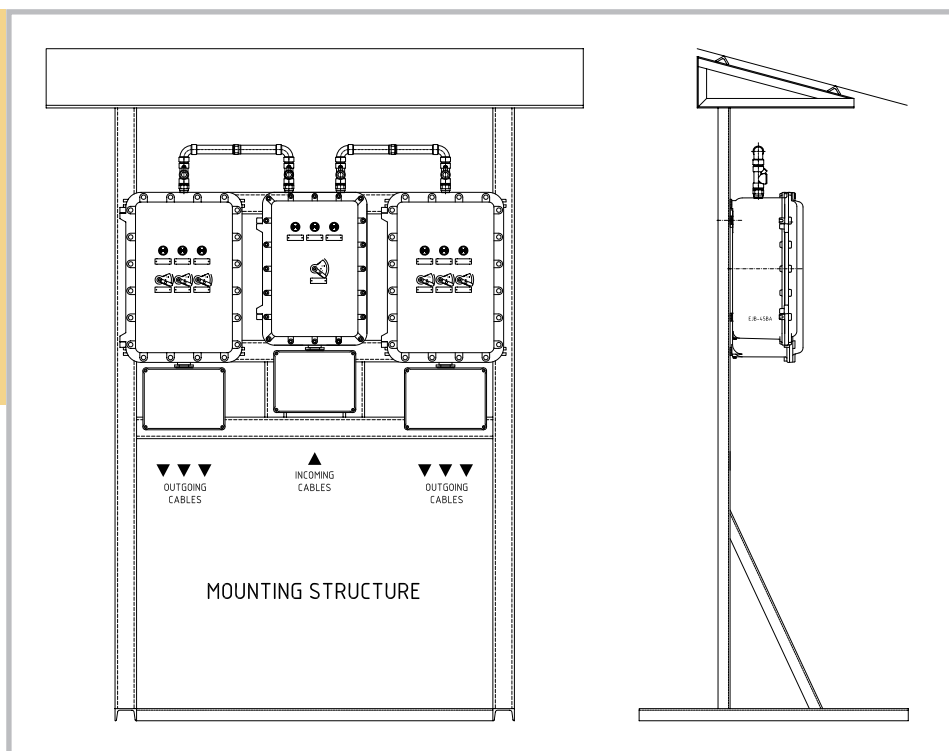


Fig 4. Construction specification comparable to Assembly 4b EN 61439-2, corresponding to the indirect input type (Ex de) referred to as "Terminals not installed in the specific board, as connected functional unit"

Fig 5. Construction specification comparable to Assembly 4b EN 61439-2, with mounting structure, corresponding to the indirect input type (Ex de) referred to as "Terminals not installed in the specific board, as connected functional unit, with added mounting structure"



# 3. How to choose the correct electrical equipment

Great now the characteristics our enclosures must have to be suitable to be installed in potentially explosive environments, thereby complying with the standards EN 60079-... types are divided into the following construction design:

- explosion proof mounting IM2 Ex d I Mb (only for stainless steel junction boxes), according to standard EN 60079-1;
- explosion proof mounting II2G Ex d MB T..Gb or Ex d IIB + H<sub>2</sub> T.. Gb, according to standard EN 60079-1;
- explosion proof mounting II2G Ex de MB T ... Gb or Ex de MB + H<sub>2</sub> T.. Gb according to the norm EN 60079-1 and EN 60079-7;
- explosion proof execution II 2GD Ex d MB T ... Gb or Ex d MB + H<sub>2</sub> T.. Gb, according to standard EN 60079-1;
- explosion proof mounting II2GD Ex de MB T.. Gb or Ex de MB + H<sub>2</sub> T.. Gb according to the norm EN 60079-1 and EN 60079-7;
- explosion proof mounting II2GD Ex d MC T.. Gb, according to standard EN 60079-1;
- explosion proof mounting II2GD Ex de MC T.. Gb, according to standard EN 60079-1 and EN 60079-7;
- explosion proof mounting Ex tb IIIC Db, according with standard EN 60079-13-10; EN 60079-31;
- increased safety mounting Ex and II, according with standard EN 60079-7.

To chose the equipment (excluding the cable glands and conduits), you must have the following information:

- a Classification of hazardous environments, including requirements for equipment protection level. *This classification is the responsibility of the plant designer.*
- b Classification depending on the group or subgroup of electrical device due

# 3.....

## How to choose the correct electrical equipment



to the presence of gas, vapours or dust. *This classification is the responsibility of the plant designer.*

- c Temperature class or ignition temperature of gas or vapour concerned. *This assessment is the responsibility of the plant designer.*
- d The minimum ignition temperature of combustible dust cloud, minimum ignition temperature of combustible dust and the minimum ignition energy of combustible dust cloud. *This assessment is the responsibility of the plant designer.*
- e External influences and workplace ambient temperature. *This assessment is the responsibility of the plant designer.*

The choice, considering the equipment protection levels (EPL) and the zones, when the classification drawings only include the zones, must be made as indicated in Table 1 below (entirely derived from standard EN 60079-14).

Our equipment, suitable for Zones 1-2 and 21-22, can be used even in places that require an EPL "Gb" OR "Db", depending on the presence of gas or dust. The choice of the temperature class depends on the ignition temperature of gas or vapours in which the equipment must be installed. The choice must be made according to what is shown in Table 2 derived from standard EN 60079-14. Temperature limitations, due to the presence of dust clouds, can cause two events: the reduction of the minimum ignition temperature when the thickness of the dust layer or of the thermal insulation increase, resulting in overheating of the enclosure and thus a lower heat inside/outside efficiency transfer. Therefore, it is crucial that possible thicknesses are highlighted, in order to make a correct sizing.

**Table 1** Relationship between equipment protection levels (EPL) and Zones

Zone	Equipment protection level (EPL)
0	"Ga"
1	"Ga" or "Gb"
2	"Ga" or "Gb" or "Gc"
20	"Da"
21	"Da" or "Db"
22	"Da" or "Db" or "Dc"

**Table 2** Relationship between temperature class and ignition temperature (Table 4, standard EN 60079-14)

Required temperature class of the classification of places	Ignition temperature of gases or vapours expressed in °C	Acceptable temperature classes for equipment
T1	> 450	from T1 to T6
T2	> 300	from T2 to T6
T3	> 200	from T3 to T6
T4	> 135	from T4 to T6
T5	> 100	from T5 to T6
T6	> 85	T6

## 4.1

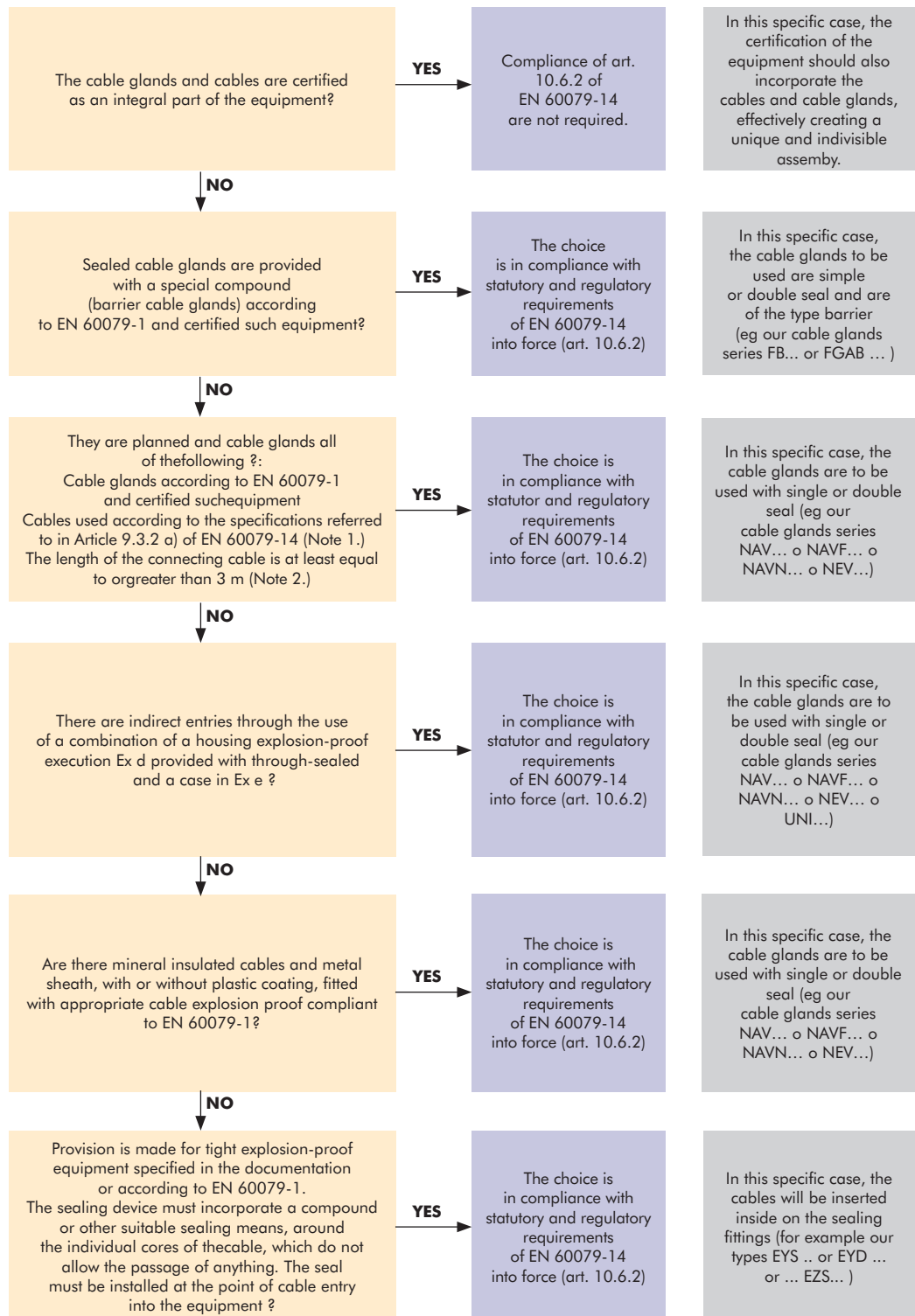
## The choice of cables input / output systems from explosion proof enclosures

The choice of cables input / output systems from explosion proof enclosures must comply with the requirements of EN 60079-14 standard in particular:

- 4.1 Cables with sheaths with low tensile strength, known as "easy tear" cables, must not be used in areas with risk of explosion if not installed in conduit. Thermoplastic wire of the type in polyvinyl chloride (PVC) with a tensile strength of 2.5 N / mm<sup>2</sup>, polyethylene with a tensile strength of 15.0 N/mm<sup>2</sup> and cables elastomeric polychloroprene or chlorosulfonated or polyethylene or similar polymers with a tensile strength of 15.0 N/mm<sup>2</sup>, cables are commonly classified as "easy tear".
- 4.2 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.
- 4.3 When there is the possibility of gas or vapor transfer through the interstices between the individual cores (conductor) of a cable, to a non-hazardous zone or to areas with different explosion hazard, the construction and the use of the cable must be designed in order to avoid the flame propagation (See Note 2 in Figure 6).
- 4.4 When it's not applicable as described in paragraph 4.3 above, must be used mineral insulated cables, with sealing, for example with barrier cable glands of our FGAB ... series.
- 4.5 The cable glands must be properly selected depending on the specific cable diameter. It's not allowed the use of sealing tapes, thermo-tightening or other materials such as fillers for the achievement of the seal diameter on the cable gland.
- 4.6 The choice of the cable glands must comply with the provisions of Section 10.6.2 of EN 60079-14 standard that are summarized in the Figure 6.

# 4. The choice of cables input / output systems from explosion proof enclosures

**Fig. 6** Flowchart for a proper selection of cable entry systems in Ex d explosion proof enclosures



Note 1. With a sheath in thermoplastic material, thermosetting or elastomeric. They must be circular and compact.

Any padding or sheathing must be extruded. Any fillers must be non-hygroscopic.

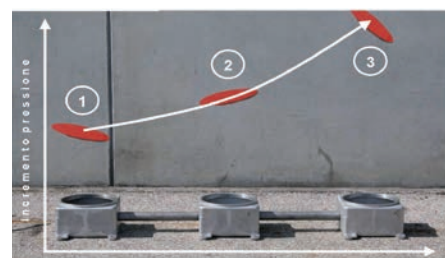
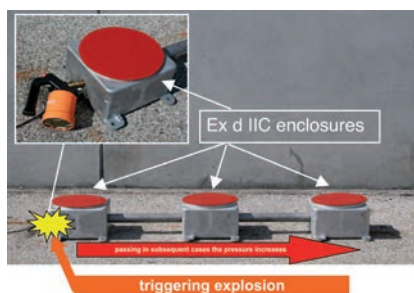
Note 2. The minimum cable length is defined in order to limit the potential danger due to the transmission of flame through the cable. For the test procedures of restricted breathing cable (Appendix E, extracted from EN 60079-14), you have to take a piece of cable with a length of 0.5 m should be tried, once installed in a sealed 5 liters ( $\pm 0.2$  liters), in conditions of constant temperature. The cable is considered acceptable if the interval of time required to bring down to 0.15 kPa (15 mm of water column) an internal overpressure of 0.3 kPa (30 millimeters of water column) is equal to or greater 5 s.

# 5.C

## Conduit and cable systems

It is also very important to check the coupling system among several enclosures that, unlike industrial equipment (complying with EN 61439 ...), requires you to put between two junction boxes specific locking joints to avoid the propagation of an explosion should accidentally occur in one of them. As you can see from the images below, the lack of locking joints causes not only the transfer of the explosion to the adjacent junction box, but also generates an increase in pressure caused by the explosion, resulting in a greater risk of injury.

The standard EN 60079-1, in section 13.5.3 reads *"The distance from the surface of the seal system closest to the junction box (or of the junction box) and*



*the outer wall of the junction box (or of the junction box scheduled for end use) should be as small as possible, but in no case be greater than the size of the conduit or, choosing the smaller between the two values", then the locking joint, in order to ensure the correct operation, should be positioned in the immediate vicinity of the junction box, as pointed out in section 14.4 of standard EN 60079-14, which says "The sealing devices for protective tubes must be provided, or as part of the explosion proof enclosure, or immediately*



## 5. Conduit and cable systems

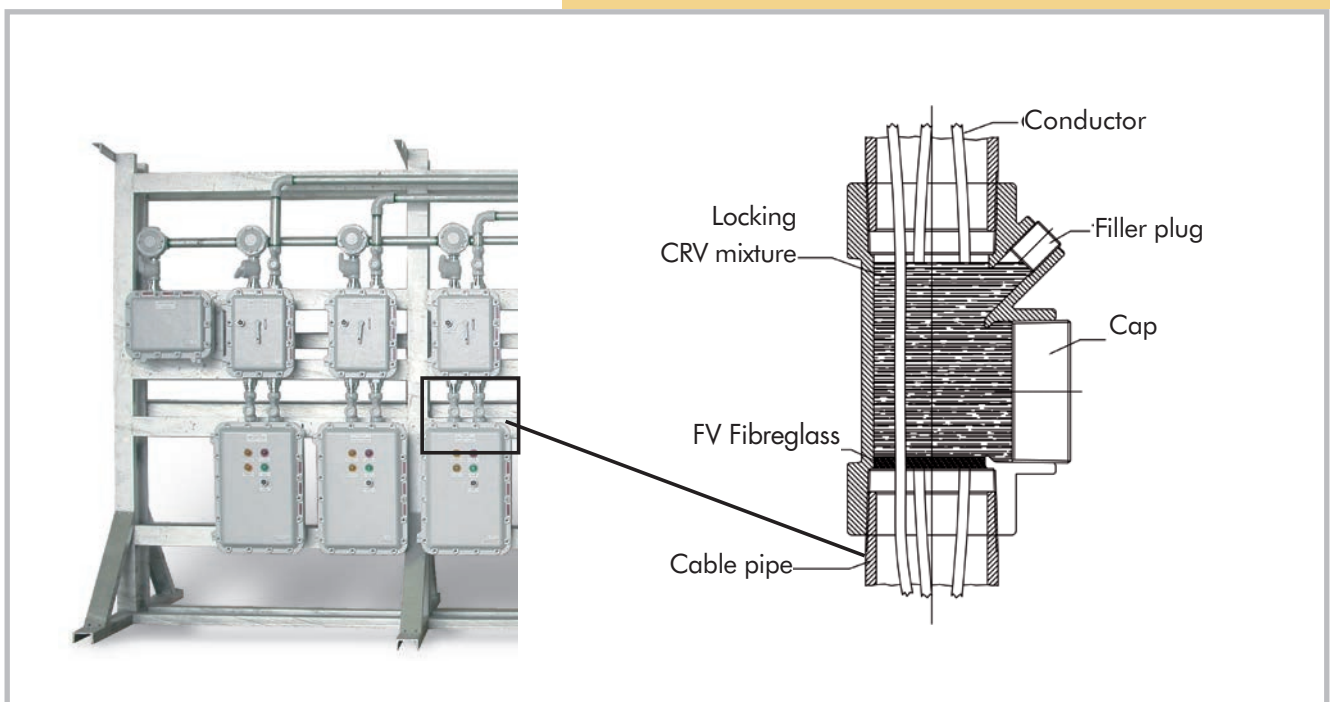
Ex d  
Ex e  
Ex c  
Ex b  
Ex a

*or as close as possible to the entrance of the explosion proof enclosure, using the minimum number of accessories".*

In the *conduit*, electrical cables or electrical conductors run inside a hard sealed tube system and the access into explosion-proof enclosures occurs through a sealed locking joint which prevents any accidental explosion from expanding and propagating inside the pipe system (Fig. 7). Outside each of "Ex d" box powerboard, therefore, is a sealed locking joint which prevents explosions from spreading to other sectors, defines the volume of the electric "Ex d" assembly to a value for which it has been tested and separates the part of cable electrical installation in any system made with exposed cable. The cable plant provides the conductors placed inside of a threaded "freez moon" tube and a fitting with locking joint; such locking fittings must be filled with appropriate mixture. This method effectively protects cables against mechanical and chemical damage. Among its flaws, however, we highlight that possible problems may arise in any subsequent change may be made to the system wiring.

Fig. 7 shows an example of a plant built with pipe and mounting locking joints. The cable plant, using special cable glands, can be made with direct input, or with indirect input.

Fig. 7 Example of cable plant system. Between one junction box and the other case you notice the locking joints



# Ex d 5. Conduit and cable systems

In the *cable plant* with direct input, (Fig. 8) the cable glands are directly fixed on one or more walls of the "Ex d" junction box and, thanks to their characteristics, achieve the same degree of segregation of the locking joint, with the advantage that they can be overhauled (i.e. if cable replacement is required). In the cable plant with indirect input (Fig. 9) the cable glands will be those with increased safety, type "Ex e" and will be fixed on one or more walls of the "Ex e" running junction box. The passage between the "Ex e" junction box and the "Ex d" one occurs via sealed joints.

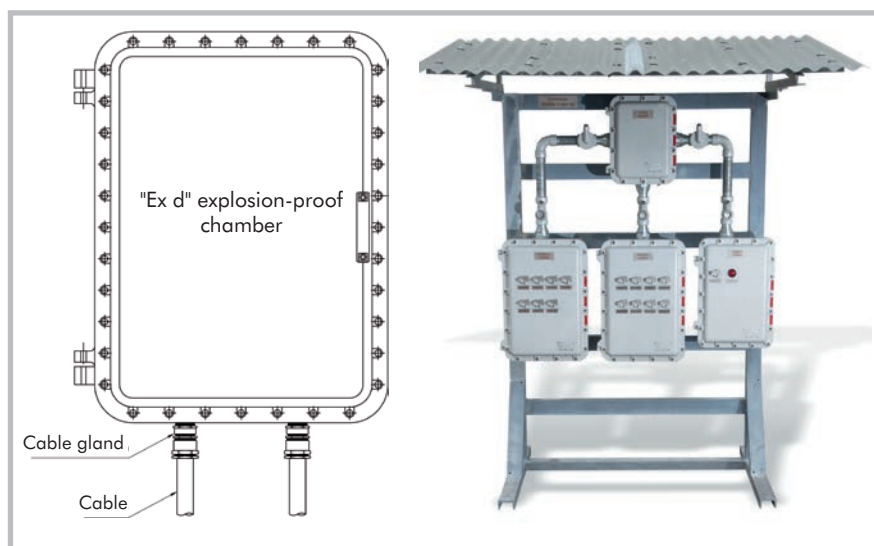
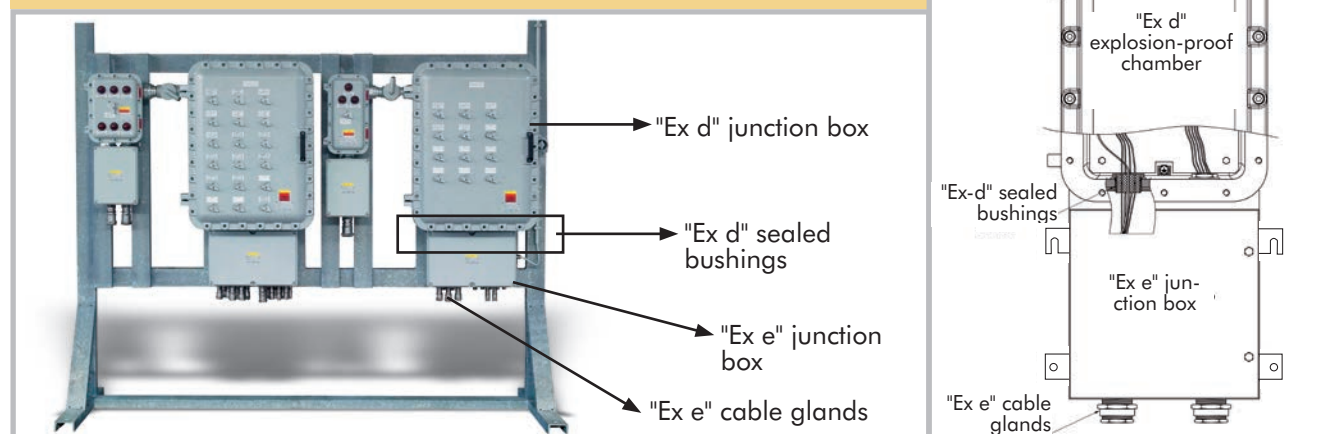


Fig. 8 Example of cable plant with direct input

Fig. 9 Example of cable plant with indirect input





## 6. Compliance with industrial standards (Low Voltage Directive)

In addition to the herein aforementioned regulations, taking into account all issues related to construction specifications for equipment suitable to operate with possibly explosive substances, Cortem Group uses components that fully correspond to industrial regulations such as EN 61439-1 and EN 61439-2 relating to the design concepts of electrical equipment. In fact standard EN 61439-1, defines the different classifications for electrical panels, classifications which depend on several factors, such as:

- type of assembly;
- external configuration;
- segregation way;

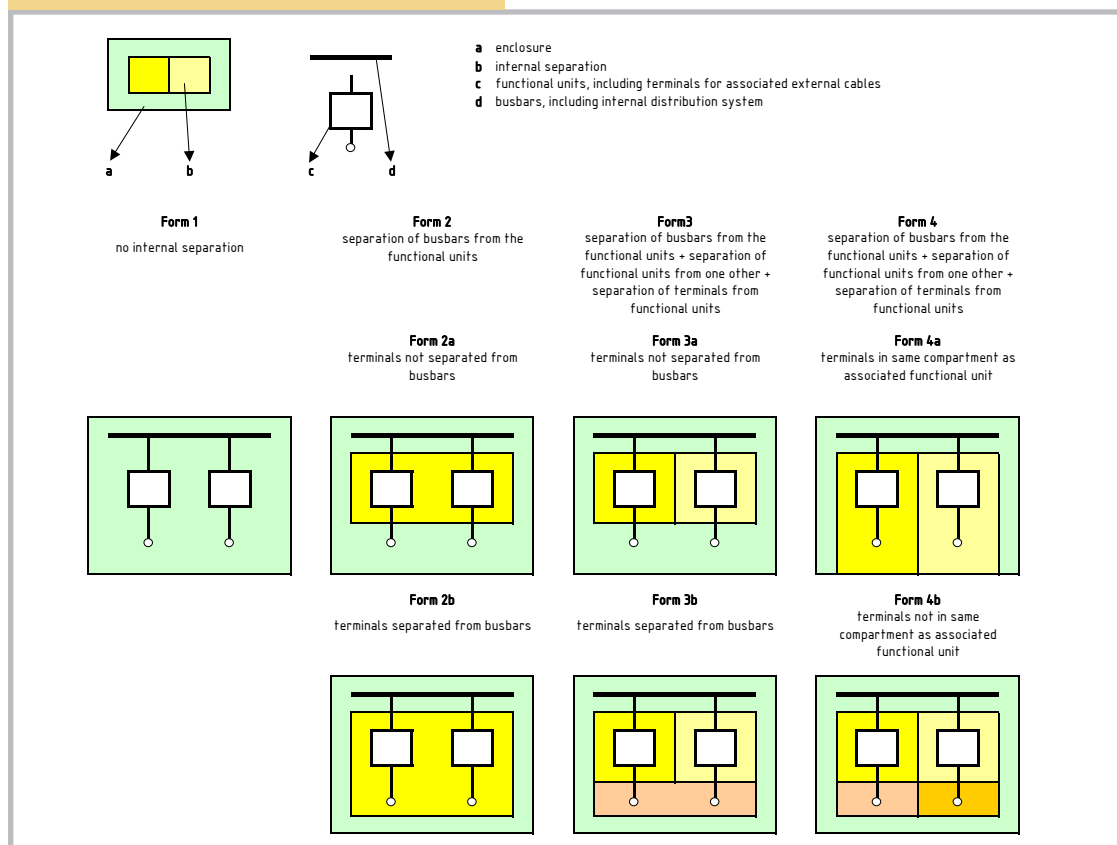
The type of construction, according to standard EN 61439-1, makes a distinction between open-type powerboards, (not applicable for environment posing risk of explosion) and closed type, the latter suitable as they include protected panels and/or seals on all sides of the enclosures.

External configuration is divided into:

- Cabinet (column), used for larger appliances (not applicable for environments "Ex d" with explosion risk when running).
- Board, used for controlling machines or complex systems (not applicable for environments "Ex d" with explosion risk when running).
- Box powerboard, characterized by wall-mounting. These are used primarily for distribution at the department level or area in industrial environments.
- Multiple box powerboards, i.e. the combination of more than one powerboards, usually sealed and with coupling fittings, each containing a functional unit that can be one or more breakers, a starter, a complete socket lock switch or protection one. This way you get a system of box powerboards mechan-

# Exd 6. Compliance with industrial standards (Low Voltage Directive)

**Fig. 10** Types of switchboards according to the segregation types



cally joined together, with or without a common mounting structure. The electrical connections between adjacent units pass through junctions made on adjacent sides.

The switchboards are distinguished by the type of segregation Fig. 10, (derived from standard EN 61439-2).

In addition to all the tests necessary for obtaining product certification, according to EN 60079-1 as certifications issued by external certification body and with proven reliability and accredited both nationally and internationally, Cortem Group checks all the components that will be installed inside its equipment, adopting all testing and verification criteria set out in the reference standard (Fig. 11).

As required by reference standards EN 60079-0, it is the manufacturer's responsibility to issue a document stating the full compliance of systems it will produce, by adopting all the sizing criteria of good engineering and strictly providing the maximum allowable dissipation power values (W), following test reports annex-

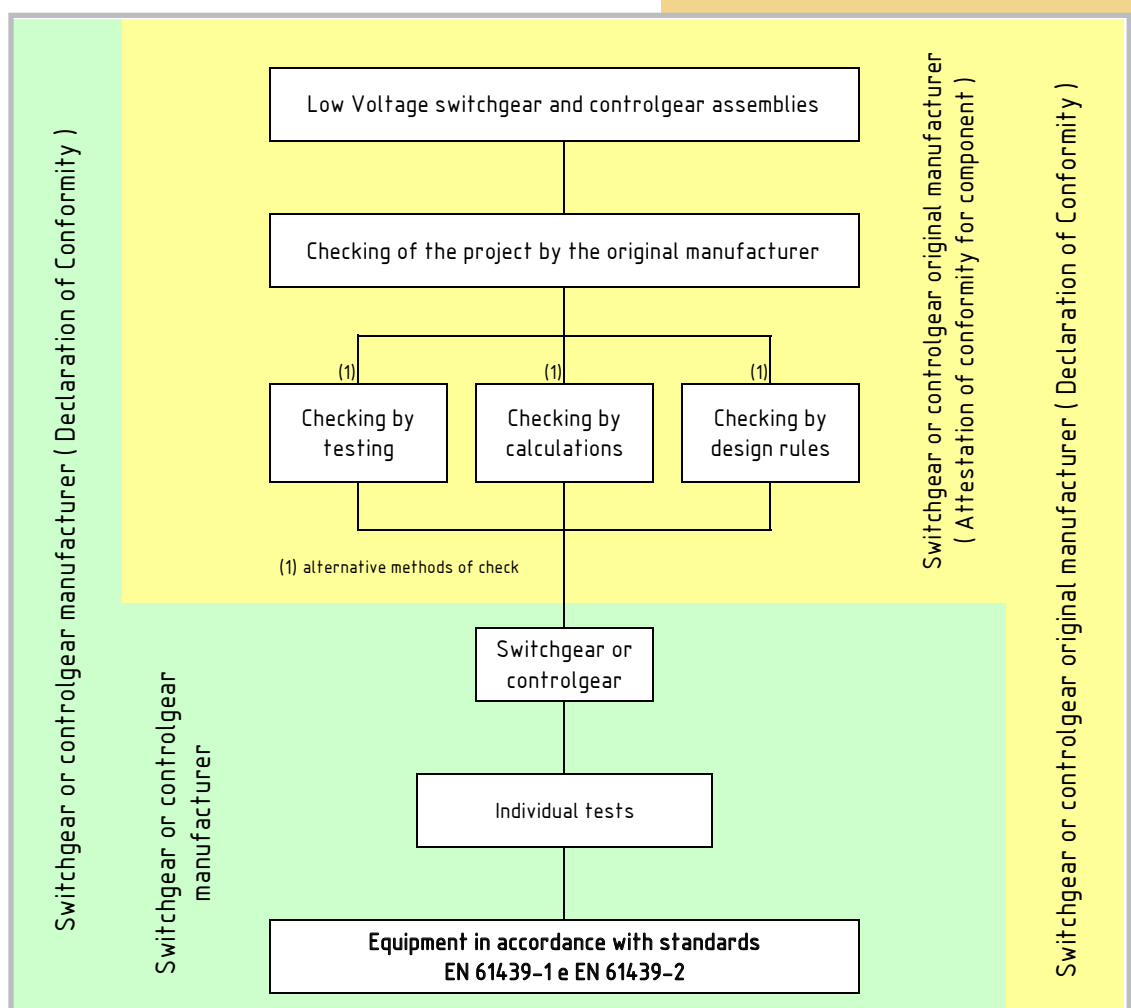
## 6. Compliance with industrial standards (Low Voltage Directive)

Exd  
Exe  
Exe

es to the certificate of compliance. However, Cortem Group, always attentive to market demands, is able to provide equipment with certificate of conformity of the component but, in this specific case, it will be the responsibility of the manufacturer of the assembly to provide its full certification of compliance.

Therefore, after building the system, for all concerning standards EN 60079-... and standards EN 61439-..., in accordance with the above-mentioned regulations, the manufacturer of the powerboard is required to turn to the certification body, for running the explosion-proof testing, in order to issue the Declaration of conformity and mount the relevant plate stating the certification obtained.

Fig. 11 Typical flowchart for the certification



## 7

## Implications and risks deriving from the modification of explosion proof enclosures

In Europe, manufacturers of explosion proof enclosures and end users must take two directives into account: Directive 2014/34/EU, governing the production of protection equipment and systems destined to be used in potentially explosive atmospheres (ATEX), and, as far as end users are concerned, Directive 1999/92/EC "Risks from Explosive Atmospheres" outlining and harmonising the requirements to improve the health and safety of the workers exposed to the risk of explosive atmospheres. It is important for designers, installers and users to be aware of what they can or cannot really do and to fully understand the implications and risks with regard to the modification of 'Ex d' enclosures, so that the certification of the whole equipment is not affected.

As we already know, the main function of an 'Ex d' enclosure is to prevent an explosion from spreading from the box to the surrounding atmosphere and to protect its internal components from the environment, humidity, dirt and dust.

It is therefore vital that rolling joints are always kept undamaged and clean, in order to guarantee correct rolling.



Fig. 12 EJB series 'Ex d' enclosure where you can see the rolling joint, where the distance "l" is the length of the flat section between the inside of the enclosure and the hole, while the distance "L" is the length of the rolling joint, that must be in compliance with the provisions of the IEC/EN 60079-1 standard, per type of execution (IIB or IIC).

## 7. Implications and risks deriving from the modification of explosion proof enclosures

Ex d  
Ex e  
Ex c  
Ex b  
Ex a

All operations that may affect the certification of an Ex product must be carried out only by those who hold the certificate of full conformity of the product in question. There is, however, a special case on the market that often occurs and for which the approach of the standards is not always complied with.

We are talking about piercing 'Ex d' enclosures. This being a critical operation, the standard provides for the holder of the certificate to take the responsibility for performing and checking it, otherwise said operation can only be carried out by third parties that have been previously qualified by the original manufacturer.

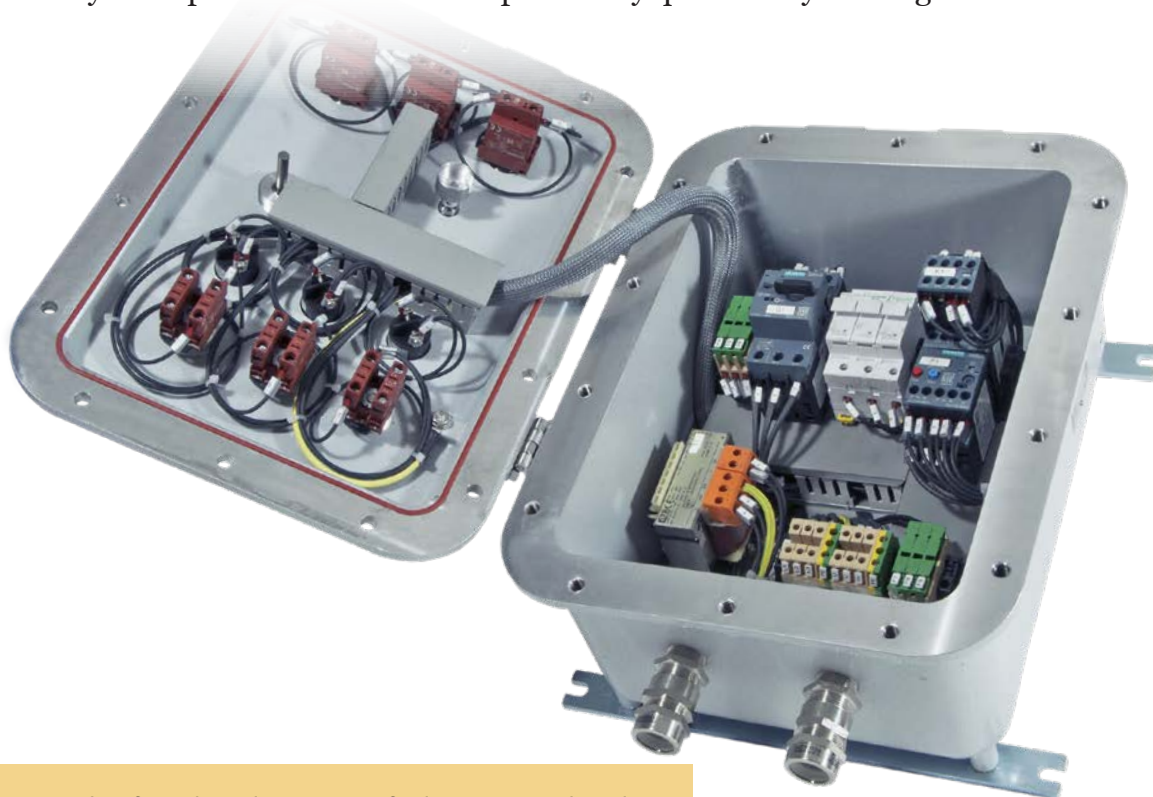


Fig. 13 Example of 'Ex d' enclosure, certified as a control and warning unit. Melting, processing, painting, installation of electrical, mechanical and wiring components made totally in the Cortem plant.

In reality, different situations can often be found on the market, for instance a third party configuring 'Ex d' boxes and carrying out the relative checks. This happens for reasons connected to the market itself: delivery times often do not allow supplying all markets from one centre and the costs of having multiple production sites cannot be sustained by everybody but, as said above, these third parties cannot change and/or modify the original manufacturer's product unless they are authorized to carry out modifications.



## Implications and risks deriving from the modification of explosion proof enclosures

No Directive provides for the end user modifying 'Ex d' enclosures produced by the manufacturer. Once the empty 'Ex d' enclosure (without any components, so with a certificate with a "U" final extension) leaves the factory and has been certified and tested by the original manufacturer via its quality system, this enclosure will keep its certificate only if it is not modified in any way. The addition of equipment or terminals, making holes on the body and/or lid, means that the end user must have it certified again and get a new certificate plate, eliminating the original manufacturer's.



Fig. 14 Explosion proof enclosure in AISI 316L stainless steel complete with the controls on the lid.

### The most frequent errors

Improved staff training and growing awareness of the importance of these standards are vital to safety and would prevent some of the most common mistakes, such as making new openings in an 'Ex d' enclosure before or after installation or insert additional electrical components that are not included in the certificate.

The addition, for instance, of a switch can affect the class of temperature of the enclosures and lead to the other components inside it overheating, that can in turn be damaged and cause an ignition. Moreover, this modification might weaken the mechanical integrity of the enclosure and lead to spreading the flames because of the pressure exceeding the set limit. The results of the flame propagation test carried out during the CE test procedure would in this case be affected and it would no longer be possible to check the ignition inside the enclosure safely. Another very common mistake is the inadvertent damage to flanges and threads while maintaining the enclosures, above all the heavier ones, because the lid is unscrewed and lifted without the due care and attention.

**Therefore, pursuant to the IEC/EN 60079-19 standard, only the manufacturer of the enclosures or an authorized third party can carry out these modifications. If the modification is performed by a third party not pre-**

## 7. Implications and risks deriving from the modification of explosion proof enclosures

**viously authorized and without the control of the manufacturer's Quality System, the marking on the equipment is no longer valid.**

If an enclosure is modified without the manufacturer's agreement, two scenarios are possible:

- the legal person that has modified the enclosure issues a new CE test certificate and new ID plate
- the final user takes full responsibility for the product and modifications carried out, which means that he becomes responsible for any faults in the enclosure and for the serious consequences to health and safety.



Fig. 15 Full conformity plate for series EJB enclosures.

Even the painting of an 'Ex d' box can negatively affect the certificate validity, above all if the paint is sprayed inside and around the flame passage. Since the paint is generally non-conductive, it is necessary to use an electrostatic type, otherwise it might become an ignition source itself.

**A**nother common mistake consists in replacing the lid on an 'Ex d' box fitting the screws wrongly or, even, forgetting to put them. This is particularly important for 'Ex d IIC' (IIB + H<sub>2</sub> included) enclosures, where the tolerance of the flame passage is usually 0.1mm. It is vital that all screws are tightened correctly as specified by the manufacturer. If this does not happen, the lid can bend and cause an irregular flame passage. The same problem can naturally occur with IIB and IIA enclosures.

**S**till about flame passages, lubricants play an important role. In general, suitable lubricants are those recommended by the manufacturer because tested in compliance with the applicable ambient temperature. An incorrect lubricant can harden at low temperatures and become an adhesive at high ambient temperatures.

As to the standards to check, EN/IEC 60079-19 provides end users with the technical instructions for repairs, overhauls and modifications of the equipment designed to be used in explosive atmospheres, while standard EN/IEC 60079-14 is applicable to the design, selection and assembly of electrical systems in explosive atmospheres.

## Implications and risks deriving from the modification of explosion proof enclosures



Fig. 16 Control panel with double-fronted installation made on the customer's specifications

After correctly installing an 'Ex d' enclosure, standard EN/IEC 60079-17 outlines the principles that the operator must comply with for the maintenance, approval test and repair of the equipment, including the consultancy for all questions regarding safety in the workplace.



Fig. 17 Part of the workshop fitted with horizontal and vertical processing stations, CNC lathes, transferring machine and equipment.



## 7. Implications and risks deriving from the modification of explosion proof enclosures

The IECEx OD 203 document "Guidance on the definition of 'manufacturer' in relation to 'trade agents' and 'local assemblers'" was issued during the second quarter of 2014, as a support and implementation of document IECEx OD 009 that clarifies this question.

In this document, in fact, for the first time in the whole standard system, the possibility that part of the wiring and assembly is carried out by a third party, called "Local Assembler" is explicitly provided for. It must be noticed that this person must anyway be qualified and credited by the certificate holder, with well-defined procedures. This approach cannot, therefore, be used with all customers, but only with specific and controlled figures.

Even more vital is that, the OD 203 accepts for the first time that a qualified third party (local assembler) can carry out mechanical processing, so that he can do piercings but can never perform any lamination on the mating flanges (art. 2.3.5.2. dell'OD 203).

So, even if previously there could be some doubt, the situation is clearer now: the people carrying out processes in the name of the manufacturer are "Local Assemblers" and can perform a limited number of operations. In particular, they cannot perform any grinding and/or lamination but can do drillings and assembly/wiring. Apart from this clarification, the introduction of this document lets you understand IECEx's policy with regard to drilling on 'Ex d' products not performed by the manufacturer.

**It is therefore important for customers, distributors and manufacturers themselves, to understand that this grey area is no more.**

### **Certification tests**

People buying 'Ex d' flameproof enclosures should know that, to get a certificate from a credited body or laboratory, for either a component or full conformity, the manufacturer must carry out a series of tests in compliance with the provisions of EN/IEC 60079-0 (General Requirements) and EN/IEC 60079-1 (Equipment protection by explosion proof enclosures "d").

**For all the 'Ex d' equipment, Cortem Group performs the following tests:**

- Reference pressure tests providing for the ignition of an enclosure after filling it with a mixture of explosive gas. The pressure will depend on the lowest enclosure ambient temperature (the lower the temperature, the higher the reference pressure) and on the electrical components fitted inside it;
- Flame propagation test, using an explosive mixture of gases: it is placed in a room with explosion risk and, when the explosive mixture contained inside is ignited, it is checked that the propagation of the explosion stops and does not pass to the atmosphere outside through the joints;

## Implications and risks deriving from the modification of explosion proof enclosures

- Tests to prevent an electrostatic ignition source from becoming dangerous;
- Heat tests to determine the maximum surface temperature allowed for the equipment complete with its components in extreme conditions of use, taking into consideration a safety margin, and heat/cold resistance tests (on non-metal enclosures or components);

Fig. 18 Climatic cell in the Cortem Group laboratory where the product heat resistance is tested



Impact tests on critical parts;

Fig. 19 Impact test at 7J on a GUB series box after a cycle in a climatic cell at -65°C

Tests in salt mist and hot/wet cycles to test resistance to corrosion;

Fig. 20 Enclosures tested in salt mist



# 7.....

- Implications and risks deriving from the modification of explosion proof enclosures

Ex d  
Ex e  
Ex c  
Ex b  
Ex a

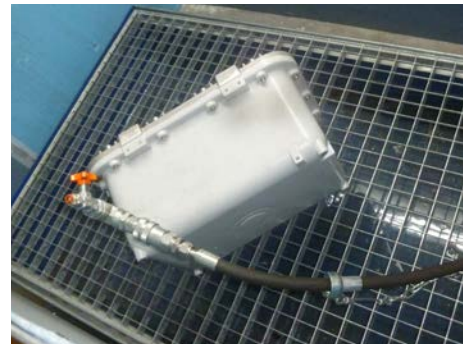


Tests for  
the IP degree  
of protection;

Fig. 21 IP X6 protection degree test

Tests for internal overpressure.

Fig. 22 Overpressure test on an enclosure  
'Ex d' at 16 Bar for 1 minute



## Approval tests

For all the 'Ex d' equipment, Cortem Group performs the following approval tests:

- Hydrostatic overpressure test: test that must be performed on each enclosure produced (if not provided for in the certificate that these boxes have been tested at 4 times the reference pressure and do not therefore require further testing in production).

**Concluding, end users and/or installers must know the regulations in force and read the instruction manual supplied by the manufacturer before any interventions and/or modifications of 'Ex d' enclosures are carried out, favouring the purchase of complete equipment from the company holding the certificate.**

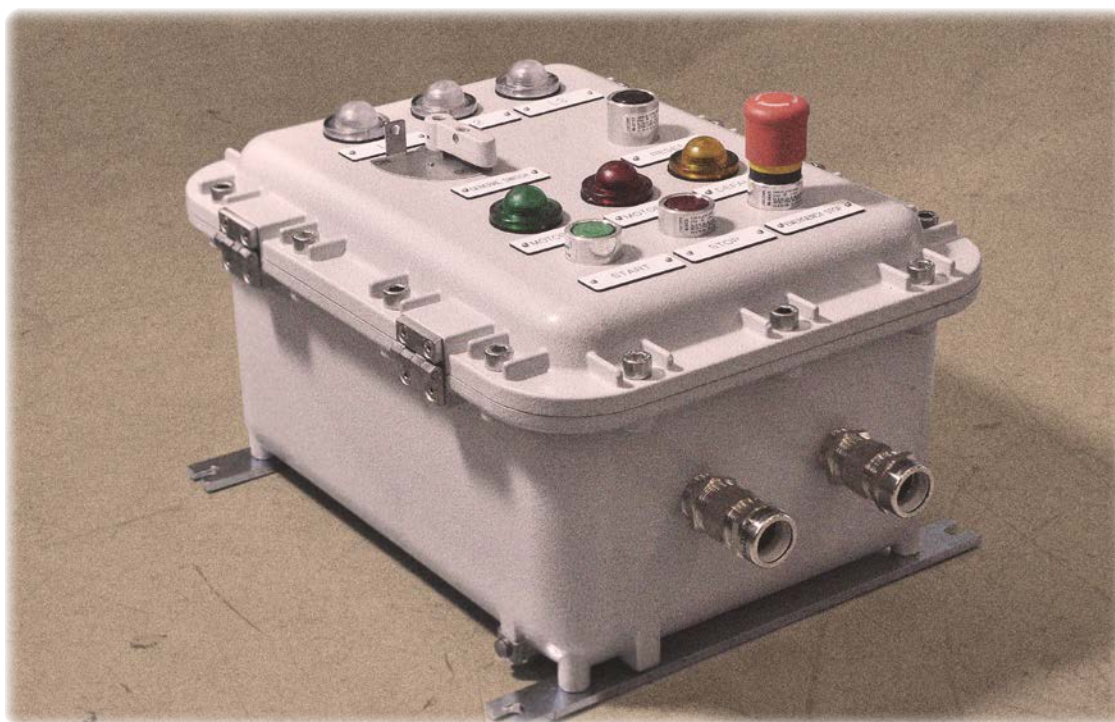
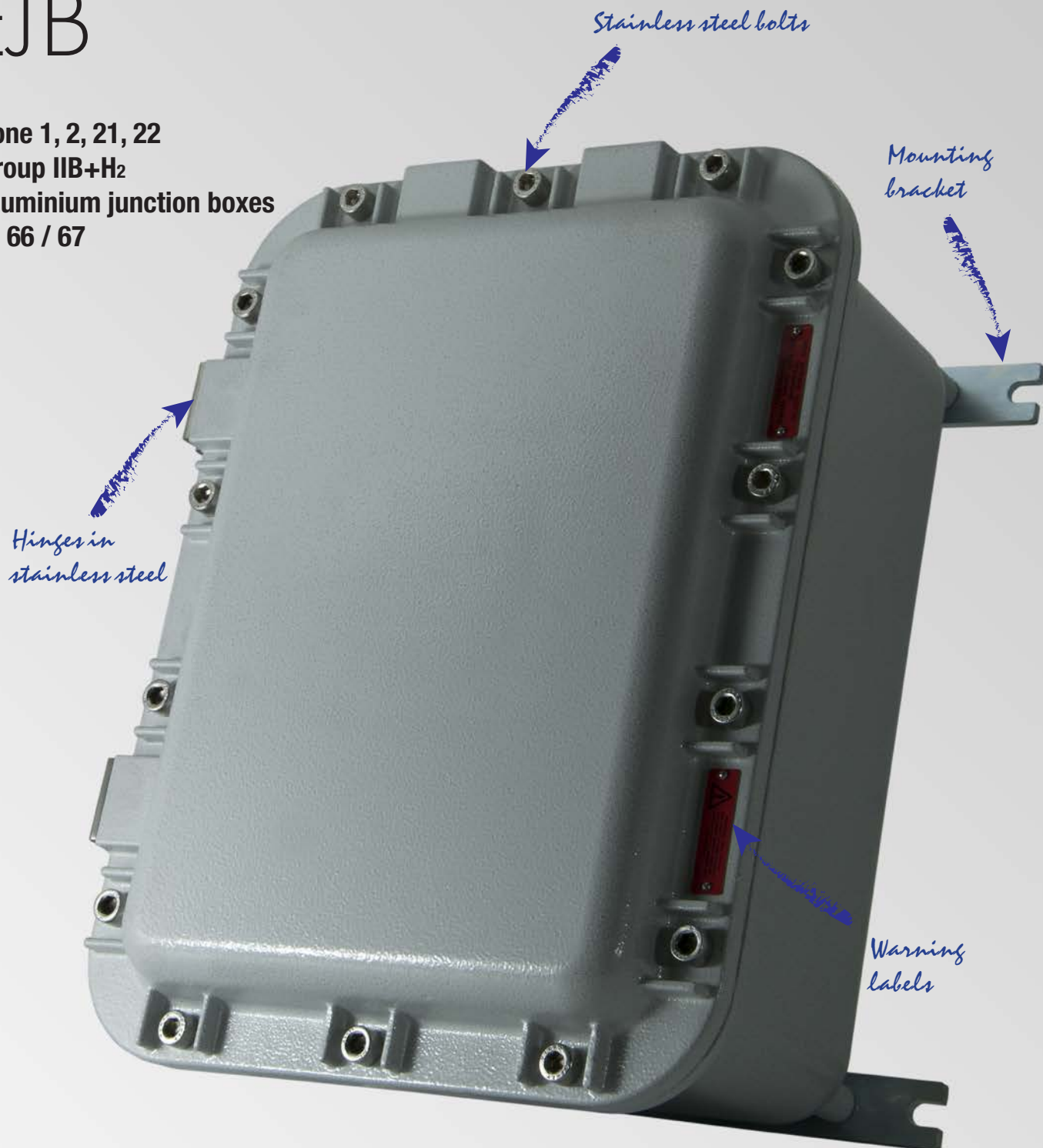


Fig. 23 Customized explosion proof enclosure, complete with the controls on the lid and cable glands.



# EJB

- Zone 1, 2, 21, 22
- Group IIB+H<sub>2</sub>
- Aluminium junction boxes
- IP 66 / 67



*Silicone gasket between body and lid*



*External earth screw in body*



*Internal earth screw in body*



## EJB-... series Aluminium junction boxes gas group IIB+H<sub>2</sub>

EJB series junction boxes are suitable for installation in any areas of a plant where there is a risk of explosion and/or fire, or areas where combustible dust is present, classified as Zone 1, 2, 21, 22. The quality of this product is recognized and valued the world over for its specific aluminium alloy and the mechanical property of its finishes. The EJB series is mostly used as a box to carry terminals and busbars, fuse carriers, transformers, reactors and barriers, though it is also used to produce control and signalling boards, light and power boards and surge arresters, and motor starter boxes with various configurations, which are custom made to the requirements of our customers worldwide.




Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



Application sectors:




### CERTIFICATION DATA FOR EMPTY ENCLOSURES

Classification:	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 IIB+H2 Gb - Ex tb IIIC Db - IP66/67			
Certification:	ATEX	CESI 00 ATEX 036U		
	IEC Ex	CES 14.0017U	All IEC Ex, ECASEx, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	INMETRO	DNV 16.0099U		
	TR CU	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	 -60°C +70°C	With boxes complete with polycarbonate indicator on lid Ta -40°C +70°C.		
	 -60°C +100°C	On request only for EJB enclosures without accessories and control and signalling devices (except EJB-01 and AQS-1 versions).		
	 -60°C (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66/67	For enclosures without control and signalling devices		
	IP66	For enclosures with Cortem M-0...-series control and signalling devices		





This equipment can be used in an environment containing explosive atmosphere and with the presence of hydrogen.

## EJB-... series Aluminium junction boxes gas group IIB+H<sub>2</sub>





### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	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 d IIB+H T... Gb - Ex tb IIIC T...°C Db - IP66/67			
Certification:	ATEX CESI 01 ATEX 027X			
	IEC Ex CES 16.0012X	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C (-60°C)+40°C	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C (-60°C)+55°C	With temperature class T5 and maximum surface temperature T100°C.		
Degree of protection:	IP66/67			

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIB+H <sub>2</sub> T... Gb - Ex tb IIIC T...°C Db - IP66/67			
Certification:	ATEX	CESI 01 ATEX 027X		
	IEC Ex	CES 16.0012X	All IEC Ex, ECASEx, INMETRO and TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	INMETRO	DNV 14.0140		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66/67	For enclosures without control and signalling devices		
	IP66	For enclosures with Cortem M-0...-series control gear		

## CERTIFICATION DATA OF ENCLOSURES SERVING INTERFACE UNIT CONTROL AND MONITORING FUNCTION

Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II(1)GD - Ex db [ia Ga] IIB+H2 T... Gb - Ex tb IIIC T...°C Db - IP66/67			
Certification:	ATEX	CESI 02 ATEX 073X		
	IEC Ex	CES 16.0014X	All IEC Ex, ECASEx, CCC certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	CCC	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-11: 2011, EN 60079-26: 2007, EN 60079-31: 2009, EN 60439-1, EN 60529 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66/67	For enclosures without control and signalling devices		

## OTHER AVAILABLE CERTIFICATES (please contact the sales department for further information)

EXTENSION n° 07/12 to EC-type examination certificate CESI 01 ATEX 027

Equipment: EJB-series control, monitoring and signalling units  
EJB-55B enclosures with PDTrac partial discharge monitoring units

EXTENSION n° 04/08 to EC-type examination certificate CESI 01 ATEX 027

Equipment: EJB-series control, monitoring and signalling units  
EJB-6 enclosures with RX and IBUC units

CESI 07 ATEX 047 CERTIFICATE

EJB..AD and MU..AD switchgear  
Enclosures made from cast iron

CESI 11 ATEX 037 CERTIFICATE

EJB-45 with actuators. "Hook release controller" for simultaneous release of hooks  
The actuators control 1,2 or 3 push-pull controls that are fed out of the enclosure through certified RRC-01 bushes

EXTENSION n° 07/12 to EC-type examination certificate CESI 01 ATEX 027

Equipment: EJB-series control, monitoring and signalling units  
New type of equipment named Surge Protection Device has been added





### MECHANICAL FEATURES

Body and lid:	Low copper content aluminium alloy
Hinges:	Cast (except for EJB-01), stainless steel for new models
Lid handle:	Made of black painted steel for EJB-6, 6B and EJB-7, 7B models (see below). Made of black painted plastic for EJB-55, 55B models
Gasket:	Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid
Certification label:	Adhesive label located inside on empty enclosures; aluminium label riveted onto lid on other versions
Bolts and screws:	Stainless steel
Earth screws:	M6 stainless steel. On inside and outside of body and on lid complete with anti-rotation brackets
Mounting brackets:	Electroalvanized steel (cast aluminium feet for AQS-1)
Coating:	Polyester coating RAL 7035 (Light grey)

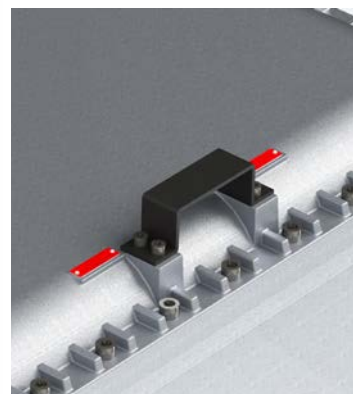
#### Corrosion Resistance:

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)

Lid featuring Cortem easy-close system.



For EJB-6/6B and EJB-7/7B junction boxes, the opening and closing of the cover is facilitated by the presence of an even more sturdy handle, able to offer a greater safety of use for the operator. It is made of stainless steel AISI 316L, which, after a blasting process, is coated with a matt black powder (RAL 9005) coating that ensures pleasing aesthetics and a high resistance to physical impact and corrosion in saline environments.



### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

- Internal anti-condensation coating RAL 2004 (pure orange)
- External polyester coating in different colour (specify the RAL number)
- Breather valve Code ECD-210S or drain valve Code ECD-210S
- Round or rectangular windows on lid (see section Enclosures with windows for inspection and reading instruments)
- Hinges for enclosures EJB-01 Code K-0351
- Internal mounting plate: 2.5mm-thick aluminium (code BFE-...). See accessories section  
2.5mm-thick electroalvanized steel (code BFE-...AC).
- Thread options:
  - NPT threads ANSI B1.20.1
  - GAS UNI ISO 7-1 thread
  - Metric threads ISO 261/965
- Hinges on the short side (only for new models) example cod. EJB.5BS

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

## EJB-... series Aluminium junction boxes gas group IIB+H<sub>2</sub>

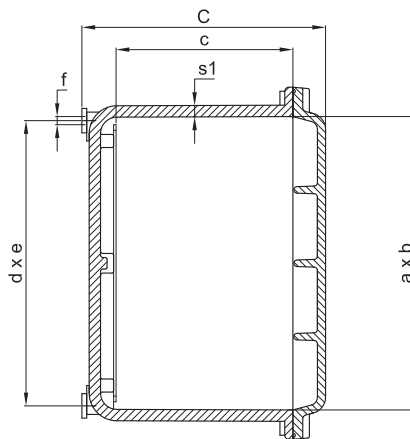
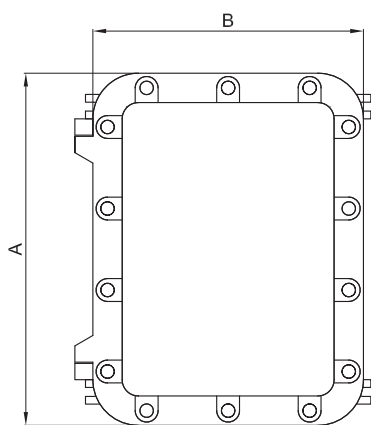
Cortem is introducing a new model of EJB enclosures that will replace the entire range. This new series will be provided with new stainless steel hinges and a new lid that will allow more flexibility in the supply of the product. Cortem will then be able to offer the best solution to customer needs.

### SELECTION CHART FOR ENCLOSURES WITH RIBBED LIDS

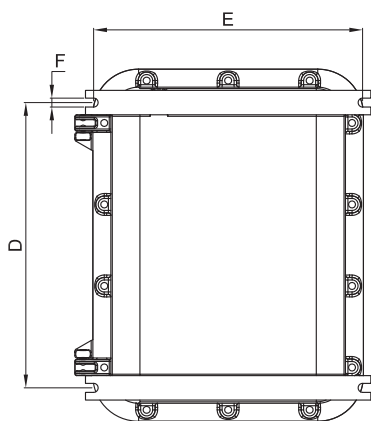
Code	Outside dimensions			Inside dimensions				Mounting			Mounting with brackets			Weight kg
	A	B	C	a	b	c	s1	d	e	f	D	E	F	
<b>EJB-1</b>	304	204	218	240	140	160	14	230	130	M8	230	210	9	9,4
<b>EJB-2</b>	424	224	218	360	160	159	14	350	150	M8	350	230	9	13,6
<b>EJB-3</b>	364	284	278	300	220	214	14	290	210	M8	290	290	9	17
<b>EJB-3B</b>	364	284	218	300	220	154	14	290	210	M8	290	290	9	14,2
<b>* EJB-7</b>	1000	700	500	890	590	340	30	810	510	M16	810	655	18	248
<b>* EJB-7B</b>	1000	700	400	890	590	240	30	810	510	M16	810	655	18	210
<b>AQS-1</b>	500	450	207	430	380	127	15	420	300	M12	-	-	-	31,5

\* New model.

Dimensions in mm



EJB-7 detail



Detail of box AQS-1

The AQS-1 series junction boxes have been designed to contain distribution terminal blocks and control switches.

Its particular compactness and the inward flange makes them ideal for all those applications in which it is necessary to realize control panels of small dimensions with the possibility of installing modular switches side by side with different types of poles and amperage. The standard hinged lid and silicone gasket make this junction box a qualitative, economical and compact choice.



## EJB-... series Aluminium junction boxes gas group IIB+H<sub>2</sub>

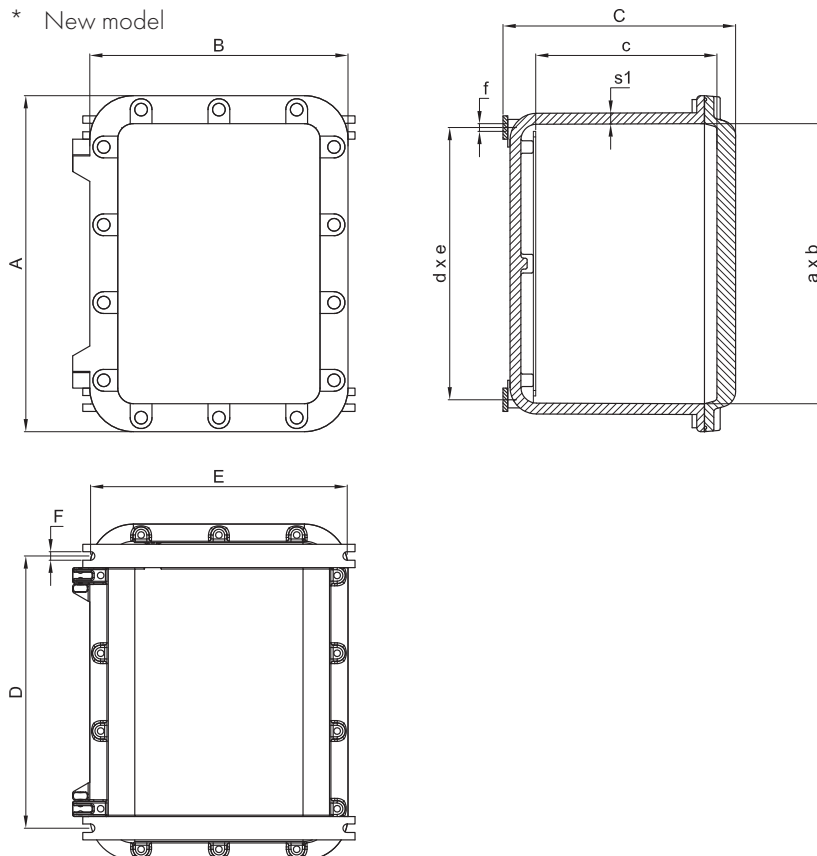
Aluminium enclosures with solid lids are used when there is a need to install a greater number of control and signalling devices than can be accommodated on the same enclosure with a ribbed lid or when handles need to be installed in certain positions on the lid.

### SELECTION CHART FOR ENCLOSURES WITH SOLID LIDS

Code	Outside dimensions			Internal dimensions				Mounting			Mounting with brackets			Weight kg
	A	B	C	a	b	c	s1	d	e	f	D	E	F	
EJB-01	282	182	105	214	113	60	14	160	123	M6	160	154	9	5,6
EJB-1A	304	204	218	240	140	153	14	230	130	M8	230	210	9	10,3
EJB-2A	424	224	218	360	160	153	14	350	150	M8	350	230	9	15,4
EJB-3A	364	284	278	300	220	213	14	290	210	M8	290	290	9	19,4
EJB-3BA	364	284	218	300	220	153	14	290	210	M8	290	290	9	16,4
* EJB-4	432	332	293	360	260	237	14	350	250	M10	350	330	11	25,4
* EJB-4B	432	332	223	360	260	167	14	350	250	M10	350	330	11	21,4
* EJB-45	567	387	298	490	305	229	14	360	236	M10	360	356	11	38,9
* EJB-45B	567	387	248	490	305	179	14	360	236	M10	360	356	11	35,3
*EJB-48BA	507	432	271	435	360	203	16	350	425	M10	425	430	11	37,5
* EJB-5	632	432	341	560	360	275	16	350	550	M10	550	430	11	51
* EJB-5B	632	432	271	560	360	205	16	350	550	M10	550	430	11	43,4
* EJB-503	632	432	397	560	360	330	16	350	550	M10	550	430	11	59,2
EJB-55	710	510	356	630	430	273	17	600	400	M10	600	490	11	81,3
EJB-55B	710	510	256	630	430	173	20	600	400	M10	600	490	11	66,9
* EJB-6	870	650	480	760	540	369	28	680	460	M16	680	580	14	158,4
* EJB-6B	870	650	380	760	540	269	28	680	460	M16	680	580	14	138,5

\* New model

Dimensions in mm



NEW MODEL



## EJB-... series Body drilling data

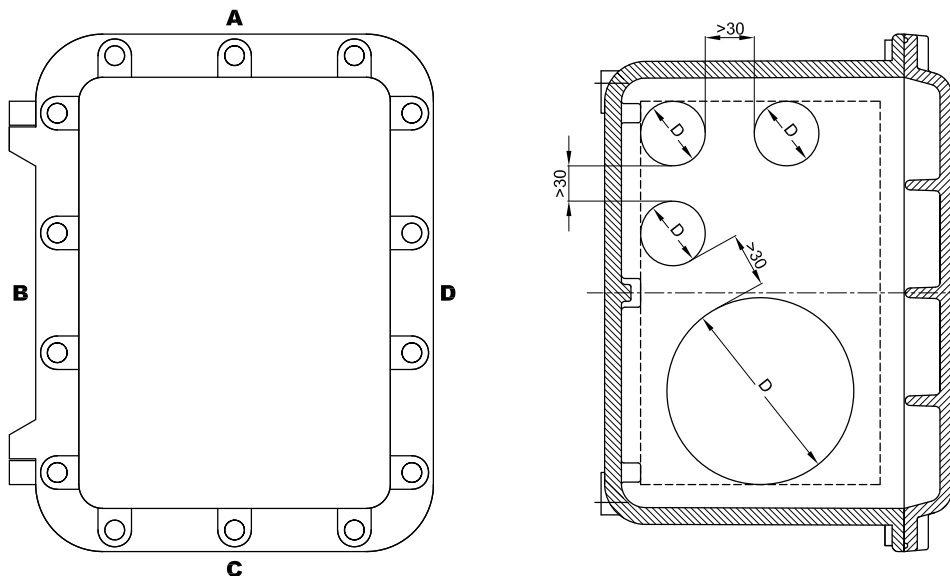
THREAD COMPARISON CHART									
ISO 7-1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
ANSI B.20.1 NPT	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	(*)	(*)	(*)
ISO 261/965	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1,5	100x1,5
<b>D</b> Thread diameter	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>10</b>



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

TYPE OF ENCLOSURE	HOLE DRILLING IN BODY																					
	Sides A and C										Sides B and D											
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE										Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE									
		1	2	3	4	5	6	7	8	10	1		2	3	4	5	6	7	8	10		
EJB-1	100x120	6	4	4	2	2	1	1	1	-	200x120	12	8	6	6	4	2	2	1	1		
EJB-2	120x120	6	4	4	4	2	1	1	1	1	320x120	18	12	10	9	8	4	3	2	2		
EJB-3	180x180	16	12	9	6	4	4	3	2	1	260x180	20	15	12	9	6	6	4	3	2		
EJB-3B	180x120	11	6	6	5	4	2	2	1	1	260x120	15	10	8	8	6	3	2	2	2		
EJB-4	220x195	16	16	9	9	8	4	4	3	1	320x195	24	24	15	12	12	6	6	4	2		
EJB-4B	220x130	12	8	6	6	6	3	2	2	1	320x130	18	12	10	8	8	5	3	2	2		
EJB-45	277x190	24	18	12	12	9	6	5	4	2	448x190	36	30	21	18	17	10	8	6	3		
EJB-45B	277x135	17	8	6	6	6	3	2	2	1	448x135	27	12	10	8	8	5	3	2	2		
EJB-48BA	300x150	24	15	14	8	8	3	3	2	2	375x150	30	20	17	10	10	4	3	3	3		
EJB-5	320x230	30	28	20	16	12	9	6	4	3	520x230	50	45	32	28	18	15	10	8	5		
EJB-5B	320x160	24	18	15	8	8	6	3	3	2	520x160	40	27	24	14	12	10	5	4	3		
EJB-55	400x195	32	28	18	15	14	8	6	3	2	600x195	44	40	27	23	21	12	10	5	4		
EJB-55B	400x95	16	13	11	5	5	4	3	3	-	600x95	24	20	17	8	7	6	5	5	-		
EJB-6	480x260	50	45	38	28	24	15	12	8	6	700x260	70	60	55	40	34	24	18	12	10		
EJB-6B	480x160	38	27	23	14	12	10	7	4	3	700x160	54	38	33	20	18	16	9	6	5		
EJB-7	530x280	66	45	40	28	24	15	12	8	6	830x280	96	75	63	44	37	24	18	12	10		
EJB-7B	530x180	40	36	23	20	12	10	4	4	3	830x180	62	56	36	32	19	17	7	6	5		
AQS-1	400x70	10	9	8	4	3	3	2	-	-	400x70	17	15	13	6	6	5	4	-	-		
EJB-01	100x40	2	1	1	-	-	-	-	-	-	200x40	4	4	3	-	-	-	-	-	-		

(\*) 2 1/2" - 3" - 4" NPT holes can be drilled only on EJB-55..., EJB-6... and EJB-7...



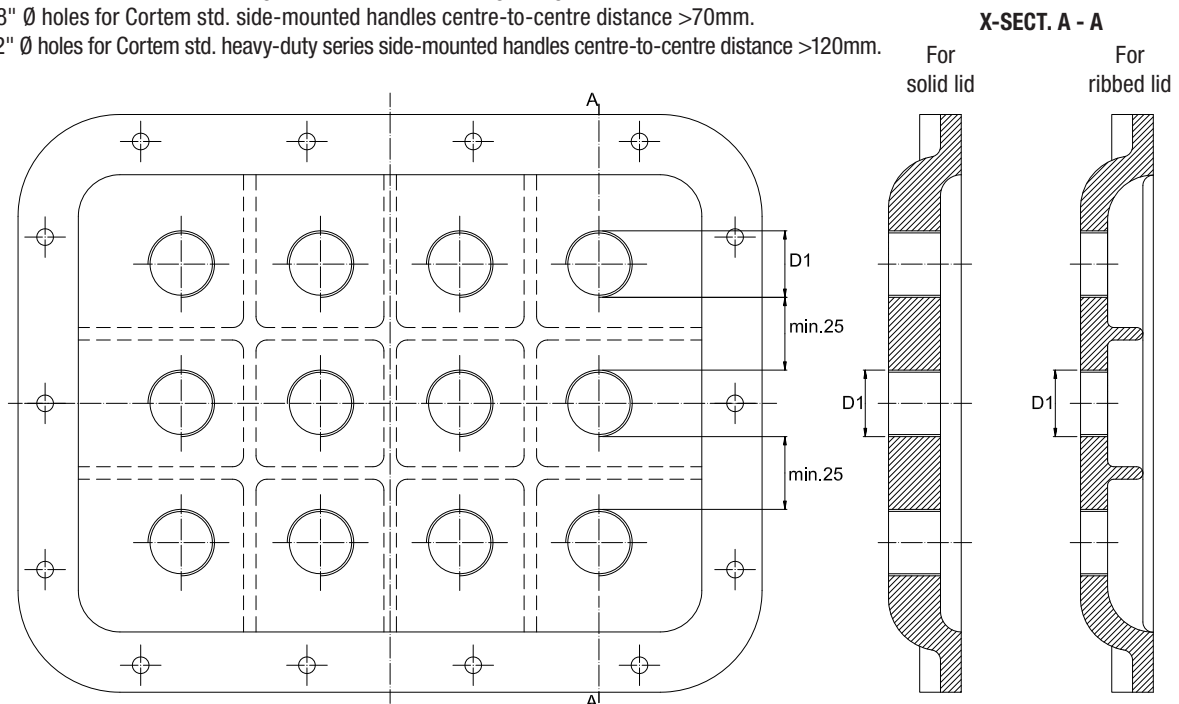


THREAD COMPARISON CHART								
D1	ISO 228	G 3/8"	G 1/2"	G 3/4"	-	-	-	-
	ISO 261/965	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M35x1.5	M40x1.5	M42x1.5

TYPE OF ENCLOSURE	HOLE DRILLING IN LID	
	Max. n°. of holes allowed for ribbed lids	Max. n°. of holes allowed for solid lids
EJB-1	4	6
EJB-2	8	10
EJB-3	8	12
EJB-4	-	15
EJB-45	-	28
EJB-5	-	40
EJB-55	-	54
EJB-6	-	60
EJB-7	60	-
EJB-01	-	6 (Only ISO 261/965 holes are possible on EJB-01)
AQS-1	24	-

## Notes:

- The standard featured is for illustrative purposes only since it has been designed exclusively for M42 holes.
- Standard holes refer to mounting of Cortem control and signalling devices.
- 3/8" Ø holes for Cortem std. side-mounted handles centre-to-centre distance >70mm.
- 1/2" Ø holes for Cortem std. heavy-duty series side-mounted handles centre-to-centre distance >120mm.





## EJB-... series Features of junction boxes with terminals



These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

### ELECTRICAL FEATURES

Rated voltage: 24 / 800 V  
Rated frequency: 50 / 60 Hz

#### Modular terminals

Terminal cross-sectional area: 2.5; 4; 6; 10; 25; 35; 70; 95; 120; 185; 240; 300 [mm<sup>2</sup>]  
Rated current: 12.5 - 452 [A]  
Max. current density: 1.5 - 7 [A/mm<sup>2</sup>]

#### Multi-pole terminals

Terminal cross-sectional area: 3x16; 4x16; 3x25; 4x25; 3x40; 3x40; 4x40; 3x70; 4x125; 4x125; 3x200; 4x200; 3x315 [mm<sup>2</sup>]  
Rated current: 48 - 252 [A]  
Max. current density: 0.8 - 3 [A/mm<sup>2</sup>]

#### Busbars:

Dimensions of busbars: 20x5; 30x5; 40x5; 50x5; 60x5; 80x5; 100x4; 80x8; 100x5 [mm<sup>2</sup>]  
Rated current: 240 350 480 600 690 800 800 1000 1000 [A]

ATEX - IECEx label  
for terminal enclosures

The label contains the following information:

- 1**: Year of manufacture (20)
- 2**: Serial number (s.n.)
- 3**: Product code (0722)
- 4**: Temperature class (II 2GD)
- 5**: Maximum surface temperature (Ex d IIB+H<sub>2</sub> T Gb)
- 6**: Ambient temperature (Ex tb IIIC T °C Db)
- 7**: Electrical specs per certificate (IP66/67, Ta °C)

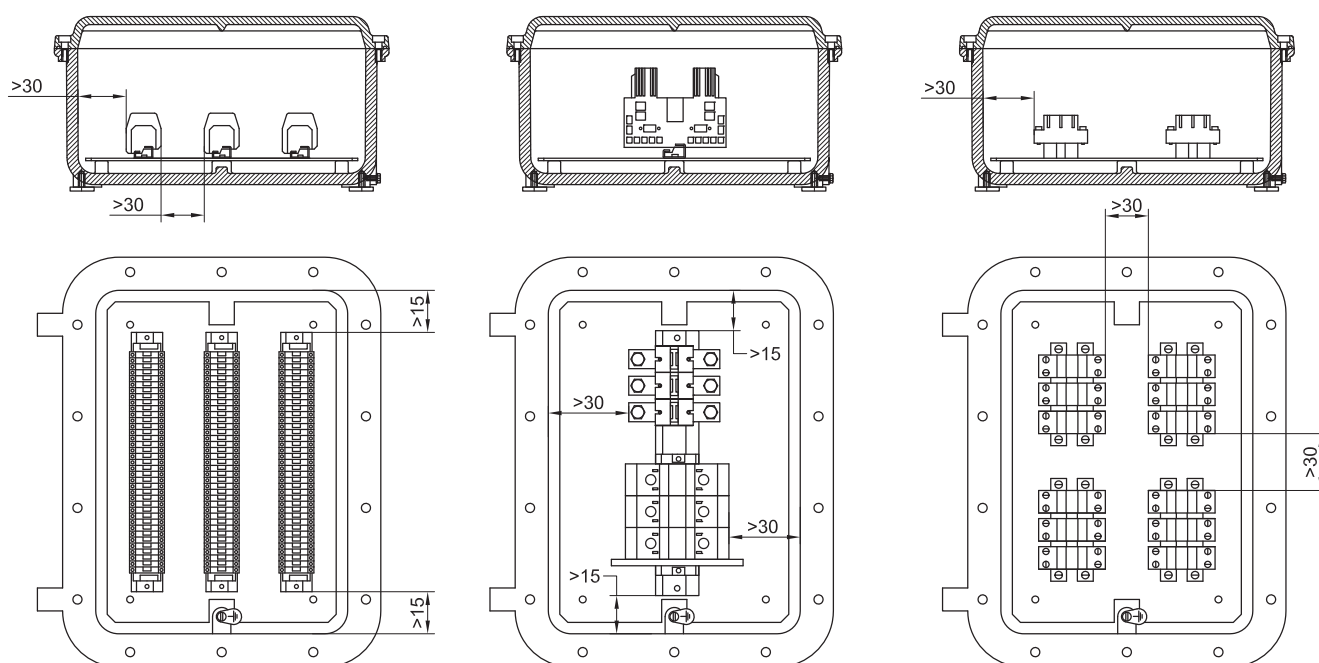
Other fields include: max voltage, max current, n° terminals, max wire size (mm<sup>2</sup>), and logos for CORTEM, ELFT, and F. FONDONZO.

#### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. temperature class
5. maximum surface temperature
6. ambient temperature
7. electrical specs per certificate

## EJB-... series Features of junction boxes with terminals

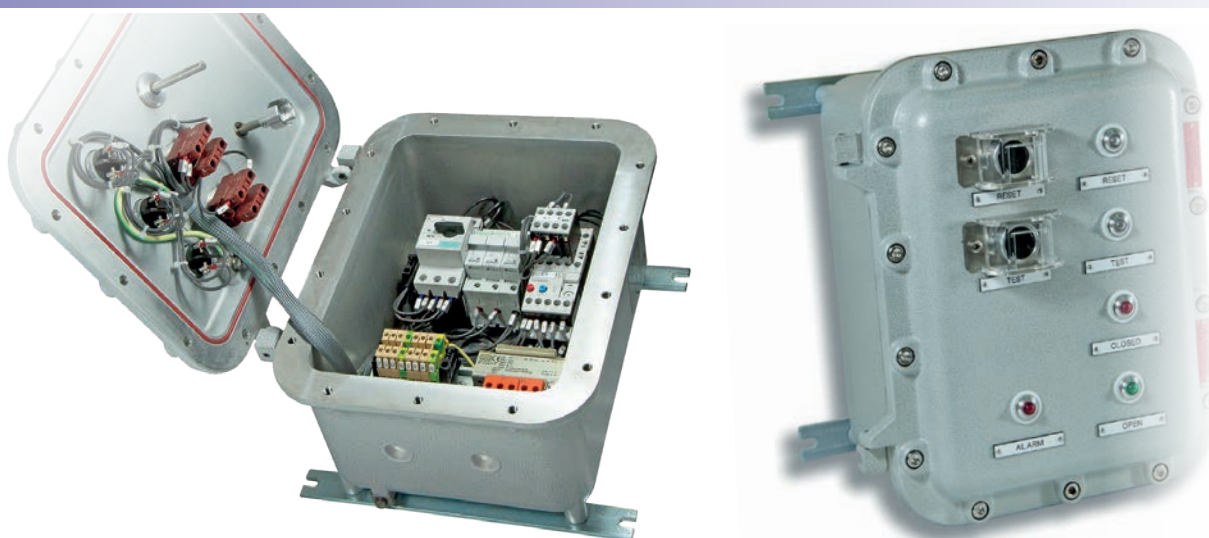
Examples of terminal strips with minimum installation distances



TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED									
	TERMINAL CROSS-SECTIONAL AREA									
	2.5	4	6	10	16	35	70	120	185	240
EJB-1	2x28	26	21	15	12	10	3	-	-	-
EJB-2	2x38	2x28	2x22	2x15	2x12	18	4	-	-	-
EJB-3	3x38	3x35	3x28	3x23	2x21	14	6	4	3	3
EJB-3B	3x38	3x35	3x28	3x23	2x21	14	6	4	3	3
EJB-4	3x48	3x38	3x30	3x29	3x25	2x18	13	6	6	5
EJB-4B	3x48	3x38	3x30	3x29	3x25	2x18	13	6	6	5
EJB-45	3x70	3x65	3x50	3x35	3x25	2x20	20	10	8	8
EJB-45B	3x70	3x65	3x50	3x35	3x25	2x20	20	10	8	8
EJB-5	3x80	3x70	3x60	3x50	3x40	2x28	22	10	10	8
EJB-5B	3x80	3x70	3x60	3x50	3x40	2x28	22	10	10	8
EJB-503	3x80	3x70	3x60	3x50	3x40	2x28	22	10	10	8
EJB-55	4x90	4x80	4x65	4x50	4x40	3x30	25	13	13	13
EJB-55B	4x90	4x80	4x65	4x50	4x40	3x30	25	13	13	13
EJB-6	4x120	4x100	4x80	4x60	4x50	3x35	30	15	15	15
EJB-6B	4x120	4x100	4x80	4x60	4x50	3x35	30	15	15	15
EJB-7	5x150	5x115	5x90	5x75	5x60	4x45	2x35	2x20	2x20	2x20
EJB-7B	5x150	5x115	5x90	5x75	5x60	4x45	2x35	2x20	2x20	2x20
AQS-1	3x54	3x40	3x35	3x32	3x26	2x18	12	6	4	4
EJB-01	20	20	15	12	10	3	-	-	-	-

Eg. 2x28= 2 rows of 28 terminals (total 56 terminals). The maximum number of standard terminals refers to CABUR terminals

## Features of junction boxes for control, monitoring and signalling units



Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

Rated voltage:	24 / 1000 Vac    12 / 250 Vdc
Max. current on contacts and fuses:	650 A
Rated frequency:	50 / 60Hz
Max. wattage for lamps:	5 W (for Ta +40°C) / 3 W (for Ta +55°C)



Electrical characteristics valid for size EJB-55, EJB-6, EJB-6B, EJB-7, EJB-7B. (T5 100°C).

Rated voltage:	up to 690 Vac
Max. current:	up to 1000 A



Electrical characteristics valid for size EJB-45, EJB-5, EJB-5B, EJB-55B. (T5 100°C).

Rated voltage:	up to 750 Vcc
Max. current:	up to 630 A

Features of equipment that can be installed in enclosures to produce control and monitoring units.

Table of electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.

(The values refer to the catalogs of the leading manufacturers of electrical/electronic components available on the market)

Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20
Component voltage (V dc)	Min. air gap (mm)
12 - 250	6

COMPONENT TYPE	Max. V (Volts)	Max. I (Amperes)	Max. power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	650	-
Fuses	660	400	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	240	-	300
Terminals	660	-	-
Reactors	277	7.5	40

## Features of junction boxes for control, monitoring and signalling units

### Identification and description of special equipment that can be installed inside.

#### Enclosures with batteries

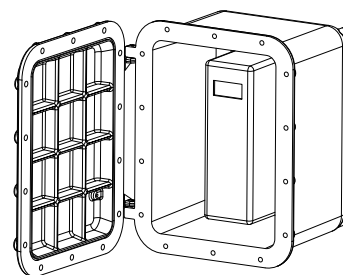
Option of installing low-capacity batteries 1.5Ah, for powering small electronic devices or backup memories.

Whatever the case, the minimum distance of 20mm between the components installed and the inside walls of the enclosure must be met.

#### Enclosures with inverters

EJB-4, EJB-45, EJB-5, EJB-6, EJB-7 series enclosures, depending on the maximum ambient temperature (+40°C or + 55°C), can be fitted with inverters (ABB ACS550 or similar types) provided maximum power dissipation falls within the permitted range (see table).

Enclosure type	Maximum inverter power for Ta +40°C	Maximum inverter power for Ta +55°C	Maximum inverter power	Cooling fan flow rate
EJB-4	2.2 kW	1.5 kW	73 W	44 m³/h
EJB-45	2.2 kW	1.5 kW	73 W	44 m³/h
EJB-5	5.5 kW	4.0 kW	172 W	44 m³/h
EJB-6	7.5 kW	5.5 kW	232 W	88 m³/h
EJB-7	7.5 kW	5.5 kW	232 W	88 m³/h



#### Enclosures with surge arresters

Option of installing PRD or similar types of surge arresters, with a maximum protection limit of 65kA; whatever the case, the minimum distance of 20 mm between the arrester and the inside walls of the enclosure must be met.

#### Enclosures with fibre-optic cables

The enclosures have provision for feeding multiple (not single) fibre-optic cables in and out. The permitted optical power and radiation limits for optical cables are:

- 35mW and 5mW/m² for T4 temperature class
- 15mW and 5mW/m² for T6 temperature class

#### Enclosures with power transformer

Option of installing single-phase transformers (and three-phase transformers with EJB-7 only) provided maximum power is within the limits allowed by the certificate.

#### Enclosures with radio-frequency sources

Option of installing components with radio-frequency sources in the 9kHz to 60GHz range that can be used for continuous and pulsed transmission of signals. Antennas can be installed inside or outside the enclosure and must:

- comply with one of the protection types indicated in standard EN 60079-0
- be installed outside the hazardous area.

For more information, refer to extension 05/10 CESI 01 ATEX 027.



## Features of junction boxes for control, monitoring and signalling units

Table with maximum power dissipation values for EJB and AQS series enclosures.

The temperature classes and maximum surface temperatures of control and monitoring unit enclosures depend on the size of the enclosure, ambient temperature and power dissipation inside the enclosure.

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of <b>+40°C</b>			
	T6 class without indicator lights. Only indicator LEDs are allowed.	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed.	T4 class without indicator lights and/or LEDs
EJB-01	30	30	45	100
EJB-1	45	45	65	140
EJB-2	60	60	85	190
EJB-3	75	75	110	245
EJB-3B	55	55	80	180
EJB-4	100	100	175	350
EJB-4B	75	75	130	260
EJB-45	140	140	240	480
EJB-45B	120	120	210	430
EJB-5	210	210	315	600
EJB-5B	170	170	250	480
EJB-503	230	230	345	660
EJB-55	260	260	380	740
EJB-55B	210	210	315	600
EJB-6	600	600	910	1740
EJB-6B	490	490	720	1390
EJB-7	770	770	1170	2270
EJB-7B	600	600	910	1740
AQS-1	100	100	150	280

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of <b>+55°C</b>			
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed	T4 class without indicator lights and/or LEDs
EJB-01	25	25	40	80
EJB-1	34	34	50	105
EJB-2	45	45	65	142
EJB-3	56	56	82	184
EJB-3B	40	40	60	135
EJB-4	75	75	130	262
EJB-4B	56	56	100	195
EJB-45	105	105	180	360
EJB-45B	90	90	160	320
EJB-5	160	160	235	450
EJB-5B	130	130	190	360
EJB-503	176	176	255	495
EJB-55	200	200	300	565
EJB-55B	160	160	235	450
EJB-6	460	460	680	1300
EJB-6B	370	370	550	1040
EJB-7	590	590	890	2090
EJB-7B	460	460	680	1300
AQS-1	75	75	110	205



### ELECTRICAL FEATURES

Rated voltage:	24 / 1000 Vac	12 / 250 Vdc
Max. current on contacts and fuses:	400 A	
Rated frequency:	50 / 60Hz	
Max. wattage for lamps:	5 W (for Ta +40°C)	3 W (for Ta +55°C)

### GENERAL INSTALLATION INFORMATION

The maximum power dissipation inside the enclosure depends on the maximum current on contacts and fuses, the size of the enclosure, the temperature class (or maximum surface temperature for 2GD category) and ambient temperature, as specified in the maximum power dissipation tables (see previous page).

The maximum power dissipation must not exceed the values given in the table when non-'Ex i' components and 'Ex i' components (with 1.1W maximum power dissipation) are installed together.

The maximum power dissipation possible inside the enclosure will also depend on the maximum power dissipation of terminals, contacts and cables; whatever the case, the current density value allowed in the enclosure is prescribed by EN 60439-1, IEC 60439-1.

#### Details of barrier mounting inside enclosures

The "omega" rail, in accordance with EN 60079-11, is suitable for mounting barriers inside 'Ex d' enclosures.

Barriers are mounted (according to the manufacturer's directions) 7.5 mm away from the base of the enclosure and are secured to the DIN rail with 2 earth terminals (nominal cross-sectional area 6-10 mm) and 2 standard terminals for omega rails (EN 60079-11).

Up to how many barriers can be installed in the enclosures will depend on the properties of the barriers in question; in addition, the maximum number of barriers must not exceed the limit allowed by the certificate in any case.

Associated equipment can also be mounted on a DIN rail; when it is mounted on the enclosure's internal mounting plate, reference must be made to the minimum prescribed distances. Whether mounted on a rail or mounting plate, associated equipment must meet the following requirements:

#### Separators

When separators are used, they must be appropriately sized; their thickness and fastening inside the enclosure must be suitably determined and separators must allow air to circulate inside the enclosure.

#### Incoming cables

Incoming cables for 'Ex i' circuits must be suitably labelled or the area around the entry must be coloured blue RAL 5015. 'Ex i' entries must be clearly identified

Installation of 'Ex i' and non-'Ex i' components inside the enclosure.

Ex d IIB certified enclosures complete with accessories can contain only Ex ia IIB/IIC associated equipment; in this case, the resulting version becomes Ex d [ia] IIB.

#### Connection of internal cables

Cables are connected inside the enclosure to the barriers in accordance with EN 60079-11, with one side for connecting 'Ex i' cables and the opposite side for connecting non-'Ex i' cables.

Connection in 'Ex i' circuits must be made using insulated cables only; there must be no connections to non-'Ex i' circuits and no more than one cable can be connected to a single terminal. 'Ex i' cables cannot be grouped together with non-'Ex i' cables; in addition, 'Ex i' cables and non-'Ex i' cables must be kept separated. The minimum distance between the 2 types of cables must be 8 mm. The minimum insulation level for non-'Ex i' cables must be greater than 1.5 kV; the minimum insulation level for 'Ex i' cables must be greater than 0.5 kV.

#### Internal connections

When routing cables belonging to 'Ex i' circuits, the cables must be identified in one of the following ways:

- cables must have blue insulation (as long as there are no other cables inside the enclosure with this colour).
- 'Ex i' cables must be kept separate from non-'Ex i' cables with blue cable raceways.
- 'Ex i' cables must be grouped together, using a tie, for example, and the area identified with a blue label.

#### Warning 'Ex i' circuits

- cables for power circuits must have a cross-sectional area of at least 1.5 mm<sup>2</sup>.
- 'Ex i' circuits must be kept at a distance of 50 mm from non-'Ex i' circuits.
- the earth connection must meet European standard EN 60079-14.

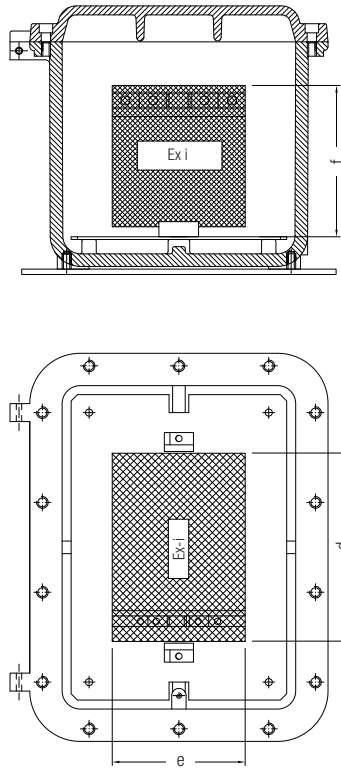
## EJB-... series Features of junction boxes with interface units

The number of items of equipment mounted inside the enclosures and their layout will vary based on the following:

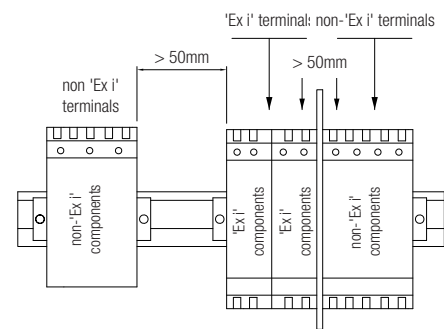
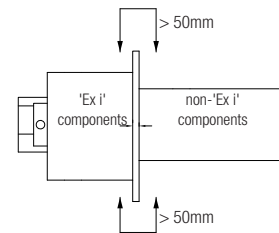
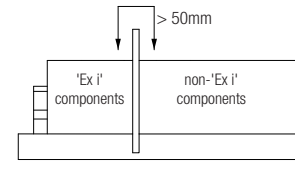
- in accordance with EN 60079-1 and IEC 60079-1, the equipment contained inside the enclosure can be arranged in any way provided that at least 40% of the surface area of each section is left free.
- equipment must be set at a suitable distance to accommodate cable wiring.

Maximum dimensions of 'Ex ia' equipment that can be installed inside enclosures.

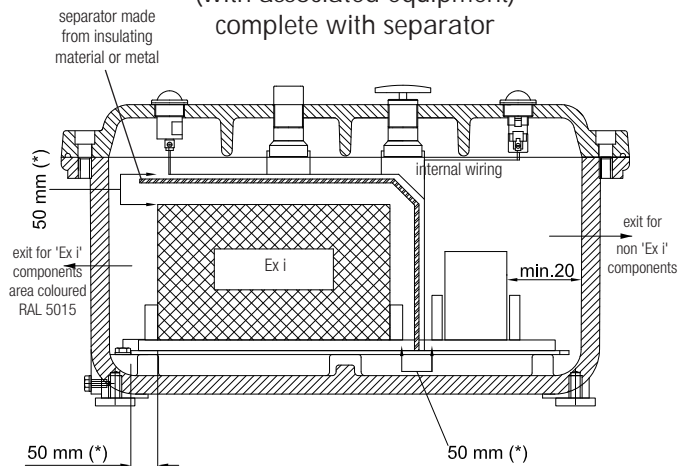
	d	e	f
<b>EJB-01</b>	140	40	20
<b>EJB-1</b>	160	60	110
<b>EJB-2</b>	280	80	110
<b>EJB-3</b>	150	140	170
<b>EJB-3B</b>	150	140	110
<b>EJB-4</b>	280	180	190
<b>EJB-4B</b>	280	180	120
<b>EJB-45</b>	410	225	170
<b>EJB-45B</b>	410	225	120
<b>EJB-5</b>	480	280	220
<b>EJB-5B</b>	480	280	150
<b>EJB-55</b>	550	350	340
<b>EJB-55B</b>	550	350	240
<b>EJB-6</b>	670	450	300
<b>EJB-6B</b>	670	450	200
<b>AQS-1</b>	350	300	90



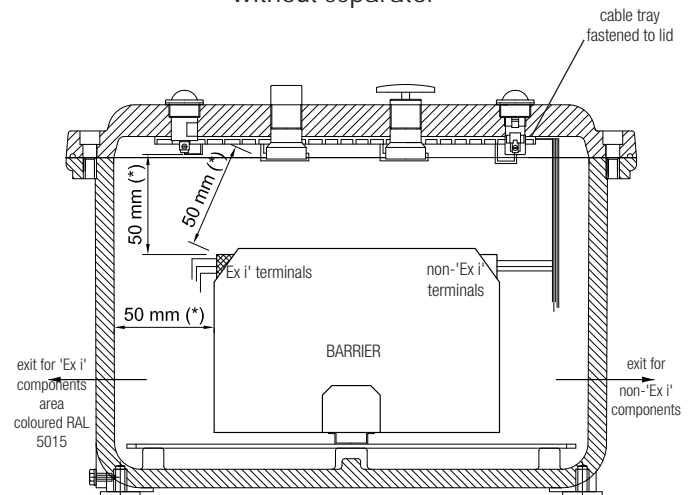
Examples of installation of associated equipment - minimum distances.



Example of interface unit (with associated equipment) complete with separator



Example of interface unit without separator



### NOTES

(\*) 50 mm is the minimum safe distance between 'Ex i' components and non-'Ex i' components (and/or conducting parts).

- The active and passive barriers that can be installed in the enclosures must have their own ATEX certificate.
- The maximum voltage entering barriers on non-'Ex i' circuits must be less than 250 V.

## EJB-... series Junction boxes with round viewing windows

EJB series junction boxes are used as enclosures for electrical equipment that requires a visual interface with the outside. Voltmeters, ammeters and other analogue and digital measuring instruments are typical examples of installations that require a window for taking direct readings. These enclosures are also used to house monitoring instruments such as infra-red photoelectric cells and twilight sensors that provide pulses for control and signalling equipment (opening/closing, alarms, etc....). Our technical department will decide what size enclosures to use based on your requirements and determine the internal layout so that all the dimensional and electrical parameters prescribed by the certificate are met. We can install equipment to your specifications within the technical limits allowed by the certificate and based on our standard control and signalling devices.



K-0253  
Ø 90

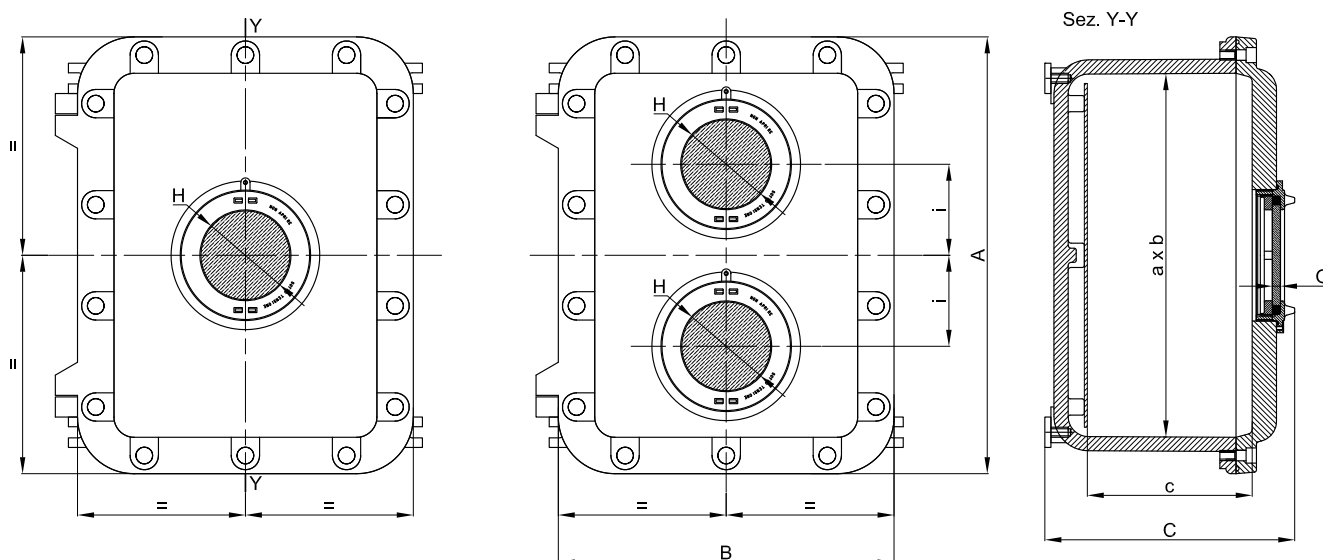


K-0254  
Ø 140

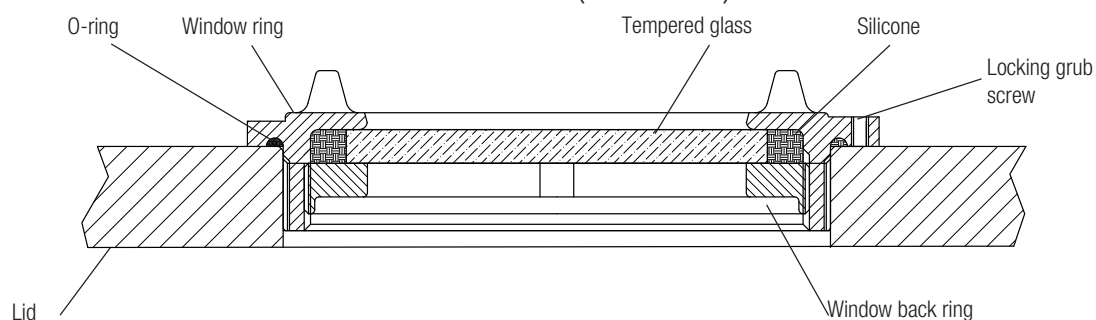


K-0255  
Ø 180

### DIMENSIONAL DRAWING OF ENCLOSURES WITH ROUND VIEWING WINDOWS



### WINDOW DETAIL (cross-section)



## EJB-... series Junction boxes with round viewing windows

Code	Outside dimensions			Inside dimensions			N° of windows	Size of windows			Weight kg
	A	B	C	a	b	c		H	G	i	
EJB-2/1W0	424	224	218	360	160	153	1	90	10	-	
EJB-3/1W0	364	284	278	300	220	213	1	90	10	-	
EJB-3B/1W0	364	284	218	300	220	153	1	90	10	-	
EJB-4/2W0	432	332	299	360	260	233	2	90	10	90	
EJB-4B/2W0	432	332	229	360	260	163	2	90	10	90	
EJB-4/1W2	432	332	299	360	260	233	1	140	12	-	
EJB-4B/1W2	432	332	229	360	260	163	1	140	12	-	
EJB-45/2W0	560	380	298	490	305	229	2	90	10	90	
EJB-45B/2W0	560	380	253	490	305	179	2	90	10	90	
EJB-45/1W2	560	380	298	490	305	229	1	140	12	-	
EJB-45B/1W2	560	380	253	490	305	179	1	140	12	-	
EJB-5/2W0	632	432	341	560	360	275	2	90	10	140	
EJB-5B/2W0	632	432	271	560	360	205	2	90	10	140	
EJB-5/1W2	632	432	341	560	360	275	1	140	12	-	
EJB-5B/1W2	632	432	271	560	360	205	1	140	12	-	
EJB-5/1W3	632	432	341	560	360	275	1	180	15	-	
EJB-5B/1W3	632	432	271	560	360	205	1	180	15	-	
EJB-503/2W0	632	432	397	560	360	330	2	90	10	140	
EJB-503/1W2	632	432	397	560	360	330	1	140	12	-	
EJB-503/1W3	632	432	397	560	360	330	1	180	15	-	
EJB-55/3W0	710	510	356	630	430	273	3	90	10	-	
EJB-55B/3W0	710	510	256	630	430	173	3	90	10	-	
EJB-55/2W2	710	510	356	630	430	273	2	140	12	130	
EJB-55B/2W2	710	510	256	630	430	173	2	140	12	130	
EJB-55/2W3	710	510	356	630	430	273	2	180	15	160	
EJB-55B/2W3	710	510	256	630	430	173	2	180	15	160	
EJB-6/2W0	870	650	480	760	540	353	2	90	10	-	
EJB-6B/2W0	870	650	380	760	540	253	2	90	10	-	
EJB-6/2W2	870	650	480	760	540	353	2	140	12	-	
EJB-6B/2W2	870	650	380	760	540	253	2	140	12	-	
EJB-6/1W3	870	650	480	760	540	353	1	180	15	-	
EJB-6B/1W3	870	650	380	760	540	252	1	180	15	-	
EJB-7/3W0	1000	700	500	890	590	340	3	90	10	-	
EJB-7B/3W0	1000	700	400	890	590	240	3	90	10	-	

## EJB-... series Junction boxes with viewing windows

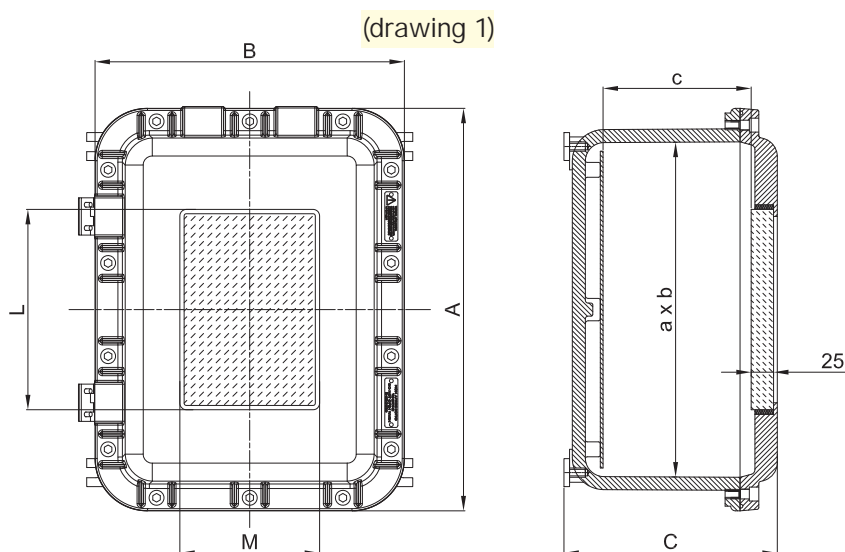
We can provide standard windows to meet your requirements for the various enclosure types for such purposes as viewing analogue or digital instruments, indicators of various kinds.



DIMENSIONAL DRAWING OF ENCLOSURES WITH RECTANGULAR WINDOWS (tempered glass).

Position of standard window in centre.

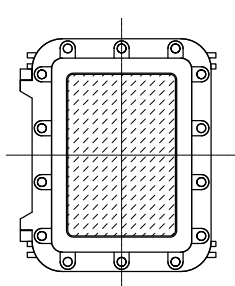
Non-standard window positions or dimensions on request.



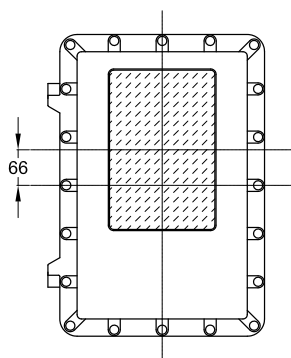
ENCLOSURES WITH STANDARD 300x200 CAST WINDOWS

(drawing 2)

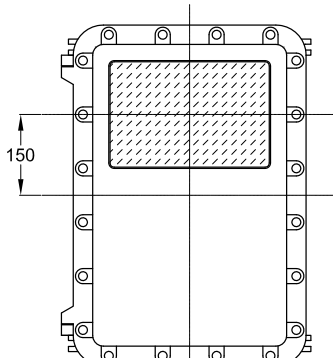
DETAIL  
EJB-4/3020  
EJB-4B/3020



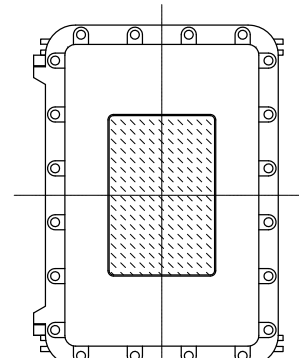
DETAIL  
EJB-45/3020  
EJB-45B/3020



DETAIL  
EJB-5/3020  
EJB-5B/3020



DETAIL  
EJB-5/3020C  
EJB-5B/3020C





## EJB-... series Junction boxes with viewing windows

Code	Outside dimensions			Internal dimensions			Window size		Positioning of window	Weight kg
	A	B	C	a	b	c	M	L		
Enclosures with standard machined windows										
EJB-1/1508	304	204	218	240	140	149	80	150	Central as illustrated in "drawing 1".  Non-standard window positioning or dimensions on request	
EJB-2/2508	424	224	218	360	160	149	80	250		
EJB-3/2015	364	284	278	300	220	209	150	200		
EJB-3B/2015	364	284	218	300	220	149	150	200		
EJB-4/3020	432	332	299	360	260	229	200	300		
EJB-4B/3020	432	332	229	360	260	159	200	300		
EJB-45/3020SP	567	387	298	490	305	229	200	300		
EJB-45B/3020SP	567	387	248	490	305	184	200	300		
EJB-5/3020SP	632	432	341	560	360	271	200	300		
EJB-5B/3020SP	632	432	271	560	360	201	200	300		
EJB-503/3020SP	632	432	397	560	360	327	200	300		
EJB-55/3020	710	510	356	630	430	270	200	300		
EJB-55B/3020	710	510	256	630	430	170	200	300		
EJB-6/3020	870	650	480	760	540	348	200	300		
EJB-6B/3020	870	650	380	760	540	248	200	300		
EJB-7/2010	1000	700	500	890	590	340	100	200	Central (ribbed lid)	
EJB-7B/2010	1000	700	400	890	590	240	100	200		
Enclosures with standard cast windows										
EJB-4/3020	432	332	229	360	260	159	200	300	Central as illustrated in "drawing 2".	
EJB-4B/3020	432	332	229	360	260	159	200	300		
EJB-45/3020	567	387	298	490	305	229	200	300		
EJB-45B/3020	567	387	248	490	305	179	200	300		
EJB-5/3020	632	432	341	560	360	271	200	300		
EJB-5B/3020	632	432	271	560	360	201	200	300		
EJB-5/3020C	632	432	341	560	360	271	200	300		
EJB-5B/3020C	632	432	271	560	360	201	200	300		

### DON'T FORGET TO ORDER THE ACCESSORIES

Example: Enclosure type EJB-55 + Internal mounting plate BFE-55 + Hinges 218-9301 + other...see key

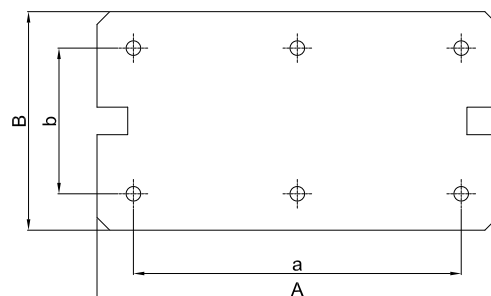


## EJB-... series Accessories available on request and spare parts

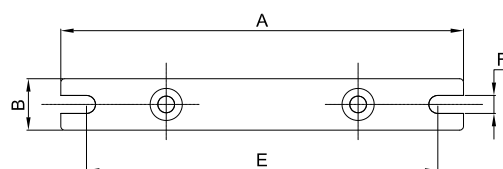
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Internal mounting plates	EJB-01	Thickness 2.5mm  Aluminium (BFE-...) Galvanized steel (BFE-...AC) Stainless steel (BFE-...SS)	<b>BFE-01</b>	 
		EJB-1		<b>BFE-1</b>	
		EJB-2		<b>BFE-2</b>	
		EJB-3/3B		<b>BFE-3</b>	
		EJB-4/4B		<b>BFE-4</b>	
		EJB-45/45B		<b>BFE-45</b>	
		EJB-48BA		<b>BFE-48</b>	
		EJB-5/5B		<b>BFE-5</b>	
		EJB-55/55B		<b>BFE-55</b>	
		EJB-6/6B		<b>BFE-6</b>	
		EJB-7/7B		<b>BFE-7</b>	
		AQS-1		<b>K-171</b>	
	Breather and drain valve	Thread diameter ISO 7-R 3/8"	Material: stainless steel	<b>ECD-210S</b>	 
	Hinges (2 per enclosure)	EJB-01	Material: stainless steel	<b>K-0351</b>	 
	Cable glands and unions		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Sealed bushings		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Lid-mounted control and signalling devices		For control and signalling device models and codes, see control and monitoring device chapter	<b>M-0...</b>	 
	N°2 hinges per enclosure (n°3 per EJB-6, EJB-7)	EJB-...	Material: stainless steel	<b>218-9301</b>	
		EJB-6 / EJB-7		<b>218-9303</b>	
	Mounting brackets	EJB-01	Material: galvanized steel	<b>K01-237</b>	
		EJB-1		<b>K1-237</b>	
		EJB-2		<b>K2-237</b>	
		EJB-3/3B		<b>K3-237</b>	
		EJB-4/4B		<b>K4-237</b>	
		EJB-45/45B		<b>K45-237</b>	
		EJB-48BA		<b>K5-237</b>	
		EJB-5/5B		<b>K55-237</b>	
		EJB-55/55B		<b>K6-237</b>	
		EJB-6/6B		<b>K6-237</b>	
		EJB-7/7B		<b>K7-237</b>	
	O-ring between body and lid	EJB-01	Material: red-coloured silicone	<b>K01-131/1S</b>	
		EJB-1		<b>K1-131/1S</b>	
		EJB-2		<b>K2-131/1S</b>	
		EJB-3/3B		<b>K3-131/1S</b>	
		EJB-4/4B		<b>K4-131/1S</b>	
		EJB-45/45B		<b>K45-131/1S</b>	
		EJB-48BA		<b>K48-131/1S</b>	
		EJB-5/5B		<b>K5-131/1S</b>	
		EJB-55/55B		<b>K55-131S</b>	
		EJB-6/6B		<b>K6-131/1S</b>	
		EJB-7/7B		<b>K61-131S</b>	

Dimensional drawings of internal mounting plates and mounting brackets

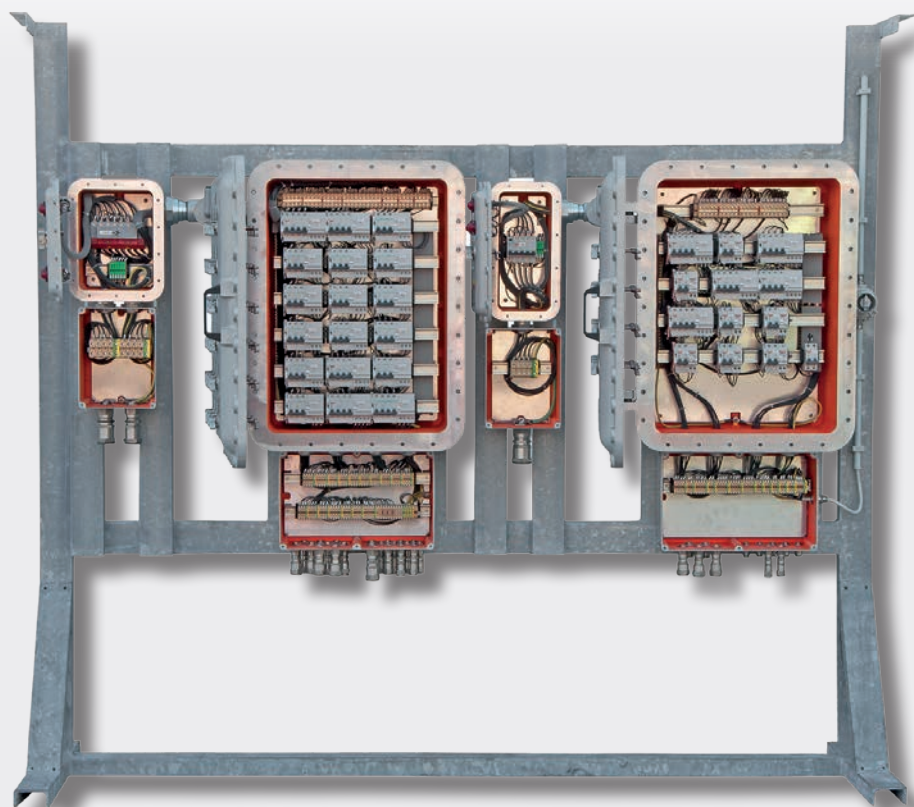
Enclosures	Internal mounting plates				
	A	B	a	b	Code
EJB-01	205	100	193	53	BFE-01
EJB-1	220	120	180	80	BFE-1
EJB-2	340	140	300	100	BFE-2
EJB-3 /3B	280	200	240	160	BFE-3
EJB-4 /4B	340	240	300	200	BFE-4
EJB-45 /45B	460	280	440	260	BFE-45
EJB-48BA	400	320	360	280	BFE-48
EJB-5 /5B	530	330	500	300	BFE-5
EJB-55 /55B	600	400	560	360	BFE-55
EJB-6 /6B	720	500	680	460	BFE-6
EJB-7 /7B	850	550	820	520	BFE-7
AQS-1	400	360	380	330	K-171



Enclosures	Mounting brackets				
	A	B	E	F	Code
EJB-1	230	30	210	9	K1-237
EJB-2	250	30	230	9	K2-237
EJB-3 /3B	310	30	290	9	K3-237
EJB-4 /4B	350	30	330	11	K4-237
EJB-45 /45B	376	30	356	11	K45-237
EJB-48BA	450	30	430	11	K5-237
EJB-55 /55B	510	30	496	11	K55-237
EJB-6 /6B	620	50	580	14	K6-237
EJB-7 /7B	690	70	655	18	K7-237



Example of control panel with floor-mounting system and detail of connection with sealed bushings.



# GUBE, GUBE...H

- Zones 1, 2, 21, 22
- Ex d and Ex e enclosures in stainless steel
- Different sizes
- IP66

*Ex d IIC enclosure  
in stainless steel*

*Mounting feet*

*Ex e enclosure  
in stainless steel*



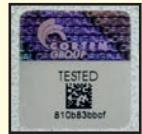
## Series GUBE, GUBE...H Control boards

The control, monitoring and distribution boards in 'Ex de' execution of the GUBE and GUBE...H series, consisting of an enclosure in 'Ex e' execution and the standard enclosure in 'Ex e' execution in AISI316L stainless steel were designed to meet specific installation requirements in environments with an explosion risk. In fact they allow you to install electric components such as switches, inverters, fuses, relays, etc. in 'Ex d' enclosures to develop the control and signalling units, housing the auxiliary terminal board in intrinsically safe 'Ex e' enclosures.

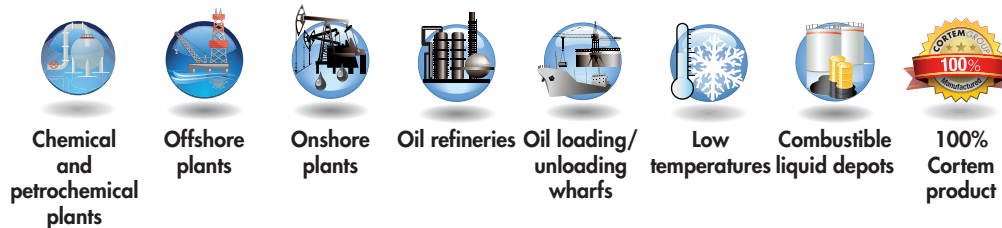
GUBE and GUBE...H panel boards were specifically designed for especially difficult environments, such as marine and off-shore environments, which require greater protection against corrosion. 'Ex d' enclosures are mechanically linked to 'Ex e' enclosures by means of a flange and electrically linked by Cortem TP sealed bushings in nickel plated brass or in stainless steel. The number and diameter of the sealed bushings varies depending on the size of the enclosures and the number and cross-section of the cables. The IP protection between two enclosures is guaranteed by a flat silicone gasket resistant to acids, to hydrocarbons and to high and low temperatures. In GUBE...H series panel boards, the lids of the 'Ex d' enclosures can be supplied with a tempered glass window to see and monitor the electric equipment inside.

Ex de





Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:



### CERTIFICATION DATA GUBE, GUBE...H - ENCLOSURES FOR COMMAND, CONTROL AND SIGNALLING UNITS

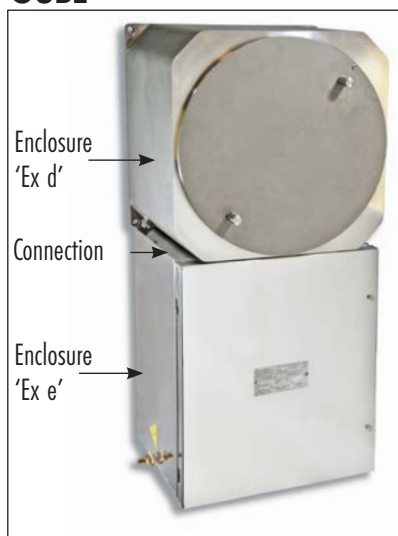
Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Execution:	CE 0722 Ex II 2 GD - Ex de IIC T6,T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certificate:	ATEX	CESI 12 ATEX 027		
	IEC Ex	IECEX CES 12.0023	All IEC Ex certification data can be downloaded at <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient temperature:	 -40°C +(40°C)55°C 		With polycarbonate indicator lights installed on the lid	
	 -50°C +(40°C)55°C 		Without polycarbonate indicator lights installed on the lid	
Degree of protection:	IP66			

**Stainless steel properties:** The stainless steel used by Cortem to produce enclosures and accessories designed for use in cryogenic plants and highly corrosive environments is a very low carbon Iron-Chromium-Nickel-Molybdenum alloy. This alloy is highly resistant to intergranular (or intercrystalline) corrosion and to pitting corrosion. It is classified as an austenitic stainless steel UNI EN 10088-3 X 2 CrNiMo 17-12-2-E or AISI 316L according to the American Iron and Steel Institute. Its main quality is the spontaneous formation of a thin layer of chromium oxide on the surface that protects the metal underneath from corrosion attack. In addition, even if the metal is inadvertently damaged by abrasion or scratches, this film is self-renewing.



## MECHANICAL CHARACTERISTICS

### GUBE



'Ex d' stainless steel enclosure:

**Body and lid:**

AISI 316L stainless steel. Screw-on lid for coupling system to body.

**Gasket:**

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid in riveted stainless steel

**Certification label:**

**Bolts and screws:**

Stainless steel

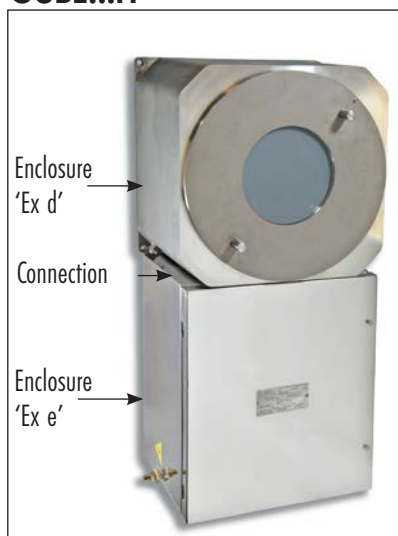
**Earth screws:**

Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

**Mounting:**

Stainless steel feet

### GUBE...H



'Ex d' stainless steel enclosure with window:

**Body and lid:**

In AISI 316L stainless steel. Screw-on lid for coupling system to body.

**Glass:**

Shock and high temperature resistant tempered glass

**Gasket:**

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid in riveted stainless steel

**Certification label:**

**Bolts and screws:**

Stainless steel

**Earth screws:**

Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

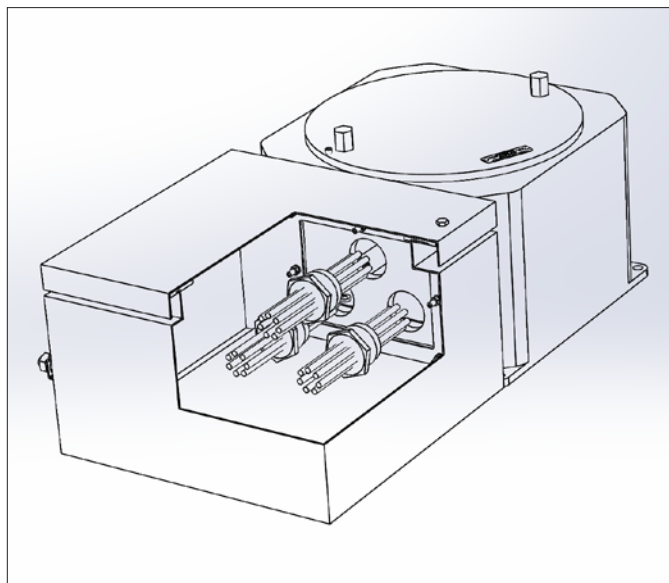
**Mounting:**

Stainless steel feet

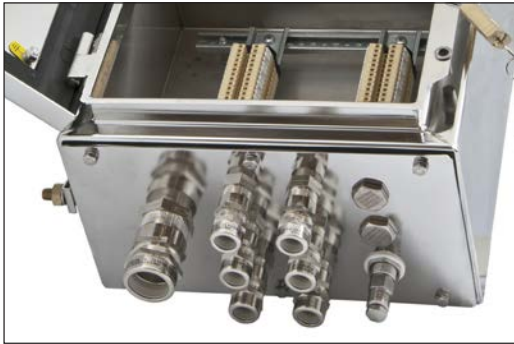
## ENCLOSURE CONNECTION



Connection made with Cortem TP sealed bushings in nickel plated brass or stainless steel. The number and diameter of the sealed bushings are determined based on the number and cross-sections of the bushing cables. The IP protection between enclosures is guaranteed by a flat silicone gasket.



## Series GUBE, GUBE...H Control boards



Ex e enclosure:

**Body and lid:**

**Hinges:**

**Impact protection rating:**

**Gasket:**

**Removable gland plates:**

**Bolts and screws:**

**Earth screws:**

AISI 316L stainless steel

AISI 316L stainless steel

IK10

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid.

Stainless steel thickness 30/10

Stainless steel captive variety

Stainless steel. On inside and outside of body complete with anti-rotation brackets

Ex de

### ACCESSORIES AVAILABLE / SPECIAL REQUESTS

For stainless steel 'Ex d' enclosure:

Internal mounting plate in 25/10-thick stainless steel (code K...-349). See accessories section

Enclosures with windows on lid for instrument viewing / reading (see section Enclosures with windows for inspection and reading instruments)

For "Ex e" enclosure:

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Internal mounting plate: stainless steel (code B...-443)

Terminal block mounting rails (code OBO2060/S)

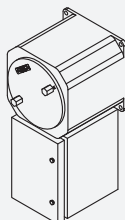
Padlocking system. Padlock (code VIRO552)

ATEX-CERTIFIED TERMINALS: terminals must be chosen from the list of approved manufacturers: Cabur, Phonix, ABB Entrelec, Wago, Weidmuller. When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals. DIN rail.

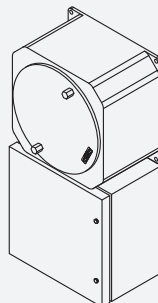
Hole options: through holes with no threading

**Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.**

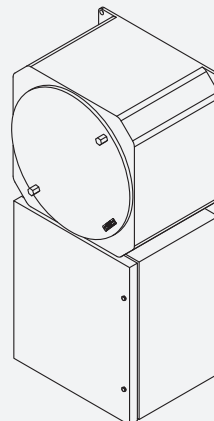
#### GUBE-...enclosures



GUBE-2020

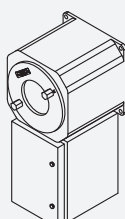


GUBE-3020

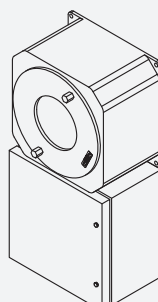


GUBE-4030

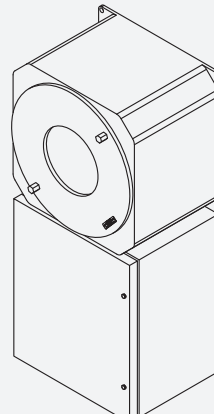
#### GUBE-...H enclosures



GUBE-2020H



GUBE-3020H



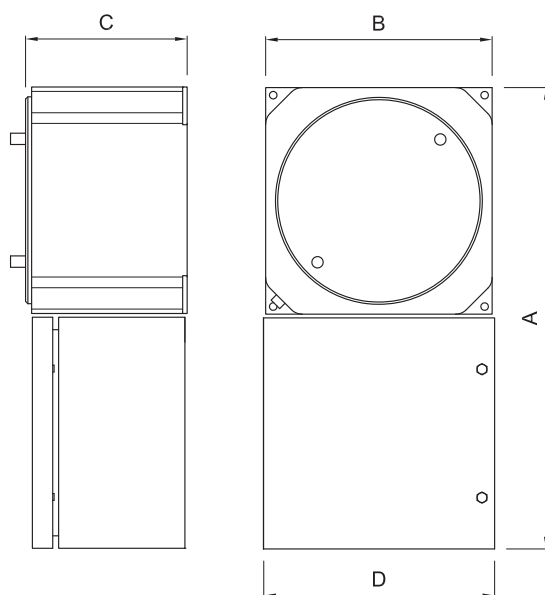
GUBE-4030H

# Series GUBE, GUBE...H Control boards

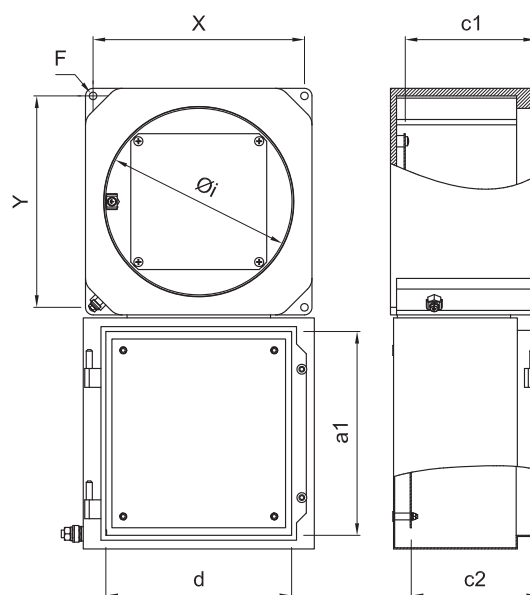
## ENCLOSURE SELECTION CHART

Code	Outside dimensions				$\varnothing i$	Inside dimensions				Mounting			Weight Kg
	A	B	C	D		c1	d	a1	c2	X	Y	F	
GUBE-2020	433	200	200	152	150	150	92	169	142	170	170	10	
GUBE-3020	610	300	200	306	245	147	246	270	168	270	270	10	
GUBE-4030	855	400	300	382	355	245	322	414	268	368	368	12	

External view

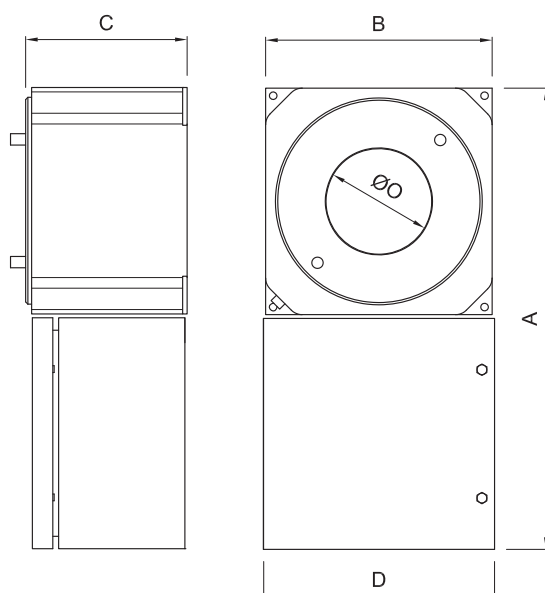


Internal view

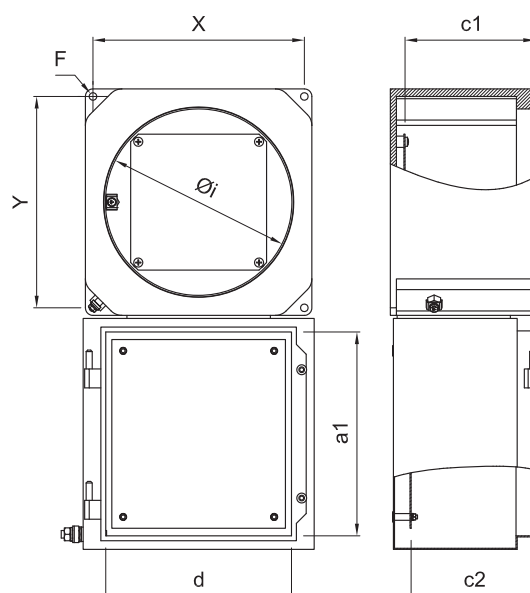


Code	Outside dimensions					$\varnothing i$	Inside dimensions				Mounting			Weight Kg
	A	B	C	D	$\varnothing O$		c1	d	a1	c2	X	Y	F	
GUBE-2020H	433	200	200	152	90	150	150	92	169	142	170	170	10	
GUBE-3020H	610	300	200	306	140	245	147	246	270	168	270	270	10	
GUBE-4030H	855	400	300	382	180	355	245	322	414	268	368	368	12	

External view



Internal view



## Series GUBE, GUBE...H Control boards

### BODY DRILLING DATA FOR 'Ex e' ENCLOSURE

#### THREAD COMPARISON CHARTS

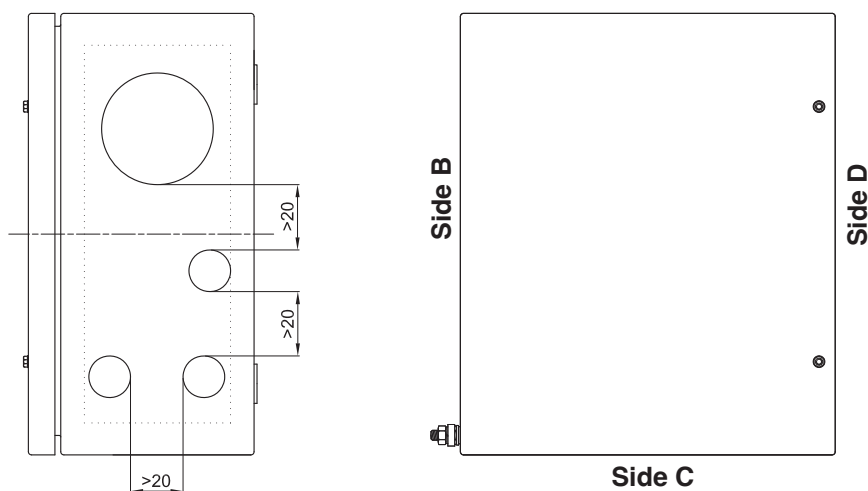
D	01	1	2	3	4	5	6	7
Thread diameter	16x1.5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5

As required by the current standard, holes can be drilled by Cortem or by authorised partners who hold a production notification in accordance with ATEX Directive .



Ex de

TYPE OF ENCLOSURE	'Ex e' ENCLOSURE BODY DRILLING																	
	Side C									Sides B and D								
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE							
		01	1	2	3	4	5	6	7		01	1	2	3	4	5	6	7
GUBE-2020	108x58	6	3	2	1	1	1	-	-	108x58	6	3	2	1	1	1	-	-
GUBE-3020	261x124	32	24	12	10	4	3	0	0	261x124	32	15	10	8	3	2	0	0
GUBE-4030	337x124	44	27	21	12	8	4	3	0	337x124	44	27	21	12	8	4	3	0



Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

# Series GUBE, GUBE...H Control boards

## 'Ex d' ENCLOSURES ELECTRICAL FEATURES

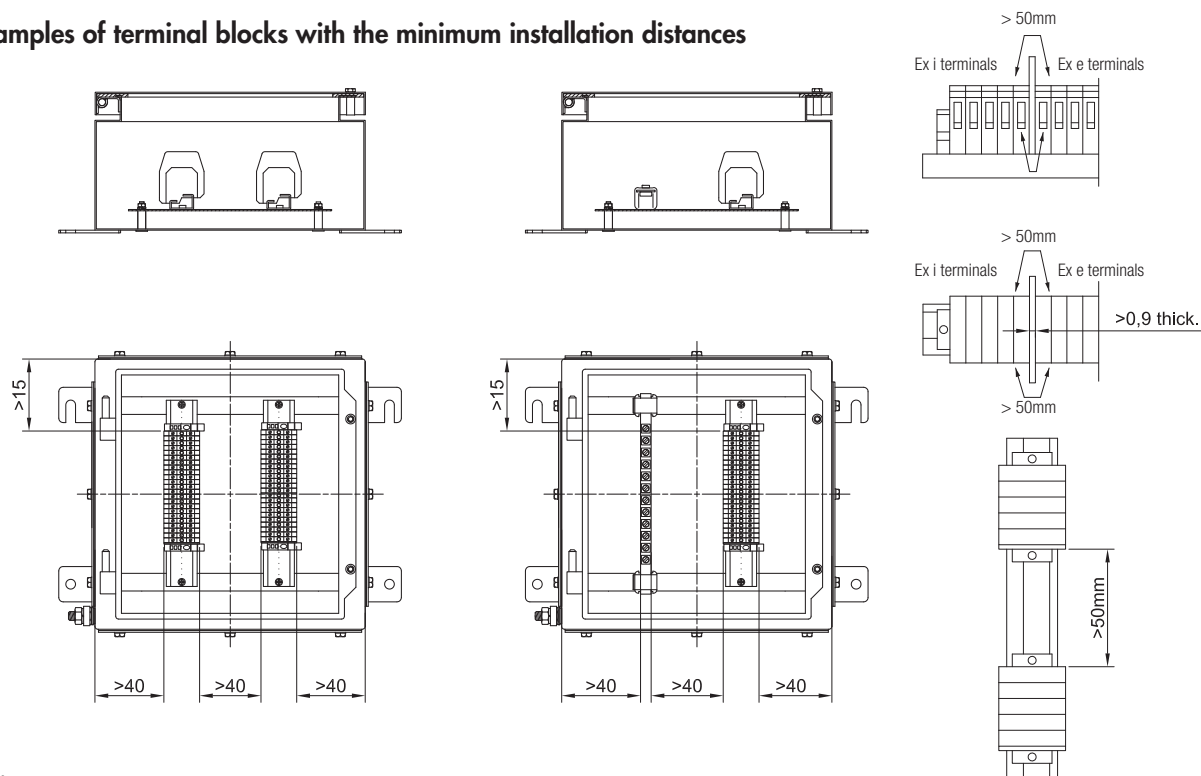
Rated voltage: max. 690 Vac  
 Rated current: 50 A  
 Rated frequency: 50 ÷ 60Hz

Code	Maximum power dissipation			
	Amb. T = +40°C		T amb. = +55°C	
	T6/T85°C	T5/T100°C	T6/T85°C	T5/T100°C
GUBE-2020	30 W	42 W	25 W	34 W
GUBE-3020	50 W	68 W	39 W	53 W
GUBE-4030	105 W	170 W	90 W	140 W

## 'Ex e' ENCLOSURES ELECTRICAL FEATURES

Rated voltage: max. 690 Vac  
 Rated current: 50 A  
 Terminal cross-sectional area: from 1.5mm<sup>2</sup> to 16mm<sup>2</sup>

### Examples of terminal blocks with the minimum installation distances



#### Note:

Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.  
 Only ATEX-certified terminals are allowed inside the enclosures.  
 Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.  
 Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.





TYPE OF ENCLOSURE	Terminals installed vertically							Maximum power dissipation	
								T6 - Max amb. T 55°C	T6 - Max amb. T 40°C o T5 - Max amb. T 55°C
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0		
GUBE-2020	1x21	1x21	1x17	1x13	1x10	1x17	1x17	2.9 W	8.0 W
GUBE-3020	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
GUBE-4030	3x67	2x67	2x56	2x42	2x33	3x56	3x56	5.8 W	34.0 W

TYPE OF ENCLOSURE	Terminals installed horizontally							Maximum power dissipation	
								T6 - Max amb. T 55°C	T6 - Max amb. T 40°C o T5 - Max amb. T 55°C
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0		
GUBE-2020	1x5	1x5	1x4	1x3	1x2	1x4	1x4	2.9 W	8.0 W
GUBE-3020	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
GUBE-4030	4x51	3x51	3x42	3x32	3x25	4x42	4x42	5.8 W	34.0 W

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

## Tables showing maximum number of conductors

 : In this unfilled area, provided the relevant instructions are followed and the permitted measurements given for devices housed inside the enclosure are complied with, any number of terminals can be added up to the space limit of the box.

 : Wiring in this unfilled area is not covered by this certification.

### GUBE-2020 (j.b. 'Ex e')

Current (A)	Cross-section in mm²							
	1.5	2.5	4	6	10	16	25	35
8	63							
10	31							
12		46						
14		28						
16		20	79					
18			31					
20			23					
23				35				
25				25				
32					43			
35					24			
45						42		
50						20		
58								
63							33	
68								
75								
80								37

### GUBE-3020 (j.b. 'Ex e')

Current (A)	Cross-section in mm²							
	1.5	2.5	4	6	10	16	25	35
8	105							
10	51							
12		77						
14		46						
16		34	131					
18			52					
20			38					
23				57				
25				41				
32					71			
35					40			
45						69		
50						33		
58								
63							55	
68								
75								
80								62

### GUBE-4030 (j.b. 'Ex e')

Current (A)	Cross-section in mm²							
	1.5	2.5	4	6	10	16	25	35
8	121							
10	58							
12		88						
14		53						
16		39	151					
18			60					
20			44					
23				66				
25				48				
32					82			
35					46			
45						80		
50						38		
58								
63							63	
68								
75								
80								71

# EJBC

- Zone 1, 2, 21, 22
- Group IIC
- Aluminium junction boxes
- IP 66 / 67



Patent Pending

Hinges in  
stainless steel

Easy opening of the lid  
with handle



Mounting  
bracket

Multi-step joint on  
body and cover

External earth screw  
in body

Internal earth screw  
in body



## EJBC-... series Aluminium junction boxes gas group IIC

The EJBC series junction boxes have been carefully designed to allow their installation in areas with danger of explosion and/or fire due to the presence of all Gases of Group IIA - IIB - IIC classified as Zone 1, 2, 21, 22. The peculiar multi-step joint, obtained thanks to the high quality and precision of the machining, has allowed, in fact, the extension of the protection of gases to Group IIC [Acetylene ( $C_2H_2$ ), Carbon disulphide, Hydrogen ( $H_2$ )]. The quality of this product is recognized and valued the world over for its specific aluminium alloy and the mechanical property of its finishes. The EJBC series is mostly used as a box to carry terminals and busbars, fuse carriers, transformers, reactors and barriers, though it is also used to produce control and signalling boards, light and power boards and surge arresters, and motor starter boxes with various configurations, which are custom made to the requirements of our customers worldwide.






Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



Application sectors:



### CERTIFICATION DATA FOR EMPTY ENCLOSURES

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db IIC T... Gb Ex tb IIIC T...°C Db IP66/67			
Certification:	ATEX	EPT 20 ATEX 4074 U		
	IEC Ex	IECEX EUT 20.0023U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN-IEC 60079-0:2018, EN 60079-1:2014, EN 60079-31:2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0:2017, IEC 60079-1:2014, IEC 60079-31:2013			
 Ambient Temp.:	 -60°C +150°C	For enclosures without operators, accessories, windows		
	 -60°C +100°C	For enclosures without operators, accessories		
	 -60°C +60°C	For all other versions		
	 -40°C...	For junction box with window on the cover		
Degree of protection:	IP66/67	For enclosures without control and signalling devices		
	IP66	For enclosures with Cortem M-O...-series control and signalling devices		

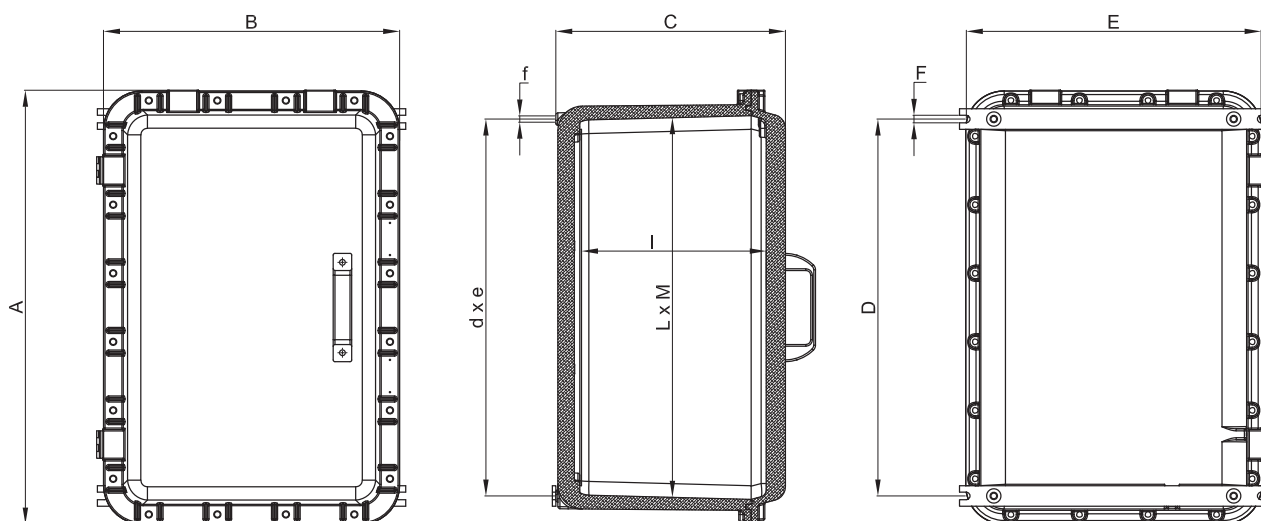
## EJBC-... series Aluminium junction boxes gas group IIC

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING, SIGNALLING UNITS AND INTERFACE UNIT

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db IIC T6...T4 Gb Ex tb IIIC T85°C...T135°C Db			
	CE 0722 Ex II 2GD Ex db [ia Ga] IIC T5/T6 Gb Ex tb [ia Da] IIIC T85°C/T100°C Db IP66/67			
Certification:	ATEX EPT 20 ATEX 4075 X			
	IEC Ex IECEx EUT 20.0024X		All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN-IEC 60079-0: 2018, EN 60079-1: 2014, EN 60079-11: 2012, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE			
	IEC 60079-0: 2011, IEC 60079-1: 2014, IEC 60079-11: 2019, IEC 60079-31: 2013			
Ambient Temp.:	-60°C +40°C		With temperature class T6 and maximum surface temperature T85°C.	
	-60°C +55°C		With temperature class T5 and maximum surface temperature T100°C.	
	-40°C (+40°C +55°C)		For junction box with window on the cover	
Degree of protection:	IP66/67			

### SELECTION CHART FOR ENCLOSURES

Code	Outside dimensions			Internal dimensions			Mounting			Mounting with brackets			Weight kg
	A	B	C	L	M	I	d	e	f	D	E	F	
EJBC-45	567	387	298	490	305	229	360	236	M10	360	356	11	38,9
EJBC-45B	567	387	248	490	305	179	360	236	M10	360	356	11	35,3
EJBC-5	632	432	341	560	360	275	350	550	M10	550	430	11	51
EJBC-5B	632	432	271	560	360	205	350	550	M10	550	430	11	43,4





### MECHANICAL FEATURES

Body and lid:	Low copper content aluminium alloy
Hinges:	Stainless steel
Lid handle:	Made of black painted plastic
Gasket:	Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid
Certification label:	Adhesive label located inside on empty enclosures; aluminium label riveted onto lid on other versions
Bolts and screws:	Stainless steel
Earth screws:	M6 stainless steel. On inside and outside of body and on lid complete with anti-rotation brackets
Mounting brackets:	Electrogalvanized steel
Coating:	Polyester coating RAL 7035 (Light grey)

#### Corrosion Resistance

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

Internal anti-condensation coating RAL 2004 (pure orange)	
External polyester coating in different colour (specify the RAL number)	
Breather valve Code ECD-210S	
Drain valve Code ECD-210S	
Round or rectangular windows on lid (see section Enclosures with windows for inspection and reading instruments)	
Internal mounting plate:	2.5mm-thick aluminium (code BFE-...). See accessories section 2.5mm-thick electrogalvanized steel (code BFE-...AC).
Thread options:	
• NPT threads ANSI B1.20.1	
• GAS UNI ISO 7-1 thread	
• Metric threads ISO 261/965	
Junction box in stainless steel AISI 316L (contact our Sales Office for availability)	

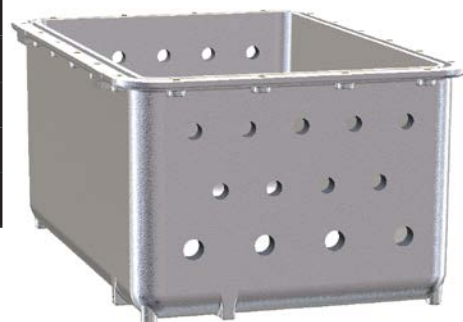
Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.



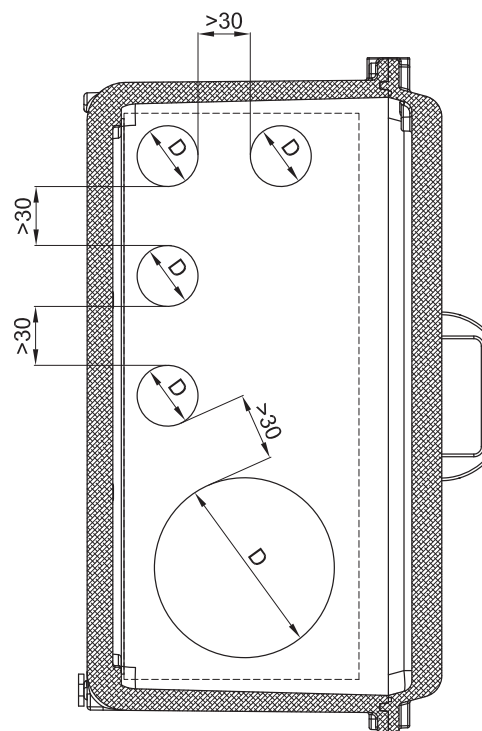
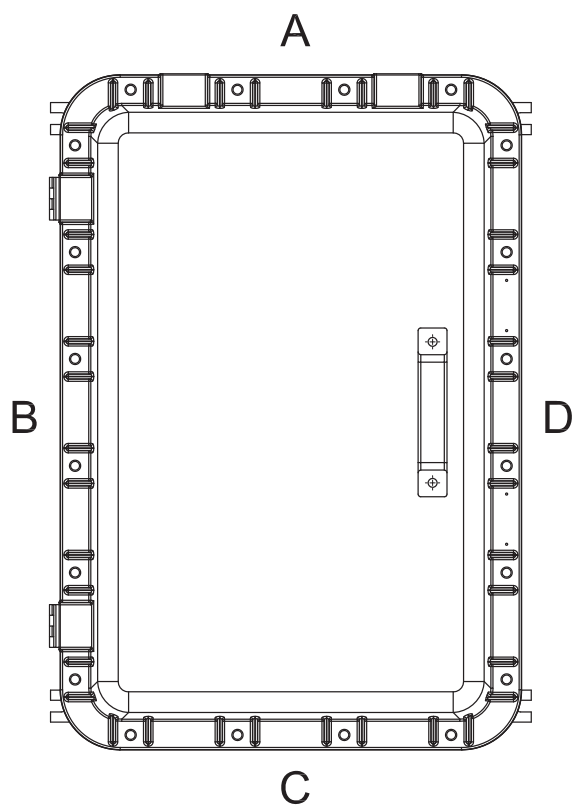
## EJBC-... series Body drilling data

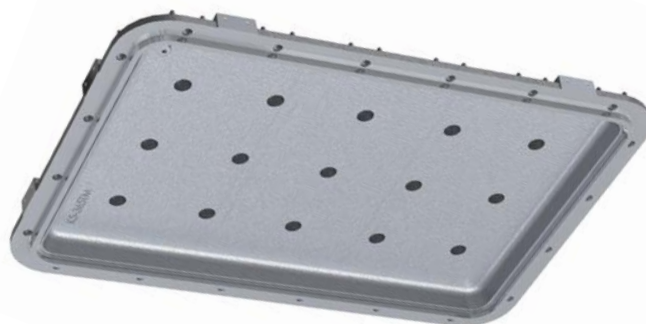
THREAD COMPARISON CHART									
ISO 7-1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
ANSI B.20.1 NPT	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	(*)	(*)	(*)
ISO 261/965	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1,5	100x1,5
<b>D</b> Thread diameter	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>10</b>

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .



TYPE OF ENCLOSURE	HOLE DRILLING IN BODY																					
	Sides A and C										Sides B and D											
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE										Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE									
		1	2	3	4	5	6	7	8	10	1		2	3	4	5	6	7	8	10		
EJBC-45	277x190	24	18	12	12	9	6	3	3	2	448x190	36	30	21	18	17	10	8	5	3		
EJBC-45B	277x135	18	14	8	8	6	3	2	2	2	448x135	27	23	14	12	10	5	4	3	3		
EJBC-5	320x230	30	28	20	12	11	9	6	4	3	520x230	50	45	32	21	18	15	10	8	5		
EJBC-5B	320x160	24	18	15	8	8	6	3	2	2	520x160	40	27	24	14	12	12	5	4	3		



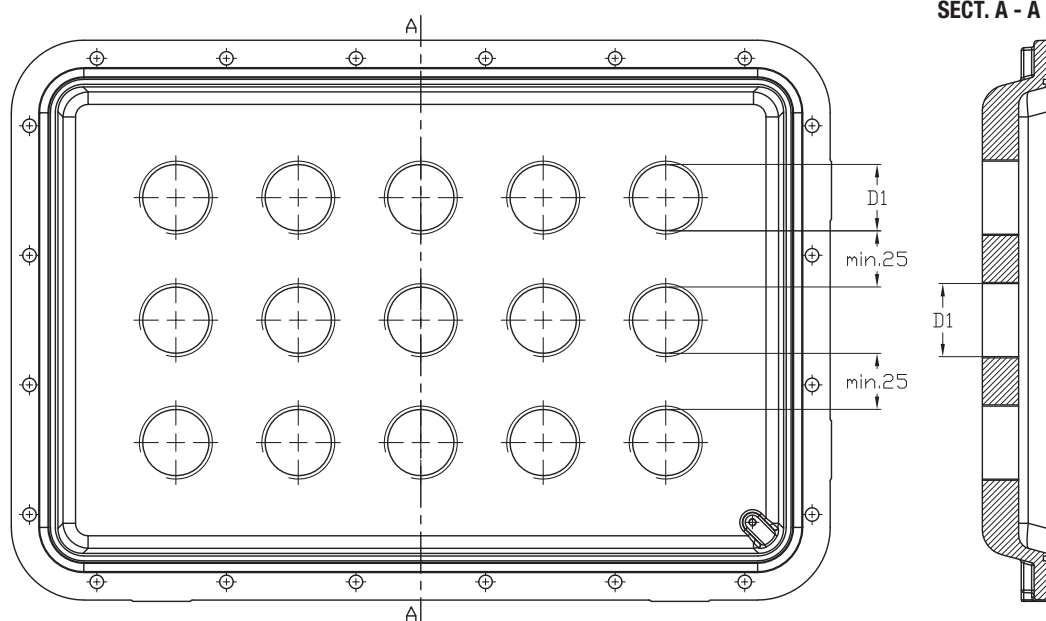


THREAD COMPARISON CHART								
D1	ISO 228	G 3/8"	G 1/2"	G 3/4"	-	-	-	-
	ISO 261/965	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M35x1.5	M40x1.5	M42x1.5

TYPE OF ENCLOSURE	HOLE DRILLING IN LID
	Max. n°. of holes allowed for solid lids
EJBC-45	28
EJBC-5	40

## Notes:

- The standard featured is for illustrative purposes only since it has been designed exclusively for M42 holes.
- Standard holes refer to mounting of Cortem control and signalling devices.
- 3/8" Ø holes for Cortem std. side-mounted handles centre-to-centre distance >70mm.
- 1/2" Ø holes for Cortem std. heavy-duty series side-mounted handles centre-to-centre distance >120mm.





These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

### ELECTRICAL FEATURES

Rated voltage: 24 / 800 V  
Rated frequency: 50 / 60 Hz

#### Modular terminals

Terminal cross-sectional area: 2.5; 4; 6; 10; 25; 35; 70; 95; 120; 185; 240; 300 [mm<sup>2</sup>]  
Rated current: 12.5 - 452 [A]  
Max. current density: 1.5 - 7 [A/mm<sup>2</sup>]

#### Multi-pole terminals

Terminal cross-sectional area: 3x16; 4x16; 3x25; 4x25; 3x40; 3x40; 4x40; 3x70; 4x125; 4x125; 3x200; 4x200; 3x315 [mm<sup>2</sup>]  
Rated current: 48 - 252 [A]  
Max. current density: 0.8 - 3 [A/mm<sup>2</sup>]

#### Busbars:

Dimensions of busbars: 20x5; 30x5; 40x5; 50x5; 60x5; 80x5; 100x4; 80x8; 100x5 [mm<sup>2</sup>]  
Rated current: 240 350 480 600 690 800 800 1000 1000 [A]

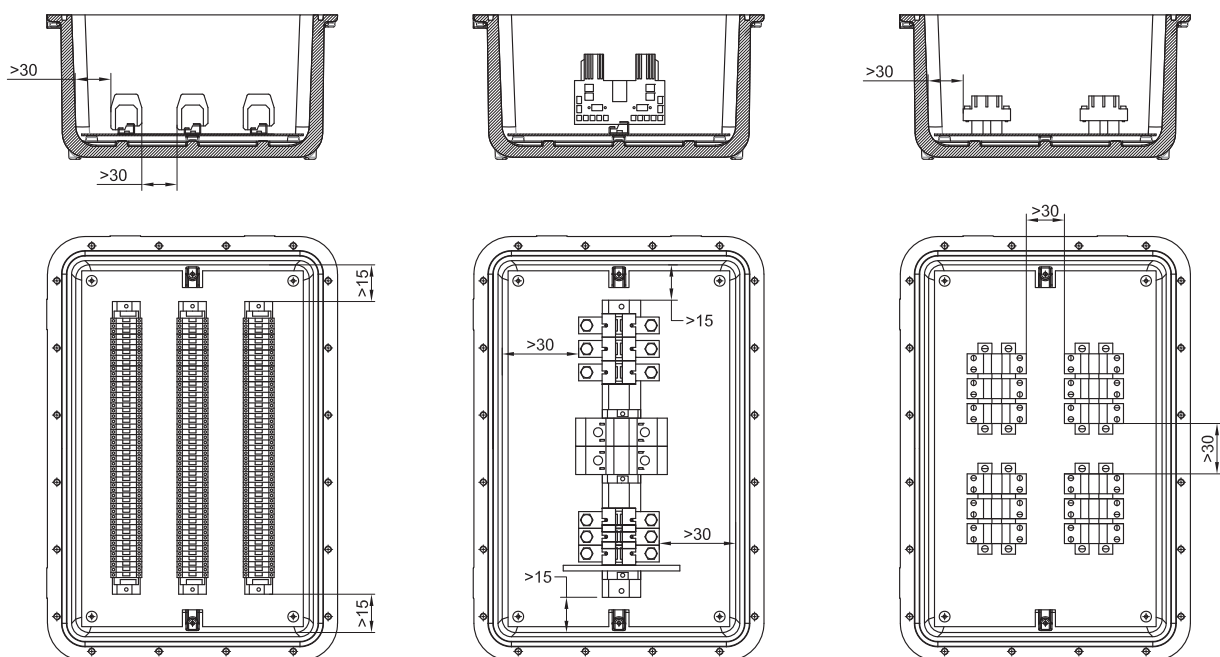
ATEX - IECEx label  
for terminal enclosures

#### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. degree of protection
5. ambient temperature
6. electrical specs per certificate
7. temperature class
8. maximum surface temperature

## EJBC-... series Features of junction boxes with terminals

Examples of terminal strips with minimum installation distances



TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED									
	TERMINAL CROSS-SECTIONAL AREA									
	2.5	4	6	10	16	35	70	120	185	240
EJBC-45	3x70	3x65	3x50	3x35	3x25	2x20	20	10	8	8
EJBC-45B	3x70	3x65	3x50	3x35	3x25	2x20	20	10	8	8
EJBC-5	3x80	3x70	3x60	3x50	3x40	2x28	22	10	10	8
EJBC-5B	3x80	3x70	3x60	3x50	3x40	2x28	22	10	10	8

Eg. 2x28= 2 rows of 28 terminals (total 56 terminals). The maximum number of standard terminals refers to CABUR terminals

## Features of junction boxes for control, monitoring and signalling units



Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

Rated voltage:	24 / 1000 Vac    12 / 250 Vdc
Max. current on contacts and fuses:	650 A
Rated frequency:	50 / 60Hz
Max. wattage for lamps:	5 W (for Ta +40°C) / 3 W (for Ta +55°C)

Electrical characteristics valid for size EJBC-45, EJBC-5 (T5 100°C).

Rated voltage:	up to 750 Vcc
Max. current:	up to 630 A

Features of equipment that can be installed in enclosures to produce control and monitoring units.

Table of electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.

(The values refer to the catalogs of the leading manufacturers of electrical/electronic components available on the market)

Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20
Component voltage (V dc)	Min. air gap (mm)
12 - 250	6

COMPONENT TYPE	Max. V (Volts)	Max. I (Amperes)	Max. power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	650	-
Fuses	660	400	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	240	-	300
Terminals	660	-	-
Reactors	277	7.5	40



## Features of junction boxes for control, monitoring and signalling units

### Identification and description of special equipment that can be installed inside.

Enclosures with batteries

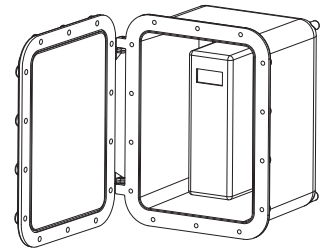
Option of installing low-capacity batteries 1.5Ah, for powering small electronic devices or backup memories.

Whatever the case, the minimum distance of 20mm between the components installed and the inside walls of the enclosure must be met.

Enclosures with inverters

EJBC-45, EJBC-5 series enclosures, depending on the maximum ambient temperature (+40°C or + 55°C), can be fitted with inverters (ABB ACS550 or similar types) provided maximum power dissipation falls within the permitted range (see table).

Enclosure type	Maximum inverter power for Ta +40°C	Maximum inverter power for Ta +55°C	Maximum inverter power	Cooling fan flow rate
EJBC-45	2.2 kW	1.5 kW	73 W	44 m³/h
EJBC-5	5.5 kW	4.0 kW	172 W	44 m³/h



Enclosures with surge arresters

Option of installing PRD or similar types of surge arresters, with a maximum protection limit of 65kA; whatever the case, the minimum distance of 20 mm between the arrester and the inside walls of the enclosure must be met.

Enclosures with fibre-optic cables

The enclosures have provision for feeding multiple (not single) fibre-optic cables in and out. The permitted optical power and radiation limits for optical cables are:

- 35mW and 5mW/m² for T4 temperature class
- 15mW and 5mW/m² for T6 temperature class

Enclosures with power transformer

Option of installing single-phase transformers provided maximum power is within the limits allowed by the certificate.

Enclosures with radio-frequency sources

Option of installing components with radio-frequency sources in the 9kHz to 60GHz range that can be used for continuous and pulsed transmission of signals. Antennas can be installed inside or outside the enclosure and must:

- comply with one of the protection types indicated in standard EN-IEC 60079-0.
- be installed outside the hazardous area.

For more information, refer to certificate EPT 20 ATEX 4075 X / IECEx EUT 20.0024X.

Table with maximum power dissipation values for EJBC series enclosures.

The temperature classes and maximum surface temperatures of control and monitoring unit enclosures depend on the size of the enclosure, ambient temperature and power dissipation inside the enclosure.

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of +40°C (+55°C)			
	T6 class without indicator lights. Only indicator LEDs are allowed.	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed.	T4 class without indicator lights and/or LEDs
EJBC-45	140W (105W)	140W (105W)	240W (180W)	480W (360W)
EJBC-45B	120W (90W)	120W (90W)	210W (160W)	430W (320W)
EJBC-5	210W (160W)	210W (160W)	315W (235W)	600W (450W)
EJBC-5B	170W (130W)	170W (130W)	250W (190W)	480W (360W)

### ELECTRICAL FEATURES

Rated voltage:	24 / 1000 Vac	12 / 250 Vdc
Max. current on contacts and fuses:	400 A	
Rated frequency:	50 / 60Hz	
Max. wattage for lamps:	5 W (for Ta +40°C)	3 W (for Ta +55°C)

### GENERAL INSTALLATION INFORMATION

The maximum power dissipation inside the enclosure depends on the maximum current on contacts and fuses, the size of the enclosure, the temperature class (or maximum surface temperature for 2GD category) and ambient temperature, as specified in the maximum power dissipation tables (see previous page).

The maximum power dissipation must not exceed the values given in the table when non-'Ex i' components and 'Ex i' components (with 1.1W maximum power dissipation) are installed together.

The maximum power dissipation possible inside the enclosure will also depend on the maximum power dissipation of terminals, contacts and cables; whatever the case, the current density value allowed in the enclosure is prescribed by EN 60439-1, IEC 60439-1.

#### Details of barrier mounting inside enclosures

The "omega" rail, in accordance with EN 60079-11, is suitable for mounting barriers inside 'Ex d' enclosures.

Barriers are mounted (according to the manufacturer's directions) 7.5 mm away from the base of the enclosure and are secured to the DIN rail with 2 earth terminals (nominal cross-sectional area 6-10 mm) and 2 standard terminals for omega rails (EN 60079-11).

Up to how many barriers can be installed in the enclosures will depend on the properties of the barriers in question; in addition, the maximum number of barriers must not exceed the limit allowed by the certificate in any case.

Associated equipment can also be mounted on a DIN rail; when it is mounted on the enclosure's internal mounting plate, reference must be made to the minimum prescribed distances. Whether mounted on a rail or mounting plate, associated equipment must meet the following requirements:

#### Separators

When separators are used, they must be appropriately sized; their thickness and fastening inside the enclosure must be suitably determined and separators must allow air to circulate inside the enclosure.

#### Incoming cables

Incoming cables for 'Ex i' circuits must be suitably labelled or the area around the entry must be coloured blue RAL 5015. 'Ex i' entries must be clearly identified

#### Installation of 'Ex i' and non-'Ex i' components inside the enclosure.

Ex d IIC certified enclosures complete with accessories can contain only Ex ia IIC associated equipment; in this case, the resulting version becomes Ex d [ia] IIC.

#### Connection of internal cables

Cables are connected inside the enclosure to the barriers in accordance with EN 60079-11, with one side for connecting 'Ex i' cables and the opposite side for connecting non-'Ex i' cables.

Connection in 'Ex i' circuits must be made using insulated cables only; there must be no connections to non-'Ex i' circuits and no more than one cable can be connected to a single terminal. 'Ex i' cables cannot be grouped together with non-'Ex i' cables; in addition, 'Ex i' cables and non-'Ex i' cables must be kept separated. The minimum distance between the 2 types of cables must be 8 mm. The minimum insulation level for non-'Ex i' cables must be greater than 1.5 kV; the minimum insulation level for 'Ex i' cables must be greater than 0.5 kV.

#### Internal connections

When routing cables belonging to 'Ex i' circuits, the cables must be identified in one of the following ways:

- cables must have blue insulation (as long as there are no other cables inside the enclosure with this colour).
- 'Ex i' cables must be kept separate from non-'Ex i' cables with blue cable raceways.
- 'Ex i' cables must be grouped together, using a tie, for example, and the area identified with a blue label.

#### Warning 'Ex i' circuits

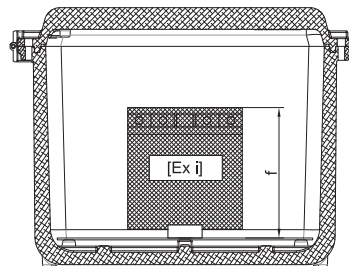
- cables for power circuits must have a cross-sectional area of at least 1.5 mm<sup>2</sup>.
- 'Ex i' circuits must be kept at a distance of 50 mm from non-'Ex i' circuits.
- the earth connection must meet European standard EN 60079-14.

## EJBC-... series Features of junction boxes with interface units

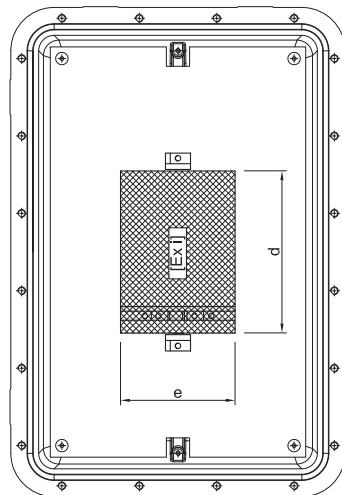
The number of items of equipment mounted inside the enclosures and their layout will vary based on the following:

- in accordance with EN 60079-1 and IEC 60079-1, the equipment contained inside the enclosure can be arranged in any way provided that at least 40% of the surface area of each section is left free.
- equipment must be set at a suitable distance to accommodate cable wiring.

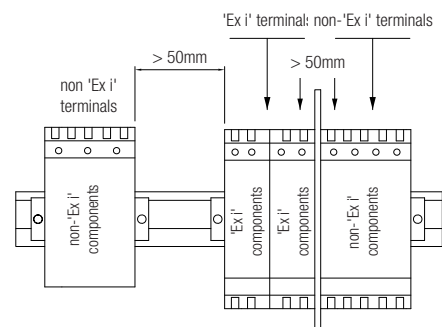
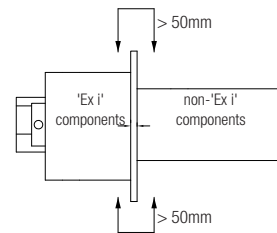
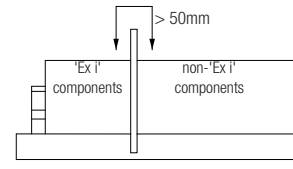
Maximum dimensions of 'Ex ia' equipment that can be installed inside enclosures.



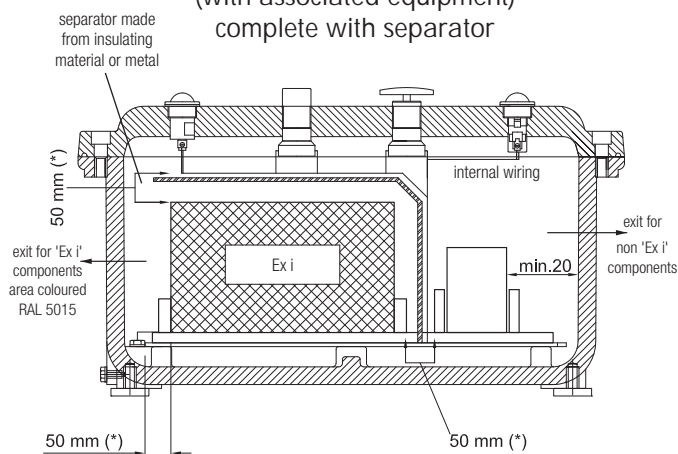
	d	e	f
<b>EJBC-45</b>	410	225	170
<b>EJBC-45B</b>	410	225	120
<b>EJBC-5</b>	480	280	220
<b>EJBC-5B</b>	480	280	150



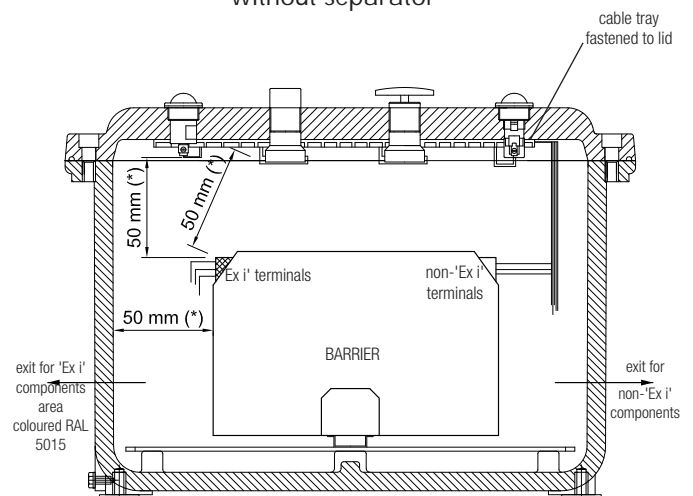
Examples of installation of associated equipment - minimum distances.



Example of interface unit (with associated equipment) complete with separator



Example of interface unit without separator



### NOTES

(\*) 50 mm is the minimum safe distance between 'Ex i' components and non-'Ex i' components (and/or conducting parts).

- The active and passive barriers that can be installed in the enclosures must have their own ATEX certificate.
- The maximum voltage entering barriers on non-'Ex i' circuits must be less than 250 V.

## EJBC-... series Aluminium junction boxes gas group IIC

EJBC series junction boxes are used as enclosures for electrical equipment that requires a visual interface with the outside. Voltmeters, ammeters and other analogue and digital measuring instruments are typical examples of installations that require a window for taking direct readings. These enclosures are also used to house monitoring instruments such as infra-red photoelectric cells and twilight sensors that provide pulses for control and signalling equipment (opening/closing, alarms, etc....). Our technical department will decide what size enclosures to use based on your requirements and determine the internal layout so that all the dimensional and electrical parameters prescribed by the certificate are met. We can install equipment to your specifications within the technical limits allowed by the certificate and based on our standard control and signalling devices.



K-0253  
Ø 90

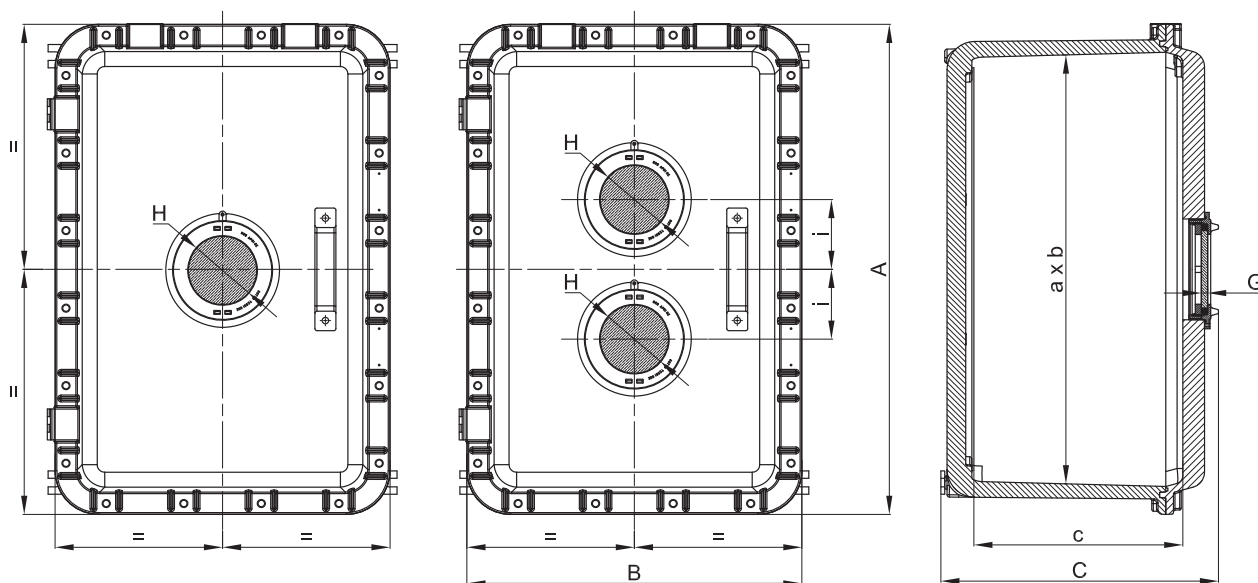


K-0254  
Ø 140

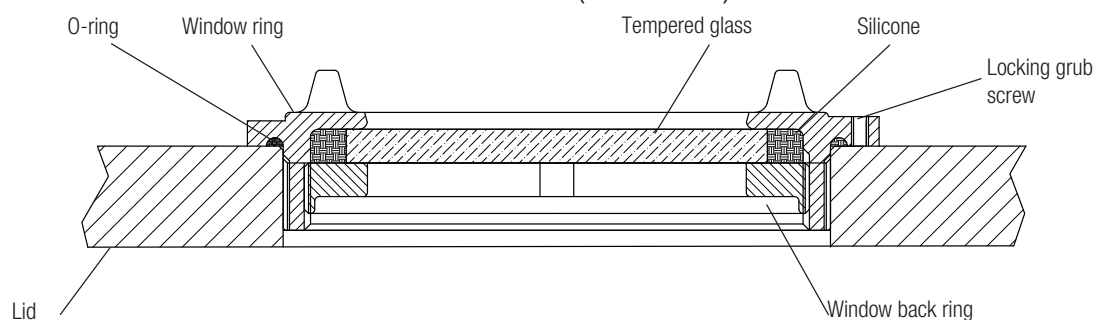


K-0255  
Ø 180

DIMENSIONAL DRAWING OF ENCLOSURES WITH ROUND VIEWING WINDOWS



WINDOW DETAIL (cross-section)



## EJBC-... series Aluminium junction boxes gas group IIC

Code	Outside dimensions			Inside dimensions			N° of windows	Size of windows		
	A	B	C	a	b	c		H	G	i
EJBC-45/2W0	560	380	298	490	305	229	2	90	10	90
EJBC-45B/2W0	560	380	253	490	305	179	2	90	10	90
EJBC-45/1W2	560	380	298	490	305	229	1	140	12	-
EJBC-45B/1W2	560	380	253	490	305	179	1	140	12	-
EJBC-5/2W0	632	432	341	560	360	275	2	90	10	140
EJBC-5B/2W0	632	432	271	560	360	205	2	90	10	140
EJBC-5/1W2	632	432	341	560	360	275	1	140	12	-
EJBC-5B/1W2	632	432	271	560	360	205	1	140	12	-
EJBC-5/1W3	632	432	341	560	360	275	1	180	15	-
EJBC-5B/1W3	632	432	271	560	360	205	1	180	15	-



## EJBC-... series Aluminium junction boxes gas group IIC

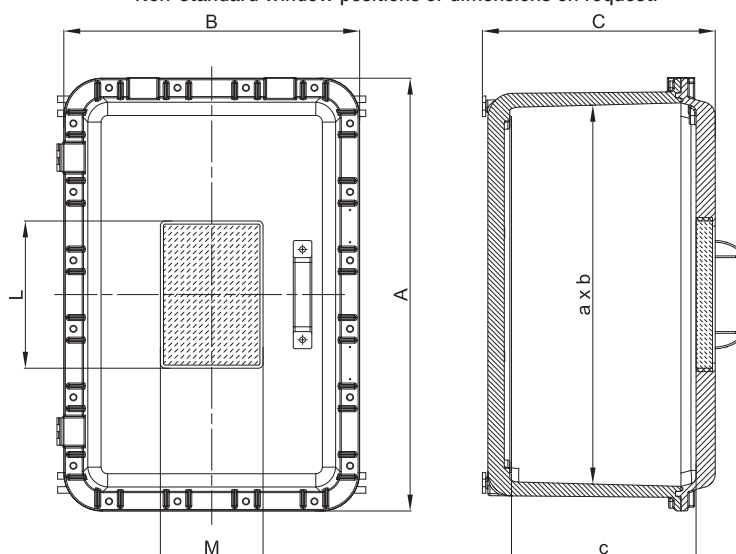
We can provide standard windows to meet your requirements for the various enclosure types for such purposes as viewing analogue or digital instruments, indicators of various kinds.



DIMENSIONAL DRAWING OF ENCLOSURES  
WITH RECTANGULAR WINDOWS  
(tempered glass).






















Position of standard window in centre.

Non-standard window positions or dimensions on request.



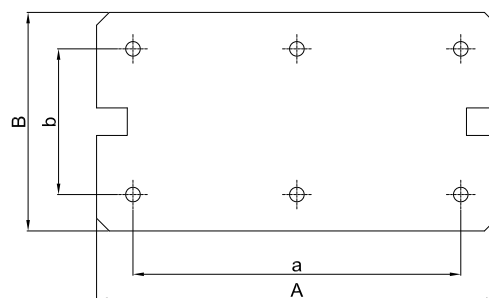
Code	Outside dimensions			Internal dimensions			Window size	
	A	B	C	a	b	c	M	L
EJBC-45/3020	560	380	298	490	305	229	200	300
EJBC-45B/3020	560	380	248	490	305	184	200	300
EJBC-5/3020	632	432	341	560	360	271	200	300
EJBC-5B/3020	632	432	271	560	360	201	200	300

## EJBC-... series Aluminium junction boxes gas group IIC

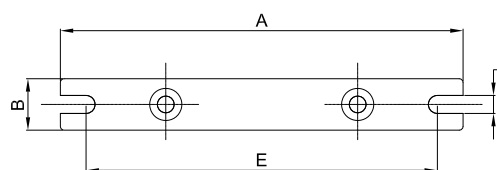
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Internal mounting plates	EJBC-45/45B	Thickness 2.5mm Aluminium (BFE-...)	<b>BFE-45</b>	 
		EJBC-5/5B	Galvanized steel (BFE-...AC) Stainless steel (BFE-...SS)	<b>BFE-5</b>	
	Breather and drain valve	Thread diameter ISO 7-R 3/8"	Material: stainless steel	<b>ECD-210S</b>	 
	Cable glands and unions		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Sealed bushings		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Lid-mounted control and signalling devices		For control and signalling device models and codes, see control and monitoring device chapter	<b>M-0...</b>	 
	N°2 hinges per enclosure	EJBC-...	Material: stainless steel	<b>218-9301</b>	
	Mounting brackets	EJBC-45/45B	Material: acero galvanizado	<b>K45-237</b>	
		EJBC-5/5B		<b>K5-237</b>	
	O-ring between body and lid	EJBC-45/45B	Material: red-coloured silicone	<b>K45-131/1S</b>	
		EJBC-5/5B		<b>K5-131/1S</b>	

Dimensional drawings of internal mounting plates and mounting brackets

Enclosures	Internal mounting plates				
	A	B	a	b	Code
<b>EJBC-45 /45B</b>	460	280	440	260	BFE-45
<b>EJBC-5 /5B</b>	530	330	500	300	BFE-5



Enclosures	Mounting brackets				
	A	B	E	F	Code
<b>EJBC-45 /45B</b>	376	30	356	11	K45-237
<b>EJBC-5 /5B</b>	450	30	430	11	K5-237



# EJBX

- Zone 1, 2, 21, 22
- Group IIB+H<sub>2</sub>
- Stainless steel junction boxes
- Choice of 17 sizes
- IP 66 / 67

*AISI 316L stainless steel*

*Quartz sand blasting*

*Warning labels*

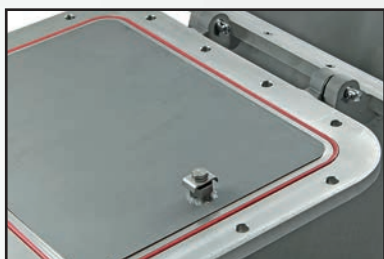
*Mounting bracket*

*Walls free of welds*

*Silicone gasket between body and lid*

*Internal earth screw in body*

*Hinge between body and lid*



## EJBX-... series Stainless steel junction boxes gas group IIB+H<sub>2</sub>

EJBX series junction boxes are installed in industrial plants where there is a risk of explosion and fire and where combustible dust is present, classified as Zone 1, 2, 21, 22. These enclosures are made from welded 316L sheet stainless steel and come complete with stainless steel screws and a silicone gasket running around the perimeter between the body and lid to provide the IP66 protection degree. The EJBX units are mostly used as junction boxes with relevant connection terminals, as enclosures for fuses, transformers and reactors, as monitoring and signalling boards, light and power boards or motor starter boxes with various configurations, which are custom made to the requirements of our customers worldwide.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumeric univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:



Mining



Offshore plants



Onshore plants



Oil refineries



Oil loading/  
offloading  
wharfs



Low  
temperatures



Presence of  
hydrogen



100%  
Cortem  
product

### CERTIFICATION DATA FOR EMPTY ENCLOSURES

#### Classification:

Group I/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 IIB+H<sub>2</sub> Gb - Ex tb IIIC Db - IP66/67

CE 0722 Ex I M2 - Ex db I Mb

#### Certification:

ATEX CESI 00 ATEX 036U

IEC Ex CES 14.0017U

ECASEx AVAILABLE

TR CU AVAILABLE

INMETRO DNV 16.0099U

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

#### Standards:

CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE

#### Ambient Temp.:



-60°C +70°C

With boxes complete with polycarbonate indicator on lid Ta -40°C +70°C.



-60°C +100°C

On request only for EJB enclosures without accessories and control and signalling devices.



-60°C (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)

#### Degree of protection:

IP66/67

For enclosures without control and signalling devices








IP66

For enclosures with Cortem M-0...-series control and signalling devices









This equipment can be used in an environment containing explosive atmosphere and with the presence of hydrogen.

## EJBX-... series Stainless steel junction boxes gas group IIB+H<sub>2</sub>

### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS







Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722  II 2 GD - Ex d IIB+H2 T... Gb - Ex tb IIIC T...°C Db - IP66/67			
	CE 0722  I M2 - Ex d I Mb			
Certification:	ATEX CESI 01 ATEX 027X			
	IEC Ex CES 16.0012X	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C (60°C) +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C (60°C) +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
Degree of protection:	IP66/67			

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722  II2GD - Ex db IIB+H2 T... Gb - Ex tb IIIC T...°C Db - IP66/67			
	CE 0722  I M2 - Ex db I Mb			
Certification:	ATEX CESI 01 ATEX 027X			
	IEC Ex CES 16.0012X	All IEC Ex, ECASEx, TR CU, INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	ECASEx AVAILABLE			
	TR CU AVAILABLE			
	INMETRO DNV 14.0153			
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66/67	For enclosures without control and signalling devices		
	IP66	For enclosures with Cortem M-0...-series control and signalling devices		



## CERTIFICATION DATA OF ENCLOSURES SERVING INTERFACE UNIT CONTROL AND MONITORING FUNCTION

Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2(1)GD - Ex db [ia Ga] IIB+H2 T... Gb - Ex tb IIIC T...°C Db - IP66/67			
	CE 0722 Ex I M2 - Ex db [ia Ma] I Mb			
Certification:	ATEX CESI 02 ATEX 073X			
	IEC Ex CES 16.0014X	All IEC Ex, ECASEx, CCC certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	ECASEx AVAILABLE			
	CCC AVAILABLE			
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-11: 2007, EN 60079-26: 2007, EN60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66/67	For enclosures without control and signalling devices		

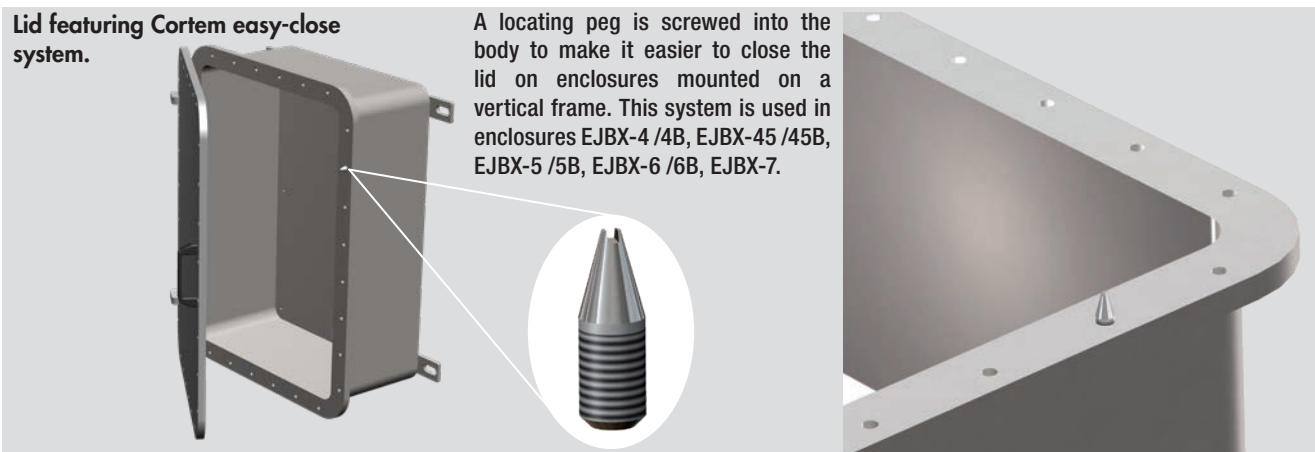
**Stainless steel properties:** The stainless steel used by Cortem to produce enclosures and accessories designed for use in cryogenic plants and highly corrosive environments is a very low carbon Iron-Chromium-Nickel-Molybdenum alloy. This alloy is highly resistant to intergranular (or intercrystalline) corrosion and to pitting corrosion. It is classified as an austenitic stainless steel UNI EN 10088-3 X 2 CrNiMo 17-12-2-E or AISI 316L according to the American Iron and Steel Institute. Its main quality is the spontaneous formation of a thin layer of chromium oxide on the surface that protects the metal underneath from corrosion attack. In addition, even if the metal is inadvertently damaged by abrasion or scratches, this film is self-renewing.



### MECHANICAL FEATURES

<b>Body and lid:</b>	AISI 316L stainless steel
<b>Hinges:</b>	Lost-wax cast and welded onto enclosure
<b>Lid handle:</b>	Made of black painted steel for EJBX-55,55B, EJBX-6,6B e EJBX-7, made of black painted plastic for all other models.
<b>Treatment:</b>	Quartz sand blasting
<b>Gasket:</b>	Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid
<b>Certification label:</b>	Adhesive label located inside on empty enclosures; stainless steel label riveted onto lid on other versions
<b>Bolts and screws:</b>	Stainless steel
<b>Earth screws:</b>	M6 stainless steel. On inside and outside of body and on lid complete with anti-rotation brackets
<b>Mounting brackets:</b>	4 feet welded onto body

Lid featuring Cortem easy-close system.



A locating peg is screwed into the body to make it easier to close the lid on enclosures mounted on a vertical frame. This system is used in enclosures EJBX-4 /4B, EJBX-45 /45B, EJBX-5 /5B, EJBX-6 /6B, EJBX-7.

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

Hinges on the short side (code EJBX-...S)

Breather valve Code ECD-210S

Drain valve Code ECD-210S

2.5mm-thick stainless steel internal mounting plate (code BFE-...SS). See accessories section

Enclosures with windows on lid for instrument viewing / reading

External coating in your choice of paint colour

Thread options:

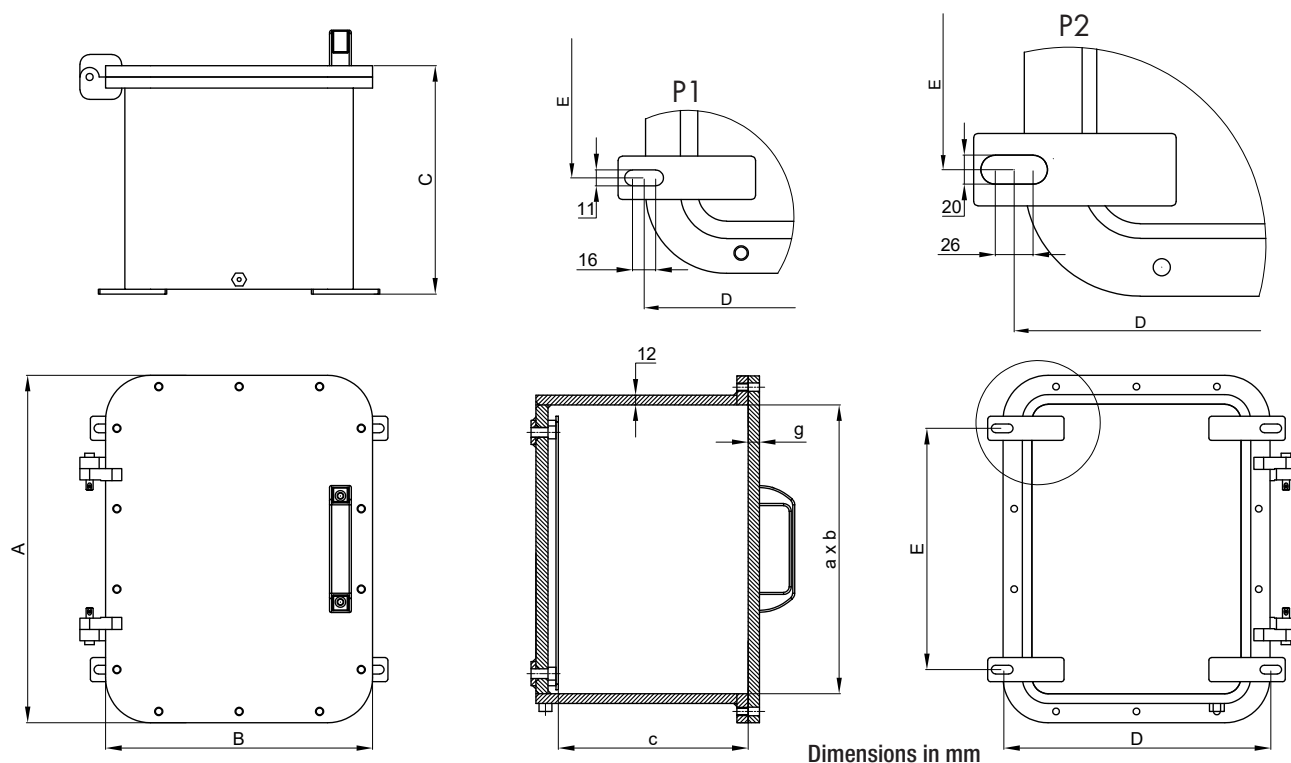
- NPT threads ANSI B1.20.1
- GAS UNI ISO 7-1 thread
- Metric threads ISO 261/965

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

## ENCLOSURE SELECTION CHART

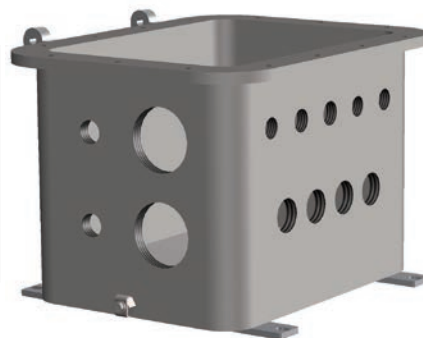
Code	Outside dimensions			Inside dimensions				Mounting			Weight Kg
	A	B	C	a	b	c	g	E	D	Type	
EJBX-01	272	212	166	200	140	123	12	140	214	P1	20
EJBX-01B	272	212	142	200	140	100	12	140	214	P1	18
EJBX-1	312	212	201	240	140	155	12	180	214	P1	25
EJBX-2	432	232	201	360	160	155	12	300	234	P1	37
EJBX-3	372	292	261	300	220	215	12	240	294	P1	45
EJBX-3B	372	292	201	300	220	155	12	240	294	P1	38
EJBX-4	432	332	284	360	260	235	15	300	334	P1	65
EJBX-4B	432	332	214	360	260	165	15	300	334	P1	57
EJBX-45	562	382	284	490	310	232	15	440	394	P1	92
EJBX-45B	562	382	234	490	310	188	15	440	394	P1	90
EJBX-5	632	432	324	560	360	275	15	500	434	P1	120
EJBX-5B	632	432	254	560	360	205	15	500	434	P1	107
EJBX-55	710	510	318	610	410	255	20	540	534	P2	170
EJBX-55B	710	510	218	610	410	155	20	540	534	P2	150
EJBX-6	860	640	409	760	540	345	20	680	654	P2	268
EJBX-6B	860	640	309	760	540	245	20	680	654	P2	235
EJBX-7	1000	700	338	900	600	275	20	820	714	P2	310

## DIMENSIONAL DRAWING



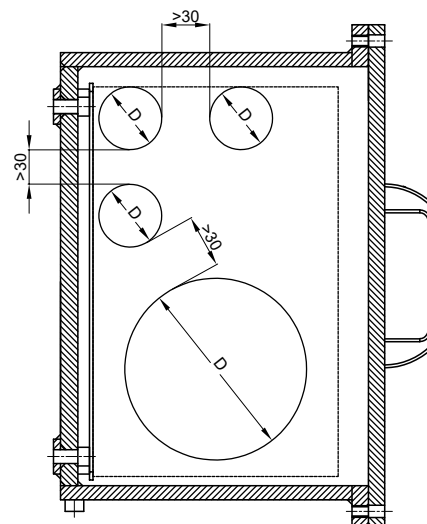
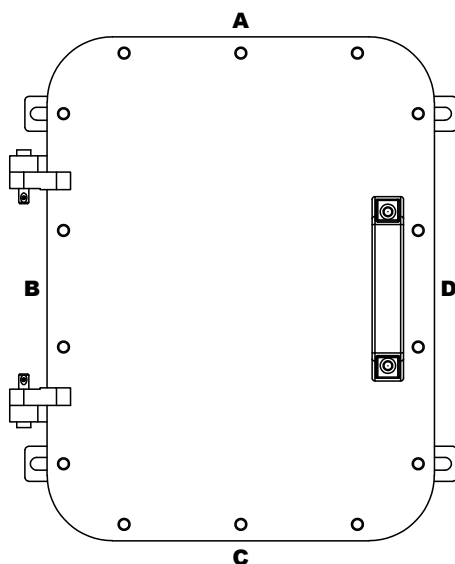
## EJBX-... series Body drilling data

THREAD COMPARISON CHART									
ISO 7-1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
ANSI B.20.1 NPT	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"			
ISO 261/965	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1,5	100x1,5
D Thread diameter	1	2	3	4	5	6	7	8	10



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

TYPE OF ENCLOSURE	HOLE DRILLING IN BODY																					
	Sides A and C										Sides B and D											
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE										Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE									
		1	2	3	4	5	6	7	8	10	1		2	3	4	5	6	7	8	10		
EJBX-01	100x95	4	3	3	1	1	-	-	-	-	160x84	6	5	3	2	2	-	-	-	-		
EJBX-01B	100x72	2	2	1	1	-	-	-	-	-	160x63	3	3	1	2	-	-	-	-	-		
EJBX-1	100x130	6	5	4	2	2	1	1	1	-	200x125	12	11	6	6	4	2	2	1	1		
EJBX-2	120x130	6	6	4	2	2	1	1	1	1	320x125	18	17	10	8	4	3	3	2	2		
EJBX-3	180x190	16	12	9	6	6	4	2	2	1	260x180	20	18	12	11	9	6	3	3	1		
EJBX-3B	180x130	12	8	6	4	4	2	1	1	1	260x120	15	14	8	6	6	3	2	2	2		
EJBX-4	220x210	20	16	12	9	8	4	4	2	1	320x195	30	24	18	12	11	6	6	2	2		
EJBX-4B	220x140	12	11	6	6	5	3	2	1	1	320x125	18	17	10	8	7	5	3	2	2		
EJBX-45	270x205	25	20	16	12	9	6	4	3	1	450x195	43	32	28	18	17	10	8	4	3		
EJBX-45B	270x155	15	15	12	8	6	5	2	2	1	450x145	26	24	21	12	12	9	4	3	2		
EJBX-5	320x250	36	28	20	16	12	9	6	4	3	520x235	50	45	32	28	21	17	10	8	6		
EJBX-5B	320x180	24	22	15	12	8	6	5	2	2	520x165	40	27	24	21	14	11	5	4	3		
EJBX-55	370x230	35	24	24	15	12	8	6	3	3	570x215	53	40	32	24	20	12	10	4	4		
EJBX-55B	370x130	21	18	12	10	8	4	3	3	-	570x115	22	19	19	15	11	6	5	4	-		
EJBX-6	480x315	63	54	40	28	24	15	12	8	6	695x305	95	72	55	40	36	24	18	12	8		
EJBX-6B	480x215	45	32	30	21	18	10	8	6	3	695x205	68	48	42	27	18	16	12	11	4		
EJBX-7	540x250	63	48	36	28	21	17	10	8	3	840x235	85	70	52	35	33	27	16	14	5		



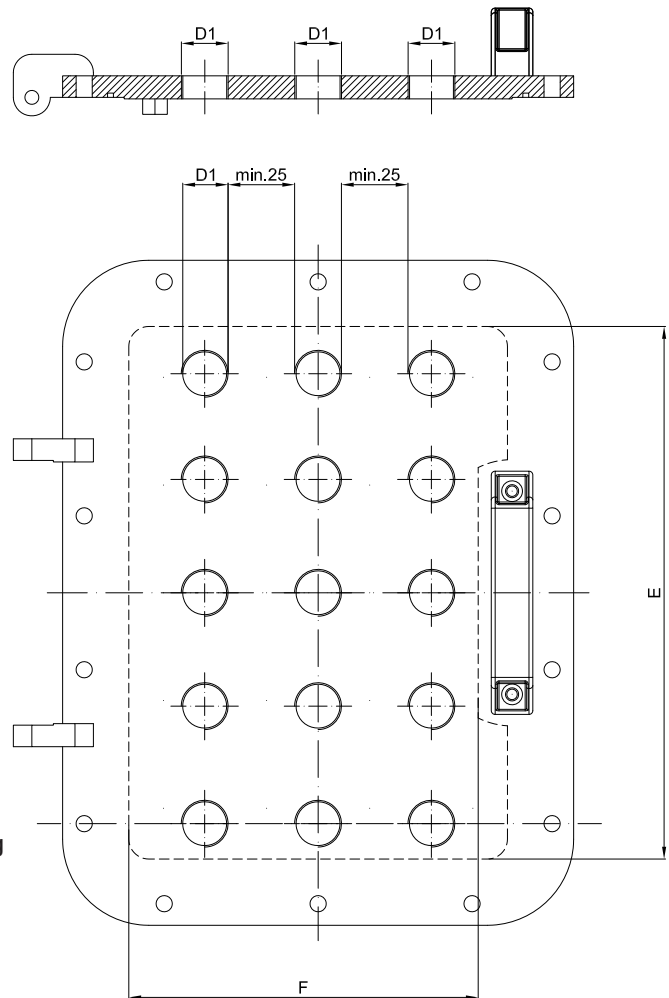


THREAD COMPARISON CHART								
D	ISO 228	G 3/8"	G 1/2"	G 3/4"	-	-	-	-
	ISO 261/965	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M35x1.5	M40x1.5	M42x1.5

TYPE OF ENCLOSURE	HOLE DRILLING IN LID		
	Max. number of permitted holes	Drilling area mm	
		E	F
EJBX-01	2	200	114
EJBX-1	5	225	100
EJBX-2	9	345	125
EJBX-3	12	285	190
EJBX-4	17	345	225
EJBX-45	28	475	275
EJBX-5	40	545	325
EJBX-55	51	624	424
EJBX-6	70	730	495
EJBX-7	96	900	565

## Notes:

- This standard is for illustrative purposes only since it has been designed exclusively for M42 holes.
- Standard holes refer to mounting of Cortem control and signalling devices.
- 3/8" Ø holes for Cortem std. side-mounted handles centre-to-centre distance >70mm.
- 1/2" Ø holes for Cortem std. heavy-duty series side-mounted handles centre-to-centre distance >120mm.







These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

## ELECTRICAL FEATURES

**Rated voltage:** 24 / 800 V

**Rated frequency:** 50 / 60 Hz

## Modular terminals

**Terminal cross-sectional area:** 2.5; 4; 6; 10; 25; 35; 70; 95; 120; 185; 240; 300 [mm<sup>2</sup>]

**Rated current:** 12.5 - 452 [A]

**Max. current density:** 1.5 - 7 [A/mm<sup>2</sup>]

## Multi-pole terminals

**Terminal cross-sectional area:** 3x16; 4x16; 3x25; 4x25; 3x40; 3x40; 4x40; 3x70; 4x125; 4x125; 3x200; 4x200; 3x315 [mm<sup>2</sup>]

**Rated current:** 48 - 252 [A]

**Max. current density:** 0.8 - 3 [A/mm<sup>2</sup>]

### Busbars:

### Dimensions of

20x5; 30x5; 40x5; 50x5; 60x5; 80x5; 100x4; 80x8; 100x5 [mm<sup>2</sup>]

**Rated current:**

240 350 480 600 690 800 800 1000 1000 [A]

**ATEX - IECEx label  
for terminal enclosures**

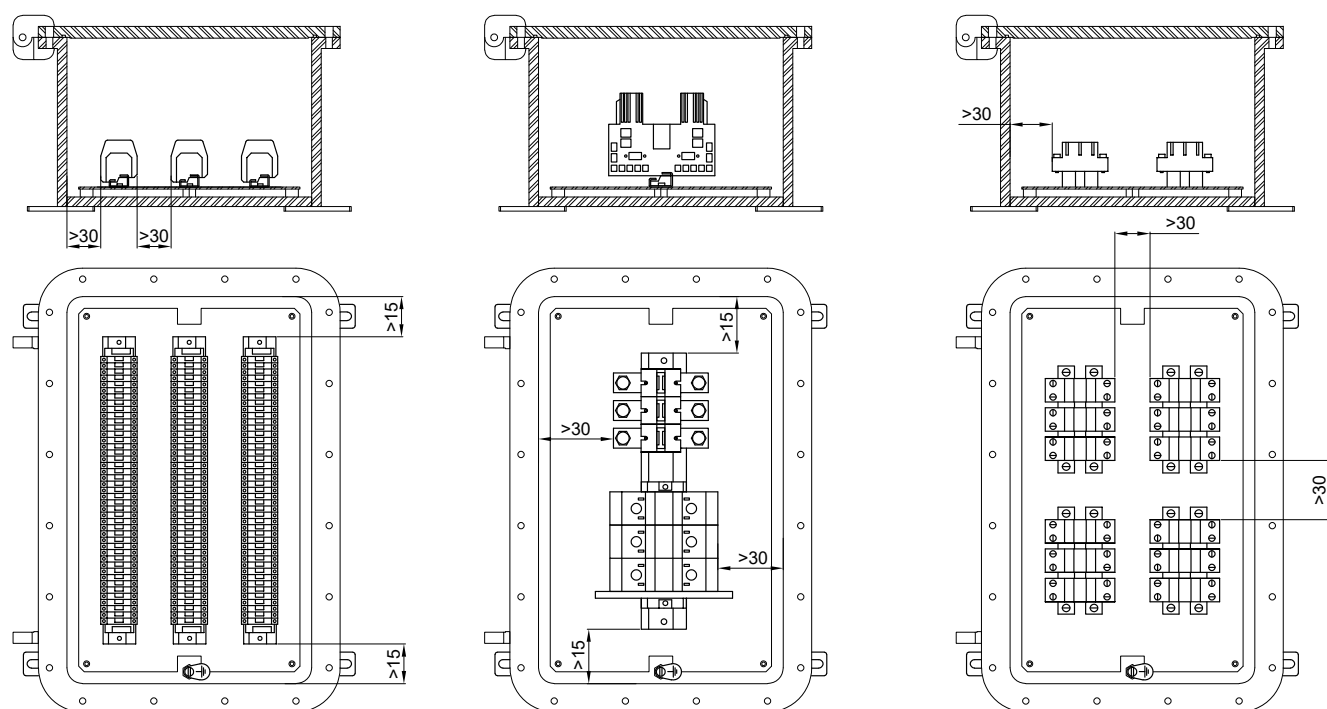
The diagram shows a technical label for a CORTEM enclosure. The label contains the following information:

- Manufacturer:** CORTEM SpA, VIA AQUILEIA, 10 34070 VILLESSE - GO ITALY. The CORTEM GROUP logo is also present.
- Enclosures with terminals:** A section with a grid for marking terminals, with a callout 1 pointing to the first column and a callout 2 pointing to the second column.
- Model and Certification:** Cesi 01 ATEX 026, IECEx TSA 06.0011, and II 2GD.
- Ex d IIB+H<sub>2</sub> T** and **Ex tb IIIC T** ratings, with callout 3 pointing to the T column and callout 4 pointing to the Ex d IIB+H<sub>2</sub> T column.
- IP66/67** rating.
- Max voltage, Max current, n° terminals, Max wire size (mm²):** Fields for specifying these parameters, with callout 5 pointing to the Max voltage field and callout 6 pointing to the Max wire size field.
- Logos:** CORTEM, ELFT, and F. FONDISONZO.
- U-337IN** and **Made in ITALY**.
- USE SCREWS QUALITY A2-70 UNI 7323 R 700 N/mm²**.

**Data filled in:**

1. year of manufacture
2. serial number
3. product code
4. temperature class
5. maximum surface temperature
6. ambient temperature
7. electrical specs per certificate

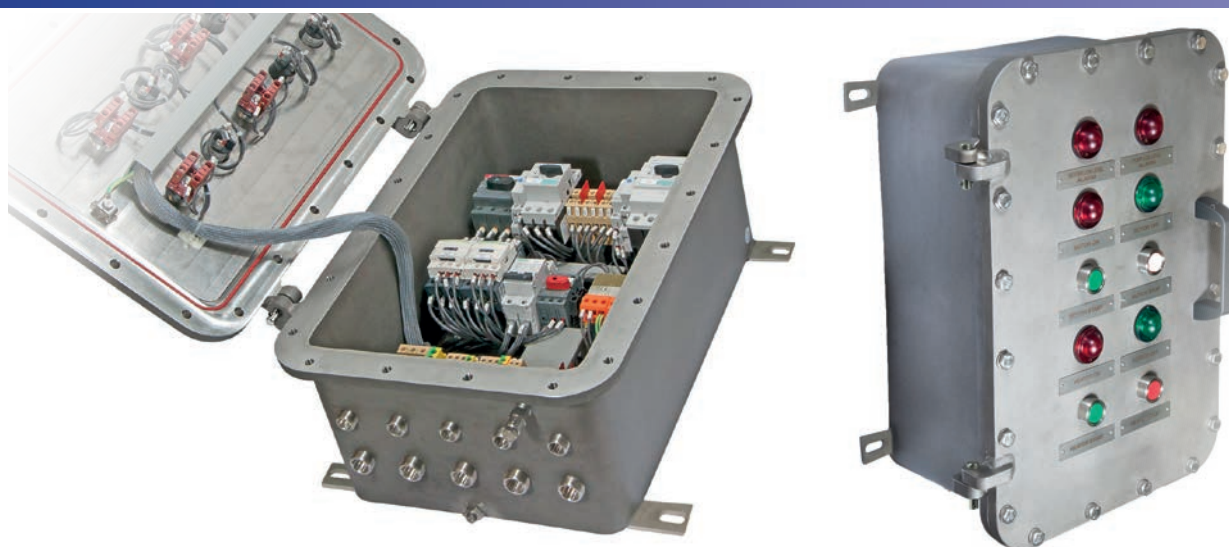
## Examples of terminal strips with minimum installation distances



TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED									
	TERMINAL CROSS-SECTIONAL AREA									
	2.5	4	6	10	16	35	70	120	185	240
EJBX-01	22	17	14	12	-	-	-	-	-	-
EJBX-1	2x28	26	21	15	12	10	3	-	-	-
EJBX-2	2x38	2x28	2x22	2x15	2x12	18	4	-	-	-
EJBX-3	3x38	3x35	3x28	3x23	2x21	14	6	4	3	3
EJBX-3B	3x38	3x35	3x28	3x23	2x21	14	6	4	3	3
EJBX-4	3x48	3x38	3x30	3x29	3x25	2x18	13	6	6	5
EJBX-4B	3x48	3x38	3x30	3x29	3x25	2x18	13	6	6	5
EJBX-45	3x70	3x65	3x50	3x35	3x25	2x20	20	10	8	8
EJBX-45B	3x70	3x65	3x50	3x35	3x25	2x20	20	10	8	8
EJBX-5	3x80	3x70	3x60	3x50	3x40	2x28	22	10	10	8
EJBX-5B	3x80	3x70	3x60	3x50	3x40	2x28	22	10	10	8
EJBX-6	4x120	4x100	4x80	4x60	4x50	3x35	30	15	15	15
EJBX-6B	4x120	4x100	4x80	4x60	4x50	3x35	30	15	15	15
EJBX-7	5x130	5x110	5x95	5x75	5x60	5x45	4x35	3x20	2x18	15

Eg. 2x28= 2 rows of 28 terminals (total 56 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals

## Features of junction boxes for control, monitoring and signalling units



Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	24 / 1000 Vac	12 / 250 Vdc
<b>Max. current on contacts and fuses:</b>	650 A	
<b>Rated frequency:</b>	50 / 60Hz	
<b>Max. wattage for lamps:</b>	5 W (for Ta +40°C)	3 W (for Ta +55°C)

### Features of equipment that can be installed in enclosures to produce control and monitoring units.

Table of electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.

(The values refer to the catalogues of the leading manufacturers of electrical/electronic components available on the market)

COMPONENT TYPE	Max. V (Volts)	Max. I (Amperes)	Max. power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	650	-
Fuses	660	400	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	240	-	300
Terminals	660	-	-
Reactors	277	7.5	40

Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20
Component voltage (V dc)	Min. air gap (mm)
12 - 250	6

## Features of junction boxes for control, monitoring and signalling units

### Table with maximum power dissipation values for EJBX series enclosures.

The temperature classes and maximum surface temperatures of control and monitoring unit enclosures depend on the size of the enclosure, ambient temperature and power dissipation inside the enclosure.

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of +40°C			
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed	T4 class without indicator lights and/or LEDs
EJBX-1	45	45	65	140
EJBX-2	60	60	85	190
EJBX-3	75	75	110	245
EJBX-3B	55	55	80	180
EJBX-4	100	100	175	350
EJBX-4B	75	75	130	260
EJBX-45	140	140	240	480
EJBX-45B	120	120	210	430
EJBX-5	210	210	315	600
EJBX-5B	170	170	250	480
EJBX-6	600	600	910	1740
EJBX-6B	490	490	720	1390
EJBX-7	610	610	930	1780

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of +55°C			
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed	T4 class without indicator lights and/or LEDs
EJBX-1	34	34	50	105
EJBX-2	45	45	65	142
EJBX-3	56	56	82	184
EJBX-3B	40	40	60	135
EJBX-4	75	75	130	262
EJBX-4B	56	56	100	195
EJBX-45	105	105	180	360
EJBX-45B	90	90	160	320
EJBX-5	160	160	235	450
EJBX-5B	130	130	190	360
EJBX-6	460	460	680	1300
EJBX-6B	370	370	550	1040
EJBX-7	470	470	690	1310

### DON'T FORGET TO ORDER THE ACCESSORIES

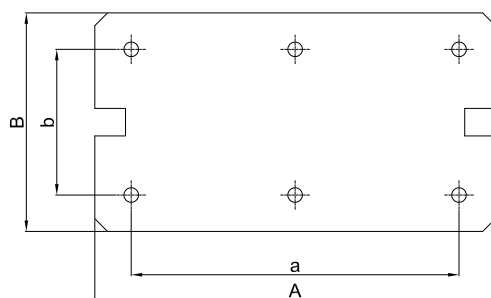
**Example:** Enclosure type EJBX-5 + Internal mounting plate BFE-5SS + Cable glands, unions + other...see key



## EJBX...series Accessories available on request and spare parts

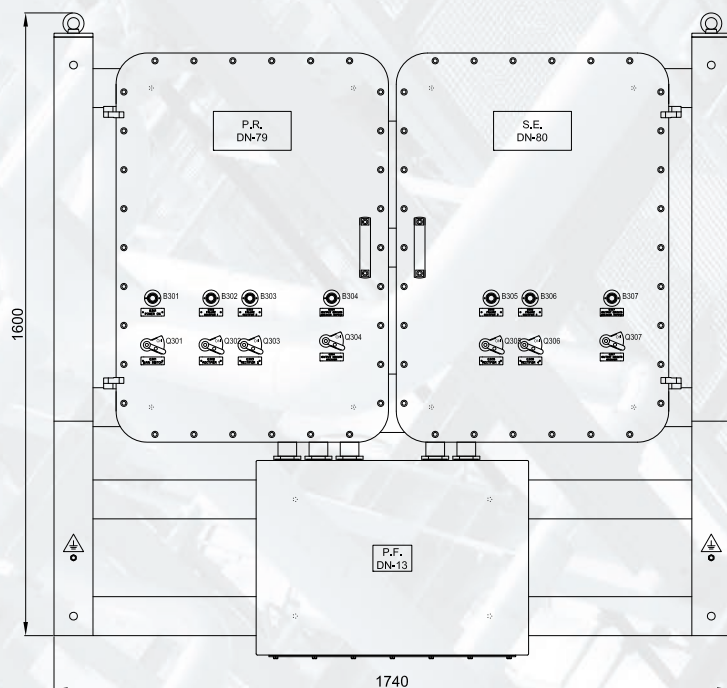
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Internal mounting plates	EJBX-01	Thickness 2.5mm Stainless steel (BFE-...SS)	BFE-01SS	 
		EJBX-1		BFE-1SS	
		EJBX-2		BFE-2SS	
		EJBX-3/3B		BFE-3SS	
		EJBX-4/4B		BFE-4SS	
		EJBX-45/45B		BFE-45SS	
		EJBX-5/5B		BFE-5SS	
		EJBX-55/55B		BFE-55SS	
		EJBX-6/6B		BFE-6SS	
		EJBX-7		BFE-7SS	
	Breather and drain valve	Thread diameter ISO 7-R 3/8"	Material: stainless steel	ECD-210S	 
	Cable glands and unions		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Sealed bushings		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Lid-mounted control and signalling devices		For control and signalling device models and codes, see control and monitoring device chapter		 
	O-ring between body and lid	EJBX-01	Material: red-coloured silicone	K01-131/1S	
		EJBX-1		K1-131/1S	
		EJBX-2		K2-131/1S	
		EJBX-3/3B		K3-131/1S	
		EJBX-4/4B		K4-131/1S	
		EJBX-45/45B		K45-131/1S	
		EJBX-5/5B		K5-131/1S	
		EJBX-6/6B		K6-131/1S	
		EJBX-7		K61-131/S	

Envolventes	Internal mounting plates				
	A	B	a	b	Cod.
EJBX-01	180	120	140	80	BFE-01SS
EJBX-1	220	120	180	80	BFE-1SS
EJBX-2	340	140	300	100	BFE-2SS
EJBX-3 /3B	280	200	240	160	BFE-3SS
EJBX-4 /4B	340	240	300	200	BFE-4SS
EJBX-45 /45B	460	280	440	260	BFE-45SS
EJBX-5 /5B	540	340	500	300	BFE-5SS
EJBX-55 /55B	570	370	540	340	BFE-55SS
EJBX-6 /6B	720	500	680	460	BFE-6SS
EJBX-7	850	550	820	520	BFE-7SS

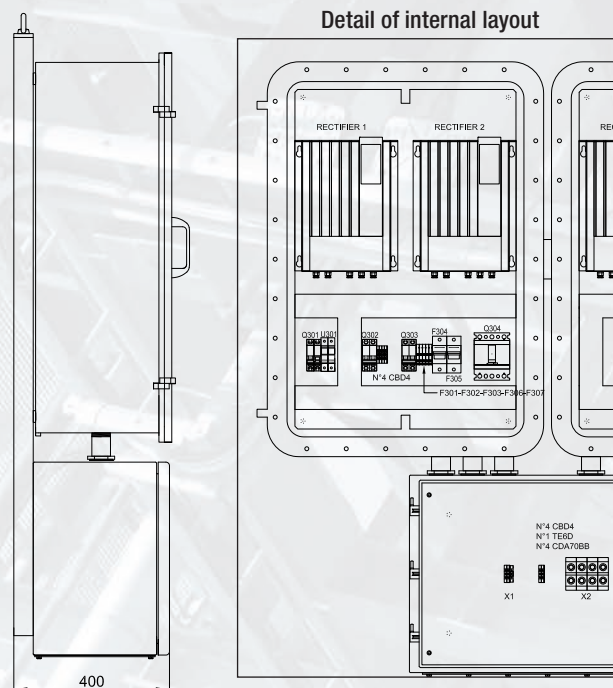




Example of control panel with wall-mounting system.

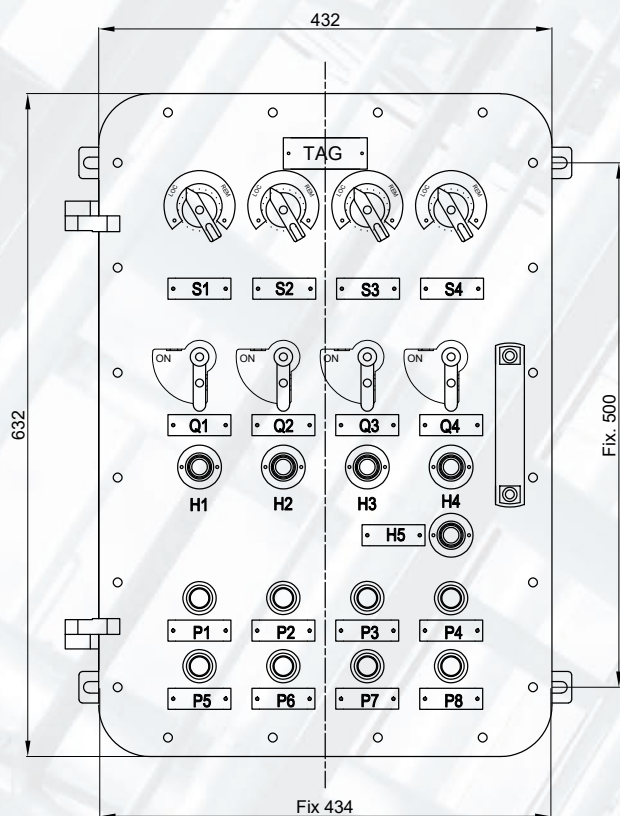


Detail of internal layout

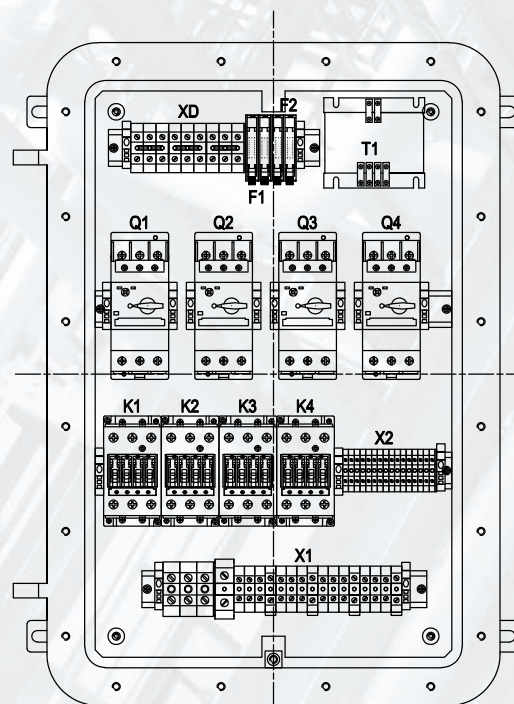


Example of control panel

External layout



Internal layout



# CCA-E

- Zone 1, 2, 21, 22
- Group IIC
- Aluminium junction boxes
- Choice of 5 sizes
- IP66



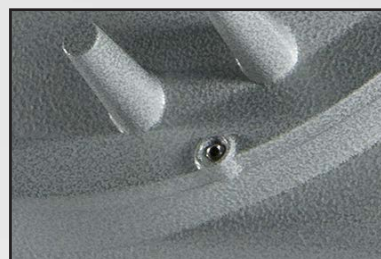
Mounting  
feet

External earth screw  
in body



Polyester  
coating

Safety grub screw  
for lid



## CCA-...E series Aluminium junction boxes gas group IIC

The CCA...E series junction boxes are recommended for fitting with terminals given that they provide more room, making it easier for operators to gain access. On the other hand, the smaller wall area means drilling options are limited. They are suitable for installation in any plants where there is a risk of explosion and/or fire, or areas where combustible dust is present, classified as Zone 1, 2, 21, 22. The quality of this product is recognized and valued the world over for its specific aluminium alloy and the mechanical properties of its finishes. The CCA...E series is employed where group IIC gases are present and is mostly used as a box to carry terminals, fuse carriers, transformers, reactors and barriers, though it is also used to produce control and signalling boards, light and power boards and motor starter boxes with different configurations, which are specially custom made to the requirements of our customers worldwide. The CCA...EH series features a threaded lid with a tempered glass viewing window.






Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:








### CERTIFICATION DATA FOR EMPTY ENCLOSURES

Classification:	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 CESA 01 ATEX 034U			
	IEC Ex CES 14.0012U		All IEC Ex ECASEx, TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx AVAILABLE			
	TR CU AVAILABLE			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +60°C 		Standard temperature on all CCAE boxes.	
	 -60°C +150°C 		Special temperature.	
Degree of protection:	IP66			








## CCA-...E series Aluminium junction boxes gas group IIC







### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	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 d IIC T6, T5 Gb - Ex tb IIIC T85, T100°C Db - IP66					
Certification:	ATEX CESI 01 ATEX 036X					
	IEC Ex CES 16.0013X		All IEC Ex, TR CU, CCoE certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>			
	TR CU AVAILABLE					
	CCoE AVAILABLE					
Standards:	CENELEC EN 60079-0: 2012 + A11: 2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE					
 Ambient Temp.:	 -50°C (-60°C) +40°C 		With temperature class T6 and maximum surface temperature T85°C.			
	 -50°C (-60°C) +55°C 		With temperature class T5 and maximum surface temperature T100°C.			
Degree of protection:	IP66					






### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certification:	ATEX	CESI 01 ATEX 036X		
	IEC Ex	CES 16.0013X	All IEC Ex, ECASEx, CCC, TR CU, INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	CCC	AVAILABLE		
	INMETRO	DNV 14.0152		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	 -20°C +40°C 		With temperature class T6 and maximum surface temperature T85°C.	
	 -20°C +55°C 		With temperature class T5 and maximum surface temperature T100°C.	
	 -60°C		On request.	
Degree of protection:	IP66			

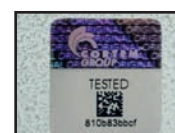
## CERTIFICATION DATA FOR ENCLOSURES SERVING SURGE ARRESTER FUNCTION

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certification:	ATEX	CESI 01 ATEX 036X		
	IEC Ex	CES 16.0013X	All IEC Ex, TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2012 + A11: 2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C	On request.		
Degree of protection:	IP66			

## CERTIFICATION DATA OF ENCLOSURES SERVING INTERFACE UNIT CONTROL AND MONITORING FUNCTION

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2(1)GD - Ex d [ia Ga] IIC T... Gb - Ex tb [ia Da] IIIC T...°C Db - IP66			
Certification:	ATEX	CESI 03 ATEX 174X		
	IEC Ex	CES 16.0015X	Para todos los datos de certificación IEC Ex, UKEX, ECASEx, CCC descargue el certificado de la página web <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	UKEX	AVAILABLE		
	ECASEx	AVAILABLE		
	CCC	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2013, EN 60079-1: 2014, EN 60079-11: 2012, EN 60079-26: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	 -20°C +40°C 		With temperature class T6 and maximum surface temperature T85°C.	
	 -20°C +55°C 		With temperature class T5 and maximum surface temperature T100°C.	
	 -60°C		On request.	
Degree of protection:	IP66			





ORIGINAL PRODUCT

### MECHANICAL FEATURES

<b>Body and lid:</b>	Low copper content aluminium alloy. Screw-on lid with safety fastening grub screw
<b>Gasket:</b>	Resistant to acids, hydrocarbons and high temperatures, located between body and lid
<b>Certification label:</b>	Adhesive label located inside on empty enclosures; aluminium label riveted onto body on other versions
<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>Mounting:</b>	Cast aluminium feet
<b>Coating:</b>	Polyester coating RAL 7035 (Light grey)
<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

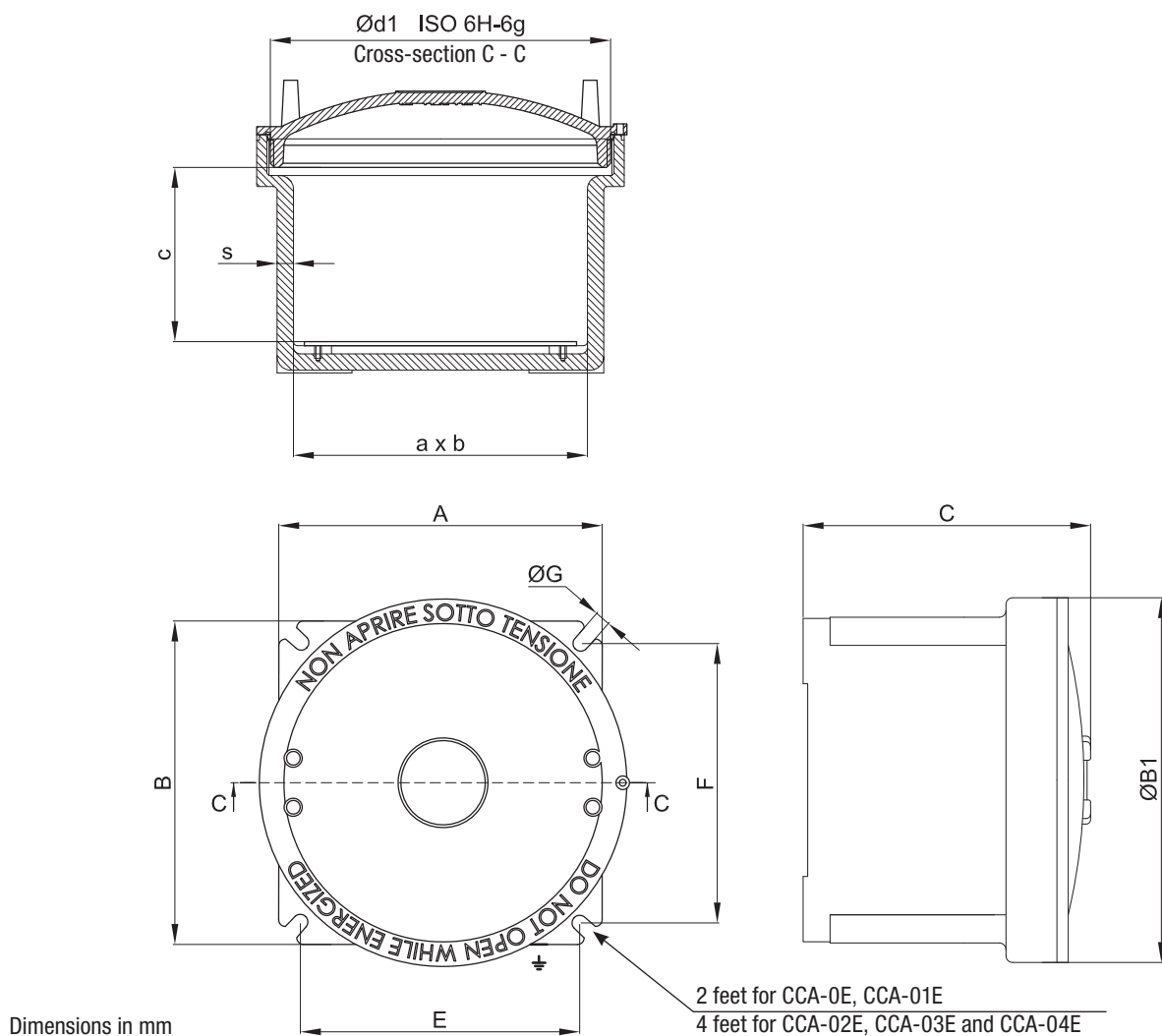
Internal anti-condensation coating RAL 2004 (pure orange)	
Possible drilling of the enclosure bottom	
Breather valve Code ECD-210S	
Drain valve Code ECD-210S	
External polyester coatings in different colour	
CCA-...EH series enclosures with round viewing window on lid	
Internal mounting plate:	2.5mm-thick aluminium (code TF-...E). See accessories section
	2.5mm-thick electrogalvanized steel (code TF-...EAC)
Thread options:	
•	NPT threads ANSI B1.20.1
•	GAS UNI ISO 7-1 thread
•	Metric threads ISO 261/965

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

## ENCLOSURE SELECTION CHART

Code	Outside dimensions				Inside dimensions					Mounting			Weight kg
	A	B	C	ØB1	a	b	c	Ød1	s	E	F	ØG	
CCA-0E	128	128	133	146	104	104	75	130x2	12	111	138	9	2,1
CCA-01E	145	145	135	170	121	121	75	150x2	12	128	150	9	2,6
CCA-02E	195	195	159	220	171	171	83	200x3	12	175	175	10	4,9
CCA-03E	240	240	228	270	216	216	135	250x3	12	213	213	12	8,7
CCA-04E	385	385	294	410	353	353	156	390x3	16	339	339	14	25

## DIMENSIONAL DRAWING



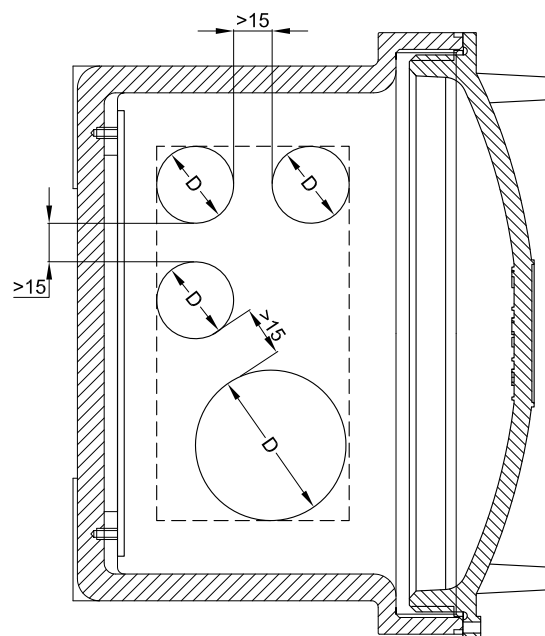
## CCA-...E series Body drilling data

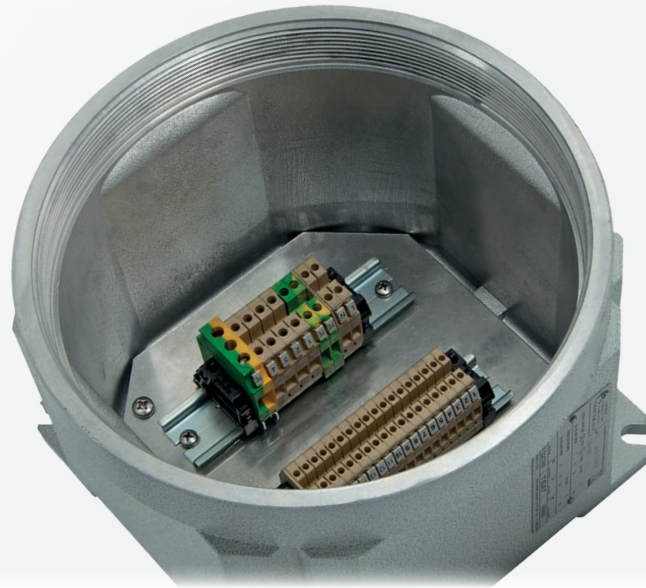
THREAD COMPARISON CHART									
ISO 7-1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
ANSI B.20.1 NPT	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"			
ISO 261/965	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5	100x1.5
<b>D</b> Thread diameter	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>10</b>

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .



TYPE OF ENCLOSURE	HOLE DRILLING IN BODY									
	One side									
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								
		1	2	3	4	5	6	7	8	10
CCA-0E	95x65	4	4	2	1	1	1	-	-	-
CCA-01E	108x65	6	4	3	2	1	1	-	-	-
CCA-02E	130x65	8	6	3	2	2	1	-	-	-
CCA-03E	155x115	12	12	6	6	4	2	1	1	1
CCA-04E	243x140	28	22	15	12	8	6	3	2	2





These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

### ELECTRICAL FEATURES

**Rated voltage:** 24 / 800 V  
**Rated frequency:** 50 / 60 Hz

#### Modular terminals

**Terminal cross-sectional area:** 2.5; 4; 6; 10; 16; 25; 35; 70; 95; 120; 185; 240 [mm<sup>2</sup>]  
**Rated current:** 12.5 - 400 [A]  
**Max. current density:** 1.65 - 7 [A/mm<sup>2</sup>]

#### Multi-pole terminals

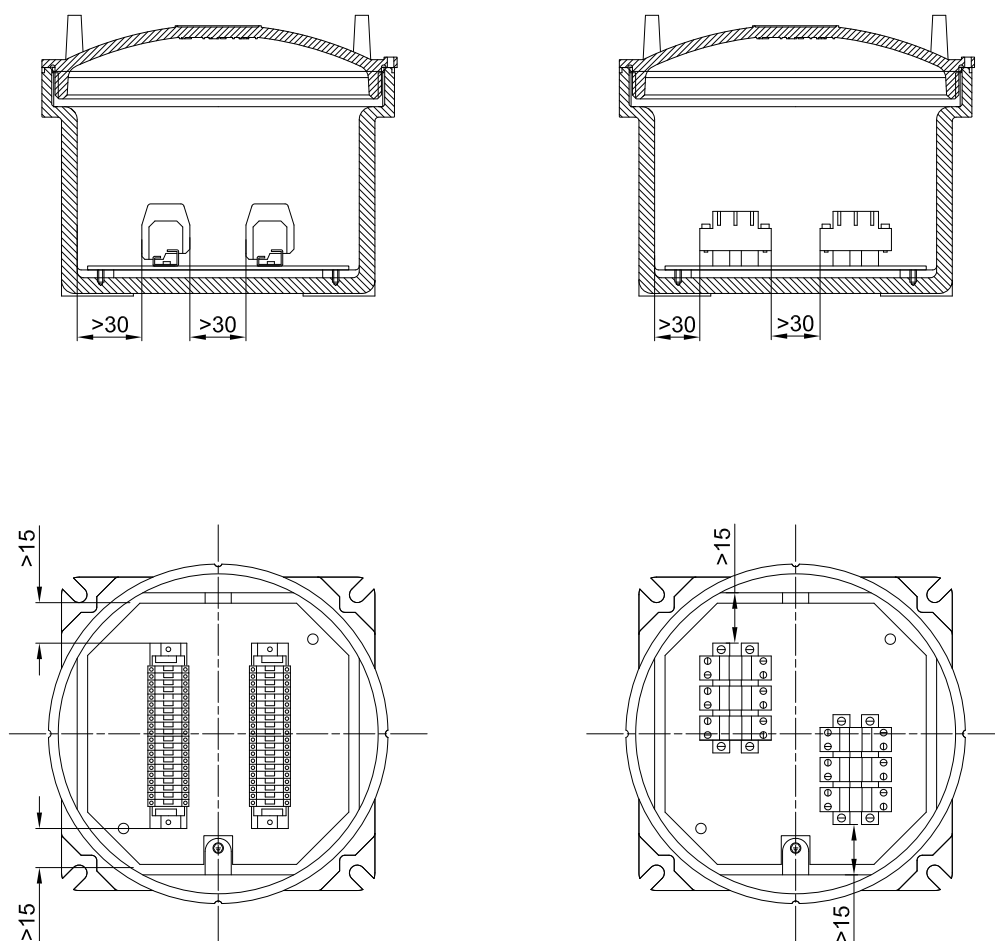
**Terminal cross-sectional area:** 3x16; 4x16; 3x25; 4x25; 3x40; 3x40; 4x40; 3x70; 4x70; 3x125; 3x200; 4x200; 3x315 [mm<sup>2</sup>]  
**Rated current:** 48 - 252 [A]  
**Max. current density:** 0.8 - 3 [A/mm<sup>2</sup>]

#### ATEX - IECEx label for terminal enclosures

#### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. electrical specs
6. maximum surface temperature
7. temperature class

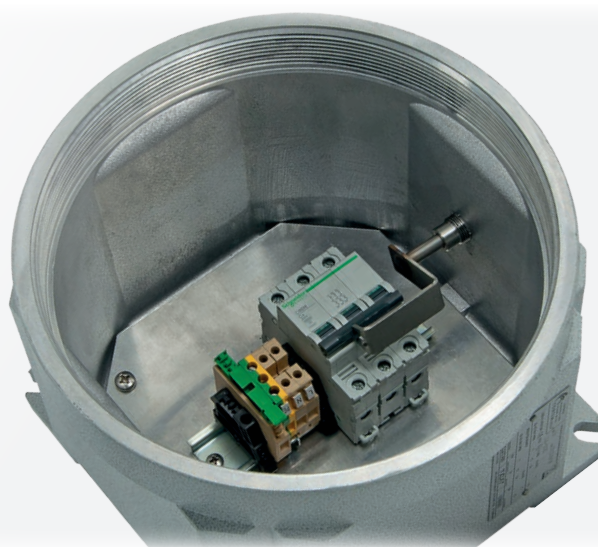
## Examples of terminal strips with minimum installation distances



TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED								
	TERMINAL CROSS-SECTIONAL AREA								
	2.5	4	6	10	16	35	70	120	185
CCA-0E	13	12	8	7	6	-	-	-	-
CCA-01E	17	14	11	9	7	5	-	-	-
CCA-02E	2x22	2x19	2x15	2x12	2x10	6	-	-	-
CCA-03E	2x32	2x27	2x22	2x17	2x14	8	-	-	-
CCA-04E	3x40	3x30	2x28	2x23	2x18	12	10	6	4

Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals

## Features of junction boxes for control, monitoring and signalling units



Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using body-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	24 / 1000 Vac	12 / 250 Vdc
<b>Max. current on contacts:</b>	650 A	
<b>Rated frequency:</b>	50 / 60Hz	

### Features of equipment that can be installed inside enclosures to produce control and monitoring units.

Table of standard electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.

(The values refer to the catalogues of the leading manufacturers of electrical/electronic components available on the market)

COMPONENT TYPE	Max. V (Volts)	Max. I (Amperes)	Max. power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	650	-
Fuses	660	400	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	240	-	300
Terminals	660	-	-
Reactors	277	7.5	40

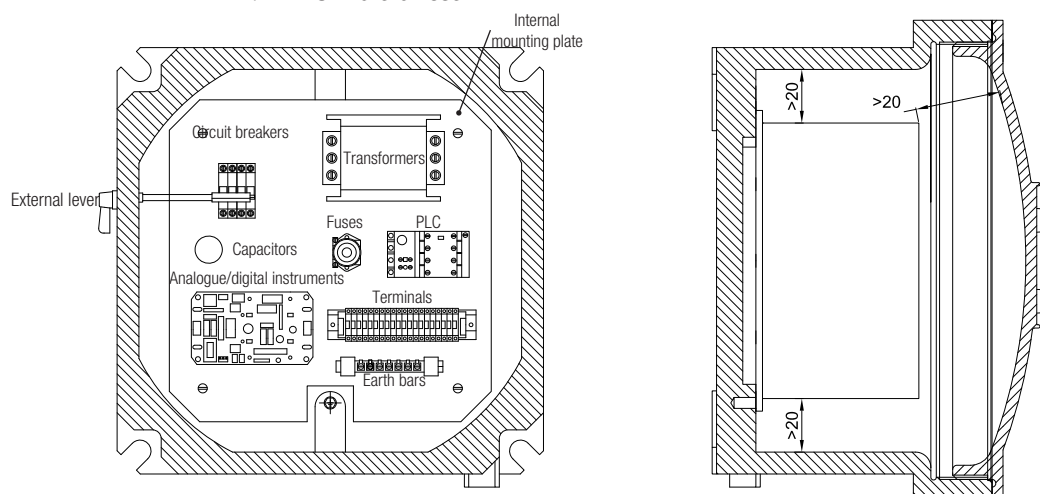
Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20
Component voltage (V dc)	Min. air gap (mm)
12 - 250	6

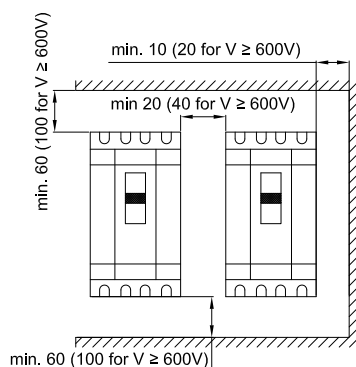


## Example of internal layout for CCA-...E series enclosures.

### - Minimum distances -



Minimum distances for 630/650A switches and contactors



## Identification and description of special equipment that is suitable for installation inside.

### Enclosures with batteries

Option of installing low-capacity batteries  $\leq 1.5\text{Ah}$ , for powering small electronic devices or backup memories. Whatever the case, the minimum distance of 20mm between the components installed and the inside walls of the enclosure must be met.

### Enclosures with surge arresters

Option of installing PRD or similar types of surge arresters, with a maximum protection limit of 65kA; whatever the case, the minimum distance of 20 mm between the arrester and the inside walls of the enclosure must be met.

### Enclosures with fibre-optic cables

The enclosures have provision for feeding multiple (not single) fibre-optic cables in and out. The permitted optical power and radiation limits for optical cables are:

- 35mW and  $5\text{mW}/\text{m}^2$  for T4 temperature class
- 15mW and  $5\text{mW}/\text{m}^2$  for T6 temperature class

### Enclosures with radio-frequency sources

Option of installing components with radio-frequency sources in the 9kHz to 60GHz range that can be used for continuous and pulsed transmission of signals. Antennas can be installed inside or outside the enclosure and must:

- comply with one of the protection types indicated in standard EN 60079-0
- be installed outside the hazardous area.

For more information, refer to certificate CESI 01 ATEX 036X.

## Features of junction boxes for control, monitoring and signalling units

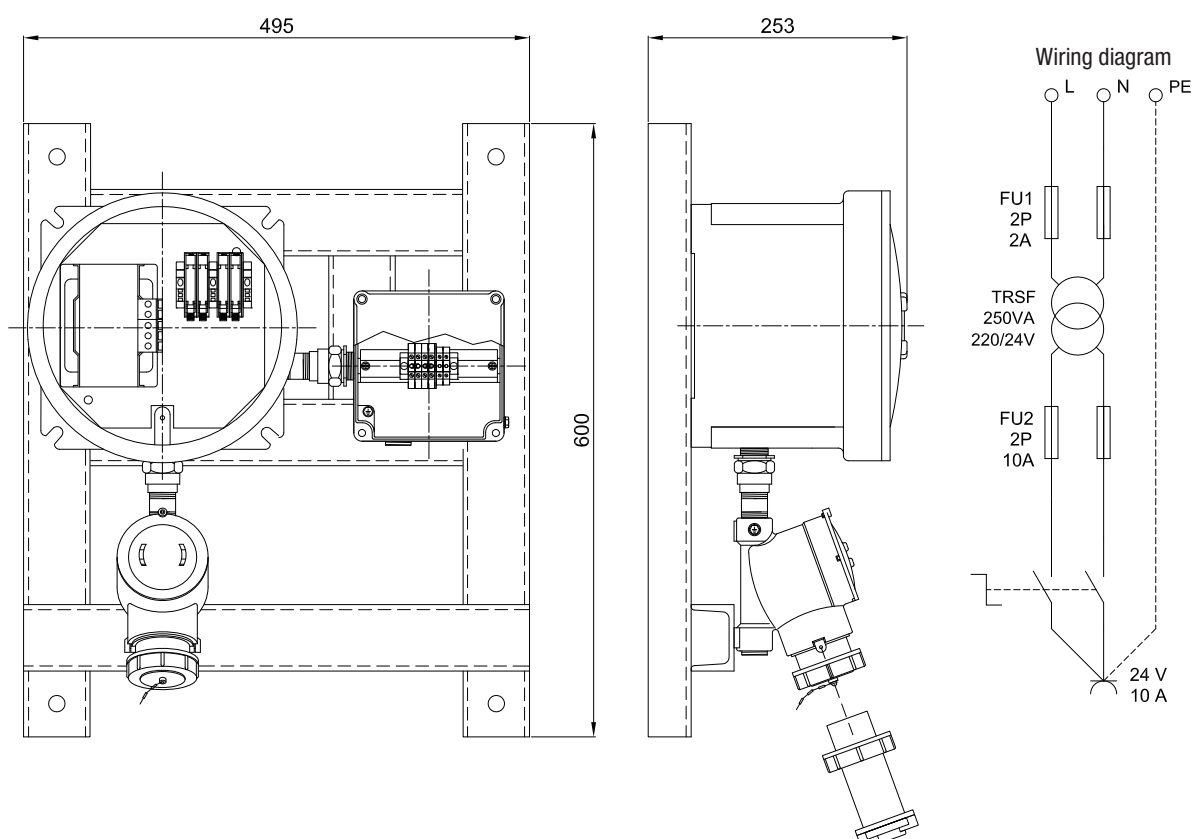
### Table with maximum power dissipation values for CCA-...E series enclosures.

The temperature classes and maximum surface temperatures of control and monitoring unit enclosures depend on the size of the enclosure, ambient temperature and power dissipation inside the enclosure.

Enclosure type		Maximum power dissipation (Watts) with ambient temperature of +40°C		
		T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCA-0E	CCA-0EH	8	9	13
CCA-01E	CCA-01EH	11	12	17
CCA-02E	CCA-02EH	23	25	36
CCA-03E	CCA-03EH	40	44	58
CCA-04E	CCA-04EH	93	100	164

Enclosure type		Maximum power dissipation (Watts) with ambient temperature of +55°C		
		T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCA-0E	CCA-0EH	6	7	9
CCA-01E	CCA-01EH	9	10	13
CCA-02E	CCA-02EH	20	22	28
CCA-03E	CCA-03EH	29	32	43
CCA-04E	CCA-04EH	70	77	125

Example of panel with CCA-03E enclosure with 220/24V transformer and fuses for Cortem PY-216V socket and SPY-216V plug complete with SA141410 enclosure with connection terminal strip



### ELECTRICAL FEATURES

<b>Rated voltage:</b>	24 / 1000 Vac	12 / 250 Vdc
<b>Max. current on contacts and fuses:</b>	400 A	
<b>Rated frequency:</b>	50 / 60Hz	

### GENERAL INSTALLATION INFORMATION

The maximum power dissipation inside the enclosure depends on the maximum current on contacts and fuses, the size of the enclosure, the temperature class (or maximum surface temperature for 2GD category) and ambient temperature, as specified in the maximum power dissipation tables (see previous page).

The maximum power dissipation must not exceed the values given in the table when non-'Ex i' components and 'Ex i' components (with 1.1W maximum power dissipation) are installed together.

The maximum power dissipation possible inside the enclosure will also depend on the maximum power dissipation of terminals, contacts and cables; whatever the case, the current density value allowed in the enclosure is prescribed by EN 60439-1, IEC 60439-1.

#### Details of barrier mounting inside enclosures

The "omega" rail, in accordance with EN 60079-11, is suitable for mounting barriers inside 'Ex d' enclosures.

Barriers are mounted (according to the manufacturer's directions) 7.5 mm away from the base of the enclosure and are secured to the DIN rail with 2 earth terminals (nominal cross-sectional area 6-10 mm) and 2 standard terminals for omega rails (EN 60079-11).

Up to how many barriers can be installed in the enclosures will depend on the properties of the barriers in question; in addition, the maximum number of barriers must not exceed the limit allowed by the certificate in any case.

Associated equipment can also be mounted on a DIN rail; when it is mounted on the enclosure's internal mounting plate, reference must be made to the minimum prescribed distances. Whether mounted on a rail or mounting plate, associated equipment must meet the following requirements:

#### Separators

When separators are used, they must be appropriately sized; their thickness and fastening inside the enclosure must be suitably determined and separators must allow air to circulate inside the enclosure.

#### Incoming cables

Incoming cables for 'Ex i' circuits must be suitably labelled or the area around the entry must be coloured blue RAL 5015. 'Ex i' entries must be clearly identified.

#### Installation of 'Ex i' and non-'Ex i' components inside the enclosure.

Ex d IIC certified enclosures complete with accessories can contain only Ex ia IIC associated equipment. In this case, the resulting version becomes Ex d [ia] IIC.

#### Connection of internal cables

Cables are connected inside the enclosure to the barriers in accordance with EN 60079-11, with one side for connecting 'Ex i' cables and the opposite side for connecting non-'Ex i' cables.

Connection in 'Ex i' circuits must be made using insulated cables only; there must be no connections to non-'Ex i' circuits and no more than one cable can be connected to a single terminal. 'Ex i' cables cannot be grouped together with non-'Ex i' cables. In addition, 'Ex i' cables and non-'Ex i' cables must be kept separate. The minimum distance between the 2 types of cables must be 8 mm. The minimum insulation level for non-'Ex i' cables must be greater than 1.5 kV; the minimum insulation level for 'Ex i' cables must be greater than 0.5 kV.

#### Internal connections

When routing cables belonging to 'Ex i' circuits, the cables must be identified in one of the following ways:

- cables must have blue insulation (as long as there are no other cables inside the enclosure with this colour).
- 'Ex i' cables must be kept separate from non-'Ex i' cables with blue cable raceways.
- 'Ex i' cables must be grouped together, using a tie, for example, and the area identified with a blue label.

Warning 'Ex i' circuits

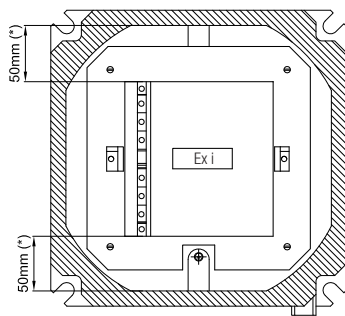
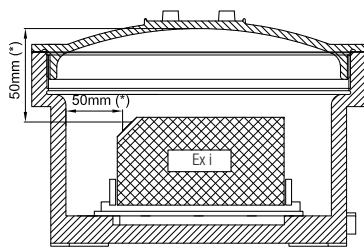
- cables for power circuits must have a cross-sectional area of at least 1.5 mm<sup>2</sup>.
- 'Ex i' circuits must be kept at a distance of 50 mm from non-'Ex i' circuits.
- the earth connection must meet European standard EN 60079-14.

## CCA-...E series Features of junction boxes with interface units

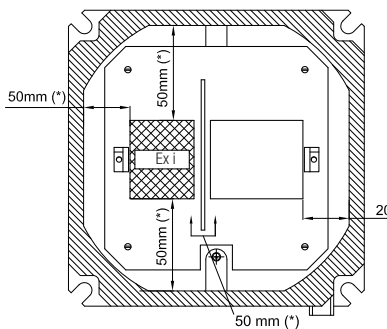
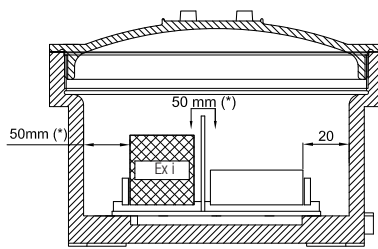
The number of items of equipment mounted inside the enclosures and their layout will vary based on the following:

- in accordance with standards EN 60079-1 and IEC 60079-1, the equipment contained inside the enclosure can be arranged in any way provided that at least 20% of the surface area of each section is left free.
- equipment must be set at a suitable distance to accommodate cable wiring.

**Example of interface unit without separator**



**Example of interface unit (with associated equipment) complete with separator**

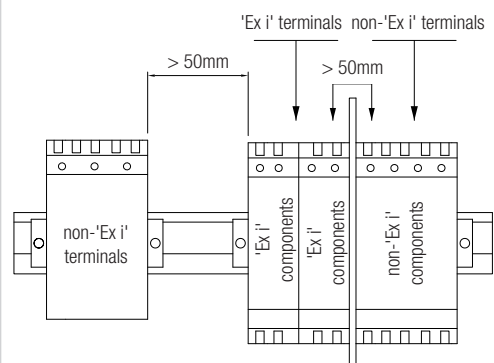
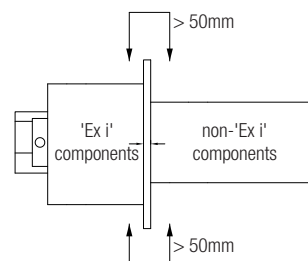
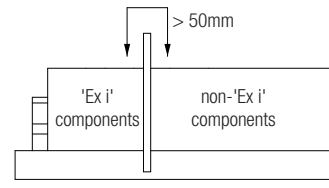


### NOTES

(\*) 50 mm is the minimum safe distance between 'Ex i' components and non-'Ex i' components (and/or conducting parts).

- The active and passive barriers that can be installed in the enclosures must have their own ATEX certificate.
- The maximum voltage entering barriers on non-'Ex i' circuits must be less than 250 V.

**Examples of installation of associated equipment - minimum distances.**



### DON'T FORGET TO ORDER THE ACCESSORIES

**Example:** Enclosure type CCA-03E + Internal mounting plate TF-03E + Cable glands, unions + other...see key

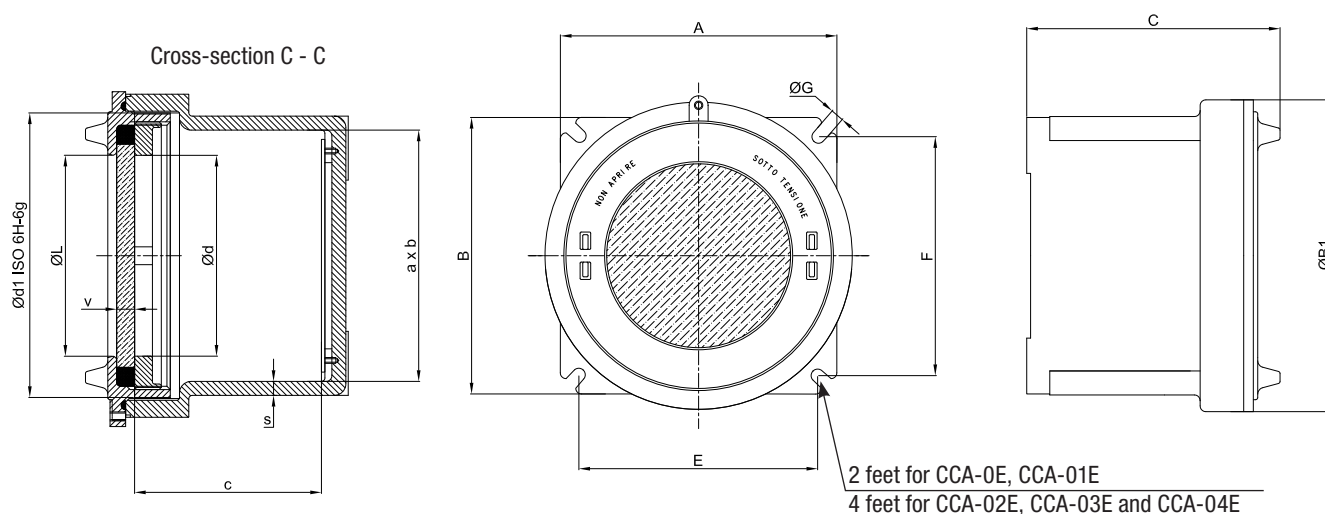


## CCA-...EH series Junction boxes with round viewing windows

CCA-...EH series junction boxes are used as enclosures for electrical equipment that requires a visual interface with the outside. Voltmeters, ammeters and other analogue and digital measuring instruments are typical examples of installations that require a window for taking direct readings. These enclosures are also used to house monitoring instruments such as infra-red photoelectric cells and twilight sensors that provide pulses for control and signalling equipment (opening/closing, alarms, etc....). Our technical department will decide what size enclosures to use based on your requirements and determine the internal layout so that all the dimensional and electrical parameters prescribed by the certificate are met. We can install equipment to your specifications within the technical limits allowed by the certificate and based on our standard control and signalling devices.



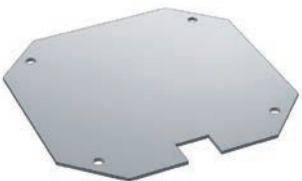











**DIMENSIONAL DRAWING OF ENCLOSURES WITH ROUND VIEWING WINDOWS**



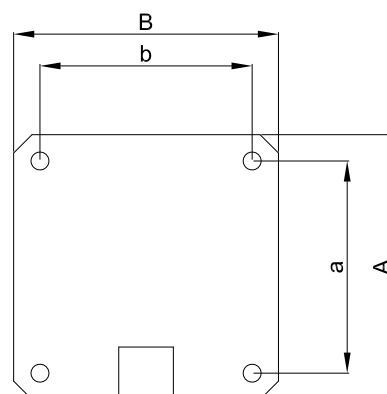
### ENCLOSURE SELECTION CHART

Code	Outside dimensions mm					Inside dimensions mm							Mounting mm			Weight kg
	A	B	C	ØB1	ØL	a	b	c	Ød	Ød1	s	v	E	F	ØG	
CCA-0EH	128	128	130	146	90	104	104	85	90	130x2	12	10	111	142	9	
CCA-01EH	145	145	155	160	90	121	121	105	92	150x2	12	10	128	150	9	
CCA-02EH	195	195	150	212	140	171	171	95	140	200x2	12	12	175	175	10	
CCA-03EH	240	240	210	260	180	216	216	154	180	240x3	12	15	213	213	12	
CCA-04EH	385	385	277	410	310	353	353	210	310	390x3	16	20	339	339	14	

## CCA-...E, CCA-...EH series Accessories available on request and spare parts

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Internal mounting plates	CCA-0E, CCA-0EH	Thickness 2.5mm  Aluminium (TF-...) Galvanized steel (TF-...AC)	TF-0E	 
		CCA-01E, CCA-01EH		TF-01E	
		CCA-02E, CCA-02EH		TF-02E	
		CCA-03E, CCA-03EH		TF-03E	
		CCA-04E, CCA-04EH		TF-04E	
	Breather and drain valve	Thread diameter ISO 7-R 3/8"	Material: stainless steel	ECD-210S	 
	Cable glands and unions		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Viewing window	CCA-0EH	Shock and high temperature resistant borosilicate glass sealed in aluminium ring	K-0253	 
		CCA-01EH		K-0145	
		CCA-02EH		K-0254	
		CCA-03EH		K-0255	
		CCA-04EH		K-0195	

Enclosures	Internal mounting plates				
	A	B	a	b	Code
CCA-0E	100	100	80	60	TF-0E
CCA-01E	113	113	90	90	TF-01E
CCA-02E	150	150	120	120	TF-02E
CCA-03E	200	200	145	145	TF-03E
CCA-04E	270	270	230	230	TF-04E





# CCAC

- Zone 1, 2, 21, 22
- Group IIC
- Aluminium junction boxes
- Choice of 5 sizes
- IP66



Grub screws for opening lid



External earth screw in body



## CCA...C series Aluminium junction boxes gas group IIC

The CCAC series junction boxes are recommended when using lid-mounted control and signalling devices. The special mechanical construction of the flamepath joint produced on the inside of the body makes them suitable for use in areas where group IIC gases are present in any environments where there is a risk of explosion and/or fire or where combustible dust is present, classified as Zone 1, 2, 21, 22. The quality of this product is recognized and valued the world over for its specific aluminium alloy and the mechanical properties of its finishes. The CCAC series is mostly used to produce control and signalling boards, light and power boards and motor starter boxes with different configurations, which are specially custom made to the requirements of our customers worldwide.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:








### CERTIFICATION DATA FOR EMPTY ENCLOSURES







Classification:	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 01 ATEX 034U			
	IEC Ex CES 14.0012U	All IEC Ex, ECASEx, TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	ECASEx AVAILABLE			
	TR CU AVAILABLE			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	-20°C  +60°C	Standard temperature on all CCA....C boxes.		
	-60°C  +60°C	Special temperature.		
Degree of protection:	IP66			

## CCA-...C series Aluminium junction boxes gas group IIC

### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS







Classification:	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 d IIC T6, T5 Gb - Ex tb IIIC T85, T100°C Db - IP66					
Certification:	ATEX CESI 01 ATEX 036X					
	IEC Ex CES 16.0013X		All IEC Ex, TR CU, CCoE certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>			
	TR CU AVAILABLE					
	CCoE AVAILABLE					
Standards:	CENELEC EN 60079-0: 2012 + A11: 2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE					
 Ambient Temp.:	 -50°C (-60°C) +40°C 		With temperature class T6 and maximum surface temperature T85°C.			
	 -50°C (-60°C) +55°C 		With temperature class T5 and maximum surface temperature T100°C.			
Degree of protection:	IP66					

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS






Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certification:	ATEX	CESI 01 ATEX 036X		
	IEC Ex	CES 16.0013X	All IEC Ex, ECASEx, CCC, TR CU , INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	CCC	AVAILABLE		
	INMETRO	DNV 14.0152		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 		With temperature class T6 and maximum surface temperature T85°C.	
	 -20°C +55°C 		With temperature class T5 and maximum surface temperature T100°C.	
	 -60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66			

## CCA-...C series Aluminium junction boxes gas group IIC

### CERTIFICATION DATA FOR ENCLOSURES SERVING SURGE ARRESTER FUNCTION

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certification:	ATEX	CESI 01 ATEX 036X		
	IEC Ex	CES 16.0013X	All IEC Ex, TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C	On request.		
Degree of protection:	IP66			

### CERTIFICATION DATA OF ENCLOSURES SERVING INTERFACE UNIT CONTROL AND MONITORING FUNCTION

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2(1)GD - Ex d [ia Ga] IIC T... Gb - Ex tb [ia Da] IIIC T...°C Db - IP66			
Certification:	ATEX	CESI 03 ATEX 174X		
	IEC Ex	CES 16.0015X	All IEC Ex, UKEX, ECASEx, CCC, TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	UKEX	AVAILABLE		
	ECASEx	AVAILABLE		
	CCC	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2013, EN 60079-1: 2014, EN 60079-11: 2012, EN 60079-26: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C	On request.		
Degree of protection:	IP66			



### MECHANICAL FEATURES

<b>Body and lid:</b>	Low copper content aluminium alloy. Lid fitted with hinges for body coupling system incorporating cylindrical joint.
<b>Hinges:</b>	Stainless steel
<b>Gasket:</b>	Resistant to acids, hydrocarbons and high temperatures, located between body and lid
<b>Certification label:</b>	Adhesive label located inside on empty enclosures; aluminium label riveted onto body on other versions
<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>Mounting:</b>	Cast aluminium lugs
<b>Coating:</b>	Polyester coating RAL 7035 (Light grey)
<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

Internal anti-condensation coating RAL 2004 (pure orange)	
Possible drilling of the enclosure bottom	
Breather valve Code ECD-210S	
Drain valve Code ECD-210S	
External polyester coatings in different colour	
Internal mounting plate:	2.5mm-thick aluminium (code TF-...E). See accessories section 2.5mm-thick electrogalvanized steel (code TF-...EAC)
Thread options:	
• NPT threads ANSI B1.20.1	
• GAS UNI ISO 7-1 thread	
• Metric threads ISO 261/965	

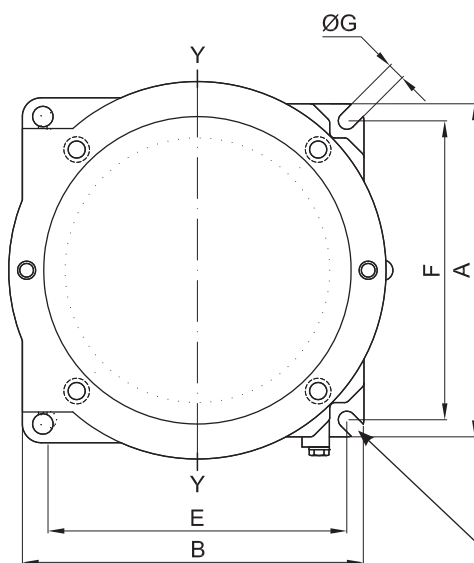
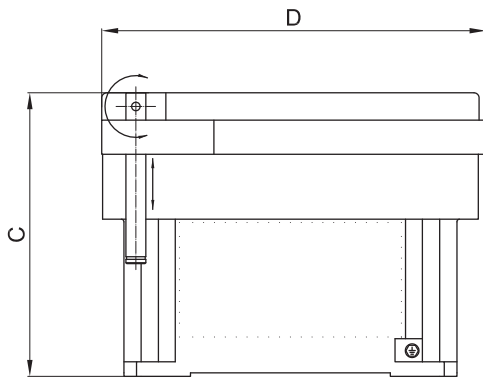
Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

# CCA-...C series Aluminium junction boxes gas group IIC

## ENCLOSURE SELECTION CHART

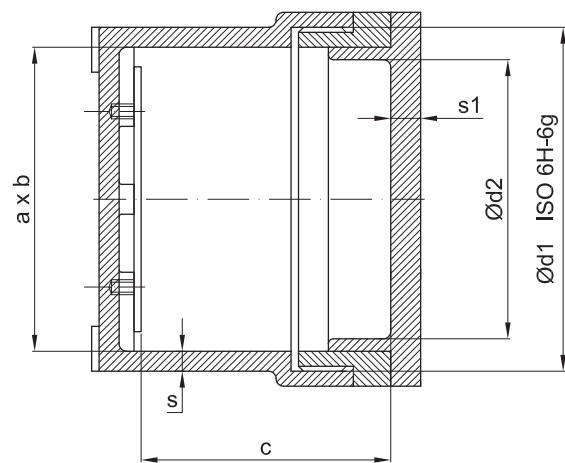
Code	Outside dimensions				Inside dimensions							Mounting			Weight Kg
	A	B	C	D	a	b	c	Ød1	d2	s	s1	E	F	ØG	
CCA-0C	128	128	150	146	104	104	122	M130x2	95	12	12	111	142	9	3,3
CCA-01C	145	145	149	170	121	121	113	M150x2	112	12	12	128	150	9	4,0
CCA-02C	195	195	160	212	171	171	130	M200x3	162	12	12	175	175	10	6,8
CCA-03C	240	240	223	260	216	216	185	M250x3	204	12	16	213	213	12	11,7
CCA-04C	385	385	262	410	353	353	200	M390x3	358	16	24	339	339	14	32,2

## DIMENSIONAL DRAWING



Dimensions in mm

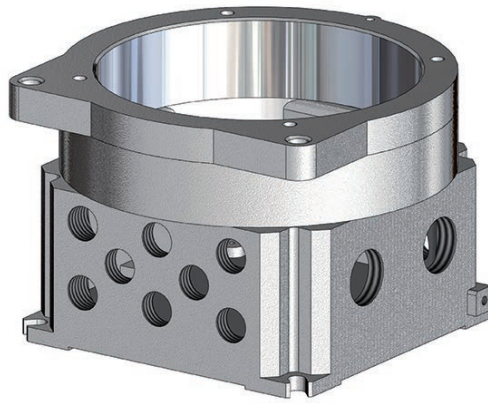
Cross-section Y - Y



2 lugs for CCA-0C, CCA-01C  
4 lugs for CCA-02C, CCA-03C and CCA-04C



## CCA-...C series Body drilling data

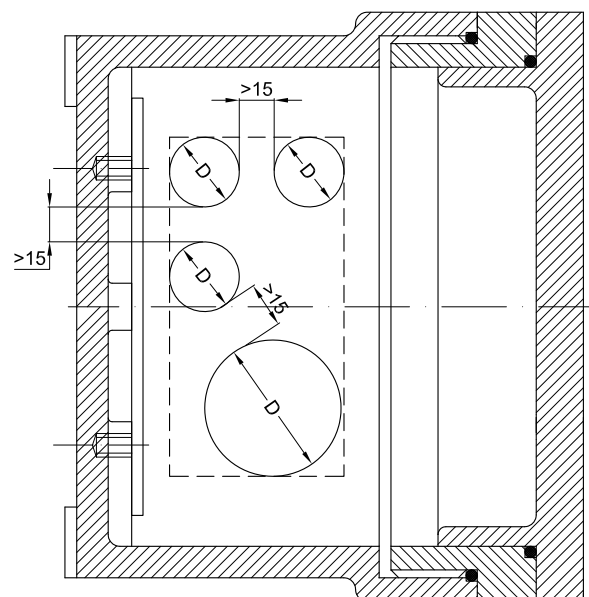
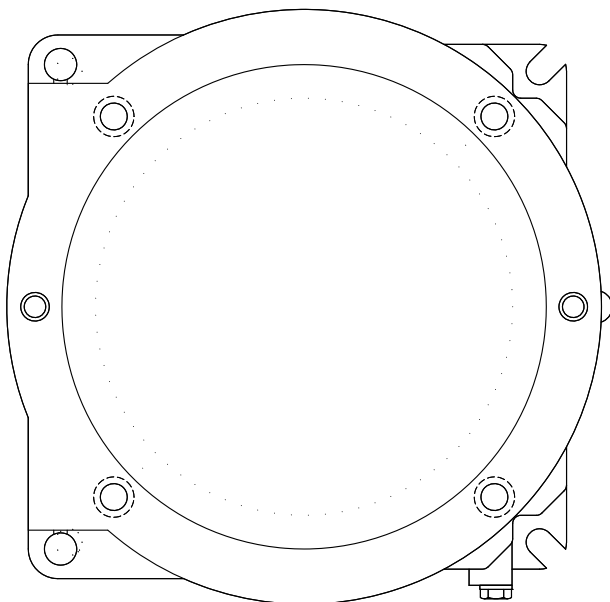


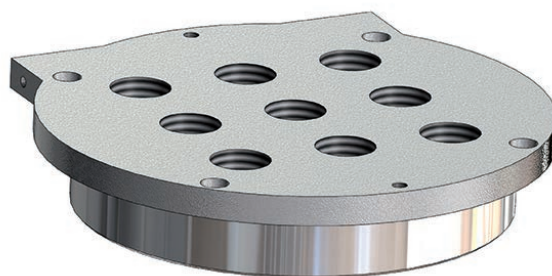
THREAD COMPARISON CHART

ISO 7-1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
ANSI B.20.1 NPT	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"			
ISO 261/965	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5	100x1,5
<b>D</b> Thread diameter	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>10</b>

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

TYPE OF ENCLOSURE	HOLE DRILLING IN BODY									
	One side									
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								
		1	2	3	4	5	6	7	8	10
<b>CCA-0C</b>	97x65	6	4	2	1	1	1	-	-	-
<b>CCA-01C</b>	108x65	6	4	3	2	1	1	-	-	-
<b>CCA-02C</b>	130x65	8	6	3	2	2	2	-	-	-
<b>CCA-03C</b>	155x115	12	12	6	6	4	2	1	1	1
<b>CCA-04C</b>	243x140	28	22	15	12	8	6	3	2	2



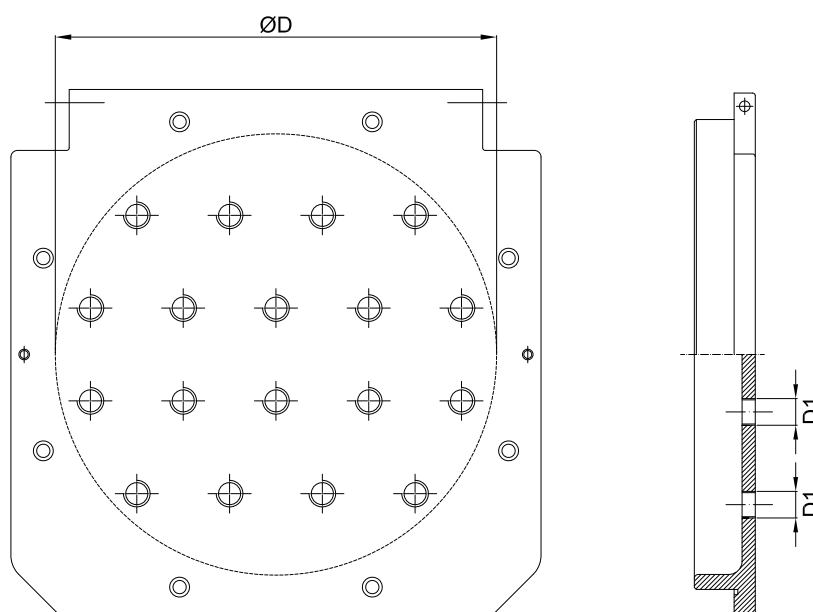


THREAD COMPARISON CHART								
D1	ISO 228	G 3/8"	G 1/2"	G 3/4"	-	-	-	-
	ISO 261/965	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M35x1.5	M40x1.5	M42x1.5

TYPE OF ENCLOSURE	HOLE DRILLING IN LID				
	ØD	MAXIMUM QUANTITY PER HOLE TYPE			
		3/8"	1/2"	3/4"	M32
CCA-0C	85	3	3	2	2
CCA-01C	105	3	3	3	3
CCA-02C	155	6	6	6	5
CCA-03C	200	9	9	9	9
CCA-04C	320	18	18	18	18

#### Notes:

- Standard holes refer to mounting of Cortem control and signalling devices.
- 3/8" Ø holes for Cortem std. side-mounted handles centre-to-centre distance >70mm.
- 1/2" Ø holes for Cortem std. heavy-duty series side-mounted handles centre-to-centre distance >120mm.





These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

### ELECTRICAL FEATURES

**Rated voltage:** 24 / 800 V  
**Rated frequency:** 50 / 60 Hz

#### Modular terminals

**Terminal cross-sectional area:** 2.5; 4; 6; 10; 16; 25; 35; 70; 95; 120; 185; 240 [mm<sup>2</sup>]  
**Rated current:** 12.5 - 400 [A]  
**Max. current density:** 1.65 - 7 [A/mm<sup>2</sup>]

#### Multi-pole terminals

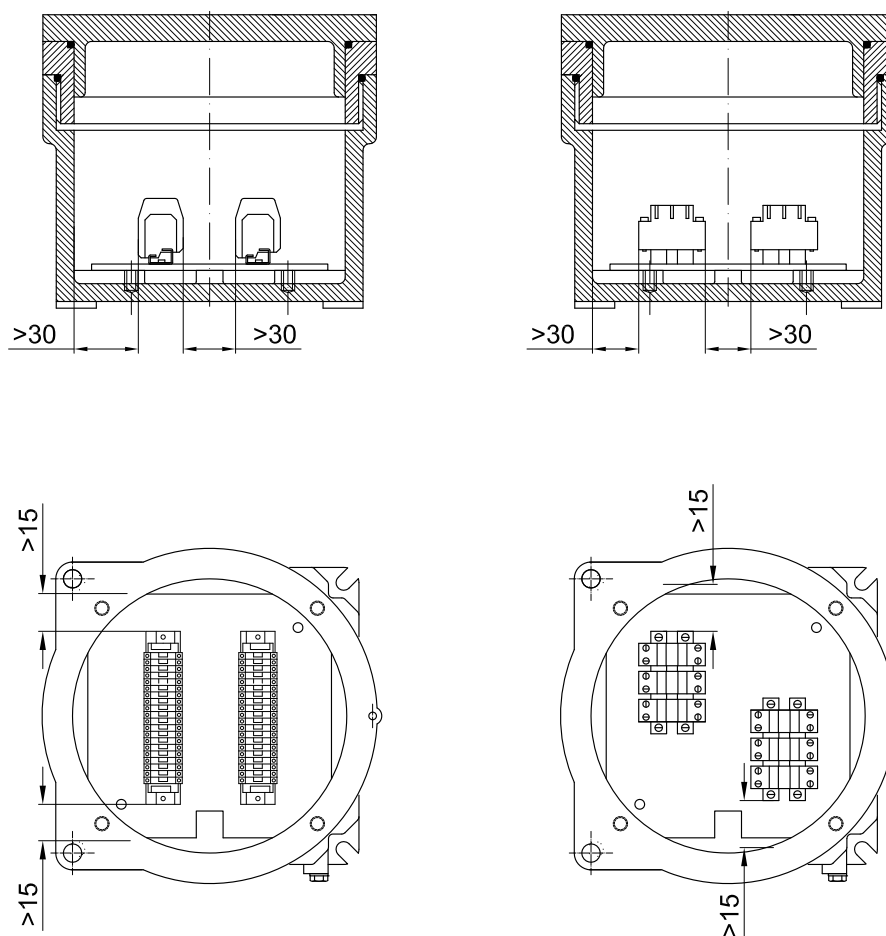
**Terminal cross-sectional area:** 3x16; 4x16; 3x25; 4x25; 3x40; 3x40; 4x40; 3x70; 4x70; 3x125; 3x200; 4x200; 3x315 [mm<sup>2</sup>]  
**Rated current:** 48 - 252 [A]  
**Max. current density:** 0.8 - 3 [A/mm<sup>2</sup>]

### ATEX - IECEx label for terminal enclosures

#### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. electrical specs
6. maximum surface temperature
7. temperature class

## Examples of terminal strips with minimum installation distances



TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED								
	TERMINAL CROSS-SECTIONAL AREA								
	2.5	4	6	10	16	35	70	120	185
CCA-0C	13	12	8	7	6	-	-	-	-
CCA-01C	17	14	11	9	7	5	-	-	-
CCA-02C	2x22	2x19	2x15	2x12	2x10	6	-	-	-
CCA-03C	2x32	2x27	2x22	2x17	2x14	8	-	-	-
CCA-04C	3x40	3x30	2x28	2x23	2x18	12	10	6	4

Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to CABUR terminals



Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	24 / 1000 Vac	12 / 250 Vdc
<b>Max. current on contacts:</b>	650 A	
<b>Rated frequency:</b>	50 / 60Hz	
<b>Max. wattage for lamps:</b>	5W (for Ta +40°C)	
	3W (for Ta +55°C)	

### Features of equipment that can be installed inside enclosures to produce control and monitoring units.

Table of standard electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.

(The values refer to the catalogues of the leading manufacturers of electrical/electronic components available on the market)

COMPONENT TYPE	Max. V (Volts)	Max. I (Amperes)	Max. power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	650	-
Fuses	660	400	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	240	-	300
Terminals	660	-	-
Reactors	277	7.5	40

Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20
Component voltage (V dc)	Min. air gap (mm)
12 - 250	6

## Features of junction boxes for control, monitoring and signalling units

### Table with maximum power dissipation values for CCA-...C series enclosures.

The temperature classes and maximum surface temperatures of control and monitoring unit enclosures depend on the size of the enclosure, ambient temperature and power dissipation inside the enclosure.

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of <b>+40°C</b>		
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCA-0C	8	9	13
CCA-01C	11	12	17
CCA-02C	23	25	36
CCA-03C	40	44	58
CCA-04C	93	100	164

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of <b>+55°C</b>		
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCA-0C	6	7	9
CCA-01C	9	10	13
CCA-02C	20	22	28
CCA-03C	29	32	43
CCA-04C	70	77	125

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	24 / 1000 Vac	12 / 250 Vdc
<b>Max. current on contacts and fuses:</b>	400 A	
<b>Rated frequency:</b>	50 / 60Hz	
<b>Max. wattage for lamps:</b>	5W (for Ta +40°C)	
	3W (for Ta +55°C)	

### GENERAL INSTALLATION INFORMATION

The maximum power dissipation inside the enclosure depends on the maximum current on contacts and fuses, the size of the enclosure, the temperature class (or maximum surface temperature for 2GD category) and ambient temperature, as specified in the maximum power dissipation tables (see previous page).

The maximum power dissipation must not exceed the values given in the table when non-'Ex i' components and 'Ex i' components (with 1.1W maximum power dissipation) are installed together.

The maximum power dissipation possible inside the enclosure will also depend on the maximum power dissipation of terminals, contacts and cables; whatever the case, the current density value allowed in the enclosure is prescribed by EN 60439-1, IEC 60439-1.

#### Details of barrier mounting inside enclosures

The "omega" rail, in accordance with EN 60079-11, is suitable for mounting barriers inside 'Ex d' enclosures.

Barriers are mounted (according to the manufacturer's directions) 7.5 mm away from the base of the enclosure and are secured to the DIN rail with 2 earth terminals (nominal cross-sectional area 6-10 mm) and 2 standard terminals for omega rails (EN 60079-11).

Up to how many barriers can be installed in the enclosures will depend on the properties of the barriers in question; in addition, the maximum number of barriers must not exceed the limit allowed by the certificate in any case.

Associated equipment can also be mounted on a DIN rail; when it is mounted on the enclosure's internal mounting plate, reference must be made to the minimum prescribed distances. Whether mounted on a rail or mounting plate, associated equipment must meet the following requirements:

#### Separators

When separators are used, they must be appropriately sized; their thickness and fastening inside the enclosure must be suitably determined and separators must allow air to circulate inside the enclosure.

#### Incoming cables

Incoming cables for 'Ex i' circuits must be suitably labelled or the area around the entry must be coloured blue RAL 5015. 'Ex i' entries must be clearly identified.



## Installation of 'Ex i' and non-'Ex i' components inside the enclosure.

Ex d IIC certified enclosures complete with accessories can contain only Ex ia IIC associated equipment. In this case, the resulting version becomes Ex d [ia] IIC.

### Connection of internal cables

Cables are connected inside the enclosure to the barriers in accordance with EN 60079-11, with one side for connecting 'Ex i' cables and the opposite side for connecting non-'Ex i' cables.

Connection in 'Ex i' circuits must be made using insulated cables only; there must be no connections to non-'Ex i' circuits and no more than one cable can be connected to a single terminal. 'Ex i' cables cannot be grouped together with non-'Ex i' cables. In addition, 'Ex i' cables and non-'Ex i' cables must be kept separate. The minimum distance between the 2 types of cables must be 8 mm. The minimum insulation level for non-'Ex i' cables must be greater than 1.5 kV; the minimum insulation level for 'Ex i' cables must be greater than 0.5 kV.

### Internal connections

When routing cables belonging to 'Ex i' circuits, the cables must be identified in one of the following ways:

- cables must have blue insulation (as long as there are no other cables inside the enclosure with this colour).
- 'Ex i' cables must be kept separate from non-'Ex i' cables with blue cable raceways.
- 'Ex i' cables must be grouped together, using a tie, for example, and the area identified with a blue label.

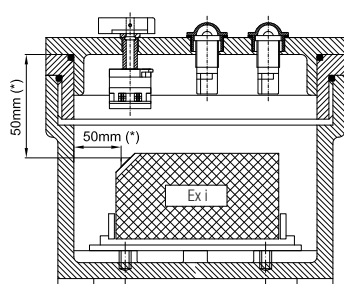
#### Warning 'Ex i' circuits

- cables for power circuits must have a cross-sectional area of at least 1.5 mm<sup>2</sup>.
- 'Ex i' circuits must be kept at a distance of 50 mm from non-'Ex i' circuits.
- the earth connection must meet European standard EN 60079-14.

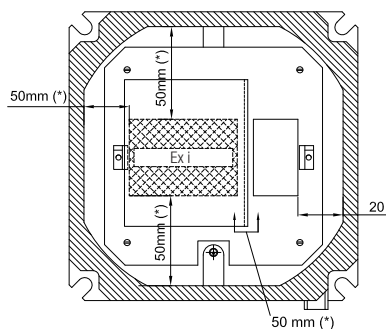
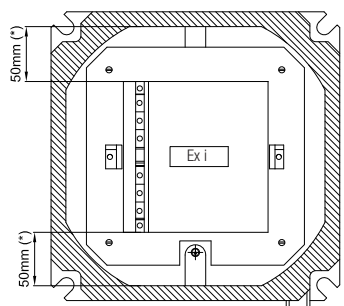
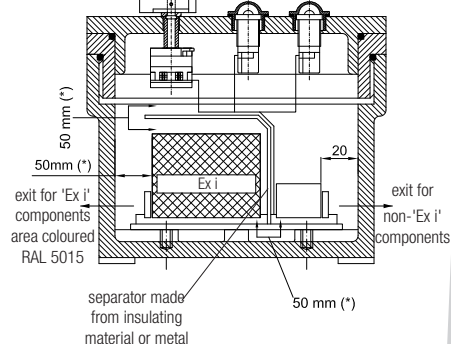
The number of items of equipment mounted inside the enclosures and their layout will vary based on the following:

- in accordance with standards EN 60079-1 and IEC 60079-1, the equipment contained inside the enclosure can be arranged in any way provided that at least 20% of the surface area of each section is left free.
- equipment must be set at a suitable distance to accommodate cable wiring.

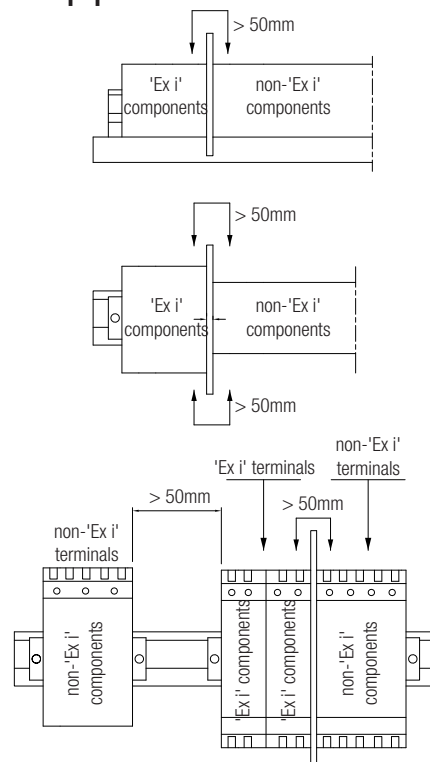
**Example of interface unit without separator**



**Example of interface unit (with associated equipment) complete with separator**















**Examples of installation of associated equipment - minimum distances.**



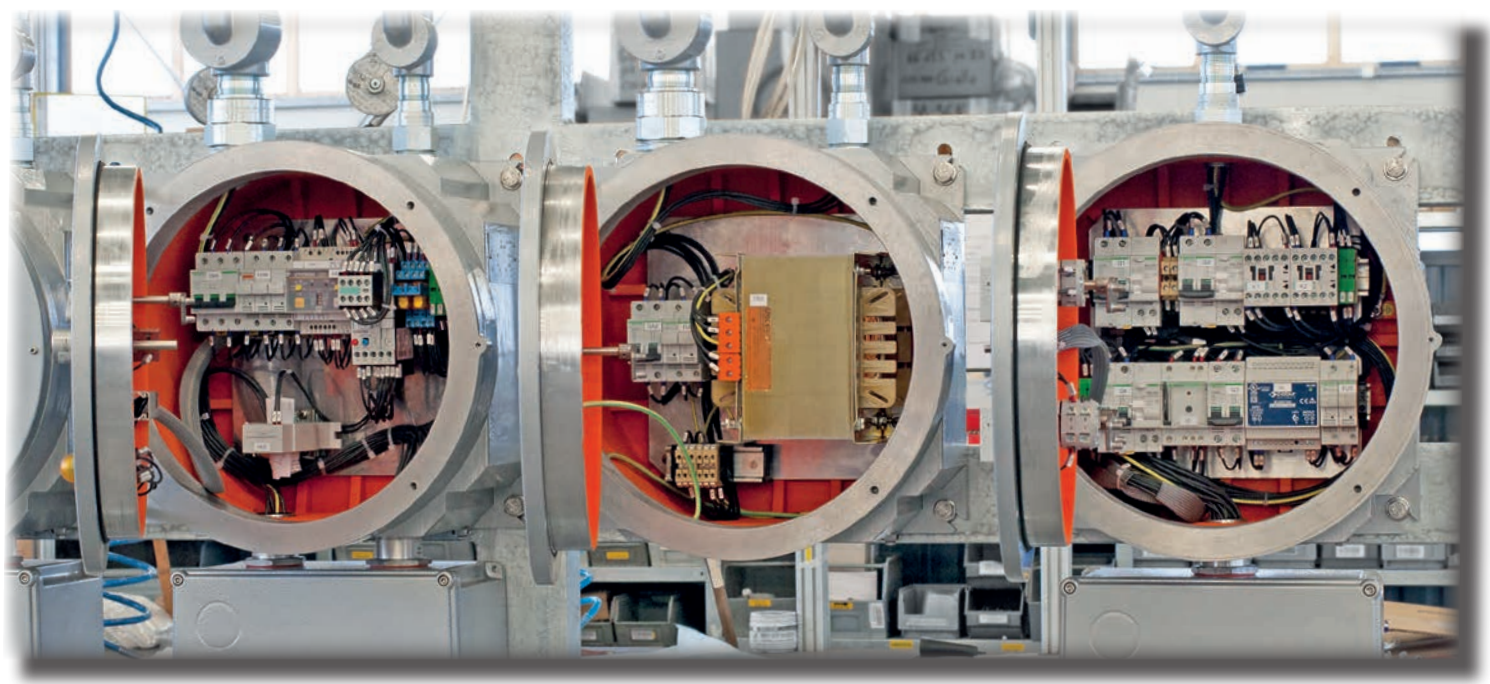
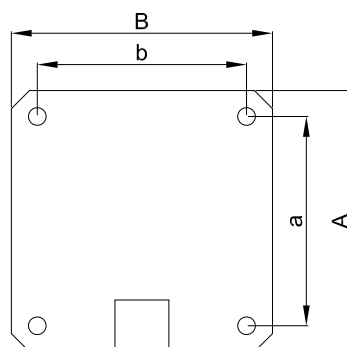
### NOTES

- (\*) 50 mm is the minimum safe distance between 'Ex i' components and non-'Ex i' components (and/or conducting parts).
- The active and passive barriers that can be installed in the enclosures must have their own ATEX certificate.
- The maximum voltage entering barriers on non-'Ex i' circuits must be less than 250 V.

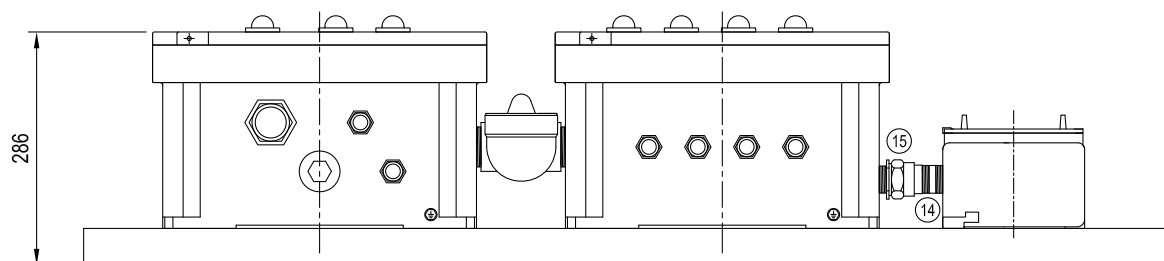
## CCA-...C series Accessories available on request and spare parts

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Internal mounting plates	CCA-0C	Thickness 2.5mm Aluminium (BFE-...) Galvanized steel (BFE-...AC)	TF-0E	 
		CCA-01C		TF-01E	
		CCA-02C		TF-02E	
		CCA-03C		TF-03E	
		CCA-04C		TF-04E	
	Breather and drain valve	thread Ø ISO 7-R 3/8"	Material: stainless steel	ECD-210S	 
	Cable glands and unions		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Lid-mounted control and signalling devices		For control and signalling device models and codes, see control and monitoring device chapter		 

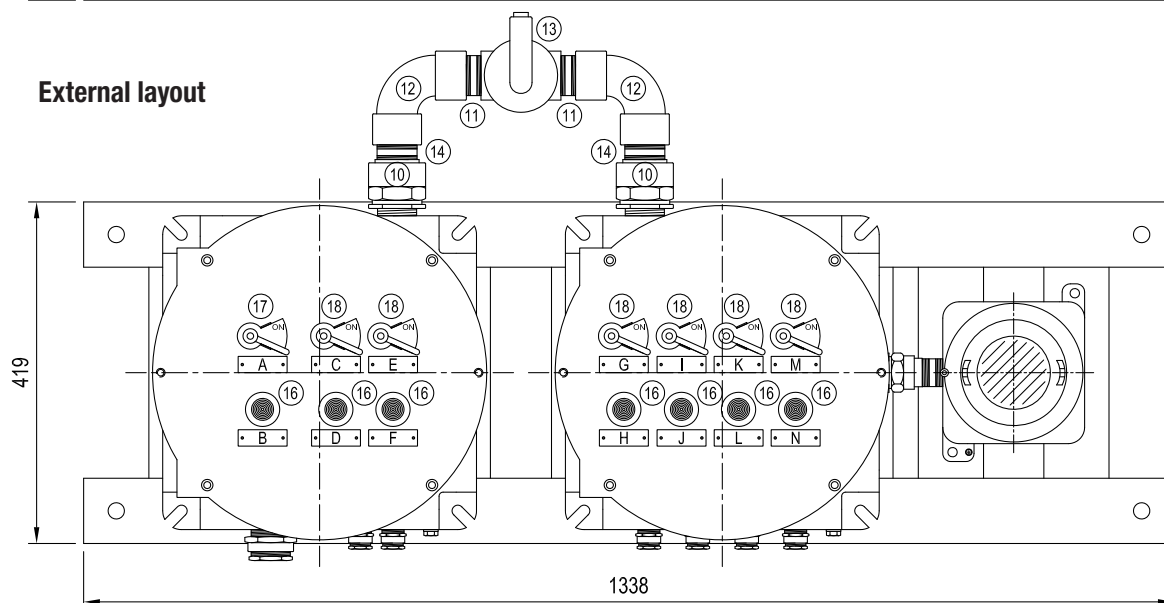
Enclosures	Internal mounting plates				
	A	B	a	b	Code
CCA-0C	100	100	80	60	TF-0E
CCA-01C	113	113	90	90	TF-01E
CCA-02C	150	150	120	120	TF-02E
CCA-03C	200	200	145	145	TF-03E
CCA-04C	270	270	230	230	TF-04E



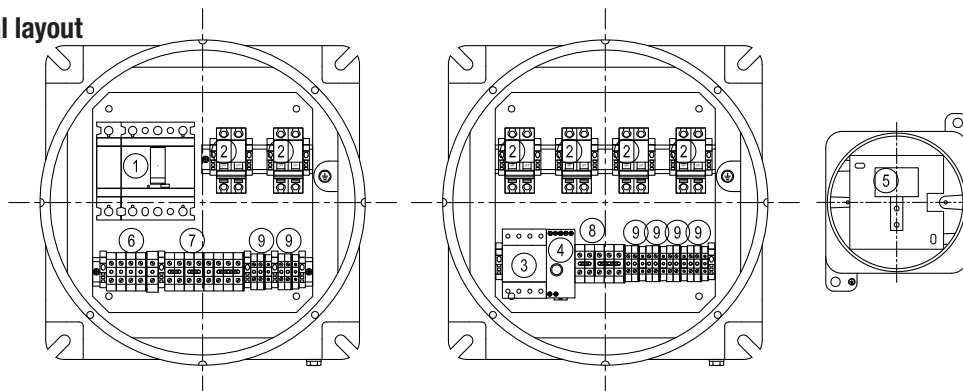
Example of control panel with wall-mounting system.



External layout



Internal layout



N°	Qty.	Equipment
1	1	front fixed circuit breaker 4P TM16D
2	6	circuit breaker C60N 2P 25A C curve
3	1	contactor CT 3P 3NA 25A 230V control
4-5	1	230V modular twilight relay
6	x1	4 x CBD16 1 x TE160
7	x1	8 x CBD16
8	x1	5 x CBD16

N°	Qty.	Equipment
9	x6	2 x CBD2 1 x TE60
10	2	RMF5G
11	4	NP5G
12	2	ELF5
13	1	EZS5
14	1	NPSF-3
15	1	RMF3G
16	x7	M-0457/R
17	1	M-0435/V
18	6	M-0436/V





# CCAI , CCAIF , CCAIF..H

- Zone 1, 2, 21, 22
- Group IIC
- Stainless steel junction boxes
- Choice of 4 sizes
- IP66

*AISI 316L  
stainless steel*

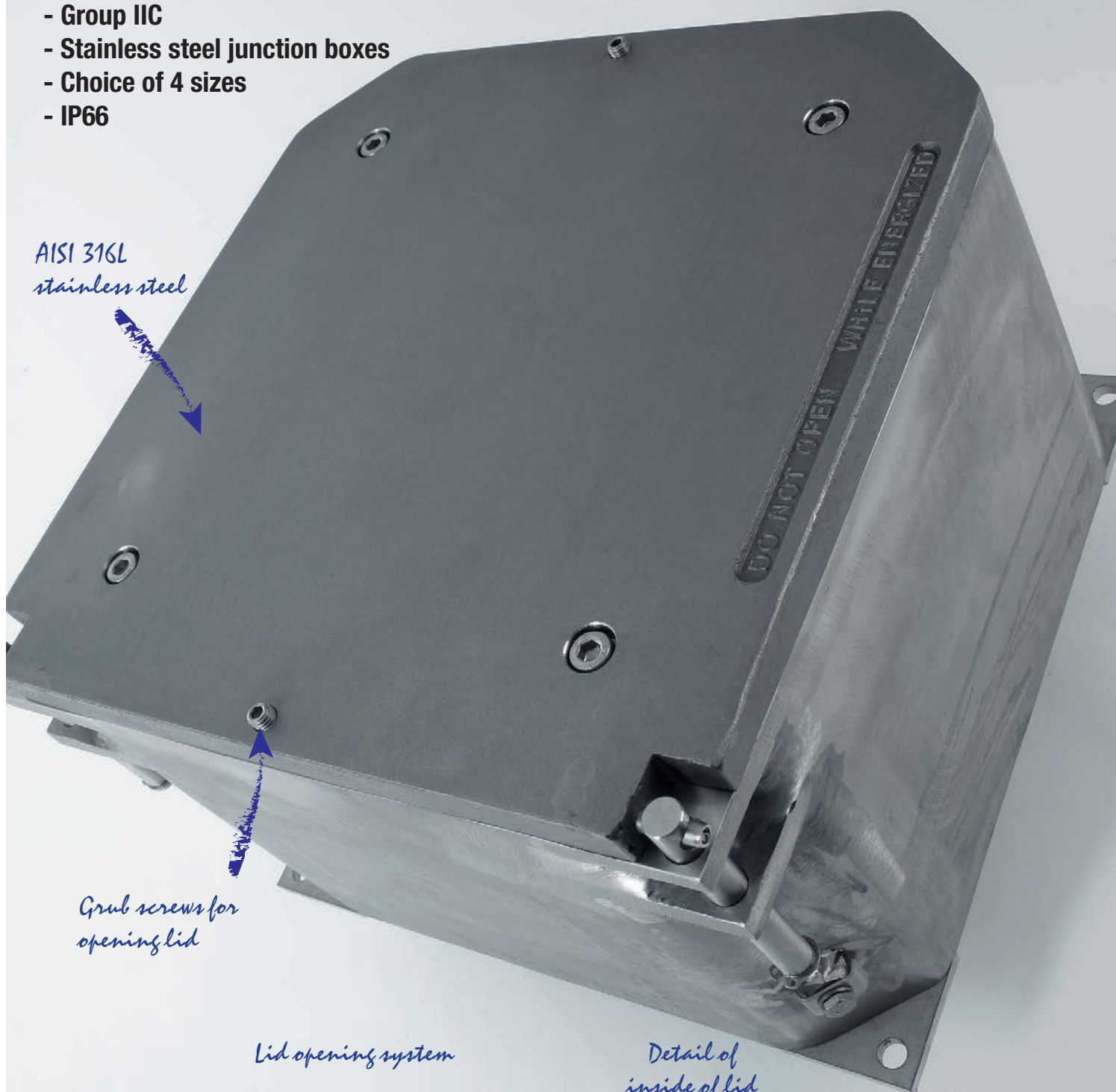


*Grub screws for  
opening lid*



*Lid opening system*

*Detail of  
inside of lid*



## CCAI-... series Stainless steel junction boxes gas group IIC

CCAI series junction boxes are installed in industrial plants where there is a risk of explosion and fire, where combustible dust and group IIC gases are present, classified as Zone 1, 2, 21, 22. These enclosures are made from welded 316L sheet stainless steel and come complete with stainless steel screws and a silicone gasket running around the perimeter between the body and lid to provide the IP66 protection degree. The CCAI units are mostly used as junction boxes with relevant connection terminals, as enclosures for fuses, transformers and reactors, as monitoring and signalling boards, light and power boards or motor starter boxes with various configurations, which are custom made to the requirements of our customers worldwide.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:



Mining



Offshore plants



Onshore plants



Oil refineries



Oil loading/  
offloading  
wharfs



Presence of  
hydrogen



Low  
temperatures



100%  
Cortem  
product

### CERTIFICATION DATA FOR EMPTY ENCLOSURES

#### Classification:

Group I/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

CE 0722 Ex I M2 - Ex db I Mb

#### Certification:

ATEX CESI 01 ATEX 034U

IEC Ex CES 14.0012U

ECASEx AVAILABLE

TR CU AVAILABLE

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

#### Standards:

CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60439-1, EN 60079-31: 2009, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE

#### Ambient Temp.:



-20°C +60°C

Standard temperature on all CCAI boxes.



-60°C +60°C

Special temperature.

#### Degree of protection:

IP66









## CCAI-... series Stainless steel junction boxes gas group IIC

### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS







Classification:	Group I/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 d IIC T6, T5 Gb - Ex tb IIIC T85, T100°C Db - IP66			
	CE 0722 Ex I M2 - Ex d I Mb			
Certification:	ATEX	CESI 01 ATEX 036X		
	IEC Ex	CES 16.0013X	All IEC Ex, TR CU, CCoE certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	AVAILABLE		
	CCoE	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2018 + A11: 2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	-50°C (-60°C) +40°C		With temperature class T6 and maximum surface temperature T85°C.	
	-50°C (-60°C) +55°C		With temperature class T5 and maximum surface temperature T100°C.	
Degree of protection:	IP66			

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS







Classification:	Group I/II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
	CE 0722 Ex I M2 - Ex db I Mb			
Certification:	ATEX CESI 01 ATEX 036X			
	IEC Ex CES 16.0013X	All IEC Ex, ECASEx, TR CU, CCC, INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	ECASEx AVAILABLE			
	CCC AVAILABLE			
	BRAZILIAN TÜV 11.0161			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60439-1, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66			

## CCAI-... series Stainless steel junction boxes gas group IIC

### CERTIFICATION DATA FOR ENCLOSURES SERVING SURGE ARRESTER FUNCTION

Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
	CE 0722 Ex I M2 - Ex db I Mb			
Certification:	ATEX CESI 01 ATEX 036X			
	IEC Ex CES 16.0013X	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	TR CU AVAILABLE	All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60439-1, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C on request.			
Degree of protection:	IP66			

### CERTIFICATION DATA OF ENCLOSURES SERVING INTERFACE UNIT CONTROL AND MONITORING FUNCTION

Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2(1)GD - Ex db [ia Ga] IIC T... Gb - Ex tb [ia Da] IIIC T...°C Db - IP66			
	CE 0722 Ex I M2 Ex db [ia Ma] I Mb			
Certification:	ATEX CESI 03 ATEX 174X			
	IEC Ex CES 16.0015X	All IEC Ex, ECASEx, TR CU, UKEX, CCC certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	ECASEx AVAILABLE			
	UKEX AVAILABLE			
	CCC AVAILABLE			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2007, EN 60079-11: 2007, EN 60079-26: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient Temp.:	 -20°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -20°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
	 -60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66			



### MECHANICAL FEATURES

<b>Body and lid:</b>	AISI 316L stainless steel. Lid fitted with hinges for body coupling system incorporating cylindrical joint.
<b>Hinges:</b>	Stainless steel
<b>Gasket:</b>	Resistant to acids, hydrocarbons and high temperatures, located between body and lid
<b>Certification label:</b>	Adhesive label located inside on empty enclosures; stainless steel label riveted onto body on other versions
<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>Mounting:</b>	Stainless steel lugs.

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

1.5mm-thick stainless steel internal mounting plate (code K...-265). See accessories section  
Possible drilling of the enclosure bottom  
Breather valve Code ECD-210S  
Drain valve Code ECD-210S  
Enclosures with windows on lid  
Thread options:

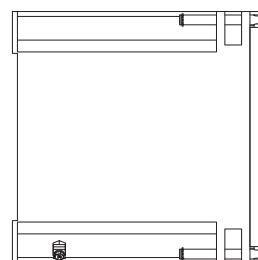
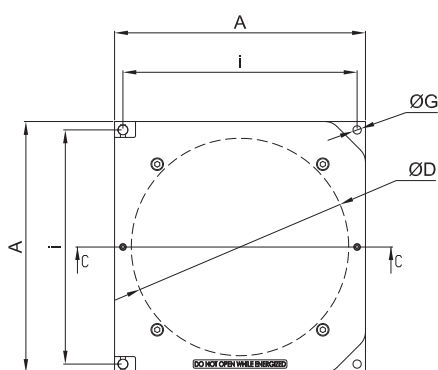
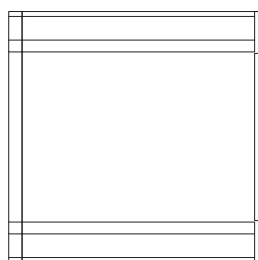
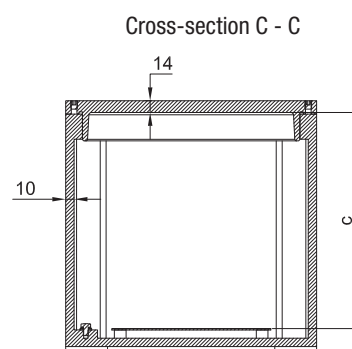
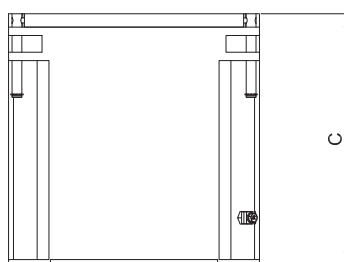
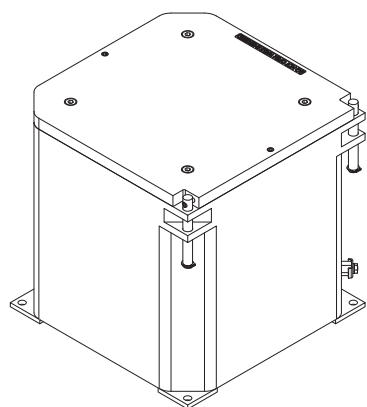
- NPT threads ANSI B1.20.1
- GAS UNI ISO 7-1 thread
- Metric threads ISO 261/965

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

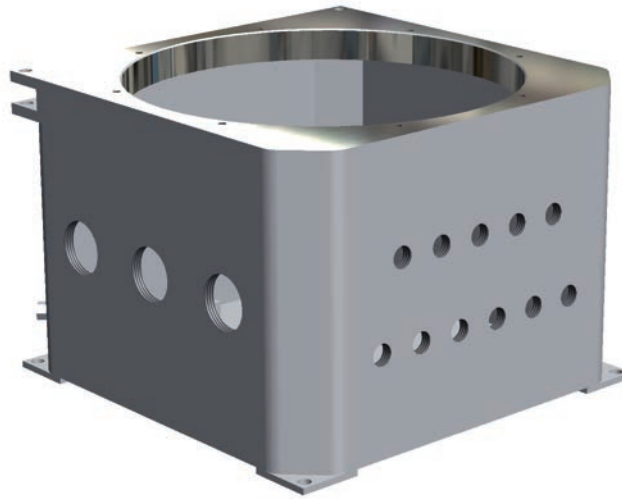
## ENCLOSURE SELECTION CHART

Code	Outside dimensions		Inside dimensions		Mounting		Weight Kg
	A	C	ØD	c	i	ØG	
CCAI-2020	200	200	160	155	180	10	
CCAI-3020	300	200	260	155	280	10	
CCAI-3030	300	300	260	255	280	10	
CCAI-4030	400	300	360	255	380	12	

## DIMENSIONAL DRAWING



Dimensions in mm



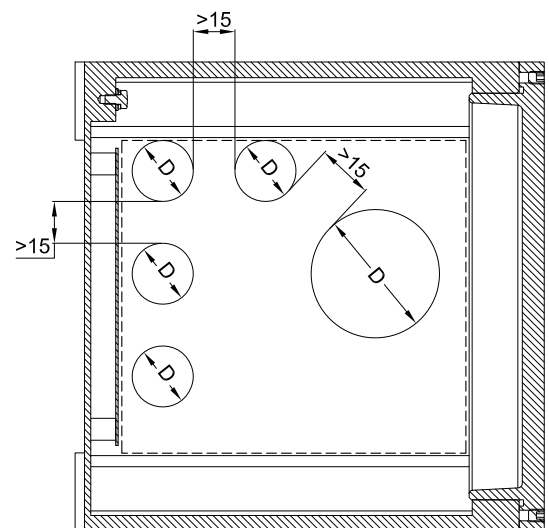
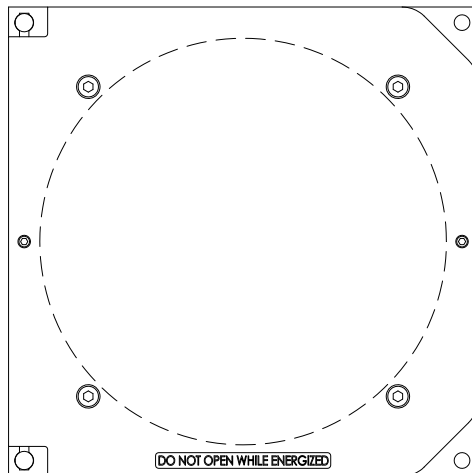
THREAD COMPARISON CHART

ISO 7-1	1/2"	3/4"							
ANSI B.20.1 NPT	1/2"	3/4"							
ISO 261/965	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5	100x1.5
D Thread diameter	1	2	3	4	5	6	7	8	10

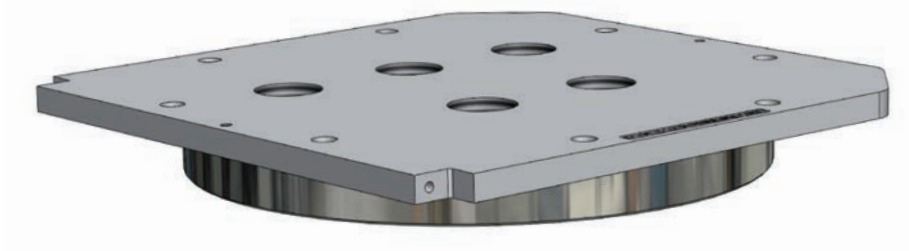
As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

HOLE DRILLING IN BODY

TYPE OF ENCLOSURE	One side									
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								
		1	2	3	4	5	6	7	8	10
CCAI-2020	115x125	6	6	4	4	2	1	1	1	1
CCAI-3020	205x120	12	8	6	6	5	3	2	1	1
CCAI-3030	200x220	20	16	12	9	6	6	4	3	1
CCAI-4030	290x225	28	25	20	12	12	6	6	4	2





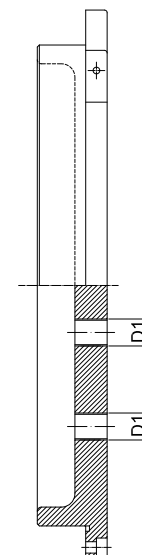
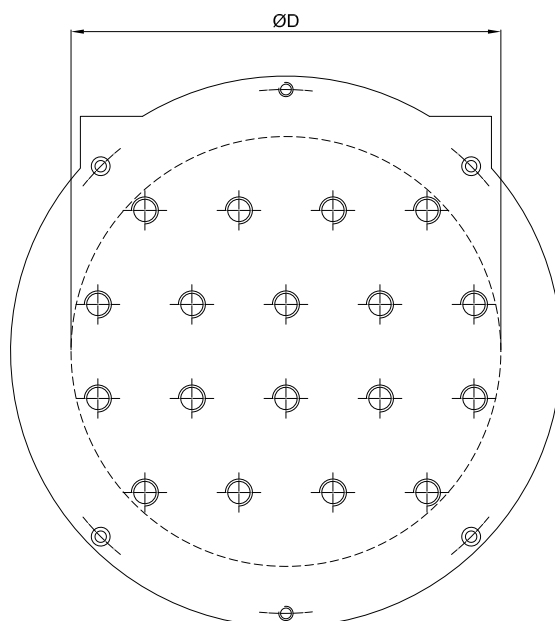


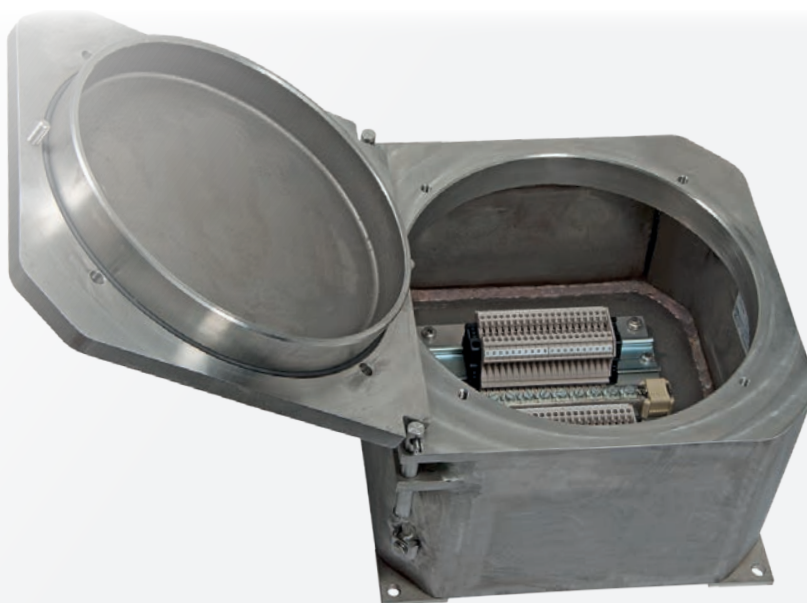
THREAD COMPARISON CHART								
D1	ISO 228	G 3/8"	G 1/2"	G 3/4"	-	-	-	-
	ISO 261/965	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M35x1.5	M40x1.5	M42x1.5

TYPE OF ENCLOSURE	HOLE DRILLING IN LID				
	ØD	MAXIMUM QUANTITY PER HOLE TYPE			
		3/8"	1/2"	3/4"	M32
CCAI-2020	135	4	6	6	6
CCAI-3020 CCAI-3030	230	7	9	9	9
CCAI-4030	330	18	18	18	18

## Notes:

- Standard holes refer to mounting of Cortem control and signalling devices.
- 3/8" Ø holes for Cortem std. side-mounted handles centre-to-centre distance >70mm.
- 1/2" Ø holes for Cortem std. heavy-duty series side-mounted handles centre-to-centre distance >120mm.





These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

### ELECTRICAL FEATURES

**Rated voltage:** 24 / 800 V  
**Rated frequency:** 50 / 60 Hz

#### Modular terminals

**Terminal cross-sectional area:** 2.5; 4; 6; 10; 16; 25; 35; 70; 95; 120; 185; 240 [mm<sup>2</sup>]  
**Rated current:** 12.5 - 400 [A]  
**Max. current density:** 1.65 - 7 [A/mm<sup>2</sup>]

#### Multi-pole terminals

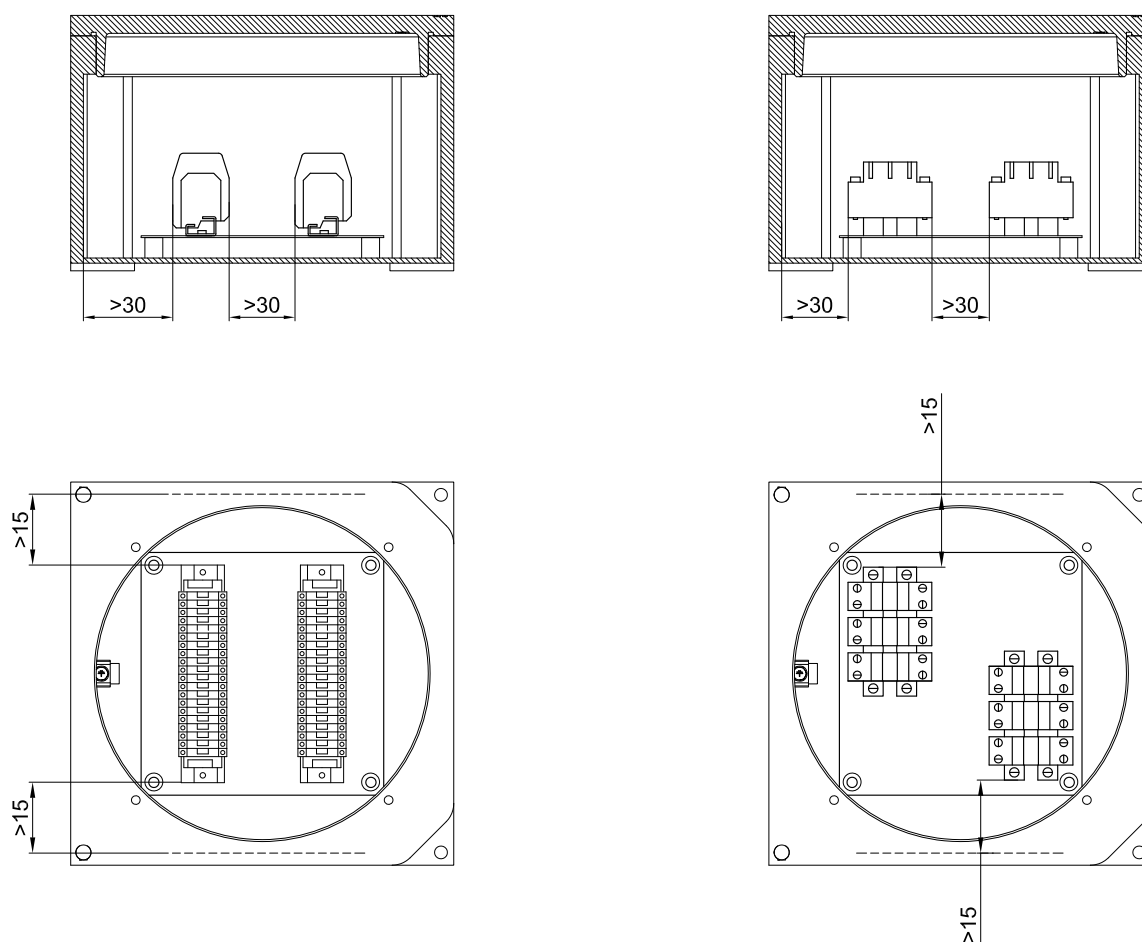
**Terminal cross-sectional area:** 3x16; 4x16; 3x25; 4x25; 3x40; 3x40; 4x40; 3x70; 4x70; 3x125; 3x200; 4x200; 3x315 [mm<sup>2</sup>]  
**Rated current:** 48 - 252 [A]  
**Max. current density:** 0.8 - 3 [A/mm<sup>2</sup>]

#### ATEX - IECEx label for terminal enclosures

#### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. electrical specs
6. maximum surface temperature
7. temperature class

## Examples of terminal strips with minimum installation distances



TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED								
	TERMINAL CROSS-SECTIONAL AREA								
	2.5	4	6	10	16	35	70	120	185
CCAI-2020	19	16	13	10	9	4	-	-	-
CCAI-3020	2x30	2x25	2x22	2x18	2x15	6	-	-	-
CCAI-3030	2x35	2x28	2x25	2x20	2x15	8	-	-	-
CCAI-4030	3x40	3x30	2x28	2x23	2x18	12	10	6	4

Eg. 3x40= 3 rows of 40 terminals (total 120 terminals). The maximum number of standard terminals refers to CABUR terminals

## Features of junction boxes for control, monitoring and signalling units



Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	24 / 1000 Vac	12 / 250 Vdc
<b>Max. current on contacts:</b>	650 A	
<b>Rated frequency:</b>	50 / 60Hz	
<b>Max. wattage for lamps:</b>	5W (for Ta +40°C)	
	3W (for Ta +55°C)	

### Features of equipment that can be installed inside enclosures to produce control and monitoring units.

Table of standard electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.

(The values refer to the catalogues of the leading manufacturers of electrical/electronic components available on the market)

COMPONENT TYPE	Max. V (Volts)	Max. I (Amperes)	Max. power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	650	-
Fuses	660	400	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	240	-	300
Terminals	660	-	-
Reactors	277	7.5	40

Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20
Component voltage (V dc)	Min. air gap (mm)
12 - 250	6

## Features of junction boxes for control, monitoring and signalling units

### Table with maximum power dissipation values for CCAI-...series enclosures.

The temperature classes and maximum surface temperatures of control and monitoring unit enclosures depend on the size of the enclosure, ambient temperature and power dissipation inside the enclosure.









Enclosure type	Maximum power dissipation (Watts) with ambient temperature of <b>+40°C</b>		
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCAI-2020	30	35	42
CCAI-3020	50	54	68
CCAI-3030	80	85	120
CCAI-4030	105	112	170

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of <b>+55°C</b>		
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCAI-2020	25	27	34
CCAI-3020	39	42	53
CCAI-3030	60	65	100
CCAI-4030	90	100	140

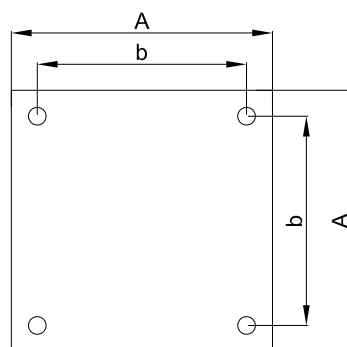
### DON'T FORGET TO ORDER THE ACCESSORIES

**Example:** Enclosure type CCAI-3020 + Internal mounting plate K2-265 + Cable glands, unions + other...see key



ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Internal mounting plates	CCAI-2020	Material: AISI 316L stainless steel	K1-265	 
		CCAI-3020		K2-265	
		CCAI-3030		K2-265	
		CCAI-4030		K3-265	
	Breather and drain valve	thread Ø ISO 7-R 3/8"	Material: stainless steel	ECD-210S	 
	Cable glands and unions		For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		 
	Lid-mounted control and signalling devices		For control and signalling device models and codes, see control and monitoring device chapter		 

Enclosures	Internal mounting plates		
	A	b	Code
CCAI-2020	119	99	K1-265
CCAI-3020	190	170	K2-265
CCAI-3030	190	170	K2-265
CCAI-4030	260	240	K3-265





CCAIF and CCAIF...H series junction boxes in stainless steel have a **screw cover** with or without round window. They are used either as junction boxes with/without terminals and the body and cover can be drilled and threaded according to customers' specification. In accordance with rules, Cortem only can perform the drilling.

## CARATTERISTICHE MECCANICHE

<b>Body and lid:</b>	AISI 316L stainless steel.
<b>Gasket:</b>	Resistant to acids, hydrocarbons and high temperatures, located between body and lid
<b>Certification label:</b>	Adhesive label located inside on empty enclosures; stainless steel label riveted onto body on other versions.
<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>Mounting:</b>	Stainless steel lugs.

## ACCESSORI A RICHIESTA / ESECUZIONI SPECIALI

Breather valve Code ECD-210S

Drain valve Code ECD-210S

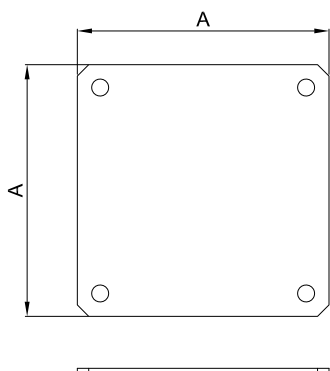
Enclosures with windows on lid

Thread options:

- NPT threads ANSI B1.20.1
- GAS UNI ISO 7-1 thread
- Metric threads ISO 261/965

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

1.5mm-thick stainless steel internal mounting plate



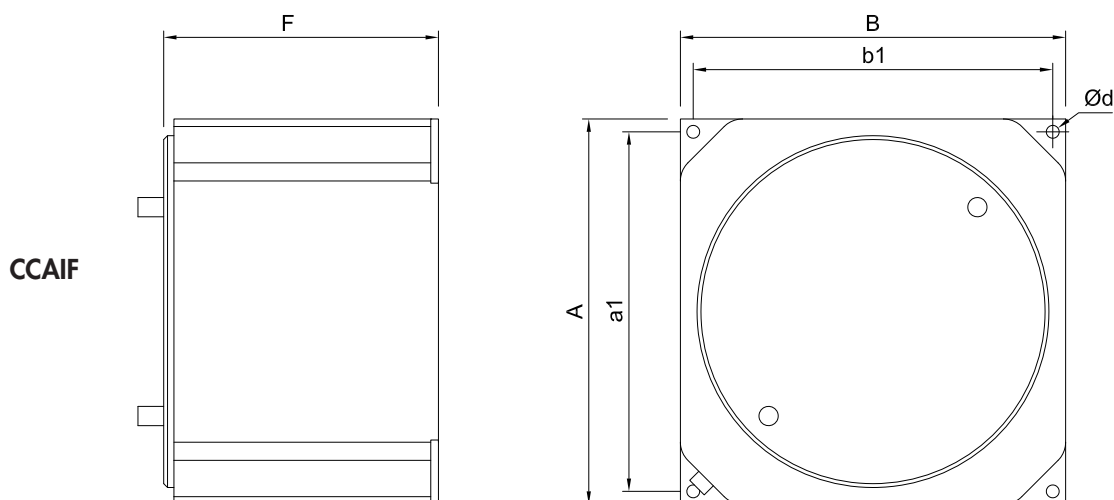
Code	Dimensions A	Box type
K2-349	110	CCAIF-2020..
K3-349	180	CCAIF-3020..
K4-349	260	CCAIF-4030..



## ENCLOSURE SELECTION CHART

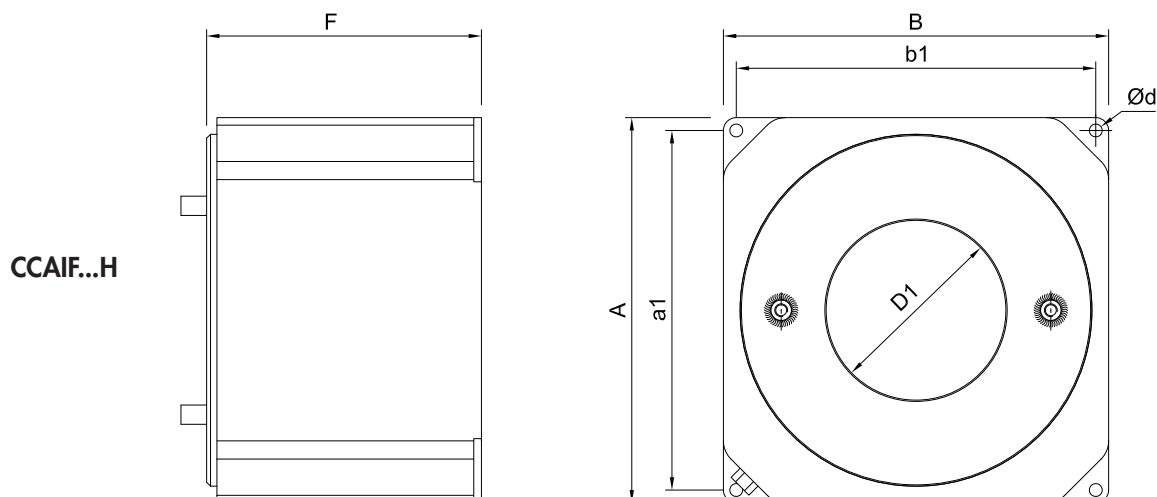
Code	Outside dimensions			Mounting		Ød	Weight Kg
	A	B	F	a1	b1		
CCAIF-2020	200	200	200	180	180	10	
CCAIF-3020	300	300	200	280	280	10	
CCAIF-4030	400	400	300	380	380	12	

### DIMENSIONAL DRAWING



Code	Outside dimensions				Mounting		Ød	Weight Kg
	A	B	F	D1	a1	b1		
CCAIF-2020H	200	200	200	90	180	180	10	
CCAIF-3020H	300	300	200	140	280	280	10	
CCAIF-4030H	400	400	300	180	380	380	12	

### DIMENSIONAL DRAWING



# Junction box configurator

## Junction box form for drilling, terminals and accessories

This form is meant to show only drilling, terminals and accessories. Other requests, such as control devices, push buttons etc..., must be specified separately in the request of offer.

### Client details

Company name ..... Country .....  
 Shipping address ..... E-mail .....  
 Project ..... Telephone .....  
 Client Request of Offer N. ....  
 Internal Offer N. ....



Junction box code: .....

*Or complete this form*

#### Protection mode

Ex d IIB ☐  
 Ex d IIC ☐  
 Ex e ☐  
 Ex i ☐  
 Watertight ☐

#### Junction box material

Aluminium alloy ☐  
 Stainless steel ☐  
 Polyester resin ☐

#### Drilling

ISO 7/1 - ISO228 ☐  
 METRIC ISO 261/965 ☐  
 ANSI B.20.1 NPT ☐  
 ANSI B.20.1 NPSM ☐  
 PG DIN 40430 ☐  
 Through holes ☐

#### Cable glands type

Nickel-plated brass ☐  
 Stainless steel ☐  
 Galvanized steel ☐  
 Polyamide ☐

#### Cable type

Armoured ☐  
 Non armoured ☐

#### Plugs type

Nickel-plated brass ☐  
 Stainless steel ☐  
 Galvanized steel ☐  
 Polyamide ☐

#### Accessories and other

Internal mounting plate ☐  
 Breather valve ☐  
 Drain valve ☐  
 PVC protectors for cable glands ☐  
 Lock nuts ☐  
 Earthing rings for cable glands ☐  
 Internal earth continuity plate ☐  
 Removable gland plates ☐  
Only for SA...SS and CTB boxes  
 External paint: RAL 7035 ☐ Other ..... ☐

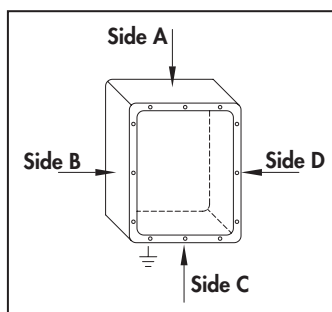
Certification type:

ATEX ☐  
 IEC Ex ☐  
 GOST R ☐

Ambient temperature required: .....

Other:

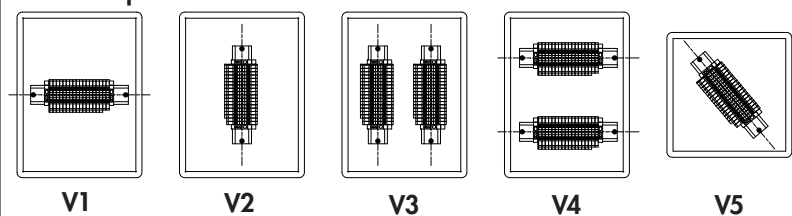
### DRILLING



SIDE A	SIDE B	SIDE C	SIDE D

### TERMINALS

Standard position:



Terminals type			Quantity	Standard position	Other position (indicate layout)
Supplier	Code	Section			

### TERMINALS ACCESSORIES

Numbering strip or marking tag (write the sketch):

Permanent cross connection: Type..... Q.ty.....

Cover for cross connection: Yes ☐ No ☐

Cross connection barrier: Q.ty.....

Earth bar type XPE: Bar n°..... Bolts n°.....

Mounting rail type:

[illegible]

# M-0



M-0 series control, monitoring and signalling devices are installed as external accessories on Cortem 'Ex d' enclosures used in any industrial environment where an explosive atmosphere may be present, classified as Zone 1, 2, 21, 22. M-0 control devices can be used to close or open electrical or mechanical devices fitted inside the 'Ex d' enclosures while the signalling devices feature lights to indicate their operating status. The control and signalling device components are made from stainless steel to deliver unbeatable efficiency under any environmental conditions. Levers are made from aluminium while the plastic parts on push-buttons are designed to provide lengthy service life even when used in a highly corrosive atmosphere. M-0 control and signalling devices have an IP66 protection degree.

## CERTIFICATION DATA FOR CONTROL DEVICES

Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db IIC Gb; Ex tb IIIC Db; IP66			
	CE 0722 Ex I M2 Ex db I Mb		Only in stainless steel	
Certification:	ATEX CESA 01 ATEX 025U			
	IEC Ex CES 14.0030U	All IEC Ex and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	INMETRO DNV 16.0100U			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31:2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-1: 2014-06, IEC 60079-31: 2013			
Degree of protection:	IP66			

The command, control and signalling operators series M-0... have the following temperature ranges:  
 Gruppo I applications: operating temperature -20°C +100°C  
 Gruppo II applications: operating temperature -60°C +100°C



## MECHANICAL FEATURES OF CONTROL DEVICES

<b>Outer body:</b>	Aluminium
<b>Internal bush:</b>	Stainless steel
<b>Internal pin:</b>	Stainless steel
<b>Gaskets:</b>	Acid/hydrocarbon-resistant silicone
<b>Push-button:</b>	Coloured nylon
<b>Illuminated push-button:</b>	Clear coloured polycarbonate
<b>Handle levers:</b>	Aluminium
<b>Coating:</b>	Polyester coating RAL 7035 (Light grey), where this is an option
<b>Device mounting:</b>	Screws into lid
<b>Contact mounting:</b>	Snap onto special flange, which assures quick connection of the whole contact block to the device

## ELECTRICAL FEATURES (Contact block for push-buttons)

<b>Rated voltage:</b>	600V
<b>Rated current:</b>	10A
<b>Impulse withstand voltage:</b>	4kV
<b>Insulation category:</b>	Group C as per VDE 0110
<b>Degree of protection of terminals:</b>	IP2x as per CENELEC EN 60529
<b>Contact operation:</b>	<ul style="list-style-type: none"> <li>– slow acting</li> <li>– self-cleaning (wiping action)</li> <li>– NC contact forced opening</li> <li>– double movable bridge</li> <li>– four points of contact</li> <li>– double break</li> </ul>
<b>Contact resistance</b>	
≤ 25 mΩ as per IEC 255.7 category 3	

### Electrical performance

Rated thermal current I<sub>th</sub> = 10 A

### Operational limits as per IEC 947.5.1:

Category AC15								
Voltage U <sub>e</sub> (V)	24	48	60	110	220	380	500	600
Current I <sub>e</sub> (A)	10	10	10	6	3	2	1.5	1.2
Category DC13								
Voltage U <sub>e</sub> (V)	24	48	60	110	220	300		
Current I <sub>e</sub> (A)	2.5	1.5	1	0.22	0.27	0.2		

### Operational limits as per IEC 947.5.1:

AC Heavy Duty	(A600)
DC Standard Duty	(Q300)

### Short-circuit protection

16A gG time-delay fuses as per IEC 269.1 and 269.3

## ELECTRICAL FEATURES (Contact block for M-0553.. handles)

### Alternating current

Series			10	16	20	32	40/63
Rated voltage	U <sub>e</sub> VDE/IEC	V	690	690	690	690	690
Rated current	I <sub>th</sub> VDE/IEC	A	20	25	32	45	63
	220V-240V	kW	2.2	4.5	5.5	7.5	15
	380V-440V	kW	4.0	7.5	9.0	11.0	30
AC3 VDE/IEC, Direct starting of squirrel cage motor, stop during operation	660V-690V	kW	4.0	7.5	11.0	15.0	30
	110V	kW	0.4	1.5	1.5	2.5	2.5
	220V-240V	kW	0.75	2.5	4.5	4.0	6
	400V	kW	1.3	4.0	5.5	5.5	7.5

## M-0... control, monitoring and signalling devices


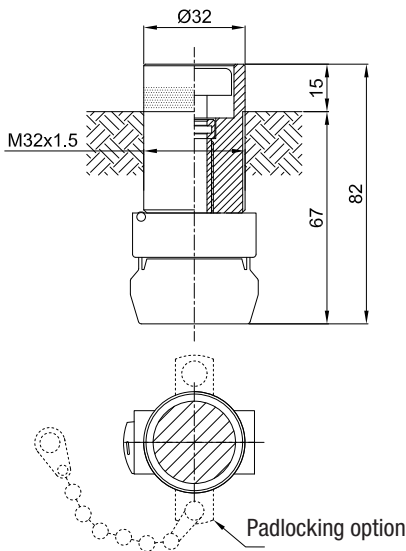

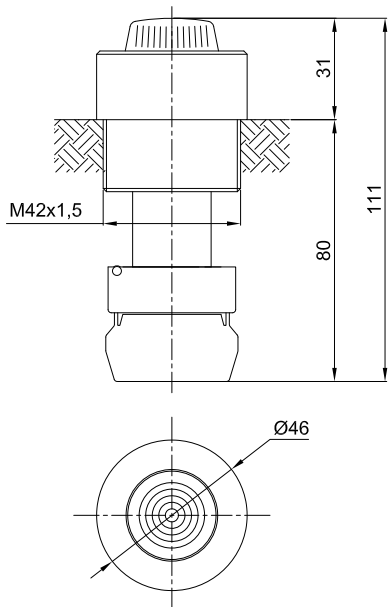

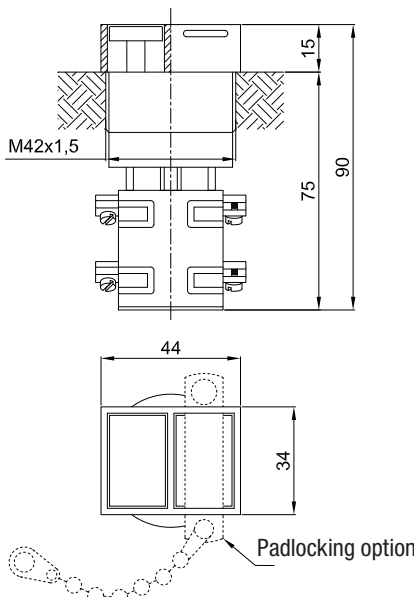
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Normal push-button with standard 10A 600V 1NO+1NC contacts. Button comes in choice of six colours.	
		BLUE (B)	M-0429../B..
		WHITE (BI)	M-0429../BI..
		YELLOW (G)	M-0429../G..
		BLACK (N)	M-0429../N..
		RED (R)	M-0429../R..
		GREEN (V)	M-0429../V..
		Illuminated push-button with standard 10A 600V 1NO+1NC contacts. (lamps on request) Illuminated button comes in choice of five colours.	
		BLUE (B)	M-0428../B
		WHITE (I)	M-0428../I
		YELLOW (G)	M-0428../G
		RED (R)	M-0428../R
		GREEN (V)	M-0428../V
		Add <b>IN</b> for stainless steel body	
		Double push-button with standard 10A 600V contacts. Comprises one red button 1NO+1NC and one black button 1NO+1NC.	M-0427..
		Add suffix <b>L</b> for padlocking option	




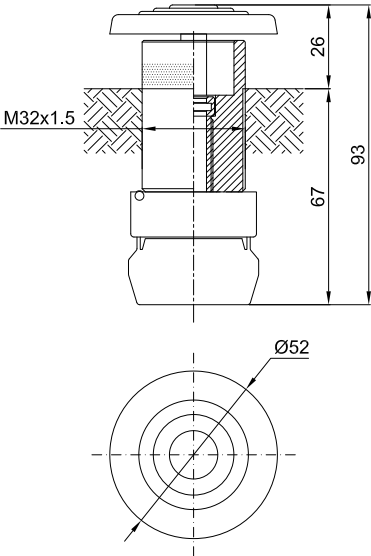

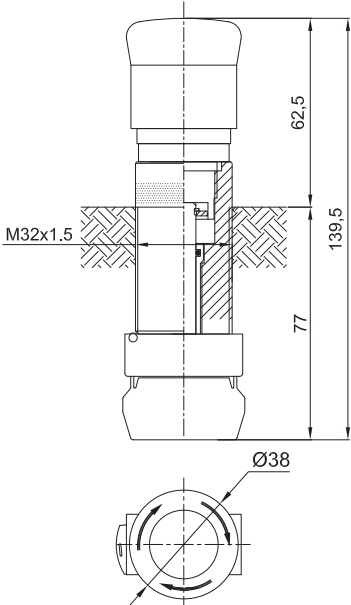

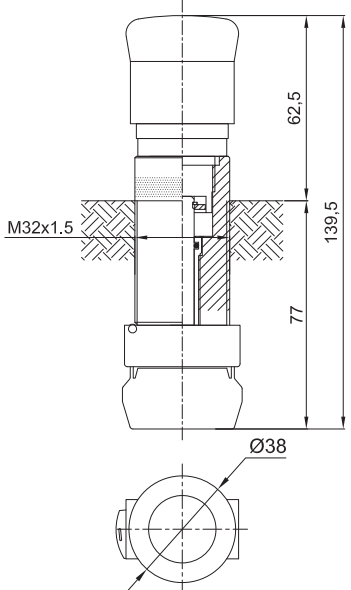

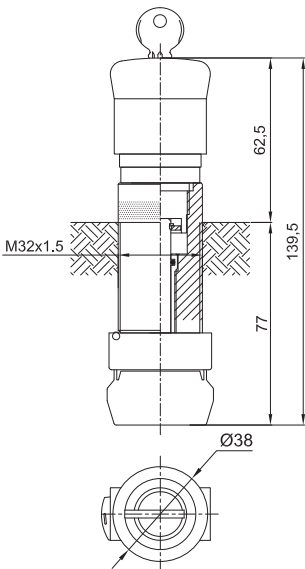

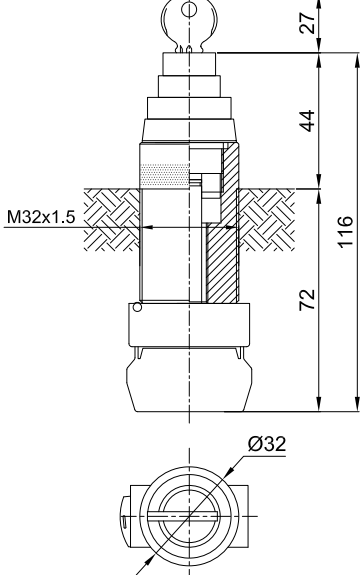

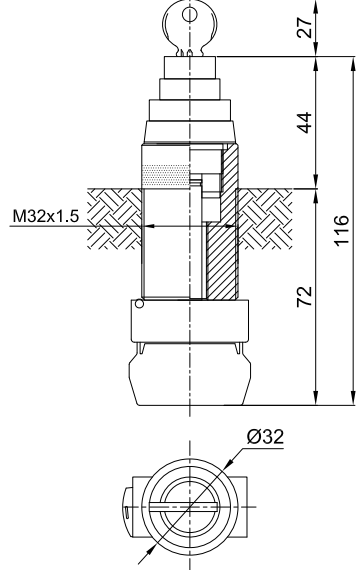

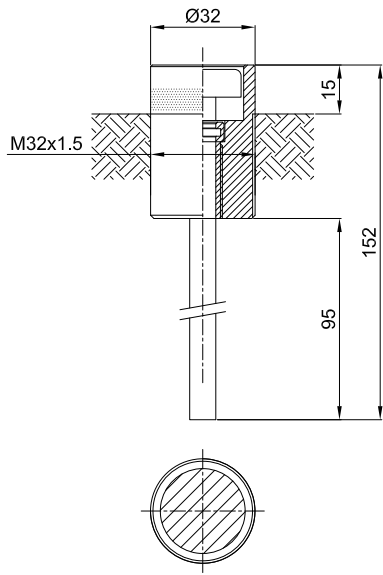

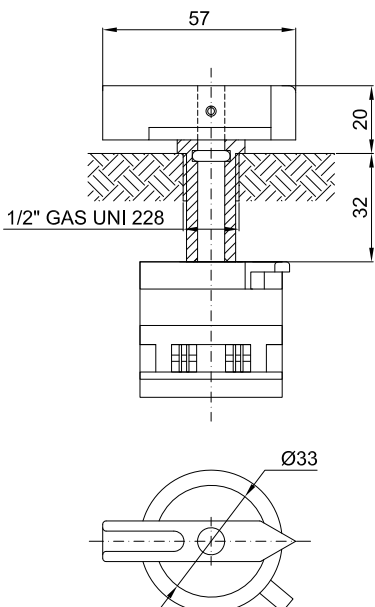

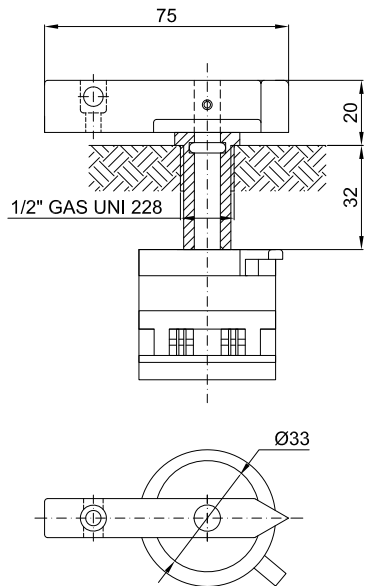

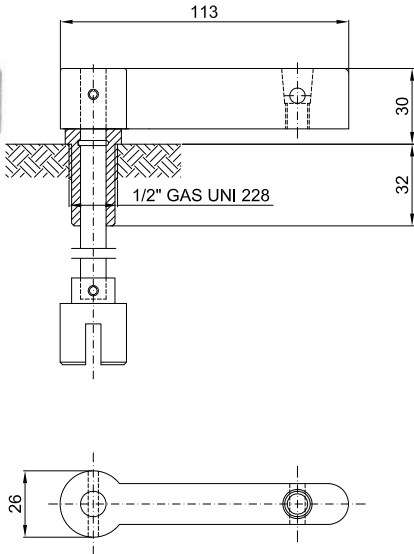

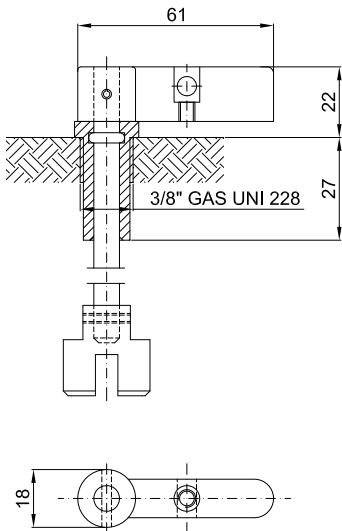

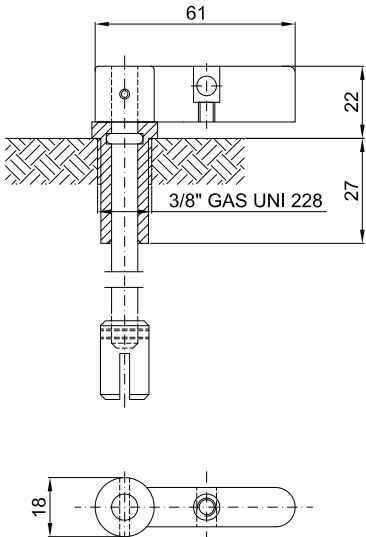
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		<p>Emergency stop mushroom-head push-button with standard contacts 10A 600V 1NO+1NC.</p> <p>Comprises a red mushroom head push-button.</p> <p>Add suffix <b>IN</b> for stainless steel body</p>	<b>M-0430..</b>
		<p>Twist-to-release emergency stop push-button with standard 10A 600V 1NO+1NC contacts.</p> <p>Comprises a red button with twist mechanism for push-button release (turn to release when button is pressed)</p> <p>Add suffix <b>IN</b> for stainless steel body</p>	<b>M-0445..</b>
		<p>Pull-to-release emergency stop push-button with standard 10A 600V 1NO+1NC contacts.</p> <p>Comprises a red button with mechanism for push-button release (pull to release when button is pressed)</p> <p>Add suffix <b>IN</b> for stainless steel body</p>	<b>M-0447..</b>

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		<p>Key-to-release emergency stop push-button with standard 10A 600V contacts.</p> <p>Comprises a red button with key mechanism for push-button release (use key to release when button is pressed)</p> <p>Add suffix <b>IN</b> for stainless steel body</p>	<b>M-0446..</b>
		<p>Key-to-release push-button with OFF setting and standard 10A 600V contacts (use key to release when button is pressed)</p>	<b>M-0587</b>
		<p>Key-operated push-button with ON/OFF settings and standard 10A 600V contacts (use key to press and release)</p>	<b>M-0588</b>


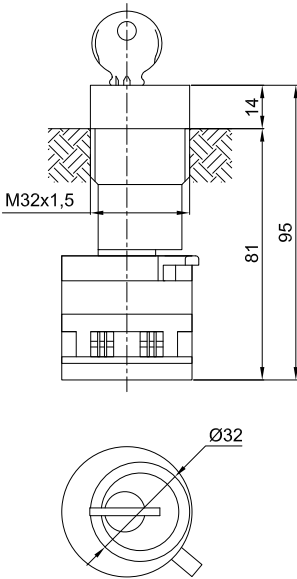

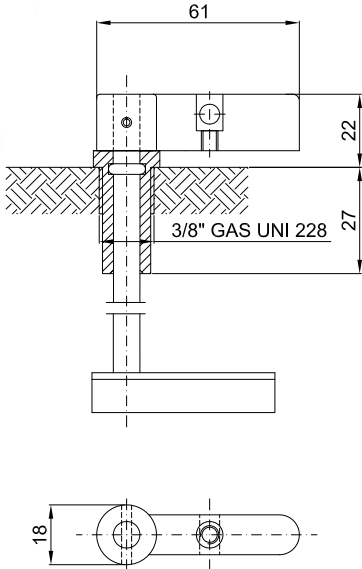

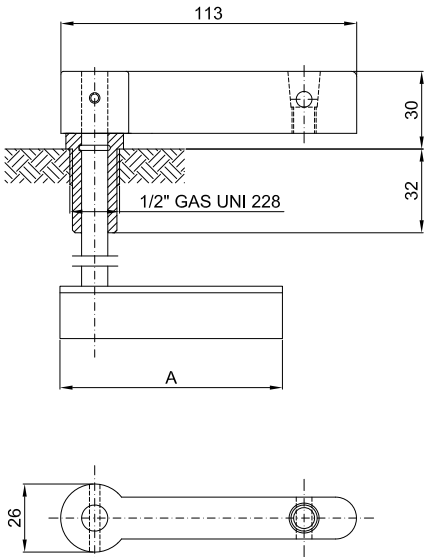
## M-0... control, monitoring and signalling devices

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Reset push-button, comprises one red or black button, used for operating thermal relays.	
		Black button	M-0117
		Red button	M-0117/R
		Quick-connect handle for cam or rotary switch. Fixed pin length.	M-0553..
		Add suffix <b>IN</b> for stainless steel body	
		<b>Note:</b> contact block is supplied on request. Please contact our sales department if you need advice	
		Quick-connect padlockable handle for cam or rotary switch. Fixed pin length.	M-0553..L
		Add <b>IN</b> for stainless steel handle	
		<b>Note:</b> contact block is supplied on request. Please contact our sales department if you need advice	


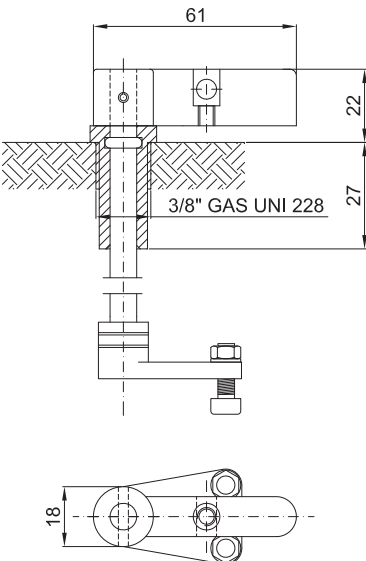
## M-0... control, monitoring and signalling devices


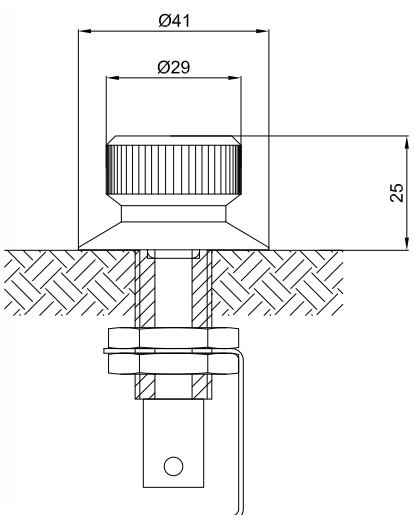
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for cam switch	
		Variable pin length	<b>M-0438../V</b>
		Fixed pin length	<b>M-0438../F</b>
		Add <b>IN</b> for stainless steel handle	
		Padlockable handle for special switches (3RV motor protectors)	
		Variable pin length	<b>M-0437../V</b>
		Fixed pin length	<b>M-0437../F</b>
		Add <b>IN</b> for stainless steel handle	
		Padlockable handle for switches with Ø6 shaft	
		Variable pin length	<b>M-0433../V</b>
		Fixed pin length	<b>M-0433../F</b>
		Add <b>IN</b> for stainless steel handle	

## M-0... control, monitoring and signalling devices

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Direct key-operated quick-connect knob for cam switch. Stainless steel bush.	<b>M-093/CF</b>
		Padlockable handle for enclosed circuit breakers  Variable pin length (size to order)  Fixed pin length  Add <b>IN</b> for stainless steel handle	<b>M-0435../V</b>  <b>M-0435../F</b>
		Padlockable handle for heavy-duty series enclosed circuit breakers  Variable pin length (A=85)  Fixed pin length (A=85)  Variable pin length (A=100)*  Fixed pin length (A=100)*  Add <b>IN</b> for stainless steel handle  * Handle for 400/630A enclosed circuit breakers	<b>M-0439../V</b>  <b>M-0439../F</b>  <b>M-0439../V1</b>  <b>M-0439../F1</b>

## M-0... control, monitoring and signalling devices

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for modular circuit breakers.	
		Fixed pin length	<b>M-0436../F1</b>
		Variable pin length	<b>M-0436../V1</b>
		Add <b>IN</b> for stainless steel handle	

		Knob for potentiometers with Ø6 shaft	<b>M-0557</b>
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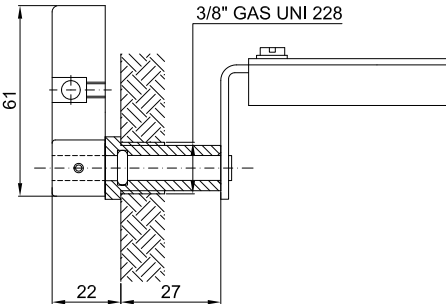
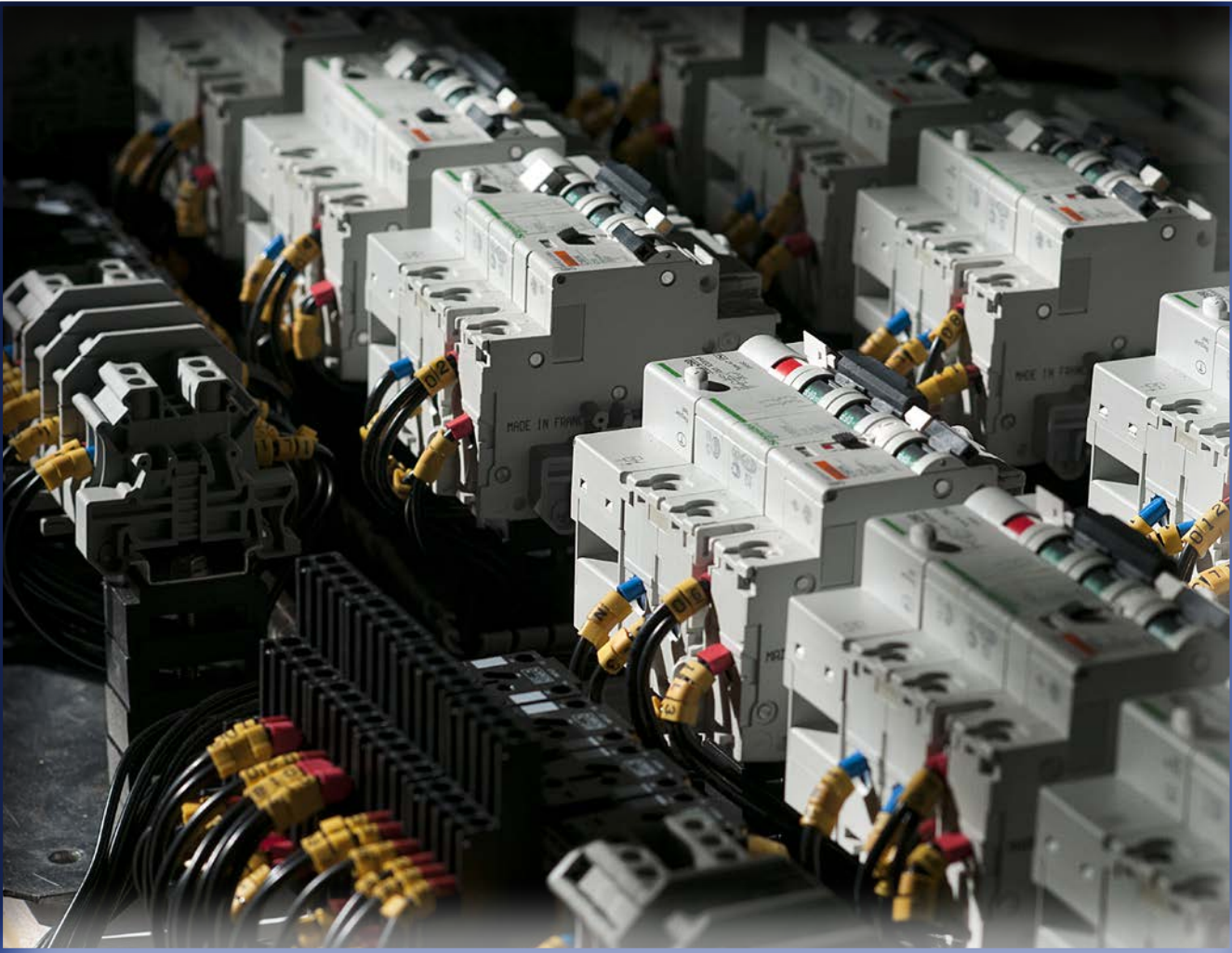
		Handle for enclosed circuit breakers. Wall mounting.	<b>M-0440</b>
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ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Handle for modular circuit breakers. Wall mounting.	M-0441



## M-0... control, monitoring and signalling devices

### CERTIFICATION DATA FOR SIGNALLING DEVICES

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db IIC Gb; Ex tb IIIC Db; IP66		(M-0457...)	
	CE 0722 Ex I M2 Ex db I Mb		Only in stainless steel	
	CE 0722 Ex II 2G Ex db eb IIC Gb; Ex tb IIIC Db IP66		(M-0487...)	
Certification:	ATEX CESA 01 ATEX 025U		(M-0457...)	
	ATEX CESA 00 ATEX 060U		(M-0487...)	
	IEC Ex CES 14.0030U	(M-0457...)	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	IEC Ex CES 11.0030U	(M-0487...)		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-2: 2015, EN 60079-31:2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-1: 2014-06, IEC 60079-31: 2013, IEC 60079-7: 2015			
Degree of protection:	IP66			

### MECHANICAL FEATURES OF SIGNALLING DEVICES

<b>Outer body:</b>	Impact-resistant UV-stable polycarbonate
<b>Bush (for M-0457AL):</b>	Aluminium
<b>Bush (for M-0457IN):</b>	Stainless steel
<b>Bush (for M-0487):</b>	Aluminium
<b>Gaskets:</b>	Acid/hydrocarbon-resistant silicone
<b>Device mounting:</b>	Screws into lid

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	12/240 Vac/dc
<b>Power:</b>	max. 3W
<b>Frequency:</b>	50 / 60 Hz

The command, control and signalling operators series M-0... have the following temperature ranges:

Gruppo I applications: operating temperature -20°C +100°C


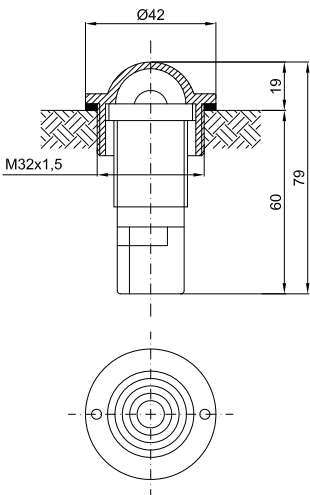

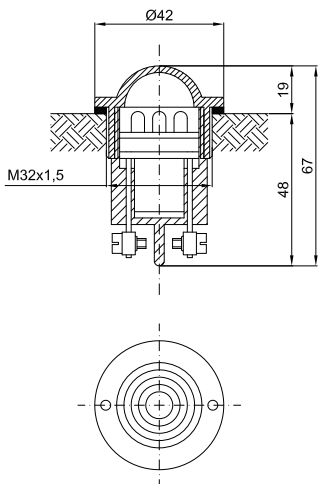

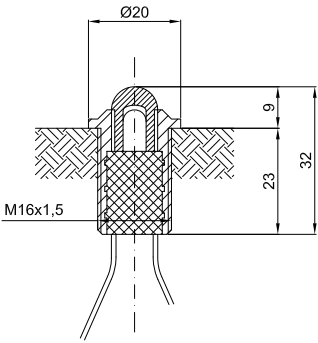

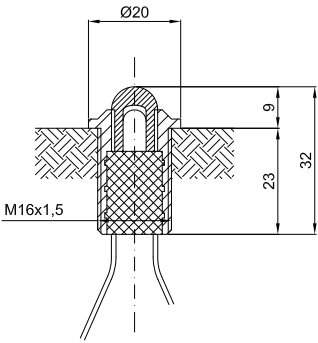
Gruppo II applications: operating temperature -40°C +100°C

operating temperature -60°C +100°C

only for signalling operators series M-0457AL, M-0457AL/3, M-0457IN, M-0457IN/3



## M-0... control, monitoring and signalling devices

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Indicator light with 3W lamps (on request*), 12/240 Vac/dc. Lens comes in choice of five colours.	
		Blue	<b>M-0457/B</b>
		Yellow	<b>M-0457/G</b>
		Red	<b>M-0457/R</b>
		Green	<b>M-0457/V</b>
		Clear	<b>M-0457/I</b>
		* lamp	12V: <b>LAMPBA9S12V</b> 24V: <b>LAMPBA9S24V</b> 110V: <b>LAMPBA9S110V</b> 240V: <b>LAMPBA9S240V</b>
		Indicator light with three high-brightness LEDs, for a consumption of 20mA and estimated life of around 50,000 hours. Lens comes in choice of five colours.	
		Blue	<b>M-0457/3B...</b>
		Yellow	<b>M-0457/3G...</b>
		Red	<b>M-0457/3R...</b>
		Green	<b>M-0457/3V...</b>
		Clear	<b>M-0457/3I...</b>
		Add suffix:	<b>24</b> for 24 Vac/dc <b>110</b> for 110 Vac/dc <b>230</b> for 230 Vac
		Indicator light with one high-brightness LED, for a consumption of 20 mA and estimated life of around 50,000 hours.	
		<b>Color</b>	<b>If (mA)</b> <b>Vf Tip. (V)</b> <b>Vf max. (V)</b>
		Red	20 2.1 2.6 <b>M-0487</b>
		Yellow	20 2.1 2.4 <b>M-0487/G</b>
		Clear	20 3.2 4.0 <b>M-0487/I</b>
		Green	20 3.2 4.0 <b>M-0487/V</b>
		Bicolor	20 2.0 2.5 <b>M-0487/1</b>

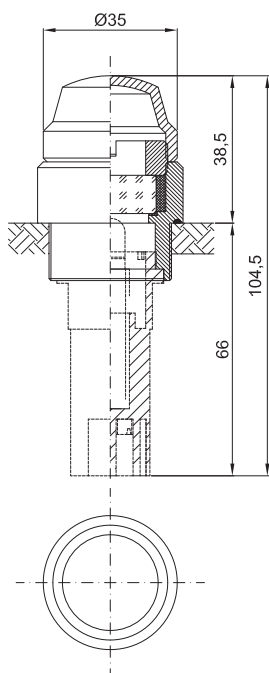
## M-O... control, monitoring and signalling devices

### ILLUSTRATION

### DIMENSIONS mm

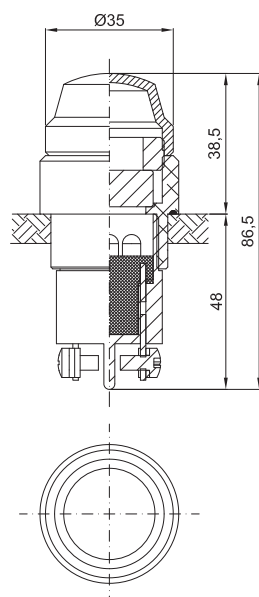
### DESCRIPTION

### CODE



Indicator light for operating temperature -60°C with 3W lamps (on request\*), 12/240 Vac/dc. Lens comes in choice of five colours.

Blue		<b>M-0457AL/B</b>
Yellow		<b>M-0457AL/G</b>
Red		<b>M-0457AL/R</b>
Green		<b>M-0457AL/V</b>
Clear		<b>M-0457AL/I</b>
Blue (stainless steel)		<b>M-0457IN/B</b>
Yellow (stainless steel)		<b>M-0457IN/G</b>
Red (stainless steel)		<b>M-0457IN/R</b>
Green (stainless steel)		<b>M-0457IN/V</b>
Clear (stainless steel)		<b>M-0457IN/I</b>
* lamp	12V:	<b>LAMPBA9S12V</b>
	24V:	<b>LAMPBA9S24V</b>
	110V:	<b>LAMPBA9S110V</b>
	240V:	<b>LAMPBA9S240V</b>



Indicator light for operating temperature -60°C with three high-brightness LEDs, for a consumption of 20mA and estimated life of around 50,000 hours. Lens comes in choice of five colours.

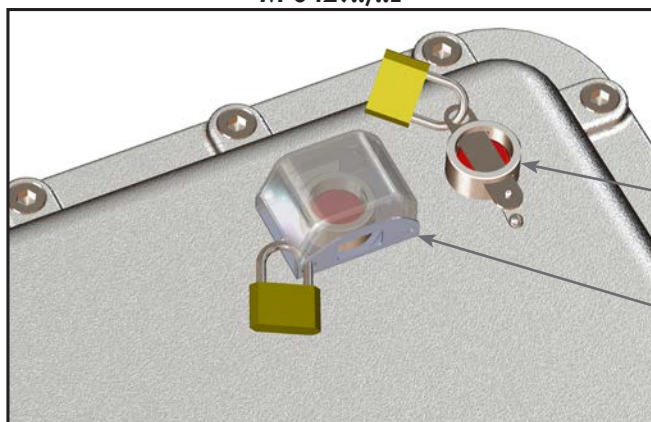
Blue		<b>M-0457AL/3B...</b>
Yellow		<b>M-0457AL/3G...</b>
Red		<b>M-0457AL/3R...</b>
Green		<b>M-0457AL/3V...</b>
Clear		<b>M-0457AL/3I...</b>
Blue (stainless steel)		<b>M-0457IN/3B...</b>
Yellow (stainless steel)		<b>M-0457IN/3G...</b>
Red (stainless steel)		<b>M-0457IN/3R...</b>
Green (stainless steel)		<b>M-0457IN/3V...</b>
Clear (stainless steel)		<b>M-0457IN/3I...</b>

Add suffix: **24** for 24 Vac/dc  
**110** for 110 Vac/dc  
**230** for 230 Vac



### PROTECTION AND PADLOCKING SYSTEMS FOR STANDARD CONTROL AND SIGNALLING DEVICES

Padlocking system designed for push-buttons  
M-0429../..L

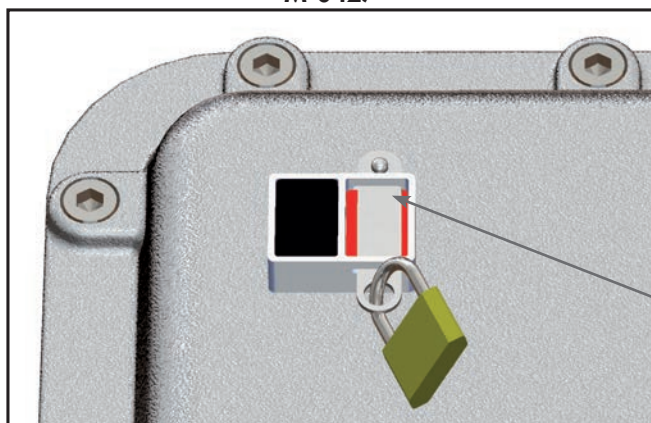


Assembly comprising stainless steel padlocking bar and chain for fastening to lid **M-0615**

Padlocking protection (code **M-0631**)

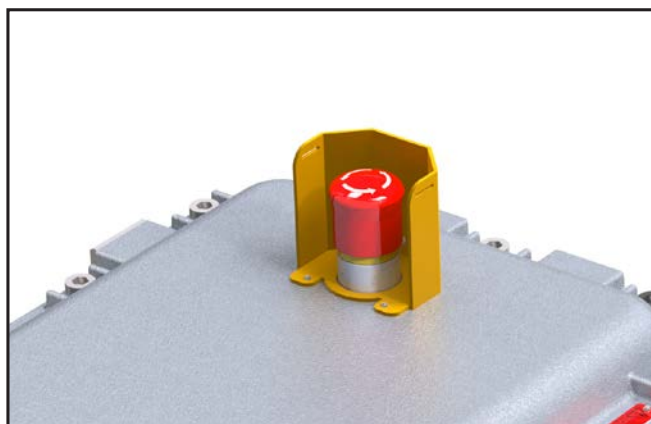
Padlock supplied on request

Padlocking system designed for double push-buttons  
M-0427



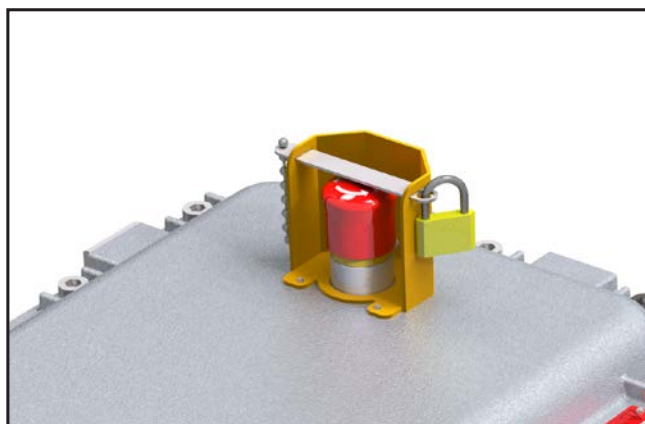
Assembly comprising stainless steel padlocking bar and chain for fastening to lid. Code **M-0615**

System protecting against accidental operation  
for mushroom-head push-buttons M-0445.. and  
M-0447..



Protection in stainless steel coating in yellow.  
Code **M-987**

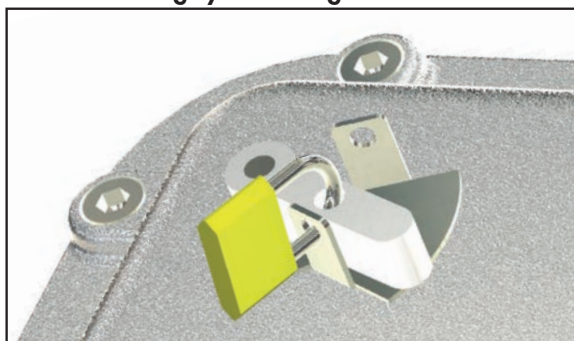
System designed for push-buttons M-0445../..L



Assembly comprising stainless steel padlocking bar and chain for fastening. **M-0615/1**

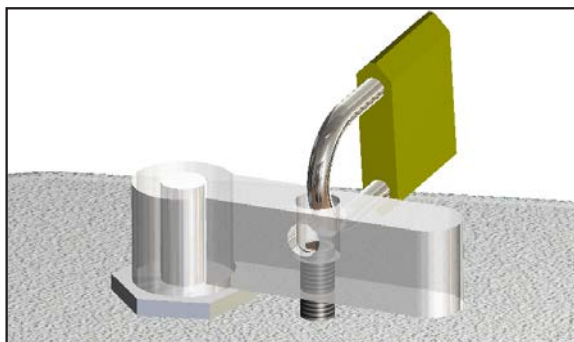
### PROTECTION AND PADLOCKING SYSTEMS FOR STANDARD CONTROL AND SIGNALLING DEVICES

#### Padlocking system designed for handles



This padlocking device is suitable for 3/8" GAS UNI 228 handles from the following series:

- M-0437
- M-0433
- M-0437
- M-0435
- M-0436
- M-0440
- M-0441

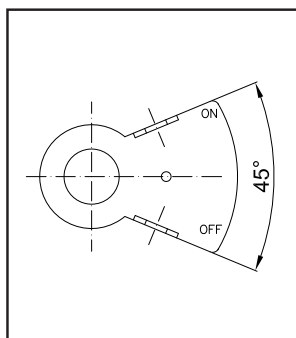


For 1/2" GAS UNI 228 heavy-duty series handles, i.e.:

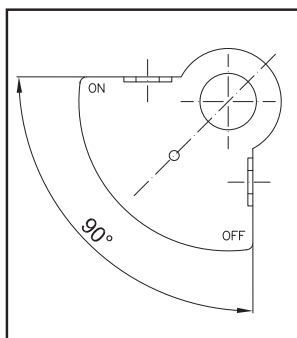
- M-0438
- M-0439

we recommend using a locking grub screw screwed into the handle and lid

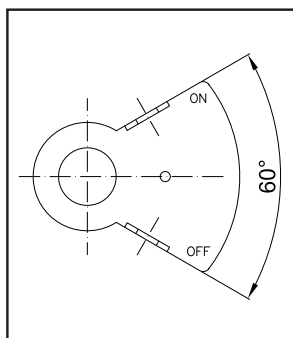
#### Type of handle padlocking devices



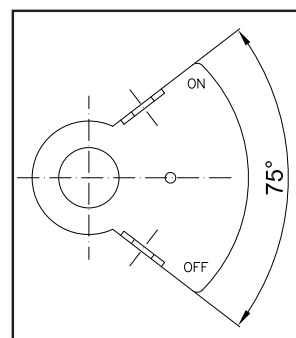
Code **M-698**



Code **M-698/1**



Code **M-698/2**



Code **M-698/3**



All identification, test or warning labels located on the enclosure lids are made from aluminium, stainless steel or Traffolyte depending on your specific requirements or as dictated by our own standards. They can be sized by our technical department based on standard models.



This image shows a full page of blank graph paper. The background is a solid light blue color. Overlaid on this background is a precise grid of thin, dark gray lines. The grid consists of small, equal-sized squares that cover the entire area of the page, from edge to edge. There are no margins, text, or other markings present on the paper.

# S

- Zone 1, 2, 21, 22
- Group IIC
- Aluminium junction boxes
- Wide selection of models
- IP66 / 67

*S.1 series*



*SSC series*

*Temperature sensor box  
SWS series*



*SF series*



## S... series Junction boxes gas group IIC

The S series junction boxes are made from aluminium alloy or AISI316L stainless steel and are used to accommodate cables connected both with multi-pole terminal strips and modular terminals. The extensive range offered caters to specific customer requirements and can be installed in areas classified as Zone 1, 2, 21, 22. The design features of the S series junction boxes make them suitable for operating temperatures in the -40°C to +160°C range depending on their size, the type of gasket used and the terminals used (see table for relevant electrical features).

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:



### CERTIFICATION DATA FOR EMPTY ENCLOSURES

#### Classification:

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 d IIC Gb - Ex tb IIIC Db - IP66/67

#### Certification:

ATEX CESI 03 ATEX 059U

IECEX IECEX CES 15.0012U

ECASEx AVAILABLE

CCC AVAILABLE

All IEC Ex, ECASEx and CCC certification data can be downloaded from [www.cortemgroup.com](http://www.cortemgroup.com)

#### Standards:

CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-31, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE

#### Ambient Temp.:




-40°C +150°C

#### Degree of protection:

IP66/67

## S... series Junction boxes gas group IIC

### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	Group II		Category 2GD			
Installation:	zone 1 - zone 2 (Gas)		zone 21 - zone 22 (Dust)			
Marking:	CE 0722 Ex II 2 GD - Ex d IIC T... Gb - Ex tb IIIC T... Db - IP66/67					
	CE 0722 Ex II 2 GD - Ex e IIC T... Gb - Ex tb IIIC T... Db - IP66/67					
	CE 0722 Ex II 2 GD - Ex i IIC T... Gb - Ex tb IIIC T... Db - IP66/67					
Certification:	ATEX		CESI 02 ATEX 091			
	IEC Ex		CES 14.0018X		All IEC Ex, ECASEx, TR CU, INMETRO and CCC certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx		AVAILABLE			
	TR CU		AVAILABLE			
	INMETRO		DNV 14.0108			
	CCC		AVAILABLE			
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-11: 2012, EN60079-31: 2009, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE					
	 Ambient Temp.:	 -40°C +40°C 				
The boxes can be installed in other ambient temperature ranges. In this case, the terminal strips used must be made from the materials indicated in chart 1 and 2.						
Degree of protection:	IP66/67					

### OTHER AVAILABLE CERTIFICATES (please contact the sales department for further information)

IEC Ex CES 11.0006X CERTIFICATE  
 Equipment: S\_6.1 and S\_9.1 series boxes Ex nA II T... Ex tD A22 IP66/67 version  
 Boxes with terminals for high temperatures



### 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 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)

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	750 V
<b>Rated frequency:</b>	50 / 60 Hz

#### TERMINALS

<b>Terminal cross-sectional area:</b>	1.5; 2.5; 4; 6; 10; 16; 25; 35; 70 [mm <sup>2</sup> ]
<b>Rated current:</b>	8 - 175 [A]
<b>Max. current density:</b>	2.5 - 6.6 [A/mm <sup>2</sup> ]

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

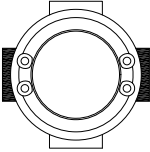
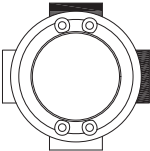
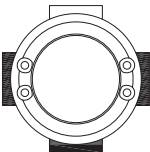
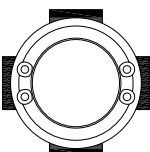
- AISI 316 L stainless steel boxes (Ex. SC-16.1S)
- Electropolished AISI 316 L stainless steel boxes (Ex. SC-16.1SE)
- Boxes with polyester coating RAL 7035 paint (Ex. SC-16.1V)
- Boxes with different entry diameter
- Cast iron boxes
- Other threads:
  - NPT threads ANSI B1.20.1 (Ex. SC-26.1N)
  - GAS UNI ISO 228 thread (Ex. SC-26.1C)
  - Metric threads ISO 261/965 (Ex. SC-26.1I)



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

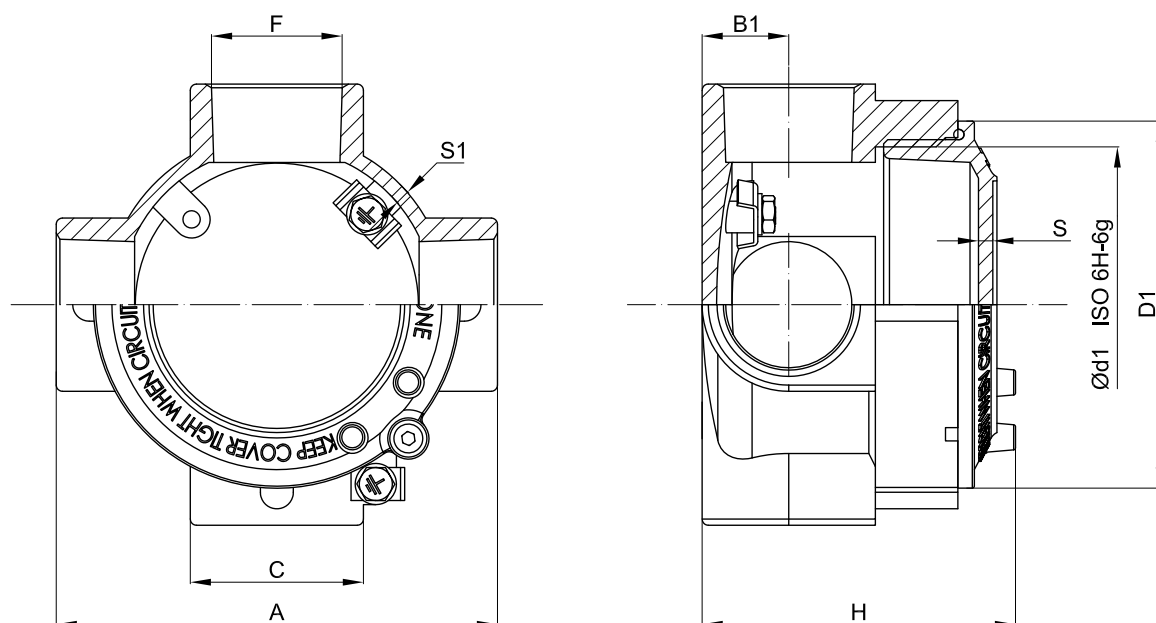


## S SERIES ENCLOSURE SELECTION CHART

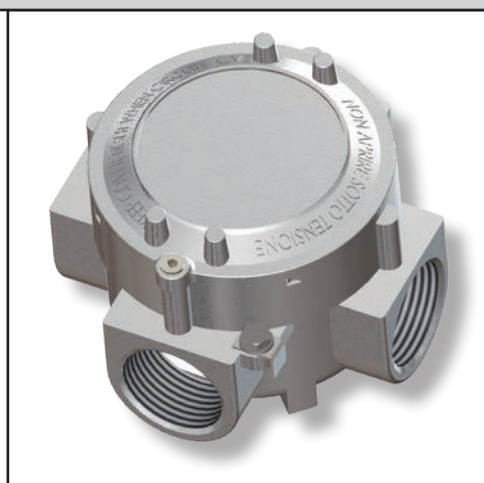
Code	Position of entries	GAS UNI ISO 7/1	Model	A	Outside dimensions mm				Inside dimensions mm			Weight kg
					D1	H	C	B1	Ød1	S	S1	
SC-14.1		2 x 1/2"	A	72	65	61	34	17	54x2	3,5	3,5	
SC-24.1		2 x 3/4"	A	72	65	61	34	17	54x2	3,5	3,5	
SC-16.1		2 x 1/2"	A	100	89	67	34	17	80x2	3,5	3,5	
SC-26.1		2 x 3/4"	A	100	89	67	34	17	80x2	3,5	3,5	
SC-36.1		2 x 1"	A	107	89	75	42	21	80x2	3,5	3,5	
SC-29.1		2 x 3/4"	B	190	146	105	60	30	130x2	4	7	
SC-39.1		2 x 1"	B	190	146	105	60	30	130x2	4	7	
SC-59.1		2 x 1 1/2"	B	190	146	105	60	30	130x2	4	7	
SC-69.1		2 x 2"	B	190	146	110	70	35	130x2	4	7	
SL-14.1		2 x 1/2"	A	72	65	61	34	17	54x2	3,5	3,5	
SL-24.1		2 x 3/4"	A	72	65	61	34	17	54x2	3,5	3,5	
SL-16.1		2 x 1/2"	A	100	89	67	34	17	80x2	3,5	3,5	
SL-26.1		2 x 3/4"	A	100	89	67	34	17	80x2	3,5	3,5	
SL-36.1		2 x 1"	A	107	89	75	42	21	80x2	3,5	3,5	
SL-29.1		2 x 3/4"	B	166	146	105	60	30	130x2	4	7	
SL-39.1		2 x 1"	B	166	146	105	60	30	130x2	4	7	
SL-59.1		2 x 1 1/2"	B	166	146	105	60	30	130x2	4	7	
SL-69.1		2 x 2"	B	166	146	110	70	35	130x2	4	7	
ST-14.1		3 x 1/2"	A	72	65	61	34	17	54x2	3,5	3,5	
ST-24.1		3 x 3/4"	A	72	65	61	34	17	54x2	3,5	3,5	
ST-16.1		3 x 1/2"	A	100	89	67	34	17	80x2	3,5	3,5	
ST-26.1		3 x 3/4"	A	100	89	67	34	17	80x2	3,5	3,5	
ST-36.1		3 x 1"	A	107	89	75	42	21	80x2	3,5	3,5	
ST-29.1		3 x 3/4"	B	190	146	105	60	30	130x2	4	7	
ST-39.1		3 x 1"	B	190	146	105	60	30	130x2	4	7	
ST-59.1		3 x 1 1/2"	B	190	146	105	60	30	130x2	4	7	
ST-69.1		3 x 2"	B	190	146	110	70	35	130x2	4	7	
SX-14.1		4 x 1/2"	A	72	65	61	34	17	54x2	3,5	3,5	
SX-24.1		4 x 3/4"	A	72	65	61	34	17	54x2	3,5	3,5	
SX-16.1		4 x 1/2"	A	100	89	67	34	17	80x2	3,5	3,5	
SX-26.1		4 x 3/4"	A	100	89	67	34	17	80x2	3,5	3,5	
SX-36.1		4 x 1"	A	107	89	75	42	21	80x2	3,5	3,5	
SX-29.1		4 x 3/4"	B	190	146	105	60	30	130x2	4	7	
SX-39.1		4 x 1"	B	190	146	105	60	30	130x2	4	7	
SX-59.1		4 x 1 1/2"	B	190	146	105	60	30	130x2	4	7	
SX-69.1		4 x 2"	B	190	146	110	70	35	130x2	4	7	



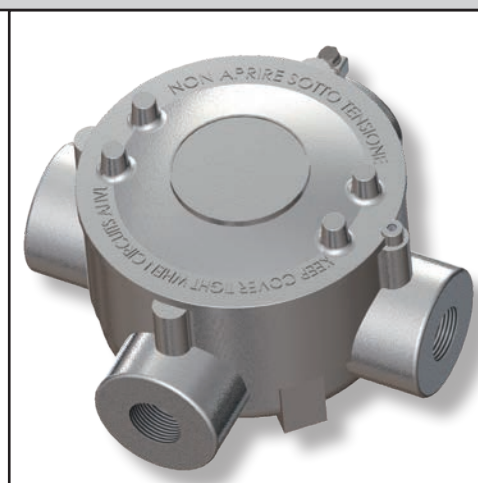
DIMENSIONAL DRAWING



MODEL A



MODEL B



Code	MODEL	F GAS UNI ISO 7/1	A	Outside dimensions mm D1	H	C	B1	Inside dimensions mm Ød1	S	S1	Weight kg
SB-14		2 x 1/2"	90	65	90	39	43	54x2	3,5	3,5	
SB-24		2 x 3/4"	90	65	90	39	43	54x2	3,5	3,5	
SB-16*		2 x 1/2"	110	90	90	45	43	80x2	3,5	5	
SB-26		2 x 3/4"	110	90	90	45	43	80x2	3,5	5	
SB-36		2 x 1"	114	90	96	45	52	80x2	3,5	5	
SB-49		2 x 1 1/4"	180	150	114	60	59	130x2	4	5	
SB-59		2 x 1 1/2"	180	150	114	60	59	130x2	4	5	
SB-69		2 x 2"	180	150	114	74	71	130x2	4	5	

\* Supplied SB-26 boxes model with RE21 reductions

## SF... SSC... series Junction boxes gas group IIC



MODEL SF



MODEL SSC

SF series enclosures from the (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

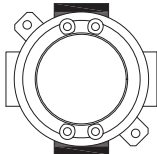
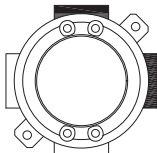
**MOUNTING BRACKETS:** Galvanized steel for SSC. Aluminium for SF.

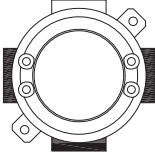
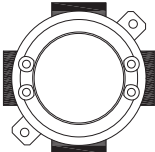
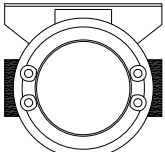
Other features are identical to S series boxes

### 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 F	Outside dimensions mm D1 A B			Weight kg
SFC-14.1		2 x 1/2"	65	75	90	
SFC-24.1		2 x 3/4"	65	75	90	
SFC-16.1		2 x 1/2"	89	110	130	
SFC-26.1		2 x 3/4"	89	110	130	
SFC-36.1		2 x 1"	89	110	130	
SFC-29.1		2 x 3/4"	146	160	180	
SFC-39.1		2 x 1"	146	160	180	
SFC-59.1		2 x 1 1/2"	146	160	180	
SFC-69.1		2 x 2"	146	160	180	
SFL-14.1		2 x 1/2"	65	75	90	
SFL-24.1		2 x 3/4"	65	75	90	
SFL-16.1		2 x 1/2"	89	110	130	
SFL-26.1		2 x 3/4"	89	110	130	
SFL-36.1		2 x 1"	89	110	130	
SFL-29.1		2 x 3/4"	146	160	180	
SFL-39.1		2 x 1"	146	160	180	
SFL-59.1		2 x 1 1/2"	146	160	180	
SFL-69.1		2 x 2"	146	160	180	

Code	Position of entries	GAS UNI ISO 7/1	Outside dimensions mm			Weight kg
		F	D1	A	B	
SFT-14.1		3 x 1/2"	65	75	90	
SFT-24.1		3 x 3/4"	65	75	90	
SFT-16.1		3 x 1/2"	89	110	130	
SFT-26.1		3 x 3/4"	89	110	130	
SFT-36.1		3 x 1"	89	110	130	
SFT-29.1		3 x 3/4"	146	160	180	
SFT-39.1		3 x 1"	146	160	180	
SFT-59.1		3 x 1 1/2"	146	160	180	
SFT-69.1		3 x 2"	146	160	180	
SFX-14.1		4 x 1/2"	65	75	90	
SFX-24.1		4 x 3/4"	65	75	90	
SFX-16.1		4 x 1/2"	89	110	130	
SFX-26.1		4 x 3/4"	89	110	130	
SFX-36.1		4 x 1"	89	110	130	
SFX-29.1		4 x 3/4"	146	160	180	
SFX-39.1		4 x 1"	146	160	180	
SFX-59.1		4 x 1 1/2"	146	160	180	
SFX-69.1		4 x 2"	146	160	180	
SSC-14.1		3 x 1/2"	65	65	80	
SSC-24.1		3 x 3/4"	65	65	80	
SSC-16.1		3 x 1/2"	89	110	125	
SSC-26.1		3 x 3/4"	89	110	125	
SSC-36.1		3 x 1"	89	110	125	
SSC-29.1		3 x 3/4"	146	130	150	
SSC-39.1		3 x 1"	146	130	150	
SSC-59.1		3 x 1 1/2"	146	130	150	
SSC-69.1		3 x 2"	146	130	150	

The encoding in the marking on the nameplates remains unchanged with respect to the one indicated on the S series junction boxes.

## DIMENSIONAL DRAWING

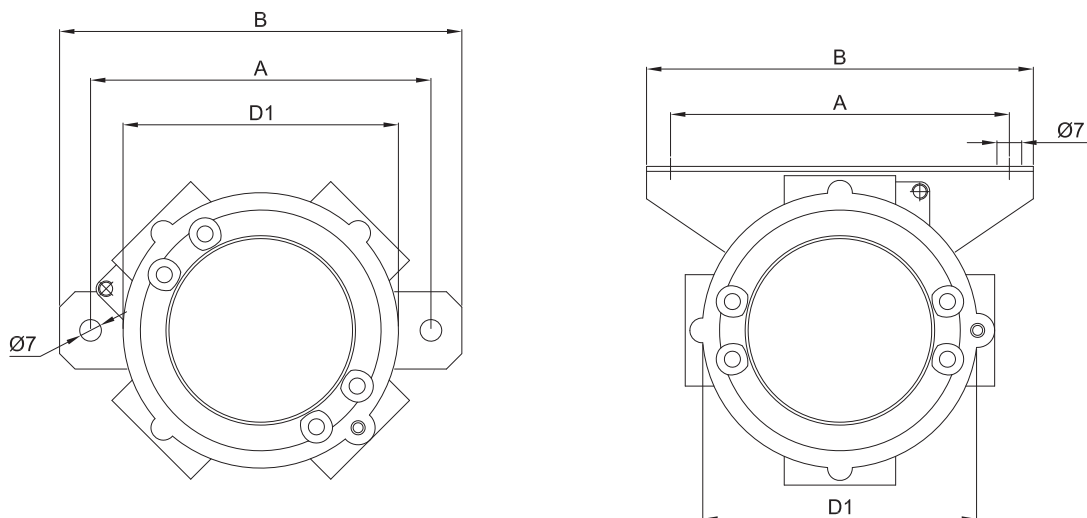


CHART 1

Ex d IIC rated terminal strips			
Ambient temperature	Temperature of terminal operation	Temperature class	Maximum surface temperature
-40°C +40°C	≥80°C	T6	T85°C
-40°C +65°C	≥100°C	T5	T100°C
-40°C +150°C	≥180°C	T3	T200°C

CHART 2

Ex e II or Ex i IIC rated terminal strips (ATEX-certified terminals)			
Ambient temperature	Temperature of terminal operation	Temperature class	Maximum surface temperature
-40°C +40°C	≥80°C	T6	T85°C
-40°C +65°C	≥100°C	T5	T100°C
-40°C +80°C	≥130°C	T4	T135°C

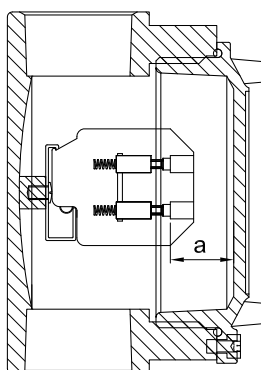
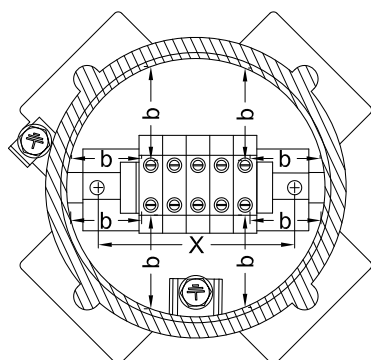
MOUNTING RAILS (as per standard IEC 60715)				
Terminal manufacturer	Terminal code	ENCLOSURE TYPE		
		S.1 - SB 14-24	S.1 - SB 16-26-36	S.1 - SB 29-39-49-59-69
		PROFILE TYPE		
CABUR	CBD	-	-	Top hat PR/3/AC
	SV	-	-	DIN PR/DIN/AC
	RN	-	Top hat PR/2/AC	Top hat PR/2/AC
WEIDMULLER	WDU	-	Top hat PR/3/AC	Top hat PR/3/AC
	SAK	-	-	DIN PR/DIN/AC
	BK	Bracket	Bracket	Bracket
	AKZ	-	Top hat PR/2/AC	Top hat 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	12	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	16	20	24	40	65	88	150
	at 150°C									
Maximum current density (A/mm²) 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/mm²) 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.	x	x
S.1 - SB	14-24	6	20	40	40
S.1 - SB	16-26-36			58.5	50
S.1	29-39-59-69			100	85
SB	49-59-69				



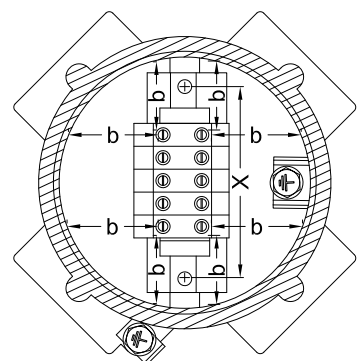
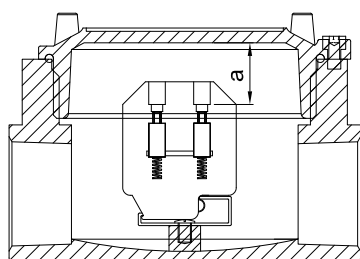
Enclosure code SFL-36.1 with 3 x AKZ-2.5 terminals and 1 x AKE2.5 earth terminal

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			5.5			7.5			12			14			17		
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) <div>at 40°C</div> <div>at 65°C</div> <div>at 150°C</div>		40			65		
		29			47		
		3			3		
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

Tab 1	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

Tab 2	Enclosure type	Size	Minimum surface distance		S.1	SB
			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

Tab 3	Enclosure type	Size	Minimum surface distance		S.1	SB
			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

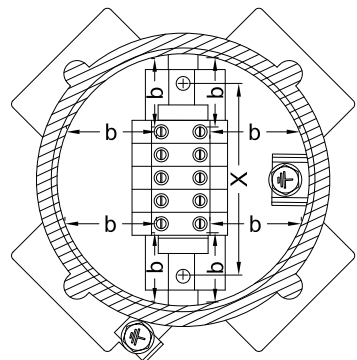
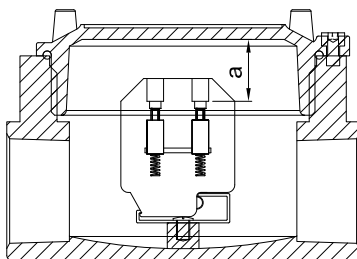


Ex i IIC rated enclosures		CROSS-SECTIONAL AREA AND MAXIMUM NUMBER OF TERMINALS																	
Enclosure type	Size	1.5			2.5			4			6			10					
		Tab 4	Tab 5	Tab 6	Tab 4	Tab 5	Tab 6	Tab 4	Tab 5	Tab 6	Tab 4	Tab 5	Tab 6	Tab 4	Tab 5	Tab 6			
S.1 - SB	14-24	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-			
S.1 - SB	16-26-36	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					
Max. rated voltage (V)		630																	

Ex i IIC rated enclosures		CROSS-SECTIONAL AREA AND MAXIMUM NUMBER OF TERMINALS					
Enclosure type	Size	16			25		
		Tab 4	Tab 5	Tab 6	Tab 4	Tab 5	Tab 6
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) <div>at 40°C</div> <div>at 65°C</div> <div>at 150°C</div>		40			65		
		29			47		
Maximum current density (A/mm²) for terminals and cables		3			3		
Max. rated voltage (V)		630					



Enclosure code SFL-36.1 with 3 x RP-4EXI 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 i IIC rated enclosures with terminals

Tab 4	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

Tab 5	Enclosure type	Size	Minimum surface distance		S.1	SB
			a min.	b+b min.		
	S.1 - SB	14-24	7	30	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

Tab 6	Enclosure type	Size	Minimum surface distance		S.1	SB
			a min.	b+b min.		
	S.1 - SB	14-24	8	36	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



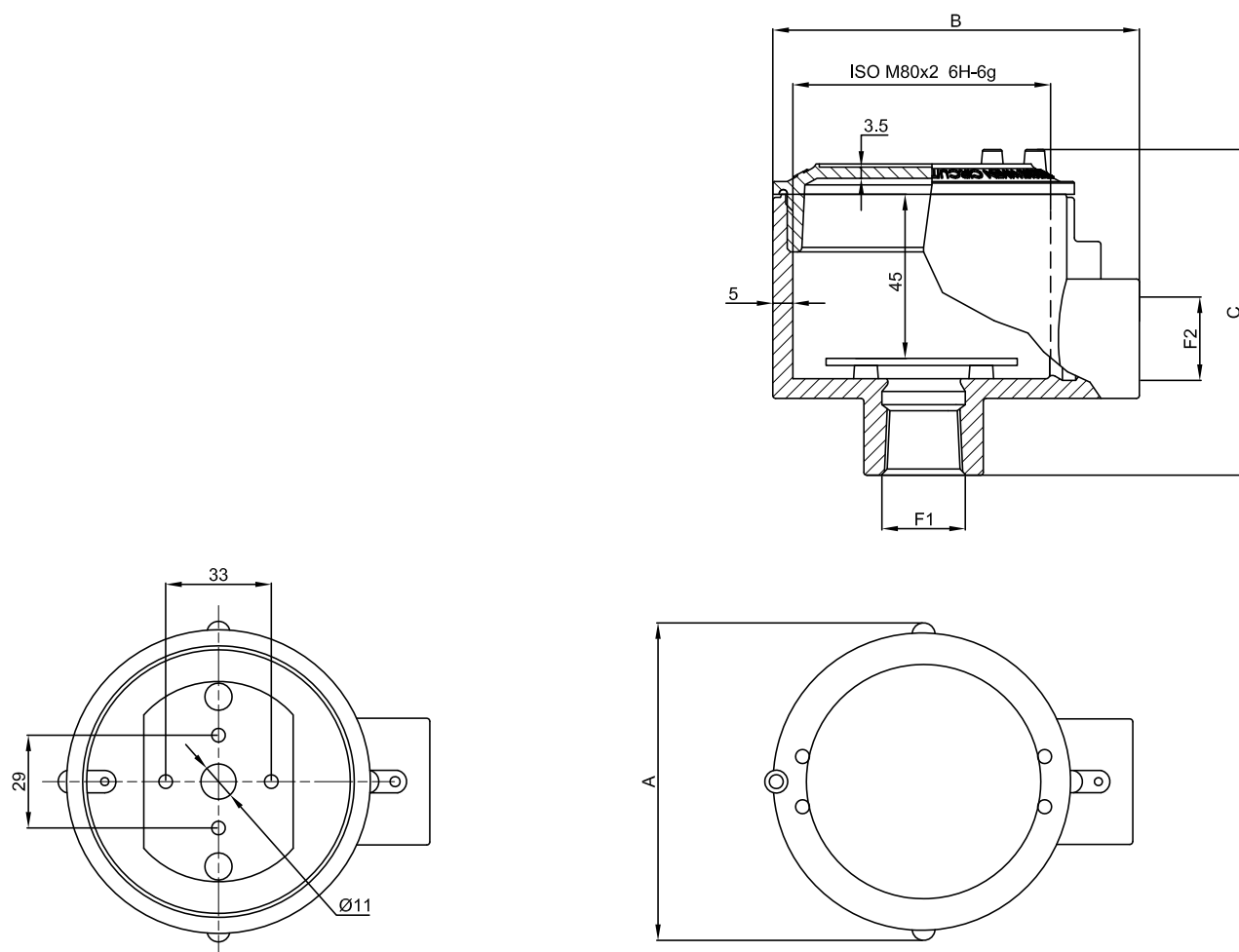
ORIGINAL PRODUCT

'Ex d' SWS series enclosures are normally used to house temperature sensors, such as thermocouples, level gauges, flow transmitters and pressure sensors.

### MECHANICAL FEATURES

<b>Body and lid:</b>	Low copper content aluminium alloy. Screw-on lid with safety fastening grub screw and steel chain so the lid cannot be misplaced
<b>Gasket:</b>	Acid/hydrocarbon-resistant silicone, located between body and lid
<b>Entries:</b>	Standard NPT thread
<b>Certification label:</b>	Adhesive label located on inside of lid
<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>Coating:</b>	Polyester coating RAL 7035 (Light grey)
<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)

# DIMENSIONAL DRAWING



Code	Outside dimensions mm			Entry Ø		Weight kg
	A	B	C	F1	F2	
SWS-16	100	115	100	1/2" NPT	1/2" NPT	
SWS-26	100	115	100	3/4" NPT	3/4" NPT	
SWS-26/21	100	115	100	1/2" NPT	3/4" NPT	

# SA, SAG

- Zone 1, 2, 21, 22
- Aluminium enclosures
- Choice of 18 sizes
- IP66
- IK10



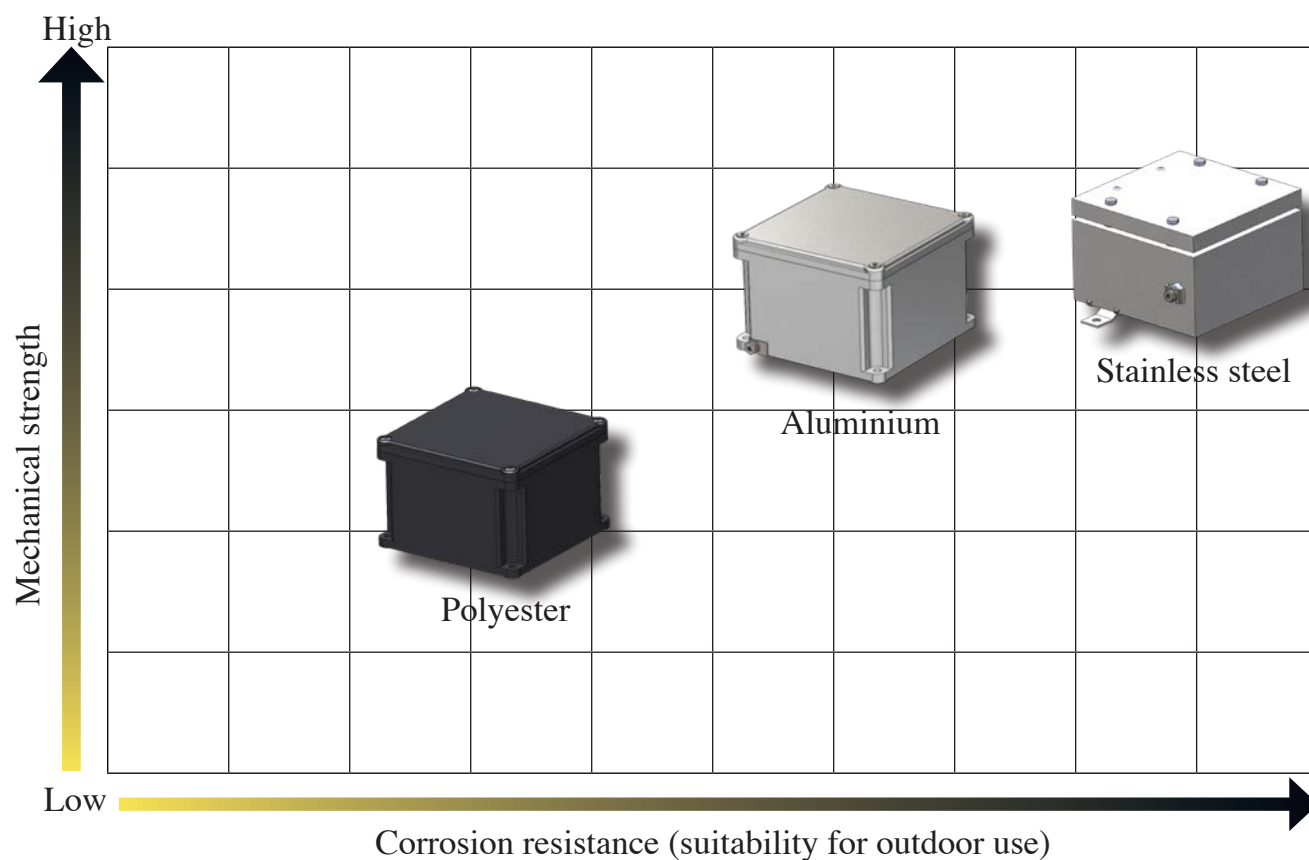
## SA series junction boxes: criteria for choosing the right product

When it comes to deciding on an increased safety enclosure, there is a whole series of essential data to be taken into account if you are to make the right choice: the mechanical strength of the materials, corrosion resistance, the IP protection rating and IK impact protection rating in the case of enclosures for watertight/ industrial use.

### Mechanical strength

Properties	Unit	Stainless steel	Aluminium	Polyester
Density	g/cm <sup>3</sup>	8.0	2.65	1.7
Tensile strength	MPa	500-700	80-110	130
Elongation	%	60-40	4-10	2
Modulus of elasticity	GPa	193	79	11
Yield strength	MPa	≥ 200	80-165	-
Coeff. of thermal expansion (20-100°C)	10 <sup>-6</sup> K <sup>-1</sup>	16	21	-
Resistivity	Ωm	7.5x10 <sup>-7</sup>	4.8x10 <sup>-8</sup>	-
Electrical conductivity	Ω <sup>-1</sup> m <sup>-1</sup>	1.33x10 <sup>6</sup>	2.08x10 <sup>7</sup>	-

The graph below gives an overview of what use the various materials are suitable for based on the mechanical stress and harshness of the environmental conditions likely to be encountered.





## Protection ratings

### 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 OBJECTS	2ND DIGIT PROTECTION AGAINST MOISTURE	PROTECTION AGAINST EXTERNAL MECHANICAL IMPACT *
<b>0</b> Not protected	<b>0</b> Not protected	<b>IK00</b> Not protected
<b>1</b> Protected against solid objects greater than 50mm in Ø	<b>1</b> Protected against vertically falling drops of water	<b>IK01</b> 0.25 kg 5.6 cm
<b>2</b> Protected against solid objects greater than 12mm in Ø	<b>2</b> Protected against rain when tilted up to 15°	<b>IK03</b> 0.25 kg 14 cm
<b>3</b> Protected against solid objects greater than 2.5mm in Ø	<b>3</b> Protected against rain when tilted up to 60°	<b>IK05</b> 0.25 kg 28 cm
<b>4</b> Protected against solid objects greater than 1mm in Ø	<b>4</b> Protected against splashing water	<b>IK06</b> 0.25 kg 40 cm
<b>5</b> Protected against dust	<b>5</b> Protected against jets of water from all directions	<b>IK07</b> 0.5 kg 40 cm
<b>6</b> Totally protected against the ingress of dust	<b>6</b> Protected against heavy seas	<b>IK08</b> 1.7 kg 30 cm
<b>ADDITIONAL LETTER**</b>	<b>7</b> Protected against the effects of immersion	<b>IK09</b> 5 kg 20 cm
<b>A</b> Protected against access with the back of the hand	<b>8</b> Protected against the effects of continuous immersion	<b>IK10</b> 5 kg 40 cm
<b>B</b> Protected against access with a finger		
<b>C</b> Protected against access with a tool		
<b>D</b> 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

\* 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.



## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

SA...SAG series junction boxes are made from aluminium alloy and given an electrostatically applied polyester 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. SA and SAG series junction boxes are usually installed in industrial plants where there is a risk of explosion and fire, classified as Zone 1, 2, 21, 22; 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 SAG series is suitable for direct connection with pipes and fittings featuring tapered threads. Cortem's custom solutions offer ATEX- and IECEx-certified components and application solutions devised for use in explosion hazard areas. The expert Cortem team endeavours to meet all customer requests.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### TYPE AND APPLICATION

Choosing an appropriate container is a key step in the project development process, making it essential to approach the decision systematically, evaluating all variables methodically: where our equipment is being installed, the environmental conditions on site, what degree of protection it must have, what space is available and how it is due to be set up. Once you have processed all this information, you should be able to determine which product best suits the design requirements in question.

### ENVIRONMENTAL CONDITIONS

The first factor to consider is what environmental conditions the equipment is going to be installed in, whether it will be indoors or outside, and what environments it is required to operate in: pharmaceutical, chemical, petrochemical, food, shipbuilding, agricultural industries...

### DIMENSIONS

The size of the space available for inserting the enclosure and its components must be determined early on in the process.

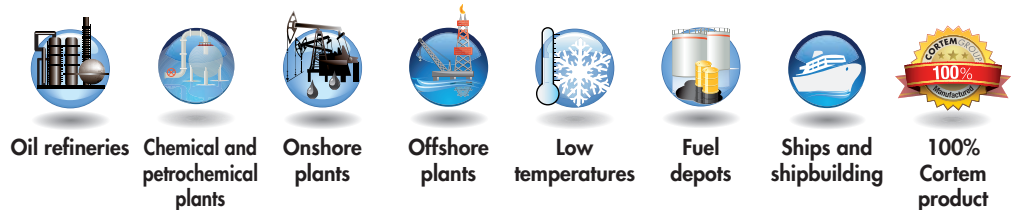
### DESIGN

Taking into account the technical aspect, product design and appearance is also important in ensuring the equipment to be installed in the enclosure is integrated seamlessly. A Cortem team of experts is on hand every day to address your questions and come up with the best solutions.

Cortem enclosures have passed:

- IP protection testing;
- IK strength testing;
- salt mist testing for corrosion resistance;
- heat resistance testing;
- low temperature resistance testing.

### Application sectors:



# SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

## CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex eb IIC T6/T5/T4 Gb - Ex tb IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex e ia IIC T6/T5/T4 Gb - Ex ia IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex eb ia IIC T6/T5/T4 Gb - Ex ia tb IIIC T75°C/T1 10°C Db IP66			
Certification:	ATEX	CESI 03 ATEX 333		
	IEC Ex	CES 13.0001	All IEC Ex, ECASEx, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	TR CU	AVAILABLE		
	INMETRO	DNV 15.0119		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-31: 2013			
Ambient Temp.:	See "ambient temperature range" table			
Degree of protection:	IP66			

### AMBIENT TEMPERATURE RANGE

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +40°C	T6	T75°C	+80°C
-40°C +55°C	T5	T75°C	+95°C

### LOW AND HIGH TEMPERATURE RANGE (accordingly with the temperature allowed by the terminals)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +40°C	T6	T75°C	+80°C
-60°C +55°C	T5	T75°C	+95°C
-60°C +65°C**	T5	T75°C	+95°C

\*\* For this temperature range the maximum dissipated power shall be reduced by 25% and the nominal current by 15%

### TEMPERATURE RANGE FOR SIGNALING (max. 1 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)






AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +60°C	T6	T75°C	+80°C

### TEMPERATURE RANGE FOR SIGNALING (max. 10 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)



AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +85°C	T4	T110°C	+120°C

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722 Ex II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66 (When on the box is installed only ammeter or voltmeter type B-0140)			
Certification:	ATEX	CESI 03 ATEX 115 X		
	IEC Ex	CES 11.0032 X	All IEC Ex, ECASEx, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	TR CU	AVAILABLE		
	INMETRO	DNV 15.0125		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-18: 2015 EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-1: 2014, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-18: 2014, IEC 60079-31:2013, IEC 60529: 2001			
 Ambient Temp.:	 -40°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -40°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
Degree of protection:	IP66			

### CERTIFICATION DATA OF ENCLOSURES WITH EQUIPMENT (FIELDBUS, PROXIMATOR, HEATER...)

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722 Ex II2(1)GD - Ex eb ib mb [ia Ga] IIC T4 Gb - Ex tb [ia Da] IIIC T85°C Db IP66			
Certification:	ATEX	CML 16 ATEX 3163X		
	IEC Ex	CML 16.0074X	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-7: 2015, IEC 60079-28: 2015, IEC 60079-31:2013			
Ambient Temp.:	 -60°C +85°C 		The temperature classes and the maximum surface temperature must be selected according to the installed components. See the certificate.	
Degree of protection:	IP66			

# SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

## SA and SAG SERIES ENCLOSURES

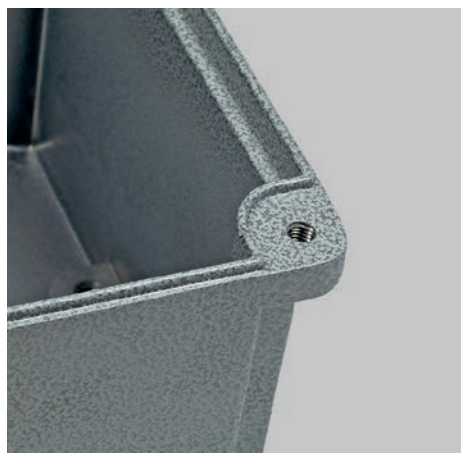
Models from SA-...series (lightweight series)  
Thinner walls

The body can only accommodate through holes with no threading



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

The body can also accommodate threaded holes



## GENERAL MECHANICAL PROPERTIES

<b>Body and lid:</b>	Low copper content aluminium alloy
<b>Impact protection rating:</b>	IK10
<b>Gasket:</b>	Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid
<b>Certification label:</b>	Aluminium plate riveted onto lid
<b>Bolts and screws:</b>	Stainless steel captive variety
<b>Earth screws:</b>	Stainless steel. On inside and outside of body complete with anti-rotation brackets
<b>Mounting:</b>	Cast aluminium feet for M6 screw
<b>Coating:</b>	Polyester RAL 7035 (Light grey) for Exe or RAL 5015 (Sky blue) for Exi
<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

Possible drilling of the enclosure bottom A maximum of one hole in the center is allowed, 1" NPT o ISO M32x1,5.

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Breather valve; Drain valve

Internal mounting plate: stainless steel (code B...-229)

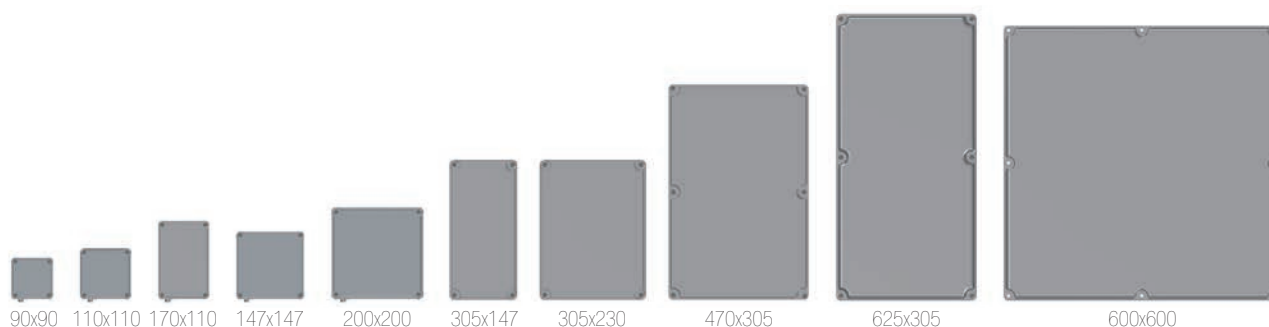
Earth screws in stainless steel

Terminal block mounting rails (code OBO2060/S)

ATEX-CERTIFIED TERMINALS: terminals must be chosen from the list of approved manufacturers: Cabur, Phoenix, ABB Entrelec, Wago, Weidmuller. When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals.

**Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.**

## OVERVIEW OF SIZES

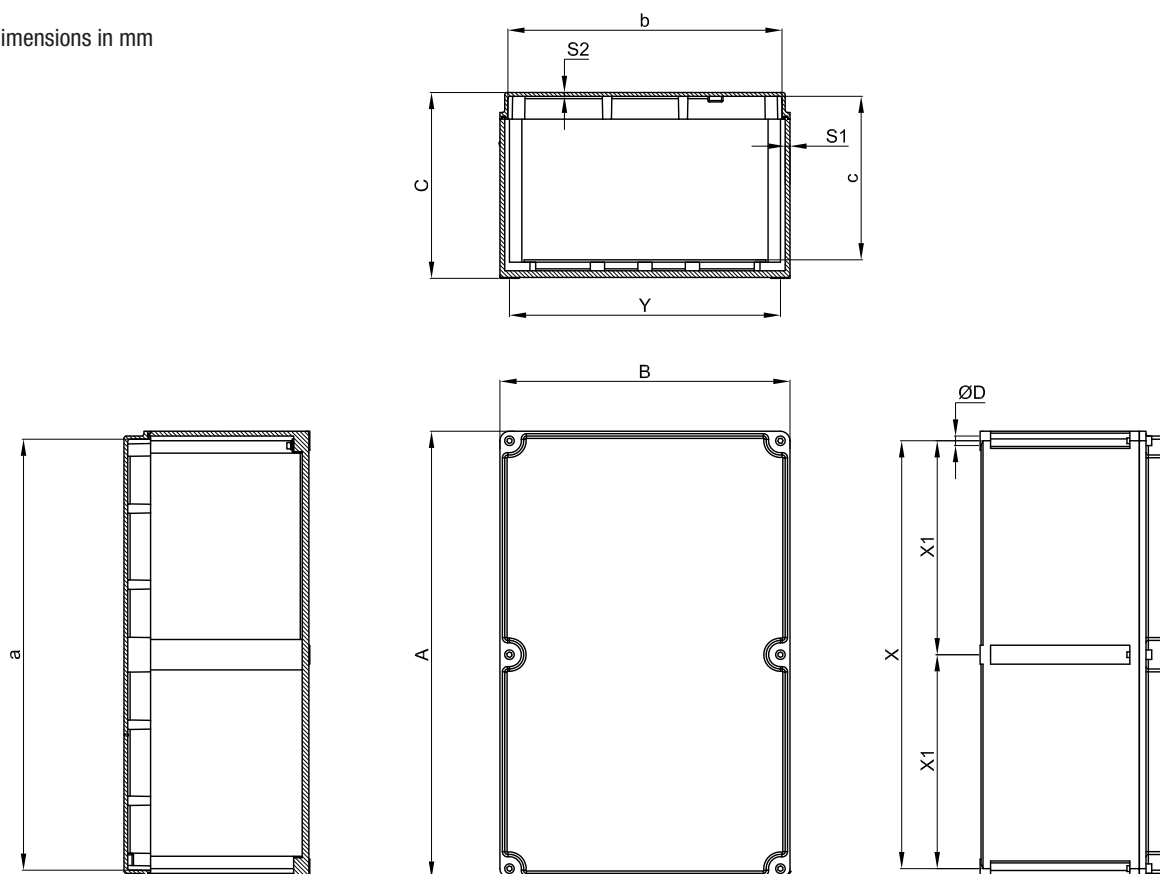


# SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

## ENCLOSURE SELECTION CHART

Code	External dimensions			Inner dimensions					Fixing				Weight Kg
	A	B	C	a	b	c	S1	S2	X	Y	X1	ØD	
SA090907	90	90	73	84	84	54	3	2.5	74	74	-	6.5	0.40
SA111108	110	110	83	104	104	64	3	2.5	94	94	-	6.5	0.50
SAG111108	110	110	83	96	96	64	7	2.5	94	94	-	6.5	0.75
SA171108	170	110	83	164	104	65	3	2.5	154	94	-	6.5	0.80
SAG171108	170	110	83	156	96	65	7	2.5	154	94	-	6.5	1.55
SA141410	147	147	100	141	141	80	3	2.5	131	131	-	6.5	0.80
SAG141410	147	147	100	133	133	80	7	2.5	131	131	-	6.5	1.40
SA202012	200	200	120	192	192	98	4	3	180	180	-	6.5	1.70
SA301410	305	147	110	296	138	90	4.5	3	285	127	-	6.5	2.00
SAG301410	305	147	110	291	133	90	7	4	285	127	-	6.5	2.70
SA302310	305	230	110	296	221	90	4.5	3	285	210	-	6.5	2.80
SAG302310	305	230	110	291	216	90	7	4	285	210	-	6.5	3.40
SA302318	305	230	190	296	221	165	4.5	3	285	210	-	6.5	3.50
SAG302318	305	230	190	291	216	165	7	4	285	210	-	6.5	5.30
SA473018	475	305	195	465	295	174	5	4	450	285	225	6.5	6.50
SAG473018	475	305	195	461	294	174	7	4	450	285	225	6.5	8.90
SAG623018	625	305	195	613	293	174	6	5	605	285	302.5	6.5	11.3
SAG606018	600	600	205	584	584	177	10-13	5	580	580	290	8	27.0

Dimensions in mm



## SA, SAG... series Body drilling data

THREAD COMPARISON CHART

D	01	1	2	3	4	5	6	7	8
Thread diameter									
ISO228	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Through hole	Ø17	Ø22	Ø27.5	Ø34	Ø43	Ø48.5	Ø60.5	Ø76	Ø89

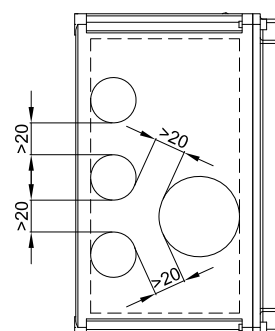
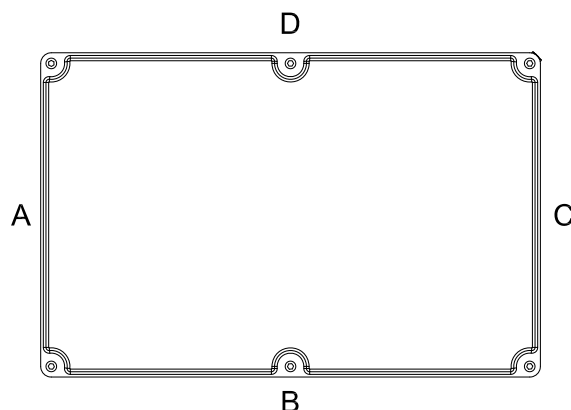
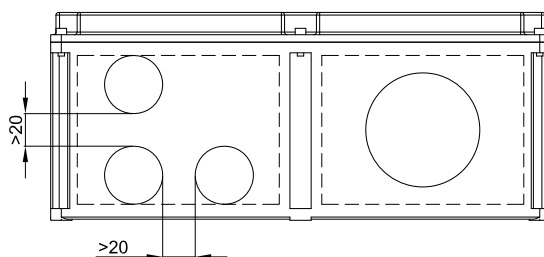
D	01	1	2	3	4	5	6	7	8
Thread diameter									
ISO 261/965	16x1.5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5	Ø90.5

D	01	1	2	3	4	5	6	7	8
Thread diameter									
ANSI B.20.1 NPSM	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Through hole	Ø17.5	Ø22	Ø27.5	Ø34	Ø43	Ø48.5	Ø60.5	Ø76	Ø89

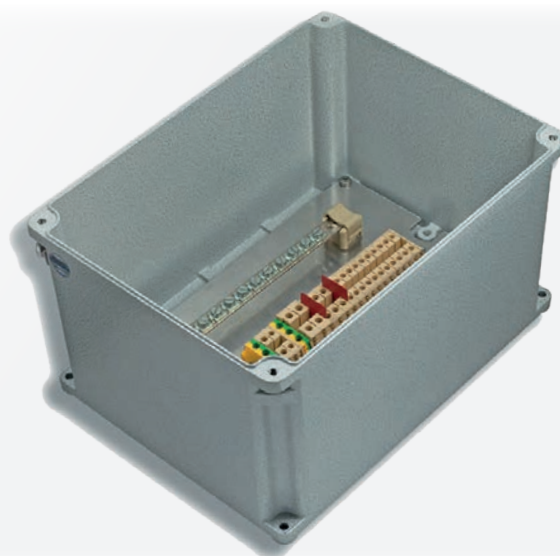


As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

TYPE OF ENCLOSURE	HOLE DRILLING IN BODY															
	Sides A and C								Sides B and D							
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE					
		01	1	2	3	4	5	6	7	8	01	1	2	3	4	5
SA090907	48x45	1	1	1	-	-	-	-	-	-	48x45	Square box				
SA/SAG111108	58x55	3	2	1	1	-	-	-	-	-	58x55	Square box				
SA/SAG171108	68x55	3	2	1	1	-	-	-	-	-	128x55	5	5	3	2	2
SA/SAG141410	100x65	6	6	3	2	1	-	-	-	-	100x65	Square box				
SA202012	145x75	8	7	6	3	2	1	-	-	-	145x75	Square box				
SA/SAG301410	90x65	6	4	3	1	1	1	-	-	-	250x65	14	12	9	5	4
SA/SAG302310	180x65	10	10	7	3	3	2	-	-	-	255x65	14	12	9	5	4
SA/SAG302318	180x140	18	18	12	9	6	4	2	1	1	258x140	24	24	18	14	8
SA/SAG473018	258x140	24	24	18	14	8	6	3	2	1	380x140	36	36	24	18	12
SAG623018	250x140	24	24	18	14	8	6	3	3	2	525x140	48	48	36	28	16
SAG606018	420x130	40	40	30	25	12	12	4	4	4	420x130	35	35	26	16	10







These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

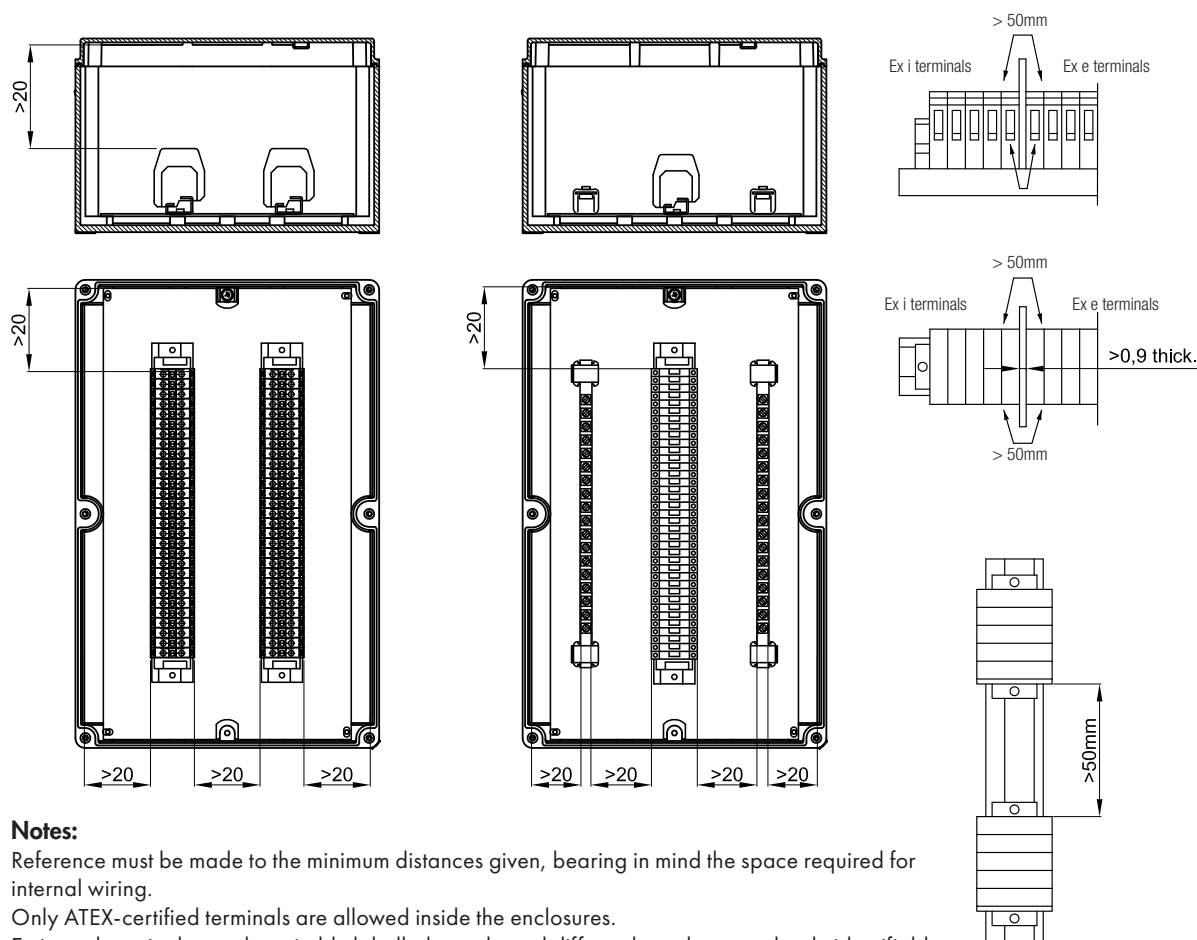
### ELECTRICAL FEATURES

	Standard applications	Signal circuits applications	
		T6/T75°C max. Tamb +60°C	T4/T100°C max. Tamb +85°C
Rated voltage:	1000 Vac/dc	-	-
Rated current:	312 A	1 A for exec. <b>Ex eb</b> 100 mA for exec. <b>Ex ia</b>	10 A for exec. <b>Ex eb</b> 100 mA for exec. <b>Ex ia</b>
Rated frequency:	50/60 Hz	-	-
Terminal section:	1.5 ÷ 300 mm <sup>2</sup>	-	-

Marking	Terminal type	Description
<b>Ex II 2GD Ex eb IIC T... Gb - Ex tb IIIC T... Db IP66</b>	Ex e terminals only	Enclosures containing increased safety terminals to standard EN 60079-7
<b>Ex II 2GD Ex eb ia IIC T... Gb - Ex tb ia IIIC T... Db IP66</b>	Ex e and Ex i terminals	Enclosures containing increased safety terminals and intrinsic safety terminals to standards EN 60079-7 and EN 60079-11
<b>Ex II 2GD Ex ia IIC T... Gb - Ex ia IIIC T... Db IP66</b>	Ex i terminals only	Enclosures containing intrinsic safety terminals to standard EN 60079-11; enclosures are still category 2

## SA, SAG... series Features of junction boxes with terminals

### Examples of terminal strips with minimum installation distances



#### Notes:

Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.

Only ATEX-certified terminals are allowed inside the enclosures.

Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.

Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.

TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED															
	TERMINAL CROSS-SECTIONAL AREA															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
SA090907	11	7	6	5	-	-	-	-	-	-	-	-	-	-	-	-
SA/SAG111108	16	11	9	7	5	-	-	-	-	-	-	-	-	-	-	-
SA/SAG171108	32	22	19	14	11	9	-	-	-	-	-	-	-	-	-	-
SA/SAG141410	26	18	15	11	9	7	5	-	-	-	-	-	-	-	-	-
SA202012	2x40	2x28	2x23	17	13	11	8	-	-	-	-	-	-	-	-	-
SA/SAG301410	69	48	40	30	24	20	14	-	-	-	-	-	-	-	-	-
SA/SAG302310	2x70	2x48	2x40	2x30	2x24	2x20	15	-	-	-	-	-	-	-	-	-
SA/SAG302318	2x70	2x48	2x40	2x30	2x24	2x20	15	15	13	11	-	-	-	-	-	-
SA/SAG473018	2x116	2x81	2x68	2x51	2x40	2x33	2x25	2x25	2x22	2x19	14	12	12	11	11	-
SAG623018	2x159	2x111	2x93	2x69	2x55	2x46	2x34	2x34	2x30	2x27	20	17	17	15	15	-
SAG606018	5x142	5x99	5x83	5x62	5x49	5x41	4x31	4x31	3x27	3x24	18	15	15	13	13	-

Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

## SA, SAG... series Features of junction boxes with terminals

The permissible maximum power dissipation, in order to retain a T6 temperature class with an ambient temperature up to 40°C or T5 class with an ambient temperature of 55°C, is not to exceed the values given in the tables below.

For an ambient temperature of +60°C or +65°C, maximum power dissipation must be reduced by 25%, and rated current reduced by 15%.

The maximum current values for terminal boxes used for low current circuits (signals) with temperature class T6 and maximum ambient temperature +60°C or T4 and maximum ambient temperature +65°C and +85°C are always as given below:

+60°C T6 -> max 1A Ex e, max 100mA Ex ia

+85°C T4 -> max 10A Ex e, max 100mA Ex ia

On the following pages, the table values refer to the maximum number of conductors allowed for a conductor with a given cross-sectional area and subject to a given maximum current. All incoming wires and internal links (made by wires) count as wires; earth connections do not count.

When mounting rails are installed on the internal mounting plate (and not directly on internal ribs of boxes), the number of terminals may be slightly less than the number indicated in the tables.

Other types of terminals can be used up to the space limit of the box. Whatever the case, the terminals used shall be ATEX and/or IECEx certified. Size 35mm<sup>2</sup> terminals can be used for conductors with a cross-sectional area of 25mm<sup>2</sup>.

The maximum number of terminals and the maximum number of rows shown in the tables is an indicative value; pay attention to the cable entries installed on the sides of boxes. The internal overall dimensions of cable glands and the overall dimensions of conductors must be taken into consideration to allow for wiring.

In some cases, it may be necessary to reduce the number of terminals or the number of rows.

Example for the calculation of the maximum number of conductors.

Refer to table for SA 141410: 6 conductors with 6mm<sup>2</sup> cross-section with 26A continuous current is the limit of this box. Consequently, SA 141410 is suitable for containing 3 x 6mm<sup>2</sup> terminals (2 conductors for each terminal) with a max. current of 26A. There is space for 11 x 6mm<sup>2</sup> terminals in the box. The remaining 8 terminals (11-3) can be added and used for low current circuits indicated in area "yellow" of the table (in this case max. 8-10A).

Combined mounting for electrical circuits with different sized cables is possible provided the values given are used proportionally. For example:

Nominal X-sect. area (mm <sup>2</sup> )	Current (A)	Quantity	Capacity
2,5	8	16 (di 46)	34,8%
4	11	12 (di 36)	33,3%
10	26	4 (di 13)	30,8%
Total			98,9% <100%

## SA, SAG... series Features of junction boxes with terminals

Table showing maximum power dissipation and current for ambient temperature +40°C and +55°C


Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
SA090907	5.6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA111108	7.5	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA171108	8.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA141410 SA202012	7.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA301410	15	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA302310	16	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA302318	17.5	11	15	21	26	37	49	67	80	98	122	147	175	196	196	196	227
SA473018	42	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
SAG090907	5.6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG111108	7.5	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG171108	8.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG141410 SAG202012	7.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG301410	15	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG302310	16	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG302318	17.5	11	15	21	26	37	49	67	80	98	122	147	175	196	196	196	227
SAG473018	42	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
SAG623018 SAG606018	52	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312


Table showing maximum power dissipation and current for ambient temperature +60°C and +65°C

Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
SA090907	4.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA111108	5.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA171108	6.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA141410 SA202012	5.8	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA301410	11.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA302310	12	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA302318	13.1	9	12	17	22	31	41	57	68	83	103	125	148	166	166	166	193
SA473018	31.5	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
SAG090907	4.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG111108	5.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG171108	6.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG141410 SAG202012	5.8	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG301410	11.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG302310	12	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG302318	13.1	9	12	17	22	31	41	57	68	83	103	125	148	166	166	166	193
SAG473018	31.5	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
SAG623018 SAG606018	39	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265

## SA, SAG... series Features of junction boxes with terminals

Instructions for determining which enclosure is best suited based on the planned number of conductors and terminals.

 : In this unfilled area, provided the relevant instructions are followed and the permitted measurements given for devices housed inside the enclosure are complied with, any number of terminals can be added up to the space limit of the box.

 : Fitting in this unfilled area is not covered by this certification.

"C. No." row: values shown in the cells define the maximum number of CABUR terminals physically allowed inside the relevant enclosure. These values are expressed as a product of the rows multiplied by the number of terminals on each row.

"W. No." row: the same as above, but referred to the Weidmuller terminals.

The terminal brands are mentioned just to give an idea of the number of terminals that can be installed inside the enclosures.

The other values shown in the cells along the table's diagonal define the maximum number of conductors allowed, depending on their cross-sectional area and the maximum current that flows through them.

### Tables showing maximum number of conductors

$$\left( N^{\circ} \text{ of terminals} = \frac{n^{\circ} \text{ of conductors}}{2} \right)$$

#### SA090907

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	17						
10	11						
11	9	15					
15		8	11				
21			6	7	10		
26				5	7	9	
37					3	4	6
49						3	3
67							2
C. No.							
W. No.	11	7	6	5			

Maximum power dissipation with T6 temperature class must not exceed 5.6W

#### SA111108, SAG111108

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24				
15		9	13	17			
21			6	9	12		
26				6	8	11	
37					4	5	7
49						3	4
67							2
C. No.							
W. No.	16	11	9	7	5		

Maximum power dissipation with T6 temperature class must not exceed 7.5W

#### SA141410, SAG141410

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24	32			
15		9	13	17	25		
21			7	9	13	18	23
26				6	8	11	15
37					4	6	7
49						3	4
67							2
C. No.		16	14	11	9	7	5
W. No.	26	18	15	11	9	7	5

Maximum power dissipation with T6 temperature class must not exceed 7.8W

#### SA171108, SAG171108

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	21	35					
10	14	23	32				
11	11	19	27	36			
15		10	14	19	28	38	
21			7	10	14	19	26
26				6	9	13	17
37					5	6	8
49						4	5
67							3
C. No.							
W. No.	32	22	19	14	11	9	

Maximum power dissipation with T6 temperature class must not exceed 8.8W

#### SA202012

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24	32			
15		9	13	17	25		
21			7	9	13	18	23
26				6	8	11	15
37					4	6	7
49						3	4
67							2
C. No.		2x25	2x21	17	13	11	8
W. No.	2x40	2x28	2x23	17	13	11	8

Maximum power dissipation with T6 temperature class must not exceed 7.8W

#### SA301410, SAG301410

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	27	46	67				
10	18	29	43	59	90		
11	15	24	36	49	74		
15		13	19	26	40	56	79
21			10	13	20	29	40
26				9	13	19	26
37					7	9	13
49						5	7
67							4
C. No.		43	37	30	24	20	14
W. No.	69	48	40	30	24	20	14

Maximum power dissipation with T6 temperature class must not exceed 15W

#### SA302310, SAG302310

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	27	46	68	94	142		
10	18	29	43	60	91		
11	15	24	36	50	75	107	
15		13	19	27	41	58	81
21			10	14	21	29	41
26				9	13	19	27
37					7	9	13
49						5	8
67							4
C. No.		2x44	2x37	2x30	2x24	2x20	15
W. No.	2x70	2x48	2x40	2x30	2x24	2x20	15

Maximum power dissipation with T6 temperature class must not exceed 16W

# SA, SAG... series Features of junction boxes with terminals

## Tables showing maximum number of conductors

### SA302318, SAG302318

Current (A)	Cross-sectional area in mm <sup>2</sup>															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	30	49	73	102	155	223										
10	19	32	47	65	99	142	201									
11	16	26	39	54	82	118	166	210								
15		14	21	29	44	63	89	113	138							
21			11	15	23	32	45	58	71	90						
26				10	15	21	30	38	46	59	71					
37					7	10	15	19	23	29	35	40	45			
49						6	8	11	13	17	20	23	25	28	31	
67							4	6	7	9	11	12	14	15	17	11
80								4	5	6	8	9	10	11	12	8
98									3	4	5	6	6	7	8	5
122										3	3	4	4	5	5	5
147											2	3	3	3	3	4
175												2	2	2	2	3
196													2	2	2	2
227																2
C. No.		2x44	2x37	2x30	2x24	2x20	15	15	13	11						
W. No.	2x70	2x48	2x40	2x30	2x24	2x20	15	15	13	11						

Maximum power dissipation with T6 temperature class must not exceed 17.5W

### SA473018, SAG473018

Current (A)	Cross-sectional area in mm <sup>2</sup>															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	51	84	128	181	282	414										
10	32	54	82	116	180	265	383									
11	27	45	68	96	149	219	317	411								
15		24	36	51	80	118	170	221	278							
21			19	26	41	60	87	113	142	188						
26				17	27	39	57	74	92	122	154					
37					13	19	28	36	46	60	76	89				
49						11	16	21	26	34	43	51	59	68		
67							9	11	14	18	23	27	31	36	43	
80								8	10	13	16	19	22	25	30	23
98									7	9	11	13	15	17	20	15
122										6	7	8	9	11	13	15
147											5	6	7	8	9	10
175												4	5	5	6	7
196													4	4	5	6
227														3	4	4
270															3	3
312																2
C. No.		2x74	2x62	2x51	2x40	2x33	2x25	2x25	2x22	2x19	12	9	9	8	8	8
W. No.	2x116	2x81	2x68	2x51	2x40	2x33	2x25	2x25	2x22	2x19	14	12	12	11	11	

Maximum power dissipation with T6 temperature class must not exceed 42W

### SAG623018

Current (A)	Cross-sectional area in mm <sup>2</sup>															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	59	98	150	215	338	501										
10	38	63	96	137	216	321	469									
11	31	52	80	113	179	265	388	507								
15		28	43	61	96	142	208	273	346							
21			22	31	49	73	106	139	176	236						
26				20	32	47	69	91	115	154	196					
37					16	23	34	45	57	76	97	115				
49						13	20	26	32	43	55	65	76			
67							10	14	17	23	29	35	41	47		
80								10	12	16	21	25	29	33	40	31
98									8	11	14	16	19	22	26	20
122										7	9	11	12	14	17	20
147											6	7	8	10	12	14
175												5	6	7	8	10
196													5	6	7	8
227														4	5	6
270															3	4
312																3
C. No.		2x101	2x85	2x69	2x55	2x46	2x34	2x34	2x30	2x27	17	13	13	10	10	10
W. No.	2x159	2x111	2x93	2x69	2x55	2x46	2x34	2x34	2x30	2x27	20	17	17	15	15	

Maximum power dissipation with T6 temperature class must not exceed 52W



## SA, SAG... series Features of junction boxes with terminals

### Tables showing maximum number of conductors

#### SAG606018

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	59	98	150	215	338	501										
10	38	63	96	137	216	321	469									
11	31	52	80	113	179	265	388	507								
15		28	43	61	96	142	208	273	346							
21			22	31	49	73	106	139	176	236						
26				20	32	47	69	91	115	154	196					
37					16	23	34	45	57	76	97	115				
49						13	20	26	32	43	55	65	76			
67							10	14	17	23	29	35	41	47		
80								10	12	16	21	25	29	33	40	31
98									8	11	14	16	19	22	26	20
122										7	9	11	12	14	17	20
147											6	7	8	10	12	14
175												5	6	7	8	10
196													5	6	7	8
227														4	5	6
270															3	4
312																3
C. No.		5x90	5x76	5x62	5x49	5x41	4x31	4x31	3x27	3x24	15	11	11	9	9	9
W. No.	5x142	5x99	5x83	5x62	5x49	5x41	4x31	4x31	3x27	3x24	18	15	15	13	13	

Maximum power dissipation with T6 temperature class must not exceed 52W

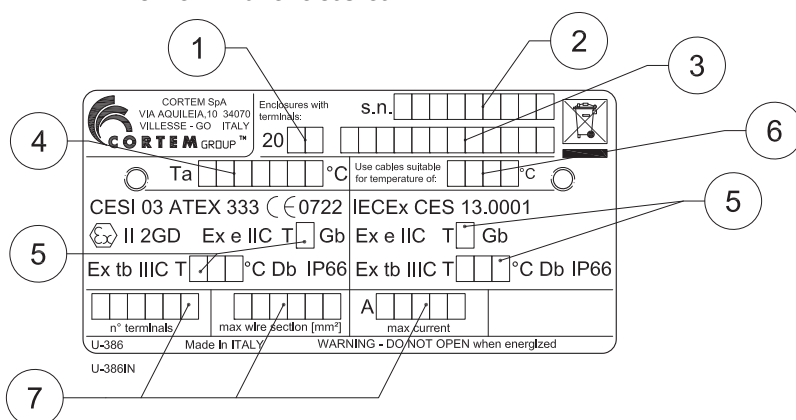
### Codes of terminals used to determine maximum number of terminals/conductors.

The other values shown in the cells along the table's diagonal define the maximum number of conductors allowed, depending on their cross-sectional area and the maximum current that flows through them.

Sq mm	1.5	2.5	4	6	10	16	25	35
Cabur		CBD 2	CBD 4	CBD 6	CBD 10	CBD 16	CBD 35	
Weidmuller	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	WDU 16	WDU 35	

Sq mm	50	70	95	120	150	185	240	300
Cabur	CBD 50	CBD 70	GPM95/CC	GPM150/CC		GPM240/CC		
Weidmuller	WDU 50	WDU 70	WDU 70/95	WDU 120/150		WDU 240		

### ATEX - IECEx label for terminal enclosures



### Data filled in:

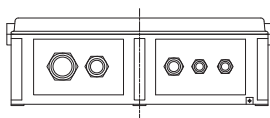
1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. temperature class and maximum surface
6. temperature of cables
7. electrical specs per certificate

### DON'T FORGET TO ORDER THE ACCESSORIES

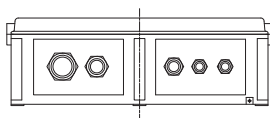
Example: Enclosure type SA202012 + Internal mounting plate B20-229 + Cable glands, unions + other...see key



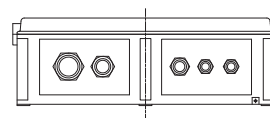
## JUNCTION BOXES WITH EQUIPMENT (FIELDBUS, PROXIMITOR, HEATER...)



Example of junction box with thermostat



Example of junction box with proximator



Example of junction box with transmitter

Equipment that can be installed in the junction boxes in accordance with the CML 16 ATEX 3163X or IECEx CML 16.0074X certificate are described in the following table:

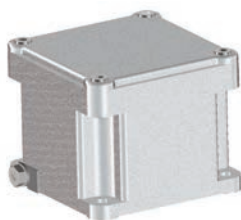
Part	Number of certificate	Marking
Series 3300XI Proximator	IECEx BAS 04.0055X	Ex ia IIC
Splice Cassette type 8186	PTB 10 ATEX 2015U IECEx PTB 10.0060U	Ex op pr IIC
Enclosure Heater (TEF Series)	NEMKO 11 ATEX 1098X IECEx NEM 11.0005X	Ex e IIC; Ex e mb IIC
Heater, type SL.. THERM D.. T..	PTB 02 ATEX 1116X IECEx PTB 07.0055X	Ex db IIC; Ex tb IIIC
Heater, type CP.. THERM D.. T..	PTB 02 ATEX 1041X IECEx PTB 07.0052X	Ex db IIC; Ex tb IIIC
Fieldbus Segment protector type R-SP-E	PTB 04 ATEX 2100X IECEx PTB 05.0010X	Ex e mb IIC; Ex eb mb IIC
Temperature Trasmitter Model IPAQ C202X	KIVA 15 ATEX 0033X IECEx KIWA 15.0015X	Ex ia IIC
Temperature Trasmitter Model IPAQ C520X	KIVA 14 ATEX 0003X IECEx KIWA 14.0001X	Ex ia IIC
Fieldbus Barrier type R4D0-FB-IA	BVS 13 ATEX E 121X IECEx BVS 13.0119X	Ex e ib mb [ia Ga] IIC T4 Gb Ex e ib mb [ia IIIC Da] IIC T4 Gb
Heating Resistor type CREx 020	LCIE 01 ATEX 6073X IECEx LCI 07.0020X	Ex d IIC; Ex tb IIIC
Regulating Thermostat type REx	LCIE 01 ATEX 6074 IECEx LCI 07.0021	Ex d IIC; Ex tb IIIC
Interconnection block for fieldbus type F240 to F273	KEMA 03 ATEX 1555X IECEx LCI 11.0068X	Ex ia IIC
Fieldbus XE Megablock and Terminator	KEMA 05 ATEX 2006 IECEx DEK 16.0036X	Ex eb mb IIC

**Attention: please contact our sales office for further information.**

## SA, SAG... series Accessories available on request and spare

ILLUSTRATION	DESCRIPTION	MODEL	DIMENSIONS A      B		CODE	KEY
	Internal mounting plates  Thickness 2.5mm Aluminium  Galvanized steel (B...-229AC)  Stainless steel (B...-229IN)	SA090907	82	48	<b>B09-229</b>	 
		SAG090907	73	48	<b>B09-229P</b>	
		SA111108	100	68	<b>B11-229</b>	
		SAG111108	92	68	<b>B11-229P</b>	
		SA141410	137	105	<b>B14-229</b>	
		SAG141410	129	105	<b>B14-229P</b>	
		SA171108	159	67	<b>B17-229</b>	
		SA202012	186	146	<b>B20-229</b>	
		SA/SAG301410	285	97	<b>B31-229</b>	
		SA/SAG302310 SA/SAG302318	285	180	<b>B32-229</b>	
		SA/SAG473018	453	254	<b>B43-229</b>	
		SA/SAG623018	603	249	<b>B63-229</b>	
		SAG606018	532	532	<b>B60-229</b>	
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES		CODE	KEY
	Breather and drain valve	3/8" ISO 7/1	Material: stainless steel		<b>ECD-210S</b>	 
	Breather valve	ISO M20x1,5	Material: stainless steel		<b>ECDE-B1B</b>	 
		ISO M25x1,5			<b>ECDE-B2B</b>	
	Breather and drain valve	ISO M20x1,5			<b>ECDE-D1B</b>	
		ISO M25x1,5			<b>ECDE-D2B</b>	
	Hinges (2 per enclosure)	Low lid enclosures	Material: stainless steel		<b>B-0105</b>	 
		High lid enclosures			<b>B-0106</b>	
	Hinges (2 per enclosure)	SAG606018	Material: stainless steel		<b>218-9301</b>	
	Entry blanking plugs	For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>			<b>PLG...</b>	 
	Cable glands and unions				<b>NAV... NEV...</b>	 
	Sealed bushings				<b>CP... TP...</b>	 
	Lid-mounted control and signalling devices	For control and signalling device models and codes, see control and monitoring device chapter			<b>M-0... (Ex de)</b>	 

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.

Degree of protection IP66.

Aluminium alloy body and lid.

Silicone gasket.

Stainless steel bolts and screws.

Polyester coating RAL 7035.

Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SA090907**

Width/Depth/Height: **90/90/73mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEx)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B09-229</b>
2.5mm-thick galvanized steel:	<b>B09-229AC</b>
2.5mm-thick stainless steel:	<b>B09-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

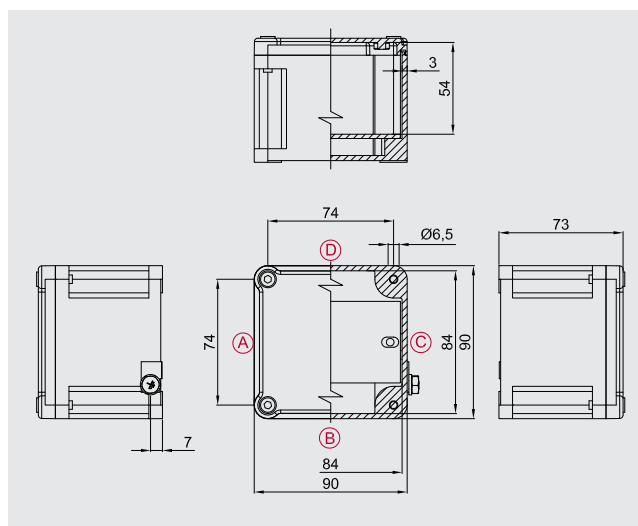
Other:

Internal anti-condensation coating

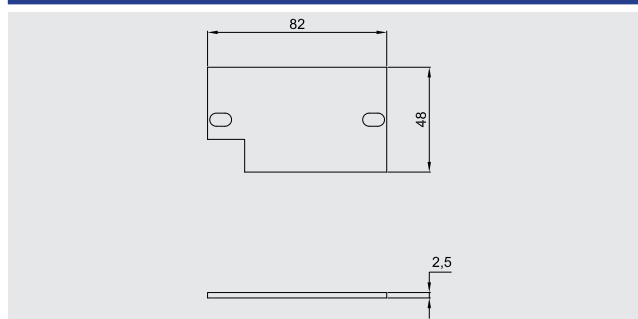
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x11
2.5 mm <sup>2</sup>	1x7
4 mm <sup>2</sup>	1x6
6 mm <sup>2</sup>	1x5
10 mm <sup>2</sup>	-
16 mm <sup>2</sup>	-
25 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

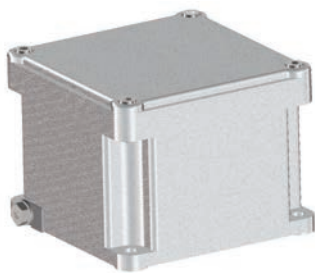
Hole type	A/C	B/D
M16	1	1
M20	1	1
M25	1	1
M32	-	-
M40	-	-
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure:	<b>SA111108</b>
Width/Depth/Height:	<b>110/110/83mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

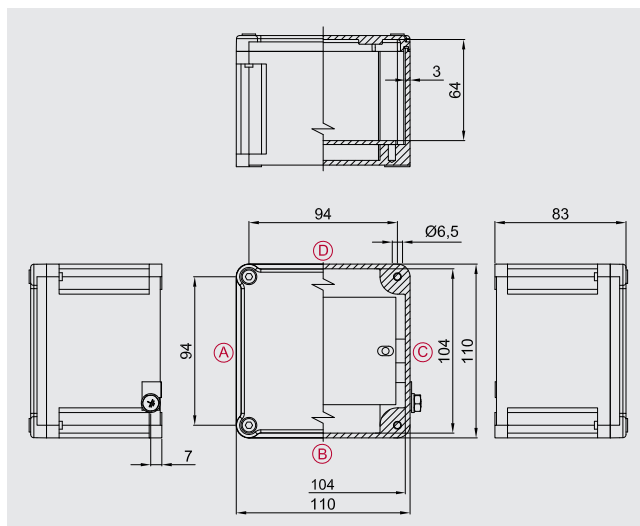
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Brazilian	(INMETRO)

### Accessories

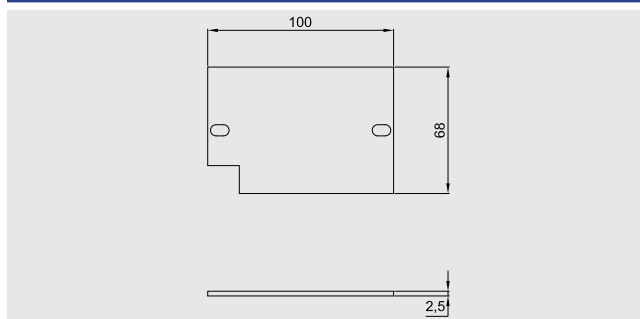
Internal mounting plate:	<b>CODE</b>
2.5mm-thick aluminium:	<b>B11-229</b>
2.5mm-thick galvanized steel:	<b>B11-229AC</b>
2.5mm-thick stainless steel:	<b>B11-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

Internal anti-condensation coating  
External polyester coatings in different colour  
Terminals  
Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x16
2.5 mm <sup>2</sup>	1x11
4 mm <sup>2</sup>	1x9
6 mm <sup>2</sup>	1x7
10 mm <sup>2</sup>	1x5
16 mm <sup>2</sup>	-
25 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	3	3
M20	2	2
M25	1	1
M32	1	1
M40	-	-
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

Impact protection IK10.

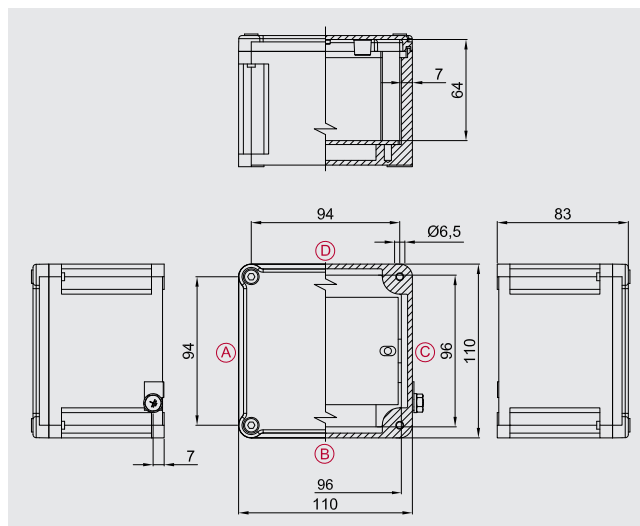


Diagram of a rectangular area with a width of 92 and a height of 65. A small rectangular section is cut out from the bottom-left corner. A dimension line at the bottom indicates a length of 2.5.

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x16
2.5 mm <sup>2</sup>	1x11
4 mm <sup>2</sup>	1x9
6 mm <sup>2</sup>	1x7
10 mm <sup>2</sup>	1x5
16 mm <sup>2</sup>	-
25 mm <sup>2</sup>	-



Hole type	A/C	B/D
M16	3	3
M20	2	2
M25	1	1
M32	1	1
M40	-	-
M50	-	-
M63	-	-





## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SA171108**

Width/Depth/Height: **170/110/83mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B17-229</b>
2.5mm-thick galvanized steel:	<b>B17-229AC</b>
2.5mm-thick stainless steel:	<b>B17-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

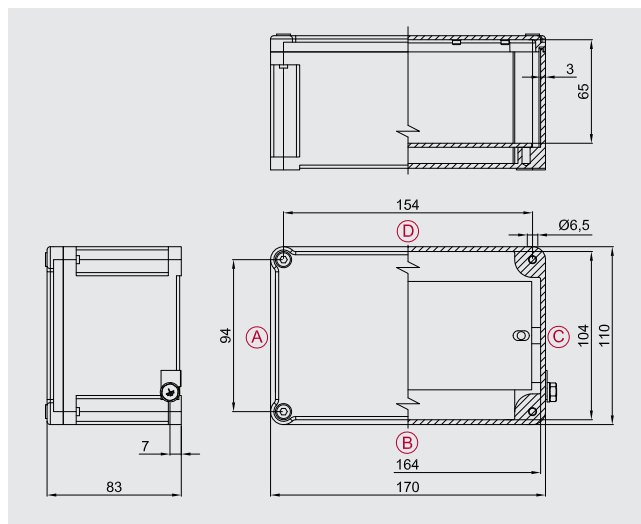
Other:

Internal anti-condensation coating

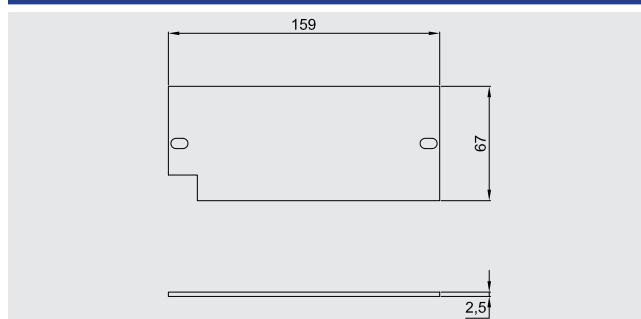
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x32
2.5 mm <sup>2</sup>	1x22
4 mm <sup>2</sup>	1x19
6 mm <sup>2</sup>	1x14
10 mm <sup>2</sup>	1x11
16 mm <sup>2</sup>	1x9
25 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

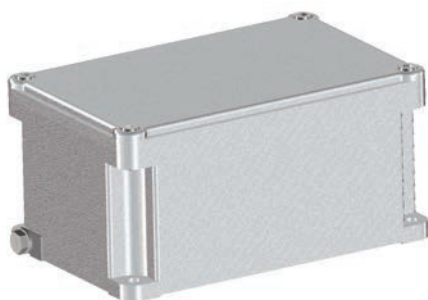
Hole type	A/C	B/D
M16	3	8
M20	2	5
M25	1	3
M32	1	2
M40	-	-
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SAG171108**

Width/Depth/Height: **170/110/83mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B17-229P</b>
2.5mm-thick galvanized steel:	<b>B17-229PAC</b>
2.5mm-thick stainless steel:	<b>B17-229PIN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

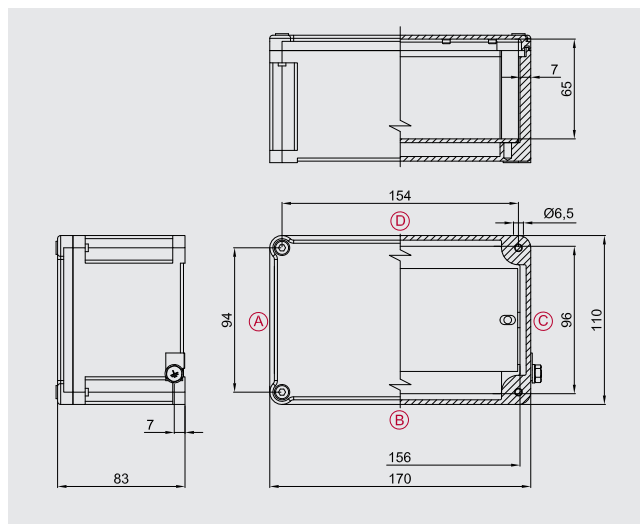
Other:

Internal anti-condensation coating

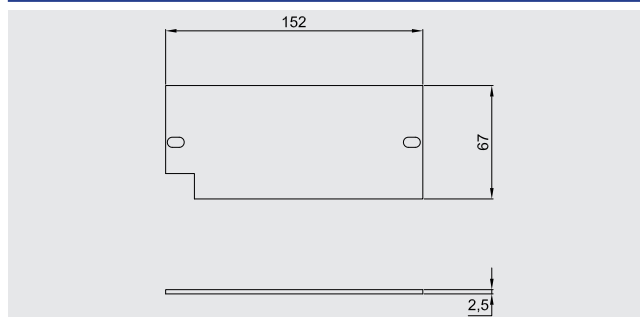
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x32
2.5 mm <sup>2</sup>	1x22
4 mm <sup>2</sup>	1x19
6 mm <sup>2</sup>	1x14
10 mm <sup>2</sup>	1x11
16 mm <sup>2</sup>	1x9
25 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

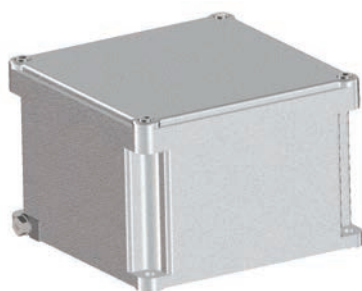
Hole type	A/C	B/D
M16	3	8
M20	2	5
M25	1	3
M32	1	2
M40	-	-
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SA141410**

Width/Depth/Height: **147/147/100mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B14-229</b>
2.5mm-thick galvanized steel:	<b>B14-229AC</b>
2.5mm-thick stainless steel:	<b>B14-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

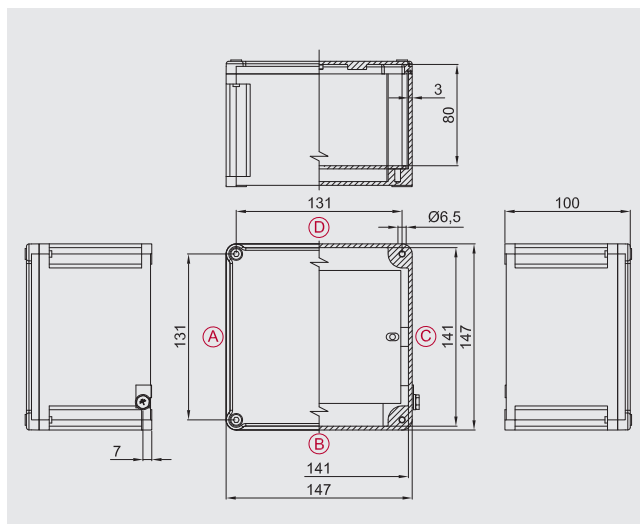
Other:

Internal anti-condensation coating

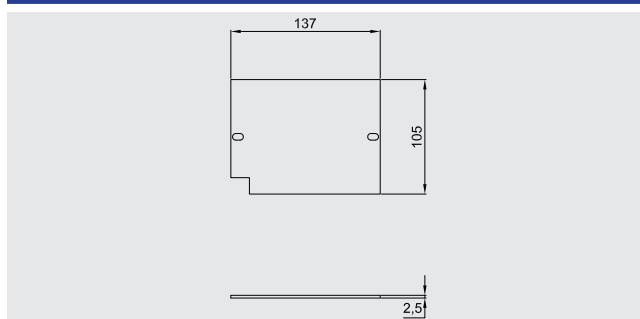
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x26
2.5 mm <sup>2</sup>	1x18
4 mm <sup>2</sup>	1x15
6 mm <sup>2</sup>	1x11
10 mm <sup>2</sup>	1x9
16 mm <sup>2</sup>	1x7
25 mm <sup>2</sup>	1x5
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

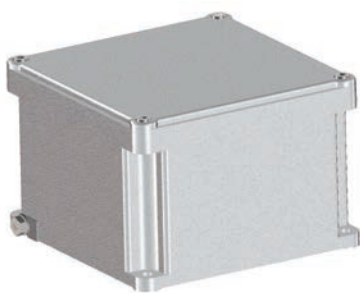
Hole type	A/C	B/D
M16	6	6
M20	6	6
M25	3	3
M32	2	2
M40	1	1
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.

Degree of protection IP66.

Aluminium alloy body and lid.

Silicone gasket.

Stainless steel bolts and screws.

Polyester coating RAL 7035.

Impact protection IK10.

## Ordering details

Standard aluminium enclosure:	<b>SAG141410</b>
Width/Depth/Height:	<b>147/147/100mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECE<sub>x</sub>)

Russian (TR CU)

Brazilian (INMETRO)

## Accessories

Internal mounting plate:	<b>CODE</b>
2.5mm-thick aluminium:	<b>B14-229P</b>
2.5mm-thick galvanized steel:	<b>B14-229PAC</b>
2.5mm-thick stainless steel:	<b>B14-229PIN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

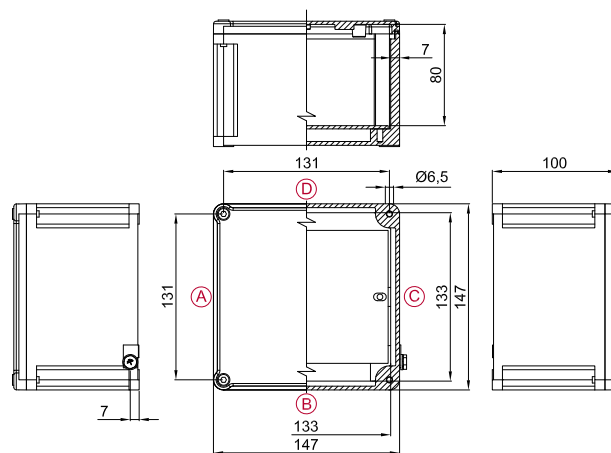
Other:

Internal anti-condensation coating

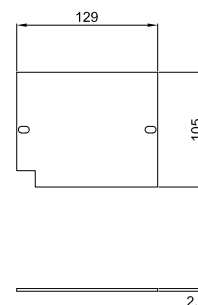
External polyester coatings in different colour

## Terminals

## Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x26
2.5 mm <sup>2</sup>	1x18
4 mm <sup>2</sup>	1x15
6 mm <sup>2</sup>	1x11
10 mm <sup>2</sup>	1x9
16 mm <sup>2</sup>	1x7
25 mm <sup>2</sup>	1x5
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

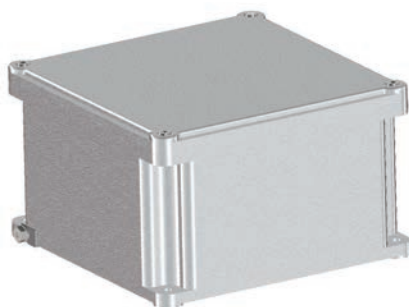
Hole type	A/C	B/D
M16	6	6
M20	6	6
M25	3	3
M32	2	2
M40	1	1
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SA202012**

Width/Depth/Height: **200/200/120mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B20-229</b>
2.5mm-thick galvanized steel:	<b>B20-229AC</b>
2.5mm-thick stainless steel:	<b>B20-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

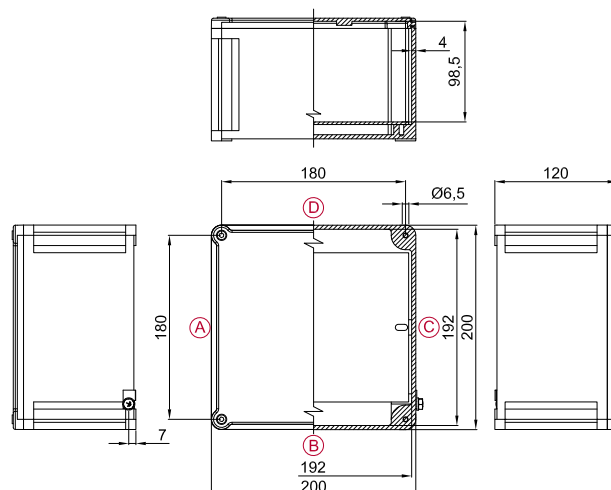
Other:

Internal anti-condensation coating

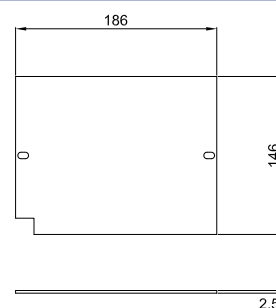
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	2x40
2.5 mm <sup>2</sup>	2x28
4 mm <sup>2</sup>	2x23
6 mm <sup>2</sup>	1x17
10 mm <sup>2</sup>	1x13
16 mm <sup>2</sup>	1x11
25 mm <sup>2</sup>	1x8
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	8	8
M20	7	7
M25	6	6
M32	3	3
M40	2	2
M50	1	1
M63	-	-

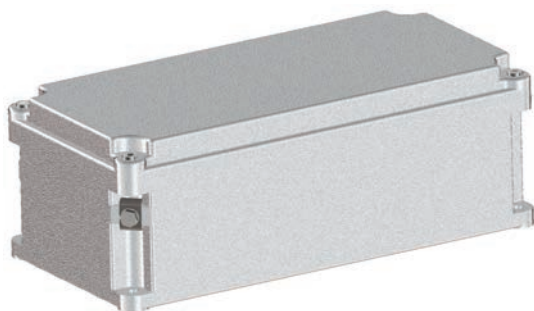


As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.



## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.

Degree of protection IP66.

Aluminium alloy body and lid.

Silicone gasket.

Stainless steel bolts and screws.

Polyester coating RAL 7035.

Impact protection IK10.

## Ordering details

Standard aluminium enclosure: **SA301410**

Width/Depth/Height: **305/147/110mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas)    Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECE<sub>x</sub>)

Russian (TR CU)

Brazilian (INMETRO)

## Accessories

Internal mounting plate:	<b>CODE</b>
2.5mm-thick aluminium:	<b>B31-229</b>
2.5mm-thick galvanized steel:	<b>B31-229AC</b>
2.5mm-thick stainless steel:	<b>B31-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

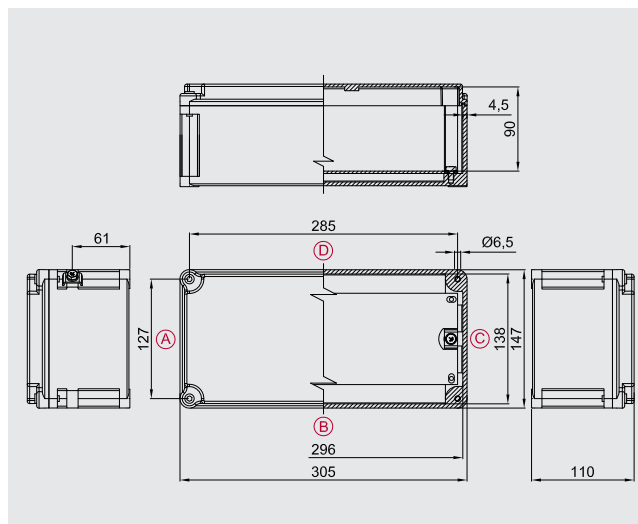
Other:

Internal anti-condensation coating

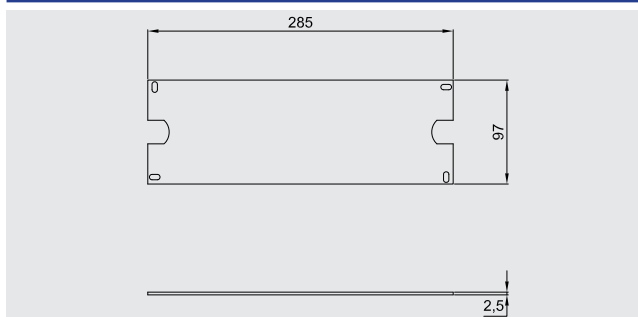
External polyester coatings in different colour

## Terminals

### Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	1x48
4 mm <sup>2</sup>	1x40
6 mm <sup>2</sup>	1x30
10 mm <sup>2</sup>	1x24
16 mm <sup>2</sup>	1x20
25 mm <sup>2</sup>	1x14
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-
185 mm <sup>2</sup>	-



Ex.  $2 \times 22 = 2$  rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	6	14
M20	4	12
M25	3	9
M32	1	5
M40	1	4
M50	1	3
M63	-	-

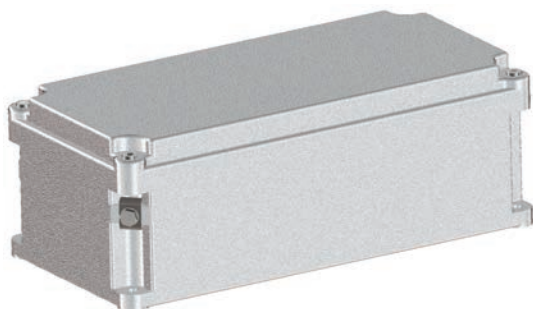


As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.



## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SAG301410**

Width/Depth/Height: **305/147/110mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B31-229</b>
2.5mm-thick galvanized steel:	<b>B31-229AC</b>
2.5mm-thick stainless steel:	<b>B31-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

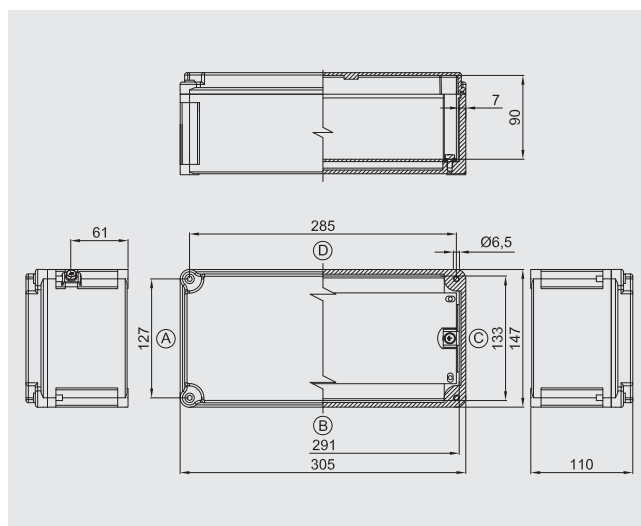
Other:

Internal anti-condensation coating

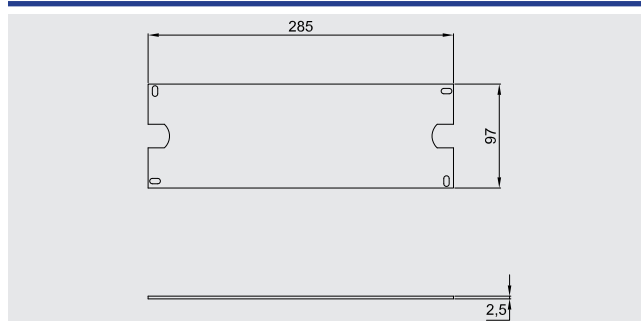
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	1x48
4 mm <sup>2</sup>	1x40
6 mm <sup>2</sup>	1x30
10 mm <sup>2</sup>	1x24
16 mm <sup>2</sup>	1x20
25 mm <sup>2</sup>	1x14
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-
185 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

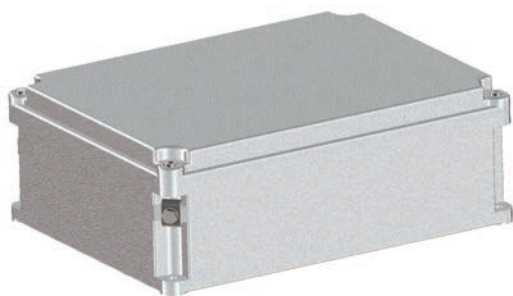
Hole type	A/C	B/D
M16	6	14
M20	4	12
M25	3	9
M32	1	5
M40	1	4
M50	1	3
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SA302310**

Width/Depth/Height: **305/230/110mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B32-229</b>
2.5mm-thick galvanized steel:	<b>B32-229AC</b>
2.5mm-thick stainless steel:	<b>B32-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

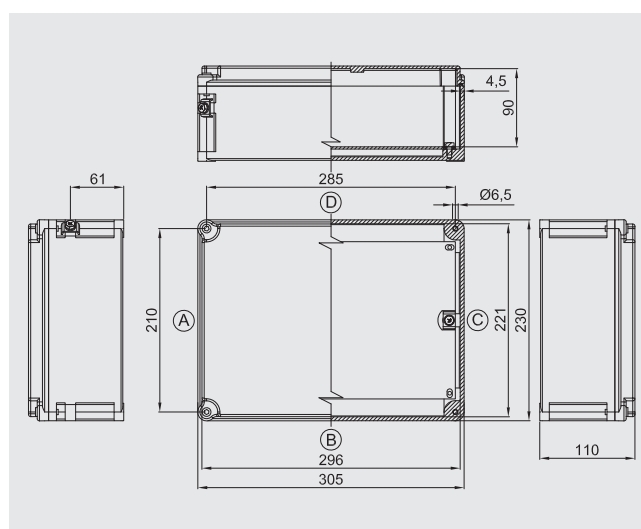
Other:

Internal anti-condensation coating

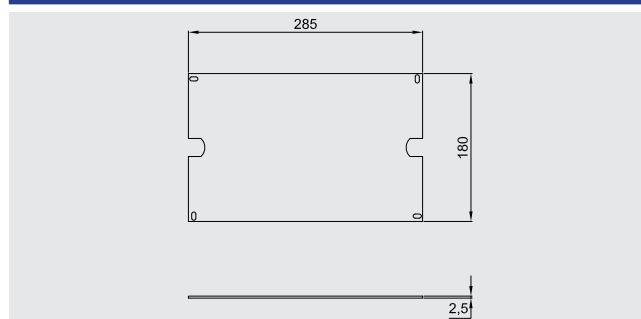
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x48
4 mm <sup>2</sup>	2x40
6 mm <sup>2</sup>	2x30
10 mm <sup>2</sup>	2x24
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	15
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-
185 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

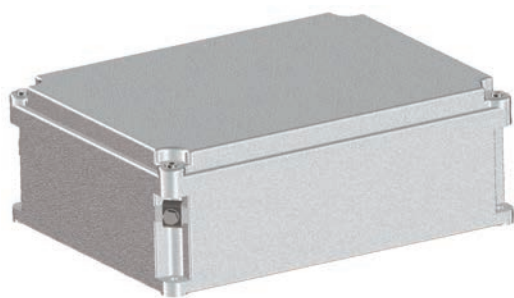
Hole type	A/C	B/D
M16	10	14
M20	10	12
M25	7	9
M32	3	5
M40	3	4
M50	2	3
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure:	<b>SAG302310</b>
Width/Depth/Height:	<b>305/230/110mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

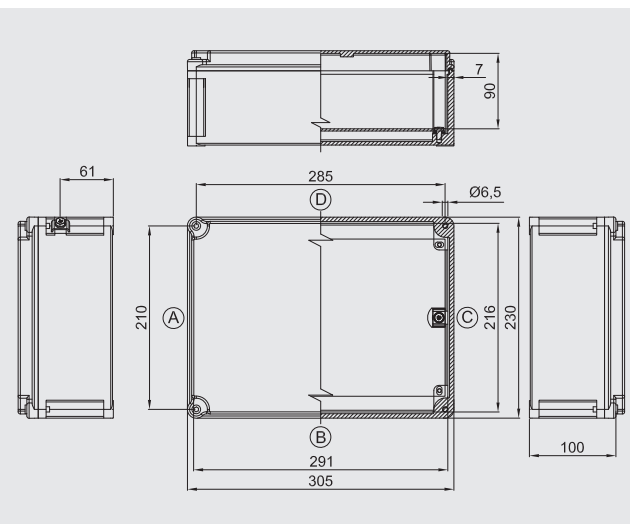
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Brazilian	(INMETRO)

### Accessories

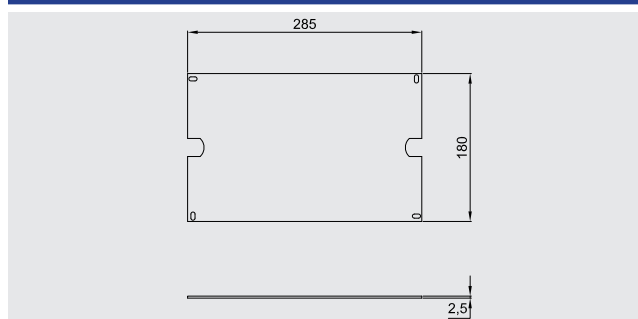
Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B32-229</b>
2.5mm-thick galvanized steel:	<b>B32-229AC</b>
2.5mm-thick stainless steel:	<b>B32-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

Internal anti-condensation coating  
External polyester coatings in different colour  
Terminals  
Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x48
4 mm <sup>2</sup>	2x40
6 mm <sup>2</sup>	2x30
10 mm <sup>2</sup>	2x24
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	15
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-
185 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

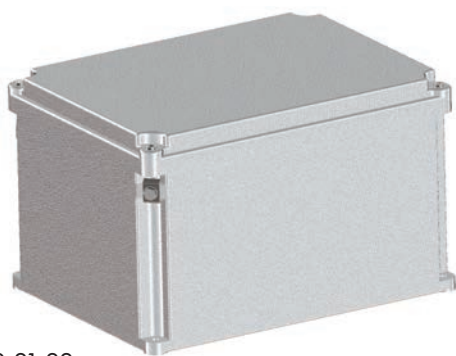
Hole type	A/C	B/D
M16	10	14
M20	10	12
M25	7	9
M32	3	5
M40	3	4
M50	2	3
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SA302318**

Width/Depth/Height: **305/230/190mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEx)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B32-229</b>
2.5mm-thick galvanized steel:	<b>B32-229AC</b>
2.5mm-thick stainless steel:	<b>B32-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

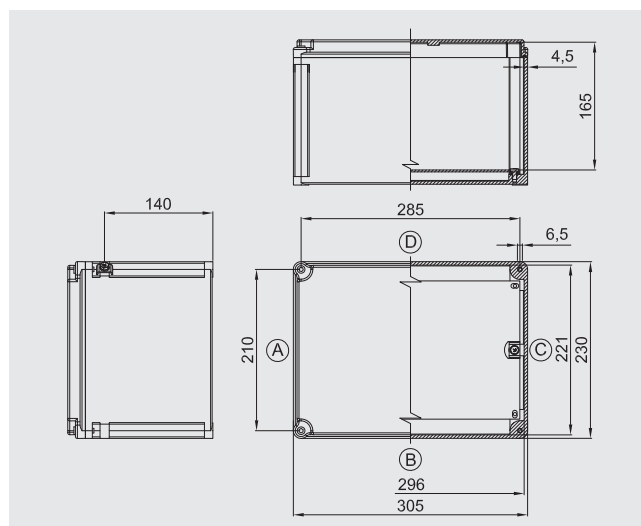
Other:

Internal anti-condensation coating

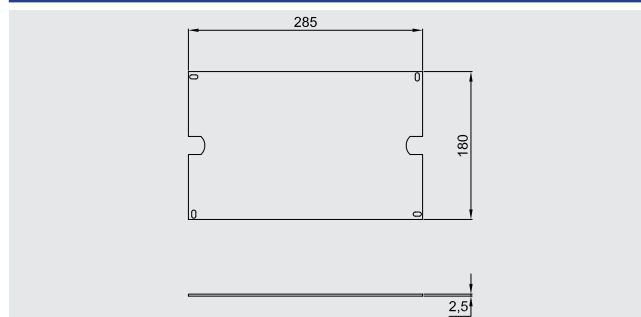
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x48
4 mm <sup>2</sup>	2x40
6 mm <sup>2</sup>	2x30
10 mm <sup>2</sup>	2x24
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	15
50 mm <sup>2</sup>	13
70 mm <sup>2</sup>	-
185 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

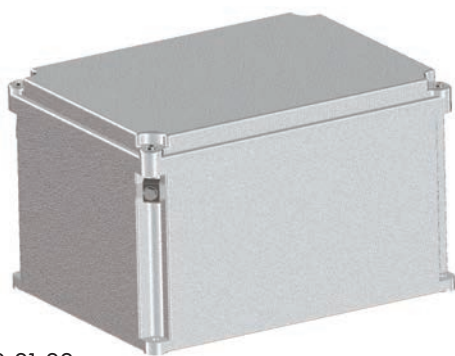
Hole type	A/C	B/D
M20	18	24
M25	12	18
M32	9	14
M40	6	8
M50	4	6
M63	2	3



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure:	<b>SAG302318</b>
Width/Depth/Height:	<b>305/230/190mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

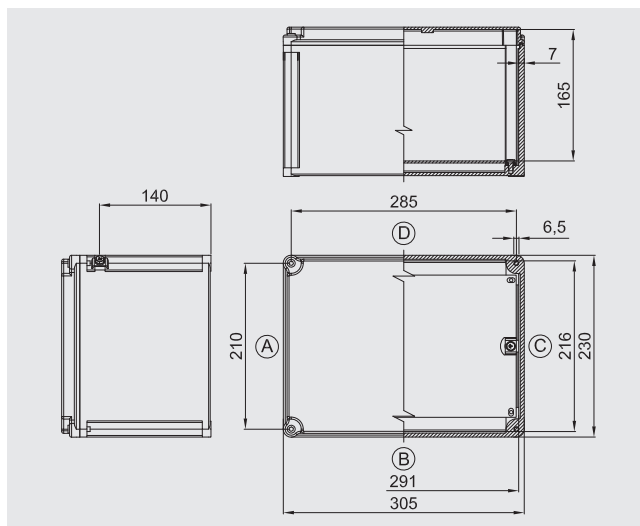
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Brazilian	(INMETRO)

### Accessories

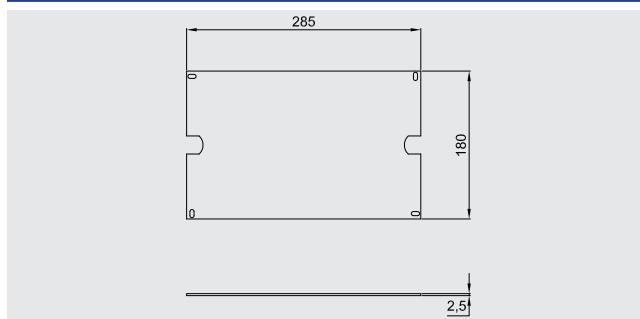
Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B32-229</b>
2.5mm-thick galvanized steel:	<b>B32-229AC</b>
2.5mm-thick stainless steel:	<b>B32-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

Internal anti-condensation coating  
External polyester coatings in different colour  
Terminals  
Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x48
4 mm <sup>2</sup>	2x40
6 mm <sup>2</sup>	2x30
10 mm <sup>2</sup>	2x24
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	15
50 mm <sup>2</sup>	13
70 mm <sup>2</sup>	-
185 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M20	18	24
M25	12	18
M32	9	14
M40	6	8
M50	4	6
M63	2	3

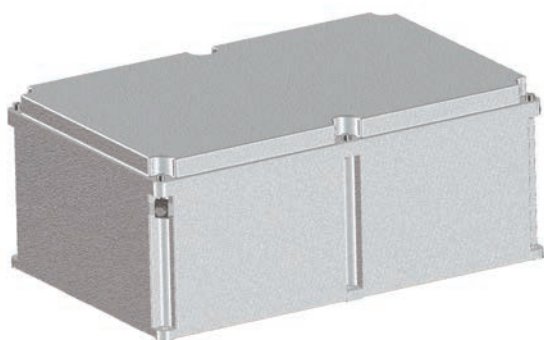


As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.



## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SA473018**

Width/Depth/Height: **475/305/195mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEx)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B43-229</b>
2.5mm-thick galvanized steel:	<b>B43-229AC</b>
2.5mm-thick stainless steel:	<b>B43-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

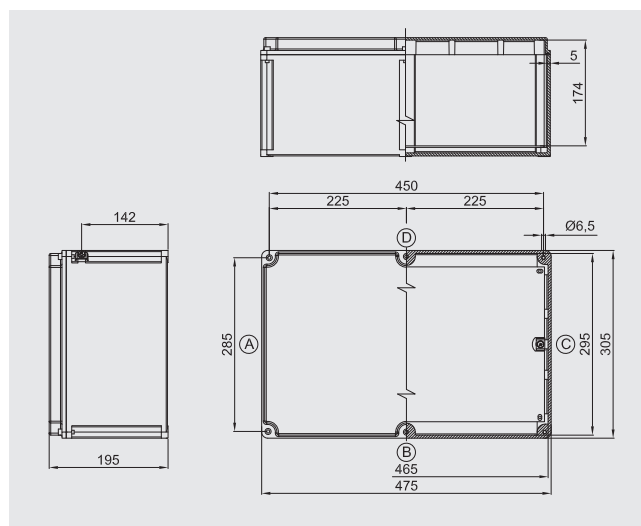
Other:

Internal anti-condensation coating

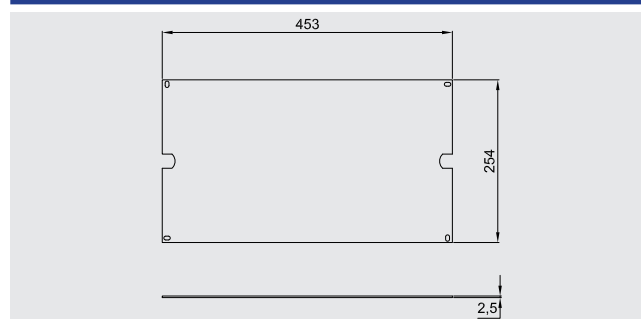
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x81
4 mm <sup>2</sup>	2x68
6 mm <sup>2</sup>	2x51
10 mm <sup>2</sup>	2x40
16 mm <sup>2</sup>	2x33
25 mm <sup>2</sup>	2x25
70 mm <sup>2</sup>	2x19
120 mm <sup>2</sup>	12
185 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M20	24	36
M25	18	24
M32	14	18
M40	8	12
M50	8	12
M63	3	4

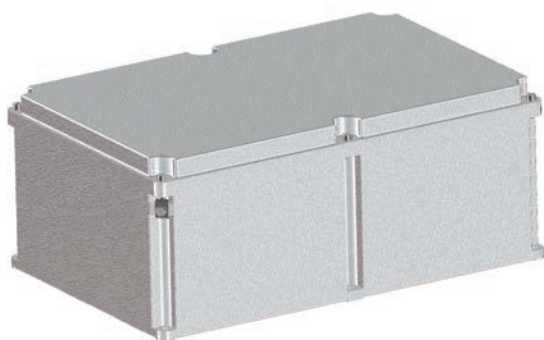


As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.



## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Aluminium alloy body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Polyester coating RAL 7035.  
Impact protection IK10.

### Ordering details

Standard aluminium enclosure:	<b>SAG473018</b>
Width/Depth/Height:	<b>475/305/195mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

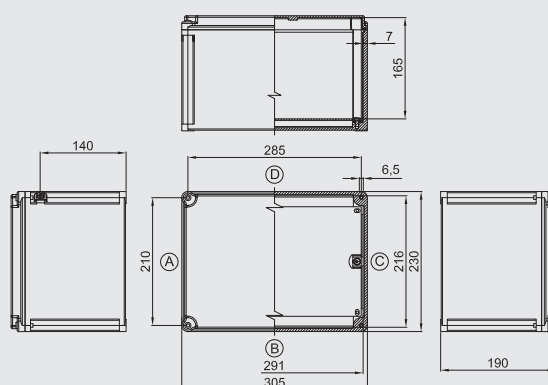
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Brazilian	(INMETRO)

### Accessories

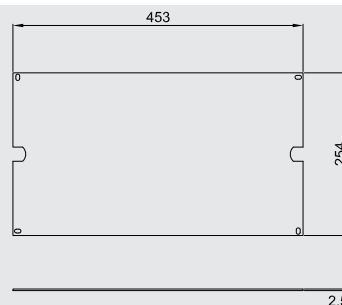
Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B43-229</b>
2.5mm-thick galvanized steel:	<b>B43-229AC</b>
2.5mm-thick stainless steel:	<b>B43-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

Internal anti-condensation coating  
External polyester coatings in different colour  
Terminals  
Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x81
4 mm <sup>2</sup>	2x68
6 mm <sup>2</sup>	2x51
10 mm <sup>2</sup>	2x40
16 mm <sup>2</sup>	2x33
25 mm <sup>2</sup>	2x25
70 mm <sup>2</sup>	2x19
120 mm <sup>2</sup>	12
185 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M20	24	36
M25	18	24
M32	14	18
M40	8	12
M50	6	12
M63	3	4



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.

Degree of protection IP66.

Aluminium alloy body and lid.

Silicone gasket.

Stainless steel bolts and screws.

Polyester coating RAL 7035.

Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SAG623018**

Width/Depth/Height: **625/305/195mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEx)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B63-229</b>
2.5mm-thick galvanized steel:	<b>B63-229AC</b>
2.5mm-thick stainless steel:	<b>B63-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

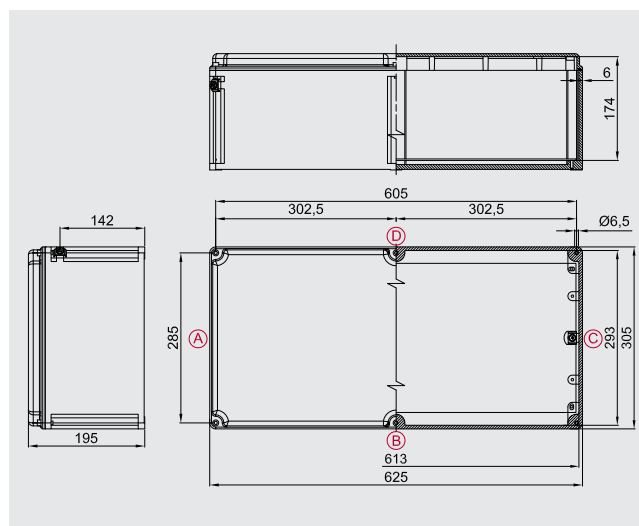
Other:

Internal anti-condensation coating

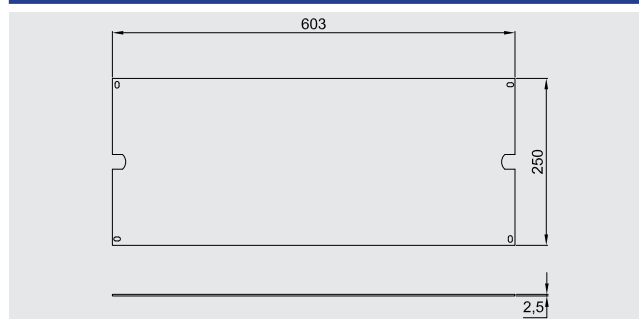
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x111
4 mm <sup>2</sup>	2x93
6 mm <sup>2</sup>	2x69
10 mm <sup>2</sup>	2x55
16 mm <sup>2</sup>	2x46
25 mm <sup>2</sup>	2x34
70 mm <sup>2</sup>	2x27
120 mm <sup>2</sup>	17
185 mm <sup>2</sup>	15



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

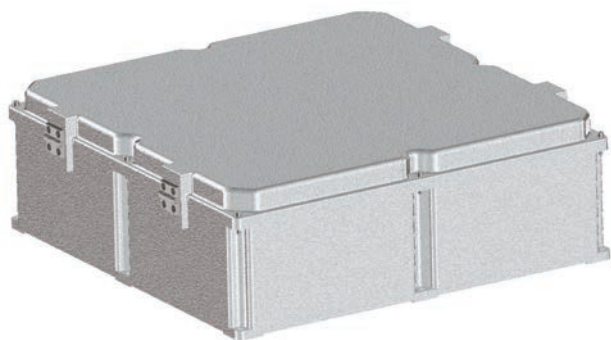
Hole type	A/C	B/D
M20	24	48
M25	18	36
M32	14	28
M40	8	16
M50	6	12
M63	3	6



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes



Zone 1,2,21,22.

Degree of protection IP66.

Aluminium alloy body and lid.

Silicone gasket.

Stainless steel bolts and screws. Complete with hinges.

Polyester coating RAL 7035.

Impact protection IK10.

### Ordering details

Standard aluminium enclosure: **SAG606018**

Width/Depth/Height: **600/600/206mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B60-229</b>
2.5mm-thick galvanized steel:	<b>B60-229AC</b>
2.5mm-thick stainless steel:	<b>B60-229IN</b>
Breather and drain valve:	<b>ECD-210S</b>

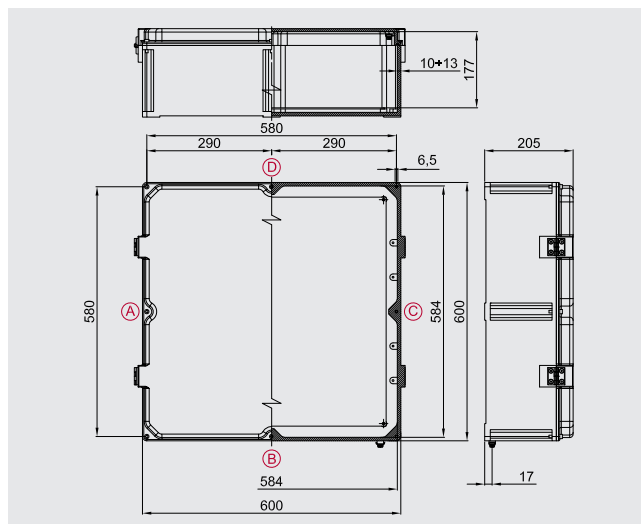
Other:

Internal anti-condensation coating

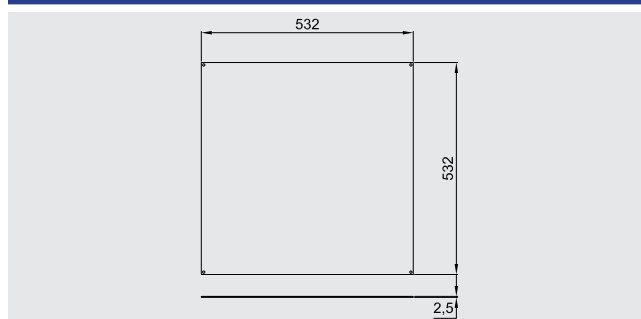
External polyester coatings in different colour

Terminals

Cable glands



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	5x99
4 mm <sup>2</sup>	5x83
6 mm <sup>2</sup>	5x62
10 mm <sup>2</sup>	5x49
16 mm <sup>2</sup>	5x41
25 mm <sup>2</sup>	4x31
70 mm <sup>2</sup>	3x24
120 mm <sup>2</sup>	15
185 mm <sup>2</sup>	13



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M20	40	35
M25	30	26
M32	25	16
M40	12	10
M50	12	10
M63	4	4



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

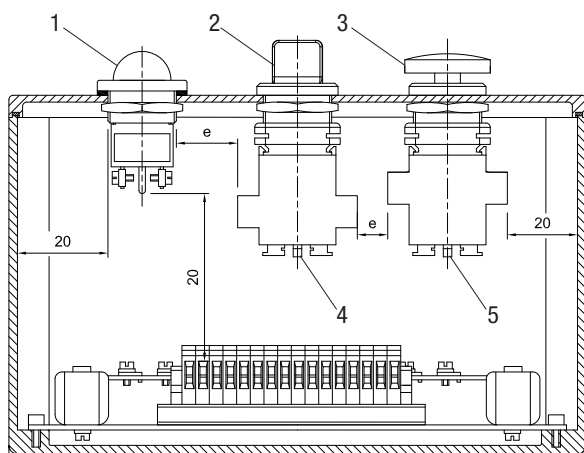


Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	600 V ac/dc
<b>Max. current on contacts:</b>	16 A
<b>Rated frequency:</b>	50 / 60Hz

#### MINIMUM DISTANCES BETWEEN CORTEM Ex e CONTACTS (e.g. with reference to CESI 03 ATEX 115 certificate)



#### Key:

- 1. indicator light M-0612
- 2. rotating selector M-0604
- 3. emergency stop pushbutton M-0605
- 4. contact block M-0530
- 5. contact block M-0531
- 6. pushbutton M-0603
- 7. earth bar
- 8. terminals
- 9. internal mounting plate

#### Notes:

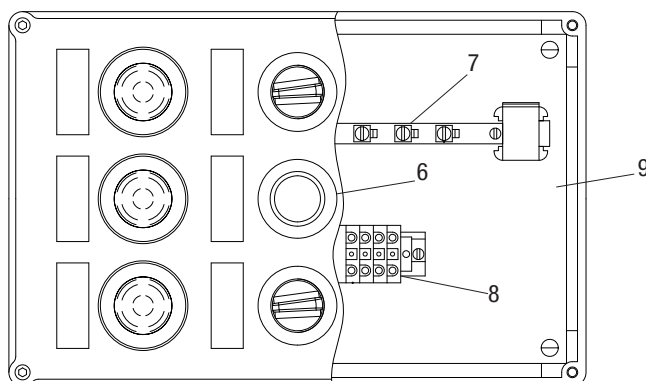
"e">12mm: standard version.

Suitable for voltage  $U < 800V$

"e">5mm: special versions.

Suitable for voltage  $U < 250V$

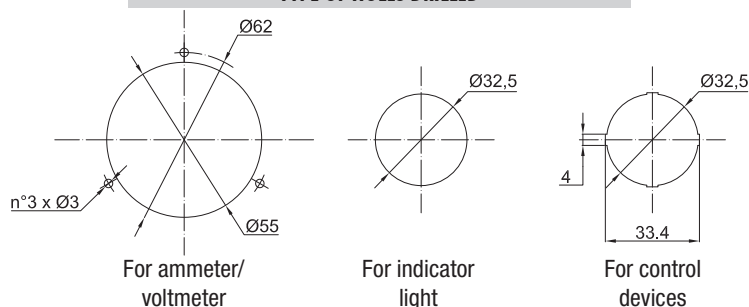
When determining enclosure size, what holes are drilled and what devices can be installed, we also need to take into account the space required for internal wiring and running the cables.



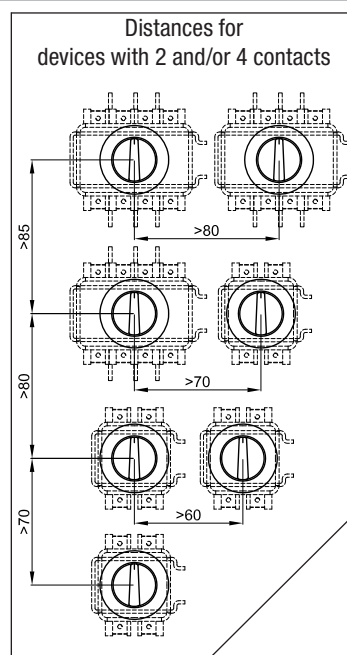
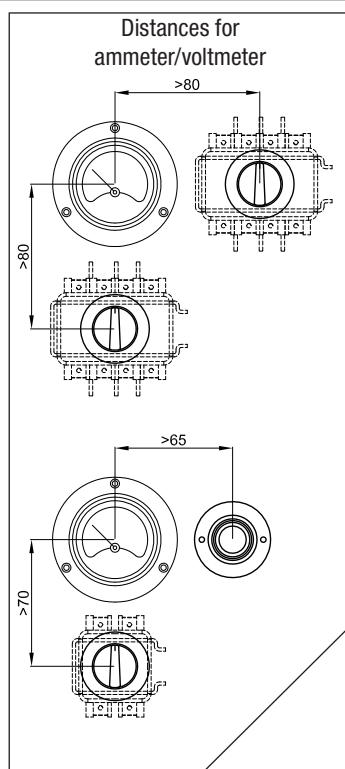
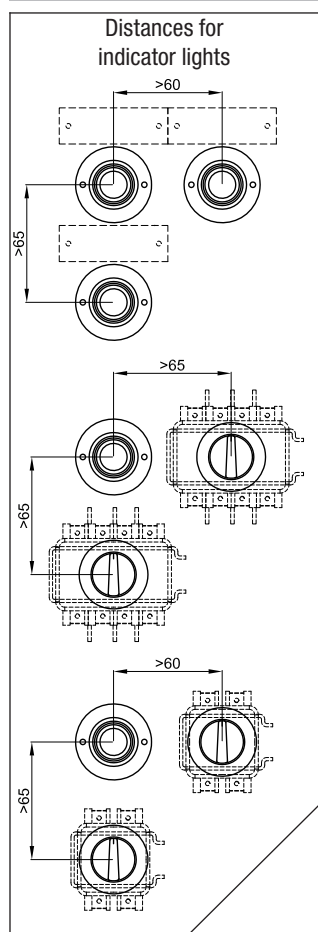
TYPE OF ENCLOSURE	Drilling area mm
SA090907	70x70
SA/SAG111108	90x90
SA/SAG171108	90x150
SA/SAG141410	127x127
SA202012	180x180
SA/SAG301410	127x285
SA/SAG302310	210x285
SA/SAG302318	210x285
SA/SAG473018	285x450
SAG623018	280x595
SAG606018	505x505



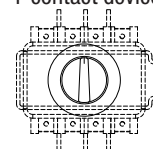
TYPE OF HOLES DRILLED



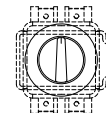
MINIMUM DISTANCES BETWEEN CORTEM Ex e DEVICES FOR PUSHBUTTON CONTROL STATIONS



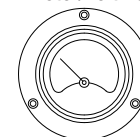
KEY  
4-contact device



2-contact device



Ammeter/voltmeter



Indicator light



## Notes:

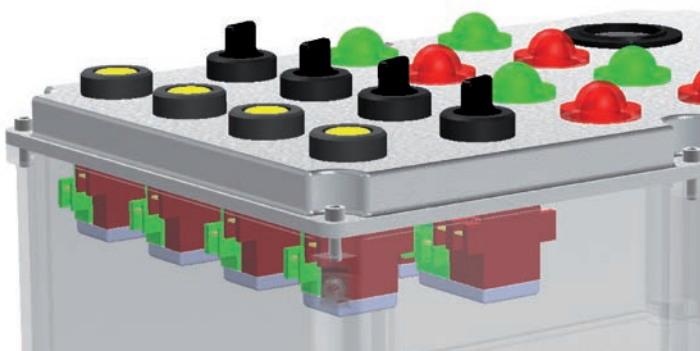
Minimum distances between devices worked out for use of standard 60x20 plates.

Option of using up to 4 contacts per device for pushbutton M-0603 and selector M-0604.

Option of using up to 2 contacts per device for emergency stop pushbutton M-0605.

For more information, refer to the Ex e control, monitoring and signalling devices chapter.

ED.2023





# SA-P

- Zone 1, 2, 21, 22
- Polyester junction boxes
- Choice of 9 sizes
- With antistatic property
- IK10 mechanical strength
- IP66





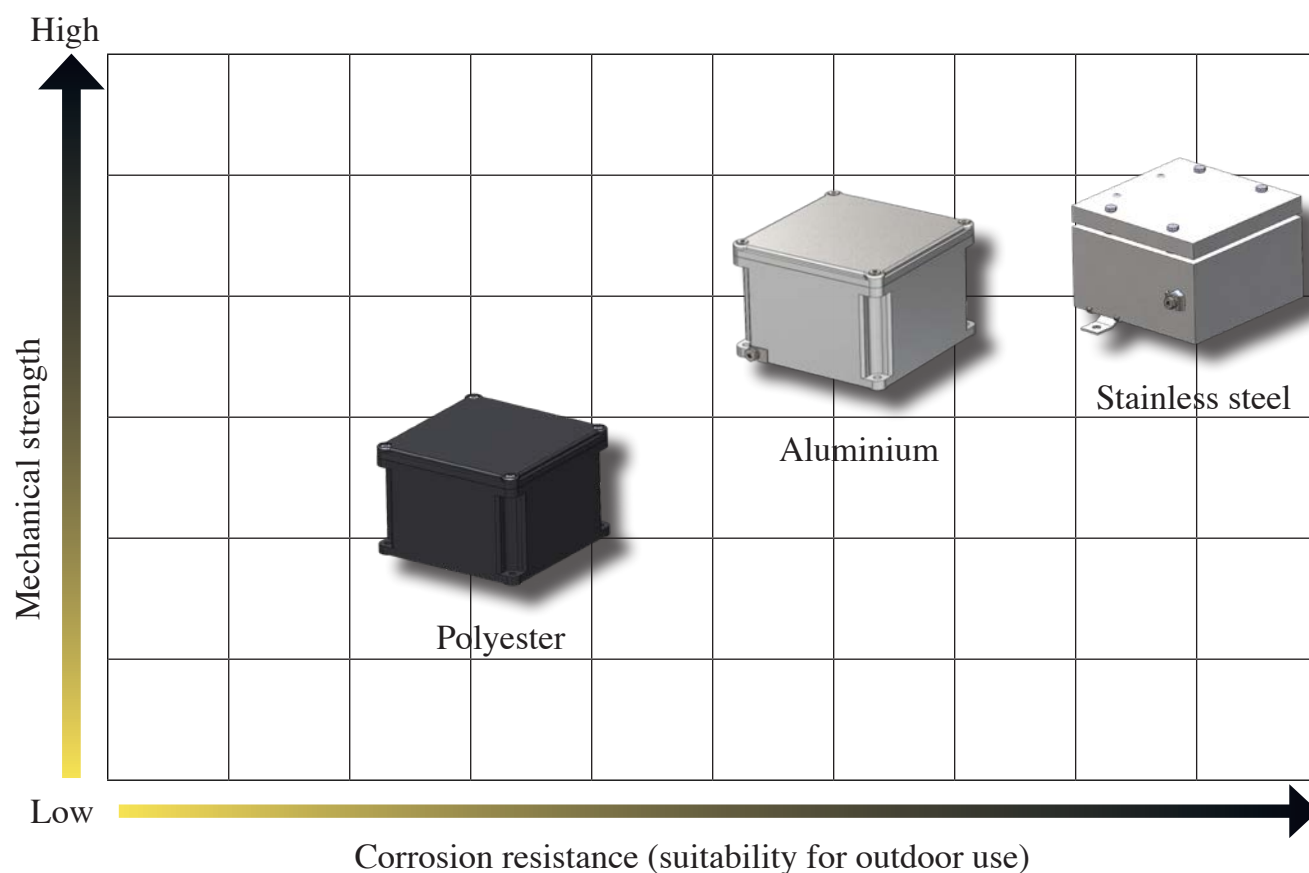
## SA-P series junction boxes: criteria for choosing the right product

When it comes to deciding on an increased safety enclosure, there is a whole series of essential data to be taken into account if you are to make the right choice: the mechanical strength of the materials, corrosion resistance, the IP protection rating and IK impact protection rating in the case of enclosures for watertight/ industrial use.

### Mechanical strength

Properties	Unit	Stainless steel	Aluminium	Polyester
Density	g/cm <sup>3</sup>	8,0	2,65	1,7
Tensile strength	Mpa	500-700	80-110	130
Elongation	%	60-40	4-10	2
Modulus of elasticity	Gpa	193	79	11
Yield strength	Mpa	≥ 200	80-165	-
Coeff. of thermal expansion (20-100°C)	10 <sup>-6</sup> K <sup>-1</sup>	16	21	-
Resistivity	Ωm	7,5x10 <sup>-7</sup>	4,8x10 <sup>-8</sup>	-
Electrical conductivity	Ω <sup>-1</sup> m <sup>-1</sup>	1,33x10 <sup>6</sup>	2,08x10 <sup>7</sup>	-

The graph below gives an overview of what use the various materials are suitable for based on the mechanical stress and harshness of the environmental conditions likely to be encountered.



## Protection ratings

### 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 OBJECTS	2ND DIGIT PROTECTION AGAINST MOISTURE	PROTECTION AGAINST EXTERNAL MECHANICAL IMPACT *
<b>0</b> Not protected	<b>0</b> Not protected	<b>IK00</b> Not protected
<b>1</b> Protected against solid objects greater than 50mm in Ø	<b>1</b> Protected against vertically falling drops of water	<b>IK01</b> 0.25 kg 5.6 cm
<b>2</b> Protected against solid objects greater than 12mm in Ø	<b>2</b> Protected against rain when tilted up to 15°	<b>IK03</b> 0.25 kg 14 cm
<b>3</b> Protected against solid objects greater than 2.5mm in Ø	<b>3</b> Protected against rain when tilted up to 60°	<b>IK05</b> 0.25 kg 28 cm
<b>4</b> Protected against solid objects greater than 1mm in Ø	<b>4</b> Protected against splashing water	<b>IK06</b> 0.25 kg 40 cm
<b>5</b> Protected against dust	<b>5</b> Protected against jets of water from all directions	<b>IK07</b> 0.5 kg 40 cm
<b>6</b> Totally protected against the ingress of dust	<b>6</b> Protected against heavy seas	<b>IK08</b> 1.7 kg 30 cm
<b>ADDITIONAL LETTER**</b>	<b>7</b> Protected against the effects of immersion	<b>IK09</b> 5 kg 20 cm
<b>A</b> Protected against access with the back of the hand	<b>8</b> Protected against the effects of continuous immersion	<b>IK10</b> 5 kg 40 cm
<b>B</b> Protected against access with a finger		
<b>C</b> Protected against access with a tool		
<b>D</b> 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

\* 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.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)

SA...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, especially those where there is a potential risk of explosion and/or fire due to the presence of combustible gases or dust, classified as Zone 1, 2, 21 and 22. 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. SA...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.. Terminal strips can be arranged inside the enclosure in various different configurations. The Cortem sales team will be able to advise you what enclosure best meets your needs based on: maximum number of terminals, number of holes per side, minimum distance involved and maximum power dissipation, ensuring everything is within the limits allowed by the certificate. 'Ex e' control, monitoring and signalling devices can be mounted on the lid in various different configurations based on your requirements and within the limits allowed by the certificate.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### TYPE AND APPLICATION

Choosing an appropriate container is a key step in the project development process, making it essential to approach the decision systematically, evaluating all variables methodically: where our equipment is being installed, the environmental conditions on site, what degree of protection it must have, what space is available and how it is due to be set up. Once you have processed all this information, you should be able to determine which product best suits the design requirements in question.

### ENVIRONMENTAL CONDITIONS

The first factor to consider is what environmental conditions the equipment is going to be installed in, whether it will be indoors or outside, and what environments it is required to operate in: pharmaceutical, chemical, petrochemical, food, shipbuilding, agricultural industries...

### DIMENSIONS

The size of the space available for inserting the enclosure and its components must be determined early on in the process.

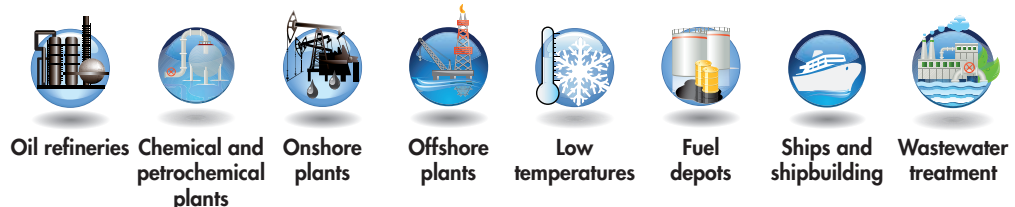
### DESIGN

Taking into account the technical aspect, product design and appearance is also important in ensuring the equipment to be installed in the enclosure is integrated seamlessly. A Cortem team of experts is on hand every day to address your questions and come up with the best solutions.

Cortem enclosures have passed:

- IP protection testing;
- IK strength testing;
- salt mist testing for corrosion resistance;
- heat resistance testing;
- low temperature resistance testing.

### Application sectors:



## SA-...P series Polyester junction boxes (Ex e) and (Ex i)

### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex eb IIC T6/T5/T4 Gb - Ex tb IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex e ia IIC T6/T5/T4 Gb - Ex ia IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex eb ia IIC T6/T5/T4 Gb - Ex ia tb IIIC T75°C/T1 10°C Db IP66			
Certification:	ATEX	CESI 03 ATEX 333		
	IEC Ex	CES 13.0001	All IEC Ex, ECASEx, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	TR CU	AVAILABLE		
	INMETRO	DNV 15.0119		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-31: 2013			
Ambient Temp.:	See "ambient temperature range" table			
Degree of protection:	IP66			

#### AMBIENT TEMPERATURE RANGE

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +40°C	T6	T75°C	+80°C
-40°C +55°C	T5	T75°C	+95°C






#### HIGH TEMPERATURE RANGE (accordingly with the temperature allowed by the terminals)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +65°C**	T5	T75°C	+95°C



\*\* For this temperature range the maximum dissipated power shall be reduced by 25% and the nominal current by 15%

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

Classification:	Group II		Category 2GD			
Installation: EN 60079.14	zone 1 - zone 2 (Gas)		zone 21 - zone 22 (Dust)			
Marking:	CE 0722 Ex II2GD - Ex db eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66					
	CE 0722 Ex II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66 (When on the box is installed only ammeter or voltmeter type B-0140)					
Certification:	ATEX CESI 03 ATEX 115 X					
	IEC Ex CES 11.0032 X		All IEC Ex, ECASEx, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>			
	ECASEx AVAILABLE					
	TR CU AVAILABLE					
	INMETRO DNV 15.0125					
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-18: 2015 EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-1: 2014, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-18: 2014, IEC 60079-31: 2013, IEC 60529: 2001					
 Ambient Temp.:	 -40°C +40°C 		With temperature class T6 and maximum surface temperature T85°C.			
	 -40°C +55°C 		With temperature class T5 and maximum surface temperature T100°C.			
Degree of protection:	IP66					

### CERTIFICATION DATA OF ENCLOSURES WITH EQUIPMENT (FIELDBUS, PROXIMITOR, HEATER...)

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722 Ex II2(1)GD - Ex eb ib mb [ia Ga] IIC T4 Gb - Ex tb [ia Da] IIIC T85°C Db IP66			
Certification:	ATEX CML 16 ATEX 3163X			
	IEC Ex CML 16.0074X	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-7: 2015, IEC 60079-28: 2015, IEC 60079-31:2013			
Ambient Temp.:	 -40°C +65°C 		The temperature classes and the maximum surface temperature must be selected according to the installed components. See the certificate.	
Degree of protection:	IP66			

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



### GENERAL MECHANICAL PROPERTIES

<b>Body and lid:</b>	Made from polyester resin in black with antistatic properties
<b>Impact protection rating:</b>	IK10
<b>Gasket:</b>	Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid
<b>Mounting:</b>	Polyester feet for M6 screws
<b>Certification label:</b>	Aluminium plate riveted into lid
<b>Bolts and screws:</b>	Stainless steel captive variety

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

Possible drilling of the enclosure bottom A maximum of one hole in the center is allowed, 1" NPT o ISO M32x1,5.

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Breather valve; Drain valve

Internal mounting plate: stainless steel (code B...-229)

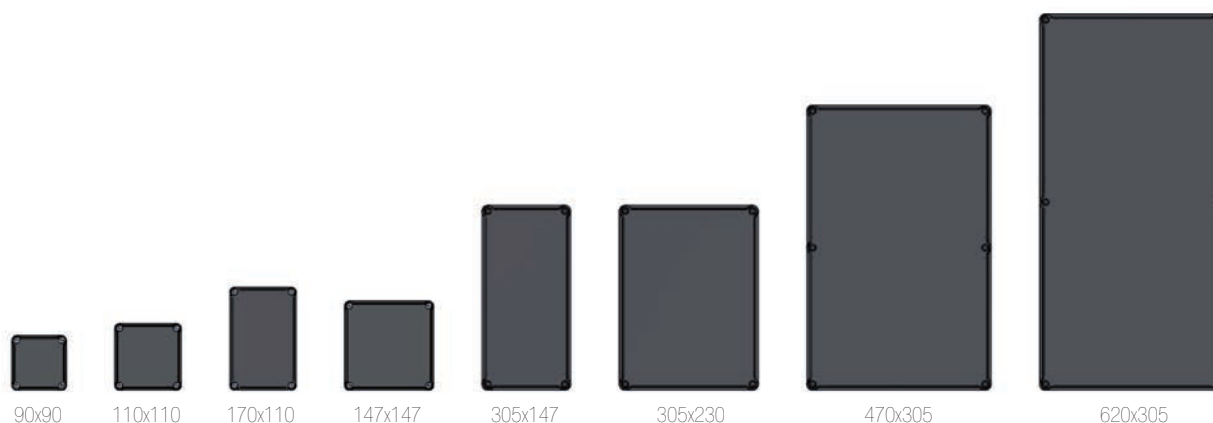
Earth screws in stainless steel

Terminal block mounting rails (code OBO2060/S)

ATEX-CERTIFIED TERMINALS: terminals must be chosen from the list of approved manufacturers: Cabur, Phoenix, ABB Entelec, Wago, Weidmuller. When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals.

**Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.**

### OVERVIEW OF SIZES

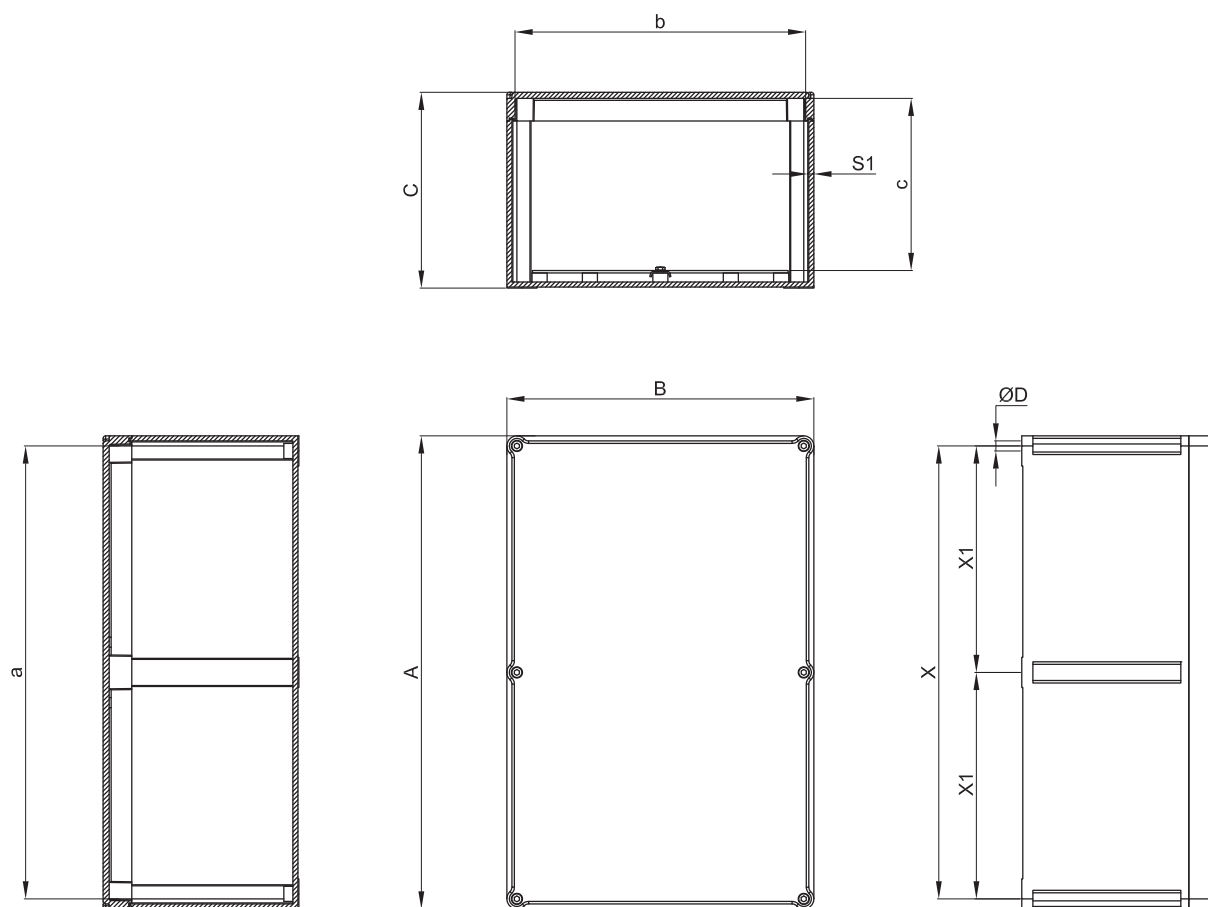




## ENCLOSURE SELECTION CHART

Code	Outside dimensions			Inside dimensions				Mounting				Weight kg
	A	B	C	a	b	c	S1	X	Y	X1	ØD	
SA090907/P	90	90	73	84	84	52	3	74	74	-	6.5	0.30
SA111108/P	110	110	83	104	104	65	3	94	94	-	6.5	0.40
SA171108/P	170	110	83	164	104	65	3	154	94	-	6.5	0.80
SA141410/P	147	147	100	135	135	79	3	131	131	-	6.5	1.00
SA301410/P	305	147	110	296	138	90	4.5	285	127	-	6.5	1.90
SA302310/P	305	230	110	296	221	90	4.5	285	210	-	6.5	2.50
SA302318/P	305	230	190	296	221	165	4.5	285	210	-	6.5	3.10
SA473018/P	470	305	195	460	295	175	5	450	285	225	6.5	4.70
SA623018/P	620	305	185	608	293	160	5	560	285	260-300	8	6.30

## DIMENSIONAL DRAWING



Dimensions in mm

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)

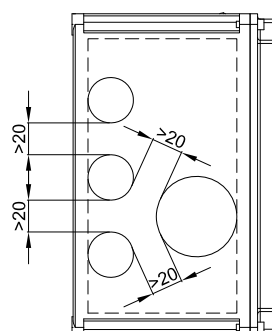
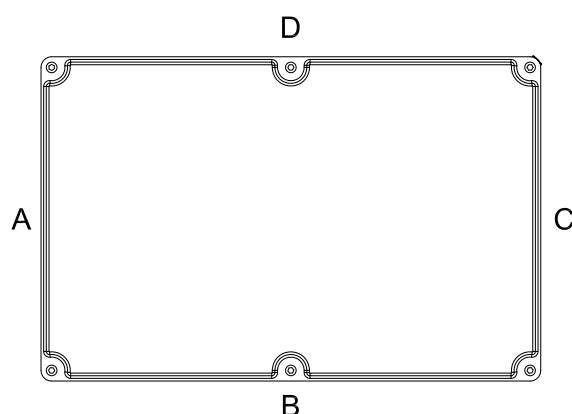
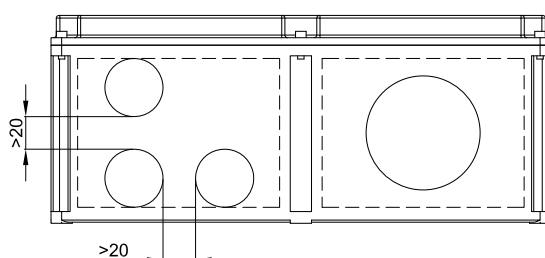
THREAD COMPARISON CHART

D	1	2	3	4	5	6	7	8
Thread diameter	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5
Through hole	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5	Ø90.5

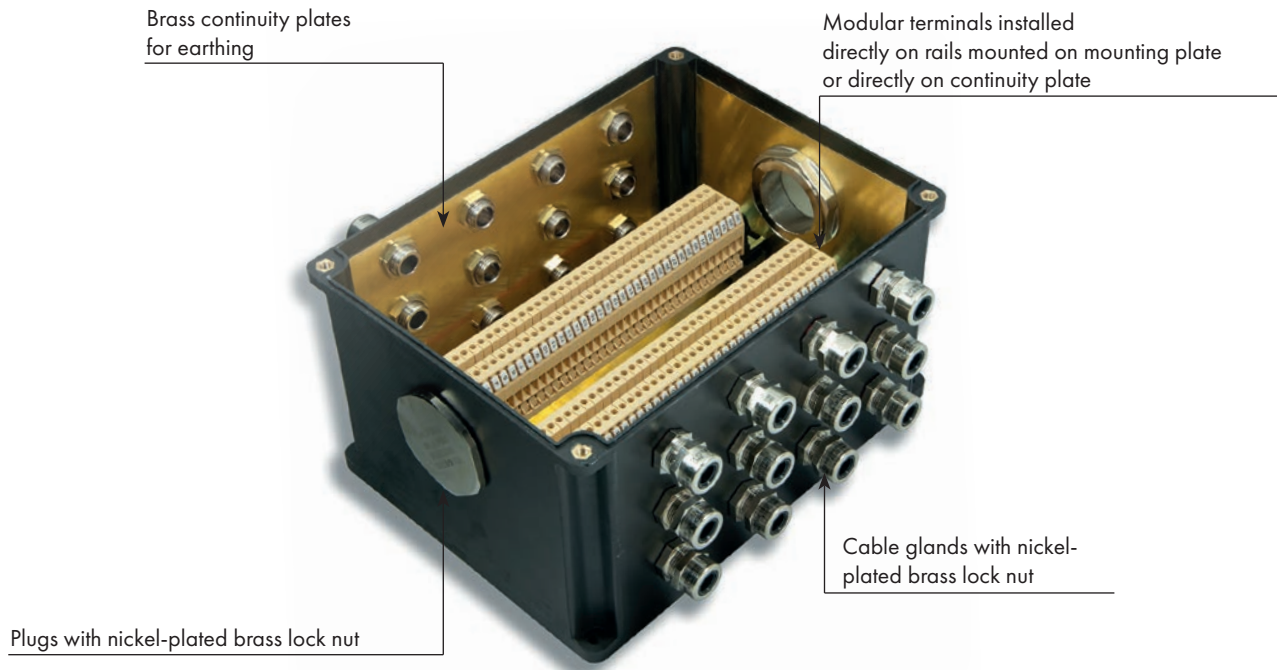


As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

TYPE OF ENCLOSURE	HOLE DRILLING IN BODY																	
	Sides A and C									Sides B and D								
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE							
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
SA090907/P	48x45	1	1	-	-	-	-	-	-	48x45	Square box							
SA111108/P	58x55	2	2	1	1	1	-	-	-	58x55	Square box							
SA171108/P	68x55	2	2	1	1	1	-	-	-	128x55	5	3	2	2	2	-	-	-
SA141410/P	100x65	6	3	2	1	1	1	-	-	100x65	Square box							
SA301410/P	100x65	6	3	2	1	1	1	-	-	255x65	12	11	5	4	4	3	-	-
SA302310/P	180x65	8	7	5	3	2	2	-	-	260x65	12	11	5	4	4	3	-	-
SA302318/P	180x140	16	14	9	8	5	4	2	2	258x140	24	22	14	11	8	6	3	2
SA473018/P	258x140	24	18	14	8	8	6	3	2	380x140	36	24	18	12	12	8	6	2
SA623018/P	248x117	18	15	10	8	6	3	2	2	434x117	32	26	16	14	12	6	4	4



## SA-...P series Features of junction boxes with terminals



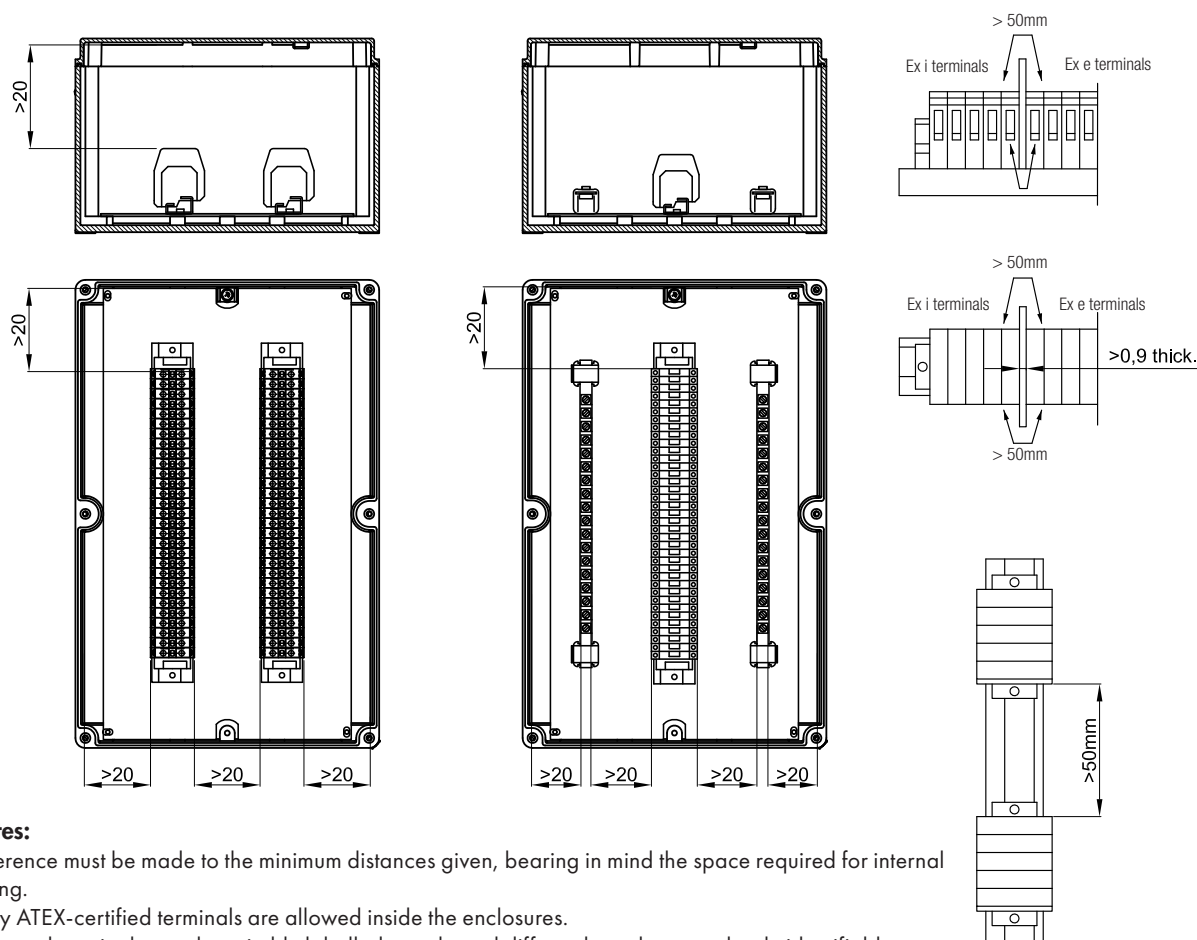
These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting plates. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

### ELECTRICAL FEATURES

	Standard applications	Signal circuits applications	
		T6/T75°C max. Tamb +60°C	T4/T100°C max. Tamb +85°C
Rated voltage:	1000 Vac/dc	-	-
Rated current:	312 A	1 A for exec. <b>Ex eb</b> 100 mA for exec. <b>Ex ia</b>	10 A for exec. <b>Ex eb</b> 100 mA for exec. <b>Ex ia</b>
Rated frequency:	50/60 Hz	-	-
Terminal section:	1.5 ÷ 300 mm <sup>2</sup>	-	-

Marking	Terminal type	Description
<b>Ex II 2GD Ex eb IIC T... Gb - Ex tb IIIC T... Db IP66</b>	Ex e terminals only	Enclosures containing increased safety terminals to standard EN 60079-7
<b>Ex II 2GD Ex eb ia IIC T... Gb - Ex tb ia IIIC T... Db IP66</b>	Ex e and Ex i terminals	Enclosures containing increased safety terminals and intrinsic safety terminals to standards EN 60079-7 and EN 60079-11
<b>Ex II 2GD Ex ia IIC T... Gb - Ex ia IIIC T... Db IP66</b>	Ex i terminals only	Enclosures containing intrinsic safety terminals to standard EN 60079-11; enclosures are still category 2

## Examples of terminal strips with minimum installation distances



### Notes:

Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.

Only ATEX-certified terminals are allowed inside the enclosures.

Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.

Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.

TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED						
	TERMINAL CROSS-SECTIONAL AREA						
	1.5	2.5	4	6	10	16	25
SA090907/P	9	7	6	5			
SA111108/P	13	10	8	7	5		
SA171108/P	27	21	17	14	11	9	
SA141410/P	22	16	14	11	9	7	
SA301410/P	57	44	37	30	24	20	15
SA302310/P	2x58	2x44	2x37	2x30	2x24	2x20	2x15
SA302318/P	2x58	2x44	2x37	2x30	2x24	2x20	2x15
SA473018/P	2x97	2x74	2x63	2x51	2x41	2x34	2x25
SA623018/P	2x133	2x101	2x86	2x70	2x56	2x46	2x35

Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

## SA-...P series Features of junction boxes with terminals

The permissible maximum power dissipation, in order to retain a T6 temperature class with an ambient temperature up to +40°C or T5 class with an ambient temperature of 55°C, is not to exceed the values given in the tables below.

For an ambient temperature of +60°C, maximum power dissipation must be reduced by 25%, and rated current reduced by 15%. The maximum current values for terminal strips used for low-voltage circuits (signalling units) with a T6 temperature class and maximum ambient temperature of +60°C or T4 and maximum ambient temperature +65°C and +85°C, are as follows:

+60°C T6 -> max 1A Ex e, max 100mA Ex ia

+85°C T4 -> max 10A Ex e, max 100mA Ex ia

The values given in the tables on the coming pages refer to the maximum number of conductors allowed for a conductor with a given cross-sectional area and a given maximum current. All incoming wires and active internal links (made by wires) count as wires. Earth connections (i.e. passive connections) do not count.

When DIN/Omega rails are installed on the internal mounting plate (instead of using the relevant mounting plate fastening holes), the number of terminals may be slightly less than the number given in the tables.

Other types of terminals can be used up to the space limit of the box. Whatever the case, all terminals used shall be ATEX and/or IEC Ex certified. Size 35mm<sup>2</sup> terminals can be used for conductors with a cross-sectional area of 25mm<sup>2</sup>.

The maximum number of terminals and maximum number of rows given in the tables is an indicative value: you must take into account the cable entries on the sides of the boxes. The internal overall dimensions of cable glands/lock nuts and the overall dimensions of conductors must be taken into consideration to allow for wiring.

In some cases, it may be necessary to reduce the number of terminals or the number of rows.

Example of how to calculate the maximum number of conductors.

Referring to table SA141410/P: 6 conductors with 6mm<sup>2</sup> cross-section with 26A continuous current is the limit of this box.

Consequently, box SA141410/P is suitable for containing 3 x 6mm<sup>2</sup> terminals (2 conductors for each terminal) with a max. current of 26A.

There is space for 11 x 6mm<sup>2</sup> terminals in the box. The remaining 8 terminals (11-3) can be added and used for low-current circuits indicated in area "1" of the table (in this case max. 8-10A).

Combined mounting for electrical circuits with different sized cables is possible provided the values given are used proportionally. For example:

Nominal X-sect. area (mm <sup>2</sup> )	Current (A)	Quantity	Capacity
2,5	8	16 (di 46)	34,8%
4	11	12 (di 36)	33,3%
10	26	4 (di 13)	30,8%
Totale			98,9% <100%

**Table showing maximum power dissipation and current for ambient temperature +40°C and +55°C**


Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>						
		1.5	2.5	4	6	10	16	25
SA090907/P	5.6	11	15	21	26	37	49	67
SA111108/P	7.5	11	15	21	26	37	49	67
SA171108/P	8.8	11	15	21	26	37	49	67
SA141410/P	7.8	11	15	21	26	37	49	67
SA301410/P	15	11	15	21	26	37	49	67
SA302310/P	16	11	15	21	26	37	49	67
SA302318/P	17.5	11	15	21	26	37	49	67
SA473018/P	42	11	15	21	26	37	49	67
SA623018/P	52	11	15	21	26	37	49	67


**Table showing maximum power dissipation and current for ambient temperature +60°C**

Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>						
		1.5	2.5	4	6	10	16	25
SA090907/P	4.2	9	12	17	22	31	41	57
SA111108/P	5.6	9	12	17	22	31	41	57
SA171108/P	6.6	9	12	17	22	31	41	57
SA141410/P	5.8	9	12	17	22	31	41	57
SA301410/P	11.2	9	12	17	22	31	41	57
SA302310/P	12	9	12	17	22	31	41	57
SA302318/P	13.1	9	12	17	22	31	41	57
SA473018/P	31.5	9	12	17	22	31	41	57
SA623018/P	39	9	12	17	22	31	41	57

## SA-...P series Features of junction boxes with terminals

**Instructions for determining which enclosure is best suited based on the planned number of conductors and terminals.**

 : In this section of the table that has not been filled in, once you have followed the instructions and complied with the values given for the enclosure's internal wiring, you can add as many terminals as you want up to the space limit of the box.

 : Any wiring that falls within this section of the table that has not been filled in is not covered by the certificate.

"**C. No.**" row: the values given refer to the maximum number of CABUR terminals physically allowed inside the relevant enclosure. These values are expressed as the product of the rows multiplied by the number of terminals on each row.

"**W. No.**" row: the same as above, but this time referring to Weidmuller terminals.

The terminal brands are mentioned just to give an idea of the quantity of terminals that can be housed inside the enclosure.

The other values given in the cells along the table's diagonal define the maximum number of conductors allowed, based on their cross-sectional area and maximum current.

### Tables showing maximum number of conductors

$$(N^{\circ} \text{ of terminals} = \frac{n^{\circ} \text{ of conductors}}{2})$$

**SA090907/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	17						
10	11						
11	9	15					
15		8	11				
21			6	7	10		
26				5	7	9	
37					3	4	6
49						3	3
67							2
C. No.							
W. No.	11	7	6	5			

Maximum power dissipation with T6 temperature class must not exceed 5.6W

**SA111108/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24				
15		9	13	17			
21			6	9	12		
26				6	8	11	
37					4	5	7
49						3	4
67							2
C. No.							
W. No.	16	11	9	7	5		

Maximum power dissipation with T6 temperature class must not exceed 7.5W

**SA141410/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24	32			
15		9	13	17	25		
21			7	9	13	18	23
26				6	8	11	15
37					4	6	7
49						3	4
67							2
C. No.		16	14	11	9	7	5
W. No.	26	18	15	11	9	7	5

Maximum power dissipation with T6 temperature class must not exceed 7.8W

**SA171108/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	21	35					
10	14	23	32				
11	11	19	27	36			
15		10	14	19	28	38	
21			7	10	14	19	26
26				6	9	13	17
37					5	6	8
49						4	5
67							3
C. No.							
W. No.	32	22	19	14	11	9	

Maximum power dissipation with T6 temperature class must not exceed 8.8W

**SA301410/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	27	46	67				
10	18	29	43	59	90		
11	15	24	36	49	74		
15		13	19	26	40	56	79
21			10	13	20	29	40
26				9	13	19	26
37					7	9	13
49						5	7
67							4
C. No.		43	37	30	24	20	14
W. No.	69	48	40	30	24	20	14

Maximum power dissipation with T6 temperature class must not exceed 15W

**SA302310/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	27	46	68	94	142		
10	18	29	43	60	91		
11	15	24	36	50	75	107	
15		13	19	27	41	58	81
21			10	14	21	29	41
26				9	13	19	27
37					7	9	13
49						5	8
67							4
C. No.		2x44	2x37	2x30	2x24	2x20	15
W. No.	2x70	2x48	2x40	2x30	2x24	2x20	15

Maximum power dissipation with T6 temperature class must not exceed 16W

**SA302318/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	30	49	73	102	155		
10	19	32	47	65	99		
11	16	26	39	54	82	118	166
15		14	21	29	44	63	89
21			11	15	23	32	45
26				10	15	21	30
37					7	10	15
49						6	8
67							4
C. No.		2x44	2x37	2x30	2x24	2x20	15
W. No.	2x70	2x48	2x40	2x30	2x24	2x20	15

Maximum power dissipation with T6 temperature class must not exceed 17.5W

**SA473018/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	51	84	128	181	282		
10	32	54	82	116	180		
11	27	45	68	96	149	219	317
15		24	36	51	80	118	170
21			19	26	41	60	87
26				17	27	39	57
37					13	19	28
49						11	16
67							9
C. No.		2x74	2x62	2x51	2x40	2x33	2x25
W. No.	2x116	2x81	2x68	2x51	2x40	2x33	2x25

Maximum power dissipation with T6 temperature class must not exceed 42W

**SA623018/P**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	59	98	150	215	338		
10	38	63	96	137	216		
11	31	52	80	113	179	265	388
15		28	43	61	96	143	208
21			22	31	49	73	106
26				20	32	47	69
37					16	23	34
49						13	20
67							10
C. No.		2x101	2x85	2x69	2x55	2x46	2x34
W. No.	2x159	2x111	2x93	2x69	2x55	2x46	2x34

Maximum power dissipation with T6 temperature class must not exceed 52W



## SA-...P series Features of junction boxes with terminals

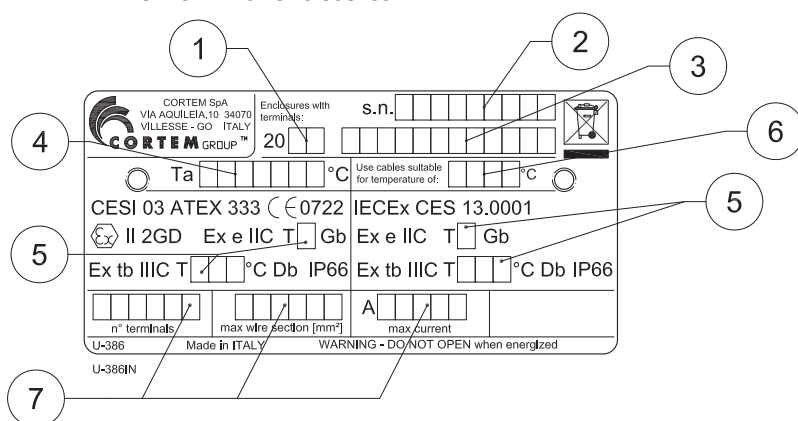
### Codes of terminals used to determine maximum number of terminals

The other values given in the cells along the table's diagonal define the maximum number of conductors allowed, based on their cross-sectional area and maximum current.

Sq mm	1.5	2.5	4	6	10	16	25	35
Cabur		CBD 2	CBD 4	CBD 6	CBD 10	CBD 16	CBD 35	
Weidmuller	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	WDU 16	WDU 35	

Sq mm	50	70	95	120	150	185	240	300
Cabur	CBD 50	CBD 70	GPM95/CC	GPM150/CC		GPM240/CC		
Weidmuller	WDU 50	WDU 70	WDU 70/95	WDU 120/150		WDU 240		

### ATEX - IECEx label for terminal enclosures



#### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. temperature class and maximum surface
6. temperature of cables
7. electrical specs per certificate

### DON'T FORGET TO ORDER THE ACCESSORIES

#### Example:

Enclosure type  
SA302310/P

+

Internal mounting plate  
B32-229

+

Cable glands, unions

+

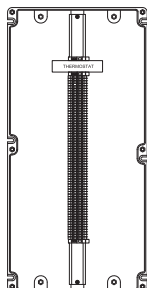
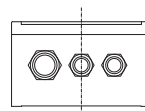
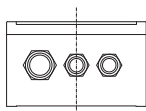
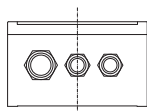
other...see key



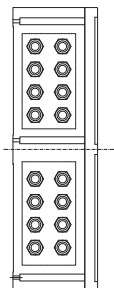
Enclosure	Plate Code	Continuity plate for all four enclosure sides		Continuity plate for single enclosure side	
		Long side		Short side	
SA090907/P	B-388	B-455		B-455	
SA111108/P	B-389	B-456		B-456	
SA141410/P	B-390	B-457		B-457	
SA171108/P	B-391	B-458	B-456	B-458	B-456
SA301410/P	B-392	B-459	B-457	B-459	B-457
SA302310/P	B-393	B-459	B-460	B-459	B-460
SA302318/P	B-394	B-461	B-462	B-461	B-462
SA473018/P	B-395	(2x) B-462	B-461	(2x) B-462	B-461
SA623018/P	-	(2x) B-463	B-463	(2x) B-463	B-463



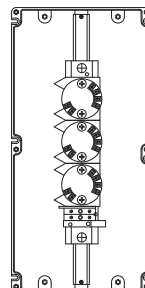
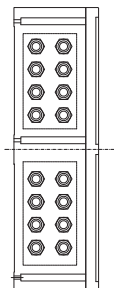
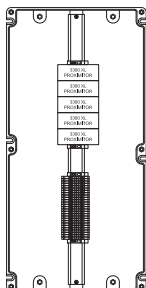
## JUNCTION BOXES WITH EQUIPMENT (FIELDBUS, PROXIMITOR, HEATER...)



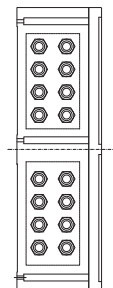
Example of junction box with thermostat



Example of junction box with proximator



Example of junction box with transmitter



Equipment that can be installed in the junction boxes in accordance with the CML 16 ATEX 3163X or IECEx CML 16.0074X certificate are described in the following table:

Part	Number of certificate	Marking
Series 3300XI Proximator	IECEx BAS 04.0055X	Ex ia IIC
Splice Cassette type 8186	PTB 10 ATEX 2015U IECEx PTB 10.0060U	Ex op pr IIC
Enclosure Heater (TEF Series)	NEMKO 11 ATEX 1098X IECEx NEM 11.0005X	Ex e IIC; Ex e mb IIC
Heater, type SL.. THERM D.. T..	PTB 02 ATEX 1116X IECEx PTB 07.0055X	Ex db IIC; Ex tb IIIC
Heater, type CP.. THERM D.. T..	PTB 02 ATEX 1041X IECEx PTB 07.0052X	Ex db IIC; Ex tb IIIC
Fieldbus Segment protector type R-SP-E	PTB 04 ATEX 2100X IECEx PTB 05.0010X	Ex e mb IIC; Ex eb mb IIC
Temperature Trasmitter Model IPAQ C202X	KIVA 15 ATEX 0033X IECEx KIWA 15.0015X	Ex ia IIC
Temperature Trasmitter Model IPAQ C520X	KIVA 14 ATEX 0003X IECEx KIWA 14.0001X	Ex ia IIC
Fieldbus Barrier type R4D0-FB-IA	BVS 13 ATEX E 121X IECEx BVS 13.0119X	Ex e ib mb [ia Ga] IIC T4 Gb Ex e ib mb [ia IIIC Da] IIC T4 Gb
Heating Resistor type CREx 020	LCIE 01 ATEX 6073X IECEx LCI 07.0020X	Ex d IIC; Ex tb IIIC
Regulating Thermostat type REx	LCIE 01 ATEX 6074 IECEx LCI 07.0021	Ex d IIC; Ex tb IIIC
Interconnection block for fieldbus type F240 to F273	KEMA 03 ATEX 1555X IECEx LCI 11.0068X	Ex ia IIC
Fieldbus XE Megablock and Terminator	KEMA 05 ATEX 2006 IECEx DEK 16.0036X	Ex eb mb IIC

**Attention: please contact our sales office for further information.**

## SA-...P series Features of junction boxes with terminals

ILLUSTRATION	DESCRIPTION	MODEL		DIMENSIONS A      B		CODE	KEY
	Internal mounting plates	SA090907/P		82	48	<b>B09-229</b>	 
		SA111108/P		100	68	<b>B11-229</b>	
	Thickness 2.5mm Aluminium	SA141410/P		137	105	<b>B14-229</b>	
		SA171108/P		159	67	<b>B17-229</b>	
	Galvanized steel (B...-229AC)	SA301410/P		285	97	<b>B31-229</b>	
		SA302310/P SA302318/P		285	180	<b>B32-229</b>	
	Stainless steel (B...-229IN)	SA473018/P		453	254	<b>B43-229</b>	
		SA623018/P		603	249	<b>B64-229</b>	
ILLUSTRATION	DESCRIPTION	MODEL		FEATURES		CODE	KEY
	Breather and drain valve	Thread diameter ISO 7-R 3/8"		Material: stainless steel		<b>ECD-210S</b>	 
	Breather valve	ISO M20x1,5		Material: stainless steel		<b>ECDE-B1B</b>	 
		ISO M25x1,5				<b>ECDE-B2B</b>	
	Breather and drain valve	ISO M20x1,5				<b>ECDE-D1B</b>	
		ISO M25x1,5				<b>ECDE-D2B</b>	
	Hinges (2 per enclosure)	Low lid enclosures	SA090907/P SA111108/P SA141410/P SA171108/P	Material: stainless steel		<b>B-0105</b>	 
		High lid enclosures	SA301410/P SA302310_18/P SA473018/P SA623018/P			<b>B-0106</b>	
	Through earth connection	M8		Material: stainless steel		<b>K-0307/1</b>	 
		M6				<b>K-0307/2</b>	
	Entry blanking plugs	For models and codes, visit www.cortemgroup.com				<b>PLG...</b>	 
	Cable glands complete with O-rings and unions					<b>NAV... NEV...</b>	 
	Adapters and reducers					<b>RE...</b>	 
	Lid-mounted control and signalling devices	For control and signalling device models and codes, see control and monitoring device chapter				<b>M-0... (Ex de)</b>	 
	Brass continuity plates for earthing	For models and codes, see chart given earlier				<b>B-...</b>	 

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard polyester enclosure: **SA090907/P**

Width/Depth/Height: **90/90/73mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Braslian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B09-229</b>
2.5mm-thick galvanized steel:	<b>B09-229AC</b>
2.5mm-thick stainless steel:	<b>B09-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

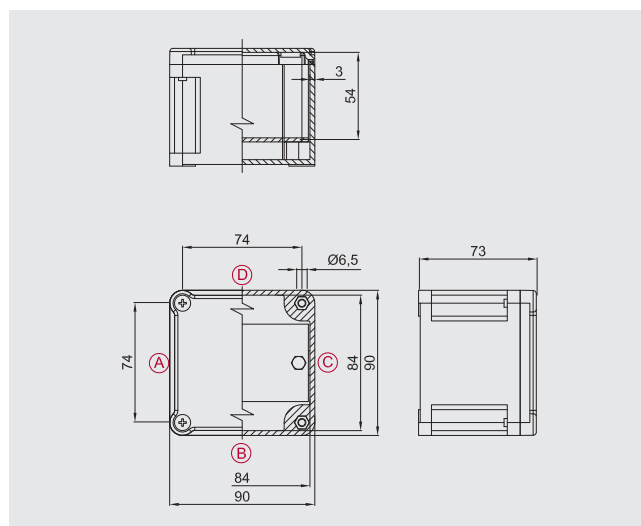
Other:

1 mm-thick brass continuity plates

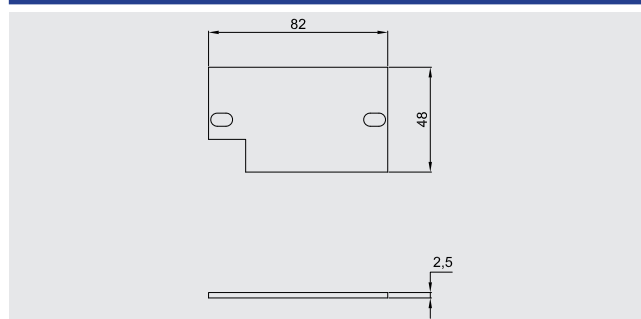
Terminals

Cable glands

Through earth screw



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x9
2.5 mm <sup>2</sup>	1x7
4 mm <sup>2</sup>	1x6
6 mm <sup>2</sup>	1x5
10 mm <sup>2</sup>	-
16 mm <sup>2</sup>	-
25 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	1	1
M20	1	1
M25	1	1
M32	-	-
M40	-	-
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard polyester enclosure:	<b>SA111108/P</b>
Width/Depth/Height:	<b>110/110/83mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

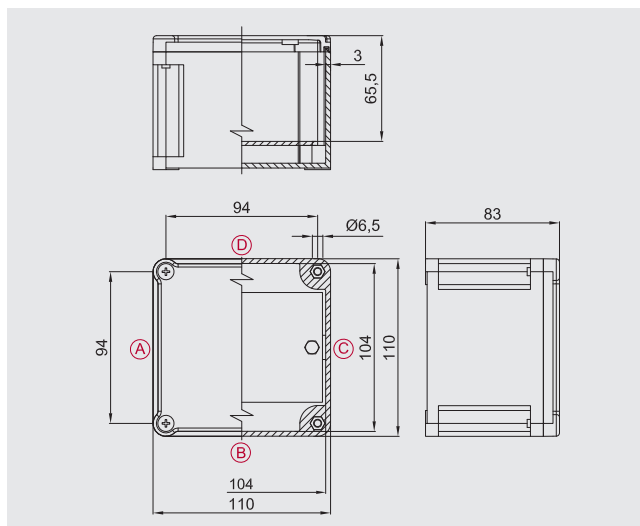
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Braslian	(INMETRO)

### Accessories

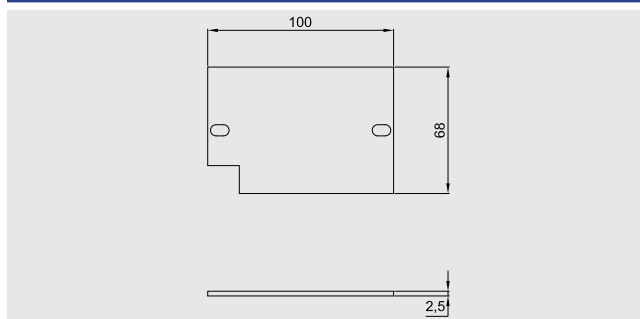
Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B11-229</b>
2.5mm-thick galvanized steel:	<b>B11-229AC</b>
2.5mm-thick stainless steel:	<b>B11-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

1mm-thick brass continuity plates  
Terminals  
Cable glands  
Through earth screw



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x13
2.5 mm <sup>2</sup>	1x10
4 mm <sup>2</sup>	1x8
6 mm <sup>2</sup>	1x7
10 mm <sup>2</sup>	1x5
16 mm <sup>2</sup>	-
25 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	3	3
M20	2	2
M25	1	1
M32	1	1
M40	-	-
M50	-	-
M63	-	-



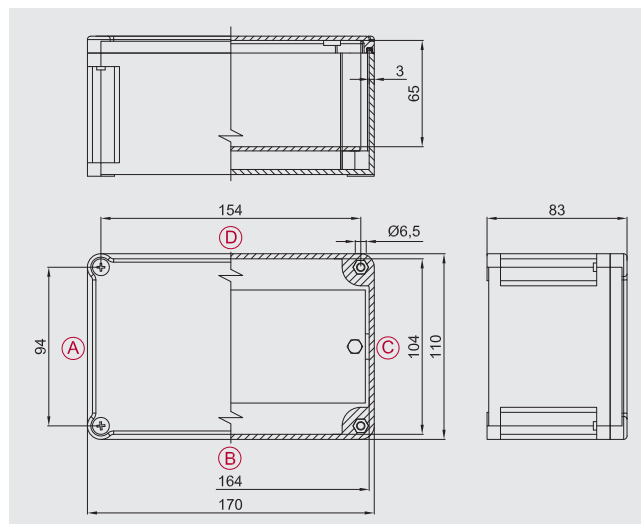
As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.



### Ordering details

Standard polyester enclosure: **SA171108/P**

Width/Depth/Height: **170/110/83mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Braslian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B17-229</b>
2.5mm-thick galvanized steel:	<b>B17-229AC</b>
2.5mm-thick stainless steel:	<b>B17-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

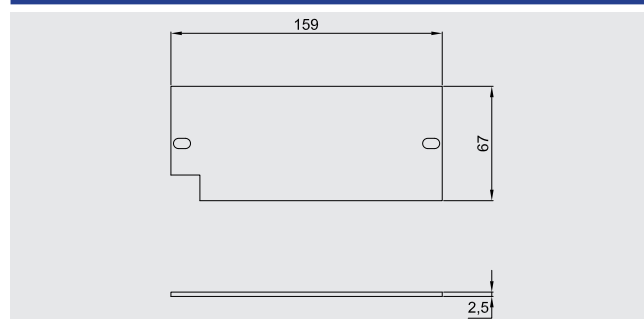
1 mm-thick brass continuity plates

Terminals

Cable glands

Through earth screw

### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x27
2.5 mm <sup>2</sup>	1x21
4 mm <sup>2</sup>	1x17
6 mm <sup>2</sup>	1x14
10 mm <sup>2</sup>	1x11
16 mm <sup>2</sup>	1x9
25 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	3	8
M20	2	5
M25	1	3
M32	1	2
M40	-	-
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new NAV and NEV series cable glands.



## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard polyester enclosure:	<b>SA141410/P</b>
Width/Depth/Height:	<b>147/147/100mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

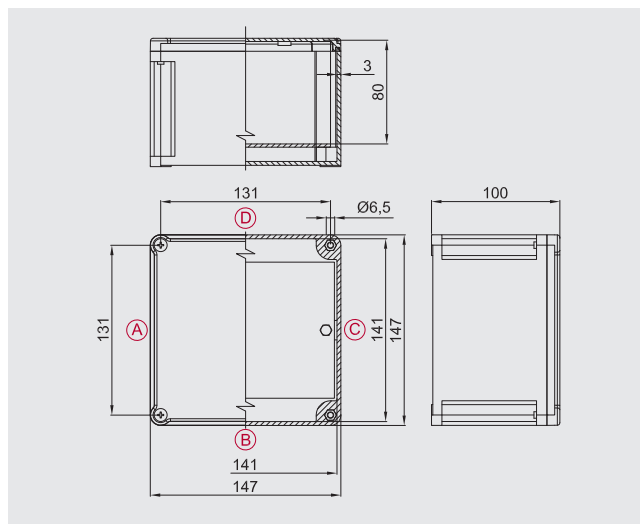
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Braslian	(INMETRO)

### Accessories

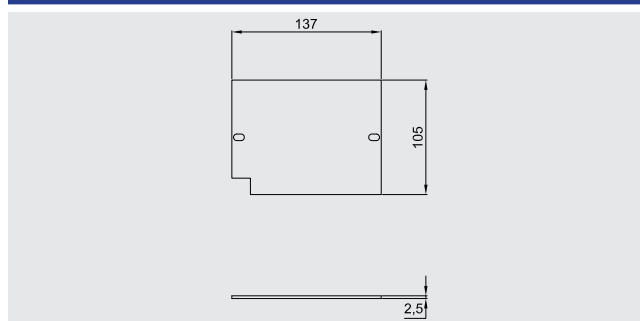
Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B14-229</b>
2.5mm-thick galvanized steel:	<b>B14-229AC</b>
2.5mm-thick stainless steel:	<b>B14-229IN</b>
Hinges (two each type):	<b>B-0105</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

1mm-thick brass continuity plates  
Terminals  
Cable glands  
Through earth screw



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	1x22
2.5 mm <sup>2</sup>	1x16
4 mm <sup>2</sup>	1x14
6 mm <sup>2</sup>	1x11
10 mm <sup>2</sup>	1x9
16 mm <sup>2</sup>	1x7
25 mm <sup>2</sup>	-
70 mm <sup>2</sup>	-
120 mm <sup>2</sup>	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.  
The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	6	6
M20	6	6
M25	3	3
M32	2	2
M40	1	1
M50	-	-
M63	-	-



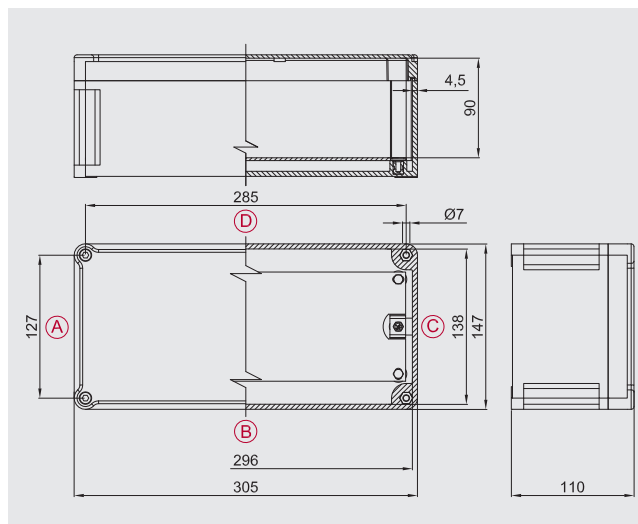
As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.



## Ordering details

Standard polyester enclosure:	<b>SA301410/P</b>
Width/Depth/Height:	<b>305/147/110mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Brasilian	(INMETRO)

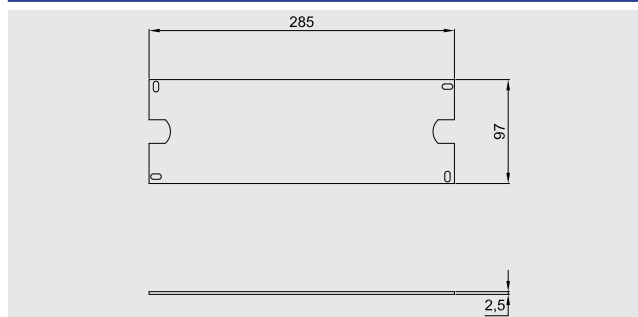
## Accessories

Internal mounting plate:	<b>CODE</b>
2.5mm-thick aluminium:	<b>B31-229</b>
2.5mm-thick galvanized steel:	<b>B31-229AC</b>
2.5mm-thick stainless steel:	<b>B31-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

- 1 mm-thick brass continuity plates
- Terminals
- Cable glands
- Through earth screw

### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1,5 mm <sup>2</sup>	1x57
2,5 mm <sup>2</sup>	1x44
4 mm <sup>2</sup>	1x37
6 mm <sup>2</sup>	1x30
10 mm <sup>2</sup>	1x24
16 mm <sup>2</sup>	1x20
25 mm <sup>2</sup>	1x15



Eg.  $2 \times 22 = 2$  rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	6	14
M20	4	12
M25	3	9
M32	2	5
M40	1	4
M50	1	3
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard polyester enclosure:	<b>SA302310/P</b>
Width/Depth/Height:	<b>305/230/110mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

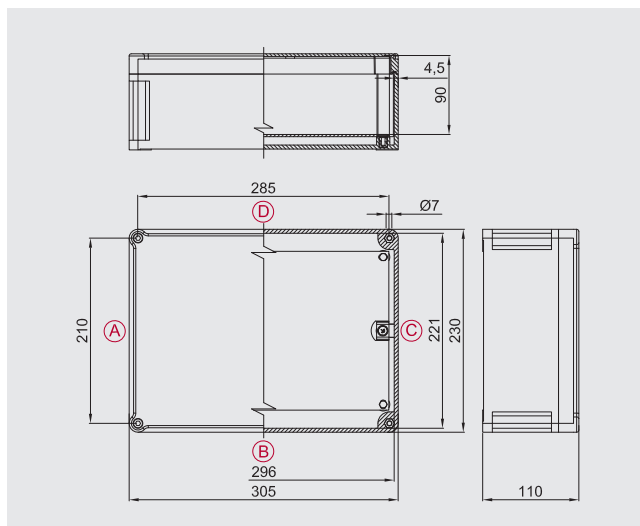
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Braslian	(INMETRO)

### Accessories

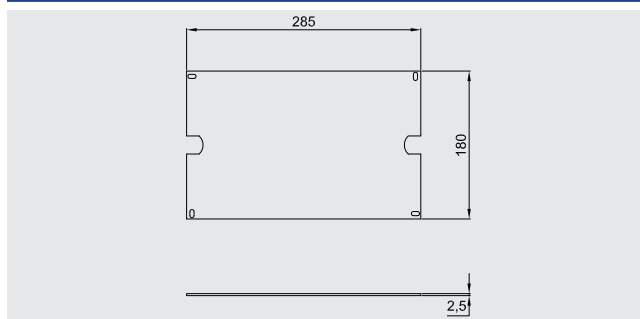
Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B32-229</b>
2.5mm-thick galvanized steel:	<b>B32-229AC</b>
2.5mm-thick stainless steel:	<b>B32-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

1mm-thick brass continuity plates  
Terminals  
Cable glands  
Through earth screw



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1,5 mm <sup>2</sup>	2x58
2,5 mm <sup>2</sup>	2x44
4 mm <sup>2</sup>	2x37
6 mm <sup>2</sup>	2x30
10 mm <sup>2</sup>	2x24
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	2x15



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M16	10	14
M20	10	12
M25	4	9
M32	3	5
M40	3	4
M50	-	-
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard polyester enclosure: **SA302318/P**

Width/Depth/Height: **305/230/190mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Braslian (INMETRO)

### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B32-229</b>
2.5mm-thick galvanized steel:	<b>B32-229AC</b>
2.5mm-thick stainless steel:	<b>B32-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

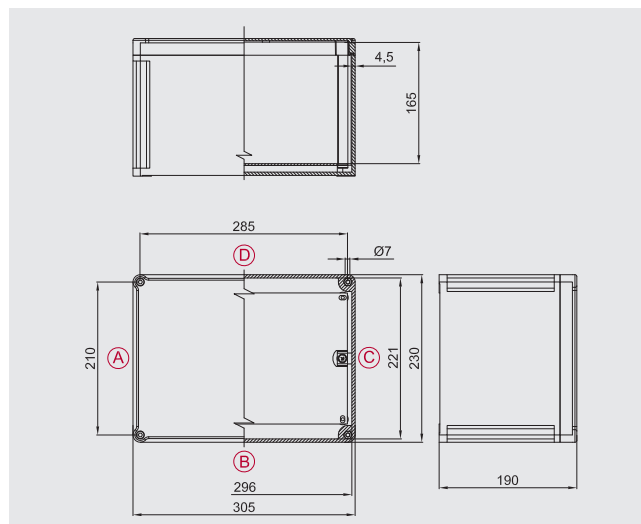
Other:

1 mm-thick brass continuity plates

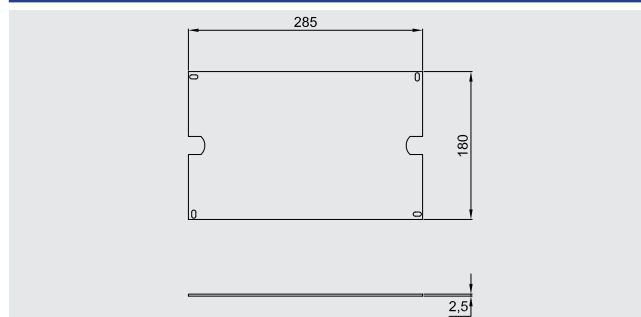
Terminals

Cable glands

Through earth screw



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	2x58
2.5 mm <sup>2</sup>	2x44
4 mm <sup>2</sup>	2x37
6 mm <sup>2</sup>	2x30
10 mm <sup>2</sup>	2x24
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	2x15



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M20	18	24
M25	12	18
M32	9	14
M40	6	8
M50	4	6
M63	2	3



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard polyester enclosure:	<b>SA473018/P</b>
Width/Depth/Height:	<b>470/305/195mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

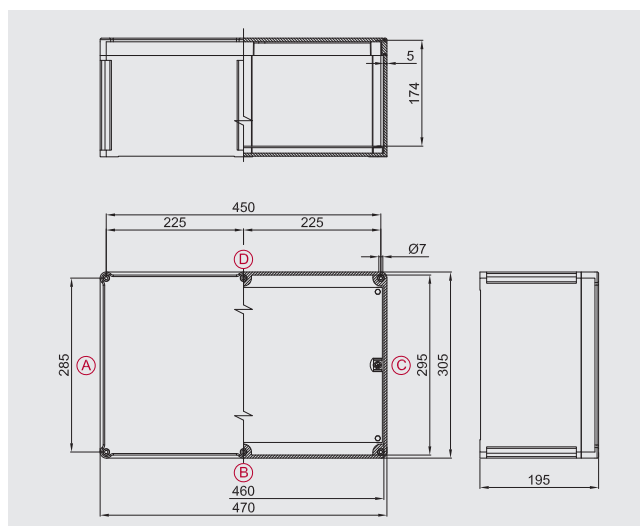
CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Braslian	(INMETRO)

### Accessories

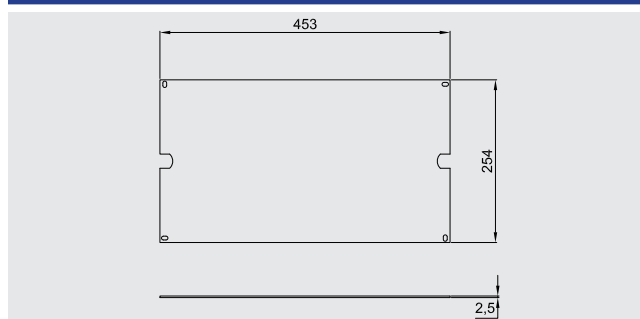
Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B43-229</b>
2.5mm-thick galvanized steel:	<b>B43-229AC</b>
2.5mm-thick stainless steel:	<b>B43-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

1mm-thick brass continuity plates  
Terminals  
Cable glands  
Through earth screw



### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	2x97
2.5 mm <sup>2</sup>	2x74
4 mm <sup>2</sup>	2x63
6 mm <sup>2</sup>	2x51
10 mm <sup>2</sup>	2x41
16 mm <sup>2</sup>	2x34
25 mm <sup>2</sup>	2x25



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M20	24	36
M25	18	24
M32	14	18
M40	8	12
M50	8	12
M63	3	4



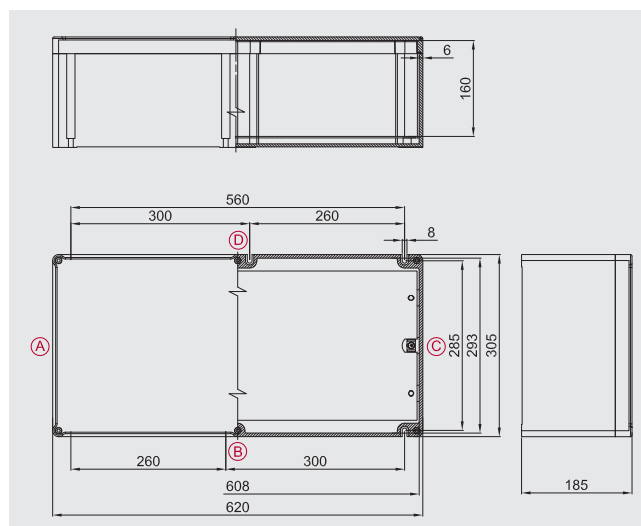
As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new NAV and NEV series cable glands.

## SA-...P series Polyester junction boxes (Ex e) and (Ex i)



Zone 1,2,21,22.  
Degree of protection IP66.  
Polyester body and lid.  
Silicone gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.



### Ordering details

Standard polyester enclosure:	<b>SA623018/P</b>
Width/Depth/Height:	<b>620/305/185mm</b>

### Certification data for enclosures with terminals

Group II Category 2GD
Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)
II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66
II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66
II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66
Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333	(ATEX)
IEC Ex CES 13.0001	(IECEX)
Russian	(TR CU)
Braslian	(INMETRO)

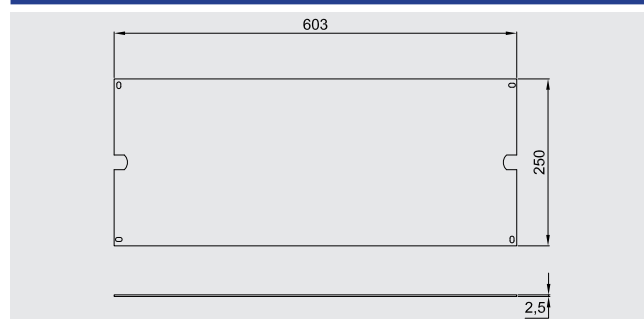
### Accessories

Internal mounting plate:	CODE
2.5mm-thick aluminium:	<b>B64-229</b>
2.5mm-thick galvanized steel:	<b>B64-229AC</b>
2.5mm-thick stainless steel:	<b>B64-229IN</b>
Hinges (two each type):	<b>B-0106</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

1 mm-thick brass continuity plates  
Terminals  
Cable glands  
Through earth screw

### Internal mounting plate dimensions



### Max. number of terminals

X-SECT.	QTY.
1,5 mm <sup>2</sup>	2x133
2,5 mm <sup>2</sup>	2x101
4 mm <sup>2</sup>	2x86
6 mm <sup>2</sup>	2x70
10 mm <sup>2</sup>	2x56
16 mm <sup>2</sup>	2x46
25 mm <sup>2</sup>	2x35



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Hole type	A/C	B/D
M20	24	48
M25	18	36
M32	14	28
M40	8	16
M50	8	12
M63	3	6



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new NAV and NEV series cable glands.



## Features of junction boxes for control, monitoring and signalling units

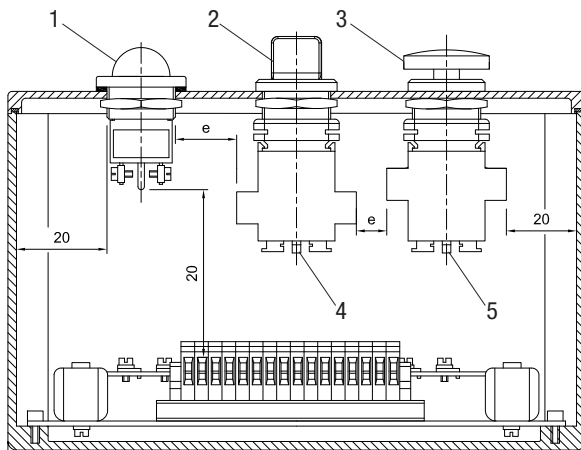


Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

### ELECTRICAL FEATURES

<b>Rated voltage:</b>	600 V ac/dc
<b>Max. current on contacts:</b>	16 A
<b>Rated frequency:</b>	50 / 60Hz

#### MINIMUM DISTANCES BETWEEN CORTEM Ex e CONTACTS (e.g. with reference to CESI 03 ATEX 115 certificate)



#### Key:

1. indicator light M-0612
2. rotating selector M-0604
3. emergency stop pushbutton M-0605
4. contact block M-0530
5. contact block M-0531
6. pushbutton M-0603
7. earth bar
8. terminals
9. internal mounting plate

#### Notes:

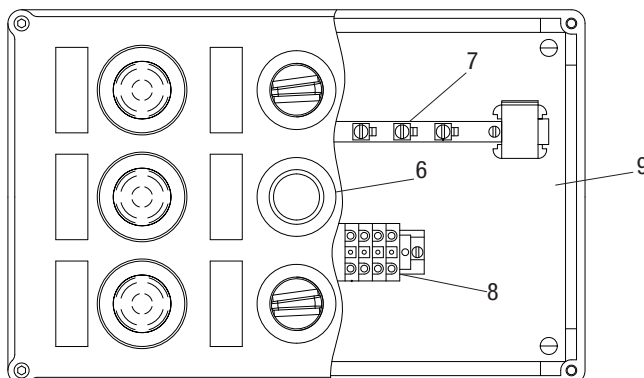
"e">12mm: standard version.

Suitable for voltage U<800V

"e">5mm: special versions.

Suitable for voltage U<250V

When determining enclosure size, what holes are drilled and what devices can be installed, we also need to take into account the space required for internal wiring and running the cables.

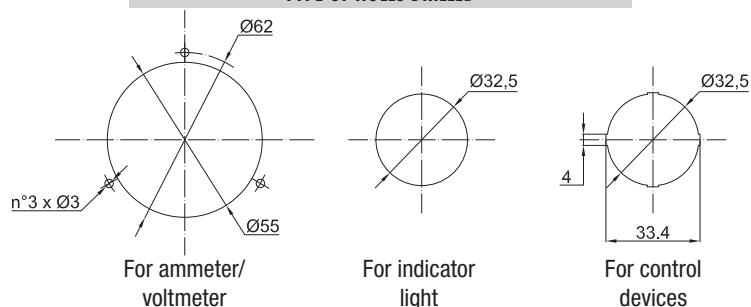


## Features of junction boxes for control, monitoring and signalling units

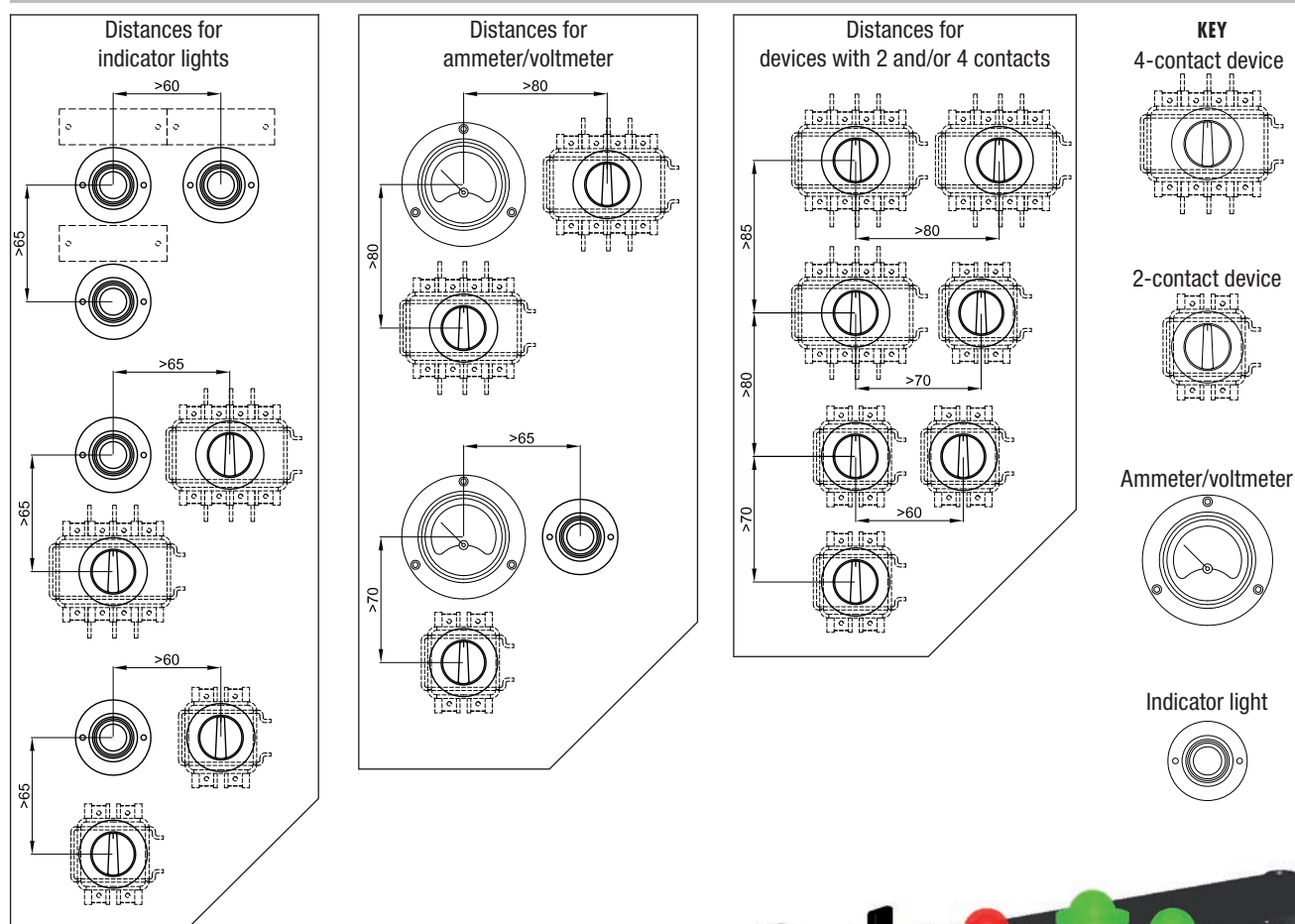
TYPE OF ENCLOSURE	Drilling area mm
SA090907/P	70x70
SA111108/P	90x90
SA171108/P	90x150
SA141410/P	127x127
SA301410/P	127x285
SA302310/P	210x285
SA302318/P	210x285
SA473018/P	285x450
SA623018/P	596x280



TYPE OF HOLES DRILLED



### MINIMUM DISTANCES BETWEEN CORTEM Ex e DEVICES FOR PUSHBUTTON CONTROL STATIONS



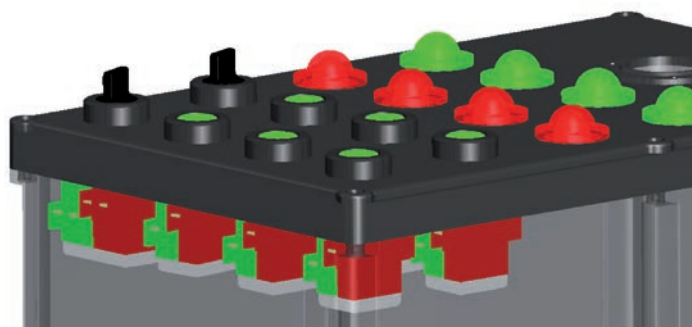
#### Notes:

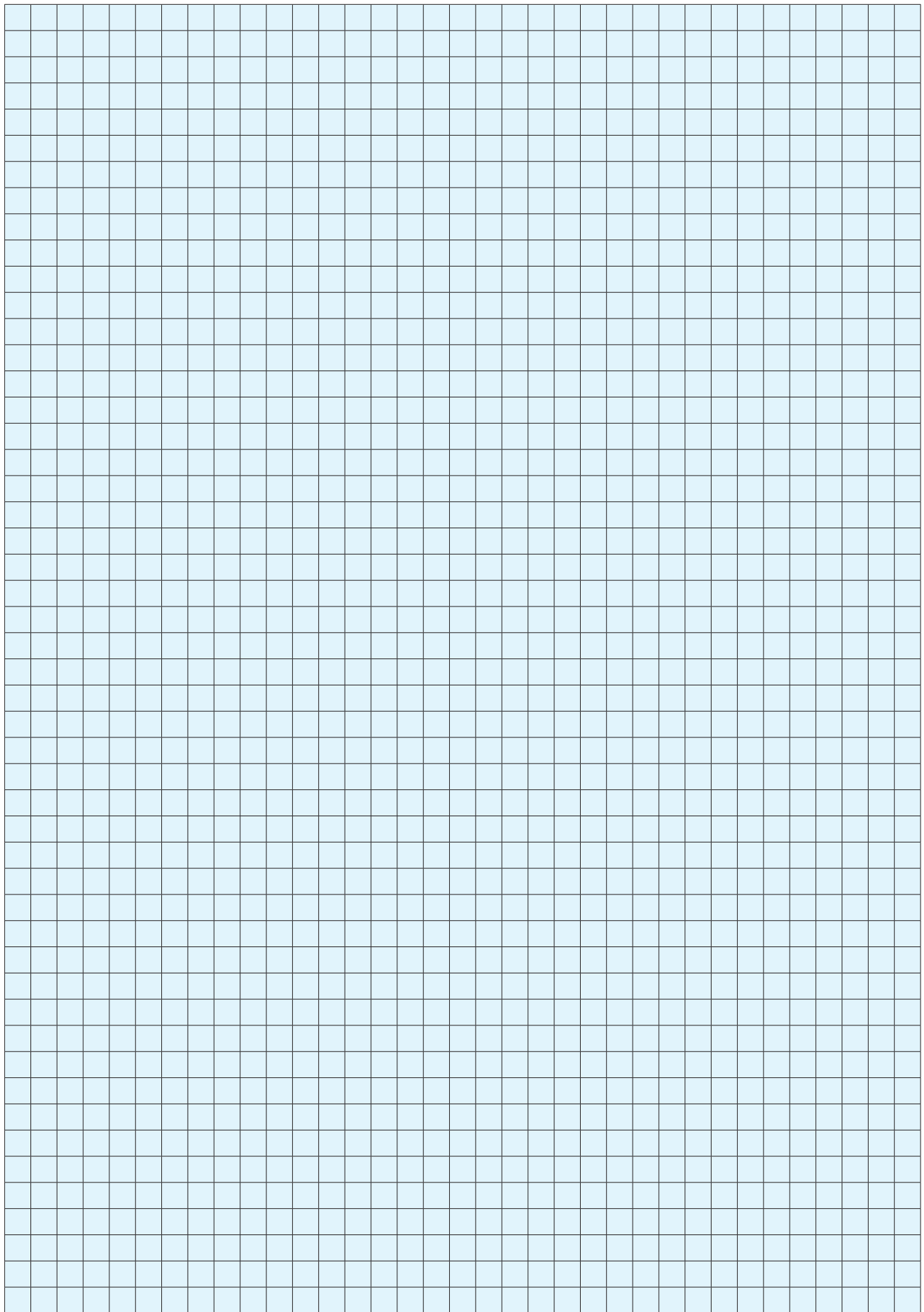
Minimum distances between devices worked out for use of standard 60x20 plates.

Option of using up to 4 contacts per device for pushbutton M-0603 and selector M-0604.

Option of using up to 2 contacts per device for emergency stop pushbutton M-0605.

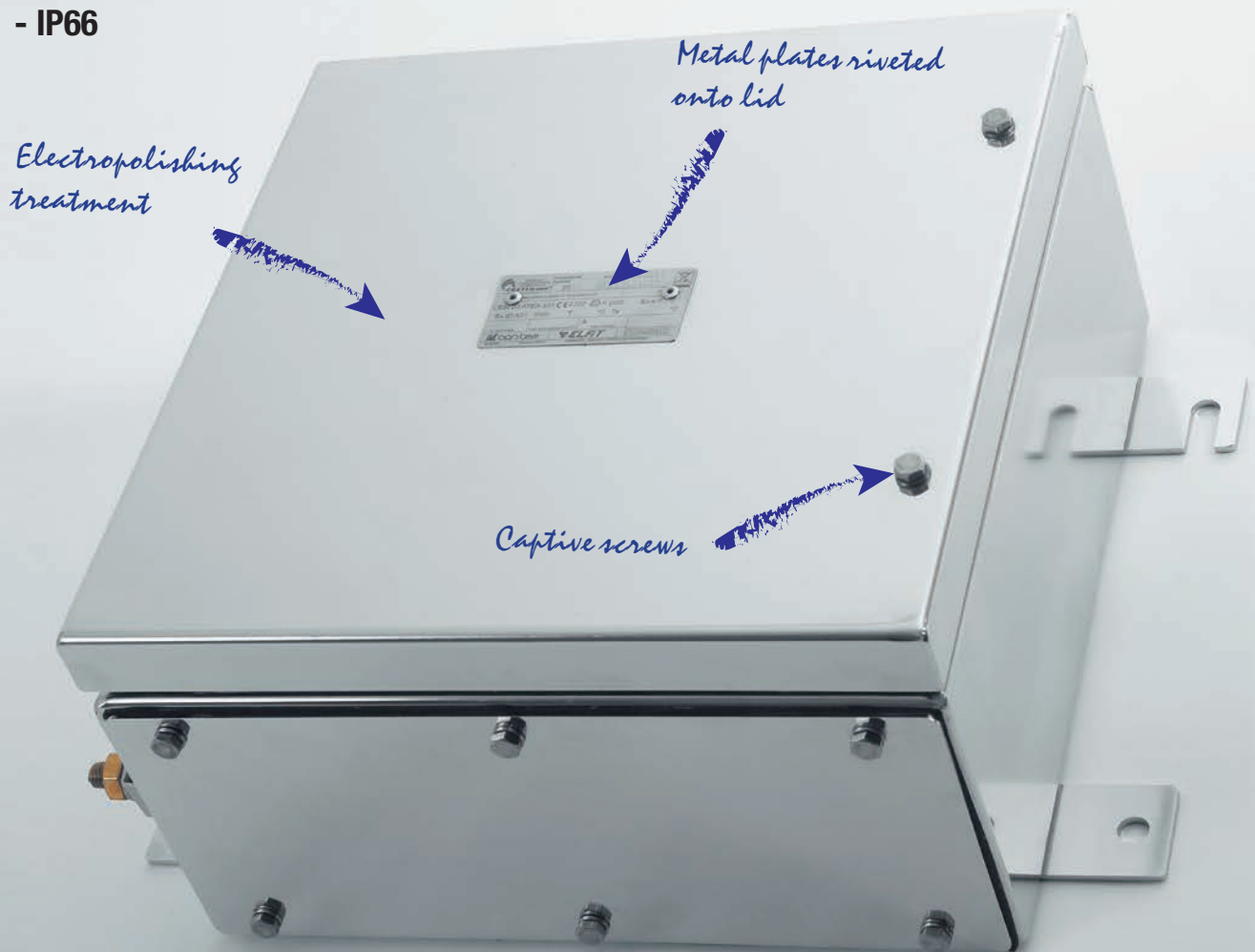
For more information, refer to the Ex e control, monitoring and signalling devices chapter.





# CTB

- Zone 1, 2, 21, 22
- Electropolished 316 L stainless steel junction boxes
- 25 different sizes
- Gasket resistant to acids and high temperatures
- IK10 mechanical strength
- IP66



Detail of TIG welding  
of walls



Earth stud with cable anti-rotation bracket



Hinges detail

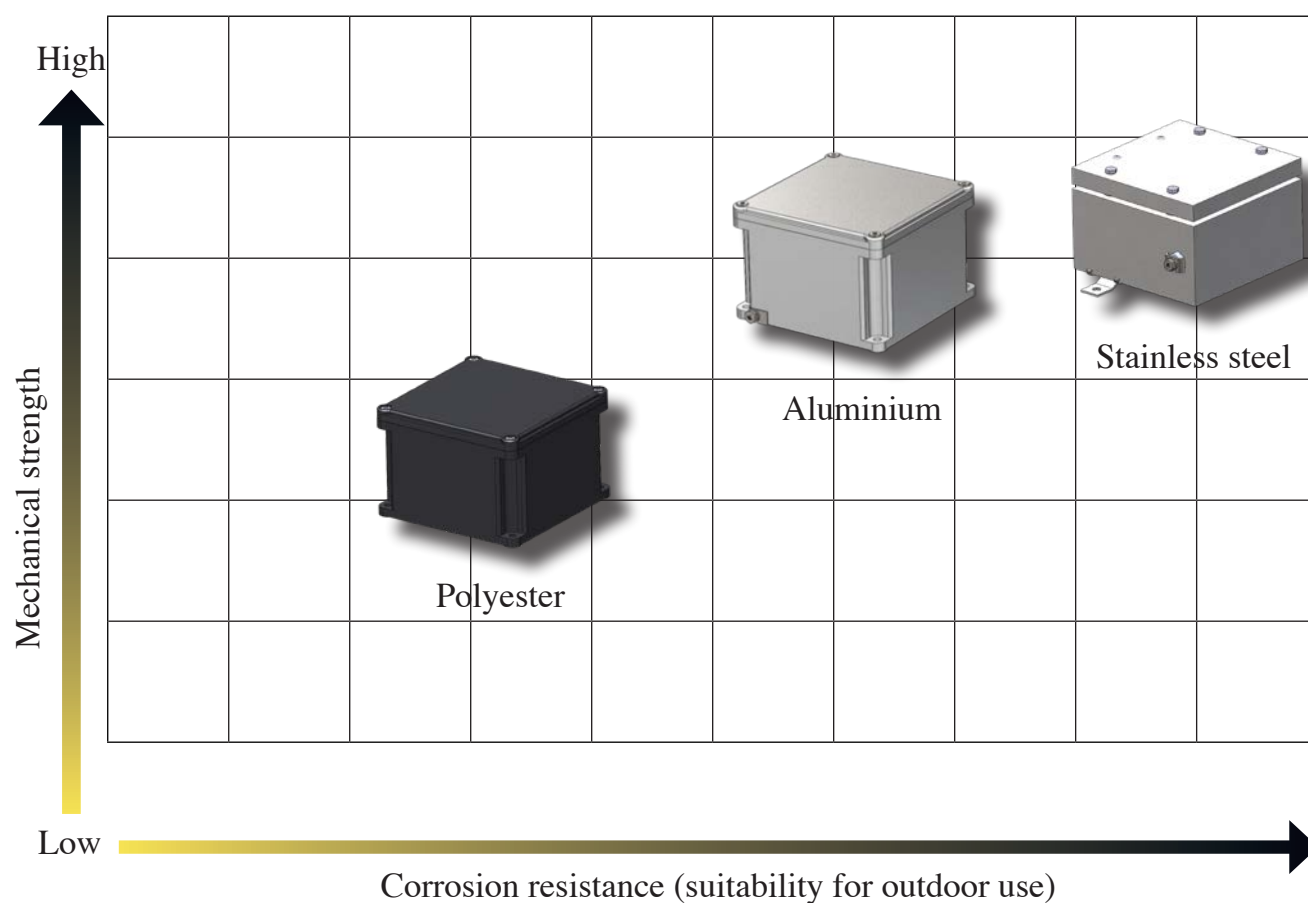
## CTB series junction boxes: criteria for choosing the right product

When it comes to deciding on an increased safety enclosure, there is a whole series of essential data to be taken into account if you are to make the right choice: the mechanical strength of the materials, corrosion resistance, the IP protection rating and IK impact protection rating in the case of enclosures for watertight/ industrial use.

### Mechanical strength

Properties	Unit	Stainless steel	Aluminium	Polyester
Density	g/cm <sup>3</sup>	8.0	2.65	1.7
Tensile strength	MPa	500-700	80-110	130
Elongation	%	60-40	4-10	2
Modulus of elasticity	GPa	193	79	11
Yield strength	MPa	≥ 200	80-165	-
Coeff. of thermal expansion (20-100°C)	10 <sup>-6</sup> K <sup>-1</sup>	16	21	-
Resistivity	Ωm	7.5x10 <sup>-7</sup>	4.8x10 <sup>-8</sup>	-
Electrical conductivity	Ω <sup>-1</sup> m <sup>-1</sup>	1.33x10 <sup>6</sup>	2.08x10 <sup>7</sup>	-

The graph below gives an overview of what use the various materials are suitable for based on the mechanical stress and harshness of the environmental conditions likely to be encountered.



## Protection ratings

### 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 OBJECTS	2ND DIGIT PROTECTION AGAINST MOISTURE	PROTECTION AGAINST EXTERNAL MECHANICAL IMPACT *
<b>0</b> Not protected	<b>0</b> Not protected	<b>IK00</b> Not protected
<b>1</b> Protected against solid objects greater than 50mm in Ø	<b>1</b> Protected against vertically falling drops of water	<b>IK01</b> 0.25 kg 5.6 cm
<b>2</b> Protected against solid objects greater than 12mm in Ø	<b>2</b> Protected against rain when tilted up to 15°	<b>IK03</b> 0.25 kg 14 cm
<b>3</b> Protected against solid objects greater than 2.5mm in Ø	<b>3</b> Protected against rain when tilted up to 60°	<b>IK05</b> 0.25 kg 28 cm
<b>4</b> Protected against solid objects greater than 1mm in Ø	<b>4</b> Protected against splashing water	<b>IK06</b> 0.25 kg 40 cm
<b>5</b> Protected against dust	<b>5</b> Protected against jets of water from all directions	<b>IK07</b> 0.5 kg 40 cm
<b>6</b> Totally protected against the ingress of dust	<b>6</b> Protected against heavy seas	<b>IK08</b> 1.7 kg 30 cm
<b>ADDITIONAL LETTER**</b>	<b>7</b> Protected against the effects of immersion	<b>IK09</b> 5 kg 20 cm
<b>A</b> Protected against access with the back of the hand	<b>8</b> Protected against the effects of continuous immersion	<b>IK10</b> 5 kg 40 cm
<b>B</b> Protected against access with a finger		
<b>C</b> Protected against access with a tool		
<b>D</b> 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

\* 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.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes

CTB, CSTB junction box series is made from AISI 316L stainless steel sheet to ensure correct service in the aggressive environments it is installed in. With their high standard of quality and use of select raw materials processed with cutting-edge technologies, these boxes successfully withstand harsh external factors, such as water, dust, hard knocks, vibrations, corrosion and extreme fluctuations in temperature, ensuring a very long period of consistently reliable service. CTB, CSTB series enclosures are usually installed in industrial plants where there is a risk of explosion and fire, classified as Zone 1, 2, 21, 22; they are mainly used as junction boxes or for routing cables for analogue or digital signals and for control and monitoring associated with equipment such as motors, pumps...etc.. The enclosures' main purpose is to protect the components inside from external factors, such as moisture or dust, which means they must have a suitable IP rating. Cortem tests its enclosures according to standard EN 60529 in its own accredited laboratory to provide assurance that this requirement is met. Cortem works alongside customers as a reliable partner, configuring custom solutions tailored to their individual requirements and offering an extensive range of ideal products and components that are configured to produce cost-effective bespoke solutions.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### TYPE AND APPLICATION

Choosing an appropriate container is a key step in the project development process, making it essential to approach the decision systematically, evaluating all variables methodically: where our equipment is being installed, the environmental conditions on site, what degree of protection it must have, what space is available and how it is due to be set up. Once you have processed all this information, you should be able to determine which product best suits the design requirements in question.

### ENVIRONMENTAL CONDITIONS

The first factor to consider is what environmental conditions the equipment is going to be installed in, whether it will be indoors or outside, and what environments it is required to operate in: pharmaceutical, chemical, petrochemical, food, shipbuilding, agricultural industries...

### DIMENSIONS

The size of the space available for inserting the enclosure and its components must be determined early on in the process.

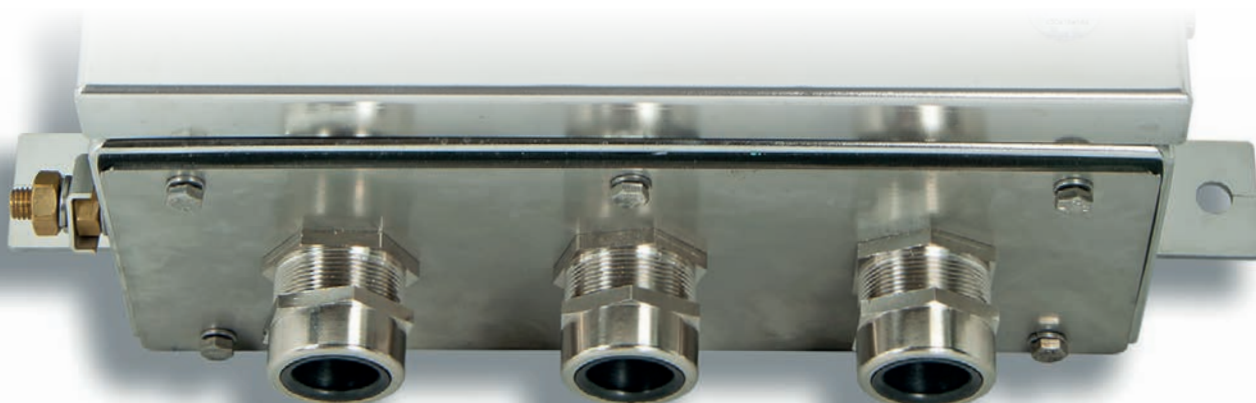
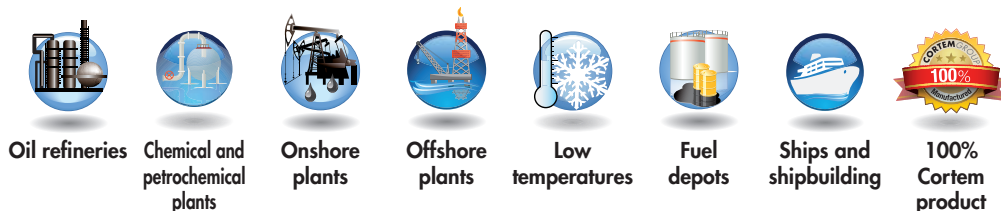
### DESIGN

Taking into account the technical aspect, product design and appearance is also important in ensuring the equipment to be installed in the enclosure is integrated seamlessly. A Cortem team of experts is on hand every day to address your questions and come up with the best solutions.

Cortem enclosures have passed:

- IP protection testing;
- IK strength testing;
- salt mist testing for corrosion resistance;
- heat resistance testing;
- low temperature resistance testing.

### Application sectors:



# CTB... series (Ex e) and (Ex i) stainless steel junction boxes

## CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex eb IIC T6/T5/T4 Gb - Ex tb IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex e ia IIC T6/T5/T4 Gb - Ex ia IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex eb ia IIC T6/T5/T4 Gb - Ex ia tb IIIC T75°C/T1 10°C Db IP66			
Certification:	ATEX	CESI 03 ATEX 333		
	IEC Ex	CES 13.0001	All IEC Ex, ECASEx, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	ECASEx	AVAILABLE		
	TR CU	AVAILABLE		
	INMETRO	DNV 15.0119		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-31: 2013			
Ambient Temp.:	See "ambient temperature range" table			
Degree of protection:	IP66			

### AMBIENT TEMPERATURE RANGE

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +40°C	T6	T75°C	+80°C
-40°C +55°C	T5	T75°C	+95°C

### LOW AND HIGH TEMPERATURE RANGE (accordingly with the temperature allowed by the terminals)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +40°C	T6	T75°C	+80°C
-60°C +55°C	T5	T75°C	+95°C
-60°C +65°C**	T5	T75°C	+95°C

\*\* For this temperature range the maximum dissipated power shall be reduced by 25% and the nominal current by 15%

### TEMPERATURE RANGE FOR SIGNALING (max. 1 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)





AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +60°C	T6	T75°C	+80°C

### TEMPERATURE RANGE FOR SIGNALING (max. 10 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)



AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +85°C	T4	T110°C	+120°C

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes

### CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

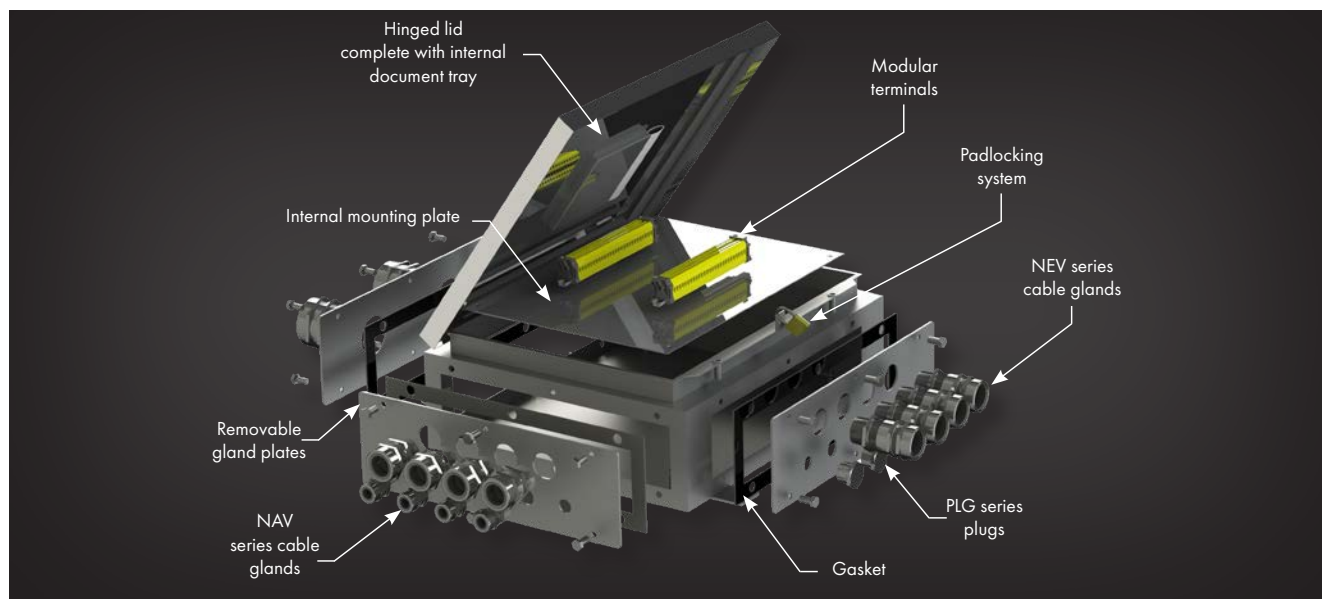
Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722 Ex II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66 (When on the box is installed only ammeter or voltmeter type B-0140)			
Certification:	ATEX CESI 03 ATEX 115 X			
	IEC Ex CES 11.0032 X	All IEC Ex, ECASEx, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	ECASEx AVAILABLE			
	TR CU AVAILABLE			
	INMETRO DNV 15.0125			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-18: 2015 EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-1: 2014, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-18: 2014, IEC 60079-31: 2013, IEC 60529: 2001			
Ambient Temp.:	 -40°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -40°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
Degree of protection:	IP66			

### CERTIFICATION DATA OF ENCLOSURES WITH EQUIPMENT (FIELDBUS, PROXIMATOR, HEATER...)

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722 Ex II2(1)GD - Ex eb ib mb [ia Ga] IIC T4 Gb - Ex tb [ia Da] IIIC T85°C Db IP66			
Certification:	ATEX CML 16 ATEX 3163X			
	IEC Ex CML 16.0074X	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-7: 2015, IEC 60079-28: 2015, IEC 60079-31:2013			
Ambient Temp.:	 -60°C +85°C 		The temperature classes and the maximum surface temperature must be selected according to the installed components. See the certificate.	
Degree of protection:	IP66			

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes

### EXPLODED VIEW OF ACCESSORIZED CTB ENCLOSURE



### MECHANICAL FEATURES

<b>Body and lid:</b>	AISI 316L stainless steel
<b>Hinges:</b>	Stainless steel AISI 316L (included on CTB series, non included on CSTB series)
<b>Impact protection rating:</b>	IK10
<b>Gasket:</b>	Resistant to acids, hydrocarbons and high temperatures, located between body and lid. Ensures consistent protection to IP66 during use
<b>Certification label:</b>	Stainless steel plate riveted onto lid
<b>Removable gland plates:</b>	Stainless steel thickness 30/10
<b>Bolts and screws:</b>	Stainless steel captive variety
<b>Earth screws:</b>	Brass. On inside and outside of body complete with anti-rotation brackets
<b>Mounting:</b>	Welded AISI 316L stainless steel feet

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

Body and cover thickness of 3 mm (Code CTB262616/**3**) Please refer to the sales offices for availability

Possible drilling of the enclosure bottom

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Breather valve; Drain valve

Internal mounting plate: stainless steel (code B...-443)

Earth screws in stainless steel

Terminal block mounting rails (code OBO2060/S)

Padlocking system; padlock (code VIRO552)

**ATEX-CERTIFIED TERMINALS:** terminals must be chosen from the list of approved manufacturers: Cabur, Phoenix, ABB Entelec, Wago, Weidmuller. When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals.

Hole options: through holes with no threading

**Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.**



Simplified system for lid fixing with key locking system Double Beard type:

(Example of order code CTB484816C)

*Installation of one key locking system up to model CTB262620*

*Installation of two key locking systems up to model CTB624520*

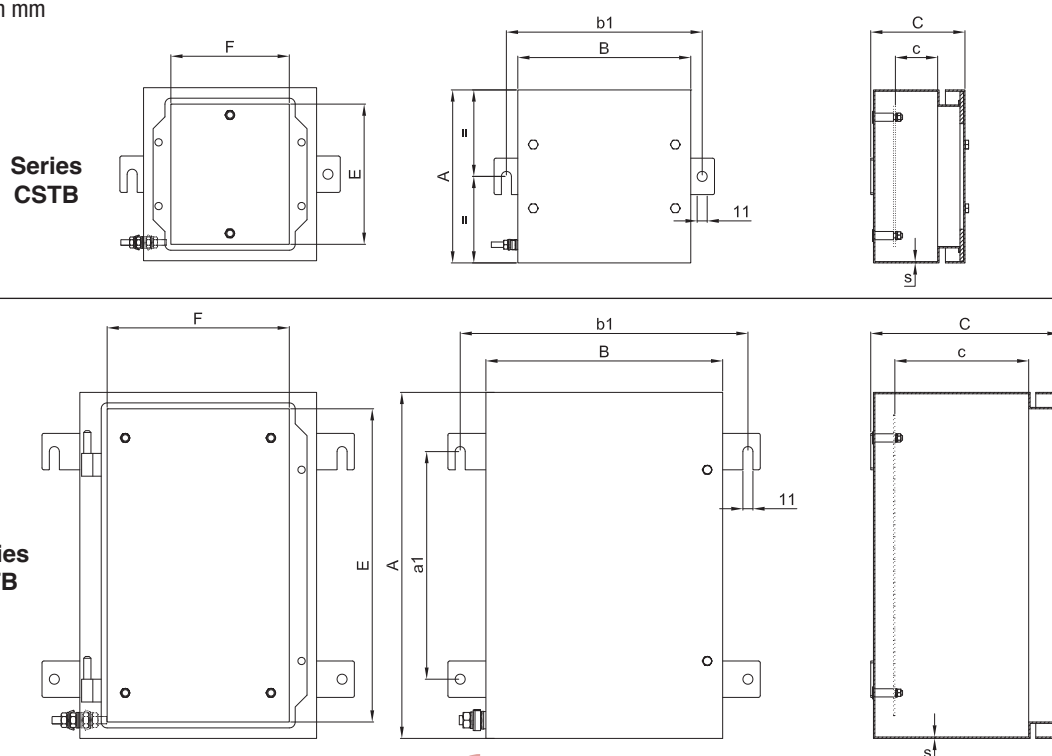
# CTB... series (Ex e) and (Ex i) stainless steel junction boxes

## ENCLOSURE SELECTION CHART

Code	Outside dimensions			Inside dimensions				Mounting		Weight kg
	A	B	C	E	F	c	s	a1	b1	
CSTB121208	120	120	80	84	60	26	1,5	-	145	
CSTB151509	150	150	90	114	90	36	1,5	-	175	
CSTB191910	190	190	100	154	130	46	1,5	-	215	
CTB221513	229	152	130	169	92	75	1,5	152	208	
CTB262616	260	260	160	224	200	100	1,5	170	316	
CTB262620	260	260	205	224	200	145	1,5	170	316	
CTB303016	306	306	160	270	246	100	1,5	203	361	
CTB303020	306	306	205	270	246	145	1,5	203	361	
CTB382616	380	260	160	344	200	100	1,5	250	316	
CTB382620	380	260	205	344	200	145	1,5	250	316	
CTB453816	450	380	160	414	322	100	1,5	305	437	
CTB453820	450	380	205	414	322	145	1,5	305	437	
CTB484816	480	480	160	444	420	100	1,5	327	535	
CTB484820	480	480	205	444	420	145	1,5	327	535	
CTB503516	500	350	160	464	290	100	1,5	350	406	
CTB503520	500	350	205	464	290	145	1,5	350	406	
CTB624516	620	450	160	584	390	100	2	450	506	
CTB624520	620	450	205	584	390	145	2	450	506	
CTB745520	740	550	205	704	490	145	2	540	606	
CTB765020	762	508	205	726	448	145	2	508	564	
CTB808030	800	800	305	725	725	245	2	510	855	
CTB866420	860	640	205	824	580	145	2	696	570	
CTB916120	914	610	205	878	550	145	2	666	559	
CTB916130	914	610	305	878	550	245	2	666	559	
CTB987420	980	740	205	944	680	145	2	700	769	

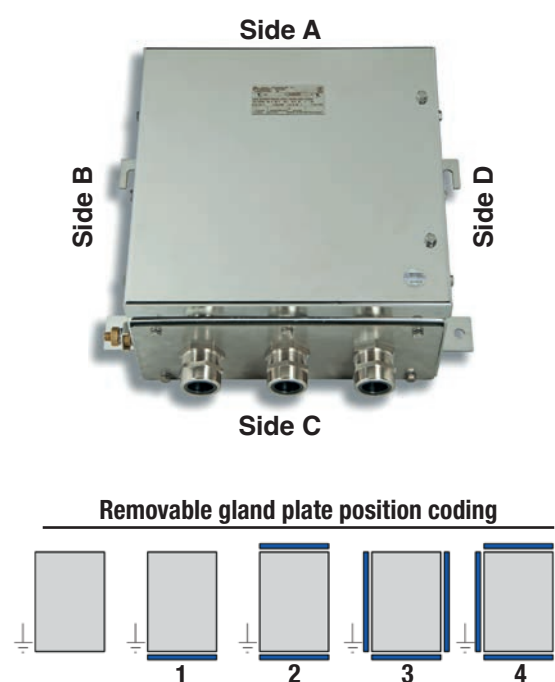
## DIMENSIONAL DRAWING

Dimensions in mm



# CTB... series (Ex e) and (Ex i) stainless steel junction boxes

## REMOVABLE GLAND PLATES ON CTB SERIES STAINLESS STEEL BOXES



### Ordering code examples

#### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

#### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

Code	Removable gland plate dimensions			
	Side A	Side B	Side C	Side D
CTB221513S..	144x94	144x94	144x94	144x94
CTB262616S..	254x120	154x120	254x120	154x120
CTB262620S..	254x164	154x164	254x164	154x164
CTB303016S..	298x120	254x120	298x120	254x120
CTB303020S..	298x164	254x164	298x164	254x164
CTB382616S..	254x120	298x120	254x120	298x120
CTB382620S..	254x164	298x164	254x164	298x164
CTB453816S..	374x120	374x120	374x120	374x120
CTB453820S..	374x164	374x164	374x164	374x164
CTB484816S..	474x120	444x120	474x120	444x120
CTB484820S..	474x164	444x164	474x164	444x164
CTB503516S..	344x120	444x120	344x120	444x120
CTB503520S..	344x164	444x164	344x164	444x164
CTB624516S..	444x120	544x120	444x120	544x120
CTB624520S..	444x164	544x164	444x164	544x164
CTB745520S..	544x164	634x164	544x164	634x164
CTB765020S..	504x164	594x124	504x164	594x124
CTB808030S..	634x214	634x214	634x214	634x214
CTB866420S..	634x164	740x164	634x164	740x164
CTB916120S..	604x164	740x164	604x164	740x164
CTB916130S..	604x264	740x264	604x264	740x264
CTB987420S..	634x164	444x164 (x2)	634x164	444x164 (x2)

## OVERVIEW OF SIZES





## CTB... series Body drilling data

THREAD COMPARISON CHART

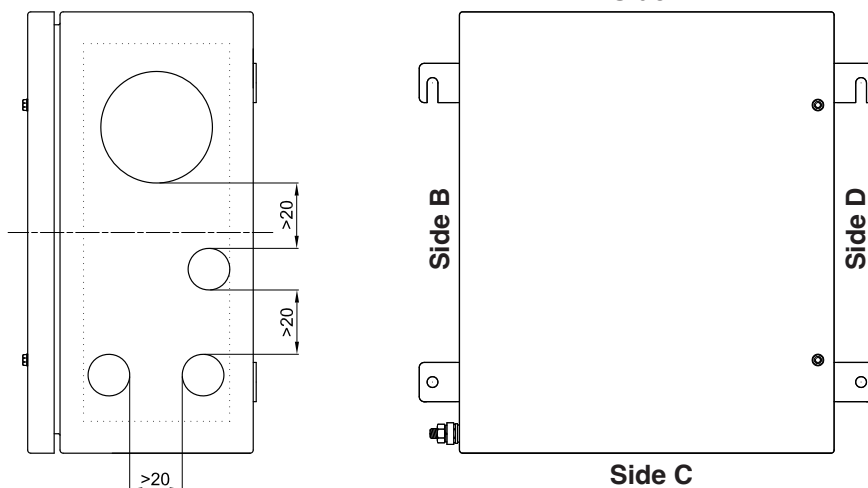
D	01	1	2	3	4	5	6	7	8
Thread diameter	16x1.5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5	Ø90.5

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .



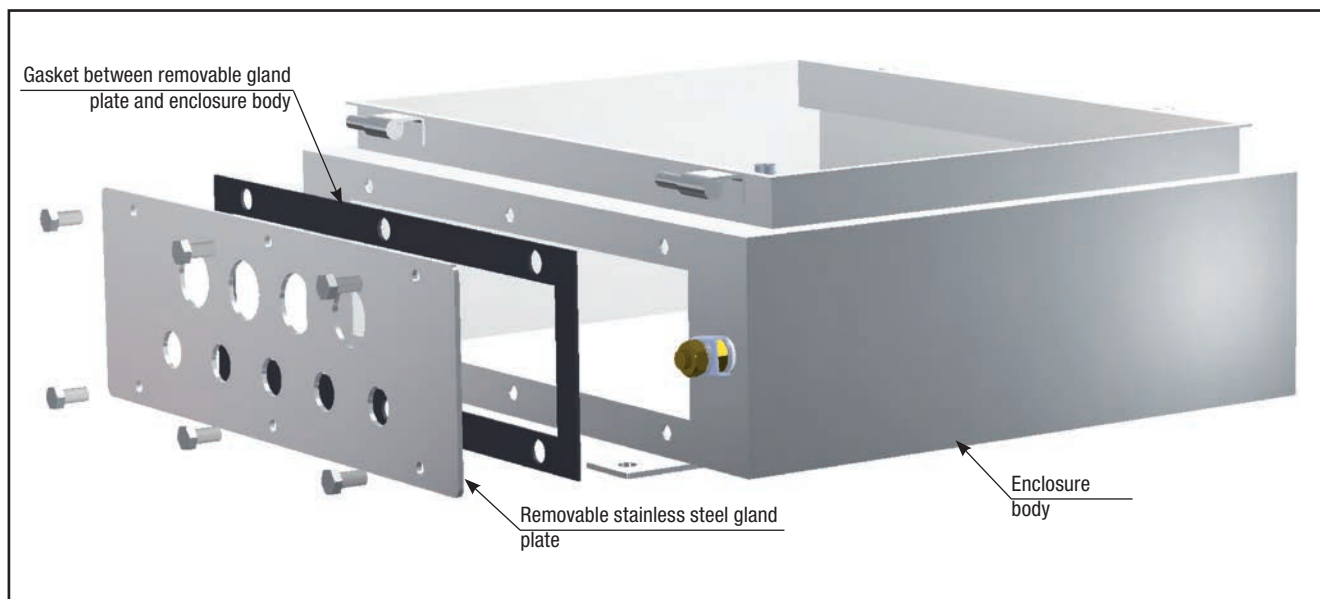
TYPE OF ENCLOSURE	HOLE DRILLING IN BODY																			
	Sides A and C										Sides B and D									
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE									Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								
		01	1	2	3	4	5	6	7	8		01	1	2	3	4	5	6	7	8
CSTB121208	70x30	2	2	2	-	-	-	-	-	-	100x30	3	3	3	-	-	-	-	-	
CSTB151509	115x40	3	3	2	2	-	-	-	-	-	140x40	4	4	3	2	-	-	-	-	
CSTB191910	155x50	4	4	3	2	2	-	-	-	-	180x50	4	4	4	3	3	-	-	-	
CTB221513	105x55	5	5	2	2	1	-	-	-	-	165x55	8	8	3	3	3	-	-	-	
CTB262616	195x80	10	10	7	4	3	3	2	-	-	210x80	10	10	8	4	3	3	2	-	
CTB262620	215x125	15	15	14	8	6	3	2	2	1	195x125	15	15	12	6	6	3	2	2	
CTB303016	260x80	12	12	10	9	8	3	2	2	-	245x80	12	12	10	9	8	3	2	-	
CTB303020	260x125	18	18	17	10	8	6	3	2	2	245x125	18	18	15	10	8	6	3	2	
CTB382616	215x80	10	10	10	7	3	3	2	2	-	315x80	16	16	14	11	5	4	3	-	
CTB382620	215x125	15	15	12	8	6	6	2	2	1	315x125	24	24	21	12	10	8	3	2	
CTB453816	335x80	16	16	14	6	5	4	3	2	-	385x80	20	20	16	7	6	5	4	-	
CTB453820	335x125	24	24	21	12	10	8	3	3	2	335x125	30	30	24	14	12	10	4	3	
CTB484816	435x80	22	22	18	8	7	6	4	3	-	405x80	20	20	18	8	6	5	4	-	
CTB484820	435x125	32	32	26	16	13	11	4	3	3	405x125	30	30	26	14	12	10	4	3	
CTB503516	305x80	14	14	12	5	4	4	3	2	-	440x80	22	22	19	8	7	6	4	-	
CTB503520	305x125	21	21	18	12	10	7	3	2	2	440x125	33	33	27	16	14	11	4	3	
CTB624516	405x80	20	20	18	7	6	5	4	3	-	555x80	28	28	24	10	9	7	6	-	
CTB624520	405x125	30	30	26	14	12	10	4	3	2	550x125	39	39	36	20	18	15	6	3	
CTB745520	505x125	36	36	32	16	16	13	5	4	3	670x125	50	50	42	24	21	17	7	4	
CTB765020	465x125	33	33	29	18	14	11	5	4	3	690x125	50	50	44	26	22	18	7	4	
CTB866420	595x125	44	44	38	22	18	15	6	5	4	780x125	57	57	51	28	24	20	8	5	
CTB916120	565x125	41	41	35	20	18	14	6	5	3	830x125	60	60	53	30	26	22	9	5	
CTB916130	565X224	65	65	60	40	27	21	12	9	3	833x228	80	80	75	48	33	27	14	5	
CTB987420	700x125	50	50	44	26	22	18	7	6	4	840x125	63	63	59	34	28	24	9	6	
CTB808030	755x225	72	72	62	39	33	27	14	12	4	730x225	72	72	60	39	33	27	14	4	

Side A



## CTB... series Removable gland plate drilling data

Example of enclosure body featuring removable gland plate on just one side.



TYPE OF ENCLOSURE	HOLE DRILLING IN REMOVABLE GLAND PLATES																	
	Sides A and C									Sides B and D								
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE							
		01	1	2	3	4	5	6	7		01	1	2	3	4	5	6	7
CTB221513	98x54	3	3	2	1	1	-	-	-	104x54	3	3	2	1	1	-	-	-
CTB262616	214x80	10	10	8	4	3	2	-	-	114x80	6	6	3	2	1	1	-	-
CTB262620	214x124	15	15	12	8	6	3	-	-	114x124	9	9	6	4	2	1	-	-
CTB303016	258x80	12	12	10	4	4	3	2	-	214x80	10	10	8	4	3	3	2	-
CTB303020	258x124	18	18	13	8	4	3	-	-	214x124	15	15	10	8	3	2	-	-
CTB382616	214x80	10	10	8	4	3	3	-	-	258x80	12	12	9	4	3	3	-	-
CTB382620	214x124	15	15	12	8	6	4	-	-	258x124	18	18	15	8	5	3	-	-
CTB453816	334x80	16	16	14	6	5	4	3	-	334x80	16	16	14	6	5	4	3	-
CTB453820	334x124	24	24	20	12	8	4	3	-	334x124	24	24	20	12	8	4	3	-
CTB484816	434x80	22	22	18	7	5	5	4	-	404x80	20	18	14	6	5	4	3	-
CTB484820	434x124	32	32	24	14	12	5	4	-	404x124	29	27	21	12	8	4	3	-
CTB503516	304x80	14	14	12	5	4	4	3	-	404x80	19	16	12	5	4	4	3	-
CTB503520	304x124	21	21	17	10	8	4	3	2	404x124	29	24	18	10	8	4	3	2
CTB624516	404x80	19	19	16	7	6	5	4	-	504x80	24	22	16	7	6	5	4	-
CTB624520	404x124	29	29	23	14	10	5	4	3	504x124	36	33	24	14	12	5	4	3
CTB745520	504x124	36	36	30	16	13	7	5	4	594x124	42	42	30	18	14	7	5	4
CTB765020	464x124	33	33	16	14	10	5	4	3	594x124	42	42	22	22	16	8	5	5
CTB866420	594x124	44	44	36	20	16	8	6	5	700x124	51	48	36	20	16	8	6	4
CTB916120	564x124	41	41	22	16	8	8	4	4	700x124	51	48	22	22	8	8	5	5
CTB916130	564x224	65	65	60	40	27	21	12	9	700x224	80	80	75	48	33	27	14	12
CTB987420	594x124	44	44	36	20	16	8	6	4	404x124 (x2)	58	58	48	28	20	10	8	6



These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting plates. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

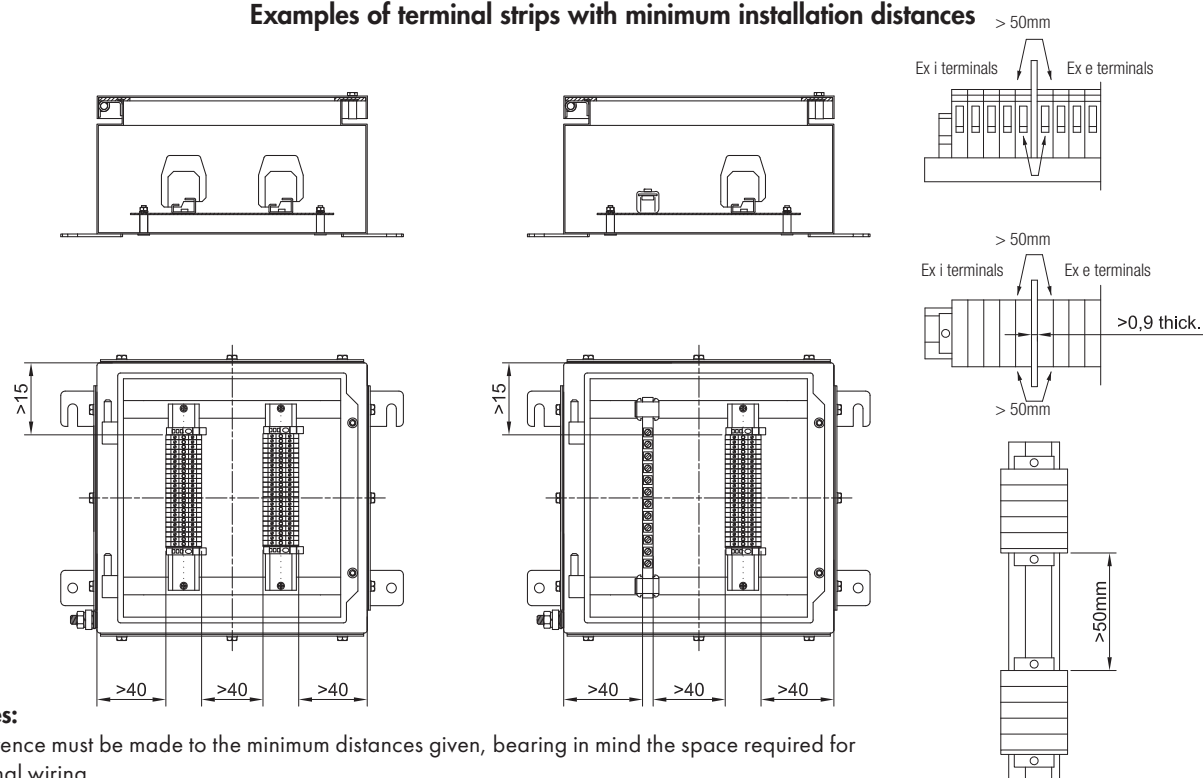
## ELECTRICAL FEATURES

	Standard applications	Signal circuits applications	
		T6/T75°C max. Tamb +60°C	T4/T100°C max. Tamb +85°C
Rated voltage:	1000 Vac/dc	-	-
Rated current:	312 A	1 A for exec. <b>Ex eb</b> 100 mA for exec. <b>Ex ia</b>	10 A for exec. <b>Ex eb</b> 100 mA for exec. <b>Ex ia</b>
Rated frequency:	50/60 Hz	-	-
Terminal section:	1.5 ÷ 300 mm <sup>2</sup>	-	-

Marking	Terminal type	Description
<b>Ex II 2GD Ex eb IIC T... Gb - Ex tb IIIC T... Db IP66</b>	Ex e terminals only	Enclosures containing increased safety terminals to standard EN 60079-7
<b>Ex II 2GD Ex eb ia IIC T... Gb - Ex tb ia IIIC T... Db IP66</b>	Ex e and Ex i terminals	Enclosures containing increased safety terminals and intrinsic safety terminals to standards EN 60079-7 and EN 60079-11
<b>Ex II 2GD Ex ia IIC T... Gb - Ex ia IIIC T... Db IP66</b>	Ex i terminals only	Enclosures containing intrinsic safety terminals to standard EN 60079-11; enclosures are still category 2

## CTB... series Features of junction boxes with terminals

### Examples of terminal strips with minimum installation distances



#### Notes:

Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.

Only ATEX-certified terminals are allowed inside the enclosures.

Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.

Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.

TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED															
	TERMINAL CROSS-SECTIONAL AREA															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
CSTB121208	8	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSTB151509	16	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSTB191910	28	19	16	12	-	-	-	-	-	-	-	-	-	-	-	-
CTB221513	27	19	15	11	-	-	-	-	-	-	-	-	-	-	-	-
CTB262616	2x36	2x25	2x21	2x16	2x12	2x10	7	-	-	-	-	-	-	-	-	-
CTB262620	2x36	2x25	2x21	2x16	2x12	2x10	7	-	-	-	-	-	-	-	-	-
CTB303016	2x54	2x37	2x31	2x23	2x18	2x15	11	-	-	-	-	-	-	-	-	-
CTB303020	2x54	2x37	2x31	2x23	2x18	2x15	11	11	10	9	-	-	-	-	-	-
CTB382616	2x71	2x49	2x41	2x31	2x24	2x20	15	15	13	11	-	-	-	-	-	-
CTB382620	2x71	2x49	2x41	2x31	2x24	2x20	15	15	13	11	-	-	-	-	-	-
CTB453816	2x94	2x65	2x54	2x41	2x32	2x27	2x20	2x20	2x17	2x15	-	-	-	-	-	-
CTB453820	2x94	2x65	2x54	2x41	2x32	2x27	2x20	2x20	2x17	2x15	11	10	10	8	8	6
CTB484816	3x99	3x69	3x58	3x43	2x34	2x28	2x21	2x21	2x18	2x16	-	-	-	-	-	-
CTB484820	3x99	3x69	3x58	3x43	2x34	2x28	2x21	2x21	2x18	2x16	12	10	10	9	9	6
CTB503516	2x105	2x73	2x61	2x46	2x36	2x30	2x22	2x22	2x19	2x17	-	-	-	-	-	-
CTB503520	2x105	2x73	2x61	2x46	2x36	2x30	2x22	2x22	2x19	2x17	13	11	11	10	10	6
CTB624516	3x139	3x97	3x81	3x61	2x48	2x40	2x30	2x30	2x26	2x23	-	-	-	-	-	-
CTB624520	3x139	3x97	3x81	3x61	2x48	2x40	2x30	2x30	2x26	2x23	17	15	15	13	13	9
CTB745520	4x174	4x121	4x101	4x76	3x60	3x50	3x37	3x37	3x33	3x29	22	18	18	16	16	11
CTB765020	4x182	4x127	4x106	4x79	3x63	3x53	3x39	3x39	3x34	3x30	23	19	19	17	17	12
CTB866420	5x208	5x145	5x121	5x91	5x72	5x60	4x45	4x45	3x40	3x35	26	22	22	20	20	13
CTB916120	5x225	5x157	5x131	5x98	5x78	5x65	4x49	4x49	3x43	3x38	29	24	24	21	21	14
CTB916130	5x225	5x157	5x131	5x98	5x78	5x65	4x49	4x49	3x43	3x38	29	24	24	21	21	14
CTB987420	5x242	5x169	5x141	5x106	5x84	5x70	4x52	4x52	3x46	3x41	31	26	26	23	23	16

Eg. 2x22 = 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

## CTB... series Features of junction boxes with terminals

The permissible maximum power dissipation, in order to retain a T6 temperature class with an ambient temperature up to +40°C or T5 class with an ambient temperature of 55°C, is not to exceed the values given in the tables below.

For an ambient temperature of +60°C or +65°C, maximum power dissipation must be reduced by 25%, and rated current reduced by 15%.

The maximum current values for terminal strips used for low-voltage circuits (signalling units) with a T6 temperature class and maximum ambient temperature of +60°C or T4 and maximum ambient temperature +65°C and +85°C are as follows:

+60°C T6 -> max 1A Ex e, max 100mA Ex ia

+85°C T4 -> max 10A Ex e, max 100mA Ex ia

The values given in the tables on the coming pages refer to the maximum number of conductors allowed for a conductor with a given cross-sectional area and a given maximum current. All incoming wires and active internal links (made by wires) count as wires. Earth connections (i.e. passive connections) do not count.

When DIN/Omega rails are installed on the internal mounting plate (instead of using the relevant mounting plate fastening holes), the number of terminals may be slightly less than the number given in the tables.

Other types of terminals can be used up to the space limit of the box. Whatever the case, all terminals used shall be ATEX and/or IEC Ex certified. Size 35mm<sup>2</sup> terminals can be used for conductors with a cross-sectional area of 25mm<sup>2</sup>.

The maximum number of terminals and maximum number of rows given in the tables is an indicative value: you must take into account the cable entries on the sides of the boxes. The internal overall dimensions of cable glands/lock nuts and the overall dimensions of conductors must be taken into consideration to allow for wiring.

In some cases, it may be necessary to reduce the number of terminals or the number of rows.

Example of how to calculate the maximum number of conductors.

Referring to table CTB262620: 6 conductors with 6mm<sup>2</sup> cross-section with 26A continuous current is the limit of this box. Consequently, box CTB262620 is suitable for containing 3 x 6mm<sup>2</sup> terminals (2 conductors for each terminal) with a max. current of 26A.

There is space for 32 x 6mm<sup>2</sup> terminals in the box. The remaining 29 terminals (32-3) can be added and used for low-current circuits indicated in the "yellow-coloured" area of the table (in this case max. 8-10A).

Combined mounting for electrical circuits with different sized cables is possible provided the values given are used proportionally. For example:

Nominal X-sect. area (mm <sup>2</sup> )	Current (A)	Quantity	Capacity
2,5	8	16 (di 46)	34,8%
4	11	12 (di 36)	33,3%
10	26	4 (di 13)	30,8%
		Total	98,9% <100%

## CTB... series Features of junction boxes with terminals

Table showing maximum power dissipation and current for ambient temperature +40°C and +55°C

Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
CSTB121208	5.3	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CSTB151509	5.5	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CSTB191910	6.2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTB221513	6.2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTB262616	10.6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTB262620	11.2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTB303016	11.2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTB303020	12.2	11	15	21	26	37	49	49	67	80	122	122	147	147	147	147	147
CTB382616	12.2	11	15	21	26	37	49	49	67	80	122	122	147	147	147	147	147
CTB382620	12.2	11	15	21	26	37	49	49	67	80	122	122	147	147	147	147	147
CTB453816	29.5	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB453820	29.5	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB484816	29.5	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB484820	29.5	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB503516	29.5	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB503520	29.5	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB624516	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB624520	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB745520	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB765020	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB866420	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB916120	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB916130	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
CTB987420	36	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312


Table showing maximum power dissipation and current for ambient temperature +60°C and +65°C


Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
CSTB121208	3.9	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CSTB151509	4.1	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CSTB191910	4.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTB221513	4.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTB262616	7.9	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTB262620	8.4	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTB303016	8.4	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTB303020	9.1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125
CTB382616	9.1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125
CTB382620	9.1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125
CTB453816	22.1	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB453820	22.1	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB484816	22.1	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB484820	22.1	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB503516	22.1	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB503520	22.1	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB624516	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB624520	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB745520	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB765020	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB866420	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB916120	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB916130	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
CTB987420	27	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265



## CTB... series Features of junction boxes with terminals

**Instructions for determining which enclosure is best suited based on the planned number of conductors and terminals.**

 : In this section of the table that has not been filled in, once you have followed the instructions and complied with the values given for the enclosure's internal wiring, you can add as many terminals as you want up to the space limit of the box.

 : Any wiring that falls within this section of the table that has not been filled in is not covered by the certificate.

"**C. No.**" row: the values given refer to the maximum number of CABUR terminals physically allowed inside the relevant enclosure. These values are expressed as the product of the rows multiplied by the number of terminals.

"**W. No.**" row: the same as above, but this time referring to Weidmuller terminals.

The terminal brands are mentioned just to give an idea of the quantity of terminals that can be housed inside the enclosure.

The other values given in the cells along the table's diagonal define the maximum number of conductors allowed, based on their cross-sectional area and maximum current.

### Tables showing maximum number of conductors

$$\left( N^{\circ} \text{ of terminals} = \frac{n^{\circ} \text{ of conductors}}{2} \right)$$

**CSTB121208**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	15	25					
10	9	16	22				
11	8	13	18	24			
15		7	10	13			
21			5	7	9	12	
26				4	6	8	10
37					3	4	5
49						2	3
67							2
C. No.							
W. No.	8	5					

Maximum power dissipation with T6 temperature class must not exceed 5.3W

**CSTB151509**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	14	24					
10	9	15	22				
11	7	12	18	24			
15		6	10	13	18	25	
21			5	7	9	13	16
26				4	6	8	11
37					3	4	5
49						2	3
67							2
C. No.							
W. No.	16	11					

Maximum power dissipation with T6 temperature class must not exceed 5.5W

**CSTB191910**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	16	27	38				
10	10	17	24	33			
11	8	14	20	27	39		
15		7	11	14	21	28	
21			6	7	11	14	19
26				5	7	9	12
37					3	5	6
49						3	3
67							2
C. No.		17	14	12			
W. No.	28	19	16	12			

Maximum power dissipation with T6 temperature class must not exceed 6.2W

**CTB221513**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	16	27	38				
10	10	17	24	33			
11	8	14	20	27	39		
15		7	11	14	21	28	
21			6	7	11	14	19
26				5	7	9	12
37					3	5	6
49						3	3
67							2
C. No.		17	14	11			
W. No.	27	19	15	11			

Maximum power dissipation with T6 temperature class must not exceed 6.2W

**CTB262616**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	15	19
37					5	7	9
49						4	5
67							3
C. No.		2x23	2x19	2x16	2x12	2x10	7
W. No.	2x36	2x25	2x21	2x16	2x12	2x10	7

Maximum power dissipation with T6 temperature class must not exceed 10.6W

**CTB262620**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x23	2x19	2x16	2x12	2x10	7
W. No.	2x36	2x25	2x21	2x16	2x12	2x10	7

Maximum power dissipation with T6 temperature class must not exceed 11.2W

**CTB303016**

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1.5	2.5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x34	2x28	2x23	2x18	2x15	11
W. No.	2x54	2x37	2x31	2x23	2x18	2x15	11

Maximum power dissipation with T6 temperature class must not exceed 11.2W

# CTB... series Features of junction boxes with terminals

## Tables showing maximum number of conductors

### CTB303020

Current (A)	Cross-sectional area in mm <sup>2</sup>															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	21	34	51	71	107	153										
10	13	22	33	45	69	98	136									
11	11	18	27	38	57	81	113	141								
15		9	15	20	31	43	61	76	92							
21			7	10	16	22	31	39	47	59						
26				7	10	14	20	25	31	38	45					
37					5	7	10	12	15	19	22	25	27			
49						4	6	7	9	11	13	14	15	16	17	
67							3	4	5	6	7	8	8	9	9	5
80								3	3	4	5	5	6	6	6	4
98									2	3	3	4	4	4	4	2
122										2	2	2	2	3	3	2
147											2	2	2	2	2	2
C. No.		2x34	2x28	2x23	2x18	2x15	11	11	10	9						
W. No.	2x54	2x37	2x31	2x23	2x18	2x15	11	11	10	9						

Maximum power dissipation with T6 temperature class must not exceed 12.2W

### CTB382616, CTB382620

Current (A)	Cross-sectional area in mm <sup>2</sup>															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	21	34	51	71	107	153										
10	13	22	33	45	69	98	136									
11	11	18	27	38	57	81	113	141								
15		9	15	20	31	43	61	76	92							
21			7	10	16	22	31	39	47	59						
26				7	10	14	20	25	31	38	45					
37					5	7	10	12	15	19	22	25	27			
49						4	6	7	9	11	13	14	15	16	17	
67							3	4	5	6	7	8	8	9	9	5
80								3	3	4	5	5	6	6	6	4
98									2	3	3	4	4	4	4	2
122										2	2	2	2	3	3	2
147											2	2	2	2	2	2
C. No.		2x45	2x38	2x31	2x24	2x20	15	15	13	11						
W. No.	2x71	2x49	2x41	2x31	2x24	2x20	15	15	13	11						

Maximum power dissipation with T6 temperature class must not exceed 12.2W

### CTB453816

Current (A)	Cross-sectional area in mm <sup>2</sup>															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	39	65	98	139	215	316										
10	25	41	63	89	138	202	291									
11	21	34	52	73	114	167	241	311								
15		18	28	39	61	90	129	167	209							
21			14	20	31	46	66	85	107	141						
26				13	20	30	43	56	70	92	115					
37					10	15	21	27	34	45	57	66	76			
49						8	12	16	20	26	32	38	43	49		
67							6	8	10	14	17	20	23	26	31	
80								6	7	10	12	14	16	19	22	16
98									5	6	8	9	11	12	14	11
122										4	5	6	7	8	9	11
147											4	4	5	5	6	7
175												3	3	4	4	5
196													3	3	4	4
227														2	3	3
270															2	2
312																2
C. No.		2x59	2x50	2x41	2x32	2x27	2x20	2x20	2x18	2x15						
W. No.	2x94	2x65	2x54	2x41	2x32	2x27	2x20	2x20	2x17	2x15						

Maximum power dissipation with T6 temperature class must not exceed 29.5W

### CTB453820

Current (A)	Cross-sectional area in mm <sup>2</sup>															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	39	65	98	139	215	316										
10	25	41	63	89	138	202	291									
11	21	34	52	73	114	167	241	311								
15		18	28	39	61	90	129	167	209							
21			14	20	31	46	66	85	107	141						
26				13	20	30	43	56	70	92	115					
37					10	15	21	27	34	45	57	66	76			
49						8	12	16	20	26	32	38	43	49		
67							6	8	10	14	17	20	23	26	31	
80								6	7	10	12	14	16	19	22	16
98									5	6	8	9	11	12	14	11
122										4	5	6	7	8	9	11
147											4	4	5	5	6	7
175												3	3	4	4	5
196													3	3	4	4
227														2	3	3
270															2	2
312																2
C. No.		2x59	2x50	2x41	2x32	2x27	2x20	2x20	2x18	2x15	10	7	7	6	6	6
W. No.	2x94	2x65	2x54	2x41	2x32	2x27	2x20	2x20	2x17	2x15	11	10	10	8	8	8

Maximum power dissipation with T6 temperature class must not exceed 29.5W

# CTB... series Features of junction boxes with terminals

## Tables showing maximum number of conductors

CTB484816

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	39	65	98	139	215	316										
10	25	41	63	89	138	202	291									
11	21	34	52	73	114	167	241	311								
15		18	28	39	61	90	129	167	209							
21			14	20	31	46	66	85	107	141						
26				13	20	30	43	56	70	92	115					
37					10	15	21	27	34	45	57	66	76			
49						8	12	16	20	26	32	38		43	49	
67							6	8	10	14	17	20	23	26	31	
80								6	7	10	12	14	16	19	22	16
98									5	6	8	9	11	12	14	11
122										4	5	6	7	8	9	11
147											4	4	5	5	6	7
175												3	3	4	4	5
196													3	3	4	4
227														2	3	3
270															2	2
312																2
C. No.		3x63	3x53	3x43	2x34	2x28	2x21	2x21	2x19	2x16						
W. No.	3x99	3x69	3x58	3x43	2x34	2x28	2x21	2x21	2x18	2x16						

Maximum power dissipation with T6 temperature class must not exceed 29.5W

CTB484820

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	39	65	98	139	215	316										
10	25	41	63	89	138	202	291									
11	21	34	52	73	114	167	241	311								
15		18	28	39	61	90	129	167	209							
21			14	20	31	46	66	85	107	141						
26				13	20	30	43	56	70	92	115					
37					10	15	21	27	34	45	57	66	76			
49						8	12	16	20	26	32	38	43	49		
67							6	8	10	14	17	20	23	26	31	
80								6	7	10	12	14	16	19	22	16
98									5	6	8	9	11	12	14	11
122										4	5	6	7	8	9	11
147											4	4	5	5	6	7
175												3	3	4	4	5
196													3	3	4	4
227														2	3	3
270															2	2
312																2
C. No.		3x63	3x53	3x43	2x34	2x28	2x21	2x21	2x19	2x16	10	8	8	6	6	6
W. No.	3x99	3x69	3x58	3x43	2x34	2x28	2x21	2x21	2x18	2x16	12	10	10	9	9	

Maximum power dissipation with T6 temperature class must not exceed 29.5W

CTB503516

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	39	65	98	139	215	316										
10	25	41	63	89	138	202	291									
11	21	34	52	73	114	167	241	311								
15		18	28	39	61	90	129	167	209							
21			14	20	31	46	66	85	107	141						
26				13	20	30	43	56	70	92	115					
37					10	15	21	27	34	45	57	66	76			
49						8	12	16	20	26	32	38	43	49		
67							6	8	10	14	17	20	23	26	31	
80								6	7	10	12	14	16	19	22	16
98									5	6	8	9	11	12	14	11
122										4	5	6	7	8	9	11
147											4	4	5	5	6	7
175												3	3	4	4	5
196													3	3	4	4
227														2	3	3
270															2	2
312																2
C. No.		2x67	2x56	2x46	2x36	2x30	2x22	2x22	2x20	2x17						
W. No.	2x105	2x73	2x61	2x46	2x36	2x30	2x22	2x22	2x19	2x17						

Maximum power dissipation with T6 temperature class must not exceed 29.5W

CTB503520

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	39	65	98	139	215	316										
10	25	41	63	89	138	202	291									
11	21	34	52	73	114	167	241	311								
15		18	28	39	61	90	129	167	209							
21			14	20	31	46	66	85	107	141						
26				13	20	30	43	56	70	92	115					
37					10	15	21	27	34	45	57	66	67			
49						8	12	16	20	26	32	38	43	49		
67							6	8	10	14	17	20	23	26	31	
80								6	7	10	12	14	16	19	22	16
98									5	6	8	9	11	12	14	11
122										4	5	6	7	8	9	11
147											4	4	5	5	6	7
175												3	3	4	4	5
196													3	3	4	4
227														2	3	3
270															2	2
312																2
C. No.		2x67	2x56	2x46	2x36	2x30	2x22	2x22	2x20	2x17	11	8	8	6	6	6
W. No.	2x105	2x73	2x61	2x46	2x36	2x30	2x22	2x22	2x19	2x17	13	11	11	10	10	

Maximum power dissipation with T6 temperature class must not exceed 29.5W

# CTB... series Features of junction boxes with terminals

## Tables showing maximum number of conductors

CTB624516

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44	51	59		
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		3x88	3x75	3x61	2x48	2x40	2x30	2x30	2x26	2x23						
W. No.	3x139	3x97	3x81	3x61	2x48	2x40	2x30	2x30	2x26	2x23						

Maximum power dissipation with T6 temperature class must not exceed 36W

CTB624520

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44				
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		3x88	3x75	3x61	2x48	2x40	2x30	2x30	2x26	2x23	15	11	11	9	9	9
W. No.	3x139	3x97	3x81	3x61	2x48	2x40	2x30	2x30	2x26	2x23	17	15	15	13	13	

Maximum power dissipation with T6 temperature class must not exceed 36W

CTB745520

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44	51	59		
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		4x110	4x93	4x76	3x60	3x50	3x37	3x37	3x33	3x29	18	14	14	11	11	11
W. No.	4x174	4x121	4x101	4x76	3x60	3x50	3x37	3x37	3x32	3x29	22	18	18	16	16	

Maximum power dissipation with T6 temperature class must not exceed 36W

CTB765020

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44	51	59		
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		4x116	4x98	4x79	3x63	3x53	3x39	3x39	3x35	3x30	19	14	14	12	12	12
W. No.	4x182	4x127	4x106	4x79	3x63	3x53	3x39	3x39	3x34	3x30	23	19	19	17	17	12

Maximum power dissipation with T6 temperature class must not exceed 36W

# CTB... series Features of junction boxes with terminals

## Tables showing maximum number of conductors

### CTB808030

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44	51	59		
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		5x121	5x102	5x83	5x66	5x55	4x41	4x41	3x36	3x32	20	15	15	12	12	12
W. No.	5x191	5x133	5x111	5x83	5x66	5x55	4x41	4x41	3x35	3x32	24	20	20	18	18	

Maximum power dissipation with T6 temperature class must not exceed 36W

### CTB866420

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44	51	59		
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		5x132	5x112	5x91	5x72	5x60	4x45	4x45	3x40	3x35	22	17	17	13	13	13
W. No.	5x208	5x145	5x121	5x91	5x72	5x60	4x45	4x45	3x39	3x35	26	22	22	20	20	

Maximum power dissipation with T6 temperature class must not exceed 36W

### CTB916120, CTB916130

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44	51	59		
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		5x143	5x121	5x98	5x78	5x65	4x49	4x49	3x43	3x38	24	18	18	14	14	14
W. No.	5x225	5x157	5x131	5x98	5x78	5x65	4x49	4x49	3x42	3x38	29	24	24	21	21	

Maximum power dissipation with T6 temperature class must not exceed 36W

### CTB987420

Current (A)	Cross-sectional area in mm²															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
1																
8	41	69	105	150	235	348										
10	26	44	67	96	151	223	325									
11	22	36	56	79	125	184	269	350								
15		19	30	43	67	99	145	188	238							
21			15	22	34	51	74	96	121	162						
26				14	22	33	48	63	79	105	133					
37					11	16	24	31	39	52	66	78				
49						9	14	18	22	30	38	44	51	59		
67							7	9	12	16	20	24	27	32	37	
80								7	8	11	14	17	19	22	26	20
98									6	7	9	11	13	15	17	13
122										5	6	7	8	10	11	13
147											4	5	6	7	8	9
175												3	4	5	5	6
196													3	4	4	5
227														3	3	4
270															2	3
312																2
C. No.		5x154	5x130	5x106	5x84	5x70	4x52	4x52	3x46	3x41	26	19	19	16	16	16
W. No.	5x242	5x169	5x141	5x104	5x84	5x70	4x52	4x52	3x45	3x41	31	26	26	23	23	

Maximum power dissipation with T6 temperature class must not exceed 36W

## CTB... series Features of junction boxes with terminals

### Codes of terminals used to determine maximum number of terminals

The other values given in the cells along the table's diagonal define the maximum number of conductors allowed, based on their cross-sectional area and maximum current.

mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35
<b>Cabur</b>		CBD 2	CBD 4	CBD 6	CBD 10	CBD 16	CBD 35	
<b>Weidmuller</b>	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	WDU 16	WDU 35	

mm <sup>2</sup>	50	70	95	120	150	185	240	300
<b>Cabur</b>	CBD 50	CBD 70	GPM95/CC	GPM150/CC		GPM240/CC		
<b>Weidmuller</b>	WDU 50	WDU 70	WDU 70/95	WDU 120/150		WDU 240		

### ATEX - IECEx label for terminal enclosures

The label contains the following information:

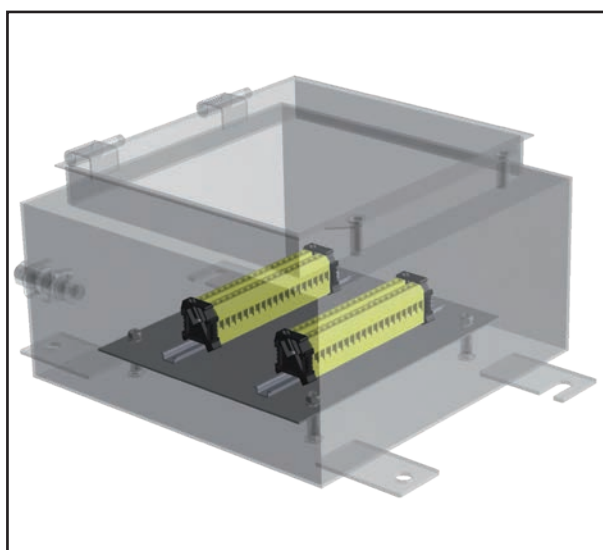
- 1:** Manufacturer logo and name: CORTEM SpA, VIA AQUILEIA, 10 - 34070 VILLESSE - GO - ITALY
- 2:** Enclosures with terminals: 20
- 3:** S.N. (Serial Number)
- 4:** Ta (Ambient temperature) and Tc (Cable temperature) fields
- 5:** IECEx CES 13.0001 and Ex e IIC T Gb
- 6:** Ex tb IIC T °C Db IP66
- 7:** n° terminals, max wire section (mm²), and max current

Additional text on the label includes: "Use cables suitable for temperature of:", "WARNING - DO NOT OPEN when energized", "Made In ITALY", and "U-386IN".

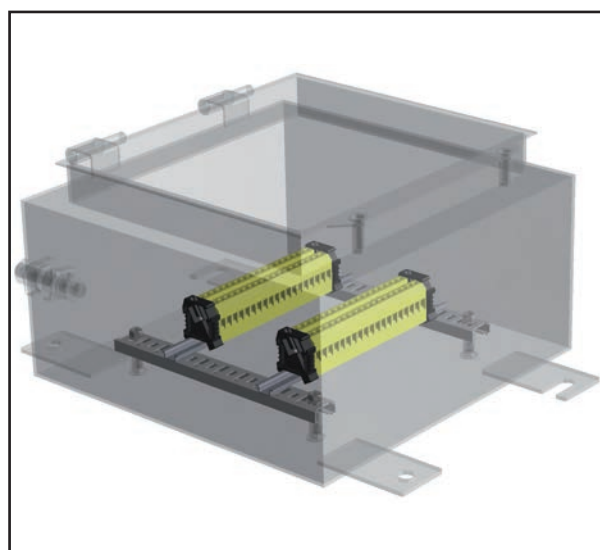
### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. temperature class and maximum surface
6. temperature of cables
7. electrical specs per certificate

### TYPICAL EXAMPLES OF TERMINAL BLOCK INSTALLATION



Example of feed-through terminal installation on top hat rail fastened to stainless steel internal mounting plate.



Example of feed-through terminal installation on top hat rail fastened on two pre-drilled mounting rails.

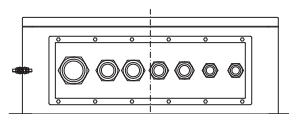
### DON'T FORGET TO ORDER THE ACCESSORIES

Example: Enclosure type CTB484820 + Terminal mounting rails OB02060/S + Cable glands, unions + other...see key

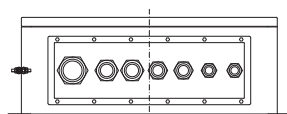




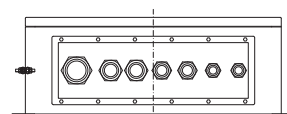
## JUNCTION BOXES WITH EQUIPMENT (FIELDBUS, PROXIMITOR, HEATER...)



Example of junction box with thermostat



Example of junction box with proximitor



Example of junction box with transmitter

Equipment that can be installed in the junction boxes in accordance with the CML 16 ATEX 3163X or IECEx CML 16.0074X certificate are described in the following table:

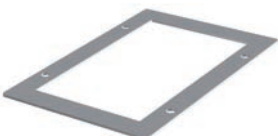



Parte	Numero di certificato	Esecuzione
Series 3300XL Proximitor	IECEx BAS 04.0055X	Ex ia IIC
Splice Cassette type 8186	PTB 10 ATEX 2015U IECEx PTB 10.0060U	Ex op pr IIC
Enclosure Heater (TEF Series)	NEMKO 11 ATEX 1098X IECEx NEM 11.0005X	Ex e IIC; Ex e mb IIC
Heater, type SL.. THERM D.. T..	PTB 02 ATEX 1116X IECEx PTB 07.0055X	Ex db IIC; Ex tb IIIC
Heater, type CP.. THERM D.. T..	PTB 02 ATEX 1041X IECEx PTB 07.0052X	Ex db IIC; Ex tb IIIC
Fieldbus Segment protector type R-SP-E	PTB 04 ATEX 2100X IECEx PTB 05.0010X	Ex e mb IIC; Ex eb mb IIC
Temperature Trasmitter Model IPAQ C202X	KIVA 15 ATEX 0033X IECEx KIWA 15.0015X	Ex ia IIC
Temperature Trasmitter Model IPAQ C520X	KIVA 14 ATEX 0003X IECEx KIWA 14.0001X	Ex ia IIC
Fieldbus Barrier type R4D0-FB-IA	BVS 13 ATEX E 121X IECEx BVS 13.0119X	Ex e ib mb [ia Ga] IIC T4 Gb Ex e ib mb [ia IIIC Da] IIC T4 Gb
Heating Resistor type CREx 020	LCIE 01 ATEX 6073X IECEx LCI 07.0020X	Ex d IIC; Ex tb IIIC
Regulating Thermostat type REx	LCIE 01 ATEX 6074 IECEx LCI 07.0021	Ex d IIC; Ex tb IIIC
Interconnection block for fieldbus type F240 to F273	KEMA 03 ATEX 1555X IECEx LCI 11.0068X	Ex ia IIC
Fieldbus XE Megablock and Terminator	KEMA 05 ATEX 2006 IECEx DEK 16.0036X	Ex eb mb IIC

**Attention: please contact our sales office for further information.**

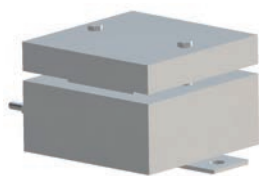
## CTB... series Accessories available on request and spare parts

ILLUSTRATION	DESCRIPTION	MODEL	DIMENSIONS A                  B		CODE	KEY
	Internal mounting plates  Stainless steel	CTB221513	155	80	<b>B22-443</b>	 
		CTB262616	210	180	<b>B26-443</b>	
		CTB262620				
		CTB303016	250	230	<b>B30-443</b>	
		CTB303020				
		CTB382616	330	180	<b>B38-443</b>	
		CTB382620				
		CTB453816	400	300	<b>B45-443</b>	
		CTB453820				
		CTB484816	430	400	<b>B48-443</b>	
		CTB484820				
		CTB503516	450	270	<b>B50-443</b>	
		CTB503520				
		CTB624516	570	370	<b>B62-443</b>	
		CTB624520				
		CTB745520	690	470	<b>B74-443</b>	
		CTB765020	710	430	<b>B76-443</b>	
		CTB866420	810	560	<b>B86-443</b>	
CTB916120	860	530	<b>B91-443</b>			
CTB916130						
CTB987420	930	660	<b>B98-443</b>			
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES		CODE	KEY
	Terminal block mounting rails		Pre-drilled steel rails cut to size		<b>OB02060/S</b>	 
	Universal clip for grouping cables in single bundle	For 6-13mm cable	Material: polyamide Hole for M6 screw for fastening		<b>OB02037/6-13</b>	 
		For 12-20mm cable			<b>OB02037/12-20</b>	
		For 16-24mm cable			<b>OB02037/16-24</b>	
		For 18-30mm cable			<b>OB02037/18-30</b>	
		For 27-43mm cable			<b>OB02037/27-43</b>	
	Breather and drain valve	Thread diameter ISO 7-R 3/8"	Material: stainless steel		<b>ECD-210S</b>	 
	Breather valve	ISO M20x1,5	Material: stainless steel		<b>ECDE-B1B</b>	 
	Breather and drain valve	ISO M25x1,5			<b>ECDE-B2B</b>	
		ISO M20x1,5			<b>ECDE-D1B</b>	
		ISO M25x1,5			<b>ECDE-D2B</b>	
	Through earth connection	M6	Material: stainless steel		<b>K-0307/2</b>	 
		M8			<b>K-0307/1</b>	
	Entry blanking plugs and cable glands	For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>				 
	Lid-mounted control and signalling devices	For control and signalling device models and codes, see control and monitoring device chapter			<b>M-0... (Ex de)</b>	 

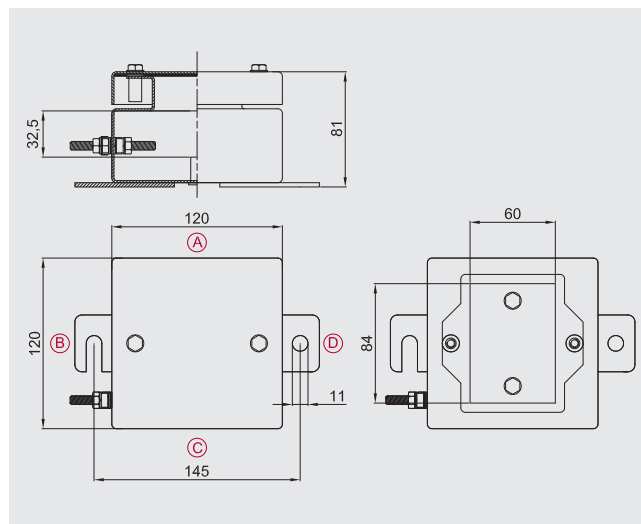
## CTB... series Accessories available on request and spare parts

ILLUSTRATION	DESCRIPTION	MODEL	CODE	KEY
	Gasket between body and lid	CSTB121208	B12-446	
		CSTB151509	B15-446	
		CSTB191910	B19-446	
		CTB221513	B22-446	
		CTB262616	B26-446	
		CTB262620	B26-446	
		CTB303016	B30-446	
		CTB303020	B30-446	
		CTB382616	B38-446	
		CTB382620	B38-446	
		CTB453816	B45-446	
		CTB453820	B45-446	
		CTB484816	B48-446	
		CTB484820	B48-446	
		CTB503516	B50-446	
		CTB503520	B50-446	
		CTB624516	B62-446	
		CTB624520	B62-446	
		CTB745520	B74-446	
		CTB765020	B76-446	
		CTB866420	B86-446	
		CTB916120	B91-446	
		CTB916130	B91-446	
		CTB987420	B98-446	
	Gasket between removable gland plates and body	B1-444	B1-445	
		B2-444	B2-445	
		B3-444	B3-445	
		B4-444	B4-445	
		B5-444	B5-445	
		B6-444	B6-445	
		B7-444	B7-445	
		B8-444	B8-445	
		B9-444	B9-445	
		B10-444	B10-445	
		B11-444	B11-445	
		B12-444	B12-445	
		B13-444	B13-445	
		B14-444	B14-445	
		B15-444	B15-445	
		B16-444	B16-445	
		B17-444	B17-445	
		B18-444	B18-445	
		B19-444	B19-445	
		B20-444	B20-445	
		B21-444	B21-445	
		B22-444	B22-445	

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.



### Ordering details

Standard stainless steel enclosure: **CSTB121208**

Width/Depth/Height: **120/120/80mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

	CODE
Breather and drain valve:	<b>ECD-210S</b>

Other:

Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	8
2.5 mm <sup>2</sup>	5



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

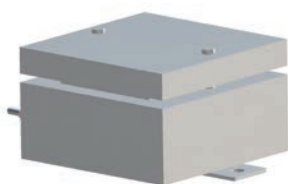
Standard enclosure		
Hole type	A/C	B/D
M16	2	3
M20	2	3
M25	2	3



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.

Degree of protection IP66.

Stainless steel body and lid.

Acid/hydrocarbon-resistant gasket.

Stainless steel bolts and screws.

Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CSTB151509**

Width/Depth/Height: **150/150/90mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

### Accessories

	CODE
Breather and drain valve:	<b>ECD-210S</b>

Other:

Internal anti-condensation coating

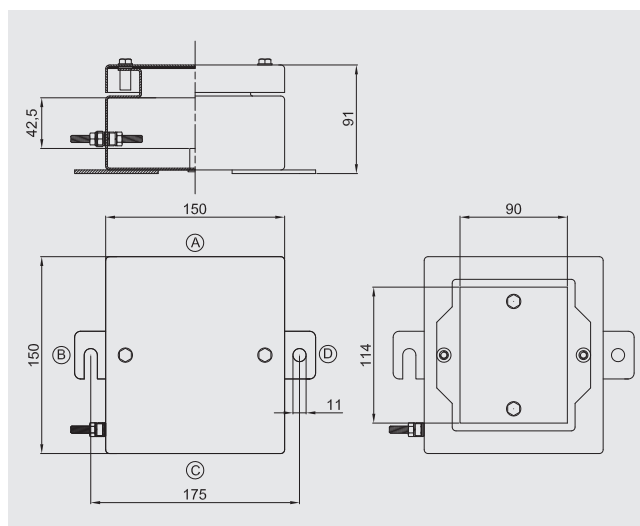
External epoxy coatings in different colour

Body and cover thickness of 3 mm

M6 or M8 through earth connection

Possible drilling of the enclosure bottom

Key locking system



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	16
2.5 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

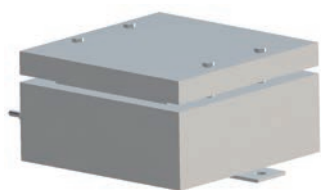
Standard enclosure		
Hole type	A/C	B/D
M16	3	4
M20	3	4
M25	2	3
M32	2	2



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CSTB191910**

Width/Depth/Height: **190/190/100mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

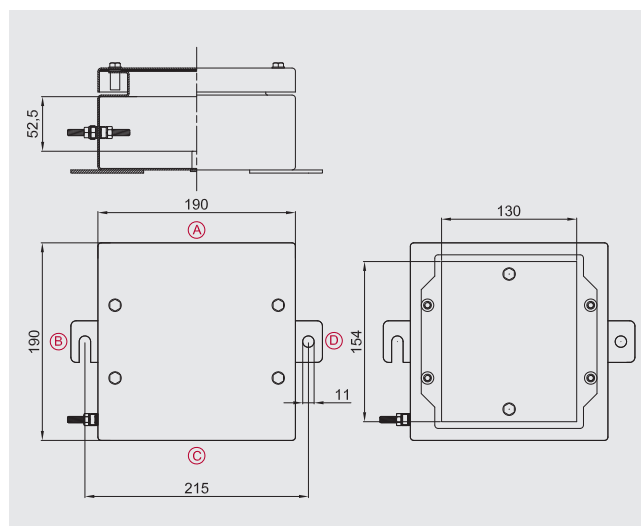
Brazilian (INMETRO)

### Accessories

	CODE
Breather and drain valve:	<b>ECD-210S</b>

Other:

Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	28
2.5 mm <sup>2</sup>	19
4 mm <sup>2</sup>	16
6 mm <sup>2</sup>	12



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure		
Hole type	A/C	B/D
M16	4	4
M20	4	4
M25	3	4
M32	2	3
M40	2	3

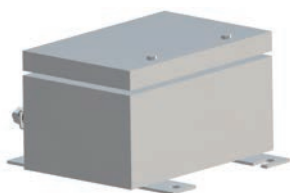


Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB221513**

Width/Depth/Height: **229/152/130mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

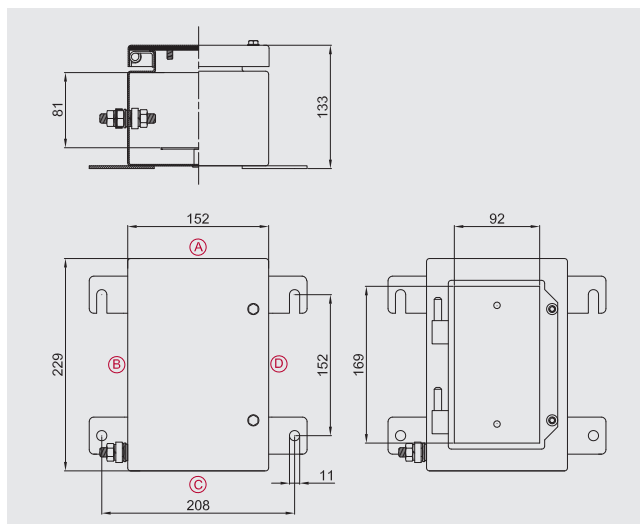
### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B22-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

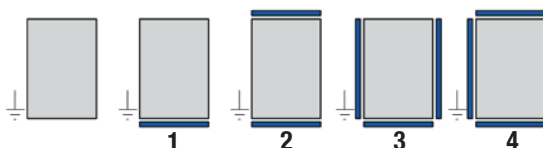
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	27
2.5 mm <sup>2</sup>	19
4 mm <sup>2</sup>	15
6 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

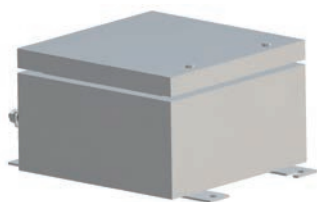
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M16	5	8	M16	3	3
M20	5	8	M20	3	3
M25	2	3	M25	2	2
M32	2	3	M40	1	1
M40	1	3	M50	1	1
			M63	1	1



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB262616**

Width/Depth/Height: **260/260/160mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

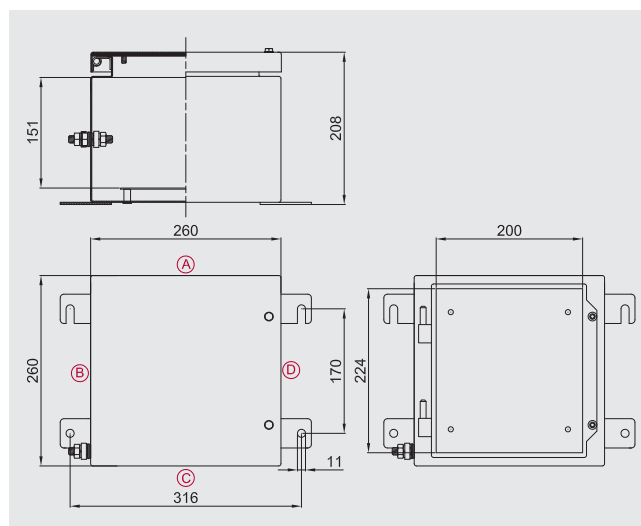
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B26-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

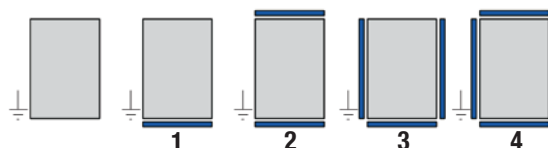
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	2x36
2.5 mm <sup>2</sup>	2x25
4 mm <sup>2</sup>	2x21
6 mm <sup>2</sup>	2x16
10 mm <sup>2</sup>	2x12
16 mm <sup>2</sup>	2x10
25 mm <sup>2</sup>	7



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

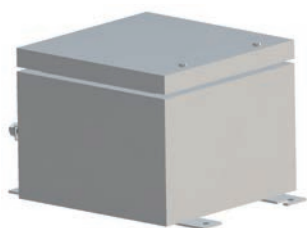
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	10	10	M20	10	6
M25	7	8	M25	8	3
M32	4	4	M32	4	2
M40	3	3	M40	3	1
M50	3	3	M50	2	1
M63	2	2	M63	-	-



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB262620**

Width/Depth/Height: **260/260/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

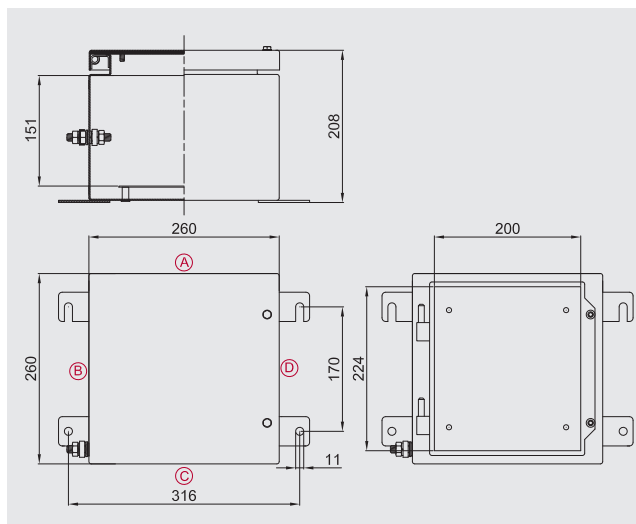
### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B26-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

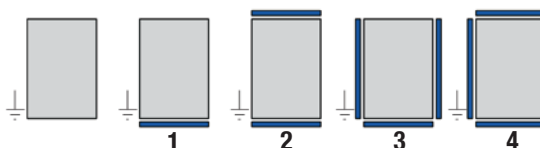
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	2x36
2.5 mm <sup>2</sup>	2x25
4 mm <sup>2</sup>	2x21
6 mm <sup>2</sup>	2x16
10 mm <sup>2</sup>	2x12
16 mm <sup>2</sup>	2x10
25 mm <sup>2</sup>	7



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

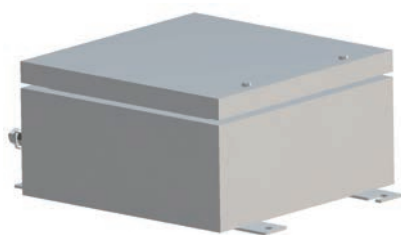
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	15	15	M20	15	9
M25	14	12	M25	12	6
M32	8	6	M32	8	4
M40	6	6	M40	6	2
M50	3	3	M50	3	1
M63	2	2			



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB303016**

Width/Depth/Height: **306/306/160mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

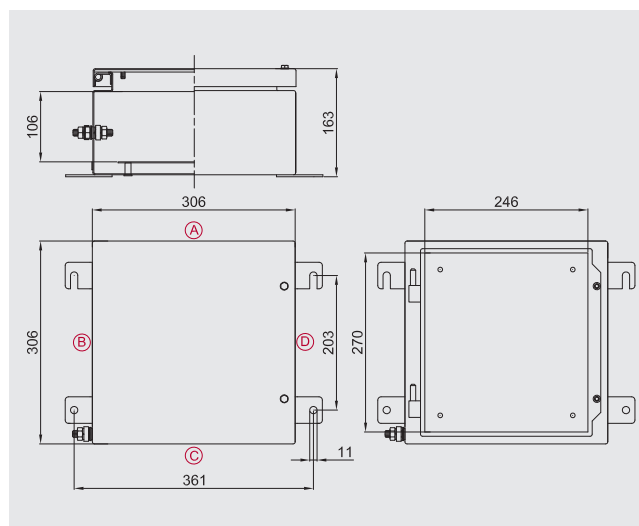
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B30-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

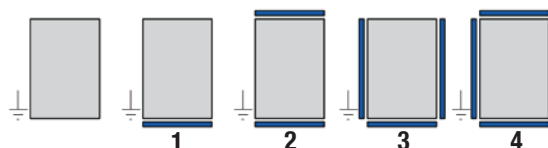
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
1.5 mm <sup>2</sup>	2x54
2.5 mm <sup>2</sup>	2x37
4 mm <sup>2</sup>	2x31
6 mm <sup>2</sup>	2x23
10 mm <sup>2</sup>	2x18
16 mm <sup>2</sup>	2x15
25 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

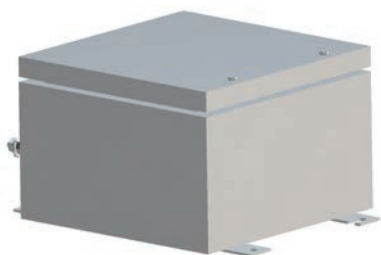
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	12	12	M20	12	10
M25	10	10	M25	10	8
M32	9	9	M32	4	4
M40	8	8	M40	4	3
M50	3	3	M50	3	3
M63	2	2	M63	2	2



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB303020**

Width/Depth/Height: **306/306/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

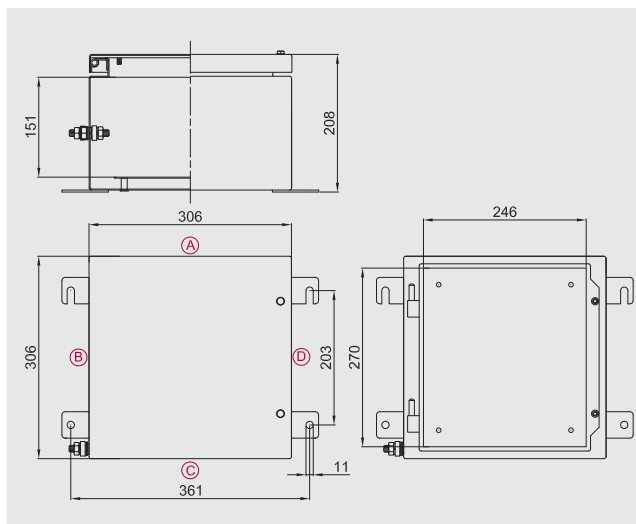
### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B30-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

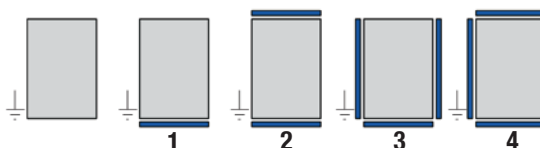
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x37
4 mm <sup>2</sup>	2x31
6 mm <sup>2</sup>	2x23
10 mm <sup>2</sup>	2x18
16 mm <sup>2</sup>	2x15
25 mm <sup>2</sup>	11
35 mm <sup>2</sup>	11
50 mm <sup>2</sup>	10
70 mm <sup>2</sup>	9



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	18	18	M20	18	15
M25	17	15	M25	13	10
M32	10	10	M32	8	8
M40	8	8	M40	4	3
M50	6	6	M50	3	2
M63	3	3			

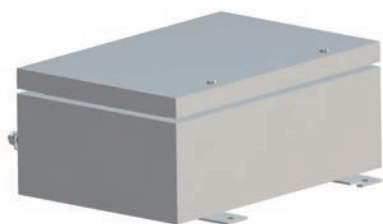


Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB382616**

Width/Depth/Height: **380/260/160mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

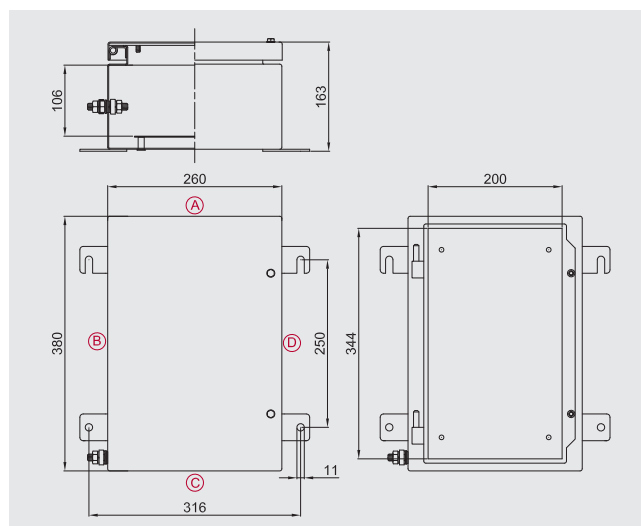
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B38-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

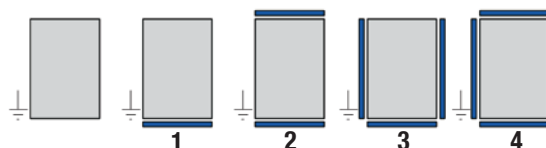
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x71
4 mm <sup>2</sup>	2x49
6 mm <sup>2</sup>	2x41
10 mm <sup>2</sup>	2x31
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	15
35 mm <sup>2</sup>	15
50 mm <sup>2</sup>	13
70 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	10	16	M20	10	12
M25	10	14	M25	8	9
M32	7	11	M32	4	4
M40	3	5	M40	3	3
M50	2	4	M50	3	3
M63	2	3			

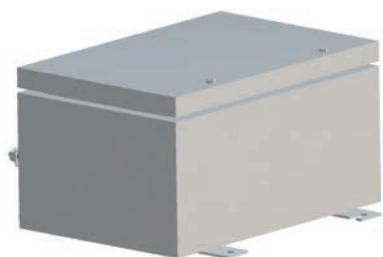


Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB382620**

Width/Depth/Height: **380/260/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

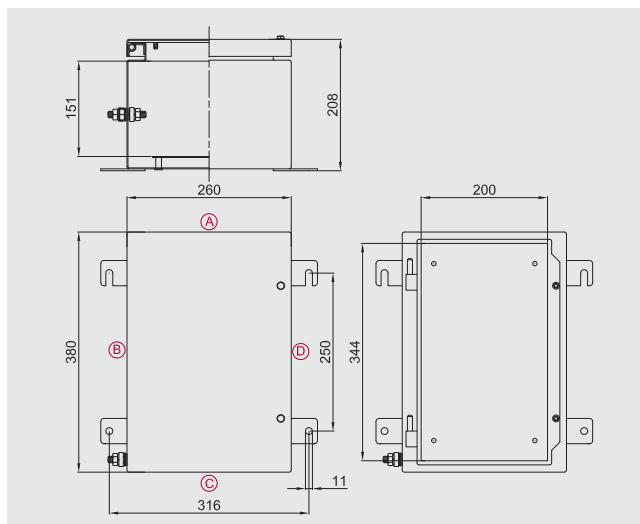
### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B38-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

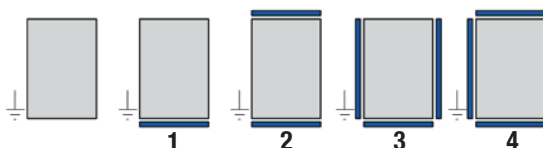
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x71
4 mm <sup>2</sup>	2x49
6 mm <sup>2</sup>	2x41
10 mm <sup>2</sup>	2x31
16 mm <sup>2</sup>	2x20
25 mm <sup>2</sup>	15
35 mm <sup>2</sup>	15
50 mm <sup>2</sup>	13
70 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

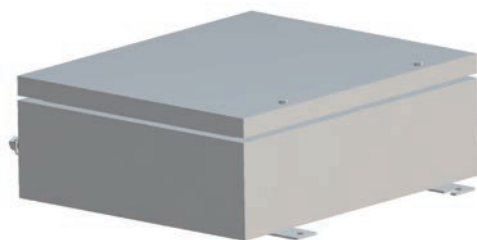
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	15	24	M20	15	18
M25	12	21	M25	12	15
M32	8	12	M32	8	8
M40	6	10	M40	6	5
M50	6	8	M50	4	3
M63	2	3			



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB453816**

Width/Depth/Height: **450/380/160mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

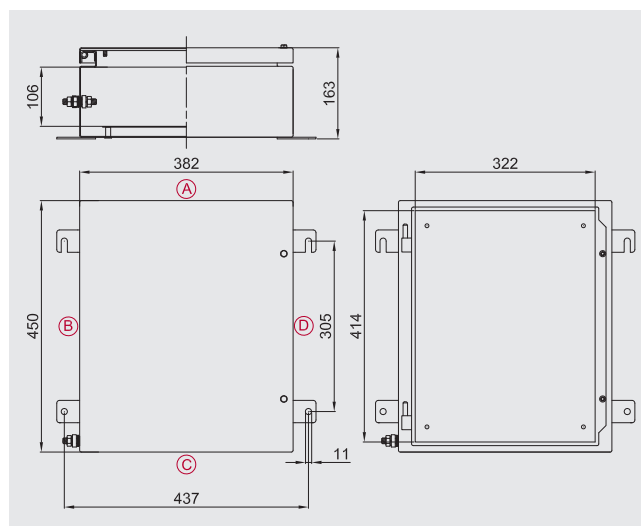
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B45-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

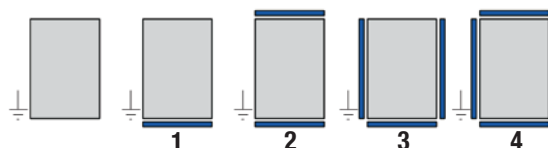
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x65
4 mm <sup>2</sup>	2x54
6 mm <sup>2</sup>	2x41
10 mm <sup>2</sup>	2x32
16 mm <sup>2</sup>	2x27
25 mm <sup>2</sup>	2x20
35 mm <sup>2</sup>	2x20
50 mm <sup>2</sup>	2x17
70 mm <sup>2</sup>	2x15



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

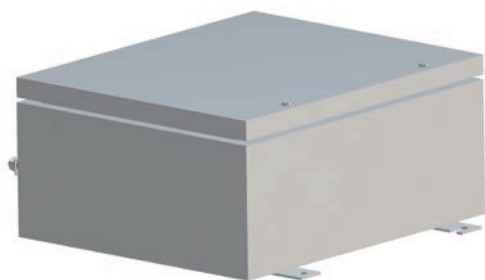
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	16	20	M20	16	16
M25	14	16	M25	14	14
M32	6	7	M32	6	6
M40	5	6	M40	5	5
M50	4	5	M50	4	4
M63	3	4	M63	3	3



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB453820**

Width/Depth/Height: **450/380/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

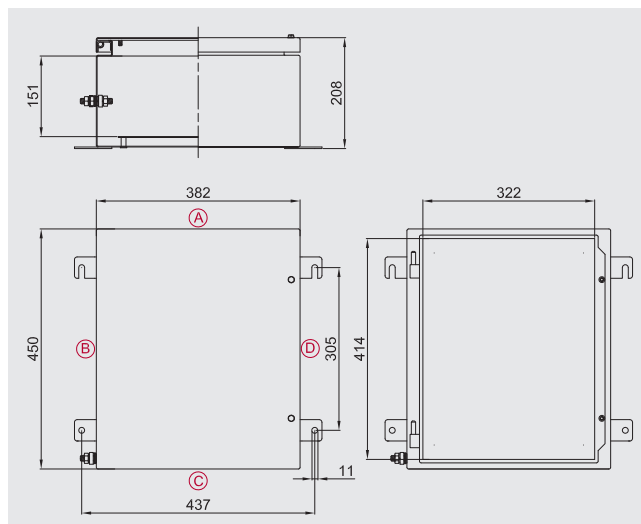
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B45-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

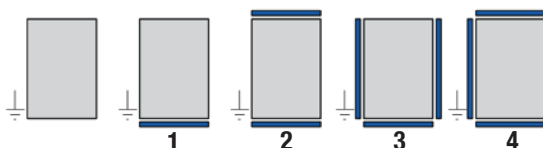
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x65
4 mm <sup>2</sup>	2x54
6 mm <sup>2</sup>	2x41
10 mm <sup>2</sup>	2x32
16 mm <sup>2</sup>	2x27
25 mm <sup>2</sup>	2x20
70 mm <sup>2</sup>	2x15
185 mm <sup>2</sup>	8
300 mm <sup>2</sup>	6



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

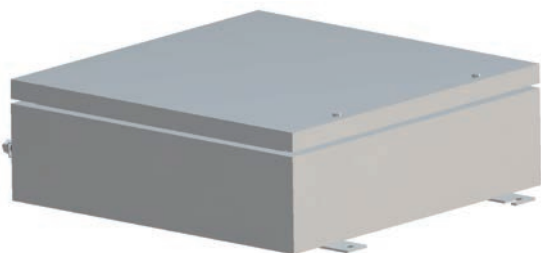
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	24	30	M20	24	24
M25	21	24	M25	20	20
M32	12	14	M32	12	12
M40	10	12	M40	8	8
M50	8	10	M50	4	4
M63	3	4	M63	3	3



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB484816**

Width/Depth/Height: **480/480/160mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

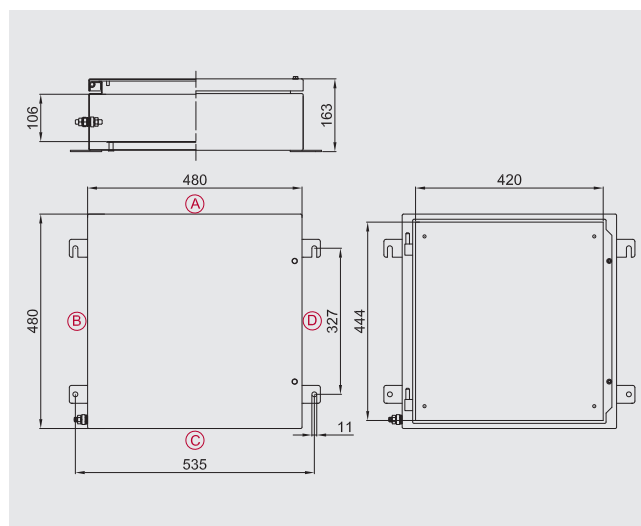
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B48-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

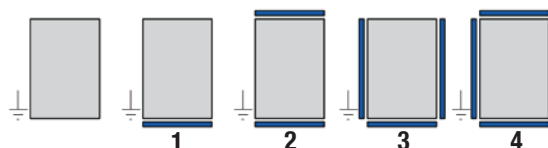
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	3x69
4 mm <sup>2</sup>	3x58
6 mm <sup>2</sup>	3x43
10 mm <sup>2</sup>	2x34
16 mm <sup>2</sup>	2x28
25 mm <sup>2</sup>	2x21
35 mm <sup>2</sup>	2x21
50 mm <sup>2</sup>	2x18
70 mm <sup>2</sup>	2x16



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

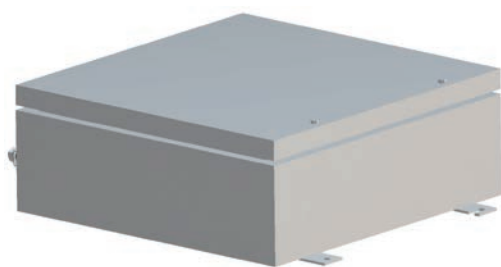
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	22	20	M20	22	18
M25	18	18	M25	18	14
M32	8	8	M32	7	6
M40	7	6	M40	5	5
M50	6	5	M50	5	4
M63	4	4	M63	4	3



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB484820**

Width/Depth/Height: **480/480/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

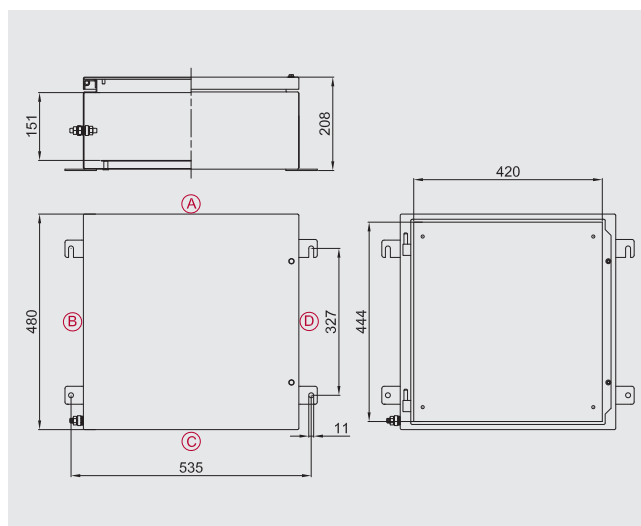
### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B48-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

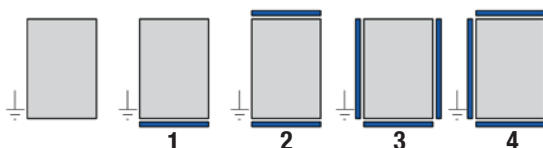
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	3x69
4 mm <sup>2</sup>	3x58
6 mm <sup>2</sup>	3x43
10 mm <sup>2</sup>	2x34
16 mm <sup>2</sup>	2x28
25 mm <sup>2</sup>	2x21
70 mm <sup>2</sup>	2x16
185 mm <sup>2</sup>	9
300 mm <sup>2</sup>	6



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	32	30	M20	32	27
M25	26	26	M25	24	21
M32	16	14	M32	14	12
M40	13	12	M40	12	8
M50	11	10	M50	5	4
M63	4	4	M63	4	3

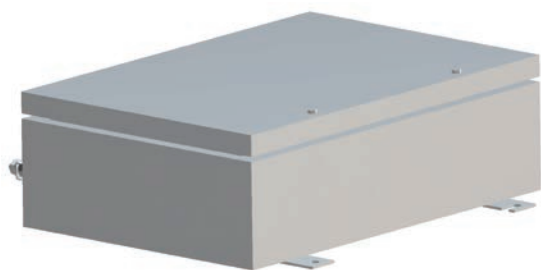


Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB503516**

Width/Depth/Height: **500/350/160mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

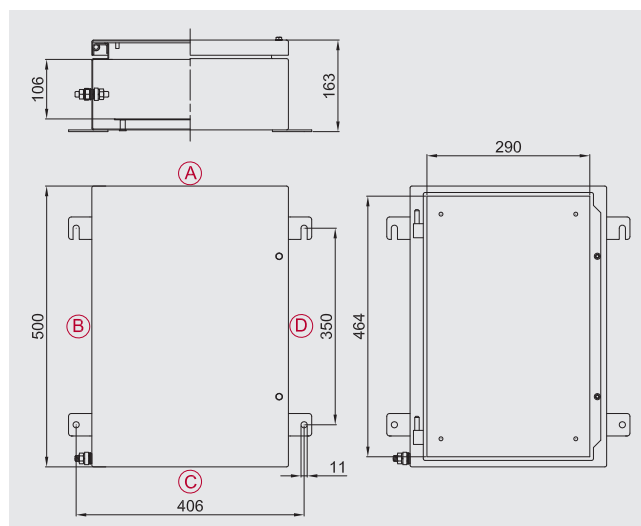
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B50-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

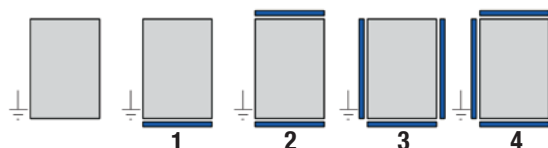
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x73
4 mm <sup>2</sup>	2x61
6 mm <sup>2</sup>	2x46
10 mm <sup>2</sup>	2x36
16 mm <sup>2</sup>	2x30
25 mm <sup>2</sup>	2x22
35 mm <sup>2</sup>	2x22
50 mm <sup>2</sup>	2x19
70 mm <sup>2</sup>	2x17



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	14	22	M20	14	16
M25	12	19	M25	12	12
M32	5	8	M32	5	5
M40	4	7	M40	4	4
M50	4	6	M50	4	4
M63	3	4	M63	3	3

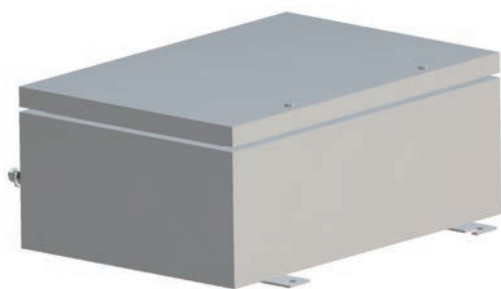


Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB503520**

Width/Depth/Height: **500/350/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

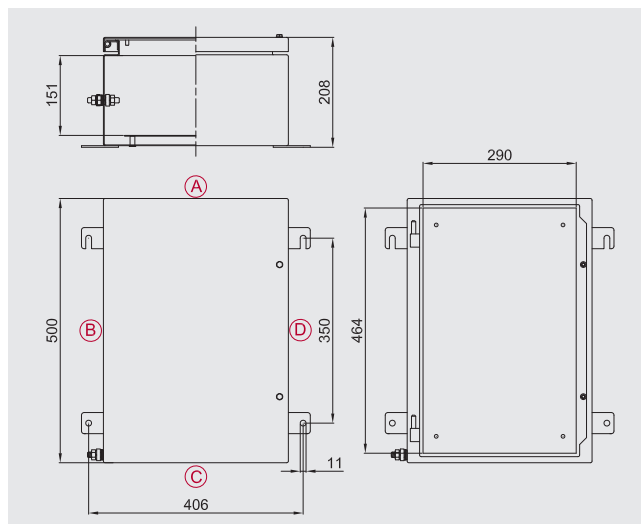
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B50-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

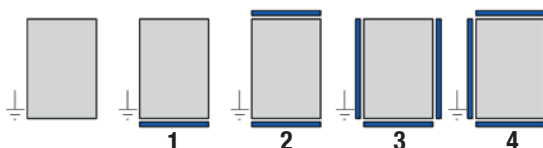
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	2x73
4 mm <sup>2</sup>	2x61
6 mm <sup>2</sup>	2x46
10 mm <sup>2</sup>	2x36
16 mm <sup>2</sup>	2x30
25 mm <sup>2</sup>	2x22
70 mm <sup>2</sup>	2x17
185 mm <sup>2</sup>	10
300 mm <sup>2</sup>	6



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

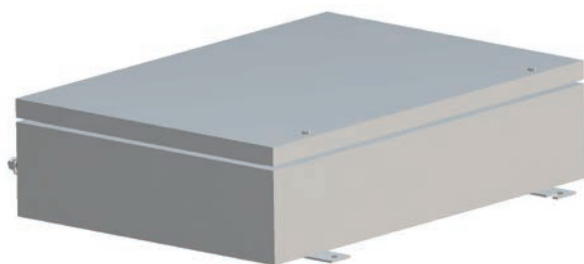
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	21	33	M20	21	24
M25	18	27	M25	17	18
M32	12	16	M32	10	10
M40	10	14	M40	8	8
M50	7	11	M50	4	4
M63	3	4	M63	3	3



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB624516**

Width/Depth/Height: **620/450/160mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

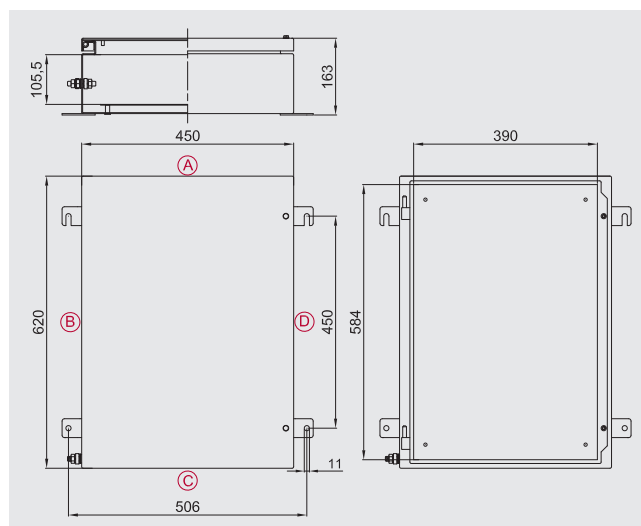
Brazilian (INMETRO)

### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B62-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

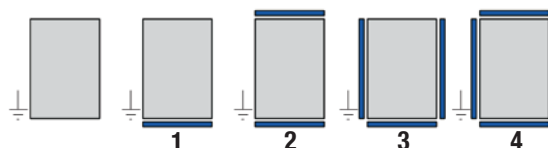
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	3x97
4 mm <sup>2</sup>	3x81
6 mm <sup>2</sup>	3x61
10 mm <sup>2</sup>	2x48
16 mm <sup>2</sup>	2x40
25 mm <sup>2</sup>	2x30
35 mm <sup>2</sup>	2x30
50 mm <sup>2</sup>	2x26
70 mm <sup>2</sup>	2x23



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

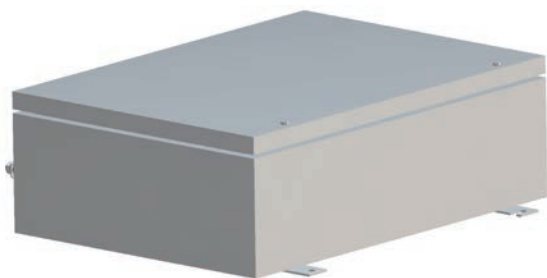
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	20	28	M20	19	22
M25	18	24	M25	16	16
M32	7	10	M32	7	7
M40	6	9	M40	6	6
M50	5	7	M50	5	5
M63	4	6	M63	4	4



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB624520**

Width/Depth/Height: **620/450/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

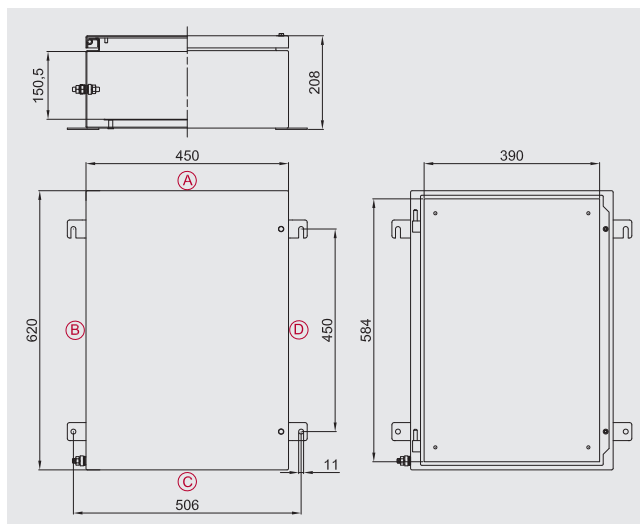
### Accessories

	CODE
1.5mm-thick stainless steel internal mounting plate:	<b>B62-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

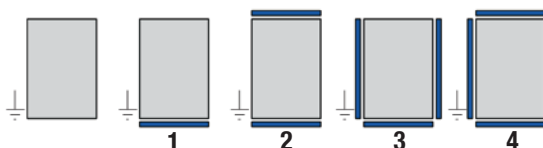
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	3x97
4 mm <sup>2</sup>	3x81
6 mm <sup>2</sup>	3x61
10 mm <sup>2</sup>	2x48
16 mm <sup>2</sup>	2x40
25 mm <sup>2</sup>	2x30
70 mm <sup>2</sup>	2x23
185 mm <sup>2</sup>	13
300 mm <sup>2</sup>	9



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

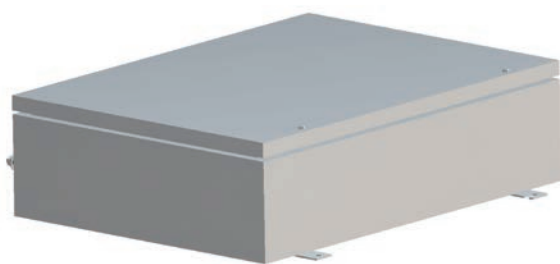
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	30	39	M20	29	33
M25	26	36	M25	23	24
M32	14	20	M32	14	14
M40	12	18	M40	10	12
M50	10	15	M50	5	5
M63	4	6	M63	4	4



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB745520**

Width/Depth/Height: **740/550/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

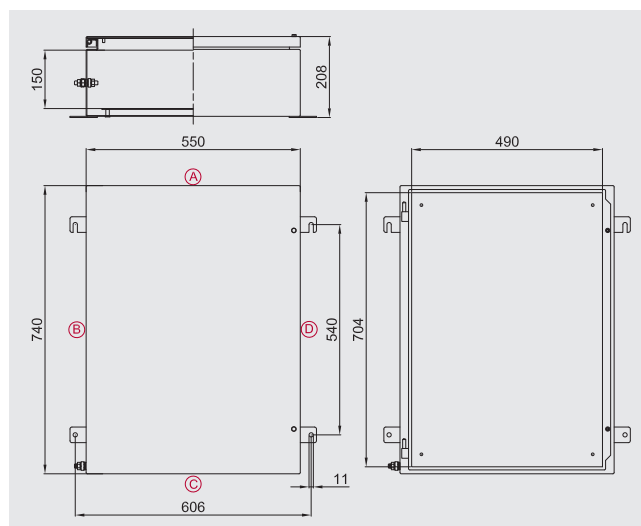
Brazilian (INMETRO)

### Accessories

	CODE
2mm-thick stainless steel internal mounting plate:	<b>B74-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

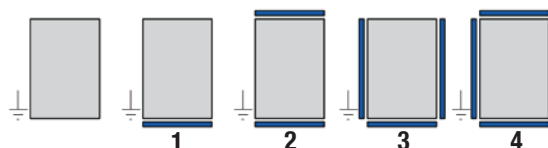
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	4x121
4 mm <sup>2</sup>	4x101
6 mm <sup>2</sup>	4x76
10 mm <sup>2</sup>	3x60
16 mm <sup>2</sup>	3x50
25 mm <sup>2</sup>	3x37
70 mm <sup>2</sup>	3x29
185 mm <sup>2</sup>	16
300 mm <sup>2</sup>	11



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

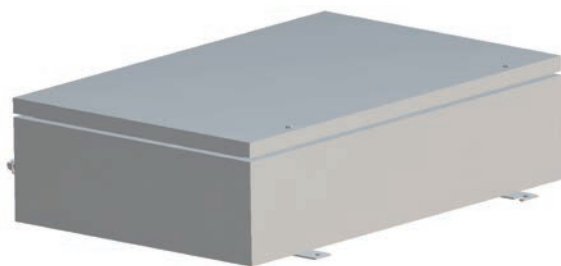
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	36	50	M20	36	42
M25	32	42	M25	30	30
M32	16	24	M32	16	18
M40	16	21	M40	13	14
M50	13	17	M50	7	7
M63	5	7	M63	5	5



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB765020**

Width/Depth/Height: **762/508/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

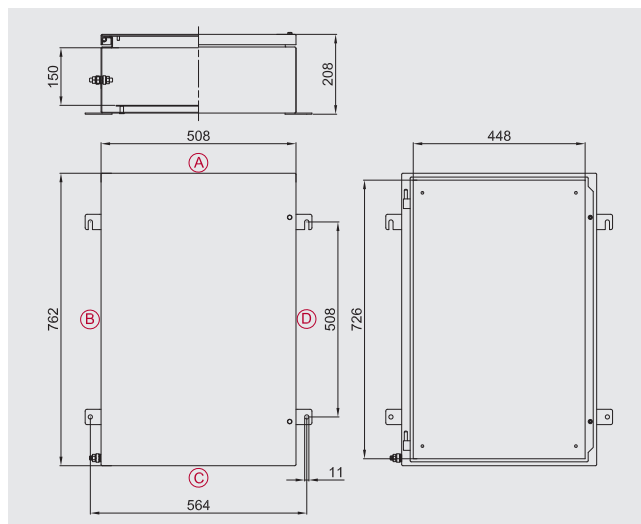
### Accessories

	CODE
2mm-thick stainless steel internal mounting plate:	<b>B76-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

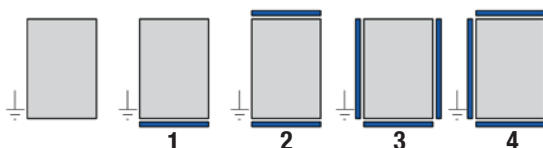
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	4x127
4 mm <sup>2</sup>	4x106
6 mm <sup>2</sup>	4x79
10 mm <sup>2</sup>	3x63
16 mm <sup>2</sup>	3x53
25 mm <sup>2</sup>	3x39
70 mm <sup>2</sup>	3x30
185 mm <sup>2</sup>	17
300 mm <sup>2</sup>	12



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	33	50	M20	33	42
M25	29	44	M25	16	22
M32	18	26	M32	14	22
M40	14	22	M40	10	16
M50	11	18	M50	5	8
M63	5	7	M63	4	5

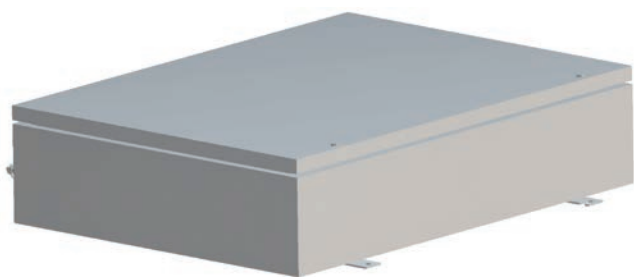


Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB866420**

Width/Depth/Height: **860/640/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

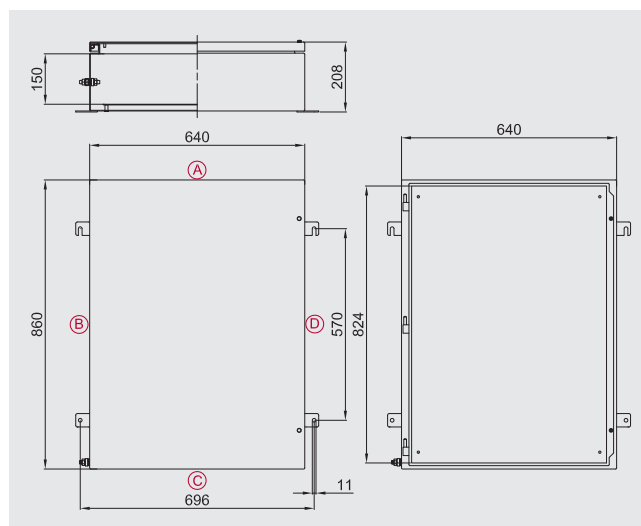
Brazilian (INMETRO)

### Accessories

	CODE
2mm-thick stainless steel internal mounting plate:	<b>B86-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

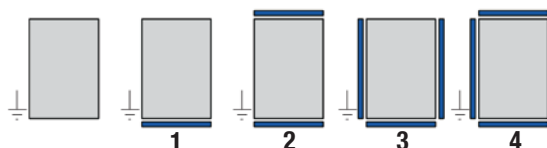
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	5x145
4 mm <sup>2</sup>	5x121
6 mm <sup>2</sup>	5x91
10 mm <sup>2</sup>	5x72
16 mm <sup>2</sup>	5x60
25 mm <sup>2</sup>	4x45
70 mm <sup>2</sup>	3x35
185 mm <sup>2</sup>	20
300 mm <sup>2</sup>	13



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	44	57	M20	44	48
M25	38	51	M25	36	36
M32	22	28	M32	20	20
M40	18	24	M40	16	16
M50	15	20	M50	8	8
M63	6	8	M63	6	6

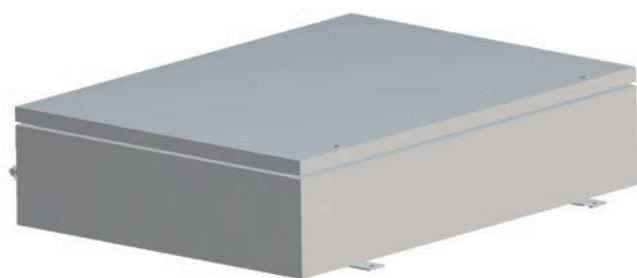


Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.



## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB916120**

Width/Depth/Height: **914/610/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

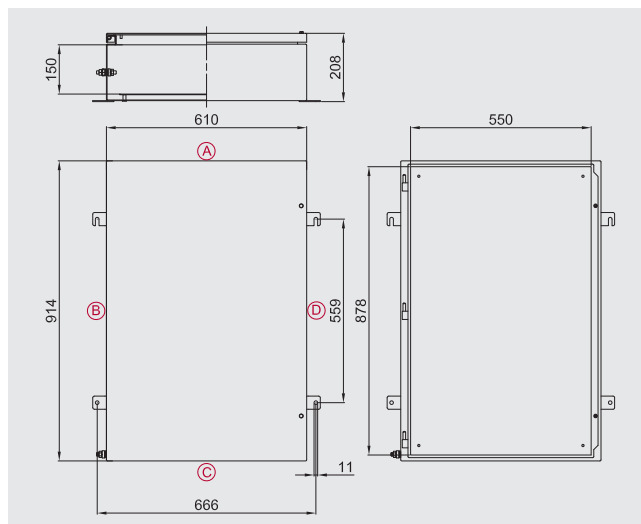
### Accessories

	CODE
2mm-thick stainless steel internal mounting plate:	<b>B91-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

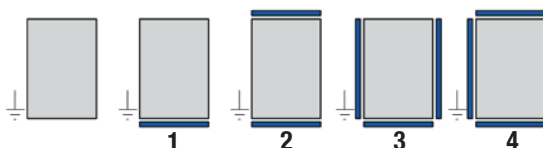
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

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### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	5x157
4 mm <sup>2</sup>	5x131
6 mm <sup>2</sup>	5x98
10 mm <sup>2</sup>	5x78
16 mm <sup>2</sup>	5x65
25 mm <sup>2</sup>	4x49
70 mm <sup>2</sup>	3x38
185 mm <sup>2</sup>	21
300 mm <sup>2</sup>	14



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

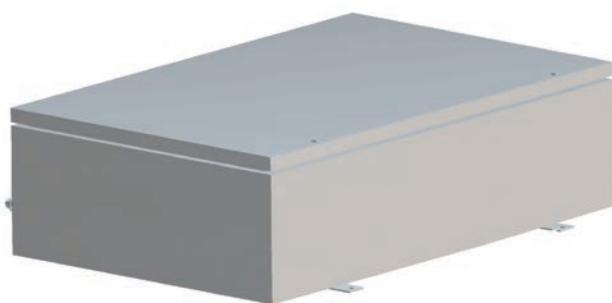
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	41	60	M20	41	48
M25	35	53	M25	22	22
M32	20	30	M32	16	22
M40	18	26	M40	8	8
M50	14	22	M50	8	8
M63	6	9	M63	4	5



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB916130**

Width/Depth/Height: **914/610/305mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

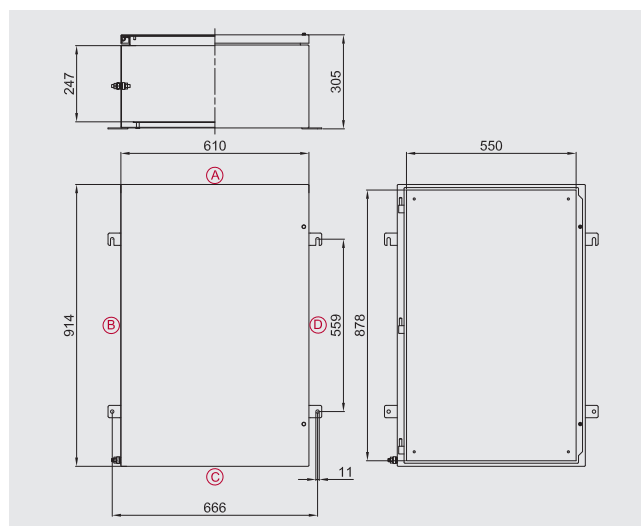
Brazilian (INMETRO)

### Accessories

	CODE
2mm-thick stainless steel internal mounting plate:	<b>B91-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

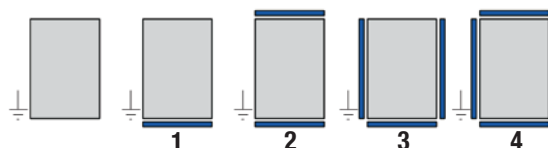
Other:

Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	5x157
4 mm <sup>2</sup>	5x131
6 mm <sup>2</sup>	5x98
10 mm <sup>2</sup>	5x78
16 mm <sup>2</sup>	5x65
25 mm <sup>2</sup>	4x49
70 mm <sup>2</sup>	3x38
185 mm <sup>2</sup>	21
300 mm <sup>2</sup>	14



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

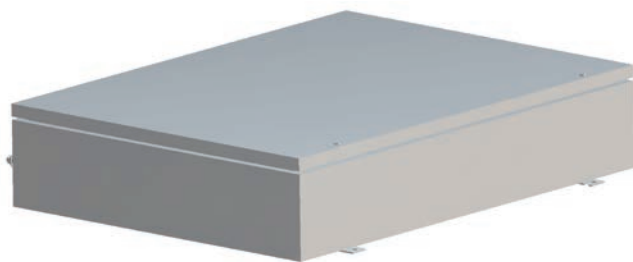
Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	41	60	M20	41	48
M25	35	53	M25	22	22
M32	20	30	M32	16	22
M40	18	26	M40	8	8
M50	14	22	M50	8	8
M63	6	9	M63	4	5



Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

## CTB... series (Ex e) and (Ex i) stainless steel junction boxes



Zone 1,2,21,22.  
Degree of protection IP66.  
Stainless steel body and lid.  
Acid/hydrocarbon-resistant gasket.  
Stainless steel bolts and screws.  
Impact protection IK10.

### Ordering details

Standard stainless steel enclosure: **CTB987420**

Width/Depth/Height: **980/740/205mm**

### Certification data for enclosures with terminals

Group II Category 2GD

Zone 1- Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

CESI 03 ATEX 115 X (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

Brazilian (INMETRO)

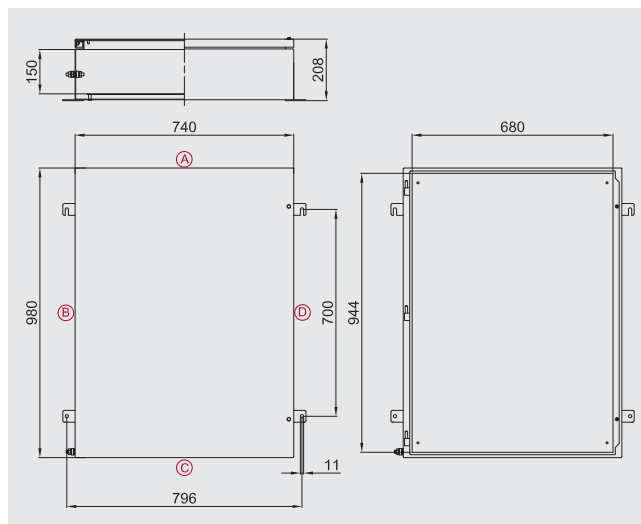
### Accessories

	CODE
2mm-thick stainless steel internal mounting plate:	<b>B98-443</b>
Terminal block mounting rails:	<b>OBO2060/S</b>
Breather and drain valve:	<b>ECD-210S</b>

Other:

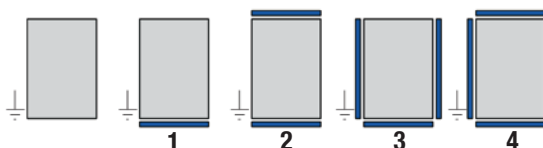
Padlocking system  
Internal anti-condensation coating  
External epoxy coatings in different colour  
Body and cover thickness of 3 mm  
Clip for grouping cables in single bundle  
M6 or M8 through earth connection  
Possible drilling of the enclosure bottom  
Key locking system

ED.2023



### Ordering details for boxes with removable gland plates

#### Removable gland plate position coding



#### Ordering code examples

##### 1) CTB503516S3

500x350x160 stainless steel box with 3 removable gland plates

##### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

### Max. number of terminals

X-SECT.	QTY.
2.5 mm <sup>2</sup>	5x169
4 mm <sup>2</sup>	5x141
6 mm <sup>2</sup>	5x106
10 mm <sup>2</sup>	5x84
16 mm <sup>2</sup>	5x70
25 mm <sup>2</sup>	4x52
70 mm <sup>2</sup>	4x52
185 mm <sup>2</sup>	23
300 mm <sup>2</sup>	16



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

### Number of cable glands

Standard enclosure			With removable gland plates		
Hole type	A/C	B/D	Hole type	A/C	B/D
M20	50	63	M20	44	58
M25	44	59	M25	36	48
M32	26	34	M32	20	28
M40	22	28	M40	16	20
M50	18	24	M50	8	10
M63	7	9	M63	6	8



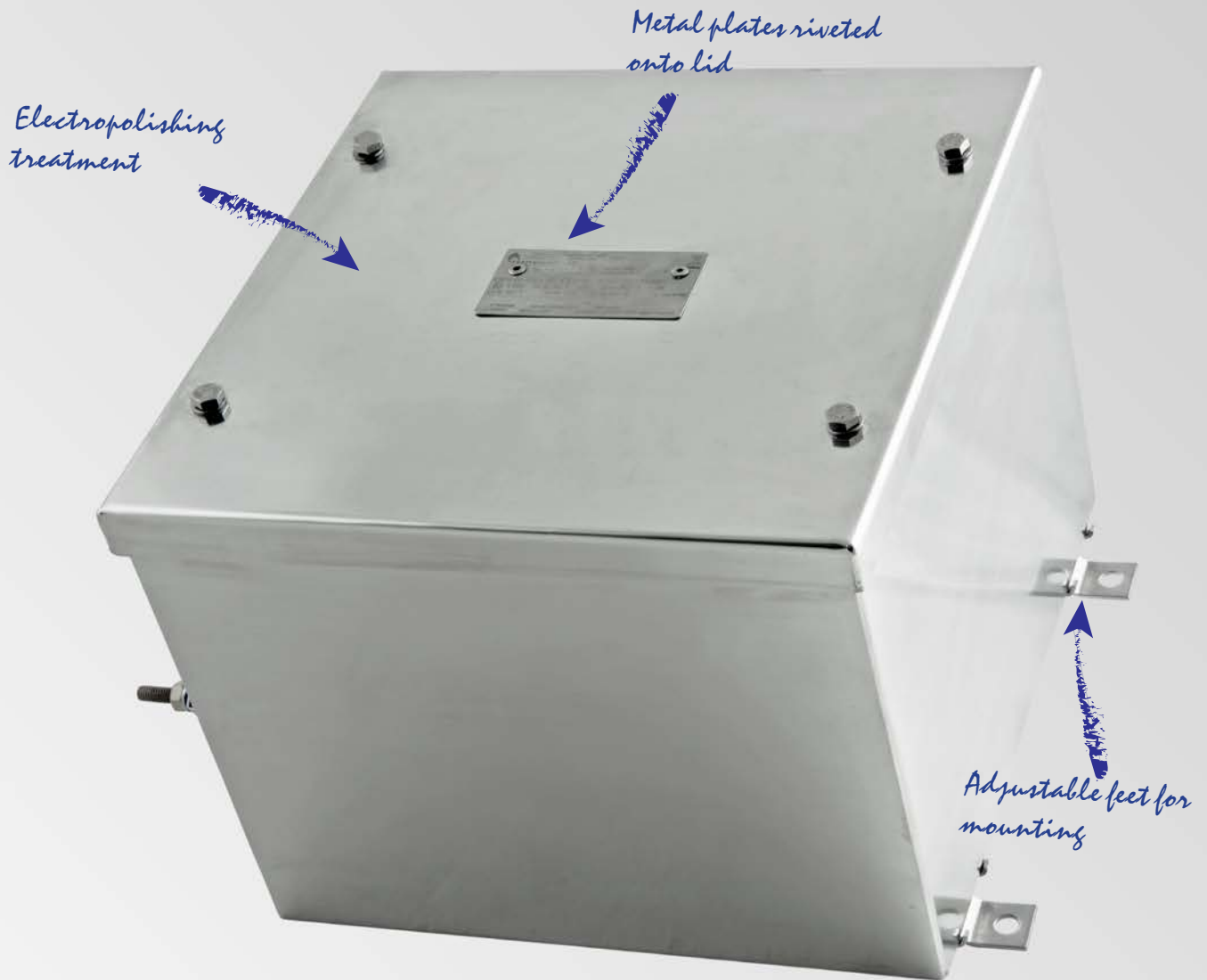
Research conducted using Cortem's new NAV and NEV series cable glands.

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive.

# CTBE

↑Quality / Price↓

- Zone 1, 2, 21, 22
- Electropolished AISI316L stainless steel junction boxes
- 19 different sizes
- Gasket resistant to acids and high temperatures
- IP66



Fixing detail



Earth stud with cable anti-rotation bracket



Hinges detail

## CTBE... series (Ex e) and (Ex i) stainless steel junction boxes

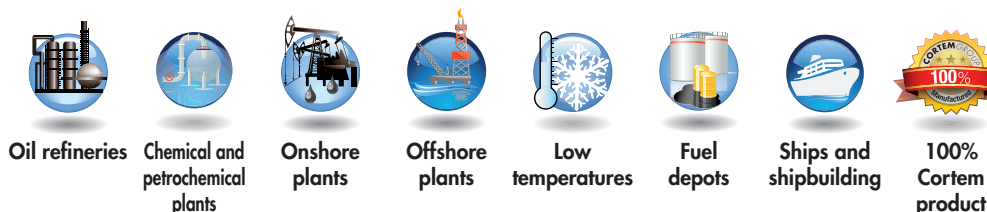
After carefully analysing the value of the existing CTB enclosure product line and taking into account the two cornerstones of any product: cost and innovation, the product manager at Cortem has re-examined the existing solution and come up with a new range of structurally simpler enclosures, made from stainless steel. The aim was to simplify and streamline installation of these increased-safety or intrinsically safe enclosures in an electrical system. Our ongoing commitment to improving cost efficiency, speed, reliability and quality gradually and simultaneously across the full production chain means that we are delivering new products which are increasingly competitive, innovative and in line with the most precise, targeted requests from the oil and gas market.

Our range of simplified CTBE enclosures are made from AISI 316L stainless steel sheet metal to ensure that they perform in the aggressive environments in which they are installed. These enclosures can be used in industrial plants where there is a risk of explosion and fire, classified as zone 1, 2, 21 or 22. They are mainly used as junction boxes or for routing cables for analogue or digital signals. The main purpose of these enclosures is to protect the components inside from external agents, such as moisture or dust, meaning they must have a suitable IP rating. Cortem tests its enclosures according to standard EN 60529 at its own accredited facilities to ensure that this requirement is met. Cortem is a reliable partner for its customers, configuring customised solutions tailored to individual requirements and offering an extensive range of products and components to produce cost-effective bespoke systems.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:



### CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex eb IIC T6/T5/T4 Gb - Ex tb IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex e ia IIC T6/T5/T4 Gb - Ex ia IIIC T75°C/T1 10°C Db IP66			
	CE 0722 Ex II 2GD Ex eb ia IIC T6/T5/T4 Gb - Ex tb ia IIIC T75°C/T1 10°C Db IP66			
Certification:	ATEX	CESI 03 ATEX 333		
	IEC Ex	CES 13.0001	All IEC Ex, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	DISPONIBLE		
Standards:	CENELEC EN 60079-0: 2012+A11:2013, EN 60079-7: 2015, EN 60079-11: 2012 ed alla DIRETTIVA EUROPEA 2014/34/UE and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-31: 2013			
	Ambient Temp.:	See "ambient temperature range" table		
Degree of protection:	IP66			

## CTBE... series (Ex e) and (Ex i) stainless steel junction boxes

### AMBIENT TEMPERATURE RANGE

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +40°C	T6	T75°C	+80°C
-40°C +55°C	T5	T75°C	+95°C

### LOW AND HIGH TEMPERATURE RANGE (accordingly with the temperature allowed by the terminals)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +40°C	T6	T75°C	+80°C
-60°C +55°C	T5	T75°C	+95°C
-60°C +65°C**	T5	T75°C	+95°C

\*\* For this temperature range the maximum dissipated power shall be reduced by 25% and the nominal current by 15%





### TEMPERATURE RANGE FOR SIGNALING (max. 1 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +60°C	T6	T75°C	+80°C

### TEMPERATURE RANGE FOR SIGNALING (max. 10 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +85°C	T4	T110°C	+120°C

### CERTIFICATION DATA OF ENCLOSURES WITH EQUIPMENT (FIELD BUS, PROXIMITOR, HEATER...)

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722 Ex II2(1)GD - Ex eb ib mb [ia Ga] IIC T4 Gb - Ex tb [ia Da] IIIC T85°C Db IP66			
Certification:	ATEX CML 16 ATEX 3163X			
	IEC Ex CML 16.0074X	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-7: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011-06, IEC 60079-7: 2015, IEC 60079-28: 2015, IEC 60079-31:2013			
Ambient Temp.:	 -40°C (-50°C) +40°C 		With temperature class T6 and maximum surface temperature T85°C.	
	 -40°C (-50°C) +55°C 		With temperature class T5 and maximum surface temperature T100°C.	
Degree of protection:	IP66			



## CTBE... series (Ex e) and (Ex i) stainless steel junction boxes

### MECHANICAL FEATURES

<b>Body and lid:</b>	AISI 316L stainless steel
<b>Gasket:</b>	Resistant to acids, hydrocarbons and high temperatures, located between body and lid. Ensures consistent protection to IP66 during use
<b>Certification label:</b>	Stainless steel plate riveted onto lid
<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>Mounting:</b>	AISI 316L stainless steel feet

### ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

Internal anti-condensation coating RAL 2004 (pure orange)

External epoxy coating in different colour (specify the RAL number)

Possible drilling of the enclosure bottom

Breather valve Code ECD-210S; Drain valve code ECD-210S

Internal mounting plate: stainless steel (code B...-484)

Earth screws in stainless steel

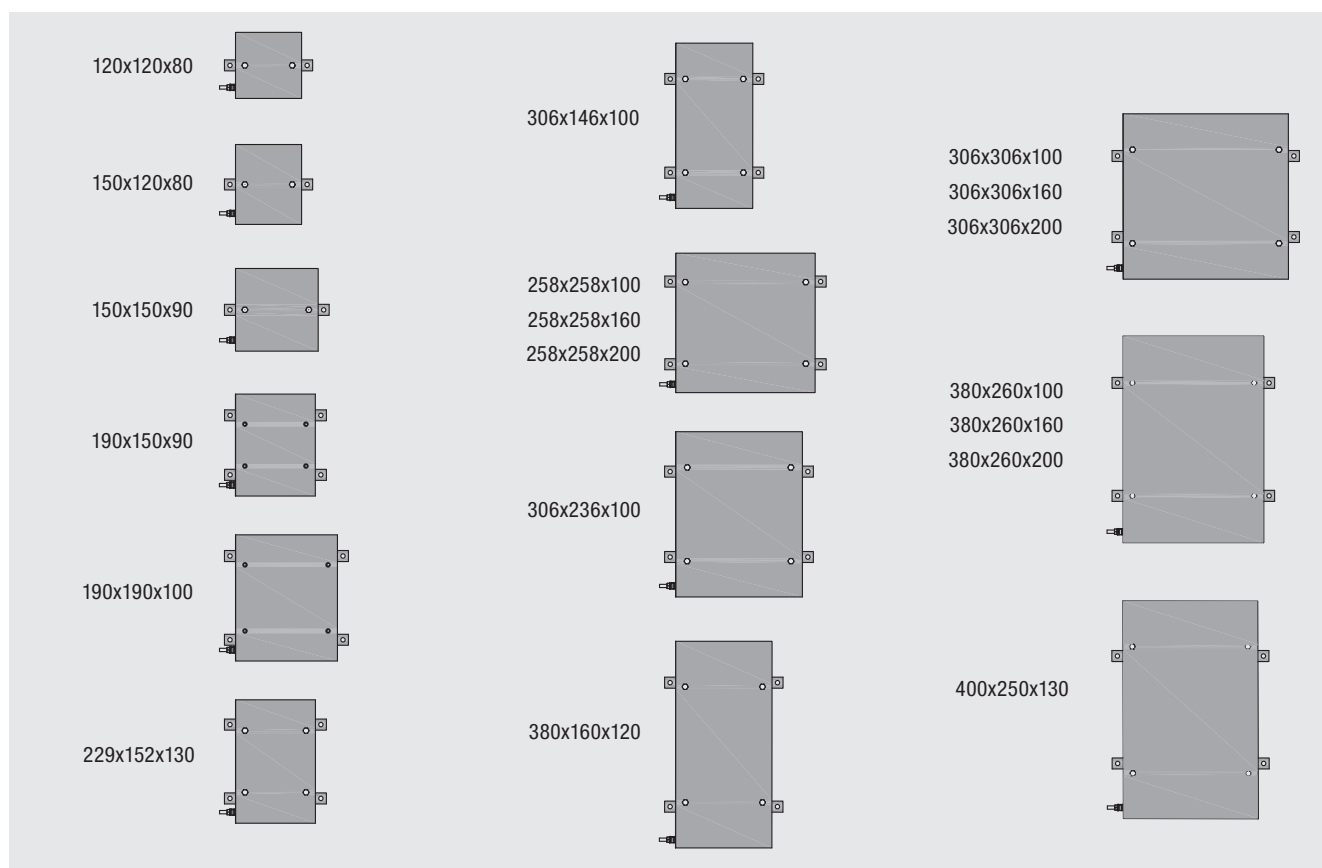
Terminal block mounting rails (code OBO2060/S)

ATEX-CERTIFIED TERMINALS: terminals must be chosen from the list of approved manufacturers: Cabur, Phoenix, ABB Entrelec, Wago, Weidmuller. When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals.

Hole options: through holes with no threading

**Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.**

### OVERVIEW OF SIZES

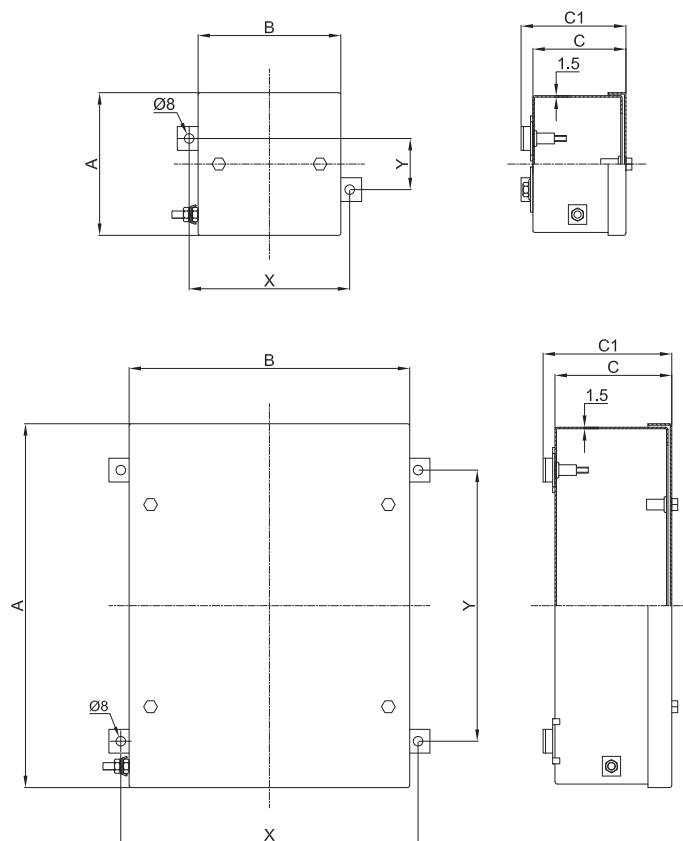


# CTBE... series (Ex e) and (Ex i) stainless steel junction boxes

## ENCLOSURE SELECTION CHART

Code	Outside dimensions				Mounting		N. of feet for the mounting	N. of screws on cover	Weight Kg
	A	B	C	C1	X	Y			
CTBE121208	120	120	80	90	135	43	2	2	1,02
CTBE151208	150	120	80	90	135	73	2	2	1,16
CTBE151509	150	150	90	100	165	73	2	2	1,42
CTBE191509	190	150	90	100	165	113	2	4	1,69
CTBE191910	190	190	100	110	205	113	2	4	2,06
CTBE221513	229	152	130	140	167	152	2	4	2,37
CTBE262610	258	258	100	110	273	181	4	4	3,29
CTBE262616	258	258	160	170	273	181	4	4	4,01
CTBE262620	258	258	200	210	273	181	4	4	4,46
CTBE301410	306	146	100	110	160	228	4	4	2,56
CTBE302310	306	236	100	110	250	228	4	4	3,47
CTBE303010	306	306	100	110	320	228	4	4	4,18
CTBE303016	306	306	160	170	320	228	4	4	5,04
CTBE303020	306	306	200	210	320	228	4	4	5,57
CTBE381612	380	160	120	130	175	303	4	4	3,46
CTBE382610	380	260	100	110	275	303	4	4	4,40
CTBE382616	380	260	160	170	275	303	4	4	5,30
CTBE382620	380	260	200	210	275	303	4	4	5,86
CTBE402513	400	250	130	140	265	323	4	4	4,91

## DIMENSIONAL DRAWING



Dimensions in mm

## CTBE... series (Ex e) and (Ex i) stainless steel junction boxes

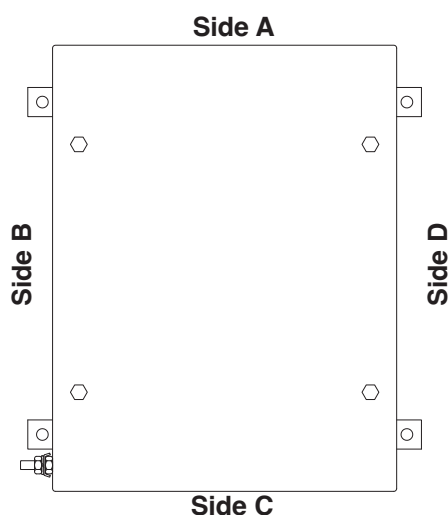
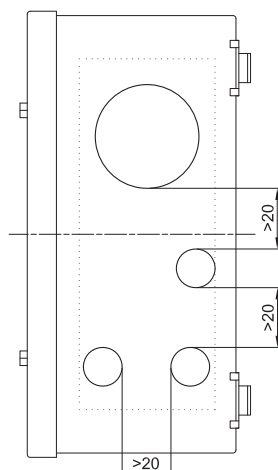
THREAD COMPARISON CHART

D Thread diameter	01	1	2	3	4	5	6	7	8
ISO 261/965	16x1.5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5	Ø90.5

As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .



TYPE OF ENCLOSURE	HOLE DRILLING IN BODY																				
	Sides A and C										Sides B and D										
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE										Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								
		01	1	2	3	4	5	6	7	8	01		1	2	3	4	5	6	7	8	
CTBE121208	75x35	2	2	2	-	-	-	-	-	-	75x35	2	2	2	-	-	-	-	-		
CTBE151208	75x35	2	2	2	1	-	-	-	-	-	105x35	3	3	2	1	-	-	-	-		
CTBE151509	105x45	3	3	2	2	1	-	-	-	-	105x45	3	3	2	2	1	-	-	-		
CTBE191509	105x45	3	3	2	2	1	-	-	-	-	145x45	4	4	3	3	2	-	-	-		
CTBE191910	145x55	4	4	3	3	2	-	-	-	-	145x55	4	4	3	3	2	-	-	-		
CTBE221513	107x85	6	6	4	3	1	-	-	-	-	184x85	15	10	8	6	1	-	-	-		
CTBE262610	213x50	11	9	5	4	3	-	-	-	-	213x50	11	9	5	4	3	-	-	-		
CTBE262616	213x110	18	18	14	8	6	5	2	2	2	213x100	18	18	14	8	6	5	2	2		
CTBE262620	213x150	28	20	18	15	6	6	3	2	2	213x150	28	20	18	15	6	6	3	2		
CTBE301410	100x50	5	3	2	2	1	-	-	-	-	260x50	14	6	6	5	4	-	-	-		
CTBE302310	190x50	10	5	4	4	3	-	-	-	-	260x50	14	6	6	5	4	-	-	-		
CTBE303010	260x50	14	6	6	5	4	-	-	-	-	260x50	14	6	6	5	4	-	-	-		
CTBE303016	260x110	24	18	17	10	8	4	3	2	2	260x110	24	18	17	10	8	4	3	2		
CTBE303020	260x150	35	25	22	15	11	6	6	2	2	260x150	35	25	22	15	11	6	6	2		
CTBE381612	115x70	6	6	3	2	2	1	1	-	-	335x70	18	16	14	9	5	5	4	-		
CTBE382610	215x50	11	9	5	4	3	-	-	-	-	335x50	16	7	7	6	5	-	-	-		
CTBE382616	215x110	18	18	14	8	6	5	2	2	2	335x110	27	24	21	12	10	5	4	3		
CTBE382620	215x150	28	20	18	15	6	6	3	2	2	335x150	45	32	28	18	15	10	8	3		
CTBE402513	205x80	12	10	8	7	3	3	2	2	-	335x80	20	18	16	13	6	5	4	3		





These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting plates. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

### ELECTRICAL FEATURES

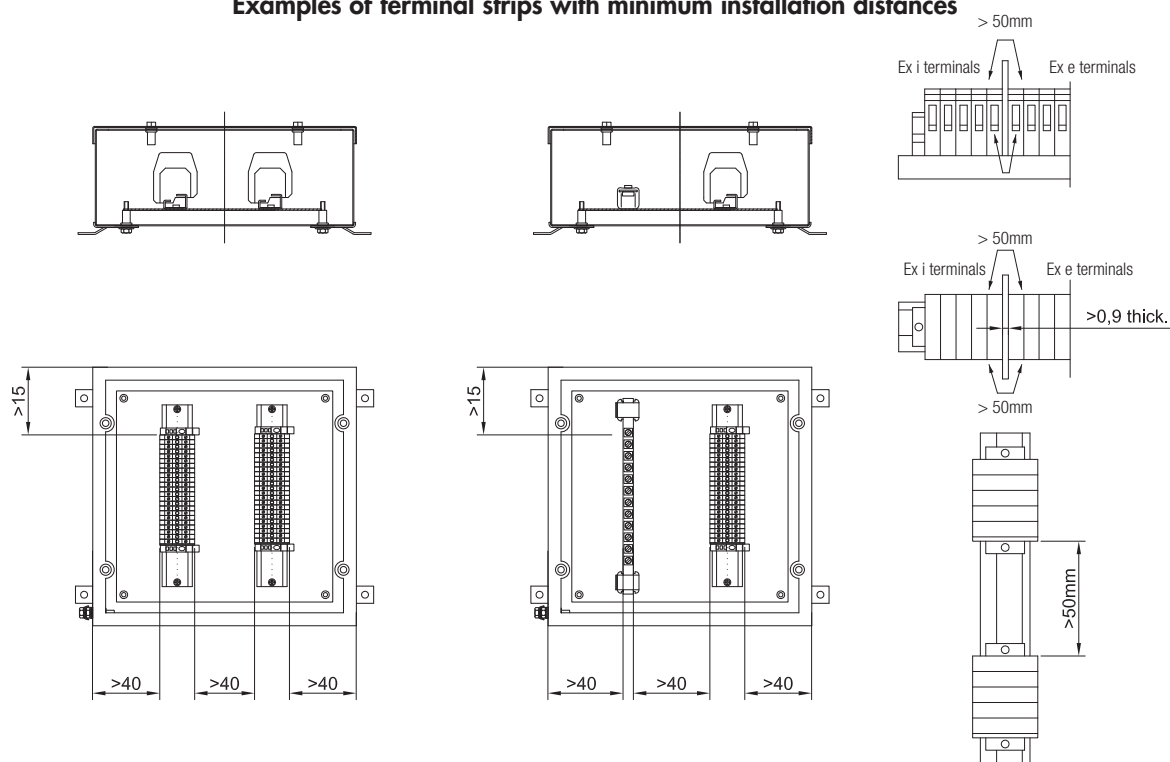
**Rated voltage:** 1000 V  
**Rated frequency:** 50 / 60 Hz

#### Modular terminals

**Terminal cross-sectional area:** 1.5; 2.5; 4; 6; 10; 25; 35; 70; 95; 120; 185; 240; 300 [mm<sup>2</sup>]  
**Rated current:** 8 - 400 [A]

Marking	Terminal type	Description
<b>Ex II 2GD Ex e IIC T... Gb - Ex tb IIIC T... Db IP66</b>	Ex e terminals only	Enclosures containing increased safety terminals to standard EN 60079-7
<b>Ex II 2GD Ex e ia IIC T... Gb - Ex tb ia IIIC T... Db IP66</b>	Ex e and Ex i terminals	Enclosures containing increased safety terminals and intrinsic safety terminals to standards EN 60079-7 and EN 60079-11
<b>Ex II 2GD Ex ia IIC T... Gb - Ex ia IIIC T... Db IP66</b>	Ex i terminals only	Enclosures containing intrinsic safety terminals to standard EN 60079-11; enclosures are still category 2

## Examples of terminal strips with minimum installation distances



### Notes:

Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.

Only ATEX-certified terminals are allowed inside the enclosures.

Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.

Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.

TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED									
	TERMINAL CROSS-SECTIONAL AREA									
	1.5	2.5	4	6	10	16	25	35	50	70
CTBE121208	8	5	-	-	-	-	-	-	-	-
CTBE151208	14	10	-	-	-	-	-	-	-	-
CTBE151509	20	14	-	-	-	-	-	-	-	-
CTBE191509	29	20	-	-	-	-	-	-	-	-
CTBE191910	36	25	21	15	-	-	-	-	-	-
CTBE221513	38	26	22	16	-	-	-	-	-	-
CTBE262610	2x42	2x29	2x24	2x18	-	-	-	-	-	-
CTBE262616	2x42	2x29	2x24	2x18	2x14	2x12	8	-	-	-
CTBE262620	2x42	2x29	2x24	2x18	2x14	2x12	8	-	-	-
CTBE301410	56	39	32	24	-	-	-	-	-	-
CTBE302310	2x56	2x39	2x32	2x24	-	-	-	-	-	-
CTBE303010	2x56	2x39	2x32	2x24	-	-	-	-	-	-
CTBE303016	2x56	2x39	2x32	2x24	2x19	2x16	11	-	-	-
CTBE381612	77	54	45	33	26	22	16	-	-	-
CTBE303020	2x56	2x39	2x32	2x24	2x19	2x16	11	11	10	9
CTBE382610	2x77	2x54	2x45	2x33	2x26	2x22	16	16	14	12
CTBE382616	2x77	2x54	2x45	2x33	2x26	2x22	16	16	14	12
CTBE382620	2x77	2x54	2x45	2x33	2x26	2x22	16	16	14	12
CTBE402513	2x83	2x58	2x48	2x36	2x28	2x23	17	17	-	-

Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

## CTBE... series Features of junction boxes with terminals

The permissible maximum power dissipation, in order to retain a T6 temperature class with an ambient temperature up to 40°C or T5 class with an ambient temperature of 55°C, is not to exceed the values given in the tables below.

For an ambient temperature of +60°C or +65°C, maximum power dissipation must be reduced by 25%, and rated current reduced by 15%.

The maximum current values for terminal strips used for low-voltage circuits (signalling units) with a T6 temperature class and maximum ambient temperature of +60°C are as follows:

- 1 A for Ex e circuits;
- 100mA for Ex ia circuits.

The values given in the tables on the coming pages refer to the maximum number of conductors allowed for a conductor with a given cross-sectional area and a given maximum current. All incoming wires and active internal links (made by wires) count as wires. Earth connections (i.e. passive connections) do not count.

When DIN/Omega rails are installed on the internal mounting plate (instead of using the relevant mounting plate fastening holes), the number of terminals may be slightly less than the number given in the tables.

Other types of terminals can be used up to the space limit of the box. Whatever the case, all terminals used shall be ATEX and/or IEC Ex certified. Size 35mm<sup>2</sup> terminals can be used for conductors with a cross-sectional area of 25mm<sup>2</sup>.

The maximum number of terminals and maximum number of rows given in the tables is an indicative value: you must take into account the cable entries on the sides of the boxes. The internal overall dimensions of cable glands/lock nuts and the overall dimensions of conductors must be taken into consideration to allow for wiring.

In some cases, it may be necessary to reduce the number of terminals or the number of rows.

Example of how to calculate the maximum number of conductors.

Referring to table of the maximum number of conductors for CTB262620: 6 conductors with 6mm<sup>2</sup> cross-section with 26A continuous current is the limit of this box. Consequently, box CTB262620 is suitable for containing 3 x 6mm<sup>2</sup> terminals (2 conductors for each terminal) with a max. current of 26A.

There is space for 32 x 6mm<sup>2</sup> terminals in the box. The remaining 29 terminals (32-3) can be added and used for low-current circuits indicated in the "yellow-coloured" area of the table (in this case max. 8-10A).

Combined mounting for electrical circuits with different sized cables is possible provided the values given are used proportionally. For example:

Nominal X-sect. area (mm <sup>2</sup> )	Current (A)	Quantity	Capacity
2.5	16	10 (out of 30)	33%
16	50	12 (out of 48)	25%
25	63	36 (out of 90)	40%
Total			98% <100%



## CTBE... series Features of junction boxes with terminals

Table showing maximum power dissipation and current for ambient temperature +40°C and +55°C


Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
CTBE121208	5,3	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE151208	5,3	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE151509	5,5	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE191509	6,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE191910	6,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE221513	6,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE262610	10,6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE262616	10,6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE262620	11,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE301410	10,6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE302310	11,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE303010	11,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE303016	11,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE381612	11,2	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
CTBE303020	12,2	11	15	21	26	37	49	67	80	98	122	122	147	147	147	147	147
CTBE382610	12,2	11	15	21	26	37	49	67	80	98	122	122	147	147	147	147	147
CTBE382616	12,2	11	15	21	26	37	49	67	80	98	122	122	147	147	147	147	147
CTBE382620	12,2	11	15	21	26	37	49	67	80	98	122	122	147	147	147	147	147
CTBE402513	12,2	11	15	21	26	37	49	67	80	98	122	122	147	147	147	147	147


Table showing maximum power dissipation and current for ambient temperature +60°C and +65°C

Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm <sup>2</sup>															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
CTBE121208	3,9	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE151208	3,9	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE151509	4,1	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE191509	4,6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE191910	4,6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE221513	4,6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE262610	7,9	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE262616	7,9	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE262620	8,4	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE301410	7,9	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE302310	8,4	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE303010	8,4	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE303016	8,4	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE381612	8,4	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
CTBE303020	9,1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125
CTBE382610	9,1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125
CTBE382616	9,1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125
CTBE382620	9,1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125
CTBE402513	9,1	9	12	17	22	31	41	57	68	83	103	103	125	125	125	125	125

## CTBE... series Features of junction boxes with terminals

Instructions for determining which enclosure is best suited based on the planned number of conductors and terminals.

 : In this section of the table that has not been filled in, once you have followed the instructions and complied with the values given for the enclosure's internal wiring, you can add as many terminals as you want up to the space limit of the box.

 : Any wiring that falls within this section of the table that has not been filled in is not covered by the certificate.

"C. No." row: the values given refer to the maximum number of CABUR terminals physically allowed inside the relevant enclosure. These values are expressed as the product of the rows multiplied by the number of terminals.

"W. No." row: the same as above, but this time referring to Weidmuller terminals.

The terminal brands are mentioned just to give an idea of the quantity of terminals that can be housed inside the enclosure.

The other values given in the cells along the table's diagonal define the maximum number of conductors allowed, based on their cross-sectional area and maximum current.

### Tables showing maximum number of conductors

$$(N^{\circ} \text{ of terminals} = \frac{n^{\circ} \text{ of conductors}}{2})$$

CTBE121208

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	15	25					
10	9	16	22				
11	8	13	18	24			
15		7	10	13			
21			5	7	9	12	
26				4	6	8	10
37					3	4	5
49						2	3
67							2
C. No.							
W. No.	8	5					

Maximum power dissipation with T6 temperature class must not exceed 5,3W

CTBE151208

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	15	25					
10	9	16	22				
11	7	13	18	24			
15		7	10	13			
21			5	7	9	12	
26				4	6	8	10
37					3	4	5
49						2	3
67							2
C. No.							
W. No.	14	10					

Maximum power dissipation with T6 temperature class must not exceed 5,3W

CTBE151509

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	14	24					
10	9	15	22				
11	7	12	18	24			
15		6	10	13	18	25	
21			5	7	9	13	16
26				4	6	8	11
37					3	4	5
49						2	3
67							2
C. No.							
W. No.	20	14					

Maximum power dissipation with T6 temperature class must not exceed 5,5W

CTBE191509

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	16	27	38				
10	10	17	24	33			
11	8	14	20	27	39		
15		7	11	14	21	28	
21			6	7	11	14	19
26				5	7	9	12
37					3	5	6
49						3	3
67							2
C. No.							
W. No.	29	20					

Maximum power dissipation with T6 temperature class must not exceed 5,5W

CTBE191910

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	16	27	38				
10	10	17	24	33			
11	8	14	20	27	39		
15		7	11	14	21	28	
21			6	7	11	14	19
26				5	7	9	12
37					3	5	6
49						3	3
67							2
C. No.		23	19	15			
W. No.	36	25	21	15			

Maximum power dissipation with T6 temperature class must not exceed 6,2W

CTBE221513

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	16	27	38				
10	10	17	24	33			
11	8	14	20	27	39		
15		7	11	14	21	28	
21			6	7	11	14	19
26				5	7	9	12
37					3	5	6
49						3	3
67							2
C. No.		24	20	16			
W. No.	38	26	22	16			

Maximum power dissipation with T6 temperature class must not exceed 6,2W

CTBE262610

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	34	50	68	102		
10	13	22	32	44	65		
11	11	18	26	36	54	76	104
15		9	14	19	29	41	56
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x27	2x22	2x18			
W. No.	2x42	2x29	2x24	2x18			

Maximum power dissipation with T6 temperature class must not exceed 10,6W

CTBE262616

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	34	50	68	102		
10	13	22	32	44	65		
11	11	18	26	36	54	76	104
15		9	14	19	29	41	56
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x27	2x22	2x18	2x14	2x12	8
W. No.	2x42	2x29	2x24	2x18	2x14	2x12	8

Maximum power dissipation with T6 temperature class must not exceed 10,6W

CTBE262620

Current (A)	Cross-sectional area mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x27	2x22	2x18	2x14	2x12	8
W. No.	2x42	2x29	2x24	2x18	2x14	2x12	8

Maximum power dissipation with T6 temperature class must not exceed 11,2W

## Tabelle per il massimo numero di conduttori

CTBE301410

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	34	50	68	102		
10	13	22	32	44	65		
11	11	18	26	36	54	76	104
15		9	14	19	29	41	56
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		35	30	24			
W. No.	56	39	32	24			

Maximum power dissipation with T6 temperature class must not exceed 10,6W

CTBE302310

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x35	2x30	2x24			
W. No.	2x56	2x39	2x32	2x24			

Maximum power dissipation with T6 temperature class must not exceed 11,2W

CTBE303010

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x35	2x30	2x24			
W. No.	2x56	2x39	2x32	2x24			

Maximum power dissipation with T6 temperature class must not exceed 11,2W

CTBE303016

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		2x35	2x30	2x24	2x19	2x16	11
W. No.	2x56	2x39	2x32	2x24	2x19	2x16	11

Maximum power dissipation with T6 temperature class must not exceed 6,2W

CTBE381612

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	20	33	49	68	103		
10	13	21	32	44	66		
11	11	18	26	36	54	77	107
15		9	14	19	29	41	57
21			7	10	15	21	29
26				6	10	14	19
37					5	7	9
49						4	5
67							3
C. No.		49	41	33	26	22	16
W. No.	77	54	45	33	26	22	16

Maximum power dissipation with T6 temperature class must not exceed 11,2W

CTBE303020

Current (A)	Cross-sectional area in mm <sup>2</sup>									
	1,5	2,5	4	6	10	16	25	35	50	70
1										
8	21	34	51	71	107	153				
10	13	22	33	45	69	98	136			
11	11	18	27	38	57	81	113	141		
15		9	15	20	31	43	61	76	92	
21			7	10	16	22	31	39	47	59
26				7	10	14	20	25	31	38
37					5	7	10	12	15	19
49						4	6	7	9	11
67							3	4	5	6
80								3	3	4
98									2	3
122										2
C. No.		2x35	2x30	2x24	2x19	2x16	11	11	10	9
W. No.	2x56	2x39	2x32	2x24	2x19	2x16	11	11	10	9

Maximum power dissipation with T6 temperature class must not exceed 12,2W

CTBE382610, CTBE382616, CTBE382620

Current (A)	Cross-sectional area in mm <sup>2</sup>									
	1,5	2,5	4	6	10	16	25	35	50	70
1										
8	21	34	51	71	107	153				
10	13	22	33	45	69	98	136			
11	11	18	27	38	57	81	113	141		
15		9	15	20	31	43	61	76	92	
21			7	10	16	22	31	39	47	59
26				7	10	14	20	25	31	38
37					5	7	10	12	15	19
49						4	6	7	9	11
67							3	4	5	6
80								3	3	4
98									2	3
122										2
C. No.		2x49	2x41	2x33	2x26	2x22	16	16	14	12
W. No.	2x77	2x54	2x45	2x33	2x26	2x22	16	16	14	12

Maximum power dissipation with T6 temperature class must not exceed 12,2W

CTBE402513

Current (A)	Cross-sectional area in mm <sup>2</sup>						
	1,5	2,5	4	6	10	16	25
1							
8	21	34	51	71	107	153	
10	13	22	33	45	69	98	136
11	11	18	27	38	57	81	113
15		9	15	20	31	43	61
21			7	10	16	22	31
26				7	10	14	20
37					5	7	10
49						4	6
67							3
80							
98							
122							
C. No.		2x52	2x44	2x36	2x28	2x23	17
W. No.	2x83	2x58	2x48	2x36	2x28	2x23	17

Maximum power dissipation with T6 temperature class must not exceed 12,2W

## CTBE... series Features of junction boxes with terminals

### Codes of terminals used to determine maximum number of terminals

The other values given in the cells along the table's diagonal define the maximum number of conductors allowed, based on their cross-sectional area and maximum current.

mm <sup>2</sup>	1.5	2.5	4	6	10	16	25	35
<b>Cabur</b>		CBD 2	CBD 4	CBD 6	CBD 10	CBD 16	CBD 35	
<b>Weidmuller</b>	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	WDU 16	WDU 35	

mm <sup>2</sup>	50	70	95	120	150	185	240	300
<b>Cabur</b>	CBD 50	CBD 70	GPM95/CC	GPM150/CC		GPM240/CC		
<b>Weidmuller</b>	WDU 50	WDU 70	WDU 70/95	WDU 120/150		WDU 240		

### ATEX - IECEx label for terminal enclosures

The label contains the following information:

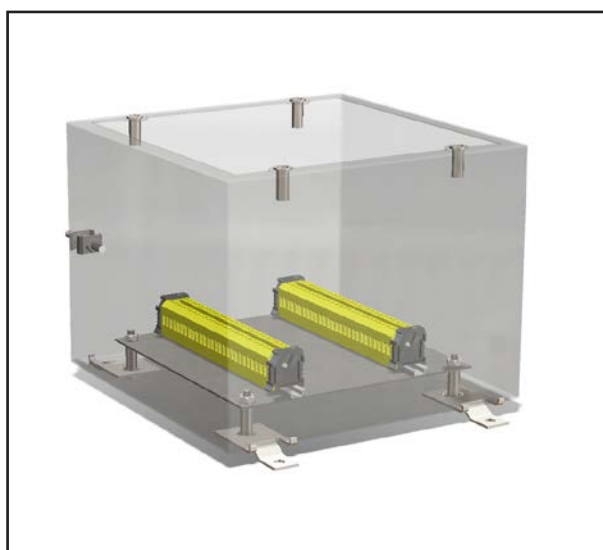
- 1:** Year of manufacture (20)
- 2:** Serial number (s.n.)
- 3:** Product code (CESI 03 ATEX 333)
- 4:** Ambient temperature (Ta)
- 5:** Temperature class and maximum surface (T<sub>g</sub>)
- 6:** Temperature of cables (T<sub>c</sub>)
- 7:** Electrical specs per certificate (Ex tb IIIC T<sub>g</sub> °C Db IP66)

Other fields include: n° terminals, max wire section (mm<sup>2</sup>), max current, and a warning: WARNING - DO NOT OPEN when energized.

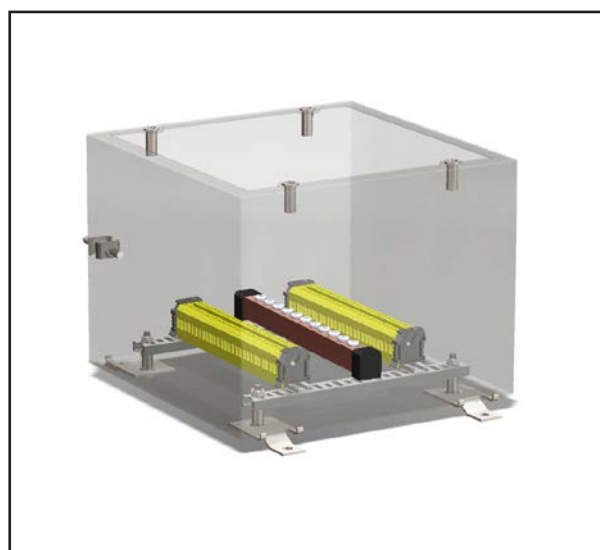
#### Data filled in:

1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. temperature class and maximum surface
6. temperature of cables
7. electrical specs per certificate

### TYPICAL EXAMPLES OF TERMINAL BLOCK INSTALLATION



Example of feed-through terminal installation on top hat rail fastened to stainless steel internal mounting plate.



Example of feed-through terminal installation on top hat rail fastened on two pre-drilled mounting rails.

### DON'T FORGET TO ORDER THE ACCESSORIES

Example:

Enclosure type  
CTB484820

+

Internal frame  
B26-484

+

Cable glands, unions

+

other...see key



## CTBE... series Accessories available on request and spare parts

ILLUSTRATION	DESCRIPTION	MODEL	DIMENSIONS A                  B		CODE	KEY
	Internal mounting plates  Stainless steel	CTBE121208	60	60	<b>B12-484</b>	 
		CTBE151208	90	60	<b>B151-484</b>	
		CTBE151509	90	90	<b>B15-484</b>	
		CTBE191509	130	90	<b>B191-484</b>	
		CTBE191910	130	130	<b>B19-484</b>	
		CTBE221513	170	90	<b>B22-484</b>	
		CTBE262610	200	200	<b>B26-484</b>	
		CTBE262616				
		CTBE262620				
		CTBE301410	245	85	<b>B303-484</b>	
		CTBE302310	245	175	<b>B302-484</b>	
		CTBE303010	245	245	<b>B30-484</b>	
		CTBE381612				
		CTBE303020				
		CTBE381612	320	100	<b>B383-484</b>	
		CTBE382610	320	200	<b>B38-484</b>	
		CTBE382616				
		CTBE382620				
		CTBE402513	340	190	<b>B40-484</b>	
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES		CODE	KEY
	Terminal block mounting rails		Steel rails cut to size		<b>OBO2060/S</b>	 
	Universal clip for grouping cables in single bundle	For 6-13mm cable	Material: polyamide Hole for M6 screw for fastening		<b>OBO2037/6-13</b>	 
		For 12-20mm cable			<b>OBO2037/12-20</b>	
		For 16-24mm cable			<b>OBO2037/16-24</b>	
		For 18-30mm cable			<b>OBO2037/18-30</b>	
		For 27-43mm cable			<b>OBO2037/27-43</b>	
	Breather and drain valve	Thread diameter ISO 7-R 3/8"	Material: stainless steel		<b>ECD-210S</b> <b>ECDE-...</b>	 
	Entry blanking plugs and cable glands	For models and codes, visit <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>				 

# Junction box configurator

## Junction box form for drilling, terminals and accessories

This form is meant to show only drilling, terminals and accessories. Other requests, such as control devices, push buttons etc..., must be specified separately in the request of offer.

### Client details

Company name ..... Country .....  
 Shipping address ..... E-mail .....  
 Project ..... Telephone .....  
 Client Request of Offer N. ....  
 Internal Offer N. ....



Junction box code: .....  
 Or complete this form

#### Protection mode

Ex d IIB ☐  
 Ex d IIC ☐  
 Ex e ☐  
 Ex i ☐  
 Watertight ☐

#### Junction box material

Aluminium alloy ☐  
 Stainless steel ☐  
 Polyester resin ☐

#### Drilling

ISO 7/1 - ISO228 ☐  
 METRIC ISO 261/965 ☐  
 ANSI B.20.1 NPT ☐  
 ANSI B.20.1 NPSM ☐  
 PG DIN 40430 ☐  
 Through holes ☐

#### Cable glands type

Nickel-plated brass ☐  
 Stainless steel ☐  
 Galvanized steel ☐  
 Polyamide ☐

#### Cable type

Armoured ☐  
 Non armoured ☐

#### Plugs type

Nickel-plated brass ☐  
 Stainless steel ☐  
 Galvanized steel ☐  
 Polyamide ☐

#### Accessories and other

Internal mounting plate ☐  
 Breather valve ☐  
 Drain valve ☐  
 PVC protectors for cable glands ☐  
 Lock nuts ☐  
 Earthing rings for cable glands ☐  
 Internal earth continuity plate ☐  
 Removable gland plates ☐  
Only for SA...SS and CTB boxes  
 External paint: RAL 7035 ☐ Other ..... ☐

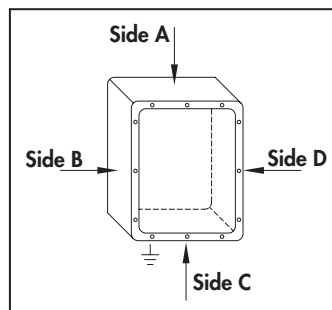
### Certification type:

ATEX ☐  
 IEC Ex ☐  
 GOST R ☐

### Ambient temperature required: .....

Other:

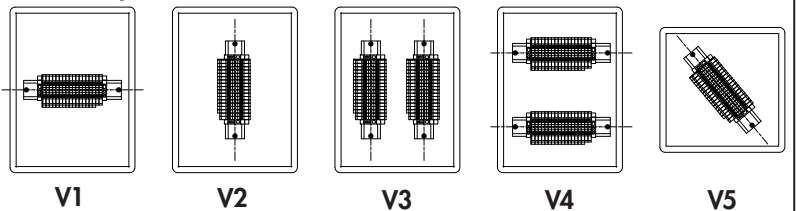
### DRILLING



SIDE A		SIDE B		SIDE C		SIDE D	
Drill size	Q.ty	Drill size	Q.ty	Drill size	Q.ty	Drill size	Q.ty

### TERMINALS

#### Standard position:



Terminals type			Quantity	Standard position	Other position (indicate layout)
Supplier	Code	Section			

### TERMINALS ACCESSORIES

Numbering strip or marking tag (write the sketch):

Permanent cross connection: Type..... Q.ty.....

Cover for cross connection: Yes ☐ No ☐

Cross connection barrier: Q.ty.....

Earth bar type XPE: Bar n°..... Bolts n°.....

Mounting rail type:



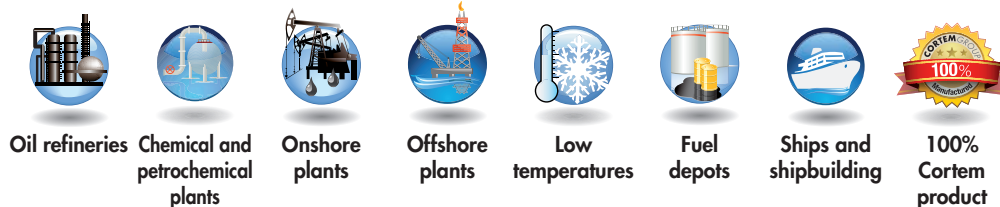
This image shows a full page of blank graph paper. The background is a solid light blue color. Overlaid on this background is a precise grid of thin, dark gray lines. The grid consists of small, equal-sized squares that cover the entire area of the page, from edge to edge. There are no margins, text, or other markings present on the paper.

## M-0





The new Cortem M-0 series control, monitoring and signalling devices are installed as external accessories on 'Ex e' enclosures and boards used in any industrial environment where an explosive atmosphere may be present, classified as Zone 1, 2, 21, 22. M-0 control devices can be used to close or open electrical or mechanical devices fitted inside the 'Ex e' enclosures while the signalling devices feature lights to indicate their operating status. The control and signalling device components are made from stainless steel to deliver unbeatable efficiency under any environmental conditions. Levers are made from aluminium while the plastic parts on push-buttons are designed to provide lengthy service life even when used in a highly corrosive atmosphere. M-0 control and signalling devices have an IP66 protection rating.

### Application sectors:



### CERTIFICATION DATA FOR CONTROL DEVICES M-0603, M-0604 and M-0605

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex e IIC Gb; Ex tb IIIC Db IP66			
Certification:	ATEX	CESI 09 ATEX 075U		
	IEC Ex	CES 11.0029U	All IEC Ex, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	INMETRO	DNV 17.0138U		
	TR CU	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2007-10, IEC 60079-1: 2008, IEC 60079-7: 2006-07			
Operating temperature:	 -40°C +90°C  (control and signalling devices are installed together with other certified products)			
Degree of protection:	IP66			

## CERTIFICATION DATA FOR CONTACT BLOCK M-0530 and M-0531

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)			
Marking:	CE 0722 Ex II 2G Ex de IIC Gb			
Certification:	ATEX	CESI 09 ATEX 016U		
	IEC Ex	CES 11.0031U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	AVAILABLE	All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2007-10, IEC 60079-1: 2007-04, IEC 60079-7: 2006-07			

## INDICATOR LIGHT M-0612/3

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2G Ex db eb IIC Gb; Ex tb IIIC Db IP66			
Certification:	ATEX	CESI 00 ATEX 060U		
	IEC Ex	CES 11.0030U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	AVAILABLE	All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
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 IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-31: 2013, IEC 60079-7: 2015			
Degree of protection:	IP66			

## AMMETER B-0140A, VOLTMETER B-0140V

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2G Ex e IIC Gb; II 2D Ex tb IIIC Db IP66			
Certification:	ATEX	CESI 04 ATEX 128U		
	IEC Ex	CES 12.0022U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	AVAILABLE	All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-31: 2008, IEC 60079-7: 2006-07			
Degree of protection:	IP66			

## MECHANICAL FEATURES

<b>Body:</b>	Aluminium with black anodic oxide finish.
<b>Pin and spring:</b>	Stainless steel
<b>Gasket:</b>	Acid-, hydrocarbon- and high temperature-resistant silicone, located between body and lid.
<b>Coloured cap on push-button and emergency stop push-button:</b>	Polyamide 6
<b>Selector lever:</b>	Aluminium with black anodic oxide finish
<b>Bolts and screws:</b>	Stainless steel

Control devices can be used to close or open various electrical or mechanical devices fitted inside the enclosures. Relevant technical features are given in detail below.

Push-button **M-0603** features linear push operation.

Push



Selector **M-0604** features twist operation.

Twist



Emergency stop push-button **M-0605** features linear push-to-close operation. To release, twist clockwise and the button automatically returns to its original position.

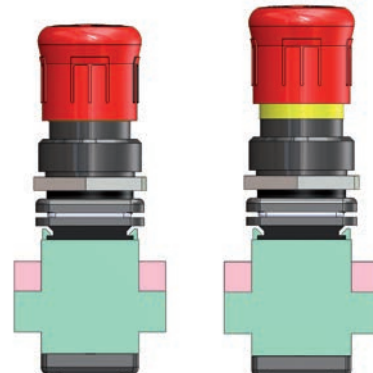
Push



Twist



Returns to original position



Emergency stop push-button **M-0605/K** features linear push-to-close operation. To release, turn the key clockwise and the button automatically returns to its original position.

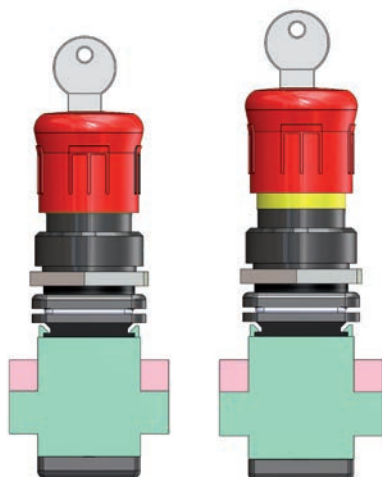
Push



Turn the key



Returns to original position

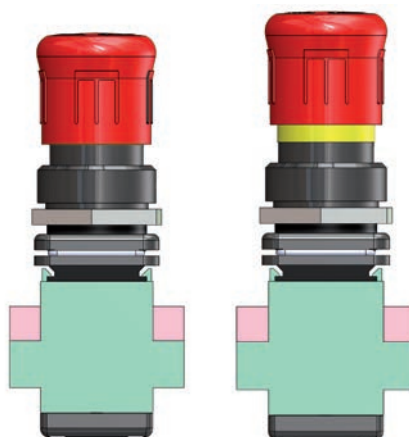


Emergency stop push-button **M-0605/P** features linear push-to-close operation. Pull the push-button to release.

Push



Pull

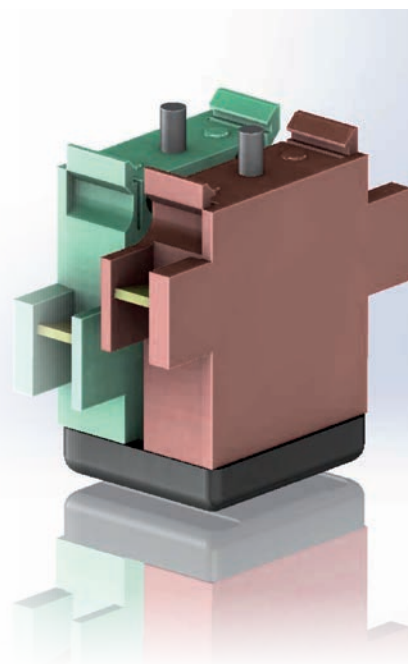


## CONTACT FEATURES

**Rated voltage:** 690 V  
**Frequency:** 50/60 Hz  
**Capacity:** 10 A

Rated operating voltage							
400 V	500 V	690 V	400 V	400 V	400 V	48 V	230 V
Utilization category							
AC-15	AC-15	AC-15	AC-1	AC-2	AC-3	DC-13	DC-13
Rated operating currents							
10 A	4 A	2 A	16 A	6 A	2,4 A	10 A	0,5 A

**Connection:** max. 2.5 mm<sup>2</sup>  
**Rated impulse withstand voltage:** 4 kV  
**Pollution degree:** 2  
**Conditional short-circuit current:** 1 kA  
**Maximum use of short-circuit protection devices:** one 10A 500V gG fuse on each conductor  
**Minimum travel for positive opening:** 3 mm  
**Minimum actuation force required to achieve positive opening of all opening contacts:** 5 N  
**Maximum travel (+ overtravel):** 4.75 Hz  
**Body:** Polyamide  
**Contacts:** Brass  
**Pins, springs and screws:** Stainless steel  
**Weight:** 40 g



The new slot-in adapter system makes light work of fitting contacts in control panels with walls up to 7 mm thick. In addition, with the mushroom-head push-button having a smaller diameter thread (M32x1.5), the lid can accommodate a larger number of control and signalling devices than with the previous version.



Option of using up to 4 contacts per device for push-button M-0603 and selector M-0604. Option of using up to 2 contacts per device for emergency stop push-button M-0605.

## ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

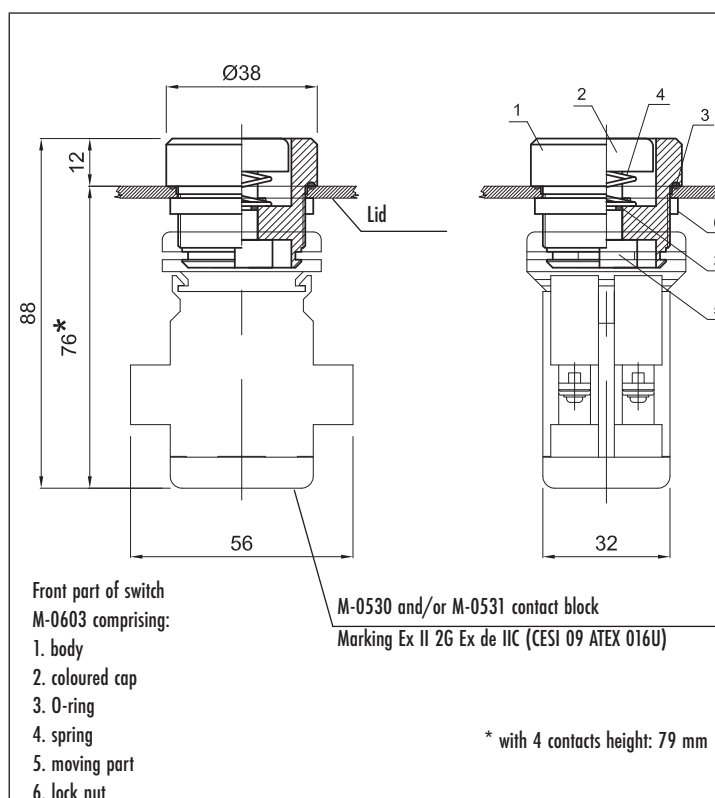
Padlocking system for selector (codes **M-962** and **M-963**)  
 Padlocking system for push-button (code M-0603/..L)  
 Padlocking for mushroom-head push-button (code **M-0615**)  
 Black mushroom-head push-button (code M-0605/N)  
 Earthing ring for installing control and signalling devices on polyester lids (code **A331IB**)

## Push-button M-0603

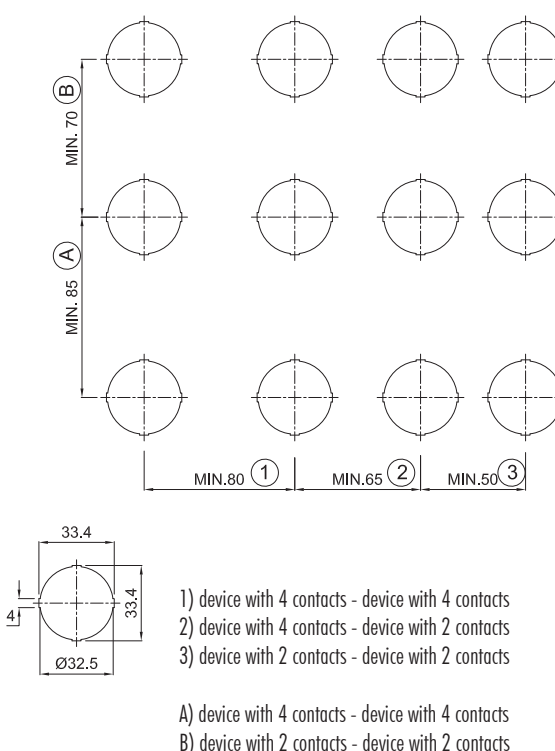


Range of push-buttons designed to allow installation of a high number of lid-mounted control and signalling devices. Available with caps made from polyamide 6 in different colours and in padlockable version. Option, for all control and signalling devices, of attaching nameplates on the lid with size and wording produced to customer specifications.

CODE	DESCRIPTION	NOTES
<b>M-0603/N</b>	Black Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/NL</b>	Padlockable black Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/R</b>	Red Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/RL</b>	Padlockable red Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/V</b>	Green Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/G</b>	Yellow Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/B</b>	Blue Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/BI</b>	White Ex e push-button without contacts	Add the required contact assembly
<b>M-0606/10</b>	1 NO contact assembly	
<b>M-0606/01</b>	1 NC contact assembly	
<b>M-0606/11</b>	1 NO + 1 NC contact assembly	
<b>M-0606/20</b>	2 NO contact assembly	
<b>M-0606/02</b>	2 NC contact assembly	



## Hole drilling arrangement (minimum distances)



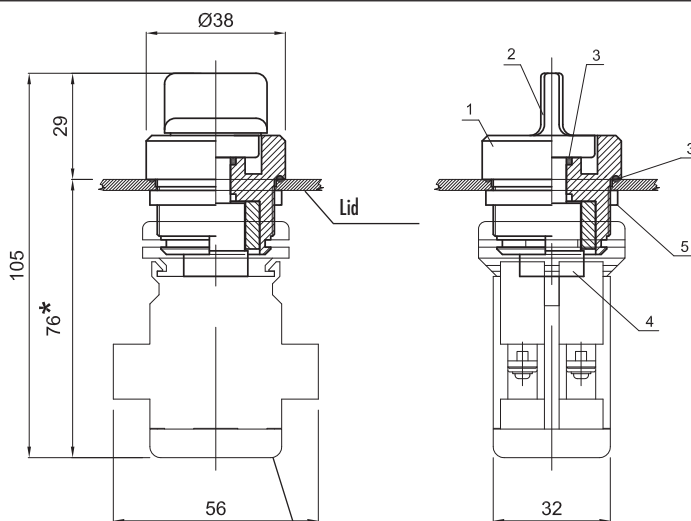


## Selector M-0604



Selector complete with 2 or 4 contacts, available with different wiring arrangements for connections inside board or on machine. Option of padlocking and earthing.

CODE	DESCRIPTION	NOTES
<b>M-0604/X</b>	Ex e selector X arrangement	Selector complete with contacts
<b>M-0604/R</b>	Ex e selector R arrangement	Selector complete with contacts
<b>M-0604/R SX</b>	Ex e selector R left-hand arrangement	Selector complete with contacts
<b>M-0604/1Z</b>	Ex e selector 1Z arrangement	Selector complete with contacts
<b>M-0604/2Z</b>	Ex e selector 2Z arrangement	Selector complete with contacts
<b>M-0604/1I</b>	Ex e selector 1I arrangement	Selector complete with contacts
<b>M-0604/2I</b>	Ex e selector 2I arrangement	Selector complete with contacts
<b>M-0604/3I</b>	Ex e selector 3I arrangement	Selector complete with contacts
<b>M-0604/4I</b>	Ex e selector 4I arrangement	Selector complete with contacts
<b>M-0604/1C</b>	Ex e selector 1C arrangement	Selector complete with contacts
<b>M-0604/2C</b>	Ex e selector 2C arrangement	Selector complete with contacts
<b>M-0604/1W</b>	Ex e selector 1W arrangement	Selector complete with contacts
<b>M-0604/2W</b>	Ex e selector 2W arrangement	Selector complete with contacts
<b>M-0604/1M</b>	Ex e selector 1M arrangement	Selector complete with contacts
<b>M-0606/11</b>	1NO + 1NC contact assembly	Replacement part for arrangements: X - R - 1Z - RSX
<b>M-0606/22</b>	2NO + 2NC contact assembly	Replacement part for arrangements: 2Z
<b>M-0606/10</b>	1NO contact assembly	Replacement part for arrangements: 1I - 1M
<b>M-0606/20</b>	2NO contact assembly	Replacement part for arrangements: 2I - 2M - 1C - 1W
<b>M-0606/30</b>	3NO contact assembly	Replacement part for arrangements: 3I - 3M
<b>M-0606/40</b>	4NO contact assembly	Replacement part for arrangements: 4I - 4M - 2C - 2W



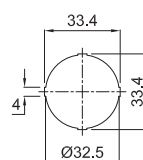
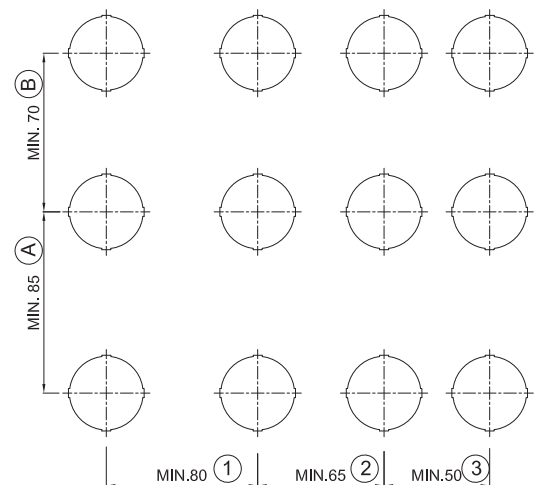
Front part of switch M-0604 comprising:

1. body
2. lever
3. O-ring
4. moving part
5. lock nut

M-0530 and/or M-0531 contact block  
Marking Ex II 2G Ex de IIC (CESI 09 ATEX 016U)

\* with 4 contacts height: 79 mm

### Hole drilling arrangement (minimum distances)



- 1) device with 4 contacts - device with 4 contacts
- 2) device with 4 contacts - device with 2 contacts
- 3) device with 2 contacts - device with 2 contacts

- A) device with 4 contacts - device with 4 contacts  
B) device with 2 contacts - device with 2 contacts

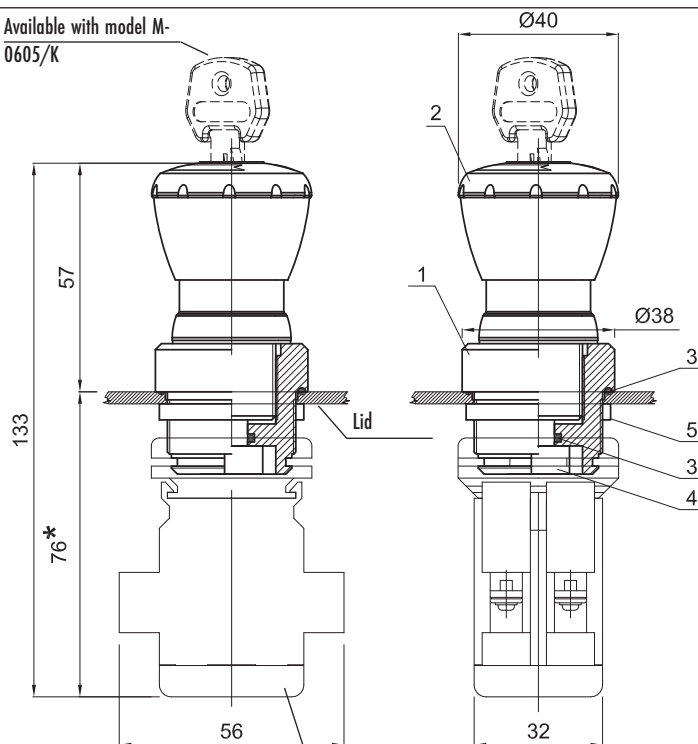
## Emergency stop push-button M-0605



The emergency stop push-button allows operators to stop machinery safely by pushing the button. Model M-0605/K comes with 2 keys, allowing you to lock the push-button in place.

CODE	DESCRIPTION	NOTES
<b>M-0605</b>	Ex e emergency stop push-button with release without contacts	You will need to add required contact assembly
<b>M-0605/K</b>	Ex e emergency stop push-button with key release without contacts	You will need to add required contact assembly
<b>M-0605/P</b>	Ex e push-pull, stop push-button without contacts	You will need to add required contact assembly
<b>M-0606/10</b>	1NO contact assembly	
<b>M-0606/01</b>	1NC contact assembly	
<b>M-0606/11</b>	1NO + 1NC contact assembly	
<b>M-0606/20</b>	2NO contact assembly	
<b>M-0606/02</b>	2NC contact assembly	

Available with model M-0605/K

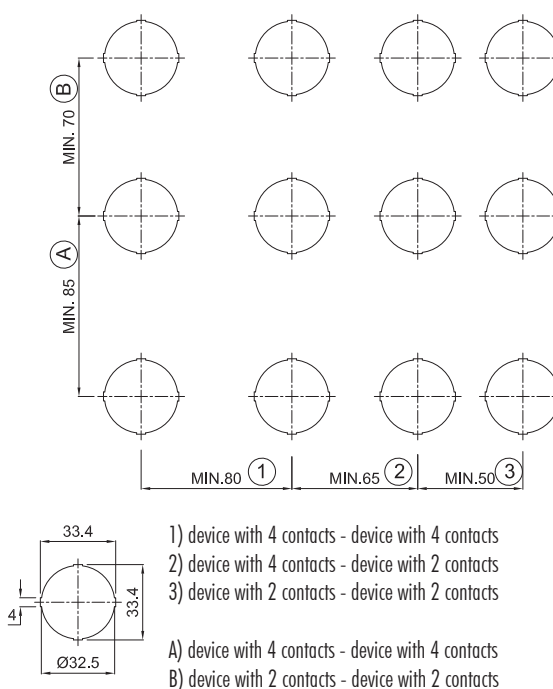


Front part of push-button M-0605 comprising:

- body
- mushroom-head push-button
- O-ring
- moving part
- lock nut

M-0530 and/or M-0531 contact block  
Marking Ex II 2G Ex de IIC (CESI 09 ATEX 016U)

## Hole drilling arrangement (minimum distances)



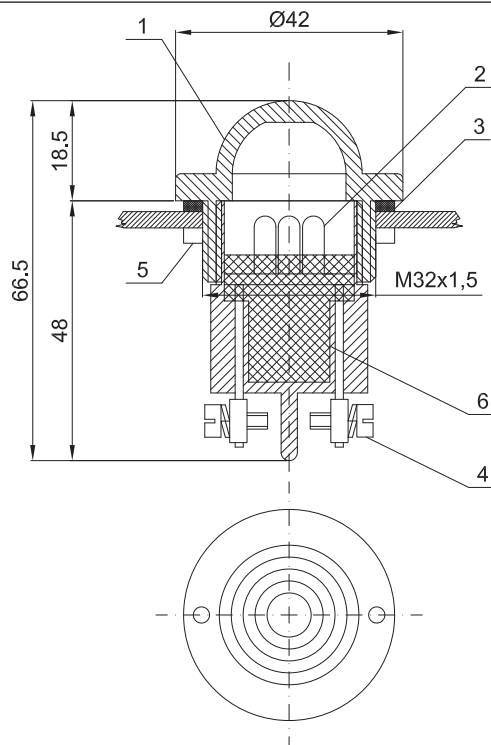
\* Standard drilling layout.  
Option of using up to 2 contacts per device for emergency stop push-button M-0605.

## Multi-LED indicator M-0612/3

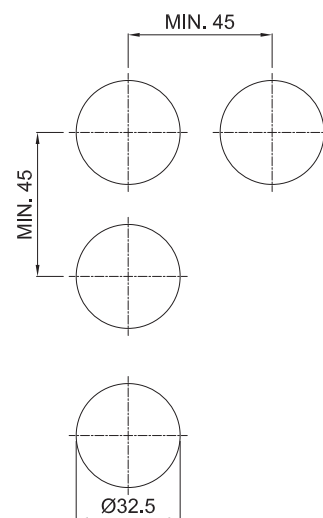


Multi-LED indicators come with lenses in different colours and different voltage options. Easy to install and wire, offering lasting reliability with a LED service life of 50,000 hours.

CODE	DESCRIPTION	NOTES
<b>M-0612/3B110</b>	Blue multi-LED indicator 110Vac/dc	
<b>M-0612/3B12</b>	Blue multi-LED indicator 12Vac/dc	
<b>M-0612/3B230</b>	Blue multi-LED indicator 230Vac	
<b>M-0612/3B24</b>	Blue multi-LED indicator 24Vac/dc	
<b>M-0612/3G110</b>	Yellow multi-LED indicator 110Vac/dc	
<b>M-0612/3G12</b>	Yellow multi-LED indicator 12Vac/dc	
<b>M-0612/3G230</b>	Yellow multi-LED indicator 230Vac	
<b>M-0612/3G24</b>	Yellow multi-LED indicator 24Vac/dc	
<b>M-0612/3I110</b>	Colourless multi-LED indicator 110Vac/dc	
<b>M-0612/3I12</b>	Colourless multi-LED indicator 12Vac/dc	
<b>M-0612/3I230</b>	Colourless multi-LED indicator 230Vac	
<b>M-0612/3I24</b>	Colourless multi-LED indicator 24Vac/dc	
<b>M-0612/3R110</b>	Red multi-LED indicator 110Vac/dc	
<b>M-0612/3R12</b>	Red multi-LED indicator 12Vac/dc	
<b>M-0612/3R230</b>	Red multi-LED indicator 230Vac	
<b>M-0612/3R24</b>	Red multi-LED indicator 24Vac/dc	
<b>M-0612/3V110</b>	Green multi-LED indicator 110Vac/dc	
<b>M-0612/3V12</b>	Green multi-LED indicator 12Vac/dc	
<b>M-0612/3V230</b>	Green multi-LED indicator 230Vac	
<b>M-0612/3V24</b>	Green multi-LED indicator 24Vac/dc	



## Hole drilling arrangement (minimum distances)



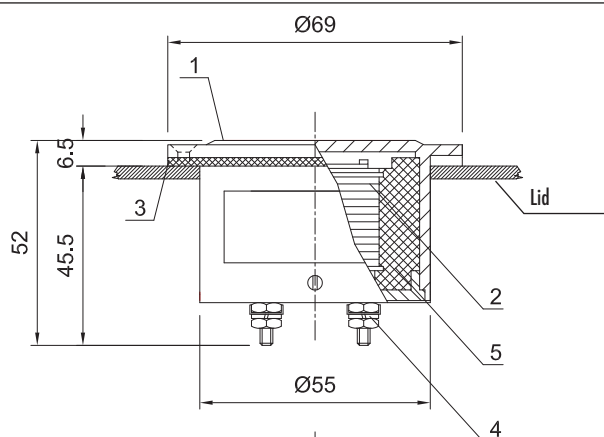
## Ammeter B-0140A, voltmeter B-0140V



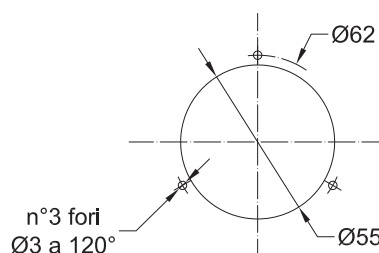
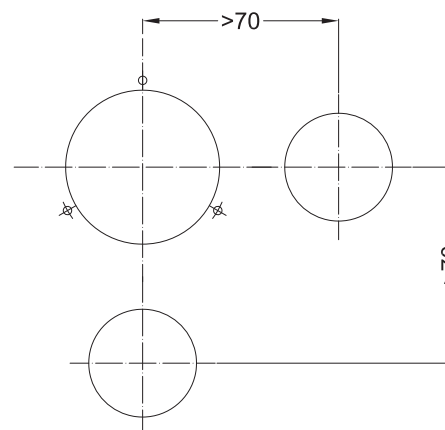
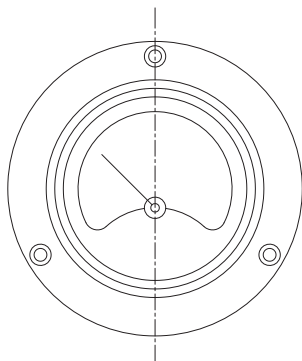
The Cortem certified ammeter and voltmeter are suitable for measuring electrical values when the situation demands the utmost accuracy. The internal faces featuring the measuring range scale are produced to the customer's specifications.

CODE	DESCRIPTION	NOTES
B-0140A	Ammeter	*
B-0140V	Voltmeter	
Maximum voltage: 600 V Rated frequency: 40 / 60 Hz Accuracy class: 1.5 Power dissipation: 1.1 VA (B-0140A) 3.0 VA (B-0140V)		
Measuring range - Direct measurement:		
	0 - 40 mA	0 - 0.1 A
	0 - 60 mA	0 - 1.5 A
	0 - 100 mA	0 - 2.5 A
	0 - 250 mA	0 - 5 A
	0 - 400 mA	0 - 6 A
	0 - 600 mA	0 - 15 A
Measuring range - With current transformer:		
	0 - 2.5 mA	0 - 50 A
	0 - 5 mA	0 - 60 A
	0 - 10 mA	0 - 75 A
	0 - 15 mA	0 - 100 A
	0 - 20 mA	0 - 150 A
	0 - 25 mA	0 - 200 A
	0 - 30 mA	0 - 300 A
	0 - 40 mA	0 - 400 A
* For the ammeter mod. B-0140A4 (4-20mA), the impedance is 1200 Ω. In the case that the driver was not compatible with this impedance, we strongly recommend to use the transducer provided by Cortem mod. NI-DT1.		

### Hole drilling arrangement (minimum distances)



Ammeter/voltmeter  
M-0140 comprising:  
1. body  
2. internal equipment  
3. gasket  
4. connection contact with screw  
5. 2-component resin



**TABLE ILLUSTRATING MAIN WIRING ARRANGEMENTS**

Push-button w/ NC contact		Push-button w/ NO contact		Mushroom-head push-button with NC twist release	

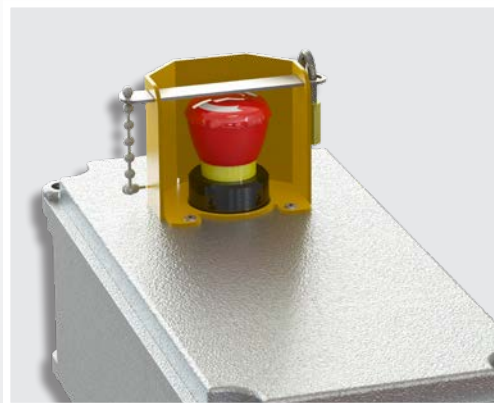
Code	Selector				
X	3-position control with spring return to B from both A and C				
				1	2
			A	CLOSED	CLOSED
			B	CLOSED	OPEN
C	OPEN	OPEN			
R	3-position control with spring return from both A and B and maintained C				
				1	2
			A	CLOSED	CLOSED
			B	CLOSED	OPEN
C	OPEN	OPEN			
RSX	3-position control with spring return from both A and B and maintained C				
				1	2
			A	CLOSED	CLOSED
			B	CLOSED	OPEN
C	OPEN	OPEN			
Z	2-position control maintained				
				1	2
			A	OPEN	CLOSED
			B	CLOSED	OPEN
I	Control switch				
				1	
			A	OPEN	
			B	CLOSED	
C	3-position control maintained				
				1	2
			A	CLOSED	OPEN
			B	OPEN	OPEN
C	OPEN	CLOSED			
W	3-position control with spring return to B from both A and C				
				1	2
			A	CLOSED	OPEN
			B	OPEN	OPEN
C	OPEN	CLOSED			
M	Control with spring return				
				1	
			A	CLOSED	
			B	OPEN	

### PROTECTION AND PADLOCKING SYSTEMS FOR CONTROL AND SIGNALLING DEVICES, ACCESSORIES AND SPECIAL VERSIONS

Padlocking system for selector  
(codes **M-962** and **M-963**)

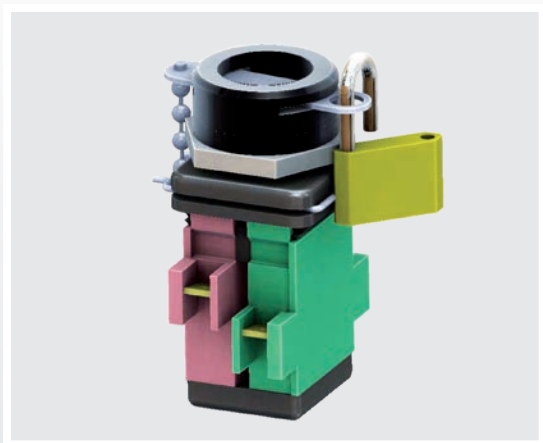


System protecting against accidental operation for  
mushroom-head push-buttons. Code **M-988**

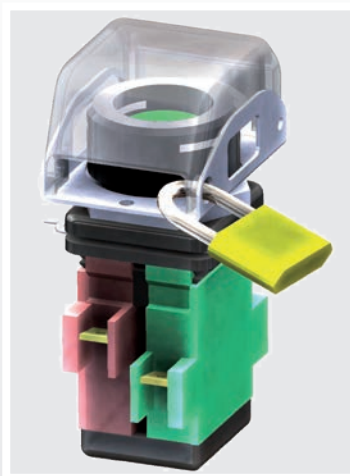


Assembly comprising stainless steel padlocking bar and  
chain for fastening. **M-0615/1**

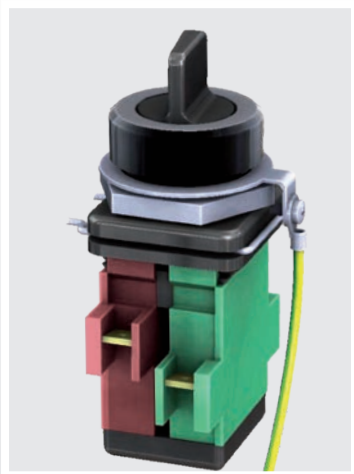
Padlocking system for push-button  
(code **M-0603/..L**)



Padlocking protection  
(code **M-0631**)



Earthing ring for installing control and  
signalling devices on polyester lids  
(code **A3311B**)



Black mushroom-head push-button  
(code **M-0605/N**)





### EXAMPLES OF APPLICATION

#### SA302318 Cortem aluminium enclosure complete with:



- 1 x ammeter B-0140A
- 1 x red indicator light M-0612/3R230
- 1 x green indicator light M-0612/3V230
- 2 x selectors M-0604/1Z
- 1 x NEV32IB cable gland
- 11 x CBD2 terminals
- 1 x earth terminal TE60
- 1 x internal mounting plate B32-229
- Outer coating RAL 7035

#### SA473018SS Cortem stainless steel enclosure complete with:



- 1 x ammeter B-0140A
- 1 x emergency stop push-button with key release M-0605/K
- 1 x black padlockable push-button M-0603/NL
- 1 x yellow indicator light M-0612/3G230
- 1 x green indicator light M-0612/3V230
- 2 x selectors M-0604/1C
- 6 x NEV25IB cable glands
- 1 x internal mounting plate B47-357

# EJBE, EJBXE

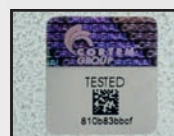
- Zones 1, 2, 21, 22
- Ex d enclosures in stainless steel or aluminium
- Different sizes
- IP66

*Ex d IIB enclosure  
in aluminium or  
stainless steel*

*Fixing brackets*

*Ex e enclosure  
in stainless steel*

*Enclosures connected  
by sealed bushings  
and connection flange*



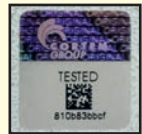
ORIGINAL PRODUCT

## Series EJBE, EJBXE Control boards

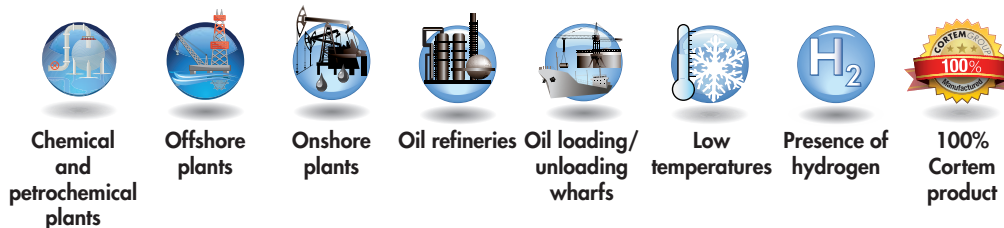
The control, monitoring and distribution boards in 'Ex de' execution of the EJBE series, in aluminium and stainless steel, and the EJBXE series, in stainless steel, were designed to meet specific installation requirements in environments with an explosion risk. In fact they allow you to install electric components such as switches, inverters, fuses, relays, etc. in 'Ex d' enclosures to develop the control, monitoring and signalling units, housing the auxiliary terminal block in intrinsically safe 'Ex e' enclosures.

EJBE control boards consist of an 'Ex d' enclosure of the EJB series, in aluminium alloy, and an 'Ex e' enclosure of the CTB series in stainless steel. Whereas EJBXE control boards consist of an 'Ex d' enclosure of the EJBX series and an 'Ex e' enclosure of the CTB series in stainless steel. This fully stainless steel structure is suitable for especially difficult environments, such as marine environments, which require greater protection against corrosion. 'Ex d' enclosures are mechanically linked to 'Ex e' enclosures by means of a flange and electrically linked by Cortem TP sealed bushings in nickel plated brass or in stainless steel. The number and diameter of the sealed bushings varies depending on the size of the enclosures and the number and cross-section of the cables. The IP protection between two enclosures is guaranteed by a flat silicone gasket resistant to acids, to hydrocarbons and to high and low temperatures. The lids of the 'Ex d' enclosures can be supplied with a tempered glass window to see and monitor the electric equipment inside.






Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:








### CERTIFICATION DATA EJBE, EJBXE - EMPTY ENCLOSURES

Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Execution:	CE 0722 Ex II 2 GD - Ex de IIB+H2 Gb - Ex tb IIIC Db IP66			
Certificate:	ATEX CESI 15 ATEX 066U			
	IEC Ex IECEx CES 15.0018U			
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2014, and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient temperature:	 -40°C +80°C 	With polycarbonate indicator lights installed on the lid		
	 -50°C +80°C 	Without polycarbonate indicator lights installed on the lid		
Degree of protection:	IP66			






This equipment can be used in an environment with an explosive atmosphere and with the presence of hydrogen.

## Series EJBE, EJBXE Control boards

### CERTIFICATION DATA EJBE, EJBXE - ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Execution:	CE 0722 Ex II 2 GD - Ex de IIB+H2 T6,T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certificate:	ATEX	CESI 12 ATEX 026		
	TR CU	AVAILABLE	All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient temperature:	 -40°C +(40°C)55°C 	With polycarbonate indicator lights installed on the lid		
	 -50°C +(40°C)55°C 	Without polycarbonate indicator lights installed on the lid		
Degree of protection:	IP66			

### CERTIFICATION DATA EJBE-...I, EJBXE-...I - ENCLOSURES FOR INTERFACE UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Execution:	CE 0722 Ex II2(1)GD - Ex de [ia Ga] IIB+H2 T... Gb - Ex tb [ia Da] IIIC T...°C Db - IP66			
Certificate:	ATEX	CESI 12 ATEX 026		
	IEC Ex	IECEX CES 12.0019		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-11: 2012, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
 Ambient temperature:	 -40°C +55°C 	With polycarbonate indicator lights installed on the lid		
	 -50°C +55°C 	Without polycarbonate indicator lights installed on the lid		
Degree of protection:	IP66			

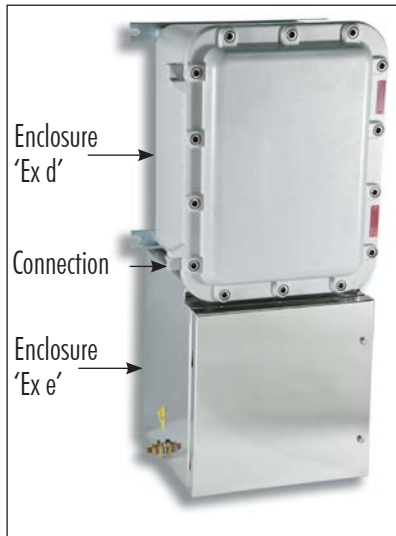
This equipment can be used in an environment with an explosive atmosphere and with the presence of hydrogen.

**Stainless steel properties:** The stainless steel used by Cortem to produce enclosures and accessories designed for use in cryogenic plants and highly corrosive environments is a very low carbon Iron-Chromium-Nickel-Molybdenum alloy. This alloy is highly resistant to intergranular (or intercrystalline) corrosion and to pitting corrosion. It is classified as an austenitic stainless steel UNI EN 10088-3 X 2 CrNiMo 17-12-2-E or AISI 316L according to the American Iron and Steel Institute. Its main quality is the spontaneous formation of a thin layer of chromium oxide on the surface that protects the metal underneath from corrosion attack. In addition, even if the metal is inadvertently damaged by abrasion or scratches, this film is self-renewing.



### MECHANICAL CHARACTERISTICS

#### EJBE



'Ex d' enclosure in aluminium:

**Body and lid:**

**Hinges:**

**Gasket:**

**Certification label:**

**Bolts and screws:**

**Earth screws:**

**Mounting brackets:**

**Coating:**

**Corrosion Resistance:**

Low copper content aluminium alloy

Cast, in stainless steel for new models

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid

Adhesive label located inside on empty enclosures; aluminium label riveted onto lid on other versions

Stainless steel

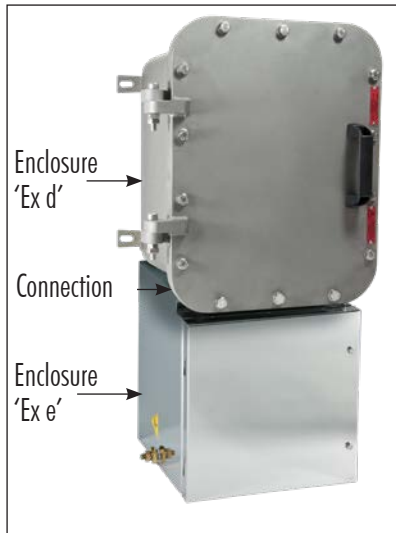
Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

Electrogalvanised steel

Polyester coating Ral 7035 (light grey)

The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

#### EJBXE



'Ex d' stainless steel enclosure:

**Body and lid:**

**Hinges:**

**Treatment:**

**Gasket:**

**Certification label:**

**Bolts and screws:**

**Earth screws:**

**Mounting brackets:**

AISI 316L stainless steel

Lost-wax cast and welded onto enclosure

Quartz sand blasting

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid

Adhesive label located inside on empty enclosures; stainless steel label riveted onto lid on other versions

Stainless steel

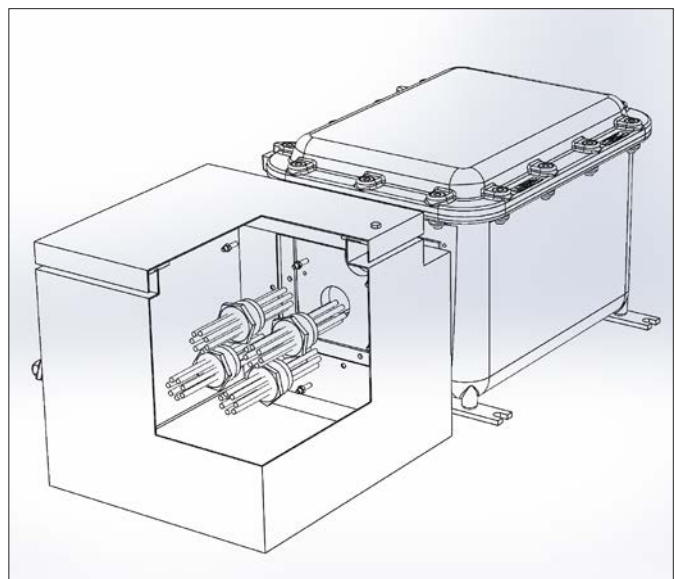
Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

4 feet welded onto body

### ENCLOSURE CONNECTION



Connection made with Cortem TP sealed bushings in nickel plated brass or stainless steel. The number and diameter of the sealed bushings are determined based on the number and cross-sections of the bushing cables. The IP protection between enclosures is guaranteed by a flat silicone gasket.



## Series EJBE, EJBXE Control boards



Ex e enclosure:

**Body and lid:**

**Hinges:**

**Impact protection rating:**

**Gasket:**

AISI 316L stainless steel

AISI 316L stainless steel

IK10

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid.

**Removable gland plates:** Stainless steel thickness 30/10

**Bolts and screws:** Stainless steel captive variety

**Earth screws:** Stainless steel. On inside and outside of body complete with anti-rotation brackets

### ACCESSORIES AVAILABLE / SPECIAL REQUESTS

For aluminium 'Ex d' enclosure:

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Rectangular windows on lid (see section Enclosures with windows for inspection and reading instruments)

Internal mounting plate: 25/10-thick aluminium (code BFE-...).

2.5mm-thick electrogalvanised steel (code BFE-...AC)

For stainless steel 'Ex d' enclosure:

Internal mounting plate in 25/10-thick stainless steel (code BFE-...SS). See accessories section

Enclosures with windows on lid for instrument viewing / reading (see section Enclosures with windows for inspection and reading instruments)

External coating in different colour (specify the RAL number)

For "Ex e" enclosure:

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Internal mounting plate: stainless steel (code B...-443)

Terminal block mounting rails (code OBO2060/S)

Enclosure with removable gland (e.g. code EJBE-5BS1)

Padlocking system. Padlock (code VIRO552)

ATEX-CERTIFIED TERMINALS: terminals must be chosen from the list of approved manufacturers: Cabur, Phonix, ABB Entrelec, Wago, Weidmuller.

When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals. DIN rail.

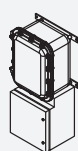
Hole options: through holes with no threading

**Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.**

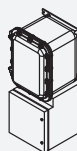
Applications with radio source antennas.

Possibility of using different sealed bushings, certified separately (ext. n.01/13 CESI 12 ATEX 026).

#### EJBE-... enclosures



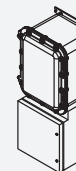
EJBE-3B



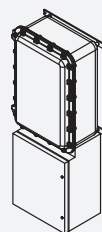
EJBE-3



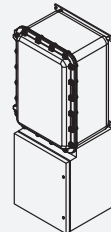
EJBE-4B



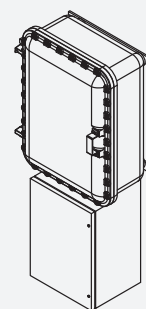
EJBE-4



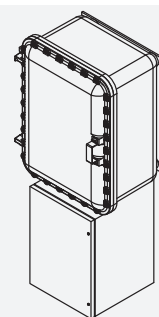
EJBE-5B



EJBE-5

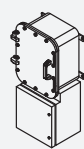


EJBE-6B

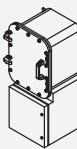


EJBE-6

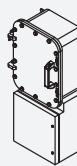
#### EJBXE-... enclosures



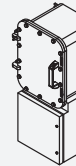
EJBXE-3B



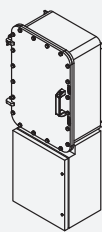
EJBXE-3



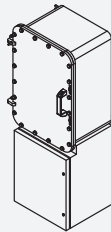
EJBXE-4B



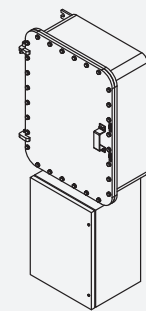
EJBXE-4



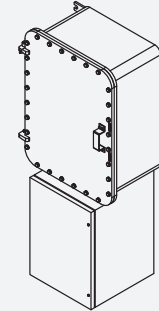
EJBXE-5B



EJBXE-5



EJBXE-6B



EJBXE-6

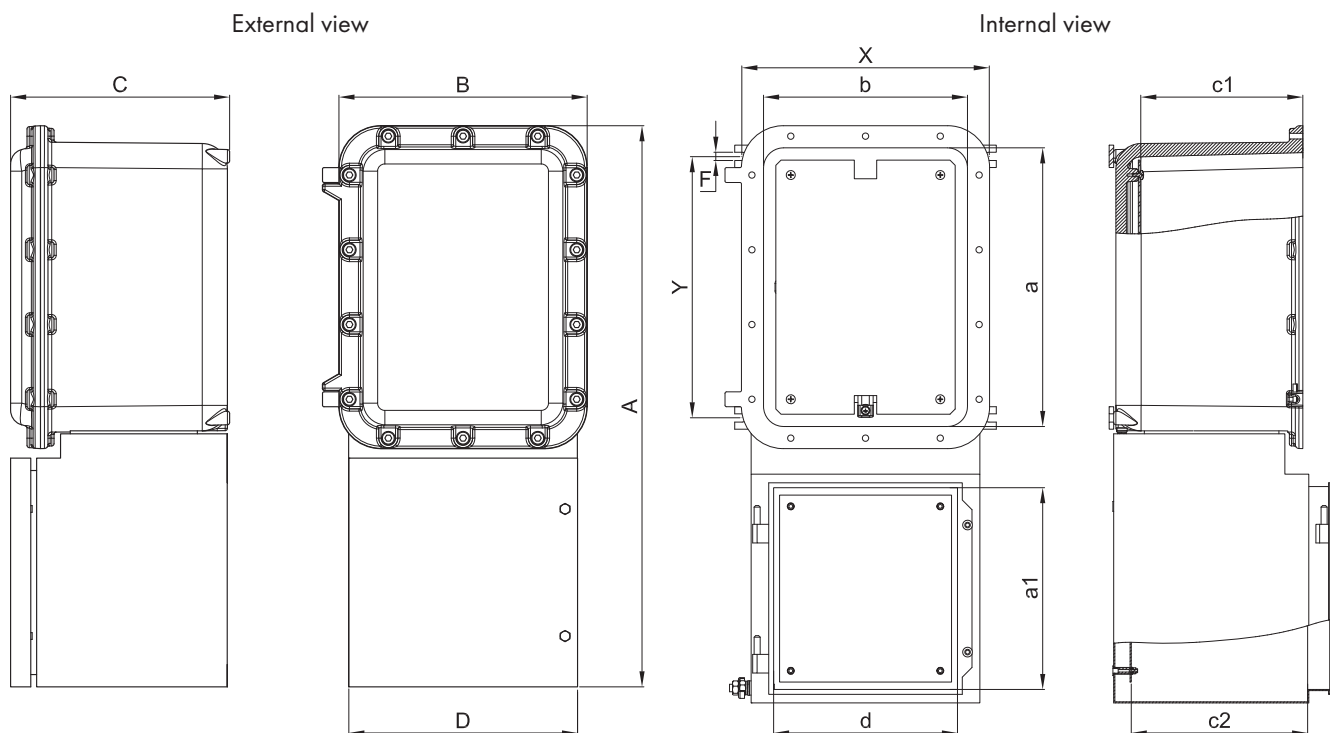


## Series EJBE, EJBXE Control boards

### ENCLOSURE SELECTION CHART

Code	Outside dimensions				Inside dimensions						Mounting			Weight Kg
	A	B	C	D	a	b	c1	a1	d	c2	X	Y	F	
EJBE-3	661	284	273	260	300	220	214	224	200	215	290	290	9	25
EJBE-3B	661	284	213	260	300	220	154	224	200	155	290	290	9	23
EJBE-4	771	332	293	306	360	260	233	270	246	236	350	330	11	55
EJBE-4B	771	332	223	306	360	260	163	270	246	166	350	330	11	34
EJBE-5	1115	432	335	382	560	360	256	414	322	275	550	430	11	73
EJBE-5B	1115	432	265	382	560	360	186	414	322	205	550	430	11	65
EJBE-6	1537	650	470	450	760	540	353	584	390	405	680	580	14	182
EJBE-6B	1537	650	370	450	760	540	253	584	390	305	680	580	14	169

### DIMENSIONAL DRAWING

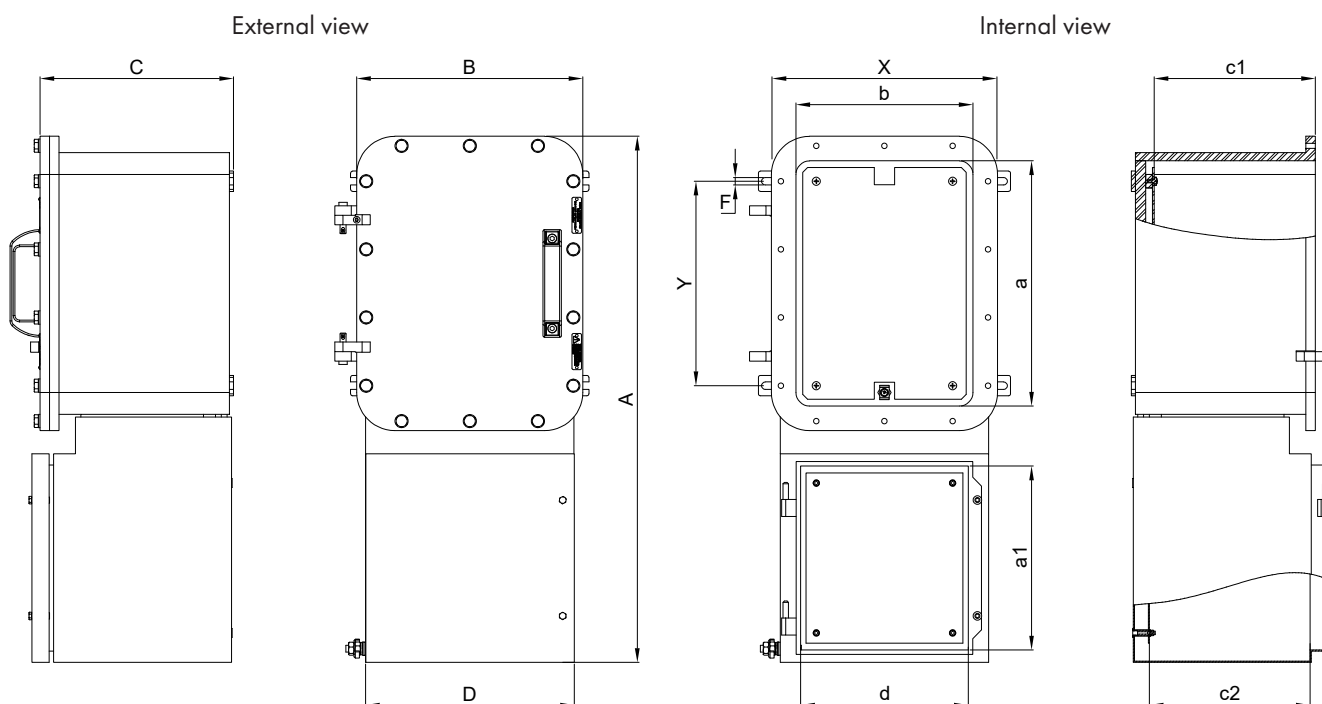


## Series EJBE, EJBXE Control boards

### ENCLOSURE SELECTION CHART

Code	Outside dimensions				Inside dimensions						Mounting			Weight Kg
	A	B	C	D	a	b	c1	a1	d	c2	X	Y	F	
EJBXE-3	665	284	267	260	300	220	215	224	200	215	290	240	11	63
EJBXE-3B	665	284	207	260	300	220	155	224	200	155	290	240	11	57
EJBXE-4	771	332	287	306	360	260	235	270	246	236	300	330	11	81
EJBXE-4B	771	332	217	306	360	260	165	270	246	166	300	330	11	73
EJBXE-5	1115	432	327	382	632	360	275	414	322	275	500	430	11	147
EJBXE-5B	1115	432	257	382	632	360	205	414	322	205	500	430	11	134
EJBXE-6	1508	640	409	450	860	540	345	584	390	405	680	680	20	297
EJBXE-6B	1508	640	309	450	860	540	245	584	390	305	680	680	20	271

### DIMENSIONAL DRAWING



## LID DRILLING DATA FOR 'Ex d' ENCLOSURE



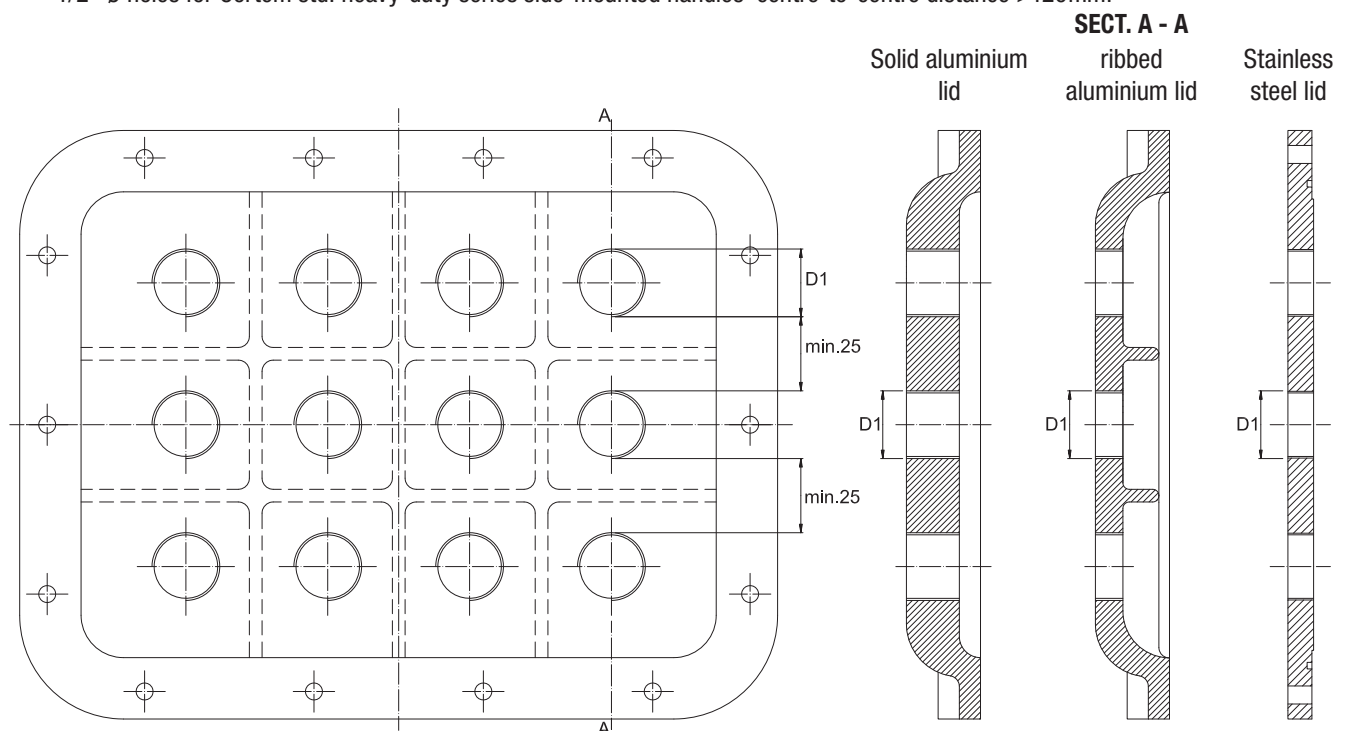
THREAD COMPARISON CHART								
D1	ISO 228	G 3/8"	G 1/2"	G 3/4"	-	-	-	-
	ISO 261/965	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M35x1.5	M40x1.5	M42x1.5

TYPE OF ENCLOSURE	HOLE DRILLING IN LID	
	Max. n°. of holes allowed for ribbed lids	Max. n°. of holes allowed for solid lids
EJBE-3 /3B	8	12
EJBE-4 /4B	12	20
EJBE-5 /5B	32	40
EJBE-6 /6B	-	60

TYPE OF ENCLOSURE	HOLE DRILLING IN LID
	Max. n°. of holes allowed
EJBXE-3 /3B	12
EJBXE-4 /4B	17
EJBXE-5 /5B	40
EJBXE-6 /6B	70

### Notes:

- The standard featured is for illustrative purposes only since it has been designed exclusively for M42 holes.
- Standard holes refer to mounting of Cortem control and signalling devices.
- 3/8" Ø holes for Cortem std. side-mounted handles centre-to-centre distance >70mm.
- 1/2" Ø holes for Cortem std. heavy-duty series side-mounted handles centre-to-centre distance >120mm.



# Series EJBE, EJBXE Control boards

## BODY DRILLING DATA FOR 'Ex e' ENCLOSURE

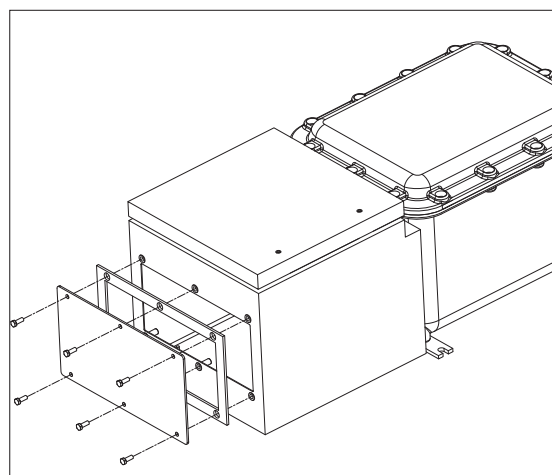
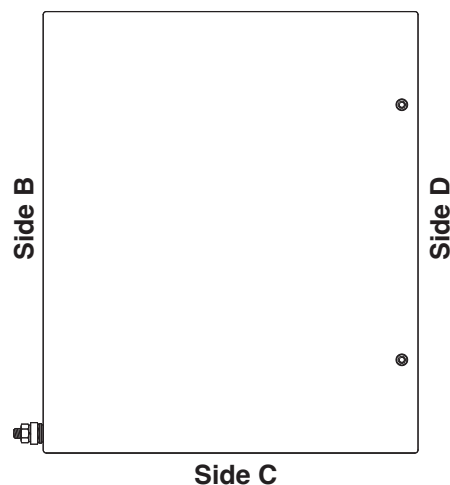
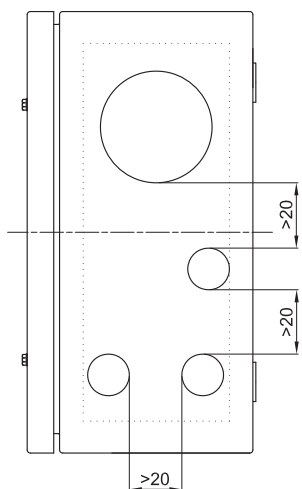
### THREAD COMPARISON CHARTS

D	01	1	2	3	4	5	6	7
Thread diameter								
ISO 261/965	16x1.5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5

As required by the current standard, holes can be drilled by Cortem or by authorised partners who hold a production notification in accordance with ATEX Directive .



TYPE OF ENCLOSURE	'Ex e' ENCLOSURE BODY DRILLING																	
	Side C									Sides B and D								
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE							
		01	1	2	3	4	5	6	7		01	1	2	3	4	5	6	7
EJB..E-3B	215x80	20	10	10	4	3	2	0	0	115x80	10	6	3	2	1	1	0	0
EJB..E-3	215x125	28	21	15	8	6	3	0	0	115x125	20	10	6	4	2	1	0	0
EJB..E-4B	260x80	24	16	12	5	4	3	0	0	215x80	24	10	10	4	3	2	0	0
EJB..E-4	260x125	32	24	12	10	4	3	0	0	215x125	32	15	10	8	3	2	0	0
EJB..E-5B	337x80	22	18	14	6	5	4	3	0	337x80	22	18	14	6	5	4	3	0
EJB..E-5	337x124	44	27	21	12	8	4	3	0	337x124	44	27	21	12	8	4	3	0
EJB..E-6B	404x80	26	22	16	7	6	5	4	0	404x80	26	22	16	7	6	5	4	0
EJB..E-6	404x124	52	33	24	14	12	5	4	3	404x124	52	33	24	14	12	5	4	3



TYPE OF ENCLOSURE	REMOVABLE GLAND DRILLING								
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE							
		01	1	2	3	4	5	6	7
EJB..E-3BS1	214x80	10	10	8	4	3	2	-	-
EJB..E-3S1	214x80	10	10	8	4	3	2	-	-
EJB..E-4BS1	258x124	18	18	13	8	4	3	-	-
EJB..E-4S1	258x124	18	18	13	8	4	3	-	-
EJB..E-5BS1	334x124	24	24	20	12	8	4	3	-
EJB..E-5S1	334x124	24	24	20	12	8	4	3	-
EJB..E-6BS1	404x124	29	29	23	14	10	5	4	3
EJB..E-6S1	404x124	29	29	23	14	10	5	4	3

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

## Series EJBE, EJBXE Control boards

### 'Ex d' ENCLOSURES ELECTRICAL FEATURES

<b>Rated voltage:</b>	max. 690 Vac
<b>Rated current:</b>	50 A
<b>Rated frequency:</b>	50 ÷ 60Hz
<b>Max. wattage for lamps:</b>	5 W (for Ta +40°C) / 3 W (for Ta +55°C)

Code		Maximum power dissipation (Watts) with ambient temperature of +40°C			Maximum power dissipation (Watts) with ambient temperature of +55°C		
		T6 class without indicator lights. Only indicator LEDs are allowed.	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed.	T6 class without indicator lights. Only indicator LEDs are allowed.	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed.
EJBE-3	EJBXE-3	75	75	110	56	56	82
EJBE-3B	EJBXE-3B	55	55	80	40	40	60
EJBE-4	EJBXE-4	100	100	175	75	75	130
EJBE-4B	EJBXE-4B	75	75	130	56	56	100
EJBE-5	EJBXE-5	210	210	315	160	160	235
EJBE-5B	EJBXE-5B	170	170	250	130	130	190
EJBE-6	EJBXE-6	600	600	910	460	460	680
EJBE-6B	EJBXE-6B	490	490	720	370	370	550

### Features of equipment that can be installed in enclosures to produce control and monitoring units.

Table of electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.  
(The values refer to the catalogues of the leading manufacturers of electrical/electronic components available on the market)

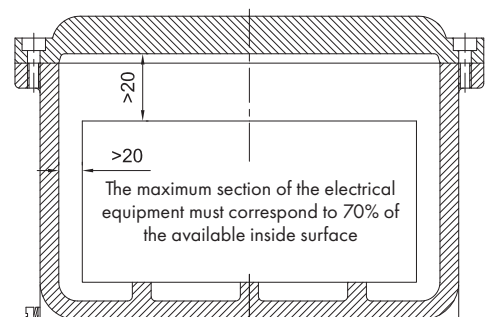
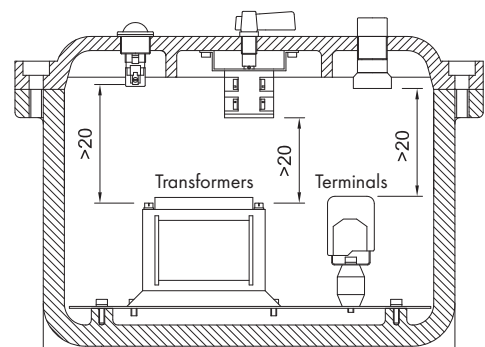
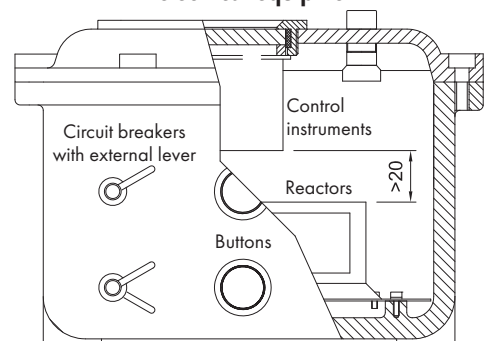
TYPE OF COMPONENT	Max V (Volts)	Max I. (Amperes)	Max power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs. Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	50	-
Fuses	660	50	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	220	-	300
Terminals	660	-	-
Reactors	220	7.5	40

### Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20

Component voltage (V dc)	Min air gap (mm)
12 - 250	6

### Minimum installation distances electrical equipment

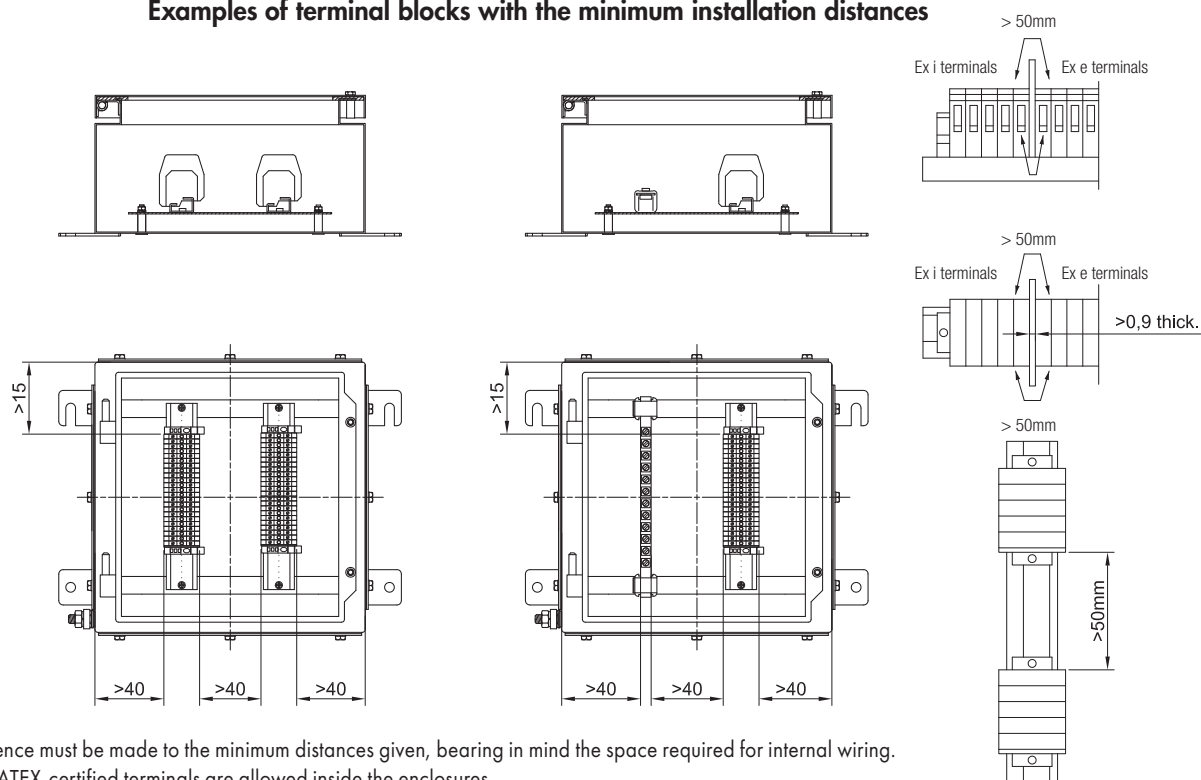


# Series EJBE, EJBXE Control boards

## 'Ex e' ENCLOSURES ELECTRICAL FEATURES

**Rated voltage:** max. 690 Vac  
**Rated current:** 50 A  
**Terminal cross-sectional area** from 1.5mm<sup>2</sup> to 16mm<sup>2</sup>

### Examples of terminal blocks with the minimum installation distances



#### Note:

Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.

Only ATEX-certified terminals are allowed inside the enclosures.

Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.

Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.

TYPE OF ENCLOSURE	Terminals installed vertically							Maximum power dissipation	
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0	T6 - Max amb. T 55°C	T6 - Max amb. T 40°C o T5 - Max amb. T 55°C
EJBE-3 /3B	2x27	2x27	2x23	1x17	1x17	1x10	1x10	4.0 W	13.0 W
EJBXE-3 /3B									
EJBE-4 /4B	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
EJBXE-4 /4B									
EJBE-5 /5B	3x67	2x67	2x56	2x42	2x33	3x56	3x56	5.8 W	34.0 W
EJBXE-5 /5B									
EJBE-6 /6B	4x99	4x99	3x83	3x62	3x49	4x83	3x83	7.5 W	55.0 W
EJBXE-6 /6B									


TYPE OF ENCLOSURE	Terminals installed horizontally							Maximum power dissipation	
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0	T6 - Max amb. T 55°C	T6 - Max amb. T 40°C o T5 - Max amb. T 55°C
EJBE-3 /3B	2x27	2x27	2x23	1x17	1x13	2x23	2x23	4.0 W	13.0 W
EJBXE-3 /3B									
EJBE-4 /4B	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
EJBXE-4 /4B									
EJBE-5 /5B	4x51	3x51	3x42	3x32	3x25	4x42	4x42	5.8 W	34.0 W
EJBXE-5 /5B									
EJBE-6 /6B	5x62	5x62	5x52	4x39	4x31	5x52	5x52	7.5 W	55.0 W
EJBXE-6 /6B									


The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.



## Series EJBE, EJBXE Control boards

### Tables showing maximum number of conductors

 : In this unfilled area, provided the relevant instructions are followed and the permitted measurements given for devices housed inside the enclosure are complied with, any number of terminals can be added up to the space limit of the box.

 : Wiring in this unfilled area is not covered by this certification.

**EJBE-3 /3B EJBXE-3 /3B (j.b. 'Ex e')**

Current (A)	Cross-section in mm <sup>2</sup>							
	1.5	2.5	4	6	10	16	25	35
8	97							
10	47							
12		72						
14		43						
16		31	123					
18			49					
20			35					
23				54				
25				39				
32					66			
35					38			
45						65		
50						31		
58								
63							51	
68								
75								
80								58

**EJBE-4 /4B EJBXE-4 /4B (j.b. 'Ex e')**

Current (A)	Cross-section in mm <sup>2</sup>							
	1.5	2.5	4	6	10	16	25	35
8	105							
10	51							
12		77						
14		46						
16		34	131					
18			52					
20			38					
23				57				
25				41				
32					71			
35					40			
45						69		
50						33		
58								
63							55	
68								
75								
80								62

**EJBE-5 /5B EJBXE-5 /5B (j.b. 'Ex e')**

Current (A)	Cross-section in mm <sup>2</sup>							
	1.5	2.5	4	6	10	16	25	35
8	121							
10	58							
12		88						
14		53						
16		39	151					
18			60					
20			44					
23				66				
25				48				
32					82			
35					46			
45						80		
50						38		
58								
63							63	
68								
75								
80								71

**EJBE-6 /6B EJBXE-6 /6B (j.b. 'Ex e')**

Current (A)	Cross-section in mm <sup>2</sup>							
	1.5	2.5	4	6	10	16	25	35
8	135							
10	65							
12		99						
14		60						
16		43	169					
18			67					
20			49					
23				74				
25				53				
32					91			
35					52			
45						89		
50						43		
58								
63							71	
68								
75								
80								79

## FEATURES OF EJBE-...I, EJBXE-...I ENCLOSURES FOR INTERFACE UNITS

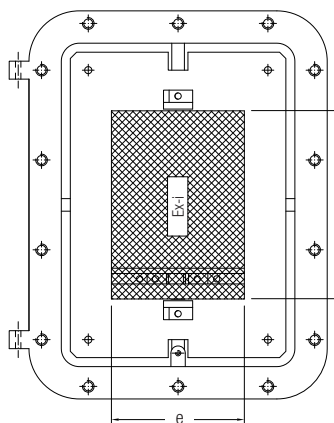
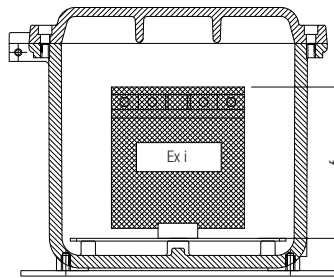
These models are suited to be fitted inside active and passive barriers certified individually with protection '[Ex ia] + H2' suitable for gas groups IIB and IIC.

The active or passive barriers can be installed inside aluminium 'Ex d' (EJBE-...I) or stainless steel (EJBXE-...I) enclosures. The entire assembly complete with interface unit will then have 'Ex de [ia] IIB + H2' execution.

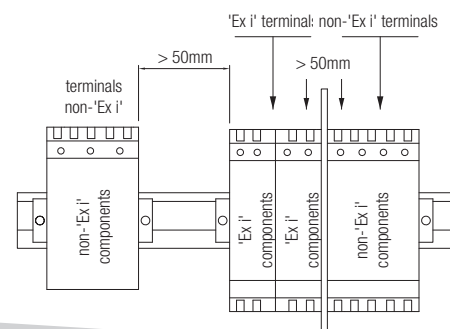
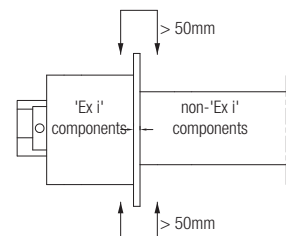
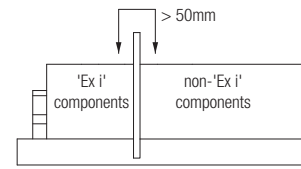
The active and passive barriers allowed to be installed inside the enclosure must have the ATEX certification in compliance with standards EN60079-0, EN60079-11 or IECEx in compliance with standards IEC60079-0 and IEC60079-11 and must respect the distances shown in the figure.

### Maximum dimensions of 'Ex ia' equipment that can be installed inside the enclosures.

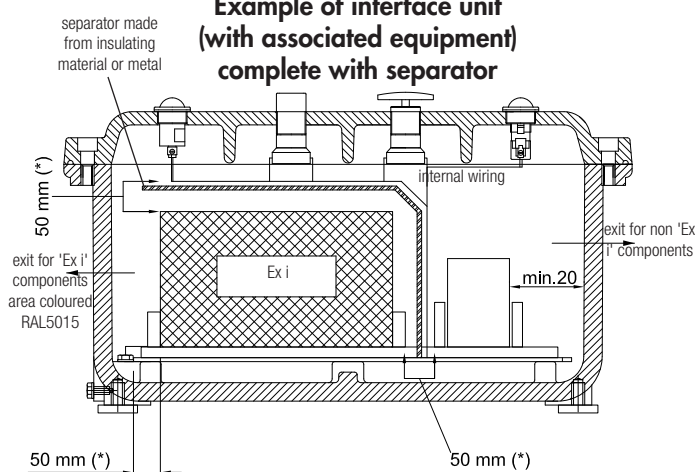
	d	e	f
EJBE-3I	150	140	170
EJBE-3BI	150	140	110
EJBE-4I	280	180	190
EJBE-4BI	280	180	120
EJBE-5I	480	280	220
EJBE-5BI	480	280	150
EJBE-6I	670	450	300
EJBE-6BI	670	450	200
EJBXE-3I	150	140	175
EJBXE-3BI	150	140	115
EJBXE-4I	280	180	195
EJBXE-4BI	280	180	125
EJBXE-5I	480	280	235
EJBXE-5BI	480	280	165
EJBXE-6I	680	460	305
EJBXE-6BI	680	460	205



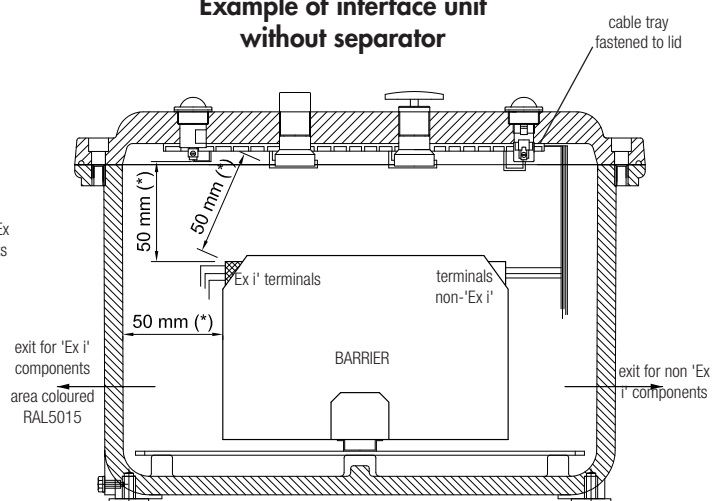
### Examples of installation of associated equipment - minimum distances.



### Example of interface unit (with associated equipment) complete with separator



### Example of interface unit without separator



#### NOTES:

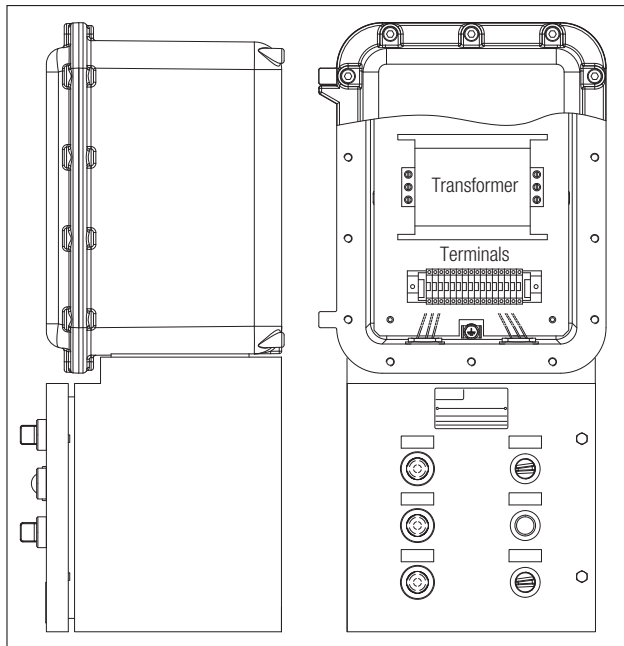
(\*) 50 mm is the minimum safe distance between 'Ex i' components and non-'Ex i' components (and/or conducting parts).

- The maximum voltage entering barriers on non-'Ex i' circuits must be less than 250 V.

-Further useful information regarding installation and wiring of these components are contained in the file of the EJB series enclosures.

## Series EJBE, EJBXE Control boards

Example of control board with Cortem control and signalling devices installed on 'Ex e' enclosure an internal electrical equipment

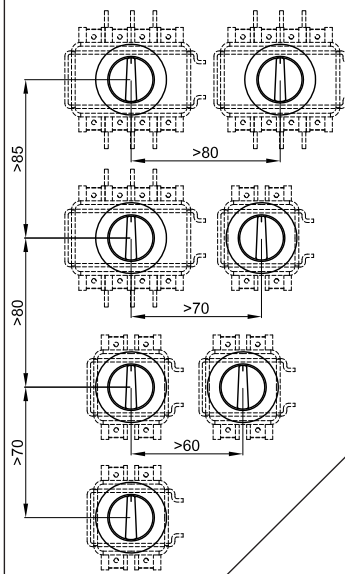


### Notes:

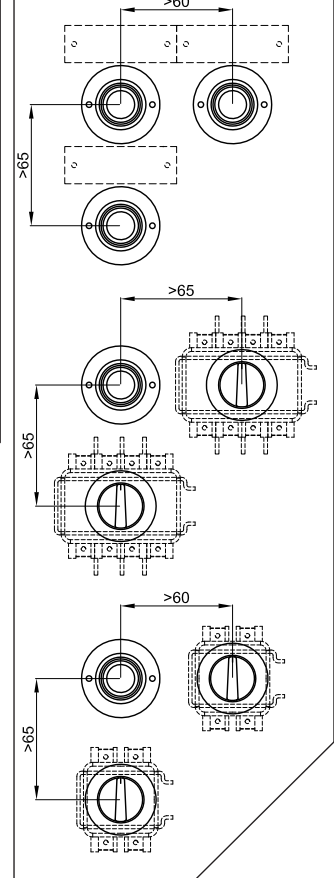
Option of using up to 4 contacts per device for pushbutton M-0603 and selector M-0604.  
For more information, refer to the Ex e control, monitoring and signalling devices chapter.

### MINIMUM DISTANCES BETWEEN CORTEM 'Ex e' CONTROL AND SIGNALLING DEVICES FOR PUSHBUTTON PANELS

Distances for control and signalling devices with 2 and/or 4 contacts

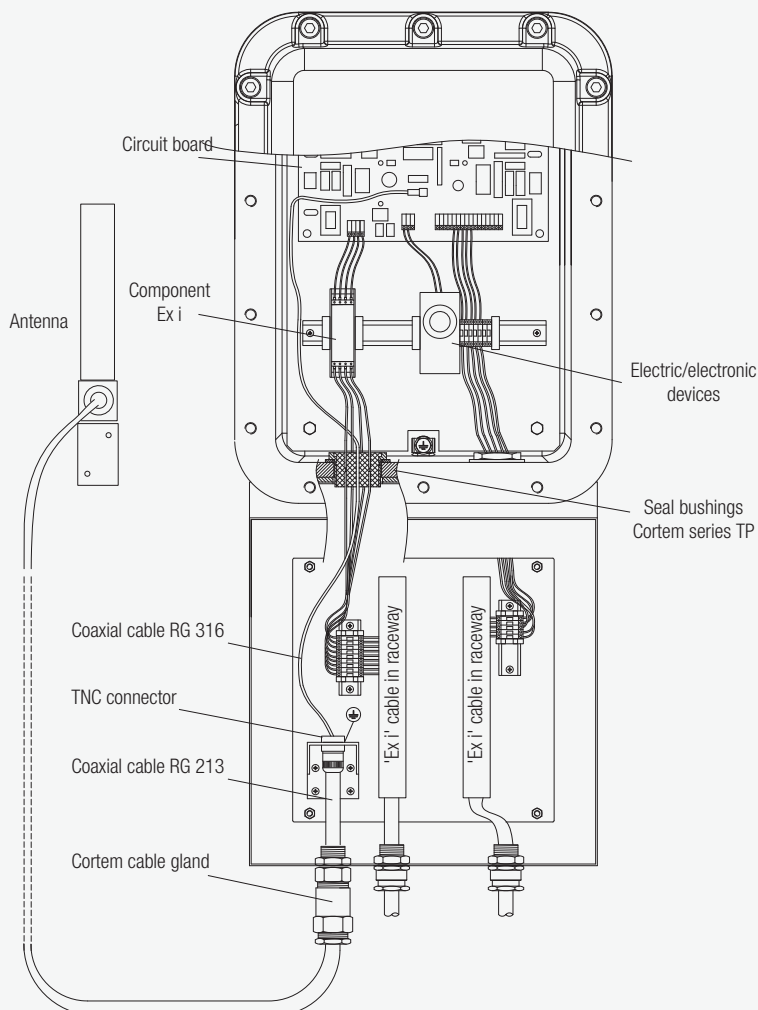


Distances for indicator lights

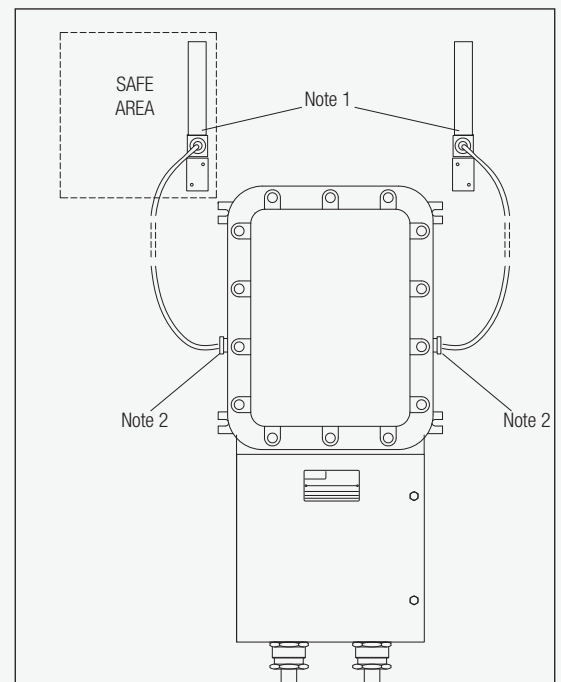


### ANTENNAS AND RADIO SOURCES

Example of typical antenna plus coaxial cable connection at enclosure inlet.



### Execution with cable inlet in 'Ex d' enclosure



### Notes:

1. The antennas used must comply with indications in EN / IEC 60079-0 or be installed in a safe area.
2. The accessories used for cable inlet must comply with standards EN / IEC 60079-0, EN / IEC 60079-1 and EN / IEC 60079-14.

## FEATURES OF ENCLOSURES WITH EJBE WINDOW

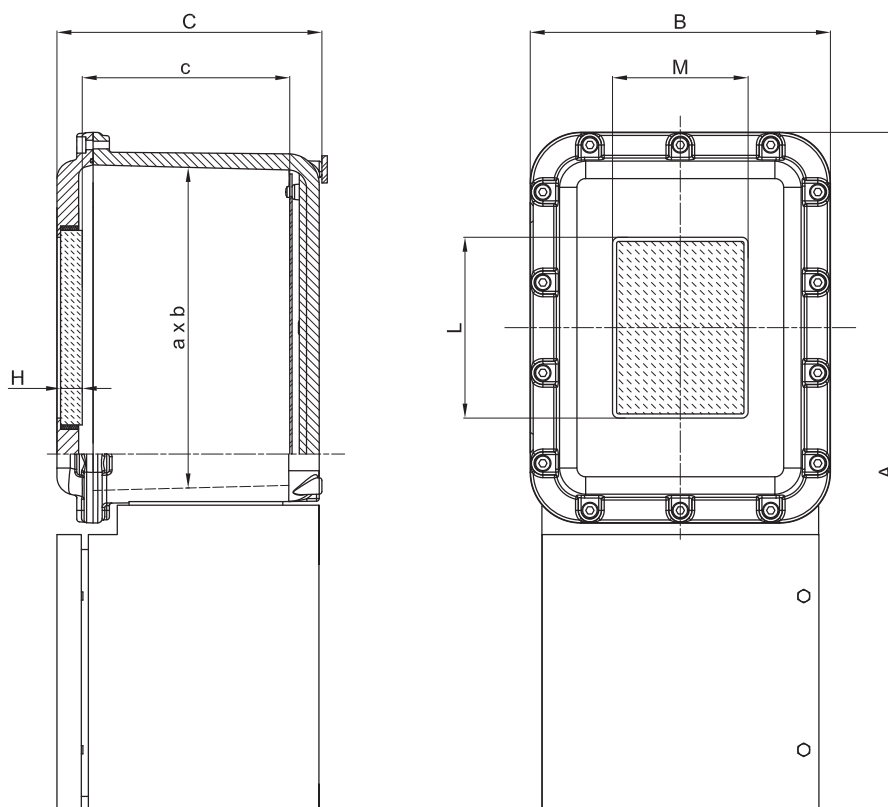
According to customer requirements, standard windows are available with tempered glass for the different types of 'Ex d' aluminium enclosures used for example for viewing analogue or digital instruments, various types of indicators or actuators from touch screen keyboards.

### DIMENSIONAL DRAWING OF ENCLOSURES WITH WINDOW

Position of standard window in middle.

Non-standard window positioning or dimensions on request

Several windows can also be made on the same lid, always keeping in mind the maximum size MxL.



Code	Outside dimensions			Inside dimensions			Window size		
	A	B	C	a	b	c	H	M	L
Enclosures with standard machined windows									
EJBE-3/2015	661	284	278	300	220	209	15	150	200
EJBE-3B/2015	661	284	218	300	220	149	15	150	200
EJBE-4/3020	771	332	299	360	260	229	15	200	300
EJBE-4B/3020	771	332	229	360	260	159	15	200	300
EJBE-5/3020	1115	432	341	560	360	271	15	200	300
EJBE-5B/3020	1115	432	271	560	360	201	15	200	300
EJBE-6/3020	1527	650	480	760	540	348	15	200	300
EJBE-6B/3020	1527	650	380	760	540	248	15	200	300

### FEATURES OF ENCLOSURES WITH EJBE WINDOW

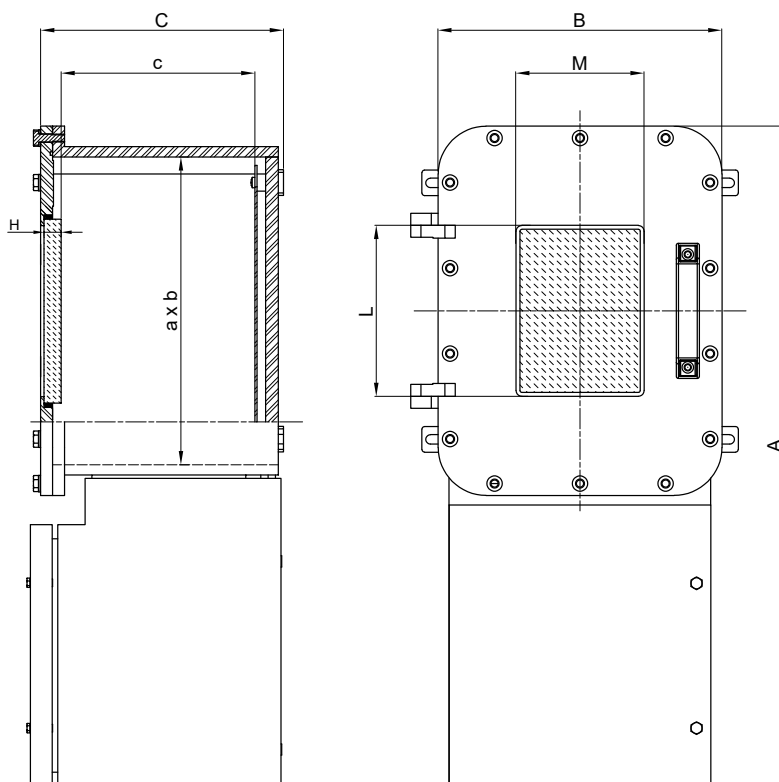
According to customer requirements, standard windows are available with tempered glass for the different types of 'Ex d' aluminium enclosures used for example for viewing analogue or digital instruments, various types of indicators or actuators from touch screen keyboards.

#### DIMENSIONAL DRAWING OF ENCLOSURES WITH WINDOW

Position of standard window in middle.

Non-standard window positioning or dimensions on request

Several windows can also be made on the same lid, always keeping in mind the maximum size MxL.



Code	Outside dimensions			Inside dimensions			Window size		
	A	B	C	a	b	c	H	M	L
<b>Enclosures with standard machined windows</b>									
EJBXE-3/2015	665	284	267	300	220	200	15	150	200
EJBXE-3B/2015	665	284	207	300	220	140	15	150	200
EJBXE-4/3020	771	332	287	360	260	220	15	200	300
EJBXE-4B/3020	771	332	217	360	260	150	15	200	300
EJBXE-5/3020	1115	432	327	560	360	260	15	200	300
EJBXE-5B/3020	1115	432	257	560	360	190	15	200	300
EJBXE-6/3020	1508	640	409	760	540	338	15	200	300
EJBXE-6B/3020	1508	640	309	760	540	238	15	200	300

# GUBE, GUBE...H

- Zones 1, 2, 21, 22
- Ex d and Ex e enclosures in stainless steel
- Different sizes
- IP66

*Ex d IIC enclosure  
in stainless steel*

*Mounting feet*

*Ex e enclosure  
in stainless steel*





## Series GUBE, GUBE...H Control boards

The control, monitoring and distribution boards in 'Ex de' execution of the GUBE and GUBE...H series, consisting of an enclosure in 'Ex e' execution and the standard enclosure in 'Ex e' execution in AISI316L stainless steel were designed to meet specific installation requirements in environments with an explosion risk. In fact they allow you to install electric components such as switches, inverters, fuses, relays, etc. in 'Ex d' enclosures to develop the control and signalling units, housing the auxiliary terminal board in intrinsically safe 'Ex e' enclosures.

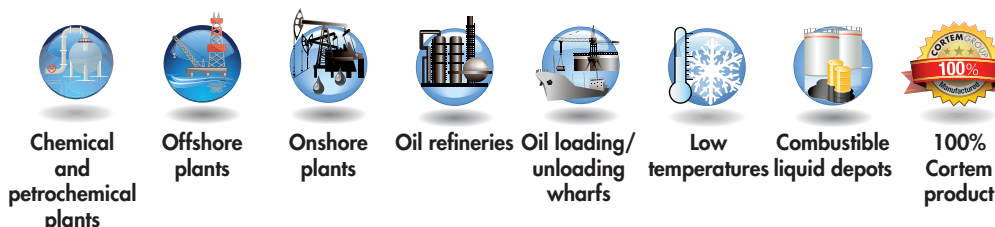
GUBE and GUBE...H panel boards were specifically designed for especially difficult environments, such as marine and off-shore environments, which require greater protection against corrosion. 'Ex d' enclosures are mechanically linked to 'Ex e' enclosures by means of a flange and electrically linked by Cortem TP sealed bushings in nickel plated brass or in stainless steel. The number and diameter of the sealed bushings varies depending on the size of the enclosures and the number and cross-section of the cables. The IP protection between two enclosures is guaranteed by a flat silicone gasket resistant to acids, to hydrocarbons and to high and low temperatures. In GUBE...H series panel boards, the lids of the 'Ex d' enclosures can be supplied with a tempered glass window to see and monitor the electric equipment inside.

Ex de

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



### Application sectors:



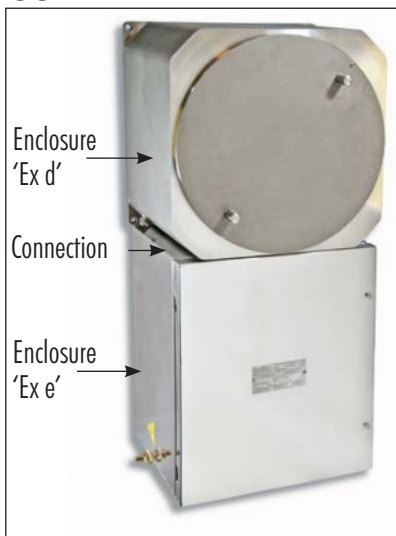
### CERTIFICATION DATA GUBE, GUBE...H - ENCLOSURES FOR COMMAND, CONTROL AND SIGNALLING UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Execution:	CE 0722 Ex II 2 GD - Ex de IIC T6,T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certificate:	ATEX	CESI 12 ATEX 027		
	IEC Ex	IECEX CES 12.0023	All IEC Ex certification data can be downloaded at <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient temperature:	-40°C +(40°C)55°C		With polycarbonate indicator lights installed on the lid	
	-50°C +(40°C)55°C		Without polycarbonate indicator lights installed on the lid	
Degree of protection:	IP66			

**Stainless steel properties:** The stainless steel used by Cortem to produce enclosures and accessories designed for use in cryogenic plants and highly corrosive environments is a very low carbon Iron-Chromium-Nickel-Molybdenum alloy. This alloy is highly resistant to intergranular (or intercrystalline) corrosion and to pitting corrosion. It is classified as an austenitic stainless steel UNI EN 10088-3 X 2 CrNiMo 17-12-2-E or AISI 316L according to the American Iron and Steel Institute. Its main quality is the spontaneous formation of a thin layer of chromium oxide on the surface that protects the metal underneath from corrosion attack. In addition, even if the metal is inadvertently damaged by abrasion or scratches, this film is self-renewing.

## MECHANICAL CHARACTERISTICS

### GUBE



'Ex d' stainless steel enclosure:

**Body and lid:**

AISI 316L stainless steel. Screw-on lid for coupling system to body.

**Gasket:**

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid in riveted stainless steel

**Certification label:**

**Bolts and screws:**

Stainless steel

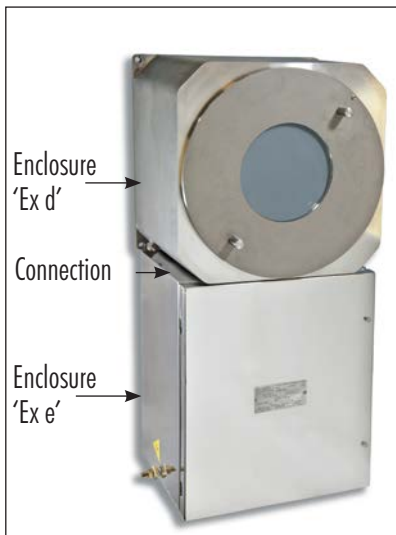
**Earth screws:**

Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

**Mounting:**

Stainless steel feet

### GUBE...H



'Ex d' stainless steel enclosure with window:

**Body and lid:**

In AISI 316L stainless steel. Screw-on lid for coupling system to body.

**Glass:**

Shock and high temperature resistant tempered glass

**Gasket:**

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid in riveted stainless steel

**Certification label:**

**Bolts and screws:**

Stainless steel

**Earth screws:**

Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

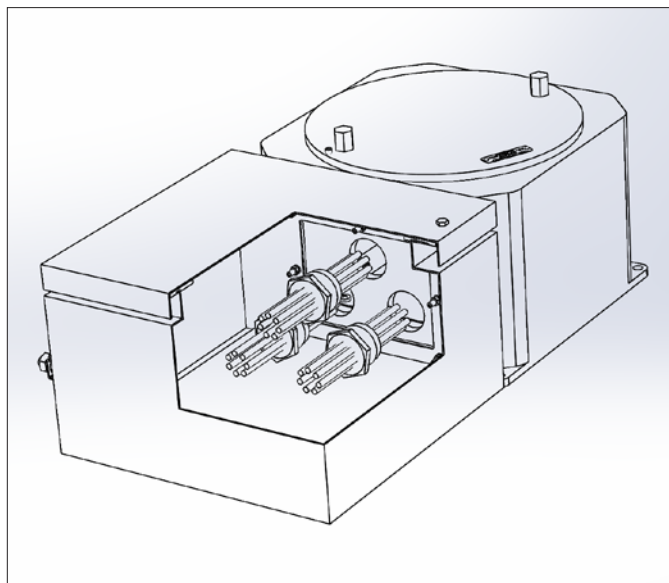
**Mounting:**

Stainless steel feet

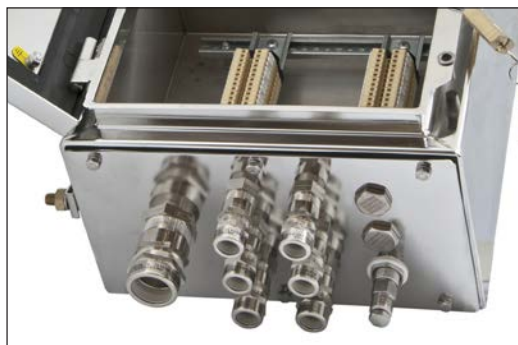
## ENCLOSURE CONNECTION



Connection made with Cortem TP sealed bushings in nickel plated brass or stainless steel. The number and diameter of the sealed bushings are determined based on the number and cross-sections of the bushing cables. The IP protection between enclosures is guaranteed by a flat silicone gasket.



## Series GUBE, GUBE...H Control boards



Ex e enclosure:

**Body and lid:**

**Hinges:**

**Impact protection rating:**

**Gasket:**

**Removable gland plates:**

**Bolts and screws:**

**Earth screws:**

AISI 316L stainless steel

AISI 316L stainless steel

IK10

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid.

Stainless steel thickness 30/10

Stainless steel captive variety

Stainless steel. On inside and outside of body complete with anti-rotation brackets

Ex de

### ACCESSORIES AVAILABLE / SPECIAL REQUESTS

For stainless steel 'Ex d' enclosure:

Internal mounting plate in 25/10-thick stainless steel (code K...-349). See accessories section

Enclosures with windows on lid for instrument viewing / reading (see section Enclosures with windows for inspection and reading instruments)

For "Ex e" enclosure:

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Internal mounting plate: stainless steel (code B...-443)

Terminal block mounting rails (code OBO2060/S)

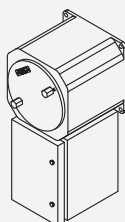
Padlocking system. Padlock (code VIRO552)

ATEX-CERTIFIED TERMINALS: terminals must be chosen from the list of approved manufacturers: Cabur, Phonix, ABB, Entrelec, Wago, Weidmuller. When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals. DIN rail.

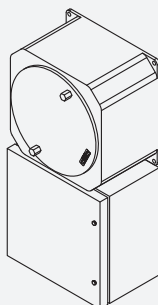
Hole options: through holes with no threading

**Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.**

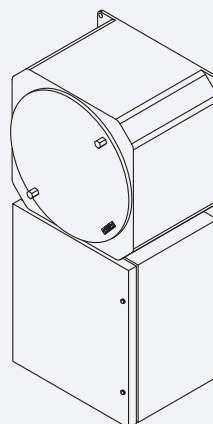
#### GUBE...enclosures



GUBE-2020

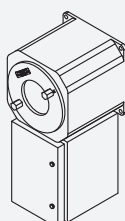


GUBE-3020

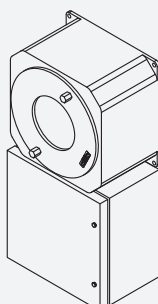


GUBE-4030

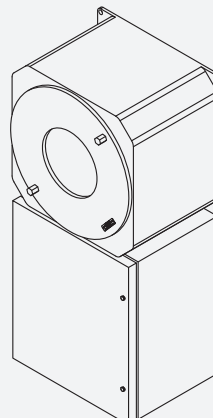
#### GUBE...H enclosures



GUBE-2020H



GUBE-3020H



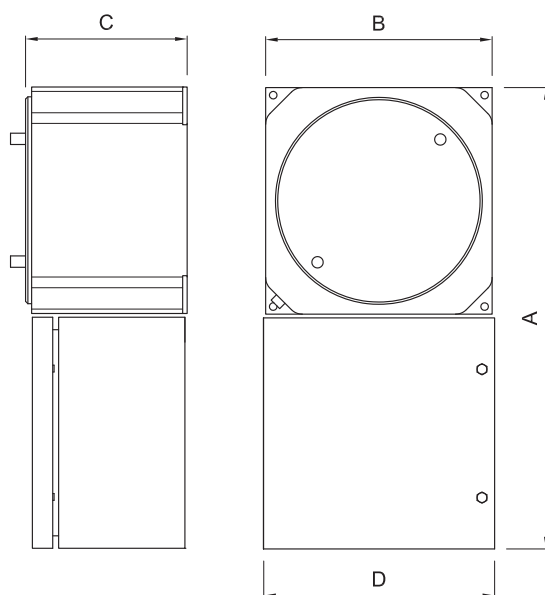
GUBE-4030H

# Series GUBE, GUBE...H Control boards

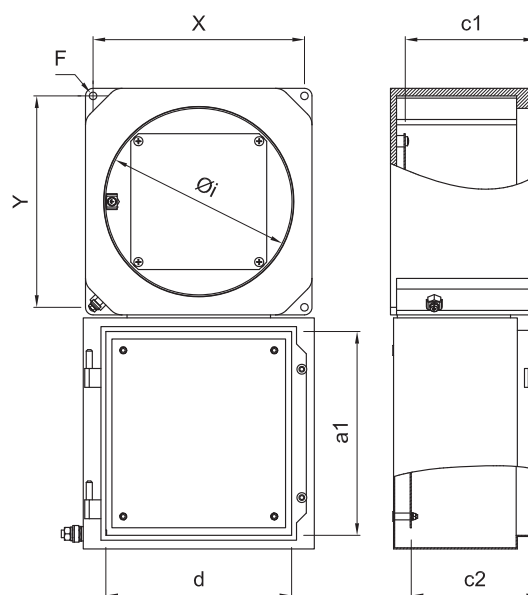
## ENCLOSURE SELECTION CHART

Code	Outside dimensions				Inside dimensions					Mounting			Weight Kg
	A	B	C	D	Øi	c1	d	a1	c2	X	Y	F	
GUBE-2020	433	200	200	152	150	150	92	169	142	170	170	10	
GUBE-3020	610	300	200	306	245	147	246	270	168	270	270	10	
GUBE-4030	855	400	300	382	355	245	322	414	268	368	368	12	

External view

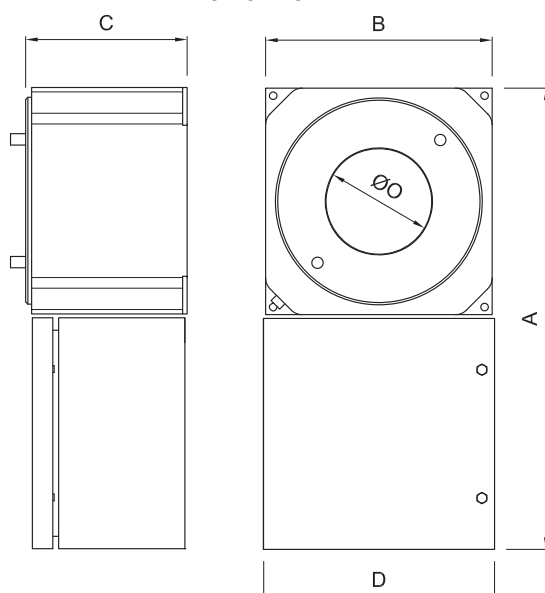


Internal view

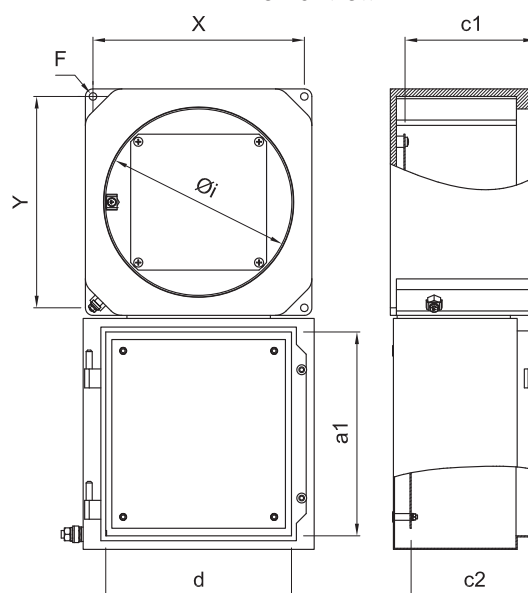


Code	Outside dimensions					Inside dimensions					Mounting			Weight Kg
	A	B	C	D	ØO	Øi	c1	d	a1	c2	X	Y	F	
GUBE-2020H	433	200	200	152	90	150	150	92	169	142	170	170	10	
GUBE-3020H	610	300	200	306	140	245	147	246	270	168	270	270	10	
GUBE-4030H	855	400	300	382	180	355	245	322	414	268	368	368	12	

External view



Internal view



# Series GUBE, GUBE...H Control boards

## BODY DRILLING DATA FOR 'Ex e' ENCLOSURE

### THREAD COMPARISON CHARTS

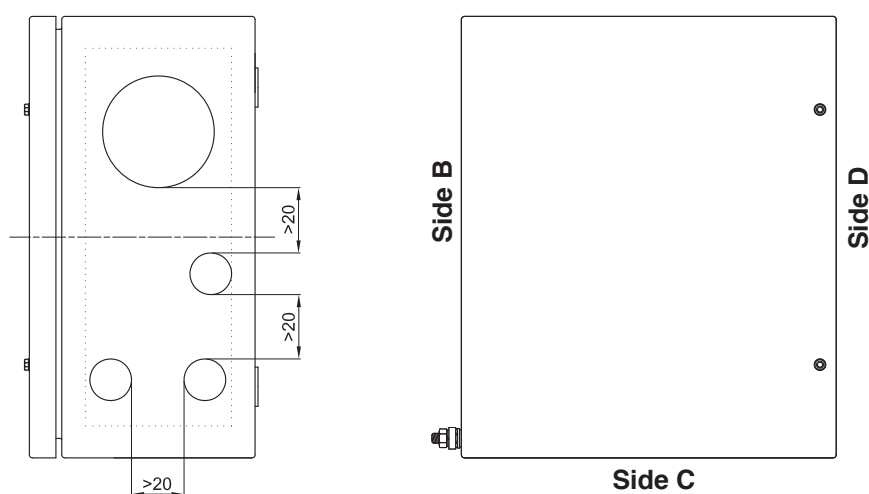
D	01	1	2	3	4	5	6	7
Thread diameter	16x1.5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5



Ex de

As required by the current standard, holes can be drilled by Cortem or by authorised partners who hold a production notification in accordance with ATEX Directive .

TYPE OF ENCLOSURE	'Ex e' ENCLOSURE BODY DRILLING																	
	Side C									Sides B and D								
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE							
		01	1	2	3	4	5	6	7		01	1	2	3	4	5	6	7
GUBE-2020	108x58	6	3	2	1	1	1	-	-	108x58	6	3	2	1	1	1	-	-
GUBE-3020	261x124	32	24	12	10	4	3	0	0	261x124	32	15	10	8	3	2	0	0
GUBE-4030	337x124	44	27	21	12	8	4	3	0	337x124	44	27	21	12	8	4	3	0



Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

# Series GUBE, GUBE...H Control boards

## 'Ex d' ENCLOSURES ELECTRICAL FEATURES

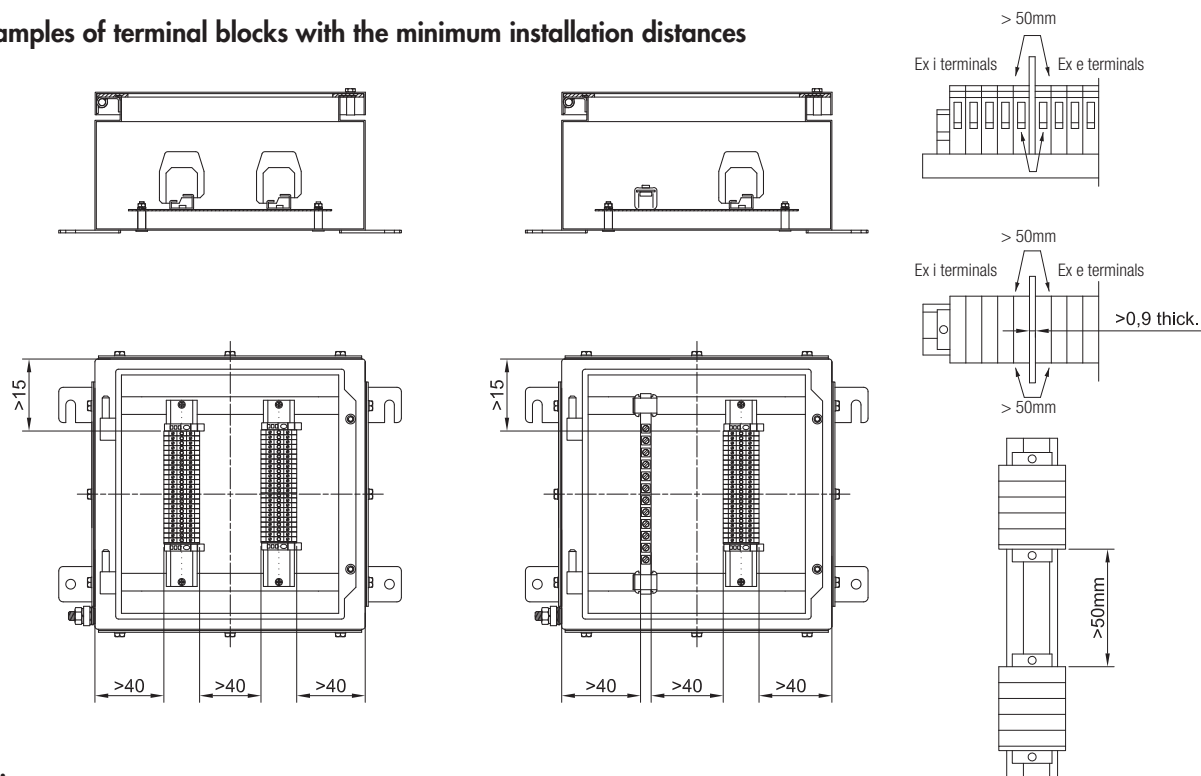
Rated voltage: max. 690 Vac  
 Rated current: 50 A  
 Rated frequency: 50 ÷ 60Hz

Code	Maximum power dissipation			
	Amb. T = +40°C		T amb. = +55°C	
	T6/T85°C	T5/T100°C	T6/T85°C	T5/T100°C
GUBE-2020	30 W	42 W	25 W	34 W
GUBE-3020	50 W	68 W	39 W	53 W
GUBE-4030	105 W	170 W	90 W	140 W

## 'Ex e' ENCLOSURES ELECTRICAL FEATURES

Rated voltage: max. 690 Vac  
 Rated current: 50 A  
 Terminal cross-sectional area: from 1.5mm<sup>2</sup> to 16mm<sup>2</sup>

### Examples of terminal blocks with the minimum installation distances



#### Note:

Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.  
 Only ATEX-certified terminals are allowed inside the enclosures.  
 Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.  
 Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.



# Series GUBE, GUBE...H Control boards


Ex de


TYPE OF ENCLOSURE	Terminals installed vertically							Maximum power dissipation	
								T6 - Max amb. T 55°C	T6 - Max amb. T 40°C o T5 - Max amb. T 55°C
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0		
GUBE-2020	1x21	1x21	1x17	1x13	1x10	1x17	1x17	2.9 W	8.0 W
GUBE-3020	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
GUBE-4030	3x67	2x67	2x56	2x42	2x33	3x56	3x56	5.8 W	34.0 W

TYPE OF ENCLOSURE	Terminals installed horizontally							Maximum power dissipation	
								T6 - Max amb. T 55°C	T6 - Max amb. T 40°C o T5 - Max amb. T 55°C
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0		
GUBE-2020	1x5	1x5	1x4	1x3	1x2	1x4	1x4	2.9 W	8.0 W
GUBE-3020	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
GUBE-4030	4x51	3x51	3x42	3x32	3x25	4x42	4x42	5.8 W	34.0 W

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

## Tables showing maximum number of conductors

 : In this unfilled area, provided the relevant instructions are followed and the permitted measurements given for devices housed inside the enclosure are complied with, any number of terminals can be added up to the space limit of the box.

 : Wiring in this unfilled area is not covered by this certification.

### GUBE-2020 (j.b. 'Ex e')

Current (A)	Cross-section in mm <sup>2</sup>							
	1.5	2.5	4	6	10	16	25	35
8	63							
10	31							
12		46						
14		28						
16		20	79					
18			31					
20			23					
23				35				
25				25				
32					43			
35					24			
45						42		
50						20		
58								
63							33	
68								
75								
80								37

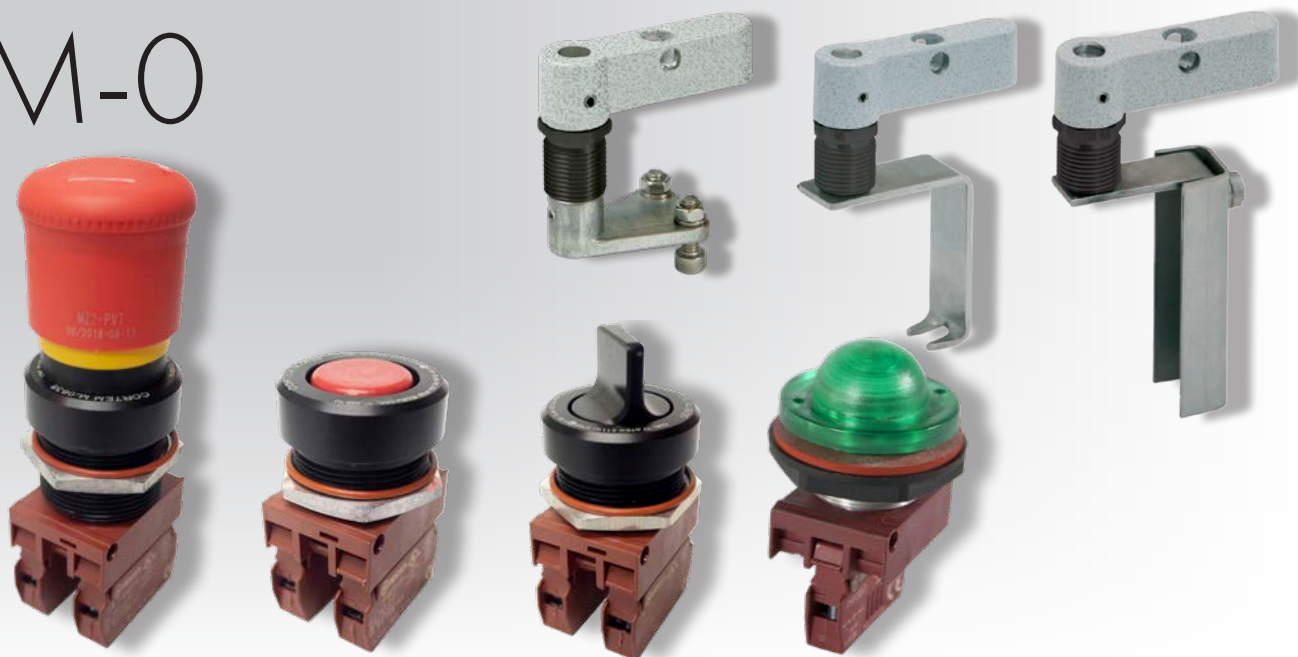
### GUBE-3020 (j.b. 'Ex e')

Current (A)	Cross-section in mm <sup>2</sup>							
	1.5	2.5	4	6	10	16	25	35
8	105							
10	51							
12		77						
14		46						
16		34	131					
18			52					
20			38					
23				57				
25				41				
32					71			
35					40			
45						69		
50						33		
58								
63							55	
68								
75								
80								62

### GUBE-4030 (j.b. 'Ex e')

Current (A)	Cross-section in mm <sup>2</sup>							
	1.5	2.5	4	6	10	16	25	35
8	121							
10	58							
12		88						
14		53						
16		39	151					
18			60					
20			44					
23				66				
25				48				
32					82			
35					46			
45						80		
50						38		
58								
63							63	
68								
75								
80								71

# M-0



M-0 series control, monitoring and signalling devices are installed as external accessories on Cortem 'Ex d' enclosures used in any industrial environment where an explosive atmosphere may be present, classified as Zone 1, 2, 21, 22. M-0 control devices can be used to close or open electrical or mechanical devices fitted inside the 'Ex d' enclosures while the signalling devices feature lights to indicate their operating status. The control and signalling device components are made from stainless steel to deliver unbeatable efficiency under any environmental conditions. Levers are made from aluminium while the plastic parts on push-buttons are designed to provide lengthy service life even when used in a highly corrosive atmosphere. M-0 control and signalling devices have an IP66 protection degree.

## CERTIFICATION DATA FOR CONTROL DEVICES

Classification:	Group 2	Category 2D		
Installation: EN 60079.14	zone 21 - zone 22 (Dust)			
Marking:	CE 0722 Ex II 2D Ex tb IIIC Db IP66			
Certification:	ATEX	CML 17 ATEX 3111U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	IEC Ex	CML 17.0051U		
Standards:	CENELEC EN 60079-0: 2012+A11:2013, EN 60079-31:2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-31: 2013			
Degree of protection:	IP66			



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ATEX Certificate



IECEx Certificate

## MECHANICAL FEATURES OF CONTROL DEVICES

<b>Outer body:</b>	Aluminium
<b>Internal bush:</b>	Stainless steel
<b>Internal pin:</b>	Stainless steel
<b>Gaskets:</b>	Acid/hydrocarbon-resistant silicone
<b>Push-button:</b>	Coloured nylon
<b>Illuminated push-button:</b>	Clear coloured polycarbonate
<b>Handle levers:</b>	Aluminium
<b>Coating:</b>	Polyester coating RAL 7035 (Light grey), where this is an option
<b>Device mounting:</b>	Screws into lid
<b>Contact mounting:</b>	Snap onto special flange, which assures quick connection of the whole contact block to the device or boxed type installed on DIN rails directly on the internal frame

## ELECTRICAL FEATURES (Contact block for push-buttons)

<b>Rated voltage:</b>	600V
<b>Rated current:</b>	10A
<b>Impulse withstand voltage:</b>	4kV
<b>Insulation category:</b>	Group C as per VDE 0110
<b>Degree of protection of terminals:</b>	IP2x as per CENELEC EN 60529
<b>Contact operation:</b>	<ul style="list-style-type: none"> <li>– slow acting</li> <li>– self-cleaning (wiping action)</li> <li>– NC contact forced opening</li> <li>– double movable bridge</li> <li>– four points of contact</li> <li>– double break</li> </ul>
<b>Contact resistance</b>	≤ 25 mΩ as per IEC 255.7 category 3
<b>Short-circuit protection</b>	16A gG time-delay fuses as per IEC 269.1 and 269.3

### Electrical performance

Rated thermal current I<sub>th</sub> = 10 A

### Operational limits as per IEC 947.5.1:

Category AC15								
Voltage U <sub>e</sub> (V)	24	48	60	110	220	380	500	600
Current I <sub>e</sub> (A)	10	10	10	6	3	2	1.5	1.2
Category DC13								
Voltage U <sub>e</sub> (V)	24	48	60	110	220	300		
Current I <sub>e</sub> (A)	2.5	1.5	1	0.22	0.27	0.2		

### Operational limits as per IEC 947.5.1:

AC Heavy Duty	(A600)
DC Standard Duty	(Q300)

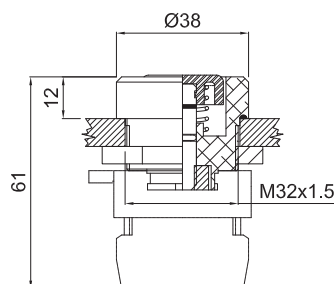
## ELECTRICAL FEATURES (CONTACT BLOCK FOR M-0553.. HANDLES)

### Alternating current

Series			10	16	20	32	40/63
Rated voltage	U <sub>e</sub> VDE/IEC	V	690	690	690	690	690
Rated current	I <sub>th</sub> VDE/IEC	A	20	25	32	45	63
	220V-240V	kW	2.2	4.5	5.5	7.5	15
	380V-440V	kW	4.0	7.5	9.0	11.0	30
AC3 VDE/IEC, Direct starting of squirrel cage motor, stop during operation	660V-690V	kW	4.0	7.5	11.0	15.0	30
	110V	kW	0.4	1.5	1.5	2.5	2.5
	220V-240V	kW	0.75	2.5	4.5	4.0	6
	400V	kW	1.3	4.0	5.5	5.5	7.5

## M-O... control, monitoring and signalling devices

Ex tb

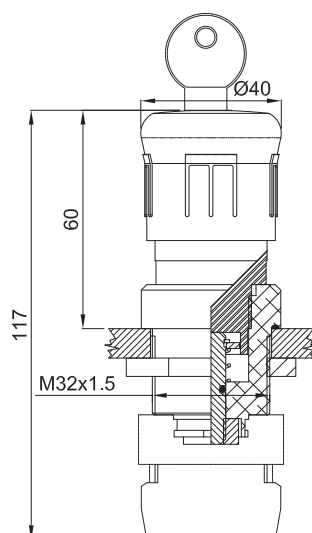


Normal push-button with standard 10A 600V  
1NO+1NC contacts.  
Button comes in choice of six colours.

Blue <b>(B)</b>	<b>M-0639../B..</b>
White <b>(BI)</b>	<b>M-0639../BI..</b>
Yellow <b>(G)</b>	<b>M-0639../G..</b>
Black <b>(N)</b>	<b>M-0639../N..</b>
Red <b>(R)</b>	<b>M-0639../R..</b>
Green <b>(V)</b>	<b>M-0639../V..</b>

Add IN for stainless steel body

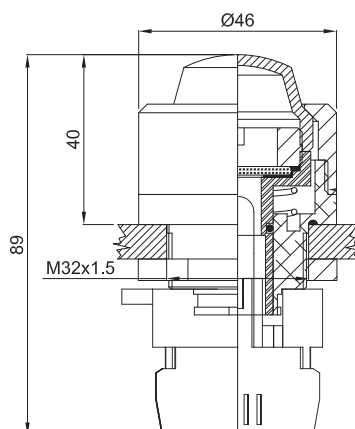
**Note:**  
**For the padlockable push-button add**  
**CODE + L (e.g. M- 0639/RL)**



Normal push-button with standard 10A 600V  
1NO+1NC contacts.

Emergency stop pushbutton with release	<b>M-0638</b>
Black push-pull, stop push-button	<b>M-0638../N</b>
Emergency stop pushbutton with key release	<b>M-0638../K</b>
Push-pull, stop pushbutton	<b>M-0638../P</b>

Add IN for stainless steel body



Illuminated push-button with standard 10A 600V  
1NO+1NC contacts. (lamps on request)  
Illuminated button comes in choice of five colours.

Blue	<b>M-0637../B</b>
White	<b>M-0637../I</b>
Yellow	<b>M-0637../G</b>
Red	<b>M-0637../R</b>
Green	<b>M-0637../V</b>

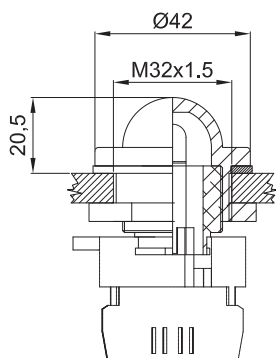
Add IN for stainless steel body

## ILLUSTRATION

## DIMENSIONS mm

## DESCRIPTION

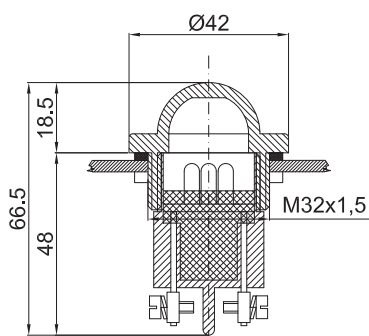
## CODE



Indicator light with 3W lamps (on request\*),  
12/240 Vac/dc.  
Lens comes in choice of five colours.

Blue	<b>M-0636/B</b>
Yellow	<b>M-0636/G</b>
White	<b>M-0636/I</b>
Red	<b>M-0636/R</b>
Green	<b>M-0636/V</b>

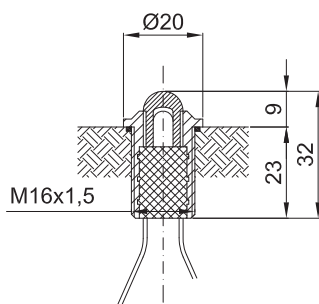
* lamp	12V:	<b>LAMPBA9S12V</b>
	24V:	<b>LAMPBA9S24V</b>
	110V:	<b>LAMPBA9S110V</b>
	240V:	<b>LAMPBA9S240V</b>



Multi-LED indicators come with lenses in  
different colours. Reliability with a LED  
service life of 50,000 hours.

Blue	<b>M-0612/3B..</b>
Yellow	<b>M-0612/3G..</b>
Colourless	<b>M-0612/3I..</b>
Red	<b>M-0612/3R..</b>
Green	<b>M-0612/3V..</b>

**Can be ordered in 4 possible voltages:**  
**110 Vac/dc** = **M-0612/..110**  
**12 Vac/dc** = **M-0612/..12**  
**230 Vac** = **M-0612/..230**  
**24 Vac/dc** = **M-0612/..24**



Indicator light with one high-brightness LED,  
for a consumption of 20 mA and estimated life  
of around 50,000 hours.  
LED in 5 colours available.  
Complete with locknut.

Color	If (mA)	Vf Tip. (V)	Vf max. (V)	
Red	20	2.1	2.6	<b>M-0487</b>
Yellow	20	2.1	2.4	<b>M-0487/G</b>
Clear	20	3.2	4.0	<b>M-0487/I</b>
Green	20	3.2	4.0	<b>M-0487/V</b>
Bicolor	20	2.0	2.5	<b>M-0487/1</b>

## M-O... control, monitoring and signalling devices

Ex tb

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Quick-connect handle for cam or rotary switch. Fixed pin length. Complete with locknut.  Add suffix <b>IN</b> for stainless steel body and handle  <b>Note:</b> <b>contact block is supplied on request.</b> <b>Please contact our sales department if you need advice</b>	<b>M-0634/10..</b>
		Quick-connect padlockable handle for cam or rotary switch. Fixed pin length. Complete with locknut.  Add suffix <b>IN</b> for stainless steel body and handle  <b>Note:</b> <b>contact block is supplied on request.</b> <b>Please contact our sales department if you need advice</b>	<b>M-0634/10L..</b>
		Padlockable handle for cam switch. Complete with locknut.  Fixed pin length  Variable pin length  Add <b>IN</b> for stainless steel body and handle	<b>M-0634../11F</b> <b>M-0634../11V</b>



ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for special switches. (3RV motor protectors). Complete with locknut.	
		Variable pin length	<b>M-0634../12V</b>
		Fixed pin length	<b>M-0634../12F</b>
		Add <b>IN</b> for stainless steel body and handle	
		Padlockable handle for switches with Ø6 shaft. Complete with locknut.	
		Variable pin length	<b>M-0634../13V</b>
		Fixed pin length	<b>M-0634../13F</b>
		Add <b>IN</b> for stainless steel body and handle	
		Padlockable handle for enclosed circuit breakers. Complete with locknut.	
		Variable pin length (size to order)	<b>M-0634../14V</b>
		Fixed pin length	<b>M-0634../14F</b>
		Add <b>IN</b> for stainless steel body and handle	

## M-0... control, monitoring and signalling devices

Ex tb


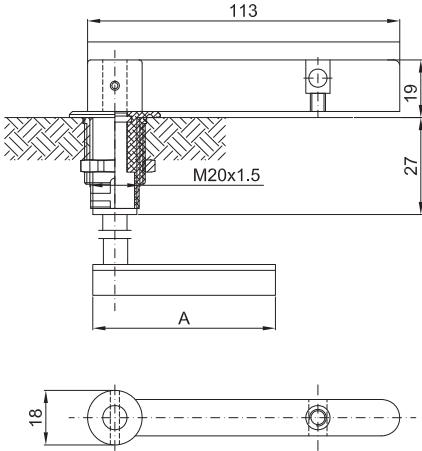

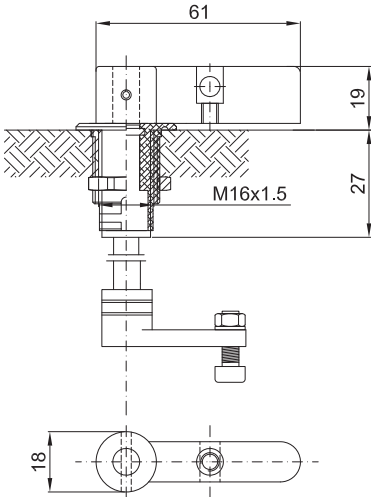

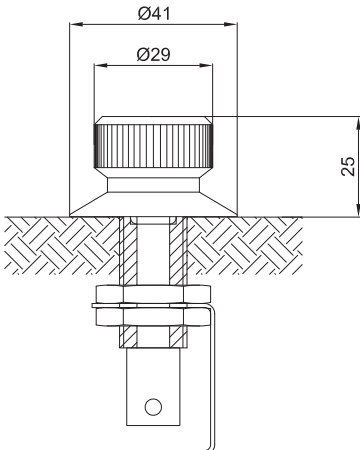

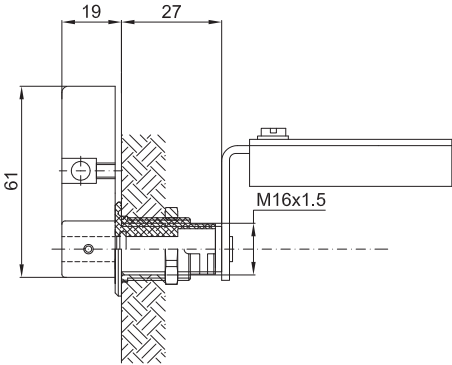

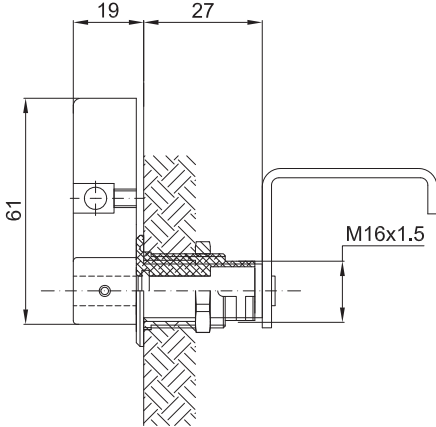
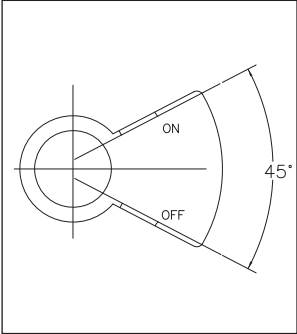
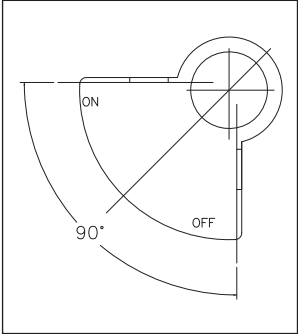
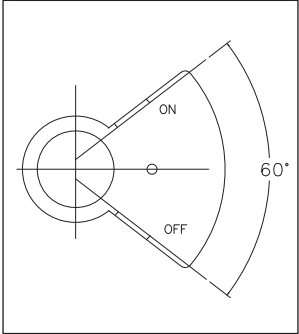
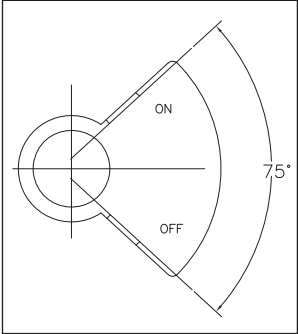
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for heavy-duty series enclosed circuit breakers. Complete with locknut.	
		Variable pin length	<b>M-0634../01V</b>
		Fixed pin length	<b>M-0634../01F</b>
		Add <b>IN</b> for stainless steel body and handle	
		Padlockable handle for modular circuit breakers. Complete with locknut.	
		Fixed pin length	<b>M-0634../04F</b>
		Variable pin length	<b>M-0634../04V</b>
		Add <b>IN</b> for stainless steel body and handle	
		Knob for potentiometers with Ø6 shaft	<b>M-0634/06</b>

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Handle for enclosed circuit breakers. Wall mounting. Complete with locknut.	M-0634/07
		Handle for modular circuit breakers. Wall mounting. Complete with locknut.	M-0634/09

Type of handle padlocking devices

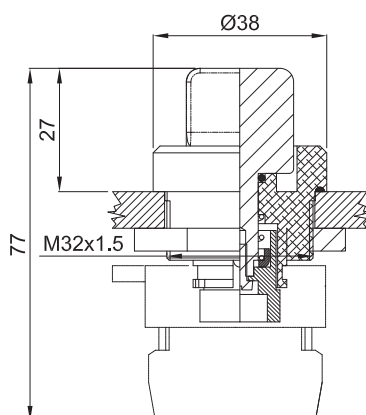
			
Code M-698/5	Code M-698/6	Code M-698/7	Code M-698/8

## ILLUSTRATION

## DIMENSIONS mm

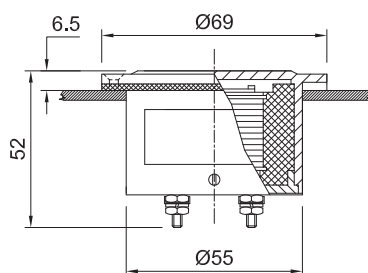
## DESCRIPTION

## CODE



Selector with OA 600V 1NO+1NC contacts.

Selector R arrangement	<b>M-0635/R</b>
Left selector RSX arrangement	<b>M-0635/RSX</b>
Selector X arrangement	<b>M-0635/X</b>
Selector 1C arrangement	<b>M-0635/1C</b>
Selector 1I arrangement	<b>M-0635/1I</b>
Selector 1M arrangement	<b>M-0635/1M</b>
Selector 1W arrangement	<b>M-0635/1W</b>
Selector 1Z arrangement	<b>M-0635/1Z</b>
Selector 2C arrangement	<b>M-0635/2C</b>
Selector 2I arrangement	<b>M-0635/2I</b>
Selector 2W arrangement	<b>M-0635/2W</b>
Selector 2Z arrangement	<b>M-0635/2Z</b>
Selector 3I arrangement	<b>M-0635/3I</b>
Selector 4I arrangement	<b>M-0635/4I</b>



The Cortem certified ammeter and voltmeter are suitable for measuring electrical values when the situation demands the utmost accuracy. The internal faces featuring the measuring range scale are produced to the customer's specifications.

Ammeter	<b>B-0140A</b>
voltmeter	<b>B-0140V</b>

Maximum voltage:	600 V
Nominal frequency:	40 ÷ 60 Hz
Precision class:	1.5
Dissipated power:	1.1 VA (B-0140A) 3.0 VA (B-0140V)

Measurement range - Direct measurement:

0 ÷ 40 mA	0 ÷ 0.1 A
0 ÷ 60 mA	0 ÷ 1.5 A
0 ÷ 100 mA	0 ÷ 2.5 A
0 ÷ 250 mA	0 ÷ 5 A
0 ÷ 400 mA	0 ÷ 6 A
0 ÷ 600 mA	0 ÷ 15 A

Measuring range - With current transformer:

0 ÷ 2.5 mA	0 ÷ 50 A
0 ÷ 5 mA	0 ÷ 60 A
0 ÷ 10 mA	0 ÷ 75 A
0 ÷ 15 mA	0 ÷ 100 A
0 ÷ 20 mA	0 ÷ 150 A
0 ÷ 25 mA	0 ÷ 200 A
0 ÷ 30 mA	0 ÷ 300 A
0 ÷ 40 mA	0 ÷ 400 A



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Cortem Group reserves the right, at its sole discretion, to make any modifications (at any time and without notice) in order to improve the functionality and performance of its products or meet technical and manufacturing requirements. The measurements and drawings of the products and their parts are indicative only and not binding, because they can be modified without notice.

The latest updated information, data and certificates of our products are available on [www.cortemgroup.com](http://www.cortemgroup.com) web site.

All Cortem Group products are covered by warranty for a period of twelve months from the delivery date. For more information, refer to the "General Terms and Conditions of Sale" on [www.cortemgroup.com](http://www.cortemgroup.com) web site.

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