Explosion proof enclosures

DE8 – BC …

The DE8-BC range of Ex d enclosures are rugged and designed for harsh environment like:

- Oil and gas industry
- Chemical industry
- Pharmaceutical
- Industry
- Agribusiness

They are designed for use in potentially explosive atmospheres and certified according to the requirements of the ATEX Directive and IECEx.

Marking

Without Intrinsic safety	With Intrinsic safety
Ex db IIB T4 to T6 Gb **Or** **Ex db IIB + H2 T4 to T6 Gb** **(Except for DE8-BC148)** **Ex tb IIIC IP65-66 T85°C to T135°C Db**	**Ex db[ia] or [ib] IIB T6 Gb** **Or** **Ex db[ia] or [ib] IIB + H2 T4 to T6 Gb** **(Except for DE8-BC148)** **Ex tb [ia] IIIC IP65-66 T85°C Db**

The enclosures listed in this manual are certified:

II 2 G / II 2 D

The certificate numbers are :

INERIS 09ATEX0061X
IECEx INE 13.0088X

They are made in accordance with the following standards:

Zones due to gases, vapors and fumes

EN 60079-0 : 2018	IEC 60079-0 : 2017
EN 60079-1 : 2014	IEC 60079-1 : 2014
EN 60079-11: 2012	IEC 60079-11: 2011

Zones for dusts

EN 60079-31: 2014	IEC 60079-31: 2013

Description

Our DE8-BC range of explosion proof enclosures is available in many sizes. They are made of welded and machined acid resistant stainless steel 316L or painted carbon steel. Each is expected to receive electrical components inside, making service and maintenance easy. They can also be customized to meet each individual specific need. If necessary, multiple enclosures can be assembled on a frame with or without combined Ex e junction boxes.

The enclosures can be delivered fully equipped according to customer's requirements or empty with component certificate (U-certificate) to be used as basis for further certification of an Equipment or Protective System.

Meaning of symbols

⚠ This symbol means a hazard and precaution to be taken

Safety instructions

⚠ The device must be installed, used and maintained in accordance with the following standards:

- IEC/EN 60079-1 (Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d")
- IEC/EN 60079-14 (Explosive atmospheres - Part 14: Electrical installations design, selection and erection)
- IEC/EN 60079-17 (Explosive atmospheres - Part 17: Electrical installations inspection and maintenance)
- IEC/EN 60079-31 (Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t")
- Decrees, orders, laws, directives, circulars, applications, standards, state of art and other documentation relating to its installation site

⚠ **It is forbidden to change anything (components, installation, wiring ...) without the prior written consent of Bartec Technor.**

⚠ **We cannot accept any responsibility for failure to observe these regulations:**

- Make sure of the compatibility between the information on the nameplate, the explosive atmosphere present, the area of use and ambient temperatures on surfaces
- Any damage on the device can cause the explosion-proof protection to become ineffective
- The installation of the enclosure must be done in the state of the art in the technical domains and only by qualified, competent and empowered personnel
- A defective or abnormal use as well as the non compliance with the instructions of the present document exclude any clause of guarantee and do not engage our responsibility
- The use of the device in case of excessive deposits of dusts superior at 50mm according to EN / IEC 60079-31 is not authorized
- Liability for manufacturer traceability is ensured only at the first known delivery destination (serial number specified on the certification label)
- It is also required to observe the regulations of the country of use
- The doors of the DE8-BC enclosures are relatively heavy, to avoid sagging of the doors, potentially making the door not align with the flange of the enclosure, the doors shall be closed and secured during any moving and shfting of the enclosures. It is also strongly advisable to close and secure the doors when the daily working shift is over
- The flame paths of the doors and of the flanges of the enclosures must be well protected whilst work is performed and ongoing inside the enclosures

⚠ Transport, storage

- Check it the product has been damaged during transport. If any damage is observed, do the statutory reserves to the carrier
- Do not put damaged products into service

Packaging	Location storage	Duration storage
Open	In a covered location, clean (without contact with external substances) and closed with temperature a constant humidity (-40°C < T < +70°C). Shielded from important temperature variations	2 years and more with regular inspection (cleanliness and mechanical damage)

⚠ Putting into service

- Verify that the information on the label of the product is in accordance with the permissible conditions for the Ex area of the site of use (Group II: Surface Industries - Category 2: high level of protection for ATEX G = for Gas / D = for Dust, IECEx EPL - G = for Gas / D = for Dusts - IPxx: IP rating (waterproofness for solids and liquids)

- Check if there is a specific position of mounting
- The wiring of the cable conductors must be made with a particular care
- The conductor insulation must reach the terminal. The conductive soul must not be damaged
- Not to exceed the authorized maximal temperature appropriate cables must be selected and take particular care installing them
- Follow the instructions contained in the specifications
- Installation of intrinsic safety elements :
    - The installation of the intrinsic safety circuits (IS) inside the enclosure is subordinated to the respect of the requirements of their documents of certification, their certificates and with that after:
        - IS Circuits are cabled with connection wires of which the thickness of insulator is ≥ 0,5 mm and the section ≥0,5 mm ²
        - The connection wires support a dielectric test of 500 V effective
        - The air gap between the active parts under voltage of the connection elements of the intrinsic safety circuit compared to connection elements of an non intrinsic safety circuit is higher or equal to 50 millimeters
        - The air gap and creepage distances in the air between the active parts under voltage of the intrinsic safety circuit compared to an intrinsic safety circuit close are higher or equal to 6 millimeters
        - The air gap and creepage distances in the air between the active parts under voltage of the intrinsic safety circuit compared to the metal parts which can be with the ground are higher or equal to 3 millimeters
        - The active parts of the intrinsic safety circuits support a dielectric test of rigidity under an effective alternating voltage of 500 Volts compared to the metal mass
        - The active parts of an intrinsic safety circuit support a dielectric test of rigidity under an effective alternating voltage of 500 Volts compared to an intrinsic safety circuit close
        - Circuits NIS are cabled with conductive wires whose insulation is such as they can support a dielectric test of 2 U + 1000 V effective, U being the sum of the tensions of the IS and NIS circuits, with a minimum of 1500 V

⚠ Before starting

- Make sure the unit has been correctly settled and not damaged
- Make sure the wiring and the tightening of the terminal screws have been performed properly (see descriptive tightening torque)
- The device may include any foreign body and no part is damaged
- The cable gland must be tightened (see description of the gland torque)

Maintenance

The maintenance and repairs works on devices must be made only by authorized and trained persons for that purpose.

Before any work the devices must be switched off. In addition:

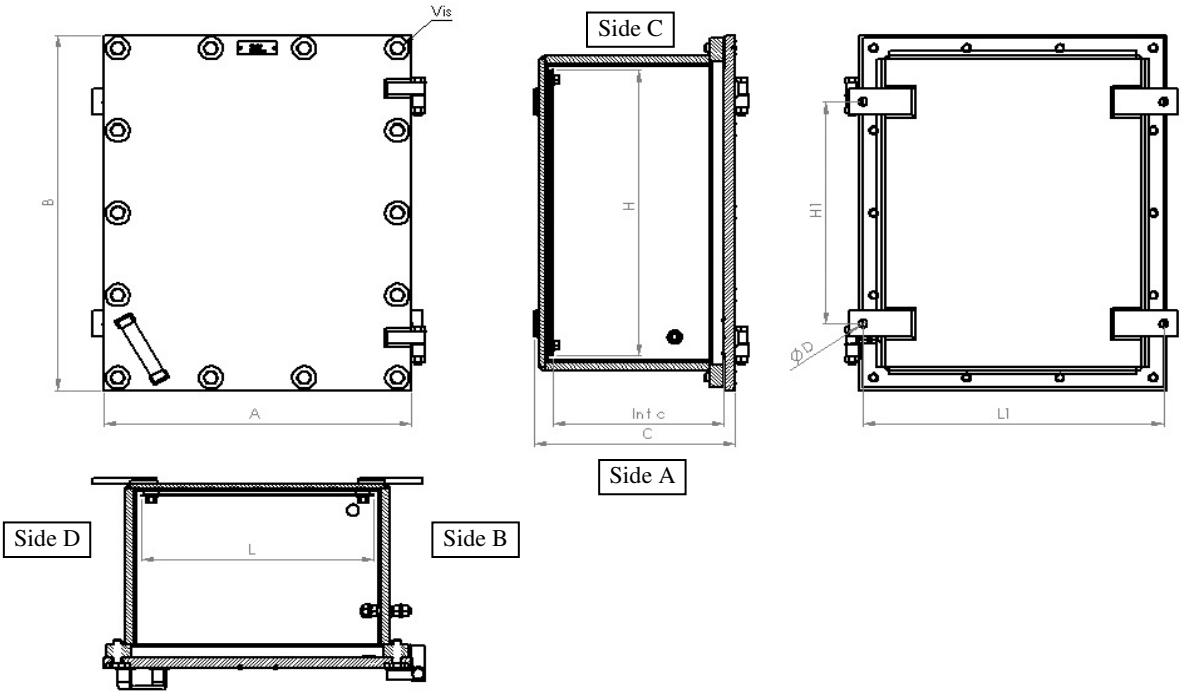
- Prevent and avoid any formation of layers of dusts: make a periodic cleaning with a wet cloth
- Do not take apart the command and control units (push buttons, pilot light, etc.)

It is adviseable that the following checks must be made at least once a year:

- The external equipment and surfaces must not be damaged
- The cable entries and blanking plugs must be securely fastened
- Check tightness of the connections, rewiring if necessary
- Prior to closing, check the cleanliness of the flame path (machined part of the cover in contact the machined part of the box). Grease these 2 parts with a grease resistant to oxidation (acid free white vaseline)
- Screw the cover on the box using the original stainless steel bolts A4-70 minimum. Ensure that all the bolts are screwed. After tightening the bolts, check with a shim of 15/100 mm (4/100mm for IIB + H2) all around the flame path that the shim cannot penetrate the enclosure. Its non-penetration on full perimeter is the insurance of the conformity of the product with the standards

Technical features

Dimensions		External dimensions (mm)			Internal volume	Maximum power whatever the content is	Dimensions of mounting plate (mm)			Fixing (mm)			Bolts in stainless steel INOX A4-70 (min.)	Tightening torque
References		A	B	C	dm^3 / liters	W Max.	H	L	Int c	H1	L1	ØD holes	Qty x Ø-L	Nm
DE8BC	32	334	434	240	17,5	250	300	200	166	234	326	Ø12	12 x M12-35	59
DE8BC	351	354	474	240	21,06	250	350	225	166	274	346	Ø12	14 x M12-35	59
DE8BC	43	434	534	290	40,95	380	400	300	226	334	526	Ø12	14 x M12-35	59
DE8BC	44	544	544	295	52,65	380	400	400	226	334	526	Ø12	16 x M14-40	95
DE8BC	54	544	644	305	64,35	410	500	400	226	414	526	Ø20	18 x M14-40	95
DE8BC	64	544	744	310	76,05	470	600	400	226	514	526	Ø20	20 x M14-40	95
DE8BC	75	664	864	320	109,31	600	700	500	231	614	630	Ø20	24 x M14-45	95
DE8BC	86	764	964	365	168,51	600	800	600	271	714	734	Ø20	26 x M16-40	148
DE8BC	107	864	1164	380	240,18	1200	1000	700	251	908	868	Ø20	30 x M16-40	148
DE8BC	108	864	1164	425	275,62	1400	1000	700	300	908	868	Ø20	30 x M16-40	148
DE8BC	148	940	1590	510	448	2000	1450	800	425	1200	900	Ø20	40 x M16-60	148



⚠ Number of cable entries:

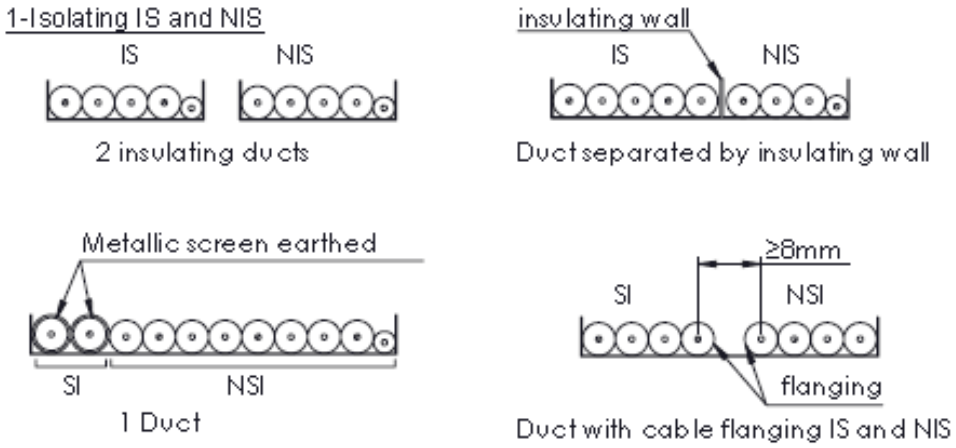
- Any type of cable or conduit entry certified Ex d can be used and installed according to EN / IEC 60079-14
- Different types of threads can be used but minimum five threads by bolt must always been engaged

References		½ '' NPT ¾ '' NPT M20 ISO			1 '' NPT M25 ISO			1'' ½NPT 1'' ¼NPT M32 – M40 – M42 ISO			2 '' NPT (with welded ring) M50 ISO			2 '' ½ NPT (with welded ring) M63 ISO			3 '' NPT (with welded ring) M75 ISO		
		Per side A and C	Per side B and D	Max. per perimeter	Per side A and C	Per side B and D	Max. per perimeter	Per side A and C	Per side B and D	Max. per perimeter	Per side A and C	Per side B and D	Max. per perimeter	Per side A and C	Per side B and D	Max. per perimeter	Per side A and C	Per side B and D	Max. per perimeter
DE8BC	32	12	12	32	8	8	20	3	3	12	1	1	4						
DE8BC	351	12	12	24	8	8	18	3	3	8	1	1	4						
DE8BC	43	18	18	36	14	14	28	4	4	16	2	2	5	1	1	2			
DE8BC	44	20	20	40	16	16	30	5	5	20	3	3	6	1	1	3			
DE8BC	54	20	20	40	15	15	30	5	5	20	3	3	6	1	1	3			
DE8BC	64	28	28	60	18	18	50	7	7	28	4	4	9	1	1	4			
DE8BC	75	28	28	72	24	24	72	10	10	40	4	4	11	2	2	7			
DE8BC	86	32	32	112	28	28	100	20	20	80	5	5	17	2	2	8	1	1	4
DE8BC	107	36	36	112	32	32	100	20	20	80	5	5	17	3	3	10	1	1	4
DE8BC	108	36	36	112	32	32	100	20	20	80	5	5	17	3	3	10	1	1	4
DE8BC	148	72	72	224	64	64	200	40	40	160	10	10	34	6	6	20	2	2	8

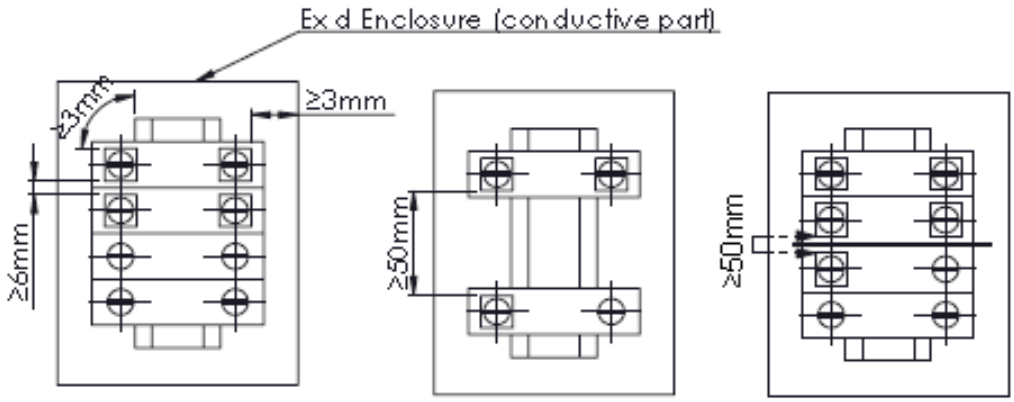
⚠ Special Conditions for safe use (X):

When the enclosure is equipped with intrinsic safety elements, a temperature probe must be fitted inside and be connected to a system that can switch off the supply when the inner temperature raises above the maximum ambient temperature indicated in the certificates of the IS equipment.

The products that can be connected to the IS equipment installed inside the enclosure must be of a certified type and association must be compatible in regards of intrinsic safety.



2- Clearances and creepage distances between IS and NIS materials



⚠ The content of the DE8-BC enclosures may be placed in any arrangement provided that an area of at least:

- - 20 % of each cross-sectional area remains free for gas group IIB
- - 40 % of each cross-sectional area remains free for gas group IIB + H2