

UK-TYPE EXAMINATION CERTIFICATE

Product or Protective Systems Intended for Use in Potentially Explosive Atmospheres

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

1. **UK-Type Examination Certificate Number:** ITS21UKEX0073X **Issue 00**
2. **Product:** DP-E, CV and BD-U Breather Drains
3. **Manufacturer:** Eaton Electrical Systems Ltd trading as Redapt, Raxton or Capri
4. **Address:** Unit 1, 1 Kingsway South, Westgate, Aldridge, West Midlands, WS9 8FS, United Kingdom
5. This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
6. Intertek Testing and Certification Limited, Approved Body number 0359, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential report G102174344D Issue 1 dated November 2016 and report Nr. 104039337LHD-001C Issue 1 dated September 2019.
7. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012+A11:2013, EN 60079-1:2014, EN 60079-7:2015/A1:2018 and EN 60079-31:2014 except in respect of those requirements referred to within item 14 of the Schedule.
8. If the sign “X” is placed after the certificate number, it indicates that the product is subject to the special conditions of use specified in the Schedule to this certificate.
9. This UK-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.
10. The marking of the product shall include the following:



Model: BD-U

I M2 Ex eb I Mb, II 2G Ex e IIC Gb
I M2 Ex db I Mb, II 2G Ex d IIB+H2 Gb
II 2D Ex tb IIIC Db IP66

Model: DP-E & CV

I M2 Ex eb I Mb
II 2G Ex eb IIC Gb
II 2D Ex tb IIIC Db IP66

Model: DP-E4 + DP-E5 & CVM + CVB

II 2G Ex eb IIC Gb
II 2D Ex tb IIIC Db IP66

I M2 not for DP-E4 + DP-E5 & CVM + CVB

Certification Officer: _____ **Date:** 22 June 2021
P Moss

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11. Description of Product or Protective System

The Ex eb / Ex tb DP-E Breather/Drains are designed to allow moisture emission from Increased Safety Type 'Ex e' enclosures. Each device has an M20, M25 or M32 entry thread. The body is machined such that a dust/moisture seal, manufactured from Hydrophilic Polyethylene or sintered bronze, can be pressed in place. Drainage channels through the body allow for the passage of moisture through the filter. The device may be screwed into the wall of an enclosure or into a through hole, being secured by a locknut.

The Ex db / Ex tb BD-U Breather/Drains are designed to allow moisture emission from either Flameproof Type 'Ex d' enclosures or Increased Safety Type 'Ex e' enclosures. Each device has either a M20, M25, 1/2" NPT or 3/4" NPT entry thread. The body is machined such that a dust/moisture seal, manufactured from sintered copper/bronze alloy which can be optionally nickel plated, can be pressed in place. The device is designed to be screwed into the wall of an enclosure.

The Ex eb / Ex tb CV Breather Drain Plugs each comprise a hollow brass body that is threaded at one end to enable it to be fitted to the bottom of the associated 'Ex e' enclosure. The body contains a press-fitted sintered disc that allows moisture to pass out of the enclosure via two drain holes. These holes exit into the hexagonal socket which shrouds the drain holes and also provides a means of tightening the device. The CV plugs are available with entry thread sizes between M16 and M32. Design Options: An alternative body profile with three drain holes, in sizes M25 and M32 only.

Alternative materials of manufacture:

Groups I and II – Brass, mild steel or stainless steel
Group II only - Glass filled nylon or Aluminum

Alternative thread forms in equivalent sizes:

Metric to ISO 965 parts 1 & 3
NPT/ NPS to ANSI/ ASME B1.20.1-1983
PG to DIN 40430:1971
BSPP to BS2279:1985
ET to BS 31:1979

Any other thread form conforming to Table 3 of EN 60079-1 and clauses C2.2 & C2.3.1 as applicable.

Surface coating:

Plating Options: Nickel, Zinc, Chromatise, Electroless Nickel, Anodised
Nickel maximum thickness 0.008 mm

12. Report Number

Intertek Report: G102174344D Issue 1 dated November 2016 and report Nr. 104039337LHD-001C Issue 1 dated September 2019.

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13. Special Conditions of Certification

(a). Special Conditions of Use

General:

1. BD-U, CV and DP-E breather/ drains are only suitable for bottom entry applications. In flameproof applications the BD-U type may be used in other orientations however further assessment of the suitability of neighbouring limiting service temperatures shall be considered. Consult manufacturer for further guidance.

2. DP-E and CV breather/ drains with three, 3mm drain holes shall only be used with increased safety enclosures that have a minimum wall thickness of 2mm; there is no restriction on the wall thickness for the breather/ drain with two, 5mm drain holes.

3. The products shall be selected for a temperature range at their points of mounting based upon the combination of interface seal and material of construction:

Construction material	Maximum Service Temperature
Metallic body	Dependent on filter and seal material
30% Glass Filled Nylon body (DP-E4)	-30°C to +90°C (unless limited by filter or O-ring material)
30% Glass Filled Nylon body (CV-M)	-20°C to +65°C
HDPE dust/ moisture seal	-50°C to +85°C
Metallic dust/ moisture seal	Dependent on body and interface material
Interface O-ring Material	Maximum Service Temperature
None fitted	-60°C to +200°C*
Nitrile	-30°C to +80°C
EPDM	-50°C to +100°C
Neoprene	-40°C to +80°C
Viton	-20°C to +180°C*
Silicone	-60°C to +180°C*
Fluorosilicone	-60°C to +130°C

Note: The limiting temperatures specified above are de-rated by 20K according to Clause 7.2.2 'Material Selection' of EN 60079-0:2012+A11:2013.

Note: The maximum temperature is limited to 150°C in Group I application (Coal dust, Mining). O-ring materials affect marked with "*" above.

Note: Unless fitted with an interface sealing O-ring with lower properties, temperatures shall then be limited as per the manufacturer's instructions.

4. The interface between the breather/ drain and the associated enclosure cannot be defined. Therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.

5. The clearance holes for metric male threaded products, suitable for clearance hole applications of increased safety enclosures.

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Type DP-E4:

1. The Ex e DP-E4 Breather Drain was tested as per the minimum level of required ingress protection when used in a bottom entry application, IP64.

Type BD-U:

1. These devices shall not be used with enclosures with a volume greater than 190ltrs.
2. For flameproof applications a temperature rise of 26.8K was measured on the surface of the element up to and including the reference pressure volume of 190 litres. For use in Acetylene atmospheres further testing is required to confirm this value. This value is to be taken into account when determining the Temperature Class of the equipment to which it is fitted.
3. The breather drains do not dissipate any energy other than the expulsion of heated gas in the event of an internal explosion (see above). For Ex e applications the temperature class will be dependent on the enclosure into which it is installed.
4. The reference pressure is limited to 4000kPa (40 Bar) maximum.

Type CV:

1. When used for increased safety (Ex e) applications, a suitable method of sealing to the associated enclosure shall be fitted.

(b). Conditions of Manufacture - Routine Tests

- NPT Breather Drains may be manufactured without holes in the thread.
- These products shall be marked in accordance with the information as specified in this certificate and related reports.
- The manufacturer shall provide with each device a declaration stating the following:
Confirmation of the material, maximum bubble test pre size and minimum density, Special mounting instructions.

14. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report: 104601581CHE-009 Dated: 04 June 2021.

15. Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
Exd FLAMEPROOF BREATHER DRAIN PLUGS	BD-U	1	09-03-2016
Exd BREATHER SINTER	99-D-12	1	07-10-2008
INCREASED SAFETY BREATHER DRAIN	DP-E	2	09-07-2019
BREATHER DRAIN PLUGS	CV	1	04-03-2016
Ex e GLASS FILLED NYLON BREATHER DRAIN PLUGS	CV-M	2	08-07-2018

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Intertek Testing & Certification Limited, Cleeve Road, Leatherhead, Surrey, KT22 7SA
Registered No 3272281 Registered Office: Academy Place, 1-9 Brook Street, Brentwood, Essex, CM14 5NQ.

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BREATHER SINTER	Ex e SINTERS	4	25-08-2016
Accessories marking specification DP-E, CV, BD-U	DF 2210080 A	A	25/05/2021
Ex accessories Regulatory Instruction	CAP184267	-	As stamped

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