BARTEC

ESI Enclosure

Ex e Stainless Steel enclosure for Zone 1/2/21/22

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Note on instructions

When working in hazardous areas, the safety of personnel and equipment depends on compliance with the relevant safety regulations. The people in charge of installation and maintenance bear a special responsibility. It is essential that they have an exact knowledge of the applicable rules and regulations.

The instructions provide a summary of the most important safety measures and must be read by everyone working with the product so that they will be familiar with the correct handling of the product. The instructions have to be kept for future reference and must be available throughout the expected life of the product.

Description

The BARTEC ESI enclosures, are available as enclosures with lid or as cabinets with door. The enclosures serve for the admission of certified components in combustible ranges. They are used for connection with lights, devices and sensors.

The walls of the enclosure, lid/door and base consist of several edged and welded high-grade stainless steel of at least 1 mm (0.04 in) thickness. The flange plates with tapped holes for the cable and conduit entries are at least 3 mm (0.12 in) thick. The IP protection class is realized by a seal in the lid or in the door. The enclosures are mounted with mounting brackets found outside of the enclosure wall. The enclosures are also suitable for intrinsically safe electric circuit connection. For this application, special marking is required. The enclosures can be used in hazardous areas of both zone 1 and 2 with certified explosion subgroups II and the temperature class T5/T6 and as well as in zone 21 and 22. Enclosures and cabinets with windows shall only be used in conditions with low level mechanical risk.

Explosion protection

Marking acc. to EN 60079-0	Ⓔx II 2G Ex eb IIC Gb Ⓔx II 2D Ex tb IIIC Gb
Certification	IBExU99ATEX1118 U IECExIBE09.0016 U
Other approvals and certificates, see bartec.com	
Max. Operating temperature	-40 °C to +100 °C

Technical data

Material	1.4404, AISI 316 L high quality stainless steel optional 1.4301, AISI 304 high quality stainless steel
Surface	brushed, painted or electro polished on request
Standard seals	Standard Silicone: -40 °C to +100 °C Optional EPDM: -20 °C to +100 °C RAKU PUR (type 07-55): -40 °C to +80 °C
Recomended tightenig torque	M4 screw: ca 1.2 Nm M6 screw: ca 1.4Nm
Mechanical strength	Impact energy 7 Joule
Version	with or without gland plates
Standard sizes	see selection chart
Protection class	max. IP 66 EN/IEC 60529

Safety instructions

The supplied Ex empty enclosures are U-certified components which serve as a basis for completely certified devices which then in their entirety must still be tested and approved by a specified agency for capability for use in potentially explosive areas.
The enclosure may be operated only if it is clean and not damaged in any way. Dust deposits > 5 mm (> 0.2 in) must be removed.
Utilization in areas other than those specified or the modification of the product by anyone other than the manufacturer is not permitted and will exempt BARTEC from liability for defects and any further liability.
The generally applicable statutory rules and other binding directives relating to workplace safety, accident prevention and environmental protection must be observed.
Observe the applicable laws and directives when commissioning or restarting operation.
Always follow the safety instructions on the operating equipment.

Marking

Particularly important points in these instructions are marked with a symbol:

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE is used to address practices not related to personal injury.

NOTE Important instructions and information on effective, economical and environmentally compatible handling.

Standards conformed to

Please See Attestations of Conformity.

Transport, storage

CAUTION
Risk of injury due to heavy loads.
- Use an appropriate carrying aid or an appropriate means of transport (e.g. a fork-lift) with an adequate load-carrying ability.
- Ensure that the lifted load will not tip over or slip off.

NOTICE
Damage through incorrect transport or incorrect storage.
- Transport the distribution box in original packaging, handle with care, and do not drop.
- Store the distribution box dry in original packaging.

Assembly, installation, and commissioning

WARNING
Risk of serious injury due to incorrect proceedings.
- Only qualified personnel who are authorized and trained to assemble electrical components in hazardous (potentially explosive) areas may do any of the assembly, disassembly, installation and commissioning work.
- For assembly and operation of explosion protected electrical equipment, relevant installation and operating regulations are to adhere (e.g. Betr.SichV, IEC/EN 60079-14 and series DIN VDE 0100).
- The data on the label and the EEC design test data are to be observed. Further technical information is provided in the Bartec catalog and on the product itself.
- Do not open the distribution box when energized.
- Follow the components mounting instructions/operating instructions.

Assembly / disassembly

DANGER
Death or serious injury because of a missing protective earth connection.
- Metallic conductor entries must be connected to the ground. With plastic enclosures, BARTEC Earth loc or appropriate ground plates serve the similar purpose.
- Protective earth connections have to be protected against self-loosening.
- By assembling/disassembling of cable glands and/or plugs with counter nuts tighten always counter nuts and NOT plugs or cable glands - otherwise the seal may be damaged.

NOTICE
Damage to elements due to incorrect installation dimensions.
- The minimum spacing between the mounting holes must be observed, see manufacturer`s instructions.

When processing the enclosures, attention must be paid to ensuring that there is suitable minimum spacing between individual boreholes and from the sealing edge of the enclosure so that enclosure with the fittings will be able to withstand an impact test.
The minimum spacing depends on the geometrical dimensions of the built-in components, a longer lever will require an increase in the minimum spacing and accordingly must be determined specially.

For accommodating use only components certified for the Ex areas such as terminals, switches, cable glands measuring instruments, control equipment and display units.
Check when assembling:
- Use suitable tools.
- Pay attention to the type of mounting required (for fitting into enclosure/attachment with junction box).
- For enclosures placed in outdoors, steps must be taken to ensure smooth operation, for example rain protected roofs, and if necessary, sufficient enclosure protection.

NOTE
Metallic enclosures for intrinsically safe facilities do not have to be attached to an equipotential bonding system, except if it is required by equipment documentation.

Installation

WARNING
Risk of injury due to incorrect proceedings.
- Extensions or modifications to the distribution box are only permissible if the manufacturer's approval is obtained first.
- The IEC/EN60079-14 must be observed.

Check when installing:
Installations for the highly combustible range must exhibit an EEC design inspection certificate. Installation of these components must take place in such way, so that at least the enclosure remains IP54.
Connection of cables and conductors to equipment in hazardous areas require Ex certified entries, which are suitable for respective cable and conductor types. They must possess the protection type "e" and contain a suitable sealing gasket, so that protection class of the enclosure remains at least IP54.

Take care when connecting conductors:
- Always use suitable crimping tools when crimping the wire-end ferrules to ensure a consistent quality of pressing each time.

CAUTION
Take care not to damage the individual wires.

- Tighten all terminal points securely (including those not in use).

Commissioning

Before commissioning, check that:
- The device has been installed in compliance with regulations.
- The device is not damaged.
- The connection has been established properly.
- The cables have been laid correctly.
- All screws have been tightened securely.
- The device functions perfectly.

Operation

DANGER
Death or serious injury through improper use.
- The device may be operated only within the technical limits that apply to it (see page 1).

Maintenance and fault clearance

WARNING
Risk of serious injury due to damaged parts.
- If any part of the equipment is damaged, it should be exchanged only with original parts (e.g. sealing gasket/cable glands/ terminals).

WARNING
Risk of serious injury due to incorrect proceedings.
- Only authorized qualified personnel are allowed to do any of the work relating to maintenance and fault clearance.
- EC/EN 60079-17 must be observed.
- Do not open the enclosure when energized.

Maintenance

WARNING
Risk of serious injury due to electrostatic charging.
- For windows with surface resistance of >109 Ω, potential electrostatic charging hazard exist. Only wet cleaning is allowed.

The operator of the enclosure must keep it in good condition, monitor it and clean it regularly. He has to determine the maintenance intervals depending on the conditions of use.

Within the scope of maintenance:
- Check the enclosure, actuating elements, cable entries, sealings, and cables regularly for cracks and damage.
- Make sure that they are properly established.

Fault clearance

The device is defective if the encapsulation is damaged and/or if one of the components does not function any longer.

In this case:
- Replace defective parts in the encapsulation with original parts immediately.
- Replace or repair the defective components with original parts.

NOTE
Follow the components mounting instructions/operating instructions to replace or repair the components.

Accessories, spare parts

For accessories and spare parts, see BARTEC catalogue.

Disposal

The enclosures and its components contain metal and plastic parts. Therefore the statutory requirements for disposing of electronic scrap must be observed (e.g. disposal by an approved disposal company).

NOTE
Ensure environmentally friendly disposal of all components according to legal regulations.

Service Address

BARTEC F.N.
Via Mario Pagano, 3
IT-20090 Trezzano Sul Naviglio
Milano, Italy

Recommended drilling spacing for plastic cable glands for SS enclosures

M	Distance a
12	20 mm
16	22 mm
20	26 mm
20	27 mm
25	32 mm
32	42 mm
40	53 mm
50	63 mm
63	70 mm
63	75 mm

M	Distance a
12 + 16	21 mm
12 + 20	23 mm
12 + 20	24 mm
12 + 25	26 mm
12 + 32	31 mm
12 + 40	37 mm
12 + 50	42 mm
12 + 63	46 mm
12 + 63	48 mm

M	Distance a
16 + 20	24 mm
16 + 20	25 mm
16 + 25	27 mm
16 + 32	32 mm
16 + 40	37 mm
16 + 50	43 mm
16 + 63	46 mm
16 + 63	49 mm

M	Distance a
20 + 20	27 mm
20 + 25	29 mm
20 + 32	34 mm
20 + 40	40 mm
20 + 50	45 mm
20 + 63	48 mm
20 + 63	51 mm

M	Distance a
20 + 25	30 mm
20 + 32	35 mm
20 + 40	41 mm
20 + 50	46 mm
20 + 63	49 mm
20 + 63	52 mm

M	Distance a
20 + 32	37 mm
20 + 40	43 mm
20 + 50	48 mm
20 + 63	51 mm
20 + 63	54 mm

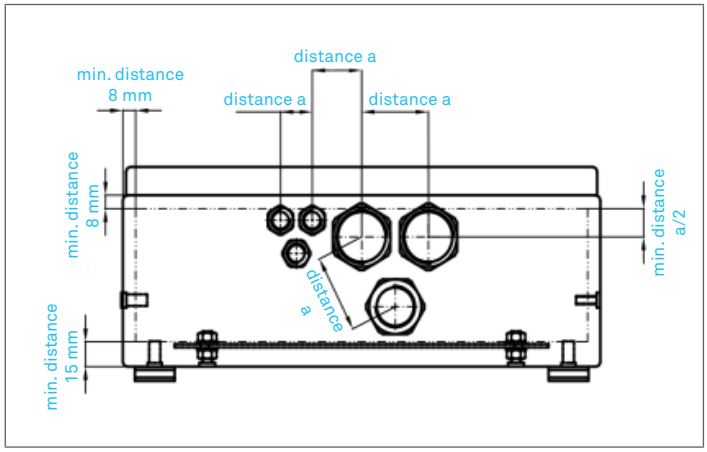
M	Distance a
32 + 40	50 mm
32 + 50	55 mm
25 + 63	58 mm
25 + 63	61 mm

M	Distance a
40 + 50	61 mm
40 + 63	64 mm
40 + 63	67 mm

M	Distance a
50 + 63	69 mm
50 + 63	72 mm

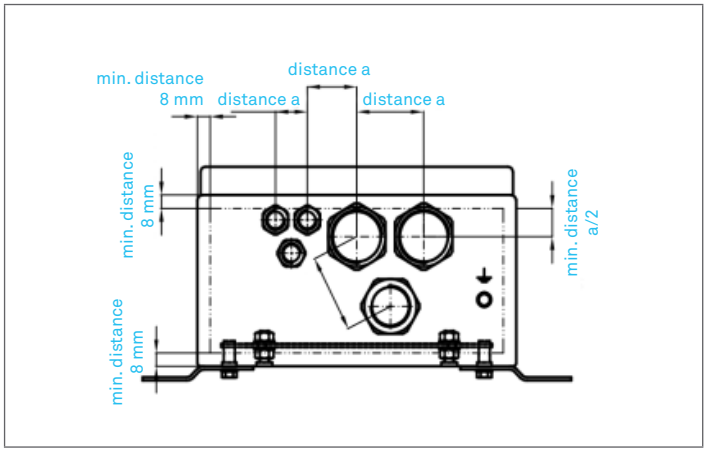
M	Distance a
63 + 63	73 mm

For side A B



Plain entries are used in cases with flange plates and without flange plates. The clearance holes for plain entries have a diameter not more than 0,7 mm greater than the nominal diameter of the entry thread gland or fitting. Glands or fittings should be with sealings or gaskets.

For side C D



Threaded entries are used in cases with flange plates:

- minimum 3 threads by tapered threads
- 5 threads, with tolerance class 6H or better according to ISO 965-1 by parallel threads
- Less than five threads with a tolerance class of 6H or better according to ISO 965-1 by parallel threads and with additional seal or gasket on cable glands or plugs.

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